APPENDIX H

MEC HA AND MRSPP SCORING TABLES

(INCLUDED ELECTRONICALLY ONLY)

This page intentionally left blank

MEC HA Summary Information

		Comments
Site ID:	Proposed 105mm Area	
Date:	8/12/2014	

Please identify the single specific area to be assessed in this hazard assessment. From this point forward, all references to "site" or "MRS" refer to the specific area that you have defined.

A. Enter a unique identifier for the site:

Proposed 105mm Area

Provide a list of information sources used for this hazard assessment. As you are completing the worksheets, use the "Select Ref(s)" buttons at the ends of each subsection to select the applicable information sources from the list below.

Ref. No.	Title (include version, publication date)
1	(EE/CA), Former Camp Croft Army Training Facility,
2	(EE/CA) Action Memorandum, Former Camp Croft Army
3	Removal Report (August 8, 1994 – January 19, 1995),
4	Removal Report (March 8, 1995 – March 30, 1995),
5	Removal Action, Former Camp Croft – Spartanburg, SC,
6	(EE/CA), Former Camp Croft Army Training Facility,
7	Report , Findings for the Former Camp Croft Army
8	Report Supplement, Findings for the Former Camp Croft
9	Action, Ordnance Operable Units OOU-3 A, B, and C;
10	Camp Croft Army Training Facility, Spartanburg County,
11	Addendum 01, Ordnance Operable Unit (OOU) 3, September
12	ZAPATA, 2011, Work Plans For the RI/FS

B. Briefly describe the site:

1. Area (include units): 980.7 Acres
2. Past munitions-related use:

Target Area

3. Current land-use activities (list all that occur):

Residential, Agricultural

4. Are changes to the future land-use planned? No
5. What is the basis for the site boundaries?

This area is within former Combat Range 15 and current MRS 3, which is a 12,102-acre Range Complex containing 12 WW II era ranges, including a mortar range, an anti-tank range, and several small arms ranges. Documented munitions used at this range include small arms. However, numerous other munitions have been discovered including 60mm and 81mm mortars and 105mm projectiles. Portions of this area have been cleared during previous removal actions. Along with previous MEC discoveries, high concentrations of MD were discovered during the RI.

6. How certain are the site boundaries?

This area is part of former Combat Range 15. Site boudaries are based off historical data and findings from an RI.

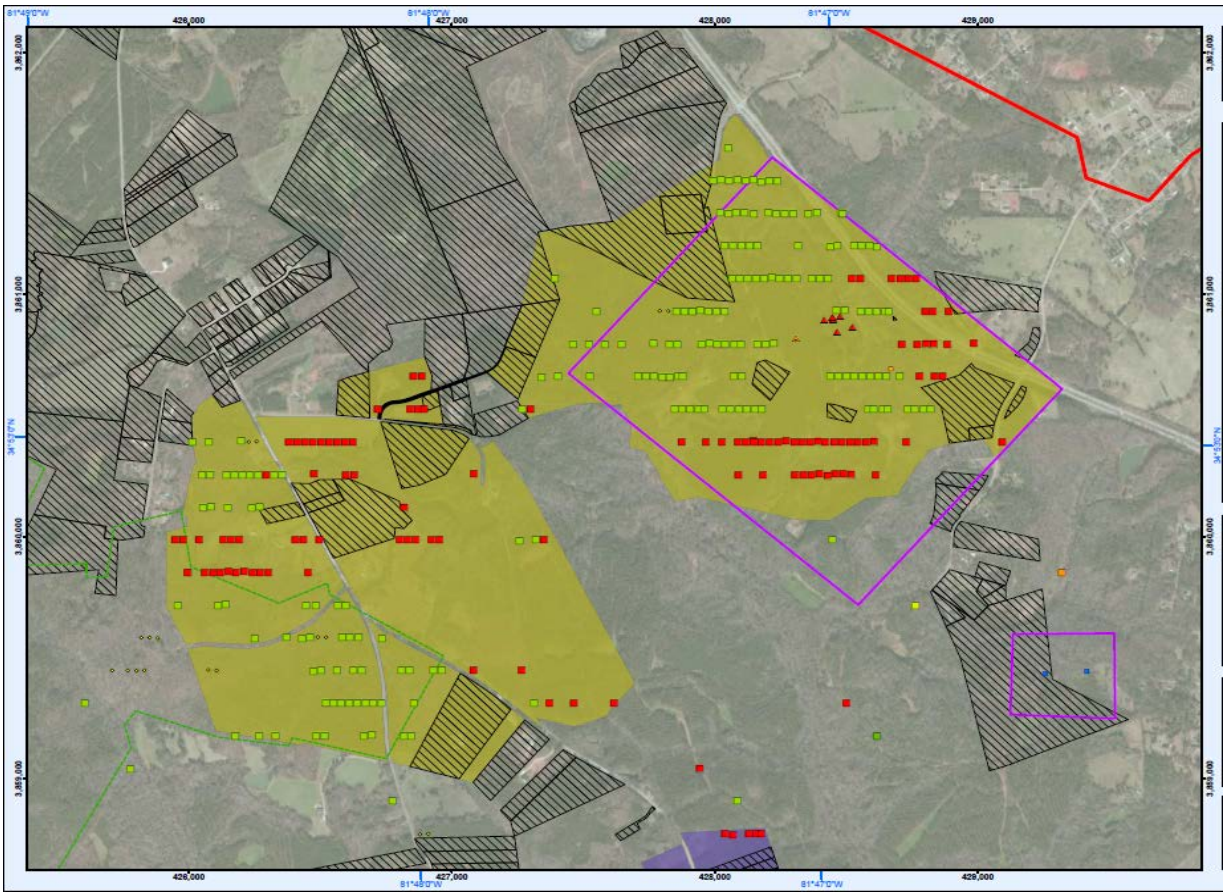
Reference(s) for Part B:

HFA, 1995a, Time Critical Removal Action, Final Removal Report (August 8, 1994 – January 19, 1995), Former Camp Croft, Red Hill, Camp Croft State Park, Spartanburg, SC, June 1995.
HFA, 1995b, Time Critical Removal Action, Final Removal Report (March 8, 1995 – March 30, 1995), Former Camp Croft, Red Hill, Spartanburg, SC, July 1995.
ZAPATA, 2002, Site Specific Final Report, OOU6, Former Camp Croft Army Training Facility, Spartanburg County, Spartanburg, SC, September 2002.
ZAPATA, 2011, Work Plans For the RI/FS

C. Historical Clearances

1. Have there been any historical clearances at the site? Yes, subsurface clearance
2. If a clearance occurred:
   a. What year was the clearance performed? 1995, 2001

b. Provide a description of the clearance activity (e.g., extent, depth, amount of munitions-related items removed, types and sizes of removed items, and whether metal detectors were used):	
Various removal actions have been conducted; traditional subsurface removal along some roadways and a 4-acre clearance on a hillslope using robotic heavy equipment.	
Reference(s) for Part C:	
ZAPATA, 2002, Site Specific Final Report, OOU6, Former Camp Croft Army Training Facility, Spartanburg County, Spartanburg, SC, September 2002. [redacted]	
D. Attach maps of the site below (select 'Insert/Picture' on the menu bar.)	See Exhibit 8-3.



Site ID: **Proposed 105mm Area**
Date: **8/12/2014**

Cased Munitions Information

Item No.	Munition Type (e.g., mortar, projectile, etc.)	Munition Size	Munition Size Units	Mark/ Model	Energetic Material Type	Is Munition Fuzed?	Fuzing Type	Fuze Condition	Minimum Depth for Munition (ft)	Location of Munitions	Comments (include rationale for munitions that are "subsurface only")
1	Mortars	81	mm	M43	High Explosive	UNK	UNK	UNK	0	Surface and Subsurface	
2	Mortars	60	mm	M49	High Explosive	UNK	UNK	UNK	0	Surface and Subsurface	
3	Artillery	105	mm	M84	Low Explosive Filler in a fragmenting round	UNK	UNK	UNK	0	Surface and Subsurface	HC Smoke Round; Black Powder
4	Grenades	2.26	inches	MKII	High Explosive	UNK	UNK	UNK	0	Surface and Subsurface	
5	Artillery	155	mm	M107	High Explosive	UNK	UNK	UNK	0	Surface and Subsurface	
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Reference(s) for table above:
ESE, 1996a, Final Engineering Evaluation/Cost Analysis (EE/CA), Former Camp Croft Army Training Facility, Spartanburg, SC, Volume I and II, January 1996.
ZAPATA, 2011, Work Plans For the RI/FS

[redacted]

Bulk Explosive Information

Item No.	Explosive Type	Comments
1	TNT	
2	TNT	
3	Black Powder	
4	TNT	
5	Comp B	
6		
7		
8		
9		
10		

Reference(s) for table above:

[redacted]

Site ID: **Proposed 105mm Area**
Date: **8/12/2014**

Activities Currently Occurring at the Site

Activity No.	Activity	Number of people per year who participate in the activity	Number of hours per year a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
1	Residential	200	4,380	**876,000**	3	Half of every day
2	Agricultural	20	200	**4,000**	1	Tree farming
3	Fishing	10	50	**500**	0	Two small private ponds
4						
5						
6						
7						
8						
9						
10						
11						
12						
	Total Potential Contact Time (receptor hrs/yr):			**880,500**		
	Maximum intrusive depth at site (ft):				**3**	

Reference(s) for table above:

[redacted]

Activities Planned for the Future at the Site (If any are planned: see 'Summary Info' Worksheet, Question 4)

Activity No.	Activity	Number of people per year who participate in the activity	Number of hours per year a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

Total Potential Contact Time (receptor hrs/yr):

Maximum intrusive depth at site (ft):

Reference(s) for table above:

[redacted]

Site ID: **Proposed 105mm Area**
Date: **8/12/2014**

Planned Remedial or Removal Actions

Response Action No.	Response Action Description	Expected Resulting Minimum MEC Depth (ft)	Expected Resulting Site Accessibility	Will land use activities change if this response action is implemented?	What is the expected scope of cleanup?	Comments
1	No Action (Baseline Condition)	0	Moderate Accessibility	No	No MEC cleanup	
2						
3						
4						
5						
6						

According to the 'Summary Info' worksheet, no future land uses are planned. For those alternatives where you answered 'No' in Column E, the land use activities will be assessed against current land uses.

Reference(s) for table above:

[redacted]

Site ID: **Proposed 105mm Area**
Date: **8/12/2014**

This worksheet needs to be completed for each remedial/removal action alternative listed in the 'Remedial-Removal Action' worksheet that will cause a change in land use.

Land Use Activities Planned After Response Alternative #1: No Action (Baseline Condition)

Activity No.	Activity	Number of people per year who participate in the activity	Number of hours a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

Total Potential Contact Time (receptor hrs/yr):
Maximum intrusive depth at site (ft):

Reference(s) for table above:

[redacted]

Site ID: **Proposed 105mm Area**
Date: **8/12/2014**

Energetic Material Type Input Factor Categories

The following table is used to determine scores associated with the energetic materials. Materials are listed in order from most hazardous to least hazardous.

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
High Explosive and Low Explosive Filler in Fragmenting Rounds	100	100	100
White Phosphorus	70	70	70
Pyrotechnic	60	60	60
Propellant	50	50	50
Spotting Charge	40	40	40
Incendiary	30	30	30

The most hazardous type of energetic material listed in the 'Munitions, Bulk Explosive Info' Worksheet falls under the category 'High Explosive and Low Explosive Filler in Fragmenting Rounds'.

	Score
Baseline Conditions:	**100**
Surface Cleanup:	**100**
Subsurface Cleanup:	**100**

Location of Additional Human Receptors Input Factor Categories

1. What is the Explosive Safety Quantity Distance (ESQD) from the Explosive Siting Plan or the Explosive Safety Submission for the MRS? 450 feet
2. Are there currently any features or facilities where people may congregate within the MRS, or within the ESQD arc? Yes
3. Please describe the facility or feature.

Residential, Agriculture

MEC Item(s) used to calculate the ESQD for current use activities

Item #5. Artillery (155mm, High Explosive)

The following table is used to determine scores associated with the location of additional human receptors (current use activities):

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Inside the MRS or inside the ESQD arc	30	30	30
Outside of the ESQD arc	0	0	0

4. Current use activities are 'Inside the MRS or inside the ESQD arc', based on Question 2.'

	Score
Baseline Conditions:	**30**
Surface Cleanup:	**30**
Subsurface Cleanup:	**30**

5. Are there future plans to locate or construct features or facilities where people may congregate within the MRS, or within the ESQD arc?
6. Please describe the facility or feature.

MEC Item(s) used to calculate the ESQD for future use activities

The following table is used to determine scores associated with the location of additional human receptors (future use activities):

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Inside the MRS or inside the ESQD arc	30	30	30
Outside of the ESQD arc	0	0	0

7. Please answer Question 5 above to determine the scores.

	Score
Baseline Conditions:	
Surface Cleanup:	
Subsurface Cleanup:	

Comments

Site Accessibility Input Factor Categories

The following table is used to determine scores associated with site accessibility:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Full Accessibility	No barriers to entry, including signage but no fencing	80	80	80
Moderate Accessibility	Some barriers to entry, such as barbed wire fencing or rough terrain	55	55	55
Limited Accessibility	Significant barriers to entry, such as unguarded chain link fence or requirements for special transportation to reach the site	15	15	15
Very Limited Accessibility	A site with guarded chain link fence or terrain that requires special equipment and skills (e.g., rock climbing) to access	5	5	5

Current Use Activities — ***Score***

Select the category that best describes the site accessibility under the current use scenario:

`Full Accessibility`

Baseline Conditions: **80**
Surface Cleanup: **80**
Subsurface Cleanup: **80**

Future Use Activities

Select the category that best describes the site accessibility under the future use scenario:

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Reference(s) for above information:

Response Alternative No. 1: No Action (Baseline Condition)

Based on the 'Planned Remedial or Removal Actions' Worksheet, this alternative will lead to 'Moderate Accessibility'.

Baseline Conditions: **55**
Surface Cleanup: **55**
Subsurface Cleanup: **55**

Response Alternative No. 2:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 3:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 4:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 5:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 6:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Potential Contact Hours Input Factor Categories

The following table is used to determine scores associated with the total potential contact time:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Many Hours	≥1,000,000 receptor-hrs/yr	120	90	30
Some Hours	100,000 to 999,999 receptor hrs/yr	70	50	20
Few Hours	10,000 to 99,999 receptor-hrs/yr	40	20	10
Very Few Hours	<10,000 receptor-hrs/yr	15	10	5

Current Use Activities :

Input factors are only determined for baseline conditions for current use activities. Based on the 'Current and Future Activities' Worksheet, the Total Potential Contact Time is: **880,500** receptor hrs/yr

Based on the table above, this corresponds to a input factor score for baseline conditions of: **70** Score

Future Use Activities :

Input factors are only determined for baseline conditions for future use activities. Based on the 'Current and Future Activities' Worksheet, the Total Potential Contact Time is: receptor hrs/yr

Based on the table above, this corresponds to a input factor score of: Score

Response Alternative No. 1: No Action (Baseline Condition)

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Total Potential Contact Time, based on the contact time listed for current use activities (see 'Current and Future Activities' Worksheet) **880,500**

Based on the table above, this corresponds to input factor scores of: ***Score***

Baseline Conditions: **70**
Surface Cleanup: **50**
Subsurface Cleanup: **20**

Response Alternative No. 2:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: ***Score***

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 3:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: ***Score***

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 4:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: ***Score***

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 5:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: **Score**

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 6:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: **Score**

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Amount of MEC Input Factor Categories

The following table is used to determine scores associated with the Amount of MEC:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Target Area	Areas at which munitions fire was directed	180	120	30
OB/OD Area	Sites where munitions were disposed of by open burn or open detonation methods. This category refers to the core activity area of an OB/OD area. See the "Safety Buffer Areas" category for safety fans and kick-outs.	180	110	30
Function Test Range	Areas where the serviceability of stored munitions or weapons systems are tested. Testing may include components, partial functioning or complete functioning of stockpile or developmental items.	165	90	25
Burial Pit	The location of a burial of large quantities of MEC items.	140	140	10
Maneuver Areas	Areas used for conducting military exercises in a simulated conflict area or war zone	115	15	5
Firing Points	The location from which a projectile, grenade, ground signal, rocket, guided missile, or other device is to be ignited, propelled, or released.	75	10	5
Safety Buffer Areas	Areas outside of target areas, test ranges, or OB/OD areas that were designed to act as a safety zone to contain munitions that do not hit targets or to contain kick-outs from OB/OD areas.	30	10	5
Storage	Any facility used for the storage of military munitions, such as earth-covered magazines, above-ground magazines, and open-air storage areas.	25	10	5
Explosive-Related Industrial Facility	Former munitions manufacturing or demilitarization sites and TNT production plants	20	10	5

Select the category that best describes the ***most hazardous*** amount of MEC: ***Score***

`Target Area`

Baseline Conditions: **180**
Surface Cleanup: **120**
Subsurface Cleanup: **30**

Minimum MEC Depth Relative to the Maximum Intrusive Depth Input Factor Categories

Current Use Activities

The shallowest minimum MEC depth, based on the 'Cased Munitions Information' Worksheet: **0** ft
The deepest intrusive depth: **3** ft

The table below is used to determine scores associated with the minimum MEC depth relative to the maximum intrusive depth:

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240	150	95
Baseline Condition: MEC located surface and subsurface, After Cleanup: Intrusive depth does not overlap with subsurface MEC.	240	50	25
Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.	150	N/A	95
Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth does not overlap with minimum MEC depth.	50	N/A	25

Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth will overlap after cleanup. MECs are located at both the surface and subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.' For 'Current Use Activities', only Baseline Conditions are considered.

240 ***Score***

Future Use Activities
Deepest intrusive depth: ft

Not enough information has been entered to determine the input factor category.

Score

Response Alternative No. 1: No Action (Baseline Condition)
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): **0** ft
Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.
Maximum Intrusive Depth, based on the maximum intrusive depth listed for current use activities (see 'Current and Future Activities' Worksheet) **3** ft
Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth overlaps. MECs are located at both the surface and subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.'

Score
Baseline Conditions: **240**
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 2:
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft
Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score
Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 3:
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft
Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score
Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 4:
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft
Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score
Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 5:
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft
Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score
Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 6:

Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Migration Potential Input Factor Categories

Is there any physical or historical evidence that indicates it is possible for natural physical forces in the area (e.g., frost heave, erosion) to expose subsurface MEC items, or move surface or subsurface MEC items? Yes

If "yes", describe the nature of natural forces. Indicate key areas of potential migration (e.g., overland water flow) on a map as appropriate (attach a map to the bottom of this sheet, or as a separate worksheet).

Erosion on some slopes may expose buried items.

The following table is used to determine scores associated with the migration potential:

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Possible	30	30	10
Unlikely	10	10	10

Based on the question above, migration potential is 'Possible.' *Score*

Baseline Conditions: **30**
Surface Cleanup: **30**
Subsurface Cleanup: **10**

Reference(s) for above information:

MEC Classification Input Factor Categories

Cased munitions information has been inputed into the 'Munitions, Bulk Explosive Info' Worksheet; therefore, bulk explosives do not comprise all MECs for this MRS.

The 'Amount of MEC' category is 'Target Area'. It cannot be automatically assumed that the MEC items from this category are DMM. Therefore, the conservative assumption is that the MEC items in this MRS are UXO.

Has a technical assessment shown that MEC in the OB/OD Area is DMM?
Are any of the munitions listed in the 'Munitions, Bulk Explosive Info' Worksheet: Yes

- Submunitions
- Rifle-propelled 40mm projectiles (often called 40mm grenades)
- Munitions with white phosphorus filler
- High explosive anti-tank (HEAT) rounds
- Hand grenades
- Fuzes
- Mortars

None of the items listed in the 'Munitions, Bulk Explosive Info' Worksheet were identified as 'fuzed'.

The following table is used to determine scores associated with MEC classification categories:

UXO Special Case	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
UXO Special Case	180	180	180
UXO	110	110	110
Fuzed DMM Special Case	105	105	105
Fuzed DMM	55	55	55
Unfuzed DMM	45	45	45
Bulk Explosives	45	45	45

Based on your answers above, the MEC classification is 'UXO Special Case'. *Score*

Baseline Conditions: **180**
Surface Cleanup: **180**
Subsurface Cleanup: **180**

MEC Size Input Factor Categories

The following table is used to determine scores associated with MEC Size:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Small	Any munitions (from the 'Munitions, Bulk Explosive Info' Worksheet) weigh less than 90 lbs; small enough for a receptor to be able to move and initiate a detonation	40	40	40
Large	All munitions weigh more than 90 lbs; too large to move without equipment	0	0	0

Based on the definitions above and the types of munitions at the site (see 'Munitions, Bulk Explosive Info' Worksheet), the MEC Size Input Factor is: Small

Score

Baseline Conditions: **40**
Surface Cleanup: **40**
Subsurface Cleanup: **40**

Scoring Summary

Site ID:	Proposed 105mm Area	a. Scoring Summary for Current Use Activities	
Date:	8/12/2014	Response Action Cleanup:	No Response Action
Input Factor		**Input Factor Category**	**Score**
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc	30
III. Site Accessibility		Full Accessibility	80
IV. Potential Contact Hours		100,000 to 999,999 receptor hrs/yr	70
V. Amount of MEC		Target Area	180
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240
VII. Migration Potential		Possible	30
VIII. MEC Classification		UXO Special Case	180
IX. MEC Size		Small	40
		Total Score	**950**
		Hazard Level Category	**1**

Site ID:	Proposed 105mm Area	b. Scoring Summary for Future Use Activities	
Date:	8/12/2014	Response Action Cleanup:	No Response Action
Input Factor		**Input Factor Category**	**Score**
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors			
III. Site Accessibility			
IV. Potential Contact Hours			
V. Amount of MEC		Target Area	180
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth			
VII. Migration Potential		Possible	30
VIII. MEC Classification		UXO Special Case	180
IX. MEC Size		Small	40
		Total Score	**530**
		Hazard Level Category	**3**

Site ID:	Proposed 105mm Area	c. Scoring Summary for Response Alternative 1: No Action (Baseline Condition)	
Date:	8/12/2014	Response Action Cleanup:	No MEC cleanup
Input Factor		**Input Factor Category**	**Score**
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc	30
III. Site Accessibility		Moderate Accessibility	55
IV. Potential Contact Hours		100,000 to 999,999 receptor hrs/yr	70
V. Amount of MEC		Target Area	180
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240
VII. Migration Potential		Possible	30
VIII. MEC Classification		UXO Special Case	180
IX. MEC Size		Small	40
		Total Score	**925**
		Hazard Level Category	**1**

MEC HA Hazard Level Determination		
Site ID: Proposed 105mm Area **Date:** 8/12/2014	**Hazard Level Category**	**Score**
a. Current Use Activities	1	950
b. Future Use Activities	3	530
c. Response Alternative 1: No Action (Baseline Condition)	1	925
d. Response Alternative 2:		
e. Response Alternative 3:		
f. Response Alternative 4:		
g. Response Alternative 5:		
h. Response Alternative 6:		

Characteristics of the MRS	
Is critical infrastructure located within the MRS or within the ESQD arc?	No
Are cultural resources located within the MRS or within the ESQD arc?	No
Are significant ecological resources located within the MRS or within the ESQD arc?	No

MEC HA Summary Information

		Comments
Site ID:	Proposed Maneuver Area	
Date:	8/12/2014	

Please identify the single specific area to be assessed in this hazard assessment. From this point forward, all references to "site" or "MRS" refer to the specific area that you have defined.

A. Enter a unique identifier for the site:

Proposed Maneuver Area

Provide a list of information sources used for this hazard assessment. As you are completing the worksheets, use the "Select Ref(s)" buttons at the ends of each subsection to select the applicable information sources from the list below.

Ref. No.	Title (include version, publication date)
1	(EE/CA), Former Camp Croft Army Training Facility,
2	(EE/CA) Action Memorandum, Former Camp Croft Army
3	Removal Report (August 8, 1994 – January 19, 1995),
4	Removal Report (March 8, 1995 – March 30, 1995),
5	Removal Action, Former Camp Croft – Spartanburg, SC,
6	(EE/CA), Former Camp Croft Army Training Facility,
7	Report , Findings for the Former Camp Croft Army
8	Report Supplement, Findings for the Former Camp Croft
9	Action, Ordnance Operable Units OOU-3 A, B, and C;
10	Camp Croft Army Training Facility, Spartanburg County,
11	Addendum 01, Ordnance Operable Unit (OOU) 3, September
12	ZAPATA, 2011, Work Plans For the RI/FS

B. Briefly describe the site:

		Comments
1. Area (include units):	1,252.6 Acres	Excludes small green area inside area.

2. Past munitions-related use:

Function Test Range

3. Current land-use activities (list all that occur):

Recreational

4. Are changes to the future land-use planned? No

5. What is the basis for the site boundaries?

The area is within former Ranges 7 through 11 and within the current MRS 3, which is a 12,102-acre Range Complex containing 12 WW II era ranges. Ranges 7 though 11 included a Rifle Range, Machine Gun Range, 60mm & 81mm Mortar Range, 1,000-inch Anti-Tank Range, and Moving Target Anti-Tank Range, respectively. Documented munitions used at the ranges include small arms, rifle grenades, 2.36-inch rockets, and mortars (60mm and 81mm). Along with those items, numerous other munitions have been discovered within this area including 37mm and 57mm. No clearances have been conducted in this area.

6. How certain are the site boundaries?

This area contained WWII era ranges 7-11. Proposed site boudaries are based off historical data and findings from an RI.

Reference(s) for Part B:

[redacted]

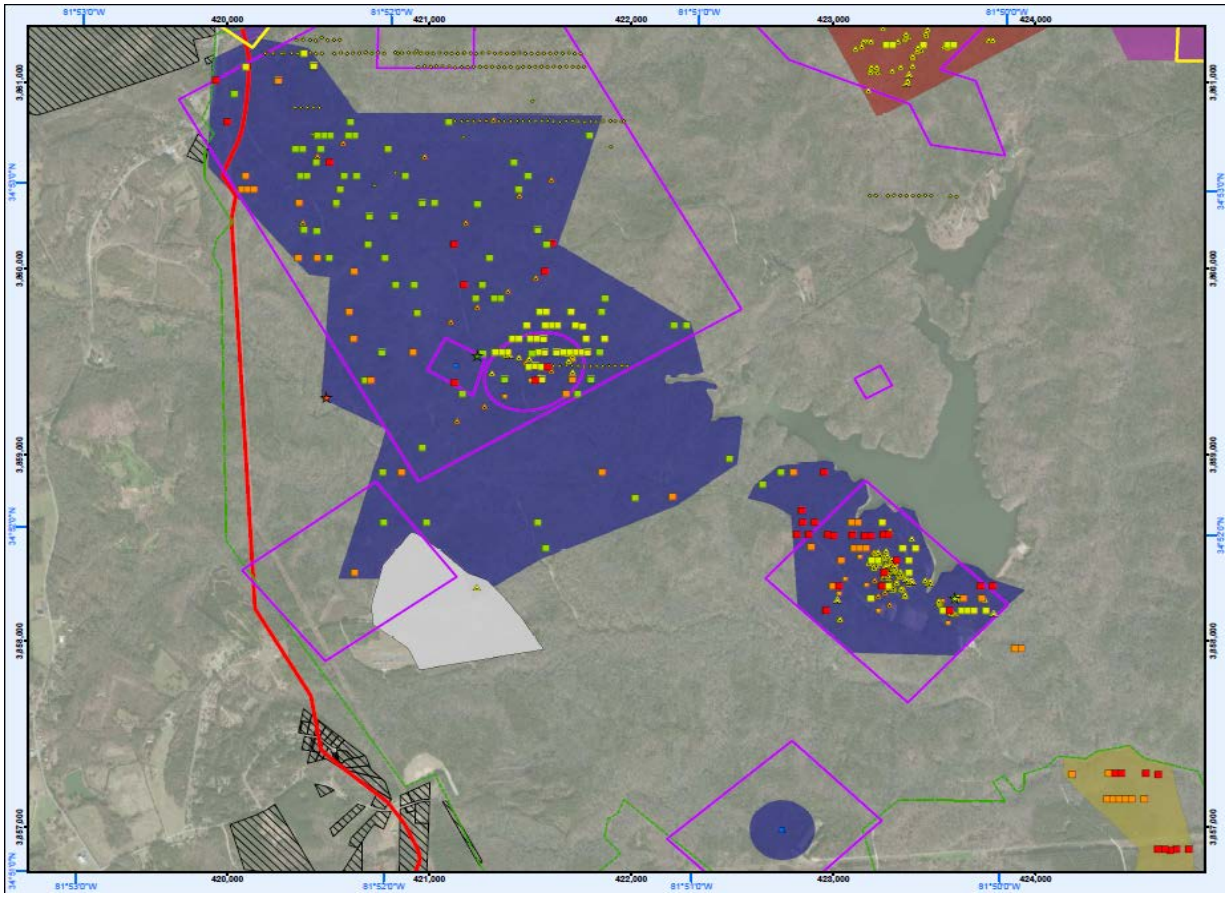
ESE, 1996a, Final Engineering Evaluation/Cost Analysis (EE/CA), Former Camp Croft Army Training Facility, Spartanburg, SC, Volume I and II, January 1996.
ESE, 1996b, Final Engineering Evaluation/Cost Analysis (EE/CA) Action Memorandum, Former Camp Croft Army Training Facility, Spartanburg, SC, February 1996.
QST, 1998a, Final Engineering Evaluation/Cost Analysis (EE/CA), Former Camp Croft Army Training Facility, Spartanburg, SC, January 1998.
USACE, Rock Island District, 1993, Archives Search Report , Findings for the Former Camp Croft Army Training Facility, Spartanburg, SC, September 1993
USACE, Rock Island District, 2004, Archives Search Report Supplement, Findings for the Former Camp Croft Army Training Facility, Spartanburg, SC, November 2004.
ZAPATA, 2011, Work Plans For the RI/FS

C. Historical Clearances

1. Have there been any historical clearances at the site?	Yes, subsurface clearance
2. If a clearance occurred:	
a. What year was the clearance performed?	1995
b. Provide a description of the clearance activity (e.g., extent, depth, amount of munitions-related items removed, types and sizes of removed items, and whether metal detectors were used):	
Limited clearances have been performed; locations were not well-documented and thus, are somewhat unclear.	

Reference(s) for Part C: [redacted]

D. Attach maps of the site below (select 'Insert/Picture' on the menu bar.) See Exhibit 8-4.



Site ID: **Proposed Maneuver Area**
Date: **8/12/2014**

Cased Munitions Information

Item No.	Munition Type (e.g., mortar, projectile, etc.)	Munition Size	Munition Size Units	Mark/ Model	Energetic Material Type	Is Munition Fuzed?	Fuzing Type	Fuze Condition	Minimum Depth for Munition (ft)	Location of Munitions	Comments (include rationale for munitions that are "subsurface only")
1	Mortars	81	mm	M43	High Explosive	UNK			0	Surface and Subsurface	
2	Mortars	60	mm	M49	High Explosive	UNK			0	Surface and Subsurface	
3		37	mm			UNK			0	Surface and Subsurface	UNK
4		57	mm			UNK			0	Surface and Subsurface	UNK
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Reference(s) for table above:

ZAPATA, 2011, Work Plans For the RI/FS

Bulk Explosive Information

Item No.	Explosive Type	Comments
1	TNT	
2	TNT	
3		UNK
4		UNK
5		
6		
7		
8		
9		
10		

Reference(s) for table above:

Site ID: **Proposed Maneuver Area**
Date: **8/12/2014**

Activities Currently Occurring at the Site

Activity No.	Activity	Number of people per year who participate in the activity	Number of hours per year a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
1	Hiking	20,000	20	**400,000**	0	
2	Mountain biking	6,000	20	**120,000**	0	
3	Horseback riding	3,000	20	**60,000**	0	
4	General Park Activities	40,000	20	**800,000**	1	
5						
6						
7						
8						
9						
10						
11						
12						
	Total Potential Contact Time (receptor hrs/yr):			**1,380,000**		
	Maximum intrusive depth at site (ft):				**1**	

Reference(s) for table above:

[redacted]

Activities Planned for the Future at the Site (If any are planned: see 'Summary Info' Worksheet, Question 4)

Activity No.	Activity	Number of people per year who participate in the activity	Number of hours per year a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

Total Potential Contact Time (receptor hrs/yr):

Maximum intrusive depth at site (ft):

Reference(s) for table above:

[redacted]

Site ID: **Proposed Maneuver Area**
Date: **8/12/2014**

Planned Remedial or Removal Actions

Response Action No.	Response Action Description	Expected Resulting Minimum MEC Depth (ft)	Expected Resulting Site Accessibility	Will land use activities change if this response action is implemented?	What is the expected scope of cleanup?	Comments
1	No Action (Baseline Condition)	0	Full Accessibility	No	No MEC cleanup	
2						
3						
4						
5						
6						

According to the 'Summary Info' worksheet, no future land uses are planned. For those alternatives where you answered 'No' in Column E, the land use activities will be assessed against current land uses.

Reference(s) for table above:

[redacted]

Site ID: **Proposed Maneuver Area**
Date: **8/12/2014**

This worksheet needs to be completed for each remedial/removal action alternative listed in the 'Remedial-Removal Action' worksheet that will cause a change in land use.

Land Use Activities Planned After Response Alternative #1: No Action (Baseline Condition)

Activity No.	Activity	Number of people per year who participate in the activity	Number of hours a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

Total Potential Contact Time (receptor hrs/yr):
Maximum intrusive depth at site (ft):

Reference(s) for table above:

[redacted]

Site ID: **Proposed Maneuver Area**
Date: **8/12/2014**

Energetic Material Type Input Factor Categories

The following table is used to determine scores associated with the energetic materials. Materials are listed in order from most hazardous to least hazardous.

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
High Explosive and Low Explosive Filler in Fragmenting Rounds	100	100	100
White Phosphorus	70	70	70
Pyrotechnic	60	60	60
Propellant	50	50	50
Spotting Charge	40	40	40
Incendiary	30	30	30

The most hazardous type of energetic material listed in the 'Munitions, Bulk Explosive Info' Worksheet falls under the category 'High Explosive and Low Explosive Filler in Fragmenting Rounds'.

	Score
Baseline Conditions:	**100**
Surface Cleanup:	**100**
Subsurface Cleanup:	**100**

Location of Additional Human Receptors Input Factor Categories

1. What is the Explosive Safety Quantity Distance (ESQD) from the Explosive Siting Plan or the Explosive Safety Submission for the MRS? 209 feet
2. Are there currently any features or facilities where people may congregate within the MRS, or within the ESQD arc? Yes
3. Please describe the facility or feature.

State Park

MEC Item(s) used to calculate the ESQD for current use activities

Item #1. Mortars (81mm, High Explosive)

The following table is used to determine scores associated with the location of additional human receptors (current use activities):

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Inside the MRS or inside the ESQD arc	30	30	30
Outside of the ESQD arc	0	0	0

4. Current use activities are 'Inside the MRS or inside the ESQD arc', based on Question 2.'

	Score
Baseline Conditions:	**30**
Surface Cleanup:	**30**
Subsurface Cleanup:	**30**

5. Are there future plans to locate or construct features or facilities where people may congregate within the MRS, or within the ESQD arc?
6. Please describe the facility or feature.

MEC Item(s) used to calculate the ESQD for future use activities

The following table is used to determine scores associated with the location of additional human receptors (future use activities):

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Inside the MRS or inside the ESQD arc	30	30	30
Outside of the ESQD arc	0	0	0

7. Please answer Question 5 above to determine the scores.

	Score
Baseline Conditions:	
Surface Cleanup:	
Subsurface Cleanup:	

Comments

Site Accessibility Input Factor Categories

The following table is used to determine scores associated with site accessibility:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Full Accessibility	No barriers to entry, including signage but no fencing	80	80	80
Moderate Accessibility	Some barriers to entry, such as barbed wire fencing or rough terrain	55	55	55
Limited Accessibility	Significant barriers to entry, such as unguarded chain link fence or requirements for special transportation to reach the site	15	15	15
Very Limited Accessibility	A site with guarded chain link fence or terrain that requires special equipment and skills (e.g., rock climbing) to access	5	5	5

Current Use Activities — ***Score***

Select the category that best describes the site accessibility under the current use scenario:

`Full Accessibility`

Baseline Conditions: **80**
Surface Cleanup: **80**
Subsurface Cleanup: **80**

Future Use Activities

Select the category that best describes the site accessibility under the future use scenario:

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Reference(s) for above information:

Response Alternative No. 1: No Action (Baseline Condition)

Based on the 'Planned Remedial or Removal Actions' Worksheet, this alternative will lead to 'Full Accessibility'.

Baseline Conditions: **80**
Surface Cleanup: **80**
Subsurface Cleanup: **80**

Response Alternative No. 2:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 3:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 4:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 5:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 6:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Potential Contact Hours Input Factor Categories

The following table is used to determine scores associated with the total potential contact time:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Many Hours	≥1,000,000 receptor-hrs/yr	120	90	30
Some Hours	100,000 to 999,999 receptor hrs/yr	70	50	20
Few Hours	10,000 to 99,999 receptor-hrs/yr	40	20	10
Very Few Hours	<10,000 receptor-hrs/yr	15	10	5

Current Use Activities :

Input factors are only determined for baseline conditions for current use activities. Based on the 'Current and Future Activities' Worksheet, the Total Potential Contact Time is: **1,380,000** receptor hrs/yr

Based on the table above, this corresponds to a input factor score for baseline conditions of: **120** Score

Future Use Activities :

Input factors are only determined for baseline conditions for future use activities. Based on the 'Current and Future Activities' Worksheet, the Total Potential Contact Time is: receptor hrs/yr

Based on the table above, this corresponds to a input factor score of: Score

Response Alternative No. 1: No Action (Baseline Condition)

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Total Potential Contact Time, based on the contact time listed for current use activities (see 'Current and Future Activities' Worksheet) **1,380,000**

Based on the table above, this corresponds to input factor scores of: ***Score***

Baseline Conditions: **120**
Surface Cleanup: **90**
Subsurface Cleanup: **30**

Response Alternative No. 2:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: ***Score***

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 3:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: ***Score***

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 4:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: ***Score***

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 5:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: **Score**

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 6:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: **Score**

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Amount of MEC Input Factor Categories

The following table is used to determine scores associated with the Amount of MEC:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Target Area	Areas at which munitions fire was directed	180	120	30
OB/OD Area	Sites where munitions were disposed of by open burn or open detonation methods. This category refers to the core activity area of an OB/OD area. See the "Safety Buffer Areas" category for safety fans and kick-outs.	180	110	30
Function Test Range	Areas where the serviceability of stored munitions or weapons systems are tested. Testing may include components, partial functioning or complete functioning of stockpile or developmental items.	165	90	25
Burial Pit	The location of a burial of large quantities of MEC items.	140	140	10
Maneuver Areas	Areas used for conducting military exercises in a simulated conflict area or war zone	115	15	5
Firing Points	The location from which a projectile, grenade, ground signal, rocket, guided missile, or other device is to be ignited, propelled, or released.	75	10	5
Safety Buffer Areas	Areas outside of target areas, test ranges, or OB/OD areas that were designed to act as a safety zone to contain munitions that do not hit targets or to contain kick-outs from OB/OD areas.	30	10	5
Storage	Any facility used for the storage of military munitions, such as earth-covered magazines, above-ground magazines, and open-air storage areas.	25	10	5
Explosive-Related Industrial Facility	Former munitions manufacturing or demilitarization sites and TNT production plants	20	10	5

Select the category that best describes the ***most hazardous*** amount of MEC: ***Score***

`Target Area`

Baseline Conditions: **180**
Surface Cleanup: **120**
Subsurface Cleanup: **30**

Minimum MEC Depth Relative to the Maximum Intrusive Depth Input Factor Categories

Current Use Activities

The shallowest minimum MEC depth, based on the 'Cased Munitions Information' Worksheet: **0** ft
The deepest intrusive depth: **1** ft

The table below is used to determine scores associated with the minimum MEC depth relative to the maximum intrusive depth:

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240	150	95
Baseline Condition: MEC located surface and subsurface, After Cleanup: Intrusive depth does not overlap with subsurface MEC.	240	50	25
Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.	150	N/A	95
Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth does not overlap with minimum MEC depth.	50	N/A	25

Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth will overlap after cleanup. MECs are located at both the surface and subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.' For 'Current Use Activities', only Baseline Conditions are considered.

240 ***Score***

Future Use Activities
Deepest intrusive depth: ft

Not enough information has been entered to determine the input factor category.

Score

Response Alternative No. 1: No Action (Baseline Condition)
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): **0** ft
Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.
Maximum Intrusive Depth, based on the maximum intrusive depth listed for current use activities (see 'Current and Future Activities' Worksheet) **1** ft
Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth overlaps. MECs are located at both the surface and subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.'

Score
Baseline Conditions: **240**
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 2:
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft
Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score
Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 3:
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft
Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score
Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 4:
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft
Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score
Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 5:
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft
Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score
Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 6:

Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Migration Potential Input Factor Categories

Is there any physical or historical evidence that indicates it is possible for natural physical forces in the area (e.g., frost heave, erosion) to expose subsurface MEC items, or move surface or subsurface MEC items? Yes

If "yes", describe the nature of natural forces. Indicate key areas of potential migration (e.g., overland water flow) on a map as appropriate (attach a map to the bottom of this sheet, or as a separate worksheet).

Erosion on some slopes may expose buried items.

The following table is used to determine scores associated with the migration potential:

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Possible	30	30	10
Unlikely	10	10	10

Based on the question above, migration potential is 'Possible.' *Score*

Baseline Conditions: **30**
Surface Cleanup: **30**
Subsurface Cleanup: **10**

Reference(s) for above information:

MEC Classification Input Factor Categories

Cased munitions information has been inputed into the 'Munitions, Bulk Explosive Info' Worksheet; therefore, bulk explosives do not comprise all MECs for this MRS.

The 'Amount of MEC' category is 'Target Area'. It cannot be automatically assumed that the MEC items from this category are DMM. Therefore, the conservative assumption is that the MEC items in this MRS are UXO.

Has a technical assessment shown that MEC in the OB/OD Area is DMM?
Are any of the munitions listed in the 'Munitions, Bulk Explosive Info' Worksheet: Yes

- Submunitions
- Rifle-propelled 40mm projectiles (often called 40mm grenades)
- Munitions with white phosphorus filler
- High explosive anti-tank (HEAT) rounds
- Hand grenades
- Fuzes
- Mortars

None of the items listed in the 'Munitions, Bulk Explosive Info' Worksheet were identified as 'fuzed'.

The following table is used to determine scores associated with MEC classification categories:

UXO Special Case	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
UXO Special Case	180	180	180
UXO	110	110	110
Fuzed DMM Special Case	105	105	105
Fuzed DMM	55	55	55
Unfuzed DMM	45	45	45
Bulk Explosives	45	45	45

Based on your answers above, the MEC classification is 'UXO Special Case'. *Score*

Baseline Conditions: **180**
Surface Cleanup: **180**
Subsurface Cleanup: **180**

MEC Size Input Factor Categories

The following table is used to determine scores associated with MEC Size:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Small	Any munitions (from the 'Munitions, Bulk Explosive Info' Worksheet) weigh less than 90 lbs; small enough for a receptor to be able to move and initiate a detonation	40	40	40
Large	All munitions weigh more than 90 lbs; too large to move without equipment	0	0	0

Based on the definitions above and the types of munitions at the site (see 'Munitions, Bulk Explosive Info' Worksheet), the MEC Size Input Factor is: Small

Score

Baseline Conditions: **40**
Surface Cleanup: **40**
Subsurface Cleanup: **40**

Scoring Summary

Site ID:	Proposed Maneuver Area	a. Scoring Summary for Current Use Activities	
Date:	8/12/2014	Response Action Cleanup:	No Response Action
Input Factor		**Input Factor Category**	**Score**
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc	30
III. Site Accessibility		Full Accessibility	80
IV. Potential Contact Hours		≥1,000,000 receptor-hrs/yr	120
V. Amount of MEC		Target Area	180
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240
VII. Migration Potential		Possible	30
VIII. MEC Classification		UXO Special Case	180
IX. MEC Size		Small	40
		Total Score	**1000**
		Hazard Level Category	**1**

Site ID:	Proposed Maneuver Area	b. Scoring Summary for Future Use Activities	
Date:	8/12/2014	Response Action Cleanup:	No Response Action
Input Factor		**Input Factor Category**	**Score**
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors			
III. Site Accessibility			
IV. Potential Contact Hours			
V. Amount of MEC		Target Area	180
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth			
VII. Migration Potential		Possible	30
VIII. MEC Classification		UXO Special Case	180
IX. MEC Size		Small	40
		Total Score	**530**
		Hazard Level Category	**3**

Site ID:	Proposed Maneuver Area	c. Scoring Summary for Response Alternative 1: No Action (Baseline Condition)	
Date:	8/12/2014	Response Action Cleanup:	No MEC cleanup
Input Factor		**Input Factor Category**	**Score**
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc	30
III. Site Accessibility		Full Accessibility	80
IV. Potential Contact Hours		≥1,000,000 receptor-hrs/yr	120
V. Amount of MEC		Target Area	180
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240
VII. Migration Potential		Possible	30
VIII. MEC Classification		UXO Special Case	180
IX. MEC Size		Small	40
		Total Score	**1000**
		Hazard Level Category	**1**

MEC HA Hazard Level Determination		
Site ID: Proposed Maneuver Area		
Date: 8/12/2014		
	Hazard Level Category	**Score**
a. Current Use Activities	1	1000
b. Future Use Activities	3	530
c. Response Alternative 1: No Action (Baseline Condition)	1	1000
d. Response Alternative 2:		
e. Response Alternative 3:		
f. Response Alternative 4:		
g. Response Alternative 5:		
h. Response Alternative 6:		

Characteristics of the MRS	
Is critical infrastructure located within the MRS or within the ESQD arc?	No
Are cultural resources located within the MRS or within the ESQD arc?	No
Are significant ecological resources located within the MRS or within the ESQD arc?	No

MEC HA Summary Information

		Comments
Site ID:	Proposed Mortar/Grenade Area	
Date:	7/16/2013	

Please identify the single specific area to be assessed in this hazard assessment. From this point forward, all references to "site" or "MRS" refer to the specific area that you have defined.

A. Enter a unique identifier for the site:

Proposed Mortar/Grenade Area

Provide a list of information sources used for this hazard assessment. As you are completing the worksheets, use the "Select Ref(s)" buttons at the ends of each subsection to select the applicable information sources from the list below.

Ref. No.	Title (include version, publication date)
1	(EE/CA), Former Camp Croft Army Training Facility,
2	(EE/CA) Action Memorandum, Former Camp Croft Army
3	Removal Report (August 8, 1994 – January 19, 1995),
4	Removal Report (March 8, 1995 – March 30, 1995),
5	Removal Action, Former Camp Croft – Spartanburg, SC,
6	(EE/CA), Former Camp Croft Army Training Facility,
7	Report , Findings for the Former Camp Croft Army
8	Report Supplement, Findings for the Former Camp Croft
9	Action, Ordnance Operable Units OOU-3 A, B, and C;
10	Camp Croft Army Training Facility, Spartanburg County,
11	Addendum 01, Ordnance Operable Unit (OOU) 3, September
12	ZAPATA, 2011, Work Plans For the RI/FS

B. Briefly describe the site:

1. Area (include units): 181.3 Acres
2. Past munitions-related use:

Function Test Range

3. Current land-use activities (list all that occur):

Recreational

4. Are changes to the future land-use planned? No
5. What is the basis for the site boundaries?

The area is within former Range 8, at the furthest extent of Ranges 7 and 9, and within the current MRS 3, which is a 12,102-acre Range Complex containing 12 WW II era ranges. Ranges 7 though 9 included a Rifle Range, Machine Gun Range, 60mm & 81mm Mortar Range, respectively. Documented munitions used at the ranges include small arms, rifle grenades, 2.36-inch rockets, and mortars (60mm and 81mm). A limited clearance has been conducted near the southern portion of this area.

6. How certain are the site boundaries?

This Range Complex contained WWII era ranges 1-11 and 15. Within this MRS there was a mortar range, anti-tank range, and several small arms ranges. Site boudaries are based off historical data and findings from an RI.

Reference(s) for Part B:

[redacted]

ESE, 1996a, Final Engineering Evaluation/Cost Analysis (EE/CA), Former Camp Croft Army Training Facility, Spartanburg, SC, Volume I and II, January 1996.
ESE, 1996b, Final Engineering Evaluation/Cost Analysis (EE/CA) Action Memorandum, Former Camp Croft Army Training Facility, Spartanburg, SC, February 1996.
HFA, 1997, Final Removal Action Report, Ordnance Removal Action, Former Camp Croft – Spartanburg, SC, August 1997.
ZAPATA, 2011, Work Plans For the RI/FS

C. Historical Clearances

1. Have there been any historical clearances at the site? Yes, surface clearance only a small portion.
2. If a clearance occurred:
   a. What year was the clearance performed? 1998

b. Provide a description of the clearance activity (e.g., extent, depth, amount of munitions-related items removed, types and sizes of removed items, and whether metal detectors were used):

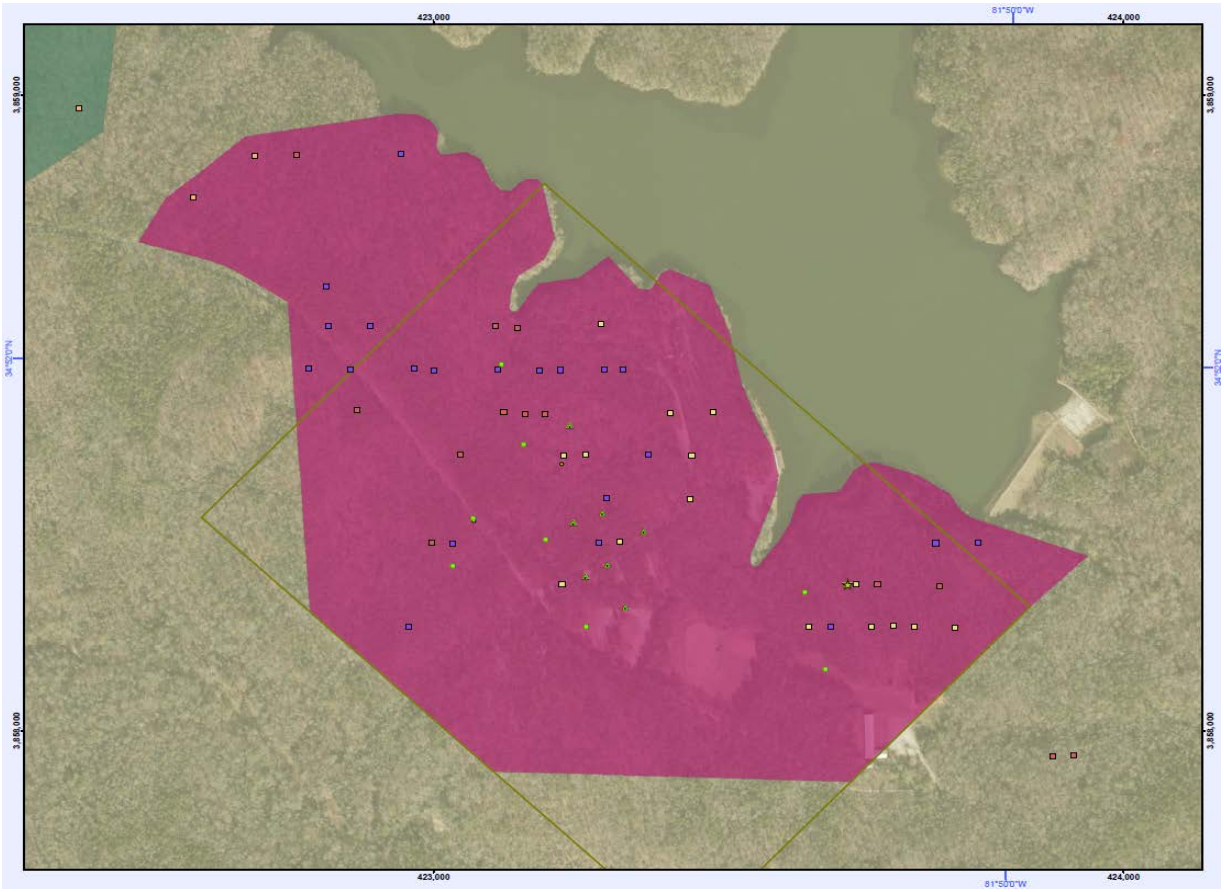
A Removal Action was conducted around the equestrian arena.

Reference(s) for Part C:

HFA, 1997, Final Removal Action Report, Ordnance Removal Action, Former Camp Croft – Spartanburg, SC, August 1997.

D. Attach maps of the site below (select 'Insert/Picture' on the menu bar.)

See Exhibit 8-6.



Site ID: **Proposed Mortar/Grenade Area**
Date: **7/16/2013**

Cased Munitions Information

Item No.	Munition Type (e.g., mortar, projectile, etc.)	Munition Size	Munition Size Units	Mark/ Model	Energetic Material Type	Is Munition Fuzed?	Fuzing Type	Fuze Condition	Minimum Depth for Munition (ft)	Location of Munitions	Comments (include rationale for munitions that are "subsurface only")
1	Mortars	81	mm	M43	High Explosive	UNK			0	Surface and Subsurface	
2	Mortars	60	mm	M49	High Explosive	UNK			0	Surface and Subsurface	
3	Rockets	2.36	inches	M6A3	Pyrotechnic	UNK			0	Surface and Subsurface	
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Reference(s) for table above:

[redacted]

ESE, 1996a, Final Engineering Evaluation/Cost Analysis (EE/CA), Former Camp Croft Army Training Facility, Spartanburg, SC, Volume I and II, January 1996.
ESE, 1996b, Final Engineering Evaluation/Cost Analysis (EE/CA) Action Memorandum, Former Camp Croft Army Training Facility, Spartanburg, SC, February 1996.
HFA, 1997, Final Removal Action Report, Ordnance Removal Action, Former Camp Croft – Spartanburg, SC, August 1997.
ZAPATA, 2011, Work Plans For the RI/FS

Bulk Explosive Information

Item No.	Explosive Type	Comments
1	TNT	
2	TNT	
3	Pentolite (50/50)	Whd
4	Ballistite	Mtr
5		
6		
7		
8		
9		
10		

Reference(s) for table above:

[redacted]

Site ID: **Proposed Mortar/Grenade Area**
Date: **7/16/2013**

Activities Currently Occurring at the Site

Activity No.	Activity	Number of people per year who participate in the activity	Number of hours per year a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
1	Hiking	20,000	20	**400,000**	0	
2	Mountain biking	6,000	20	**120,000**	0	
3	Fishing	4,000	20	**80,000**	0	
4	Horseback riding	3,000	20	**60,000**	0	
5	General Park Activities	40,000	20	**800,000**	0	
6						
7						
8						
9						
10						
11						
12						
	Total Potential Contact Time (receptor hrs/yr):			**1,460,000**		
	Maximum intrusive depth at site (ft):				**0**	

Reference(s) for table above:

[redacted]

Activities Planned for the Future at the Site (If any are planned: see 'Summary Info' Worksheet, Question 4)

Activity No.	Activity	Number of people per year who participate in the activity	Number of hours per year a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

Total Potential Contact Time (receptor hrs/yr):

Maximum intrusive depth at site (ft):

Reference(s) for table above:

Site ID: **Proposed Mortar/Grenade Area**
Date: **7/16/2013**

Planned Remedial or Removal Actions

Response Action No.	Response Action Description	Expected Resulting Minimum MEC Depth (ft)	Expected Resulting Site Accessibility	Will land use activities change if this response action is implemented?	What is the expected scope of cleanup?	Comments
1	No Action (Baseline Condition)	0	Full Accessibility	No	No MEC cleanup	
2						
3						
4						
5						
6						

According to the 'Summary Info' worksheet, no future land uses are planned. For those alternatives where you answered 'No' in Column E, the land use activities will be assessed against current land uses.

Reference(s) for table above:

[redacted]

Site ID: **Proposed Mortar/Grenade Area**
Date: **7/16/2013**

This worksheet needs to be completed for each remedial/removal action alternative listed in the 'Remedial-Removal Action' worksheet that will cause a change in land use.

Land Use Activities Planned After Response Alternative #1: No Action (Baseline Condition)

Activity No.	Activity	Number of people per year who participate in the activity	Number of hours a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

Total Potential Contact Time (receptor hrs/yr):

Maximum intrusive depth at site (ft):

Reference(s) for table above:

[redacted]

Site ID: **Proposed Mortar/Gre**
Date: **7/16/2013**

Energetic Material Type Input Factor Categories

The following table is used to determine scores associated with the energetic materials. Materials are listed in order from most hazardous to least hazardous.

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
High Explosive and Low Explosive Filler in Fragmenting Rounds	100	100	100
White Phosphorus	70	70	70
Pyrotechnic	60	60	60
Propellant	50	50	50
Spotting Charge	40	40	40
Incendiary	30	30	30

The most hazardous type of energetic material listed in the 'Munitions, Bulk Explosive Info' Worksheet falls under the category 'High Explosive and Low Explosive Filler in Fragmenting Rounds'.

	Score
Baseline Conditions:	**100**
Surface Cleanup:	**100**
Subsurface Cleanup:	**100**

Location of Additional Human Receptors Input Factor Categories

1. What is the Explosive Safety Quantity Distance (ESQD) from the Explosive Siting Plan or the Explosive Safety Submission for the MRS? 152 feet
2. Are there currently any features or facilities where people may congregate within the MRS, or within the ESQD arc? Yes
3. Please describe the facility or feature.

State Park

MEC Item(s) used to calculate the ESQD for current use activities

[redacted]

Item #2. Mortars (60mm, High Explosive)

The following table is used to determine scores associated with the location of additional human receptors (current use activities):

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Inside the MRS or inside the ESQD arc	30	30	30
Outside of the ESQD arc	0	0	0

4. Current use activities are 'Inside the MRS or inside the ESQD arc', based on Question 2.'

	Score
Baseline Conditions:	**30**
Surface Cleanup:	**30**
Subsurface Cleanup:	**30**

5. Are there future plans to locate or construct features or facilities where people may congregate within the MRS, or within the ESQD arc?
6. Please describe the facility or feature.

MEC Item(s) used to calculate the ESQD for future use activities

[redacted]

The following table is used to determine scores associated with the location of additional human receptors (future use activities):

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Inside the MRS or inside the ESQD arc	30	30	30
Outside of the ESQD arc	0	0	0

7. Please answer Question 5 above to determine the scores. *Score*

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Comments

Site Accessibility Input Factor Categories

The following table is used to determine scores associated with site accessibility:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Full Accessibility	No barriers to entry, including signage but no fencing	80	80	80
Moderate Accessibility	Some barriers to entry, such as barbed wire fencing or rough terrain	55	55	55
Limited Accessibility	Significant barriers to entry, such as unguarded chain link fence or requirements for special transportation to reach the site	15	15	15
Very Limited Accessibility	A site with guarded chain link fence or terrain that requires special equipment and skills (e.g., rock climbing) to access	5	5	5

Current Use Activities ***Score***

Select the category that best describes the site accessibility under the current use scenario:

`Full Accessibility`

Baseline Conditions: **80**
Surface Cleanup: **80**
Subsurface Cleanup: **80**

Future Use Activities

Select the category that best describes the site accessibility under the future use scenario:

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Reference(s) for above information:

Response Alternative No. 1: No Action (Baseline Condition)

Based on the 'Planned Remedial or Removal Actions' Worksheet, this alternative will lead to 'Full Accessibility'.

Baseline Conditions: **80**
Surface Cleanup: **80**
Subsurface Cleanup: **80**

Response Alternative No. 2:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 3:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 4:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 5:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 6:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Potential Contact Hours Input Factor Categories

The following table is used to determine scores associated with the total potential contact time:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Many Hours	≥1,000,000 receptor-hrs/yr	120	90	30
Some Hours	100,000 to 999,999 receptor hrs/yr	70	50	20
Few Hours	10,000 to 99,999 receptor-hrs/yr	40	20	10
Very Few Hours	<10,000 receptor-hrs/yr	15	10	5

Current Use Activities :

Input factors are only determined for baseline conditions for current use activities. Based on the 'Current and Future Activities' Worksheet, the Total Potential Contact Time is: **1,460,000** receptor hrs/yr

Based on the table above, this corresponds to a input factor score for baseline conditions of: **120** Score

Future Use Activities :

Input factors are only determined for baseline conditions for future use activities. Based on the 'Current and Future Activities' Worksheet, the Total Potential Contact Time is: receptor hrs/yr

Based on the table above, this corresponds to a input factor score of: Score

Response Alternative No. 1: No Action (Baseline Condition)

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Total Potential Contact Time, based on the contact time listed for current use activities (see 'Current and Future Activities' Worksheet) **1,460,000**

Based on the table above, this corresponds to input factor scores of: ***Score***

Baseline Conditions: **120**

Surface Cleanup: **90**

Subsurface Cleanup: **30**

Response Alternative No. 2:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: ***Score***

Baseline Conditions:

Surface Cleanup:

Subsurface Cleanup:

Response Alternative No. 3:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: ***Score***

Baseline Conditions:

Surface Cleanup:

Subsurface Cleanup:

Response Alternative No. 4:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: ***Score***

Baseline Conditions:

Surface Cleanup:

Subsurface Cleanup:

Response Alternative No. 5:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: **Score**

Baseline Conditions:

Surface Cleanup:

Subsurface Cleanup:

Response Alternative No. 6:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: **Score**

Baseline Conditions:

Surface Cleanup:

Subsurface Cleanup:

Amount of MEC Input Factor Categories

The following table is used to determine scores associated with the Amount of MEC:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Target Area	Areas at which munitions fire was directed	180	120	30
OB/OD Area	Sites where munitions were disposed of by open burn or open detonation methods. This category refers to the core activity area of an OB/OD area. See the "Safety Buffer Areas" category for safety fans and kick-outs.	180	110	30
Function Test Range	Areas where the serviceability of stored munitions or weapons systems are tested. Testing may include components, partial functioning or complete functioning of stockpile or developmental items.	165	90	25
Burial Pit	The location of a burial of large quantities of MEC items.	140	140	10
Maneuver Areas	Areas used for conducting military exercises in a simulated conflict area or war zone	115	15	5
Firing Points	The location from which a projectile, grenade, ground signal, rocket, guided missile, or other device is to be ignited, propelled, or released.	75	10	5
Safety Buffer Areas	Areas outside of target areas, test ranges, or OB/OD areas that were designed to act as a safety zone to contain munitions that do not hit targets or to contain kick-outs from OB/OD areas.	30	10	5
Storage	Any facility used for the storage of military munitions, such as earth-covered magazines, above-ground magazines, and open-air storage areas.	25	10	5
Explosive-Related Industrial Facility	Former munitions manufacturing or demilitarization sites and TNT production plants	20	10	5

Select the category that best describes the ***most hazardous*** amount of MEC: ***Score***

`Target Area`

Baseline Conditions: **180**
Surface Cleanup: **120**
Subsurface Cleanup: **30**

Minimum MEC Depth Relative to the Maximum Intrusive Depth Input Factor Categories

Current Use Activities

The shallowest minimum MEC depth, based on the 'Cased Munitions Information' Worksheet: **0** ft
The deepest intrusive depth: **0** ft

The table below is used to determine scores associated with the minimum MEC depth relative to the maximum intrusive depth:

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240	150	95
Baseline Condition: MEC located surface and subsurface, After Cleanup: Intrusive depth does not overlap with subsurface MEC.	240	50	25
Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.	150	N/A	95
Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth does not overlap with minimum MEC depth.	50	N/A	25

Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth will overlap after cleanup. MECs are located at both the surface and subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.' For 'Current Use Activities', only Baseline Conditions are considered.

240 ***Score***

Future Use Activities
Deepest intrusive depth: ft

Not enough information has been entered to determine the input factor category.

Score

Response Alternative No. 1: No Action (Baseline Condition)
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): **0** ft
Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.
Maximum Intrusive Depth, based on the maximum intrusive depth listed for current use activities (see 'Current and Future Activities' Worksheet) **0** ft
Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth overlaps. MECs are located at both the surface and subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.'

Score
Baseline Conditions: **240**
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 2:
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft
Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score
Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 3:
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft
Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score
Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 4:
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft
Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score
Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 5:
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft
Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score
Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 6:

Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Migration Potential Input Factor Categories

Is there any physical or historical evidence that indicates it is possible for natural physical forces in the area (e.g., frost heave, erosion) to expose subsurface MEC items, or move surface or subsurface MEC items? No

If "yes", describe the nature of natural forces. Indicate key areas of potential migration (e.g., overland water flow) on a map as appropriate (attach a map to the bottom of this sheet, or as a separate worksheet).

The following table is used to determine scores associated with the migration potential:

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Possible	30	30	10
Unlikely	10	10	10

Based on the question above, migration potential is 'Unlikely.' *Score*

Baseline Conditions: **10**
Surface Cleanup: **10**
Subsurface Cleanup: **10**

Reference(s) for above information:

MEC Classification Input Factor Categories

Cased munitions information has been inputed into the 'Munitions, Bulk Explosive Info' Worksheet; therefore, bulk explosives do not comprise all MECs for this MRS.

The 'Amount of MEC' category is 'Target Area'. It cannot be automatically assumed that the MEC items from this category are DMM. Therefore, the conservative assumption is that the MEC items in this MRS are UXO.

Has a technical assessment shown that MEC in the OB/OD Area is DMM?
Are any of the munitions listed in the 'Munitions, Bulk Explosive Info' Worksheet: Yes

- Submunitions
- Rifle-propelled 40mm projectiles (often called 40mm grenades)
- Munitions with white phosphorus filler
- High explosive anti-tank (HEAT) rounds
- Hand grenades
- Fuzes
- Mortars

None of the items listed in the 'Munitions, Bulk Explosive Info' Worksheet were identified as 'fuzed'.

The following table is used to determine scores associated with MEC classification categories:

UXO Special Case	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
UXO Special Case	180	180	180
UXO	110	110	110
Fuzed DMM Special Case	105	105	105
Fuzed DMM	55	55	55
Unfuzed DMM	45	45	45
Bulk Explosives	45	45	45

Based on your answers above, the MEC classification is 'UXO Special Case'. *Score*

Baseline Conditions: **180**
Surface Cleanup: **180**
Subsurface Cleanup: **180**

MEC Size Input Factor Categories

The following table is used to determine scores associated with MEC Size:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Small	Any munitions (from the 'Munitions, Bulk Explosive Info' Worksheet) weigh less than 90 lbs; small enough for a receptor to be able to move and initiate a detonation	40	40	40
Large	All munitions weigh more than 90 lbs; too large to move without equipment	0	0	0

Based on the definitions above and the types of munitions at the site (see 'Munitions, Bulk Explosive Info' Worksheet), the MEC Size Input Factor is: Small

Score

Baseline Conditions: **40**
Surface Cleanup: **40**
Subsurface Cleanup: **40**

Scoring Summary

Site ID:	Proposed Mortar/Grenade Area	a. Scoring Summary for Current Use Activities	
Date:	7/16/2013	Response Action Cleanup:	No Response Action
Input Factor		**Input Factor Category**	**Score**
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc	30
III. Site Accessibility		Full Accessibility	80
IV. Potential Contact Hours		≥1,000,000 receptor-hrs/yr	120
V. Amount of MEC		Target Area	180
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240
VII. Migration Potential		Unlikely	10
VIII. MEC Classification		UXO Special Case	180
IX. MEC Size		Small	40
		Total Score	**980**
		Hazard Level Category	**1**

Site ID:	Proposed Mortar/Grenade Area	b. Scoring Summary for Future Use Activities	
Date:	7/16/2013	Response Action Cleanup:	No Response Action
Input Factor		**Input Factor Category**	**Score**
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors			
III. Site Accessibility			
IV. Potential Contact Hours			
V. Amount of MEC		Target Area	180
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth			
VII. Migration Potential		Unlikely	10
VIII. MEC Classification		UXO Special Case	180
IX. MEC Size		Small	40
		Total Score	**510**
		Hazard Level Category	**4**

Site ID:	Proposed Mortar/Grenade Area	c. Scoring Summary for Response Alternative 1: No Action (Baseline Condition)	
Date:	7/16/2013	Response Action Cleanup:	No MEC cleanup
Input Factor		**Input Factor Category**	**Score**
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc	30
III. Site Accessibility		Full Accessibility	80
IV. Potential Contact Hours		≥1,000,000 receptor-hrs/yr	120
V. Amount of MEC		Target Area	180
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240
VII. Migration Potential		Unlikely	10
VIII. MEC Classification		UXO Special Case	180
IX. MEC Size		Small	40
		Total Score	**980**
		Hazard Level Category	**1**

MEC HA Hazard Level Determination		
Site ID: Area **Date:** 7/16/2013	**Hazard Level Category**	**Score**
a. Current Use Activities	1	980
b. Future Use Activities	4	510
c. Response Alternative 1: No Action (Baseline Condition)	1	980
d. Response Alternative 2:		
e. Response Alternative 3:		
f. Response Alternative 4:		
g. Response Alternative 5:		
h. Response Alternative 6:		

Characteristics of the MRS	
Is critical infrastructure located within the MRS or within the ESQD arc?	No
Are cultural resources located within the MRS or within the ESQD arc?	No
Are significant ecological resources located within the MRS or within the ESQD arc?	No

MEC HA Summary Information

		Comments
Site ID:	Proposed 60mm Mortar Area	
Date:	7/16/2013	

Please identify the single specific area to be assessed in this hazard assessment. From this point forward, all references to "site" or "MRS" refer to the specific area that you have defined.

A. Enter a unique identifier for the site:

Proposed 60mm Mortar Area

Provide a list of information sources used for this hazard assessment. As you are completing the worksheets, use the "Select Ref(s)" buttons at the ends of each subsection to select the applicable information sources from the list below.

Ref. No.	Title (include version, publication date)
1	(EE/CA), Former Camp Croft Army Training Facility,
2	(EE/CA) Action Memorandum, Former Camp Croft Army
3	Removal Report (August 8, 1994 – January 19, 1995),
4	Removal Report (March 8, 1995 – March 30, 1995),
5	Removal Action, Former Camp Croft – Spartanburg, SC,
6	(EE/CA), Former Camp Croft Army Training Facility,
7	Report , Findings for the Former Camp Croft Army
8	Report Supplement, Findings for the Former Camp Croft
9	Action, Ordnance Operable Units OOU-3 A, B, and C;
10	Camp Croft Army Training Facility, Spartanburg County,
11	Addendum 01, Ordnance Operable Unit (OOU) 3, September
12	ZAPATA, 2011, Work Plans For the RI/FS

B. Briefly describe the site:

1. Area (include units): 182.3 Acres
2. Past munitions-related use:

Maneuver Areas

3. Current land-use activities (list all that occur):

Residential

4. Are changes to the future land-use planned? No
5. What is the basis for the site boundaries?

This area is at the southern extent of former Combat Range 15 and current MRS 3, which is a 12,102-acre Range Complex containing 12 WW II era ranges, including a mortar range, an anti-tank range, and several small arms ranges. Documented munitions used at this range include small arms. However, numerous other munitions have been discovered including a 60mm mortar. Portions of this area have been cleared during previous removal actions. Along with previous MEC discoveries, high concentrations of MD were discovered during the RI.

6. How certain are the site boundaries?

This area is part of former Combat Range 15. Site boudaries are based off historical data and findings from an RI.

Reference(s) for Part B:

[redacted]

ZAPATA, 2011, Work Plans For the RI/FS

C. Historical Clearances

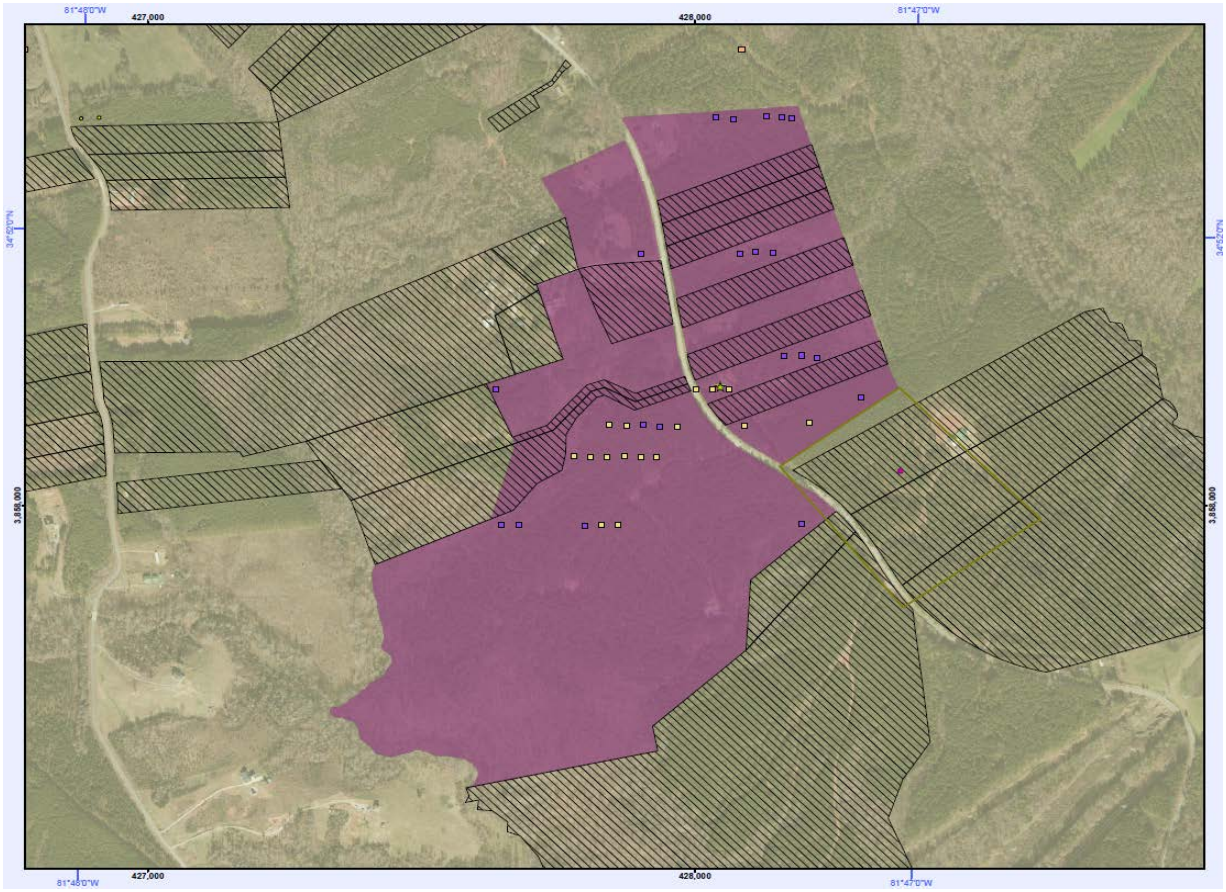
1. Have there been any historical clearances at the site? No, none
2. If a clearance occurred:
   a. What year was the clearance performed? 2013
   b. Provide a description of the clearance activity (e.g., extent, depth, amount of munitions-related items removed, types and sizes of removed items, and whether metal detectors were used):

A TCRA was performed in 2013, subsequent to the RI investigation.

Reference(s) for Part C:

[redacted]

D. Attach maps of the site below (select 'Insert/Picture' on the menu bar.) See Exhibit 8-7.


81°48'0"W
427,000
426,000
81°47'0"W
34°52'0"N
3,858,000
427,000
426,000

Site ID: **Proposed 60mm Mortar Area**
Date: **7/16/2013**

Cased Munitions Information

Item No.	Munition Type (e.g., mortar, projectile, etc.)	Munition Size	Munition Size Units	Mark/ Model	Energetic Material Type	Is Munition Fuzed?	Fuzing Type	Fuze Condition	Minimum Depth for Munition (ft)	Location of Munitions	Comments (include rationale for munitions that are "subsurface only")
1	Mortars	60	mm	M83	Spotting Charge	No	UNK		0	Surface and Subsurface	
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Reference(s) for table above:

ZAPATA, 2011, Work Plans For the RI/FS

Bulk Explosive Information

Item No.	Explosive Type	Comments
1	Illuminating Compound	
2		
3		
4		
5		
6		
7		
8		
9		
10		

Reference(s) for table above:

Site ID: **Proposed 60mm Mortar Area**
Date: **7/16/2013**

Activities Currently Occurring at the Site

Activity No.	Activity	Number of people per year who participate in the activity	Number of hours per year a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
1	Residential	30	4,380	**131,400**	3	Half of each day
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
	Total Potential Contact Time (receptor hrs/yr):			**131,400**		
	Maximum intrusive depth at site (ft):				**3**	

Reference(s) for table above:

[redacted]

Activities Planned for the Future at the Site (If any are planned: see 'Summary Info' Worksheet, Question 4)

Activity No.	Activity	Number of people per year who participate in the activity	Number of hours per year a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

Total Potential Contact Time (receptor hrs/yr):

Maximum intrusive depth at site (ft):

Reference(s) for table above:

[redacted]

Site ID: **Proposed 60mm Mortar Area**
Date: **7/16/2013**

Planned Remedial or Removal Actions

Response Action No.	Response Action Description	Expected Resulting Minimum MEC Depth (ft)	Expected Resulting Site Accessibility	Will land use activities change if this response action is implemented?	What is the expected scope of cleanup?	Comments
1	No Action (Baseline Condition)	0	Moderate Accessibility	No	No MEC cleanup	
2						
3						
4						
5						
6						

According to the 'Summary Info' worksheet, no future land uses are planned. For those alternatives where you answered 'No' in Column E, the land use activities will be assessed against current land uses.

Reference(s) for table above:

[redacted]

Site ID: **Proposed 60mm Mortar Area**
Date: **7/16/2013**

This worksheet needs to be completed for each remedial/removal action alternative listed in the 'Remedial-Removal Action' worksheet that will cause a change in land use.

Land Use Activities Planned After Response Alternative #1: No Action (Baseline Condition)

Activity No.	Activity	Number of people per year who participate in the activity	Number of hours a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

Total Potential Contact Time (receptor hrs/yr):
Maximum intrusive depth at site (ft):

Reference(s) for table above:

[redacted]

Proposed 60mm
Site ID: **Mortar Area**
Date: **7/16/2013**

Energetic Material Type Input Factor Categories

The following table is used to determine scores associated with the energetic materials. Materials are listed in order from most hazardous to least hazardous.

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
High Explosive and Low Explosive Filler in Fragmenting Rounds	100	100	100
White Phosphorus	70	70	70
Pyrotechnic	60	60	60
Propellant	50	50	50
Spotting Charge	40	40	40
Incendiary	30	30	30

The most hazardous type of energetic material listed in the 'Munitions, Bulk Explosive Info' Worksheet falls under the category 'Spotting Charge'.

	Score
Baseline Conditions:	**40**
Surface Cleanup:	**40**
Subsurface Cleanup:	**40**

Location of Additional Human Receptors Input Factor Categories

1. What is the Explosive Safety Quantity Distance (ESQD) from the Explosive Siting Plan or the Explosive Safety Submission for the MRS? feet
2. Are there currently any features or facilities where people may congregate within the MRS, or within the ESQD arc? Yes
3. Please describe the facility or feature.

Residential

MEC Item(s) used to calculate the ESQD for current use activities

Item #1. Mortars (60mm, Spotting Charge)

The following table is used to determine scores associated with the location of additional human receptors (current use activities):

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Inside the MRS or inside the ESQD arc	30	30	30
Outside of the ESQD arc	0	0	0

4. Current use activities are 'Inside the MRS or inside the ESQD arc', based on Question 2.'

	Score
Baseline Conditions:	**30**
Surface Cleanup:	**30**
Subsurface Cleanup:	**30**

5. Are there future plans to locate or construct features or facilities where people may congregate within the MRS, or within the ESQD arc?
6. Please describe the facility or feature.

MEC Item(s) used to calculate the ESQD for future use activities

The following table is used to determine scores associated with the location of additional human receptors (future use activities):

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Inside the MRS or inside the ESQD arc	30	30	30
Outside of the ESQD arc	0	0	0

7. Please answer Question 5 above to determine the scores.

	Score
Baseline Conditions:	
Surface Cleanup:	
Subsurface Cleanup:	

Comments

Site Accessibility Input Factor Categories

The following table is used to determine scores associated with site accessibility:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Full Accessibility	No barriers to entry, including signage but no fencing	80	80	80
Moderate Accessibility	Some barriers to entry, such as barbed wire fencing or rough terrain	55	55	55
Limited Accessibility	Significant barriers to entry, such as unguarded chain link fence or requirements for special transportation to reach the site	15	15	15
Very Limited Accessibility	A site with guarded chain link fence or terrain that requires special equipment and skills (e.g., rock climbing) to access	5	5	5

Current Use Activities — ***Score***

Select the category that best describes the site accessibility under the current use scenario:

Moderate Accessibility

Baseline Conditions: **55**
Surface Cleanup: **55**
Subsurface Cleanup: **55**

Future Use Activities

Select the category that best describes the site accessibility under the future use scenario:

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Reference(s) for above information:

Response Alternative No. 1: No Action (Baseline Condition)

Based on the 'Planned Remedial or Removal Actions' Worksheet, this alternative will lead to 'Moderate Accessibility'.

Baseline Conditions: **55**
Surface Cleanup: **55**
Subsurface Cleanup: **55**

Response Alternative No. 2:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 3:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 4:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 5:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 6:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Potential Contact Hours Input Factor Categories

The following table is used to determine scores associated with the total potential contact time:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Many Hours	≥1,000,000 receptor-hrs/yr	120	90	30
Some Hours	100,000 to 999,999 receptor hrs/yr	70	50	20
Few Hours	10,000 to 99,999 receptor-hrs/yr	40	20	10
Very Few Hours	<10,000 receptor-hrs/yr	15	10	5

Current Use Activities :

Input factors are only determined for baseline conditions for current use activities. Based on the 'Current and Future Activities' Worksheet, the Total Potential Contact Time is: **131,400** receptor hrs/yr

Based on the table above, this corresponds to a input factor score for baseline conditions of: **70** Score

Future Use Activities :

Input factors are only determined for baseline conditions for future use activities. Based on the 'Current and Future Activities' Worksheet, the Total Potential Contact Time is: receptor hrs/yr

Based on the table above, this corresponds to a input factor score of: Score

Response Alternative No. 1: No Action (Baseline Condition)

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Total Potential Contact Time, based on the contact time listed for current use activities (see 'Current and Future Activities' Worksheet) **131,400**

Based on the table above, this corresponds to input factor scores of: ***Score***

Baseline Conditions: **70**

Surface Cleanup: **50**

Subsurface Cleanup: **20**

Response Alternative No. 2:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: ***Score***

Baseline Conditions:

Surface Cleanup:

Subsurface Cleanup:

Response Alternative No. 3:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: ***Score***

Baseline Conditions:

Surface Cleanup:

Subsurface Cleanup:

Response Alternative No. 4:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: ***Score***

Baseline Conditions:

Surface Cleanup:

Subsurface Cleanup:

Response Alternative No. 5:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: **Score**

Baseline Conditions:

Surface Cleanup:

Subsurface Cleanup:

Response Alternative No. 6:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: **Score**

Baseline Conditions:

Surface Cleanup:

Subsurface Cleanup:

Amount of MEC Input Factor Categories

The following table is used to determine scores associated with the Amount of MEC:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Target Area	Areas at which munitions fire was directed	180	120	30
OB/OD Area	Sites where munitions were disposed of by open burn or open detonation methods. This category refers to the core activity area of an OB/OD area. See the "Safety Buffer Areas" category for safety fans and kick-outs.	180	110	30
Function Test Range	Areas where the serviceability of stored munitions or weapons systems are tested. Testing may include components, partial functioning or complete functioning of stockpile or developmental items.	165	90	25
Burial Pit	The location of a burial of large quantities of MEC items.	140	140	10
Maneuver Areas	Areas used for conducting military exercises in a simulated conflict area or war zone	115	15	5
Firing Points	The location from which a projectile, grenade, ground signal, rocket, guided missile, or other device is to be ignited, propelled, or released.	75	10	5
Safety Buffer Areas	Areas outside of target areas, test ranges, or OB/OD areas that were designed to act as a safety zone to contain munitions that do not hit targets or to contain kick-outs from OB/OD areas.	30	10	5
Storage	Any facility used for the storage of military munitions, such as earth-covered magazines, above-ground magazines, and open-air storage areas.	25	10	5
Explosive-Related Industrial Facility	Former munitions manufacturing or demilitarization sites and TNT production plants	20	10	5

Select the category that best describes the ***most hazardous*** amount of MEC: ***Score***

Maneuver Areas

Baseline Conditions: **115**
Surface Cleanup: **15**
Subsurface Cleanup: **5**

Minimum MEC Depth Relative to the Maximum Intrusive Depth Input Factor Categories

Current Use Activities

The shallowest minimum MEC depth, based on the 'Cased Munitions Information' Worksheet: **0** ft
The deepest intrusive depth: **3** ft
The table below is used to determine scores associated with the minimum MEC depth relative to the maximum intrusive depth:

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240	150	95
Baseline Condition: MEC located surface and subsurface, After Cleanup: Intrusive depth does not overlap with subsurface MEC.	240	50	25
Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.	150	N/A	95
Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth does not overlap with minimum MEC depth.	50	N/A	25

Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth will overlap after cleanup. MECs are located at both the surface and subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.' For 'Current Use Activities', only Baseline Conditions are considered.

240 ***Score***

Future Use Activities
Deepest intrusive depth: ft

Not enough information has been entered to determine the input factor category.

Score

Response Alternative No. 1: No Action (Baseline Condition)
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): **0** ft
Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.
Maximum Intrusive Depth, based on the maximum intrusive depth listed for current use activities (see 'Current and Future Activities' Worksheet) **3** ft
Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth overlaps. MECs are located at both the surface and subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.'

Score
Baseline Conditions: **240**
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 2:
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft
Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score
Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 3:
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft
Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score
Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 4:
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft
Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score
Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 5:
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft
Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score
Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 6:

Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Migration Potential Input Factor Categories

Is there any physical or historical evidence that indicates it is possible for natural physical forces in the area (e.g., frost heave, erosion) to expose subsurface MEC items, or move surface or subsurface MEC items? No

If "yes", describe the nature of natural forces. Indicate key areas of potential migration (e.g., overland water flow) on a map as appropriate (attach a map to the bottom of this sheet, or as a separate worksheet).

The following table is used to determine scores associated with the migration potential:

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Possible	30	30	10
Unlikely	10	10	10

Based on the question above, migration potential is 'Unlikely.' *Score*

Baseline Conditions: **10**
Surface Cleanup: **10**
Subsurface Cleanup: **10**

Reference(s) for above information:

MEC Classification Input Factor Categories

Cased munitions information has been inputed into the 'Munitions, Bulk Explosive Info' Worksheet; therefore, bulk explosives do not comprise all MECs for this MRS.

The 'Amount of MEC' category is 'Maneuver Areas'. It is assumed that the MEC items in this MRS are DMM.

Has a technical assessment shown that MEC in the OB/OD Area is DMM?
Are any of the munitions listed in the 'Munitions, Bulk Explosive Info' Worksheet: Yes

- Submunitions
- Rifle-propelled 40mm projectiles (often called 40mm grenades)
- Munitions with white phosphorus filler
- High explosive anti-tank (HEAT) rounds
- Hand grenades
- Fuzes
- Mortars

None of the items listed in the 'Munitions, Bulk Explosive Info' Worksheet were identified as 'fuzed'.

The following table is used to determine scores associated with MEC classification categories:

Fuzed DMM Special Case	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
UXO Special Case	180	180	180
UXO	110	110	110
Fuzed DMM Special Case	105	105	105
Fuzed DMM	55	55	55
Unfuzed DMM	45	45	45
Bulk Explosives	45	45	45

Based on your answers above, the MEC classification is 'Fuzed DMM Special Case'. *Score*

Baseline Conditions: **105**
Surface Cleanup: **105**
Subsurface Cleanup: **105**

MEC Size Input Factor Categories

The following table is used to determine scores associated with MEC Size:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Small	Any munitions (from the 'Munitions, Bulk Explosive Info' Worksheet) weigh less than 90 lbs; small enough for a receptor to be able to move and initiate a detonation	40	40	40
Large	All munitions weigh more than 90 lbs; too large to move without equipment	0	0	0

Based on the definitions above and the types of munitions at the site (see 'Munitions, Bulk Explosive Info' Worksheet), the MEC Size Input Factor is: Small

Score

Baseline Conditions: **40**
Surface Cleanup: **40**
Subsurface Cleanup: **40**

Scoring Summary

Site ID:	Proposed 60mm Mortar Area	a. Scoring Summary for Current Use Activities	
Date:	7/16/2013	Response Action Cleanup:	No Response Action
Input Factor		**Input Factor Category**	**Score**
I. Energetic Material Type		Spotting Charge	40
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc	30
III. Site Accessibility		Moderate Accessibility	55
IV. Potential Contact Hours		100,000 to 999,999 receptor hrs/yr	70
V. Amount of MEC		Maneuver Areas	115
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240
VII. Migration Potential		Unlikely	10
VIII. MEC Classification		Fuzed DMM Special Case	105
IX. MEC Size		Small	40
		Total Score	**705**
		Hazard Level Category	**3**

Site ID:	Proposed 60mm Mortar Area	b. Scoring Summary for Future Use Activities	
Date:	7/16/2013	Response Action Cleanup:	No Response Action
Input Factor		**Input Factor Category**	**Score**
I. Energetic Material Type		Spotting Charge	40
II. Location of Additional Human Receptors			
III. Site Accessibility			
IV. Potential Contact Hours			
V. Amount of MEC		Maneuver Areas	115
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth			
VII. Migration Potential		Unlikely	10
VIII. MEC Classification		Fuzed DMM Special Case	105
IX. MEC Size		Small	40
		Total Score	**310**
		Hazard Level Category	**4**

Site ID:	Proposed 60mm Mortar Area	c. Scoring Summary for Response Alternative 1: No Action (Baseline Condition)	
Date:	7/16/2013	Response Action Cleanup:	No MEC cleanup
Input Factor		**Input Factor Category**	**Score**
I. Energetic Material Type		Spotting Charge	40
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc	30
III. Site Accessibility		Moderate Accessibility	55
IV. Potential Contact Hours		100,000 to 999,999 receptor hrs/yr	70
V. Amount of MEC		Maneuver Areas	115
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240
VII. Migration Potential		Unlikely	10
VIII. MEC Classification		Fuzed DMM Special Case	105
IX. MEC Size		Small	40
		Total Score	**705**
		Hazard Level Category	**3**

MEC HA Hazard Level Determination		
Site ID: Proposed 60mm Mortar Area **Date:** 7/16/2013	**Hazard Level Category**	**Score**
a. Current Use Activities	3	705
b. Future Use Activities	4	310
c. Response Alternative 1: No Action (Baseline Condition)	3	705
d. Response Alternative 2:		
e. Response Alternative 3:		
f. Response Alternative 4:		
g. Response Alternative 5:		
h. Response Alternative 6:		

Characteristics of the MRS	
Is critical infrastructure located within the MRS or within the ESQD arc?	No
Are cultural resources located within the MRS or within the ESQD arc?	No
Are significant ecological resources located within the MRS or within the ESQD arc?	No

MEC HA Summary Information

		Comments
Site ID:	Proposed 60/81mm Mortar Area	
Date:	7/16/2013	

Please identify the single specific area to be assessed in this hazard assessment. From this point forward, all references to "site" or "MRS" refer to the specific area that you have defined.

A. Enter a unique identifier for the site:

Proposed 60/81mm Mortar Area

Provide a list of information sources used for this hazard assessment. As you are completing the worksheets, use the "Select Ref(s)" buttons at the ends of each subsection to select the applicable information sources from the list below.

Ref. No.	Title (include version, publication date)
1	(EE/CA), Former Camp Croft Army Training Facility,
2	(EE/CA) Action Memorandum, Former Camp Croft Army
3	Removal Report (August 8, 1994 – January 19, 1995),
4	Removal Report (March 8, 1995 – March 30, 1995),
5	Removal Action, Former Camp Croft – Spartanburg, SC,
6	(EE/CA), Former Camp Croft Army Training Facility,
7	Report , Findings for the Former Camp Croft Army
8	Report Supplement, Findings for the Former Camp Croft
9	Action, Ordnance Operable Units OOU-3 A, B, and C;
10	Camp Croft Army Training Facility, Spartanburg County,
11	Addendum 01, Ordnance Operable Unit (OOU) 3, September
12	ZAPATA, 2011, Work Plans For the RI/FS

B. Briefly describe the site:

1. Area (include units): 157.1 Acres
2. Past munitions-related use:

Function Test Range

3. Current land-use activities (list all that occur):

Recreational, Residential

4. Are changes to the future land-use planned? No
5. What is the basis for the site boundaries?

The area is at the furthest extent of Ranges 3 through 6, and within the current MRS 3, which is a 12,102-acre Range Complex containing 12 WW II era ranges. Ranges 3 though 6 included a Landscape Target Range, AA Miniature Range, Pistol Range, and 1,000-inch Machine Gun Range, respectively. Documented munitions used at the ranges include small arms, rifle grenades, 2.36-inch rockets, and mortars (60mm and 81mm). No clearance activities have been conducted in this area.

6. How certain are the site boundaries?

This area is contained within the southern extent of WWII era ranges 3-6. Proposed site boudaries are based off historical data and findings from an RI.

Reference(s) for Part B:

[redacted]

USACE, Rock Island District, 1993, Archives Search Report , Findings for the Former Camp Croft Army Training Facility, Spartanburg, SC, September 1993
USACE, Rock Island District, 2004, Archives Search Report Supplement, Findings for the Former Camp Croft Army Training Facility, Spartanburg, SC, November 2004.
ZAPATA, 2011, Work Plans For the RI/FS

C. Historical Clearances

1. Have there been any historical clearances at the site? No, none
2. If a clearance occurred:
   a. What year was the clearance performed? 2013
   b. Provide a description of the clearance activity (e.g., extent, depth, amount of munitions-related items removed, types and sizes of removed items, and whether metal detectors were used):

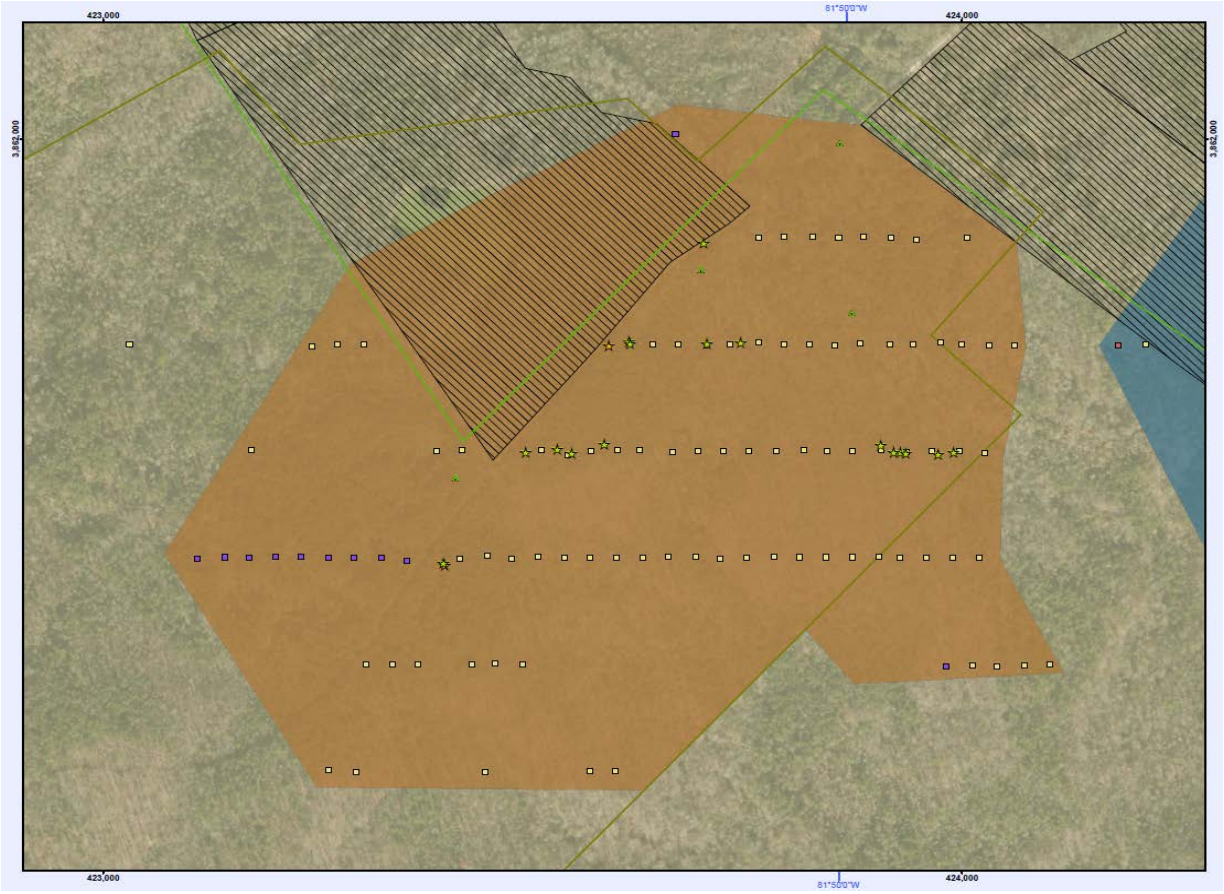
A TCRA was performed in 2013, subsequent to the RI investigation.

Reference(s) for Part C:

[redacted]

See Exhibit 8-9.

D. Attach maps of the site below (select 'Insert/Picture' on the menu bar.)



Site ID: **Proposed 60/81mm Mortar Area**
Date: **7/16/2013**

Cased Munitions Information

Item No.	Munition Type (e.g., mortar, projectile, etc.)	Munition Size	Munition Size Units	Mark/ Model	Energetic Material Type	Is Munition Fuzed?	Fuzing Type	Fuze Condition	Minimum Depth for Munition (ft)	Location of Munitions	Comments (include rationale for munitions that are "subsurface only")
1	Mortars	81	mm	M43	High Explosive	UNK			0	Surface and Subsurface	
2	Mortars	60	mm	M49	High Explosive	UNK			0	Surface and Subsurface	
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Reference(s) for table above:

[redacted]

ESE, 1996a, Final Engineering Evaluation/Cost Analysis (EE/CA), Former Camp Croft Army Training Facility, Spartanburg, SC, Volume I and II, January 1996.
ESE, 1996b, Final Engineering Evaluation/Cost Analysis (EE/CA) Action Memorandum, Former Camp Croft Army Training Facility, Spartanburg, SC, February 1996.
HFA, 1997, Final Removal Action Report, Ordnance Removal Action, Former Camp Croft – Spartanburg, SC, August 1997.
ZAPATA, 2011, Work Plans For the RI/FS

Bulk Explosive Information

Item No.	Explosive Type	Comments
1	TNT	
2	TNT	
3		
4		
5		
6		
7		
8		
9		
10		

Reference(s) for table above:

[redacted]

Site ID: **Proposed 60/81mm Mortar Area**
Date: **7/16/2013**

Activities Currently Occurring at the Site

Activity No.	Activity	Number of people per year who participate in the activity	Number of hours per year a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
1	Hiking	20,000	20	**400,000**	0	
2	Mountain biking	6,000	20	**120,000**	0	
3	Horseback riding	3,000	20	**60,000**	0	
4	Residential	10	4,380	**43,800**	3	
5	General Park Activities	40,000	20	**800,000**	0	
6						
7						
8						
9						
10						
11						
12						
	Total Potential Contact Time (receptor hrs/yr):			**1,423,800**		
	Maximum intrusive depth at site (ft):				**3**	

Reference(s) for table above:

[redacted]

Activities Planned for the Future at the Site (If any are planned: see 'Summary Info' Worksheet, Question 4)

Activity No.	Activity	Number of people per year who participate in the activity	Number of hours per year a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

Total Potential Contact Time (receptor hrs/yr):

Maximum intrusive depth at site (ft):

Reference(s) for table above:

[redacted]

Site ID: **Proposed 60/81mm Mortar Area**
Date: **7/16/2013**

Planned Remedial or Removal Actions

Response Action No.	Response Action Description	Expected Resulting Minimum MEC Depth (ft)	Expected Resulting Site Accessibility	Will land use activities change if this response action is implemented?	What is the expected scope of cleanup?	Comments
1	No Action (Baseline Condition)	0	Full Accessibility	No	No MEC cleanup	
2						
3						
4						
5						
6						

According to the 'Summary Info' worksheet, no future land uses are planned. For those alternatives where you answered 'No' in Column E, the land use activities will be assessed against current land uses.

Reference(s) for table above:

[redacted]

Site ID: **Proposed 60/81mm Mortar Area**
Date: **7/16/2013**

This worksheet needs to be completed for each remedial/removal action alternative listed in the 'Remedial-Removal Action' worksheet that will cause a change in land use.

Land Use Activities Planned After Response Alternative #1: No Action (Baseline Condition)

Activity No.	Activity	Number of people per year who participate in the activity	Number of hours a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

Total Potential Contact Time (receptor hrs/yr):
Maximum intrusive depth at site (ft):

Reference(s) for table above:

[redacted]

Proposed 60/81mm
Site ID: **Mortar Area**
Date: **7/16/2013**

Energetic Material Type Input Factor Categories

The following table is used to determine scores associated with the energetic materials. Materials are listed in order from most hazardous to least hazardous.

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
High Explosive and Low Explosive Filler in Fragmenting Rounds	100	100	100
White Phosphorus	70	70	70
Pyrotechnic	60	60	60
Propellant	50	50	50
Spotting Charge	40	40	40
Incendiary	30	30	30

The most hazardous type of energetic material listed in the 'Munitions, Bulk Explosive Info' Worksheet falls under the category 'High Explosive and Low Explosive Filler in Fragmenting Rounds'.

Score

Baseline Conditions: **100**
Surface Cleanup: **100**
Subsurface Cleanup: **100**

Location of Additional Human Receptors Input Factor Categories

1. What is the Explosive Safety Quantity Distance (ESQD) from the Explosive Siting Plan or the Explosive Safety Submission for the MRS? 152 feet
2. Are there currently any features or facilities where people may congregate within the MRS, or within the ESQD arc? Yes
3. Please describe the facility or feature.

State Park, Residential

MEC Item(s) used to calculate the ESQD for current use activities

Item #2. Mortars (60mm, High Explosive)

The following table is used to determine scores associated with the location of additional human receptors (current use activities):

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Inside the MRS or inside the ESQD arc	30	30	30
Outside of the ESQD arc	0	0	0

4. Current use activities are 'Inside the MRS or inside the ESQD arc', based on Question 2.'

Score

Baseline Conditions: **30**
Surface Cleanup: **30**
Subsurface Cleanup: **30**

5. Are there future plans to locate or construct features or facilities where people may congregate within the MRS, or within the ESQD arc?
6. Please describe the facility or feature.

MEC Item(s) used to calculate the ESQD for future use activities

The following table is used to determine scores associated with the location of additional human receptors (future use activities):

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Inside the MRS or inside the ESQD arc	30	30	30
Outside of the ESQD arc	0	0	0

7. Please answer Question 5 above to determine the scores.

Score

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Comments

Site Accessibility Input Factor Categories

The following table is used to determine scores associated with site accessibility:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Full Accessibility	No barriers to entry, including signage but no fencing	80	80	80
Moderate Accessibility	Some barriers to entry, such as barbed wire fencing or rough terrain	55	55	55
Limited Accessibility	Significant barriers to entry, such as unguarded chain link fence or requirements for special transportation to reach the site	15	15	15
Very Limited Accessibility	A site with guarded chain link fence or terrain that requires special equipment and skills (e.g., rock climbing) to access	5	5	5

Current Use Activities — ***Score***

Select the category that best describes the site accessibility under the current use scenario:

`Full Accessibility`

Baseline Conditions: **80**
Surface Cleanup: **80**
Subsurface Cleanup: **80**

Future Use Activities

Select the category that best describes the site accessibility under the future use scenario:

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Reference(s) for above information:

Response Alternative No. 1: No Action (Baseline Condition)

Based on the 'Planned Remedial or Removal Actions' Worksheet, this alternative will lead to 'Full Accessibility'.

Baseline Conditions: **80**
Surface Cleanup: **80**
Subsurface Cleanup: **80**

Response Alternative No. 2:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 3:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 4:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 5:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 6:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Potential Contact Hours Input Factor Categories

The following table is used to determine scores associated with the total potential contact time:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Many Hours	≥1,000,000 receptor-hrs/yr	120	90	30
Some Hours	100,000 to 999,999 receptor hrs/yr	70	50	20
Few Hours	10,000 to 99,999 receptor-hrs/yr	40	20	10
Very Few Hours	<10,000 receptor-hrs/yr	15	10	5

Current Use Activities :

Input factors are only determined for baseline conditions for current use activities. Based on the 'Current and Future Activities' Worksheet, the Total Potential Contact Time is: **1,423,800** receptor hrs/yr

Based on the table above, this corresponds to a input factor score for baseline conditions of: **120** Score

Future Use Activities :

Input factors are only determined for baseline conditions for future use activities. Based on the 'Current and Future Activities' Worksheet, the Total Potential Contact Time is: receptor hrs/yr

Based on the table above, this corresponds to a input factor score of: Score

Response Alternative No. 1: No Action (Baseline Condition)

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Total Potential Contact Time, based on the contact time listed for current use activities (see 'Current and Future Activities' Worksheet) **1,423,800**

Based on the table above, this corresponds to input factor scores of: ***Score***

Baseline Conditions: **120**

Surface Cleanup: **90**

Subsurface Cleanup: **30**

Response Alternative No. 2:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: ***Score***

Baseline Conditions:

Surface Cleanup:

Subsurface Cleanup:

Response Alternative No. 3:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: ***Score***

Baseline Conditions:

Surface Cleanup:

Subsurface Cleanup:

Response Alternative No. 4:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: ***Score***

Baseline Conditions:

Surface Cleanup:

Subsurface Cleanup:

Response Alternative No. 5:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: **Score**

Baseline Conditions:

Surface Cleanup:

Subsurface Cleanup:

Response Alternative No. 6:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: **Score**

Baseline Conditions:

Surface Cleanup:

Subsurface Cleanup:

Amount of MEC Input Factor Categories

The following table is used to determine scores associated with the Amount of MEC:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Target Area	Areas at which munitions fire was directed	180	120	30
OB/OD Area	Sites where munitions were disposed of by open burn or open detonation methods. This category refers to the core activity area of an OB/OD area. See the "Safety Buffer Areas" category for safety fans and kick-outs.	180	110	30
Function Test Range	Areas where the serviceability of stored munitions or weapons systems are tested. Testing may include components, partial functioning or complete functioning of stockpile or developmental items.	165	90	25
Burial Pit	The location of a burial of large quantities of MEC items.	140	140	10
Maneuver Areas	Areas used for conducting military exercises in a simulated conflict area or war zone	115	15	5
Firing Points	The location from which a projectile, grenade, ground signal, rocket, guided missile, or other device is to be ignited, propelled, or released.	75	10	5
Safety Buffer Areas	Areas outside of target areas, test ranges, or OB/OD areas that were designed to act as a safety zone to contain munitions that do not hit targets or to contain kick-outs from OB/OD areas.	30	10	5
Storage	Any facility used for the storage of military munitions, such as earth-covered magazines, above-ground magazines, and open-air storage areas.	25	10	5
Explosive-Related Industrial Facility	Former munitions manufacturing or demilitarization sites and TNT production plants	20	10	5

Select the category that best describes the ***most hazardous*** amount of MEC: ***Score***

`Function Test Range`

Baseline Conditions: **165**
Surface Cleanup: **90**
Subsurface Cleanup: **25**

Minimum MEC Depth Relative to the Maximum Intrusive Depth Input Factor Categories

Current Use Activities

The shallowest minimum MEC depth, based on the 'Cased Munitions Information' Worksheet: **0** ft
The deepest intrusive depth: **3** ft

The table below is used to determine scores associated with the minimum MEC depth relative to the maximum intrusive depth:

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240	150	95
Baseline Condition: MEC located surface and subsurface, After Cleanup: Intrusive depth does not overlap with subsurface MEC.	240	50	25
Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.	150	N/A	95
Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth does not overlap with minimum MEC depth.	50	N/A	25

Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth will overlap after cleanup. MECs are located at both the surface and subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.' For 'Current Use Activities', only Baseline Conditions are considered.

240 ***Score***

Future Use Activities
Deepest intrusive depth: ft

Not enough information has been entered to determine the input factor category.

Score

Response Alternative No. 1: No Action (Baseline Condition)
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): **0** ft
Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.
Maximum Intrusive Depth, based on the maximum intrusive depth listed for current use activities (see 'Current and Future Activities' Worksheet) **3** ft
Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth overlaps. MECs are located at both the surface and subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.'

Score
Baseline Conditions: **240**
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 2:
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft
Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score
Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 3:
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft
Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score
Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 4:
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft
Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score
Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 5:
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft
Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score
Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 6:

Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Migration Potential Input Factor Categories

Is there any physical or historical evidence that indicates it is possible for natural physical forces in the area (e.g., frost heave, erosion) to expose subsurface MEC items, or move surface or subsurface MEC items? No

If "yes", describe the nature of natural forces. Indicate key areas of potential migration (e.g., overland water flow) on a map as appropriate (attach a map to the bottom of this sheet, or as a separate worksheet).

The following table is used to determine scores associated with the migration potential:

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Possible	30	30	10
Unlikely	10	10	10

Based on the question above, migration potential is 'Unlikely.' *Score*

Baseline Conditions: **10**
Surface Cleanup: **10**
Subsurface Cleanup: **10**

Reference(s) for above information:

MEC Classification Input Factor Categories

Cased munitions information has been inputed into the 'Munitions, Bulk Explosive Info' Worksheet; therefore, bulk explosives do not comprise all MECs for this MRS.

The 'Amount of MEC' category is 'Function Test Range'. It cannot be automatically assumed that the MEC items from this category are DMM. Therefore, the conservative assumption is that the MEC items in this MRS are UXO.

Has a technical assessment shown that MEC in the OB/OD Area is DMM?
Are any of the munitions listed in the 'Munitions, Bulk Explosive Info' Worksheet: Yes

- Submunitions
- Rifle-propelled 40mm projectiles (often called 40mm grenades)
- Munitions with white phosphorus filler
- High explosive anti-tank (HEAT) rounds
- Hand grenades
- Fuzes
- Mortars

None of the items listed in the 'Munitions, Bulk Explosive Info' Worksheet were identified as 'fuzed'.

The following table is used to determine scores associated with MEC classification categories:

UXO Special Case	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
UXO Special Case	180	180	180
UXO	110	110	110
Fuzed DMM Special Case	105	105	105
Fuzed DMM	55	55	55
Unfuzed DMM	45	45	45
Bulk Explosives	45	45	45

Based on your answers above, the MEC classification is 'UXO Special Case'. *Score*

Baseline Conditions: **180**
Surface Cleanup: **180**
Subsurface Cleanup: **180**

MEC Size Input Factor Categories

The following table is used to determine scores associated with MEC Size:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Small	Any munitions (from the 'Munitions, Bulk Explosive Info' Worksheet) weigh less than 90 lbs; small enough for a receptor to be able to move and initiate a detonation	40	40	40
Large	All munitions weigh more than 90 lbs; too large to move without equipment	0	0	0

Based on the definitions above and the types of munitions at the site (see 'Munitions, Bulk Explosive Info' Worksheet), the MEC Size Input Factor is: Small

Score

Baseline Conditions: **40**
Surface Cleanup: **40**
Subsurface Cleanup: **40**

Scoring Summary

Site ID:	Proposed 60/81mm Mortar Area	a. Scoring Summary for Current Use Activities	
Date:	7/16/2013	Response Action Cleanup:	No Response Action
Input Factor		**Input Factor Category**	**Score**
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc	30
III. Site Accessibility		Full Accessibility	80
IV. Potential Contact Hours		≥1,000,000 receptor-hrs/yr	120
V. Amount of MEC		Function Test Range	165
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240
VII. Migration Potential		Unlikely	10
VIII. MEC Classification		UXO Special Case	180
IX. MEC Size		Small	40
		Total Score	**965**
		Hazard Level Category	**1**

Site ID:	Proposed 60/81mm Mortar Area	b. Scoring Summary for Future Use Activities	
Date:	7/16/2013	Response Action Cleanup:	No Response Action
Input Factor		**Input Factor Category**	**Score**
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors			
III. Site Accessibility			
IV. Potential Contact Hours			
V. Amount of MEC		Function Test Range	165
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth			
VII. Migration Potential		Unlikely	10
VIII. MEC Classification		UXO Special Case	180
IX. MEC Size		Small	40
		Total Score	**495**
		Hazard Level Category	**4**

Site ID:	Proposed 60/81mm Mortar Area	c. Scoring Summary for Response Alternative 1: No Action (Baseline Condition)	
Date:	7/16/2013	Response Action Cleanup:	No MEC cleanup
Input Factor		**Input Factor Category**	**Score**
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc	30
III. Site Accessibility		Full Accessibility	80
IV. Potential Contact Hours		≥1,000,000 receptor-hrs/yr	120
V. Amount of MEC		Function Test Range	165
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240
VII. Migration Potential		Unlikely	10
VIII. MEC Classification		UXO Special Case	180
IX. MEC Size		Small	40
		Total Score	**965**
		Hazard Level Category	**1**

MEC HA Hazard Level Determination		
Site ID: Area		
Date: 7/16/2013		
	Hazard Level Category	**Score**
a. Current Use Activities	1	965
b. Future Use Activities	4	495
c. Response Alternative 1: No Action (Baseline Condition)	1	965
d. Response Alternative 2:		
e. Response Alternative 3:		
f. Response Alternative 4:		
g. Response Alternative 5:		
h. Response Alternative 6:		

Characteristics of the MRS	
Is critical infrastructure located within the MRS or within the ESQD arc?	No
Are cultural resources located within the MRS or within the ESQD arc?	No
Are significant ecological resources located within the MRS or within the ESQD arc?	No

MEC HA Summary Information

		Comments
Site ID:	Proposed Rocket and Rifle Grenade Area	
Date:	7/16/2013	

Please identify the single specific area to be assessed in this hazard assessment. From this point forward, all references to "site" or "MRS" refer to the specific area that you have defined.

A. Enter a unique identifier for the site:

Proposed Rocket and Rifle Grenade Area

Provide a list of information sources used for this hazard assessment. As you are completing the worksheets, use the "Select Ref(s)" buttons at the ends of each subsection to select the applicable information sources from the list below.

Ref. No.	Title (include version, publication date)
1	(EE/CA), Former Camp Croft Army Training Facility,
2	(EE/CA) Action Memorandum, Former Camp Croft Army
3	Removal Report (August 8, 1994 – January 19, 1995),
4	Removal Report (March 8, 1995 – March 30, 1995),
5	Removal Action, Former Camp Croft – Spartanburg, SC,
6	(EE/CA), Former Camp Croft Army Training Facility,
7	Report , Findings for the Former Camp Croft Army
8	Report Supplement, Findings for the Former Camp Croft
9	Action, Ordnance Operable Units OOU-3 A, B, and C;
10	Camp Croft Army Training Facility, Spartanburg County,
11	Addendum 01, Ordnance Operable Unit (OOU) 3, September
12	ZAPATA, 2011, Work Plans For the RI/FS

B. Briefly describe the site:

1. Area (include units): 78.3 Acres
2. Past munitions-related use:

Target Area

3. Current land-use activities (list all that occur):

Residential, Industrial

4. Are changes to the future land-use planned? No
5. What is the basis for the site boundaries?

The area is at the furthest extent of Ranges 3 through 5, and within the current MRS 3, which is a 12,102-acre Range Complex containing 12 WW II era ranges. Ranges 3 though 5 included a Landscape Target Range, AA Miniature Range, and Pistol Range, respectively. Documented munitions used at the ranges include small arms, rifle grenades, 2.36-inch rockets, and mortars (60mm and 81mm). A TCRA was completed in 2013, following discoveries made during RI.

6. How certain are the site boundaries?

This area is contained within the southern extent of WWII era ranges 3-5. Proposed site boudaries are based off historical data and findings from an RI.

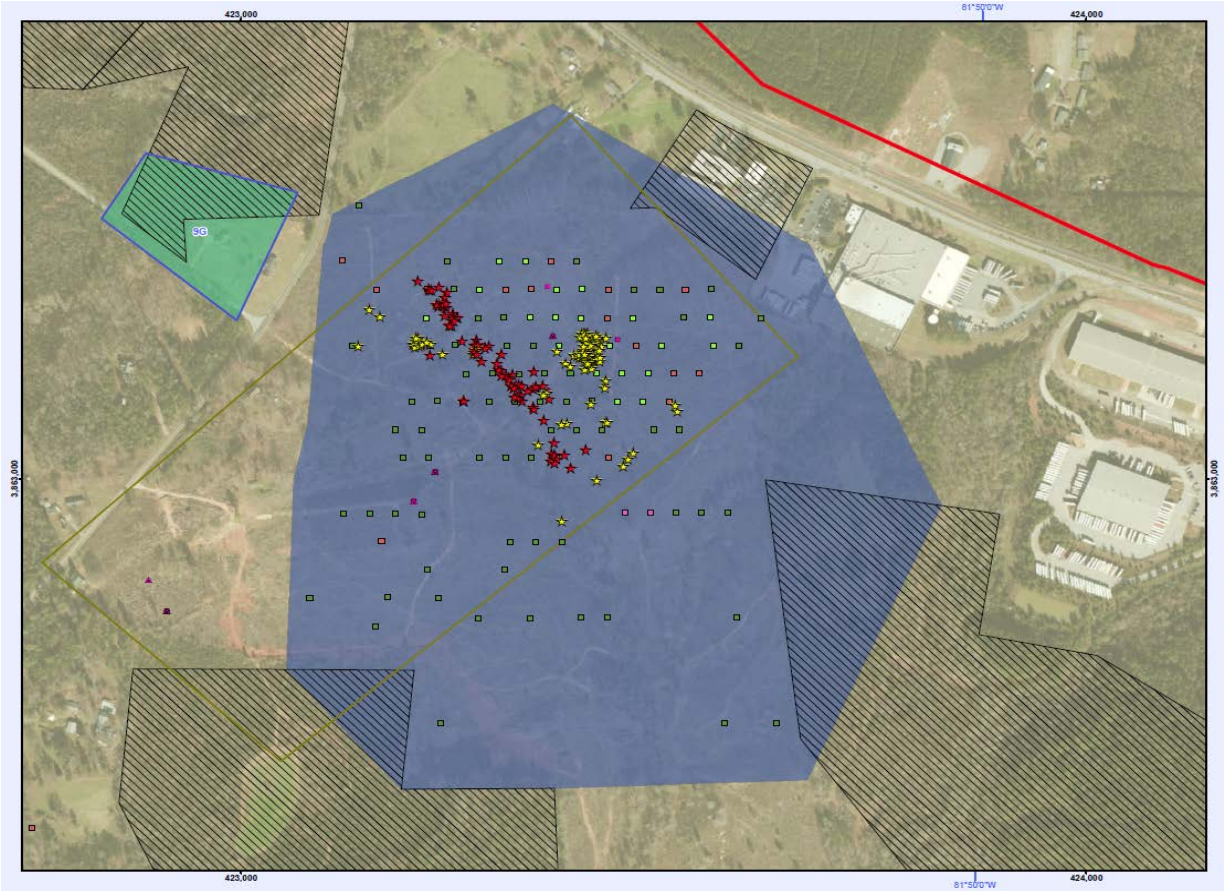
Reference(s) for Part B: [redacted]

QST, 1998a, Final Engineering Evaluation/Cost Analysis (EE/CA), Former Camp Croft Army Training Facility, Spartanburg, SC, January 1998.
USACE, Rock Island District, 1993, Archives Search Report , Findings for the Former Camp Croft Army Training Facility, Spartanburg, SC, September 1993
USACE, Rock Island District, 2004, Archives Search Report Supplement, Findings for the Former Camp Croft Army Training Facility, Spartanburg, SC, November 2004.
ZAPATA, 2011, Work Plans For the RI/FS

C. Historical Clearances

1. Have there been any historical clearances at the site? Yes, surface clearance
2. If a clearance occurred:
   a. What year was the clearance performed? 2013

b. Provide a description of the clearance activity (e.g., extent, depth, amount of munitions-related items removed, types and sizes of removed items, and whether metal detectors were used):	
A TCRA was performed in 2013, subsequent to the RI investigation.	
Reference(s) for Part C:	
[redacted]	
D. Attach maps of the site below (select 'Insert/Picture' on the menu bar.)	See Exhibit 8-10.



Site ID: **Proposed Rocket and Rifle Grenade Area**
Date: **7/16/2013**

Cased Munitions Information

Item No.	Munition Type (e.g., mortar, projectile, etc.)	Munition Size	Munition Size Units	Mark/ Model	Energetic Material Type	Is Munition Fuzed?	Fuzing Type	Fuze Condition	Minimum Depth for Munition (ft)	Location of Munitions	Comments (include rationale for munitions that are "subsurface only")
1	Mortars	81	mm	M43	High Explosive	UNK			0	Surface and Subsurface	
2	Mortars	60	mm	M49	High Explosive	UNK			0	Surface and Subsurface	
3	Rockets	2.36	inches	M6A3	Low Explosive Filler in a fragmenting round	UNK				Surface and Subsurface	
4	Grenades	2.25	inches	M9	Low Explosive Filler in a fragmenting round	UNK			0	Surface and Subsurface	
5	Grenades	2.26	inches	MK II	High Explosive	UNK			0	Subsurface Only	
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Reference(s) for table above:
QST, 1998a, Final Engineering Evaluation/Cost Analysis (EE/CA), Former Camp Croft Army Training Facility, Spartanburg, SC, January 1998.
ZAPATA, 2011, Work Plans For the RI/FS

[redacted]

Bulk Explosive Information

Item No.	Explosive Type	Comments
1	TNT	
2	TNT	
3	Pentolite	
4	Pentolite	
5	TNT	
6		
7		
8		
9		
10		

Reference(s) for table above:

[redacted]

Site ID: **Proposed Rocket and Rifle Grenade Area**
Date: **7/16/2013**

Activities Currently Occurring at the Site

Activity No.	Activity	Number of people per year who participate in the activity	Number of hours per year a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
1	Residential	10	4,380	**43,800**	3	
2	Industrial	50	2,080	**104,000**	0	
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
	Total Potential Contact Time (receptor hrs/yr):			**147,800**		
	Maximum intrusive depth at site (ft):				**3**	

Reference(s) for table above:

[redacted]

Activities Planned for the Future at the Site (If any are planned: see 'Summary Info' Worksheet, Question 4)

Activity No.	Activity	Number of people per year who participate in the activity	Number of hours per year a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

Total Potential Contact Time (receptor hrs/yr):

Maximum intrusive depth at site (ft):

Reference(s) for table above:

[redacted]

Site ID: **Proposed Rocket and Rifle Grenade Area**
Date: **7/16/2013**

Planned Remedial or Removal Actions

Response Action No.	Response Action Description	Expected Resulting Minimum MEC Depth (ft)	Expected Resulting Site Accessibility	Will land use activities change if this response action is implemented?	What is the expected scope of cleanup?	Comments
1	No Action (Baseline Condition)	0	Moderate Accessibility	No	No MEC cleanup	
2						
3						
4						
5						
6						

According to the 'Summary Info' worksheet, no future land uses are planned. For those alternatives where you answered 'No' in Column E, the land use activities will be assessed against current land uses.

Reference(s) for table above:

[redacted]

Site ID: **Proposed Rocket and Rifle Grenade Area**
Date: **7/16/2013**

This worksheet needs to be completed for each remedial/removal action alternative listed in the 'Remedial-Removal Action' worksheet that will cause a change in land use.

Land Use Activities Planned After Response Alternative #1: No Action (Baseline Condition)

Activity No.	Activity	Number of people per year who participate in the activity	Number of hours a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

Total Potential Contact Time (receptor hrs/yr):
Maximum intrusive depth at site (ft):

Reference(s) for table above:

[redacted]

Site ID: **Proposed Rocket and**
Date: **7/16/2013**

Energetic Material Type Input Factor Categories

The following table is used to determine scores associated with the energetic materials. Materials are listed in order from most hazardous to least hazardous.

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
High Explosive and Low Explosive Filler in Fragmenting Rounds	100	100	100
White Phosphorus	70	70	70
Pyrotechnic	60	60	60
Propellant	50	50	50
Spotting Charge	40	40	40
Incendiary	30	30	30

The most hazardous type of energetic material listed in the 'Munitions, Bulk Explosive Info' Worksheet falls under the category 'High Explosive and Low Explosive Filler in Fragmenting Rounds'.

Score

Baseline Conditions: **100**
Surface Cleanup: **100**
Subsurface Cleanup: **100**

Location of Additional Human Receptors Input Factor Categories

1. What is the Explosive Safety Quantity Distance (ESQD) from the Explosive Siting Plan or the Explosive Safety Submission for the MRS? 152 feet
2. Are there currently any features or facilities where people may congregate within the MRS, or within the ESQD arc? Yes
3. Please describe the facility or feature.

Residential, Industrial

MEC Item(s) used to calculate the ESQD for current use activities

Item #2. Mortars (60mm, High Explosive)

The following table is used to determine scores associated with the location of additional human receptors (current use activities):

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Inside the MRS or inside the ESQD arc	30	30	30
Outside of the ESQD arc	0	0	0

4. Current use activities are 'Inside the MRS or inside the ESQD arc', based on Question 2.'

Score

Baseline Conditions: **30**
Surface Cleanup: **30**
Subsurface Cleanup: **30**

5. Are there future plans to locate or construct features or facilities where people may congregate within the MRS, or within the ESQD arc?
6. Please describe the facility or feature.

MEC Item(s) used to calculate the ESQD for future use activities

The following table is used to determine scores associated with the location of additional human receptors (future use activities):

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Inside the MRS or inside the ESQD arc	30	30	30
Outside of the ESQD arc	0	0	0

7. Please answer Question 5 above to determine the scores.

Score

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Comments

Site Accessibility Input Factor Categories

The following table is used to determine scores associated with site accessibility:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Full Accessibility	No barriers to entry, including signage but no fencing	80	80	80
Moderate Accessibility	Some barriers to entry, such as barbed wire fencing or rough terrain	55	55	55
Limited Accessibility	Significant barriers to entry, such as unguarded chain link fence or requirements for special transportation to reach the site	15	15	15
Very Limited Accessibility	A site with guarded chain link fence or terrain that requires special equipment and skills (e.g., rock climbing) to access	5	5	5

Current Use Activities ***Score***

Select the category that best describes the site accessibility under the current use scenario:

Moderate Accessibility

Baseline Conditions: **55**
Surface Cleanup: **55**
Subsurface Cleanup: **55**

Future Use Activities

Select the category that best describes the site accessibility under the future use scenario:

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Reference(s) for above information:

Response Alternative No. 1: No Action (Baseline Condition)

Based on the 'Planned Remedial or Removal Actions' Worksheet, this alternative will lead to 'Moderate Accessibility'.

Baseline Conditions: **55**
Surface Cleanup: **55**
Subsurface Cleanup: **55**

Response Alternative No. 2:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 3:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 4:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 5:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 6:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Potential Contact Hours Input Factor Categories

The following table is used to determine scores associated with the total potential contact time:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Many Hours	≥1,000,000 receptor-hrs/yr	120	90	30
Some Hours	100,000 to 999,999 receptor hrs/yr	70	50	20
Few Hours	10,000 to 99,999 receptor-hrs/yr	40	20	10
Very Few Hours	<10,000 receptor-hrs/yr	15	10	5

Current Use Activities :

Input factors are only determined for baseline conditions for current use activities. Based on the 'Current and Future Activities' Worksheet, the Total Potential Contact Time is: **147,800** receptor hrs/yr

Based on the table above, this corresponds to a input factor score for baseline conditions of: **70** Score

Future Use Activities :

Input factors are only determined for baseline conditions for future use activities. Based on the 'Current and Future Activities' Worksheet, the Total Potential Contact Time is: receptor hrs/yr

Based on the table above, this corresponds to a input factor score of: Score

Response Alternative No. 1: No Action (Baseline Condition)

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Total Potential Contact Time, based on the contact time listed for current use activities (see 'Current and Future Activities' Worksheet) **147,800**

Based on the table above, this corresponds to input factor scores of: ***Score***

Baseline Conditions: **70**

Surface Cleanup: **50**

Subsurface Cleanup: **20**

Response Alternative No. 2:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: ***Score***

Baseline Conditions:

Surface Cleanup:

Subsurface Cleanup:

Response Alternative No. 3:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: ***Score***

Baseline Conditions:

Surface Cleanup:

Subsurface Cleanup:

Response Alternative No. 4:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: ***Score***

Baseline Conditions:

Surface Cleanup:

Subsurface Cleanup:

Response Alternative No. 5:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: **Score**

Baseline Conditions:

Surface Cleanup:

Subsurface Cleanup:

Response Alternative No. 6:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: **Score**

Baseline Conditions:

Surface Cleanup:

Subsurface Cleanup:

Amount of MEC Input Factor Categories

The following table is used to determine scores associated with the Amount of MEC:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Target Area	Areas at which munitions fire was directed	180	120	30
OB/OD Area	Sites where munitions were disposed of by open burn or open detonation methods. This category refers to the core activity area of an OB/OD area. See the "Safety Buffer Areas" category for safety fans and kick-outs.	180	110	30
Function Test Range	Areas where the serviceability of stored munitions or weapons systems are tested. Testing may include components, partial functioning or complete functioning of stockpile or developmental items.	165	90	25
Burial Pit	The location of a burial of large quantities of MEC items.	140	140	10
Maneuver Areas	Areas used for conducting military exercises in a simulated conflict area or war zone	115	15	5
Firing Points	The location from which a projectile, grenade, ground signal, rocket, guided missile, or other device is to be ignited, propelled, or released.	75	10	5
Safety Buffer Areas	Areas outside of target areas, test ranges, or OB/OD areas that were designed to act as a safety zone to contain munitions that do not hit targets or to contain kick-outs from OB/OD areas.	30	10	5
Storage	Any facility used for the storage of military munitions, such as earth-covered magazines, above-ground magazines, and open-air storage areas.	25	10	5
Explosive-Related Industrial Facility	Former munitions manufacturing or demilitarization sites and TNT production plants	20	10	5

Select the category that best describes the ***most hazardous*** amount of MEC: ***Score***

`Target Area`

Baseline Conditions: **180**
Surface Cleanup: **120**
Subsurface Cleanup: **30**

Minimum MEC Depth Relative to the Maximum Intrusive Depth Input Factor Categories

Current Use Activities

The shallowest minimum MEC depth, based on the 'Cased Munitions Information' Worksheet: **0** ft
The deepest intrusive depth: **3** ft

The table below is used to determine scores associated with the minimum MEC depth relative to the maximum intrusive depth:

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240	150	95
Baseline Condition: MEC located surface and subsurface, After Cleanup: Intrusive depth does not overlap with subsurface MEC.	240	50	25
Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.	150	N/A	95
Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth does not overlap with minimum MEC depth.	50	N/A	25

Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth will overlap after cleanup. MECs are located at both the surface and subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.' For 'Current Use Activities', only Baseline Conditions are considered.

240 ***Score***

Future Use Activities
Deepest intrusive depth: ft

Not enough information has been entered to determine the input factor category.

Score

Response Alternative No. 1: No Action (Baseline Condition)
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): **0** ft
Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.
Maximum Intrusive Depth, based on the maximum intrusive depth listed for current use activities (see 'Current and Future Activities' Worksheet) **3** ft
Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth overlaps. MECs are located at both the surface and subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.'

Score
Baseline Conditions: **240**
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 2:
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft
Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score
Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 3:
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft
Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score
Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 4:
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft
Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score
Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 5:
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft
Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score
Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 6:
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft
Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score
Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Migration Potential Input Factor Categories

Is there any physical or historical evidence that indicates it is possible for natural physical forces in the area (e.g., frost heave, erosion) to expose subsurface MEC items, or move surface or subsurface MEC items? No

If "yes", describe the nature of natural forces. Indicate key areas of potential migration (e.g., overland water flow) on a map as appropriate (attach a map to the bottom of this sheet, or as a separate worksheet).

The following table is used to determine scores associated with the migration potential:

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Possible	30	30	10
Unlikely	10	10	10

Based on the question above, migration potential is 'Unlikely.' *Score*
Baseline Conditions: **10**
Surface Cleanup: **10**
Subsurface Cleanup: **10**

Reference(s) for above information:

MEC Classification Input Factor Categories

Cased munitions information has been inputed into the 'Munitions, Bulk Explosive Info' Worksheet; therefore, bulk explosives do not comprise all MECs for this MRS.

The 'Amount of MEC' category is 'Target Area'. It cannot be automatically assumed that the MEC items from this category are DMM. Therefore, the conservative assumption is that the MEC items in this MRS are UXO.

Has a technical assessment shown that MEC in the OB/OD Area is DMM?
Are any of the munitions listed in the 'Munitions, Bulk Explosive Info' Worksheet: Yes

- Submunitions
- Rifle-propelled 40mm projectiles (often called 40mm grenades)
- Munitions with white phosphorus filler
- High explosive anti-tank (HEAT) rounds
- Hand grenades
- Fuzes
- Mortars

None of the items listed in the 'Munitions, Bulk Explosive Info' Worksheet were identified as 'fuzed'.

The following table is used to determine scores associated with MEC classification categories:

UXO Special Case	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
UXO Special Case	180	180	180
UXO	110	110	110
Fuzed DMM Special Case	105	105	105
Fuzed DMM	55	55	55
Unfuzed DMM	45	45	45
Bulk Explosives	45	45	45

Based on your answers above, the MEC classification is 'UXO Special Case'. *Score*
Baseline Conditions: **180**
Surface Cleanup: **180**
Subsurface Cleanup: **180**

MEC Size Input Factor Categories

The following table is used to determine scores associated with MEC Size:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Small	Any munitions (from the 'Munitions, Bulk Explosive Info' Worksheet) weigh less than 90 lbs; small enough for a receptor to be able to move and initiate a detonation	40	40	40
Large	All munitions weigh more than 90 lbs; too large to move without equipment	0	0	0

Based on the definitions above and the types of munitions at the site (see 'Munitions, Bulk Explosive Info' Worksheet), the MEC Size Input Factor is: Small

Score
Baseline Conditions: **40**
Surface Cleanup: **40**
Subsurface Cleanup: **40**

Scoring Summary

Site ID:	Proposed Rocket and Rifle Grena	a. Scoring Summary for Current Use Activities	
Date:	7/16/2013	Response Action Cleanup:	No Response Action
Input Factor		**Input Factor Category**	**Score**
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc	30
III. Site Accessibility		Moderate Accessibility	55
IV. Potential Contact Hours		100,000 to 999,999 receptor hrs/yr	70
V. Amount of MEC		Target Area	180
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240
VII. Migration Potential		Unlikely	10
VIII. MEC Classification		UXO Special Case	180
IX. MEC Size		Small	40
		Total Score	**905**
		Hazard Level Category	**1**

Site ID:	Proposed Rocket and Rifle Grena	b. Scoring Summary for Future Use Activities	
Date:	7/16/2013	Response Action Cleanup:	No Response Action
Input Factor		**Input Factor Category**	**Score**
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors			
III. Site Accessibility			
IV. Potential Contact Hours			
V. Amount of MEC		Target Area	180
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth			
VII. Migration Potential		Unlikely	10
VIII. MEC Classification		UXO Special Case	180
IX. MEC Size		Small	40
		Total Score	**510**
		Hazard Level Category	**4**

Site ID:	Proposed Rocket and Rifle Grena	c. Scoring Summary for Response Alternative 1: No Action (Baseline Condition)	
Date:	7/16/2013	Response Action Cleanup:	No MEC cleanup
Input Factor		**Input Factor Category**	**Score**
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc	30
III. Site Accessibility		Moderate Accessibility	55
IV. Potential Contact Hours		100,000 to 999,999 receptor hrs/yr	70
V. Amount of MEC		Target Area	180
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240
VII. Migration Potential		Unlikely	10
VIII. MEC Classification		UXO Special Case	180
IX. MEC Size		Small	40
		Total Score	**905**
		Hazard Level Category	**1**

MEC HA Hazard Level Determination		
Site ID: Grenade Area **Date:** 7/16/2013	**Hazard Level Category**	**Score**
a. Current Use Activities	1	905
b. Future Use Activities	4	510
c. Response Alternative 1: No Action (Baseline Condition)	1	905
d. Response Alternative 2:		
e. Response Alternative 3:		
f. Response Alternative 4:		
g. Response Alternative 5:		
h. Response Alternative 6:		

Characteristics of the MRS	
Is critical infrastructure located within the MRS or within the ESQD arc?	No
Are cultural resources located within the MRS or within the ESQD arc?	No
Are significant ecological resources located within the MRS or within the ESQD arc?	No

MEC HA Summary Information

		Comments
Site ID:	Proposed Rocket/Grenade Maneuver Area	
Date:	8/12/2014	

Please identify the single specific area to be assessed in this hazard assessment. From this point forward, all references to "site" or "MRS" refer to the specific area that you have defined.

A. Enter a unique identifier for the site:

Proposed Rocket/Grenade Maneuver Area

Provide a list of information sources used for this hazard assessment. As you are completing the worksheets, use the "Select Ref(s)" buttons at the ends of each subsection to select the applicable information sources from the list below.

Ref. No.	Title (include version, publication date)
1	(EE/CA), Former Camp Croft Army Training Facility,
2	(EE/CA) Action Memorandum, Former Camp Croft Army
3	Removal Report (August 8, 1994 – January 19, 1995),
4	Removal Report (March 8, 1995 – March 30, 1995),
5	Removal Action, Former Camp Croft – Spartanburg, SC,
6	(EE/CA), Former Camp Croft Army Training Facility,
7	Report , Findings for the Former Camp Croft Army
8	Report Supplement, Findings for the Former Camp Croft
9	Action, Ordnance Operable Units OOU-3 A, B, and C;
10	Camp Croft Army Training Facility, Spartanburg County,
11	Addendum 01, Ordnance Operable Unit (OOU) 3, September
12	ZAPATA, 2011, Work Plans For the RI/FS

B. Briefly describe the site:

1. Area (include units): 126.3 Acres
2. Past munitions-related use:

Maneuver Areas

3. Current land-use activities (list all that occur):

Residential

4. Are changes to the future land-use planned? No
5. What is the basis for the site boundaries?

The MRS 3 is a 12,102-acre Range Complex containing 12 WW II era ranges, including a mortar range, an anti-tank range, and several small arms ranges. Two lakes, Lake Johnson and Lake Craig, remain on the site; these lakes total 186 acres. Documented munitions used at the ranges include small arms, rifle grenades, 2.36-inch rockets, and mortars (60mm and 81mm). However, numerous other munitions have been discovered within the Range Complex including 37mm, 57mm, 105mm, and 155mm mortars. Several areas within the Range Complex have been cleared during previous removal actions. Some were TCRAs; however, clearance depths may have been less than or equal to 1 foot bgs.

6. How certain are the site boundaries?

This area includes WWII era ranges 1-11 and 15. Within this MRS there was a mortar range, anti-tank range, and several small arms ranges. Site boudaries are based off historical data and findings from an RI.

Reference(s) for Part B:

ESE, 1996a, Final Engineering Evaluation/Cost Analysis (EE/CA), Former Camp Croft Army Training Facility, Spartanburg, SC, Volume I and II, January 1996.
ESE, 1996b, Final Engineering Evaluation/Cost Analysis (EE/CA) Action Memorandum, Former Camp Croft Army Training Facility, Spartanburg, SC, February 1996.
QST, 1998a, Final Engineering Evaluation/Cost Analysis (EE/CA), Former Camp Croft Army Training Facility, Spartanburg, SC, January 1998.
USACE, Rock Island District, 1993, Archives Search Report , Findings for the Former Camp Croft Army Training Facility, Spartanburg, SC, September 1993
USACE, Rock Island District, 2004, Archives Search Report Supplement, Findings for the Former Camp Croft Army Training Facility, Spartanburg, SC, November 2004.
UXB, 2001, Final Removal Report, Ordnance Removal Action, Ordnance Operable Units OOU-3 A, B, and C; OOU6; and OOU-11 C and D, Former Camp Croft – Spartanburg, SC, April 2001.

ZAPATA, 2011, Work Plans For the RI/FS

C. Historical Clearances

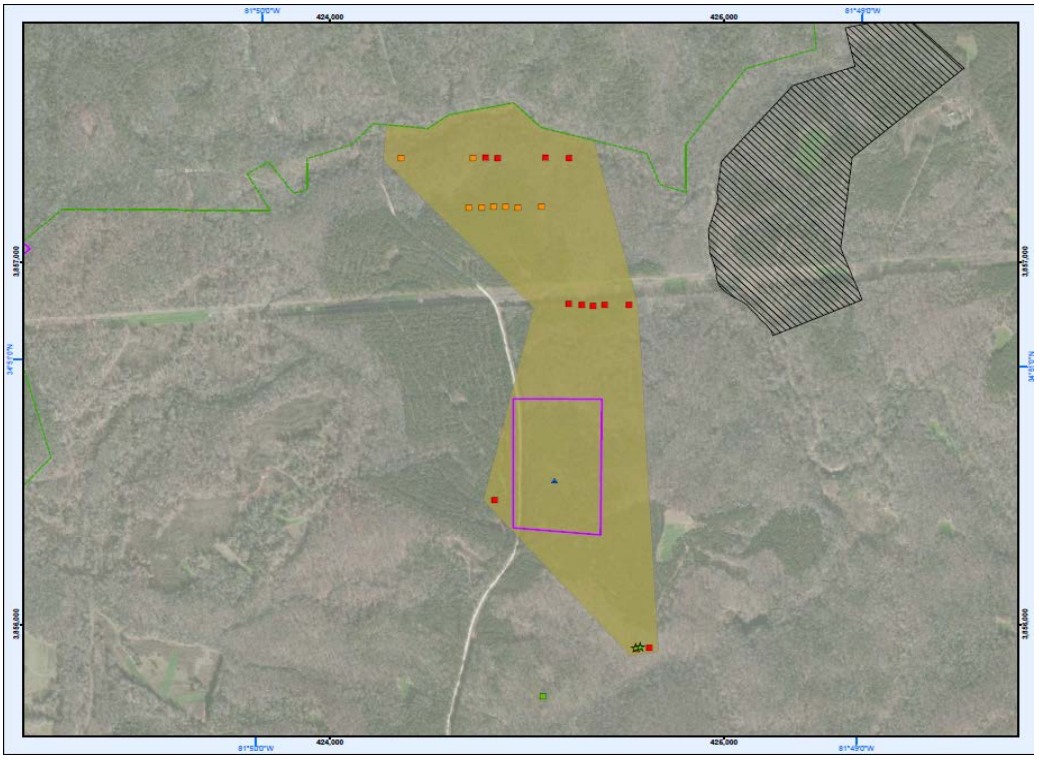
1. Have there been any historical clearances at the site? No, none
2. If a clearance occurred:
   a. What year was the clearance performed? 2013
   b. Provide a description of the clearance activity (e.g., extent, depth, amount of munitions-related items removed, types and sizes of removed items, and whether metal detectors were used):

A TCRA was performed in 2013, subsequent to the RI investigation.

Reference(s) for Part C:

D. Attach maps of the site below (select 'Insert/Picture' on the menu bar.)

See Exhibit 8-8.



Site ID: **Proposed Rocket/Grenade Maneuver Area**
Date: **8/12/2014**

Cased Munitions Information

Item No.	Munition Type (e.g., mortar, projectile, etc.)	Munition Size	Munition Size Units	Mark/ Model	Energetic Material Type	Is Munition Fuzed?	Fuzing Type	Fuze Condition	Minimum Depth for Munition (ft)	Location of Munitions	Comments (include rationale for munitions that are "subsurface only")
1	Fuzes		Fuze (N/A)		Spotting Charge	UNK	UNK	UNK	0	Surface and Subsurface	Unk
2	Grenades	2.25	inches	M9	Low Explosive Filler in a fragmenting round	UNK	UNK	UNK	0	Surface and Subsurface	UNK
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Reference(s) for table above:

[redacted]

QST, 1998a, Final Engineering Evaluation/Cost Analysis (EE/CA), Former Camp Croft Army Training Facility, Spartanburg, SC, January 1998.
USACE, Rock Island District, 1993, Archives Search Report , Findings for the Former Camp Croft Army Training Facility, Spartanburg, SC, September 1993
USACE, Rock Island District, 2004, Archives Search Report Supplement, Findings for the Former Camp Croft Army Training Facility, Spartanburg, SC, November 2004.
ZAPATA, 2011, Work Plans For the RI/FS

Bulk Explosive Information

Item No.	Explosive Type	Comments
1	Black Powder	
2	UNK	
3	TNT	
4		
5		
6		
7		
8		
9		
10		

Reference(s) for table above:

[redacted]

Site ID: **Proposed Rocket/Grenade Maneuver Area**
Date: **8/12/2014**

Activities Currently Occurring at the Site

Activity No.	Activity	Number of people per year who participate in the activity	Number of hours per year a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
1	Agricultural	20	50	**1,000**	2	
2	Residential	10	4,380	**43,800**	3	
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
			Total Potential Contact Time (receptor hrs/yr):	**44,800**		
			Maximum intrusive depth at site (ft):		**3**	

Reference(s) for table above:

[redacted]

Activities Planned for the Future at the Site (If any are planned: see 'Summary Info' Worksheet, Question 4)

Activity No.	Activity	Number of people per year who participate in the activity	Number of hours per year a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

Total Potential Contact Time (receptor hrs/yr):

Maximum intrusive depth at site (ft):

Reference(s) for table above:

Site ID: **Proposed Rocket/Grenade Maneuver Area**
Date: **8/12/2014**

Planned Remedial or Removal Actions

Response Action No.	Response Action Description	Expected Resulting Minimum MEC Depth (ft)	Expected Resulting Site Accessibility	Will land use activities change if this response action is implemented?	What is the expected scope of cleanup?	Comments
1	No Action (Baseline Condition)	0	Full Accessibility	No	No MEC cleanup	
2						
3						
4						
5						
6						

According to the 'Summary Info' worksheet, no future land uses are planned. For those alternatives where you answered 'No' in Column E, the land use activities will be assessed against current land uses.

Reference(s) for table above:

[redacted]

Site ID: **Proposed Rocket/Grenade Maneuver Area**
Date: **8/12/2014**

This worksheet needs to be completed for each remedial/removal action alternative listed in the 'Remedial-Removal Action' worksheet that will cause a change in land use.

Land Use Activities Planned After Response Alternative #1: No Action (Baseline Condition)

Activity No.	Activity	Number of people per year who participate in the activity	Number of hours a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

Total Potential Contact Time (receptor hrs/yr):

Maximum intrusive depth at site (ft):

Reference(s) for table above:

[redacted]

Site ID: **Proposed Rocket/Grenade Maneuver Area**
Date: **8/12/2014**

Energetic Material Type Input Factor Categories

The following table is used to determine scores associated with the energetic materials. Materials are listed in order from most hazardous to least hazardous.

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
High Explosive and Low Explosive Filler in Fragmenting Rounds	100	100	100
White Phosphorus	70	70	70
Pyrotechnic	60	60	60
Propellant	50	50	50
Spotting Charge	40	40	40
Incendiary	30	30	30

The most hazardous type of energetic material listed in the 'Munitions, Bulk Explosive Info' Worksheet falls under the category 'High Explosive and Low Explosive Filler in Fragmenting Rounds'.

Score

Baseline Conditions: **100**
Surface Cleanup: **100**
Subsurface Cleanup: **100**

Location of Additional Human Receptors Input Factor Categories

1. What is the Explosive Safety Quantity Distance (ESQD) from the Explosive Siting Plan or the Explosive Safety Submission for the MRS? 113 feet
2. Are there currently any features or facilities where people may congregate within the MRS, or within the ESQD arc? Yes
3. Please describe the facility or feature.

Residential, Argiculture

MEC Item(s) used to calculate the ESQD for current use activities

Item #3. Grenades (2.25inches, Low Explosive Filler in a fragmenting round)

The following table is used to determine scores associated with the location of additional human receptors (current use activities):

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Inside the MRS or inside the ESQD arc	30	30	30
Outside of the ESQD arc	0	0	0

4. Current use activities are 'Inside the MRS or inside the ESQD arc', based on Question 2.'

Score

Baseline Conditions: **30**
Surface Cleanup: **30**
Subsurface Cleanup: **30**

5. Are there future plans to locate or construct features or facilities where people may congregate within the MRS, or within the ESQD arc?
6. Please describe the facility or feature.

MEC Item(s) used to calculate the ESQD for future use activities

The following table is used to determine scores associated with the location of additional human receptors (future use activities):

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Inside the MRS or inside the ESQD arc	30	30	30
Outside of the ESQD arc	0	0	0

7. Please answer Question 5 above to determine the scores.

Score

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Comments

Site Accessibility Input Factor Categories

The following table is used to determine scores associated with site accessibility:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Full Accessibility	No barriers to entry, including signage but no fencing	80	80	80
Moderate Accessibility	Some barriers to entry, such as barbed wire fencing or rough terrain	55	55	55
Limited Accessibility	Significant barriers to entry, such as unguarded chain link fence or requirements for special transportation to reach the site	15	15	15
Very Limited Accessibility	A site with guarded chain link fence or terrain that requires special equipment and skills (e.g., rock climbing) to access	5	5	5

Current Use Activities — ***Score***

Select the category that best describes the site accessibility under the current use scenario:

`Full Accessibility`

Baseline Conditions: **80**
Surface Cleanup: **80**
Subsurface Cleanup: **80**

Future Use Activities

Select the category that best describes the site accessibility under the future use scenario:

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Reference(s) for above information:

Response Alternative No. 1: No Action (Baseline Condition)

Based on the 'Planned Remedial or Removal Actions' Worksheet, this alternative will lead to 'Full Accessibility'.

Baseline Conditions: **80**
Surface Cleanup: **80**
Subsurface Cleanup: **80**

Response Alternative No. 2:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 3:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 4:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 5:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 6:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Potential Contact Hours Input Factor Categories

The following table is used to determine scores associated with the total potential contact time:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Many Hours	≥1,000,000 receptor-hrs/yr	120	90	30
Some Hours	100,000 to 999,999 receptor hrs/yr	70	50	20
Few Hours	10,000 to 99,999 receptor-hrs/yr	40	20	10
Very Few Hours	<10,000 receptor-hrs/yr	15	10	5

Current Use Activities :

Input factors are only determined for baseline conditions for current use activities. Based on the 'Current and Future Activities' Worksheet, the Total Potential Contact Time is: **44,800** receptor hrs/yr

Based on the table above, this corresponds to a input factor score for baseline conditions of: **40** Score

Future Use Activities :

Input factors are only determined for baseline conditions for future use activities. Based on the 'Current and Future Activities' Worksheet, the Total Potential Contact Time is: receptor hrs/yr

Based on the table above, this corresponds to a input factor score of: Score

Response Alternative No. 1: No Action (Baseline Condition)

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Total Potential Contact Time, based on the contact time listed for current use activities (see 'Current and Future Activities' Worksheet) **44,800**

Based on the table above, this corresponds to input factor scores of: ***Score***

Baseline Conditions: **40**
Surface Cleanup: **20**
Subsurface Cleanup: **10**

Response Alternative No. 2:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: ***Score***

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 3:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: ***Score***

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 4:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: ***Score***

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 5:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: **Score**

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 6:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: **Score**

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Amount of MEC Input Factor Categories

The following table is used to determine scores associated with the Amount of MEC:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Target Area	Areas at which munitions fire was directed	180	120	30
OB/OD Area	Sites where munitions were disposed of by open burn or open detonation methods. This category refers to the core activity area of an OB/OD area. See the "Safety Buffer Areas" category for safety fans and kick-outs.	180	110	30
Function Test Range	Areas where the serviceability of stored munitions or weapons systems are tested. Testing may include components, partial functioning or complete functioning of stockpile or developmental items.	165	90	25
Burial Pit	The location of a burial of large quantities of MEC items.	140	140	10
Maneuver Areas	Areas used for conducting military exercises in a simulated conflict area or war zone	115	15	5
Firing Points	The location from which a projectile, grenade, ground signal, rocket, guided missile, or other device is to be ignited, propelled, or released.	75	10	5
Safety Buffer Areas	Areas outside of target areas, test ranges, or OB/OD areas that were designed to act as a safety zone to contain munitions that do not hit targets or to contain kick-outs from OB/OD areas.	30	10	5
Storage	Any facility used for the storage of military munitions, such as earth-covered magazines, above-ground magazines, and open-air storage areas.	25	10	5
Explosive-Related Industrial Facility	Former munitions manufacturing or demilitarization sites and TNT production plants	20	10	5

Select the category that best describes the ***most hazardous*** amount of MEC: ***Score***

Maneuver Areas

Baseline Conditions: **115**
Surface Cleanup: **15**
Subsurface Cleanup: **5**

Minimum MEC Depth Relative to the Maximum Intrusive Depth Input Factor Categories

Current Use Activities

The shallowest minimum MEC depth, based on the 'Cased Munitions Information' Worksheet: **0** ft
The deepest intrusive depth: **3** ft
The table below is used to determine scores associated with the minimum MEC depth relative to the maximum intrusive depth:

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240	150	95
Baseline Condition: MEC located surface and subsurface, After Cleanup: Intrusive depth does not overlap with subsurface MEC.	240	50	25
Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.	150	N/A	95
Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth does not overlap with minimum MEC depth.	50	N/A	25

Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth will overlap after cleanup. MECs are located at both the surface and subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.' For 'Current Use Activities', only Baseline Conditions are considered.

240 ***Score***

Future Use Activities
Deepest intrusive depth: ft

Not enough information has been entered to determine the input factor category.

Score

Response Alternative No. 1: No Action (Baseline Condition)
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): **0** ft
Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.
Maximum Intrusive Depth, based on the maximum intrusive depth listed for current use activities (see 'Current and Future Activities' Worksheet) **3** ft
Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth overlaps. MECs are located at both the surface and subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.'

Score
Baseline Conditions: **240**
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 2:
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft
Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score
Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 3:
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft
Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score
Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 4:
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft
Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score
Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 5:
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft
Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score
Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 6:
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft
Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score
Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Migration Potential Input Factor Categories

Is there any physical or historical evidence that indicates it is possible for natural physical forces in the area (e.g., frost heave, erosion) to expose subsurface MEC items, or move surface or subsurface MEC items? No

If "yes", describe the nature of natural forces. Indicate key areas of potential migration (e.g., overland water flow) on a map as appropriate (attach a map to the bottom of this sheet, or as a separate worksheet).

The following table is used to determine scores associated with the migration potential:

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Possible	30	30	10
Unlikely	10	10	10

Based on the question above, migration potential is 'Unlikely.' *Score*
Baseline Conditions: **10**
Surface Cleanup: **10**
Subsurface Cleanup: **10**

Reference(s) for above information:

MEC Classification Input Factor Categories

Cased munitions information has been inputed into the 'Munitions, Bulk Explosive Info' Worksheet; therefore, bulk explosives do not comprise all MECs for this MRS.

The 'Amount of MEC' category is 'Maneuver Areas'. It is assumed that the MEC items in this MRS are DMM.

Has a technical assessment shown that MEC in the OB/OD Area is DMM?
Are any of the munitions listed in the 'Munitions, Bulk Explosive Info' Worksheet: Yes

- Submunitions
- Rifle-propelled 40mm projectiles (often called 40mm grenades)
- Munitions with white phosphorus filler
- High explosive anti-tank (HEAT) rounds
- Hand grenades
- Fuzes
- Mortars

None of the items listed in the 'Munitions, Bulk Explosive Info' Worksheet were identified as 'fuzed'.

The following table is used to determine scores associated with MEC classification categories:

Fuzed DMM Special Case	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
UXO Special Case	180	180	180
UXO	110	110	110
Fuzed DMM Special Case	105	105	105
Fuzed DMM	55	55	55
Unfuzed DMM	45	45	45
Bulk Explosives	45	45	45

Based on your answers above, the MEC classification is 'Fuzed DMM Special Case'. *Score*
Baseline Conditions: **105**
Surface Cleanup: **105**
Subsurface Cleanup: **105**

MEC Size Input Factor Categories

The following table is used to determine scores associated with MEC Size:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Small	Any munitions (from the 'Munitions, Bulk Explosive Info' Worksheet) weigh less than 90 lbs; small enough for a receptor to be able to move and initiate a detonation	40	40	40
Large	All munitions weigh more than 90 lbs; too large to move without equipment	0	0	0

Based on the definitions above and the types of munitions at the site (see 'Munitions, Bulk Explosive Info' Worksheet), the MEC Size Input Factor is: Small

Score
Baseline Conditions: **40**
Surface Cleanup: **40**
Subsurface Cleanup: **40**

Scoring Summary

Site ID:	Proposed Rocket/Grenade Mane	a. Scoring Summary for Current Use Activities	
Date:	8/12/2014	Response Action Cleanup:	No Response Action
Input Factor		**Input Factor Category**	**Score**
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc	30
III. Site Accessibility		Full Accessibility	80
IV. Potential Contact Hours		10,000 to 99,999 receptor-hrs/yr	40
V. Amount of MEC		Maneuver Areas	115
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240
VII. Migration Potential		Unlikely	10
VIII. MEC Classification		Fuzed DMM Special Case	105
IX. MEC Size		Small	40
		Total Score	**760**
		Hazard Level Category	**2**

Site ID:	Proposed Rocket/Grenade Mane	b. Scoring Summary for Future Use Activities	
Date:	8/12/2014	Response Action Cleanup:	No Response Action
Input Factor		**Input Factor Category**	**Score**
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors			
III. Site Accessibility			
IV. Potential Contact Hours			
V. Amount of MEC		Maneuver Areas	115
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth			
VII. Migration Potential		Unlikely	10
VIII. MEC Classification		Fuzed DMM Special Case	105
IX. MEC Size		Small	40
		Total Score	**370**
		Hazard Level Category	**4**

Site ID:	Proposed Rocket/Grenade Mane	c. Scoring Summary for Response Alternative 1: No Action (Baseline Condition)	
Date:	8/12/2014	Response Action Cleanup:	No MEC cleanup
Input Factor		**Input Factor Category**	**Score**
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc	30
III. Site Accessibility		Full Accessibility	80
IV. Potential Contact Hours		10,000 to 99,999 receptor-hrs/yr	40
V. Amount of MEC		Maneuver Areas	115
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240
VII. Migration Potential		Unlikely	10
VIII. MEC Classification		Fuzed DMM Special Case	105
IX. MEC Size		Small	40
		Total Score	**760**
		Hazard Level Category	**2**

MEC HA Hazard Level Determination		
Site ID: Maneuver Area		
Date: 8/12/2014		
	Hazard Level Category	**Score**
a. Current Use Activities	2	760
b. Future Use Activities	4	370
c. Response Alternative 1: No Action (Baseline Condition)	2	760
d. Response Alternative 2:		
e. Response Alternative 3:		
f. Response Alternative 4:		
g. Response Alternative 5:		
h. Response Alternative 6:		

Characteristics of the MRS	
Is critical infrastructure located within the MRS or within the ESQD arc?	No
Are cultural resources located within the MRS or within the ESQD arc?	No
Are significant ecological resources located within the MRS or within the ESQD arc?	No

MEC HA Summary Information

		Comments
Site ID:	Proposed Grenade Maneuver Area	
Date:	7/16/2013	

Please identify the single specific area to be assessed in this hazard assessment. From this point forward, all references to "site" or "MRS" refer to the specific area that you have defined.

A. Enter a unique identifier for the site:

Proposed Grenade Maneuver Area

Provide a list of information sources used for this hazard assessment. As you are completing the worksheets, use the "Select Ref(s)" buttons at the ends of each subsection to select the applicable information sources from the list below.

Ref. No.	Title (include version, publication date)
1	(EE/CA), Former Camp Croft Army Training Facility,
2	(EE/CA) Action Memorandum, Former Camp Croft Army
3	Removal Report (August 8, 1994 – January 19, 1995),
4	Removal Report (March 8, 1995 – March 30, 1995),
5	Removal Action, Former Camp Croft – Spartanburg, SC,
6	(EE/CA), Former Camp Croft Army Training Facility,
7	Report , Findings for the Former Camp Croft Army
8	Report Supplement, Findings for the Former Camp Croft
9	Action, Ordnance Operable Units OOU-3 A, B, and C;
10	Camp Croft Army Training Facility, Spartanburg County,
11	Addendum 01, Ordnance Operable Unit (OOU) 3, September
12	ZAPATA, 2011, Work Plans For the RI/FS

B. Briefly describe the site:

1. Area (include units): 257.7 Acres
2. Past munitions-related use:

Maneuver Areas

3. Current land-use activities (list all that occur):

Recreational, Residential

4. Are changes to the future land-use planned? No
5. What is the basis for the site boundaries?

This area encompasses both State Park and residential property outside of MRS 3. It's composed, primarily, of AoPI 10B and AoPI 11B and the acreage between those two areas. This area is not associated with a former range. However, munitions have been discovered within this area including various rifle grenades. No clearance activities have been conducted.

6. How certain are the site boundaries?

Proposed site boudaries are based off historical data and findings from an RI.

Reference(s) for Part B:

[redacted]

QST, 1998a, Final Engineering Evaluation/Cost Analysis (EE/CA), Former Camp Croft Army Training Facility, Spartanburg, SC, January 1998.
USACE, Rock Island District, 1993, Archives Search Report , Findings for the Former Camp Croft Army Training Facility, Spartanburg, SC, September 1993
USACE, Rock Island District, 2004, Archives Search Report Supplement, Findings for the Former Camp Croft Army Training Facility, Spartanburg, SC, November 2004.
ZAPATA, 2011, Work Plans For the RI/FS

C. Historical Clearances

1. Have there been any historical clearances at the site? No, none
2. If a clearance occurred:
   a. What year was the clearance performed? 2013
   b. Provide a description of the clearance activity (e.g., extent, depth, amount of munitions-related items removed, types and sizes of removed items, and whether metal detectors were used):

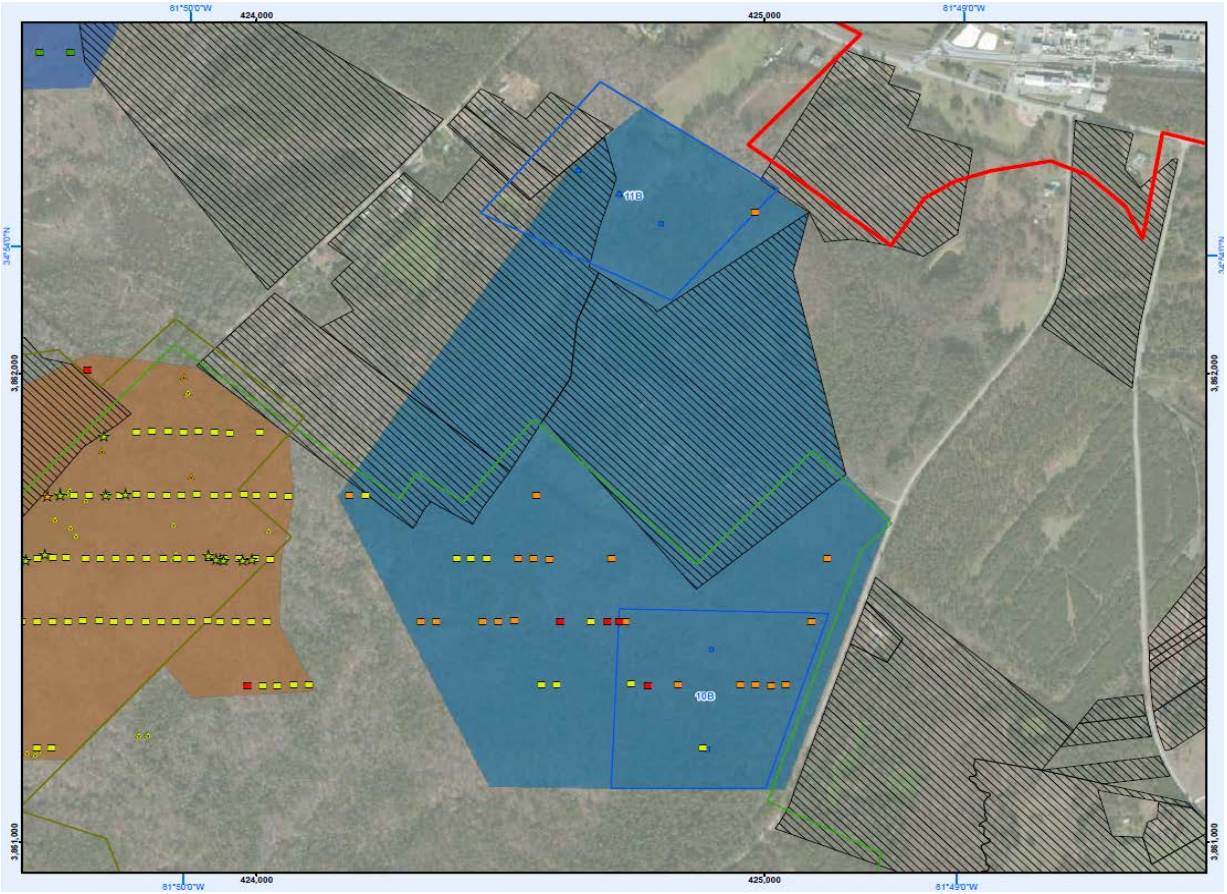
A TCRA was performed in 2013, subsequent to the RI investigation.

Reference(s) for Part C:

[redacted]

See Exhibit 8-18.

D. Attach maps of the site below (select 'Insert/Picture' on the menu bar.)



Site ID: **Proposed Grenade Maneuver Area**
Date: **7/16/2013**

Cased Munitions Information

Item No.	Munition Type (e.g., mortar, projectile, etc.)	Munition Size	Munition Size Units	Mark/ Model	Energetic Material Type	Is Munition Fuzed?	Fuzing Type	Fuze Condition	Minimum Depth for Munition (ft)	Location of Munitions	Comments (include rationale for munitions that are "subsurface only")
1	Rockets	2.36	inches	M6A3	Low Explosive Filler in a fragmenting round	UNK			0	Surface and Subsurface	
2	Grenades	2.25	inches	M9	Low Explosive Filler in a fragmenting round	UNK			0	Surface and Subsurface	
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Reference(s) for table above:

ZAPATA, 2011, Work Plans For the RI/FS

Bulk Explosive Information

Item No.	Explosive Type	Comments
1	Pentolite	
2	Pentolite	
3		
4		
5		
6		
7		
8		
9		
10		

Reference(s) for table above:

Site ID: **Proposed Grenade Maneuver Area**
Date: **7/16/2013**

Activities Currently Occurring at the Site

Activity No.	Activity	Number of people per year who participate in the activity	Number of hours per year a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
1	Hiking	20,000	20	**400,000**	0	
2	Mountain biking	6,000	20	**120,000**	0	
3	Horseback riding	3,000	20	**60,000**	0	
4	General Park Activities	40,000	20	**800,000**	0	
5	Residential	10	4,380	**43,800**	3	
6						
7						
8						
9						
10						
11						
12						
	Total Potential Contact Time (receptor hrs/yr):			**1,423,800**		
	Maximum intrusive depth at site (ft):				**3**	

Reference(s) for table above:

[redacted]

Activities Planned for the Future at the Site (If any are planned: see 'Summary Info' Worksheet, Question 4)

Activity No.	Activity	Number of people per year who participate in the activity	Number of hours per year a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

Total Potential Contact Time (receptor hrs/yr):

Maximum intrusive depth at site (ft):

Reference(s) for table above:

Site ID: **Proposed Grenade Maneuver Area**
Date: **7/16/2013**

Planned Remedial or Removal Actions

Response Action No.	Response Action Description	Expected Resulting Minimum MEC Depth (ft)	Expected Resulting Site Accessibility	Will land use activities change if this response action is implemented?	What is the expected scope of cleanup?	Comments
1	No Action (Baseline Condition)	0	Moderate Accessibility	No	No MEC cleanup	
2						
3						
4						
5						
6						

According to the 'Summary Info' worksheet, no future land uses are planned. For those alternatives where you answered 'No' in Column E, the land use activities will be assessed against current land uses.

Reference(s) for table above:

[redacted]

Site ID: **Proposed Grenade Maneuver Area**
Date: **7/16/2013**

This worksheet needs to be completed for each remedial/removal action alternative listed in the 'Remedial-Removal Action' worksheet that will cause a change in land use.

Land Use Activities Planned After Response Alternative #1: No Action (Baseline Condition)

Activity No.	Activity	Number of people per year who participate in the activity	Number of hours a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

Total Potential Contact Time (receptor hrs/yr):

Maximum intrusive depth at site (ft):

Reference(s) for table above:

[redacted]

Site ID: **Proposed Grenade Maneuver Area**
Date: **7/16/2013**

Energetic Material Type Input Factor Categories

The following table is used to determine scores associated with the energetic materials. Materials are listed in order from most hazardous to least hazardous.

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
High Explosive and Low Explosive Filler in Fragmenting Rounds	100	100	100
White Phosphorus	70	70	70
Pyrotechnic	60	60	60
Propellant	50	50	50
Spotting Charge	40	40	40
Incendiary	30	30	30

The most hazardous type of energetic material listed in the 'Munitions, Bulk Explosive Info' Worksheet falls under the category 'High Explosive and Low Explosive Filler in Fragmenting Rounds'.

Score

Baseline Conditions: **100**
Surface Cleanup: **100**
Subsurface Cleanup: **100**

Location of Additional Human Receptors Input Factor Categories

1. What is the Explosive Safety Quantity Distance (ESQD) from the Explosive Siting Plan or the Explosive Safety Submission for the MRS? 142 feet
2. Are there currently any features or facilities where people may congregate within the MRS, or within the ESQD arc? Yes
3. Please describe the facility or feature.

State Park, Residential

MEC Item(s) used to calculate the ESQD for current use activities

Item #1. Rockets (2.36inches, Low Explosive Filler in a fragmenting round)

The following table is used to determine scores associated with the location of additional human receptors (current use activities):

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Inside the MRS or inside the ESQD arc	30	30	30
Outside of the ESQD arc	0	0	0

4. Current use activities are 'Inside the MRS or inside the ESQD arc', based on Question 2.'

Score

Baseline Conditions: **30**
Surface Cleanup: **30**
Subsurface Cleanup: **30**

5. Are there future plans to locate or construct features or facilities where people may congregate within the MRS, or within the ESQD arc?
6. Please describe the facility or feature.

MEC Item(s) used to calculate the ESQD for future use activities

The following table is used to determine scores associated with the location of additional human receptors (future use activities):

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Inside the MRS or inside the ESQD arc	30	30	30
Outside of the ESQD arc	0	0	0

7. Please answer Question 5 above to determine the scores.

Score

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Comments

Site Accessibility Input Factor Categories

The following table is used to determine scores associated with site accessibility:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Full Accessibility	No barriers to entry, including signage but no fencing	80	80	80
Moderate Accessibility	Some barriers to entry, such as barbed wire fencing or rough terrain	55	55	55
Limited Accessibility	Significant barriers to entry, such as unguarded chain link fence or requirements for special transportation to reach the site	15	15	15
Very Limited Accessibility	A site with guarded chain link fence or terrain that requires special equipment and skills (e.g., rock climbing) to access	5	5	5

Current Use Activities — ***Score***

Select the category that best describes the site accessibility under the current use scenario:

Moderate Accessibility

Baseline Conditions: **55**
Surface Cleanup: **55**
Subsurface Cleanup: **55**

Future Use Activities

Select the category that best describes the site accessibility under the future use scenario:

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Reference(s) for above information:

Response Alternative No. 1: No Action (Baseline Condition)

Based on the 'Planned Remedial or Removal Actions' Worksheet, this alternative will lead to 'Moderate Accessibility'.

Baseline Conditions: **55**
Surface Cleanup: **55**
Subsurface Cleanup: **55**

Response Alternative No. 2:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 3:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 4:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 5:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 6:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Potential Contact Hours Input Factor Categories

The following table is used to determine scores associated with the total potential contact time:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Many Hours	≥1,000,000 receptor-hrs/yr	120	90	30
Some Hours	100,000 to 999,999 receptor hrs/yr	70	50	20
Few Hours	10,000 to 99,999 receptor-hrs/yr	40	20	10
Very Few Hours	<10,000 receptor-hrs/yr	15	10	5

Current Use Activities :

Input factors are only determined for baseline conditions for current use activities. Based on the 'Current and Future Activities' Worksheet, the Total Potential Contact Time is: **1,423,800** receptor hrs/yr

Based on the table above, this corresponds to a input factor score for baseline conditions of: **120** Score

Future Use Activities :

Input factors are only determined for baseline conditions for future use activities. Based on the 'Current and Future Activities' Worksheet, the Total Potential Contact Time is: receptor hrs/yr

Based on the table above, this corresponds to a input factor score of: Score

Response Alternative No. 1: No Action (Baseline Condition)

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Total Potential Contact Time, based on the contact time listed for current use activities (see 'Current and Future Activities' Worksheet) **1,423,800**

Based on the table above, this corresponds to input factor scores of: ***Score***

Baseline Conditions: **120**

Surface Cleanup: **90**

Subsurface Cleanup: **30**

Response Alternative No. 2:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: ***Score***

Baseline Conditions:

Surface Cleanup:

Subsurface Cleanup:

Response Alternative No. 3:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: ***Score***

Baseline Conditions:

Surface Cleanup:

Subsurface Cleanup:

Response Alternative No. 4:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: ***Score***

Baseline Conditions:

Surface Cleanup:

Subsurface Cleanup:

Response Alternative No. 5:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: **Score**

Baseline Conditions:

Surface Cleanup:

Subsurface Cleanup:

Response Alternative No. 6:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: **Score**

Baseline Conditions:

Surface Cleanup:

Subsurface Cleanup:

Amount of MEC Input Factor Categories

The following table is used to determine scores associated with the Amount of MEC:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Target Area	Areas at which munitions fire was directed	180	120	30
OB/OD Area	Sites where munitions were disposed of by open burn or open detonation methods. This category refers to the core activity area of an OB/OD area. See the "Safety Buffer Areas" category for safety fans and kick-outs.	180	110	30
Function Test Range	Areas where the serviceability of stored munitions or weapons systems are tested. Testing may include components, partial functioning or complete functioning of stockpile or developmental items.	165	90	25
Burial Pit	The location of a burial of large quantities of MEC items.	140	140	10
Maneuver Areas	Areas used for conducting military exercises in a simulated conflict area or war zone	115	15	5
Firing Points	The location from which a projectile, grenade, ground signal, rocket, guided missile, or other device is to be ignited, propelled, or released.	75	10	5
Safety Buffer Areas	Areas outside of target areas, test ranges, or OB/OD areas that were designed to act as a safety zone to contain munitions that do not hit targets or to contain kick-outs from OB/OD areas.	30	10	5
Storage	Any facility used for the storage of military munitions, such as earth-covered magazines, above-ground magazines, and open-air storage areas.	25	10	5
Explosive-Related Industrial Facility	Former munitions manufacturing or demilitarization sites and TNT production plants	20	10	5

Select the category that best describes the ***most hazardous*** amount of MEC: ***Score***

Maneuver Areas

Baseline Conditions: **115**
Surface Cleanup: **15**
Subsurface Cleanup: **5**

Minimum MEC Depth Relative to the Maximum Intrusive Depth Input Factor Categories

Current Use Activities

The shallowest minimum MEC depth, based on the 'Cased Munitions Information' Worksheet: **0** ft
The deepest intrusive depth: **3** ft

The table below is used to determine scores associated with the minimum MEC depth relative to the maximum intrusive depth:

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240	150	95
Baseline Condition: MEC located surface and subsurface, After Cleanup: Intrusive depth does not overlap with subsurface MEC.	240	50	25
Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.	150	N/A	95
Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth does not overlap with minimum MEC depth.	50	N/A	25

Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth will overlap after cleanup. MECs are located at both the surface and subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.' For 'Current Use Activities', only Baseline Conditions are considered.

240 ***Score***

Future Use Activities
Deepest intrusive depth: ft

Not enough information has been entered to determine the input factor category.

Score

Response Alternative No. 1: No Action (Baseline Condition)
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): **0** ft
Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.
Maximum Intrusive Depth, based on the maximum intrusive depth listed for current use activities (see 'Current and Future Activities' Worksheet) **3** ft
Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth overlaps. MECs are located at both the surface and subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.'

Score
Baseline Conditions: **240**
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 2:
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft
Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score
Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 3:
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft
Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score
Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 4:
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft
Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score
Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 5:
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft
Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score
Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 6:
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft
Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

Score
Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Migration Potential Input Factor Categories

Is there any physical or historical evidence that indicates it is possible for natural physical forces in the area (e.g., frost heave, erosion) to expose subsurface MEC items, or move surface or subsurface MEC items? No

If "yes", describe the nature of natural forces. Indicate key areas of potential migration (e.g., overland water flow) on a map as appropriate (attach a map to the bottom of this sheet, or as a separate worksheet).

The following table is used to determine scores associated with the migration potential:

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Possible	30	30	10
Unlikely	10	10	10

Based on the question above, migration potential is 'Unlikely.' *Score*
Baseline Conditions: **10**
Surface Cleanup: **10**
Subsurface Cleanup: **10**

Reference(s) for above information:

MEC Classification Input Factor Categories

Cased munitions information has been inputed into the 'Munitions, Bulk Explosive Info' Worksheet; therefore, bulk explosives do not comprise all MECs for this MRS.

The 'Amount of MEC' category is 'Maneuver Areas'. It is assumed that the MEC items in this MRS are DMM.

Has a technical assessment shown that MEC in the OB/OD Area is DMM?
Are any of the munitions listed in the 'Munitions, Bulk Explosive Info' Worksheet: No

- Submunitions
- Rifle-propelled 40mm projectiles (often called 40mm grenades)
- Munitions with white phosphorus filler
- High explosive anti-tank (HEAT) rounds
- Hand grenades
- Fuzes
- Mortars

None of the items listed in the 'Munitions, Bulk Explosive Info' Worksheet were identified as 'fuzed'.

The following table is used to determine scores associated with MEC classification categories:

Unfuzed DMM	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
UXO Special Case	180	180	180
UXO	110	110	110
Fuzed DMM Special Case	105	105	105
Fuzed DMM	55	55	55
Unfuzed DMM	45	45	45
Bulk Explosives	45	45	45

Based on your answers above, the MEC classification is 'Unfuzed DMM'. *Score*
Baseline Conditions: **45**
Surface Cleanup: **45**
Subsurface Cleanup: **45**

MEC Size Input Factor Categories

The following table is used to determine scores associated with MEC Size:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Small	Any munitions (from the 'Munitions, Bulk Explosive Info' Worksheet) weigh less than 90 lbs; small enough for a receptor to be able to move and initiate a detonation	40	40	40
Large	All munitions weigh more than 90 lbs; too large to move without equipment	0	0	0

Based on the definitions above and the types of munitions at the site (see 'Munitions, Bulk Explosive Info' Worksheet), the MEC Size Input Factor is: Small

Score
Baseline Conditions: **40**
Surface Cleanup: **40**
Subsurface Cleanup: **40**

Scoring Summary

Site ID:	Proposed Grenade Maneuver Are	a. Scoring Summary for Current Use Activities	
Date:	7/16/2013	Response Action Cleanup:	No Response Action
Input Factor		**Input Factor Category**	**Score**
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc	30
III. Site Accessibility		Moderate Accessibility	55
IV. Potential Contact Hours		≥1,000,000 receptor-hrs/yr	120
V. Amount of MEC		Maneuver Areas	115
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240
VII. Migration Potential		Unlikely	10
VIII. MEC Classification		Unfuzed DMM	45
IX. MEC Size		Small	40
		Total Score	**755**
		Hazard Level Category	**2**

Site ID:	Proposed Grenade Maneuver Are	b. Scoring Summary for Future Use Activities	
Date:	7/16/2013	Response Action Cleanup:	No Response Action
Input Factor		**Input Factor Category**	**Score**
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors			
III. Site Accessibility			
IV. Potential Contact Hours			
V. Amount of MEC		Maneuver Areas	115
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth			
VII. Migration Potential		Unlikely	10
VIII. MEC Classification		Unfuzed DMM	45
IX. MEC Size		Small	40
		Total Score	**310**
		Hazard Level Category	**4**

Site ID:	Proposed Grenade Maneuver Are	c. Scoring Summary for Response Alternative 1: No Action (Baseline Condition)	
Date:	7/16/2013	Response Action Cleanup:	No MEC cleanup
Input Factor		**Input Factor Category**	**Score**
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc	30
III. Site Accessibility		Moderate Accessibility	55
IV. Potential Contact Hours		≥1,000,000 receptor-hrs/yr	120
V. Amount of MEC		Maneuver Areas	115
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240
VII. Migration Potential		Unlikely	10
VIII. MEC Classification		Unfuzed DMM	45
IX. MEC Size		Small	40
		Total Score	**755**
		Hazard Level Category	**2**

MEC HA Hazard Level Determination		
Site ID: Area **Date:** 7/16/2013	**Hazard Level Category**	**Score**
a. Current Use Activities	2	755
b. Future Use Activities	4	310
c. Response Alternative 1: No Action (Baseline Condition)	2	755
d. Response Alternative 2:		
e. Response Alternative 3:		
f. Response Alternative 4:		
g. Response Alternative 5:		
h. Response Alternative 6:		

Characteristics of the MRS	
Is critical infrastructure located within the MRS or within the ESQD arc?	No
Are cultural resources located within the MRS or within the ESQD arc?	No
Are significant ecological resources located within the MRS or within the ESQD arc?	No

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the MRS Summary, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: MRS 1 - Gas Chambers

Component: U.S. Army

Installation/Property Name: Former Camp Croft

Location (City, County, State): Spartanburg, Spartanburg County, SC

Site Name; (RMIS ID)/Project Name (Project No.): MRS 1 - Gas Chamber (RMS ID); Project Name (I04SC0016-03R01)

Date Information Entered/Updated: January 2014
Point of Contact (Name/Phone): Shawn Boone (843) 329-8158
Project Phase (check only one):

☐ PA	☐ SI Report	☒ RI	☐ FS	☐ RD
☐ RA-C	☐ RIP	☐ RA-O	☐ RC	☐ LTM

☐ Groundwater	☐ Sediment (human receptor)
☐ Surface Soil	☐ Surface Water (ecolocical receptor)
☐ Sediment (ecolocical receptor)	☐ Surface Water (human receptor)

MRS Summary: MRS 1 is 23.8 acres. Historical documentation indicates that this MRS was used as a 2-Chlorobenzalmalononitrile (CS) smoke gas chamber traing facility. It is assumed that pots/grenades were either buried in pits or thrown away near the gas chamber. There were a total of three gas chambers used during WWII training at the former Camp Croft.The MRS is located northeast of the contonment area (see exhibit 2-2).

MRS Description: This MRS is a suspected CS gas chamber training area. CS gas would have been released in gas chambers. The pots/grenades are assumed to have been disposed of by pits on site, or by being thrown away near the gas chamber. Gas chambers have been identified through analysis historical aerial photos. There have been no documented finds since the installation's closure. There has been no previous investigations prior to this RI. The current land use is private property for Kohler faucets. The area is fenced off to keep unauthorized personnel off the property.

US Army Topographic Engineering Center, 2005, GIS -Based Historical Photographic Analysis, Camp Croft Army Training Facility, Spartanburg Couty, SC, October 2005.

Coordination with the stakeholders was conducted during the 1st Technical Project Planning (TPP) Meeting (Reference: 2007 SI Report (Section ES.4; Appendix B) located on FRMD File Number I04FL028701_01.09_0503_a, and during the 2nd and 3rd TPP meetings conducted during the RI (Reference: 2013 Draft RI Report (Section 1.0.d; Appendix L. Reference: FRMD File Numbers I04FL028701_03.10_0500_a and I04FL028701_03.10_0501_a). Per MRSPP requirements, during the SI a public notice was issued announcing the MRSPP (Reference: FRMD File Number I04FL028701_08.13_0502_a).

Summary of Alternative Ratings: For the CHE and HHE modules, alternative ratings of "No known or suspected CWM Hazard" and "No known or suspected MC Hazard" (per Section 7 of the HHE Module from the "Handbook on Realignment, Delination, and MRSPP Implementation, v. 1.0.2 dated 10/1/2011) were given since no evidence of MEC and/or MD was observed during the RI field work.

Description of Pathways for Human and Ecological Receptors: For MC, multiple pathways exist at this MRS; those include surface soil, ait/wind, food chain, and groundwater. For MEC, access is limited but available. Thus, intrusive and non-intrusive activities could allow for an exposure.

Description of Receptors (Human and Ecological): Site access is restricted by fencing. Potential receptors include general/occupational, trespassers, and terrestial biota.

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond **with all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions*, *small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	UXO that are considered most likely to function upon any interaction with exposed persons [e.g., submunitions, 40mm high-explosive (HE) grenades, white phosphorus (WP) munitions, high-explosive antitank (HEAT) munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions]. Hand grenades containing energetic filler. Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard	**30**
High Explosive (used or damaged)	UXO containing a high-explosive (HE) filler (e.g., RDX, Composition B), that are not considered "sensitive". DMM containing a high-explosive filler that have: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	**25**
Pyrotechnic (used or damaged)	UXO containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades). DMM containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades) that have: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	**20**
High-Explosive (unused)	DMM containing a high-explosive filler that: ■ Have not been damaged by burning or detonation Are not deteriorated to the point of instability	**15**
Propellant	UXO containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor). DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: ■ Damaged by burning or detonation ■ Deteriorated to the point of instability	**15**
Bulk secondary high explosives, pyrotechnics, or propellant	DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor), that are deteriorated. Bulk secondary high-explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	**10**
Pyrotechnic (not used or damaged)	DMM containing a pyrotechnic filler (I.e., red phosphorous), other than white phosphorous filler, that: ■ Have not been damaged by burning or detonation ■ Are not deteriorated to the point of instability	**10**
Practice	UXO that are practice munitions that are not associated with a sensitive fuze. DMM that are practice munitions that are not associated with a sensitive fuze and that have not: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	**5**
Riot Control	UXO or DMM containing a riot control agent filler (e.g., tear gas).	**3**
Small arms		**2**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Munitions Type	**Directions:** Record **the single highest score** from above in the box to the right (maximum score = 30)	**3**

Directions: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

No previous investigations were conducted on this MRS prior to the RI fieldwork. A total of 0.66 acres were investigated by Analog Intrusive-assisted surface Reconnaissance (AIR) and digital geophysical mapping (DGM) five 50 ft by 50 ft grids. No anomlies of MEC or MD were observed during the RI fieldwork.

Table 2

Classifications Within the EHE Module *Source of Hazard* Data Element

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond **with all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions* , *small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former Range	The MRS is a former military range where munitions including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas, associated buffer and safety zones, firing points, and live-fire maneuver areas.	**10**
Former Munitions Treatment (I.e., OB/OD) unit	The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	**8**
Former Practice Munitions Range	The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	**6**
Former Maneuver Area	The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	**(5)**
Former Burial Pit or other Disposal Area	The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a body of water) without prior thermal treatment.	**5**
Former Industrial Operating Facilities	The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	**4**
Former Firing Points	The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of the former military range.	**4**
Former Missile or Air Defense Artillery Emplacements	The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	**2**
Former Storage or Transfer Points	The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	**2**
Former Small Arms Range	The MRS is a former military range where only small arms ammunition was used. [There must be evidence that no other types of munitions (e.g., grenades) were used or are present to place an MRS into this category.	**1**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Source of Hazard	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**5**

Directions: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

No previous investigations were conducted on this MRS prior to the RI fieldwork. A total of 0.66 acres were investigated by Analog Intrusive-assisted surface Reconnaissance (AIR) and digital geophysical mapping (DGM) five 50 ft by 50 ft grids. No anomlies of MEC or MD were observed during the RI fieldwork.

Table 3

Classifications Within the EHE Module *Information on the Location of Munitions* Data Element

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.
Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed Surface	Physical evidence indicates that there are UXO or DMM on the surface of the MRS. Historical evidence (e.g., a confirmed incident report or accident report) indicates there are UXO or DMM on the surface of the MRS.	**25**
Confirmed Subsurface, Active	Physical evidence indicates that there are UXO or DMM on the surface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. Historical evidence indicates that there are UXO or DMM on the surface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	**20**
Confirmed Subsurface, Stable	Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are ***not*** likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are ***not*** likely to expose UXO or DMM. Historical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are ***not*** likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are ***not*** likely to expose UXO or DMM.	**15**
Suspected (Physical Evidence)	There is physical evidence (e.g., munitions debris, such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	**10**
Suspected (Historical Evidence)	There is historical evidence indicating that UXO or DMM may be present at the MRS.	**5**
Subsurface Physical Constraint	There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	**2**
Small Arms (regardless of location)	The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. [There must be evidence that no other types of munitions (e.g., grenades) were used or are present at the MRS to place an MRS in this category.]	**1**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	**(0)**
Location of Munitions	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	**0**

Directions: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

No previous investigations were conducted on this MRS prior to the RI fieldwork. A total of 0.66 acres were investigated by Analog Intrusive-assisted surface Reconnaissance (AIR) and digital geophysical mapping (DGM) five 50 ft by 50 ft grids. No anomlies of MEC or MD were observed during the RI fieldwork.

Table 4

EHE Module: *Ease of Access* Data Element

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS. **Note:** The term barrier is defined in Appendix C of the Primer.

Classification	Description	Score
No Barrier	There is no barrier preventing access to any part of the MRS (I.e., all parts of the MRS are accessible).	**10**
Barrier to MRS Access is Incomplete	There is a barrier preventing access to parts of the MRS, but not the entire MRS.	**8**
Barrier to MRS Access is Complete, But Not Monitored	There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by guard) to ensure that the barrier is effectively preventing access to all parts of the MRS..	**5**
Barrier to MRS Access is Complete and Monitored	There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS..	**(0)**
Ease of Access	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**0**

Directions: Document any MRS-specific data used in selecting the ***Ease of Access*** classifications in the space provided.

MRS is located on an industrial site owned by Kohler, is fenced off, and is monitored by security guards.

Table 5

EHE Module: *Status of Property* Data Element

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD Control	The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by the Department. Examples are privately-owned land or water bodies, land or water bodies owned or controlled by state, tribal, or local governments, and land or water bodies managed by other federal agencies.	**(5)**
Scheduled for Transfer from DoD Control	The MRS is on land or is a water body that is owned, leased, or otherwise possessed by the Department, and the Department plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government, a private party, another federal agency) within 3 years from the date the rule is applied.	**3**
DoD Control	The MRS is on land or is a water body that is owned, leased, or otherwise possessed by the Department. With respect to property that is leased or otherwise possessed, the Department must control access to the MRS 24 hours per day, every day of the calendar year.	**0**
Status of Property	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***Status of Property*** classifications in the space provided.

Table 6

EHE Module: *Population Density* Data Element

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score. **Note:** Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 Persons per Square Mile	There are more than 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**5**
100 to 500 Persons per Square Mile	There are 100 to 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**(3)**
< 100 Persons per Square Mile	There are fewer than 100 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**1**
Population Density:	Record the **single highest score** from above in the box to the right (maximum score = 5).	**3**

Directions: Document any MRS-specific data used in selecting the ***Population Density*** classifications in the space provided.

The MRS is located in Spartanburg County, South Carolina. According to the 2010 Census, Spartanburg County, South Carolina has a population density of 351.9 persons/square mile. http://quickfacts.census.gov/qfd/states/45/45083.html)

Table 7

EHE Module: *Population Near Hazard* Data Element

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term inhabited structures is defined in Appendix C of the Primer.

Classification	Description	Score
26 or More Inhabited Structures	There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**(5)**
16 to 25	There are 16 to 25 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**4**
11 to 15	There are 11 to 15 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**3**
6 to 10	There are 6 to 10 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**2**
1 to 5	There are 1 to 5 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**1**
0	There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**0**
POPULATION NEAR HAZARD	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classifications in the space provided.

A residental neighborhood is located immediately adjacent to the site; thus, there are more than 26 inhabited structures within a two-mile range.

Table 8

EHE Module: *Types of Activities/ Structures* Data Element

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with all the activities/structure classifications at the MRS.

Note: The term inhabited structure is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, Educational, Commercial, or Subsistence	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets, (e.g., hospitals, fire and rescue, police stations, dams), hotels commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing and gathering.	(5)
Parks and Recreational Areas	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	(4)
Agricultural, Forestry	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture and forestry.	(3)
Industrial or Warehousing	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	(2)
No Known or Recurring Activities	There are no known or recurring activities up to two miles from the MRS's boundary or within the MRS's boundary.	**1**
TYPES OF ACTIVITIES/STRUCTURES	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***TYPES OF ACTIVITIES/STRUCTURES*** classifications in the space provided.

Residential and Commercial structures located within 2 miles.

Table 9

EHE Module: *Ecological and / or Cultural Resources* Data Element

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms ecological resources and cultural resources are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and Cultural Resources Present	There are both ecological and cultural resources present on the MRS.	**5**
Ecological Resources Present	There are ecological resources present on the MRS.	**(3)**
Cultural Resources Present	There are cultural resources present on the MRS.	**3**
No Ecological or Cultural Resources Present	There are no ecological and cultural resources present on the MRS.	**0**
ECOLOGICAL AND/OR CULTURAL RESOURCES	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**3**

Directions: Document any MRS-specific data used in selecting the ***ECOLOGICAL AND/OR CULTURAL RESOURCES*** classifications in the space provided.

As of March 2012, South Carolina Department of Natural Resources (SCDNR) listed the Dwarf-flowered Heatleaf as the only threatened or endangered species in Spartanburg County (http://www.dnr.sc.gov/species/pdf/Spartanburg2012.pdf).

Table 10
Determining the EHE Module Rating

Directions:

1. From Tables 1 - 9, record the data element scores in the **Score** boxes to the right.

2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.

3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.

4. Circle the appropriate range for the **EHE Module Total** below.

5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

		Score	Value
Explosives Hazard Factor Data Elements			
Munitions Type	Table 1	**3**	**8**
Source of Hazard	Table 2	**5**	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	**0**	**5**
Ease of Access	Table 4	**0**	
Status of Property	Table 5	**5**	
Receptors Factor Data Elements			
Population Density	Table 6	**3**	**16**
Population Near Hazard	Table 7	**5**	
Types of Activities/ Structures	Table 8	**5**	
Ecological and/ or Cultural Resources	Table 9	**3**	
		EHE Module Total	**29**

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	(G)
Alternate Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE Module Rating	**G**

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

Table 11

Classifications Within the CHE Module *CWM Configuration* Data Element

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with all the CWM configurations known or suspected to be present at the MRS.
Note: The terms CWM/UXO, CWM/DMM, physical evidence, and historical evidence are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, Explosive Configuration, either UXO or Damaged DMM Damaged	The CWM known or suspected of being present at the MRS is: - Explosively configured CWM that are UXO (I.e., CWM/UXO). - Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	**30**
CWM Mixed With UXO	The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM, or CWM not configured as a munition, that are commingled with conventional munitions that are UXO.	**25**
CWM, Explosive Configuration that are DMM (undamaged)	The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM ,that have not been damaged.	**20**
CWM, Not Explosively Configured or CWM, Bulk Container	The CWM known or suspected of being present at the MRS is: - Non-Explosively configured CWM/DMM. - Bulk CWM/DMM (e.g., ton container).	**15**
CAIS K941 and CAIS K942	The CWM/DMM known or suspected of being present at the MRS is CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	**12**
CAIS (Chemical agent identification sets)	Only CAIS other than CAIS K941 and K942, are known or suspected of being present at the MRS.	**10**
Evidence of No CWM	Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	**(0)**
CWM CONFIGURATION	**DIRECTIONS:** Record the **single highest score** from above in the box to the right (maximum score = 30).	**0**

Directions: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space

No CWM was observed during the RI fieldwork.

Tables 12-19 are intentionally omitted-No Known or Suspected CWM Hazard.

Table 20
Determining the CHE Module Rating

Directions:

1. From Tables 1 - 9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three Value boxes and record this number in the CHE Module Total box below.
4. Circle the appropriate range for the CHE Module Total below.
5. Circle the CHE Module Rating that corresponds to the range selected and record this value in the CHE Module Rating box found at the bottom of the table.

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

		Score	Score	Value
CWM Hazard Factor Data Elements				
CWM Configuration	Table 11	0		**0**
Sources of CWM	Table 12	0		
0				
Location of CWM	Table 13	0		
Ease of Access	Table 14	0		**0**
Status of Property	Table 15	0		
Receptors Factor Data Elements				
Population Density	Table 16	0		
Population Near Hazard	Table17	0		
Types of Activities/ Structures	Table 18	0		**0**
Ecological and/ or Cultural Resources	Table 19	0		
			CHE Module Total	**0**

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternate Module Ratings	Evaluation Pending
	~~No Longer Required~~
	No Known or Suspected CWM Hazard
CHE Module Rating	**No Known or Suspected CWM Hazard**

Table 21
HHE Module: Groundwater Data Element Table
Contaminant Hazard Factor (CHF)

Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the comparison value. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the CHF Value. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	**Sum of the Ratios**	
CHF >100	H (high)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contaminant]	
2 > CHF	L (low)	[Comparison Value for Contaminant]	
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Groundwater MC Hazard

Table 21 Comments: Groundwater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 22
HHE Module: Surface Water-Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's surface water and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional surface water contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
Receptors Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Surface Water (Human Endpoint) MC Hazard

Table 22 Comments: Surfacewater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 23
HHE Module: Sediment-Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Sediment and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Sediment contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Sediment, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
No Analytical Data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contaminant]	
2 > CHF	L (low)	[Comparison Value for Contaminant]	
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Sediment to which contamination has moved or can move.	L
Receptors Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Sediment (Human Endpoint) MC Hazard

Table 23 Comments: Sediment sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 24
HHE Module: Surface Water - Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Surface Water and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Surface Water contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Surface Water, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Surface Water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Surface Water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Surface Water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Surface Water to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Surface Water (Ecological Endpoint) MC Hazard

Table 24 Comments: Surfacewater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 25
HHE Module: Sediment - Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Sediment and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Sediment contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Sediment, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
No Analytical Data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Sediment to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Sediment (Ecological Endpoint) MC Hazard

Table 25 Comments: Sediment sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 26
HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Surface Soil and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Surface Soil contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Surface Soil, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
No Analytical Data			
CHF Scale	CHF Value	Sum of the Ratios	**0.000**
CHF >100	H (high)	**CHF = SUM** [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Surface Soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Surface Soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Surface Soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Surface Soil to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Surface Soil MC Hazard

Table 26 Comments: RI/FS workplan states that soil samples will be collected in high MD or MEC areas, and be determined in the field. Little to no MD or MEC was observed in this MRS during field operations, and no soil samples were collected.

Table 27
HHE Module: Supplemental Contaminant Hazard Factor Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the media in which these contaminants are present. Then record all contaminants, their maximum concentrations and their comparison values (from Appendix B of the Primer) in the table below. Calculate and record the ratio for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the Contaminant Hazard, Migration Pathway, and Receptor Factors for the media (from Tables 21–26) in the corresponding boxes below.

2. Record the media's three-letter combinations in the Three-Letter Combination boxes below (three-letter combinations are arranged from Hs to Ms to Ls).

3. Using the HHE Ratings provided below, determine each media's rating (A–G) and record the letter in the corresponding Media Rating box below.

Media (source)	Contaminant Hazard Factor Value	Migratory Parthway Factor Value	Receptor Factor Value		Three-Letter Combination (Hs-Ms-Ls)		Media Rating (A-G)
Groundwater (Table 21)	No analytical data						
Surface Water/Human Endpoint (Table 22)	No analytical data						
Sediment/Human Endpoint (Table 23)	No analytical data						
Surface Water/Ecological Endpoint (Table 24)	No analytical data						
Sediment/Ecological Endpoint (Table 25)	No analytical data						
Surface Soil (Table 26)	No analytical data						

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the HHE Module Rating box.

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE Module Rating	

HHE Ratings (for reference only)	
Combination	**Rating**
HHH	A
HHM	B
HHL	C
HMM	
HML	D
MMM	
HLL	E
MML	
MLL	F
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter rating for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical priority for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the MRS Priority or Alternative MRS Rating at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
(G)	(8)			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		(No Known or Suspected CWM Hazard)		(No Known or Suspected MC Hazard)	
MRS or Alternative MRS Rating				**8**	

No previous investigations were conducted on this MRS prior to the RI fieldwork. A total of 0.66 acres were investigated by Analog Intrusive-assisted surface Reconnaissance (AIR) and digital geophysical mapping (DGM) five 50 ft by 50 ft grids. No anomlies of MEC or MD were observed during the RI fieldwork.observed during the RI field work.

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the MRS Summary, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: MRS 2 - Grenade Court

Component: U.S. Army

Installation/Property Name: Former Camp Croft

Location (City, County, State): Spartanburg, Spartanburg County, SC

Site Name; (RMIS ID)/Project Name (Project No.): MRS 2 - Grenade Court (RMS ID); Project Name (I04SC0016-03R02)

Date Information Entered/Updated: January 2014
Point of Contact (Name/Phone): Shawn Boone (843) 329-8158
Project Phase (check only one):

☐ PA	☐ SI Report	☒ RI	☐ FS	☐ RD
☐ RA-C	☐ RIP	☐ RA-O	☐ RC	☐ LTM

☐ Groundwater	☐ Sediment (human receptor)
☐ Surface Soil	☐ Surface Water (ecolocical receptor)
☐ Sediment (ecolocical receptor)	☐ Surface Water (human receptor)

MRS Summary: MRS 2 - Grenade Court is 24.9 acres and was used as a live and practice grenade training range. There have been no documented grenade finds since the installation's closure. There have been no previous investigations on this MRS prior to the RI fieldwork. A total of 0.09 acres were investigated during the RI fieldwork using a mag-and-dig method. There were no MEC or MD observed during the RI fieldwork.

MRS Description: MRS 2 - Grenade Court is 24.9 acres and was used as a live and practice grenade training range. Gas chambers have been identified through analysis historical aerial photos. There have been no documented grenade finds since the installation's closure. There have been no previous investigations on this MRS prior to the RI fieldwork. A total of 0.09 acres were investigated during the RI fieldwork using a mag-and-dig method. There were no MEC or MD observed during the RI fieldwork. The MRS is composed of property with a public roadway and right-ofway on the nothern portion of the MRS. Much of the MRS has been cleared during reidential and roadway construction. There are no physical barriers restricting access to the MRS.

US Army Topographic Engineering Center, 2005, GIS -Based Historical Photographic Analysis, Camp Croft Army Training Facility, Spartanburg Couty, SC, October 2005.

Coordination with the stakeholders was conducted during the 1st Technical Project Planning (TPP) Meeting (Reference: 2007 SI Report (Section ES.4; Appendix B) located on FRMD File Number I04FL028701_01.09_0503_a, and during the 2nd and 3rd TPP meetings conducted during the RI (Reference: 2013 Draft RI Report (Section 1.0.d; Appendix L. Reference: FRMD File Numbers I04FL028701_03.10_0500_a and I04FL028701_03.10_0501_a). Per MRSPP requirements, during the SI a public notice was issued announcing the MRSPP (Reference: FRMD File Number I04FL028701_08.13_0502_a).

Summary of Alternative Ratings: For the CHE and HHE modules, alternative ratings of "No known or suspected CWM Hazard" and "No known or suspected MC Hazard" (per Section 7 of the HHE Module from the "Handbook on Realignment, Delination, and MRSPP Implementation, v. 1.0.2 dated 10/1/2011) were given since no evidence of MEC and/or MD was observed during the RI field work.

Description of Pathways for Human and Ecological Receptors: For MC, multiple pathways exist at this MRS; those include surface soil, air/wind, food chain, and groundwater. For MEC, access is available. Thus, intrusive and non-intrusive activites could allow for exposure.

Description of Receptors (Human and Ecological): Site access is unrestricted. Potential receptors include residential, public, commerical/occupational, and terrestial biota.

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond **with all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions* , *small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	UXO that are considered most likely to function upon any interaction with exposed persons [e.g., submunitions, 40mm high-explosive (HE) grenades, white phosphorus (WP) munitions, high-explosive antitank (HEAT) munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions]. Hand grenades containing energetic filler. Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard	(30)
High Explosive (used or damaged)	UXO containing a high-explosive (HE) filler (e.g., RDX, Composition B), that are not considered "sensitive". DMM containing a high-explosive filler that have: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	**25**
Pyrotechnic (used or damaged)	UXO containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades). DMM containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades) that have: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	**20**
High-Explosive (unused)	DMM containing a high-explosive filler that: ■ Have not been damaged by burning or detonation Are not deteriorated to the point of instability	**15**
Propellant	UXO containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor). DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: ■ Damaged by burning or detonation ■ Deteriorated to the point of instability	**15**
Bulk secondary high explosives, pyrotechnics, or propellant	DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor), that are deteriorated. Bulk secondary high-explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	**10**
Pyrotechnic (not used or damaged)	DMM containing a pyrotechnic filler (I.e., red phosphorous), other than white phosphorous filler, that: ■ Have not been damaged by burning or detonation ■ Are not deteriorated to the point of instability	**10**
Practice	UXO that are practice munitions that are not associated with a sensitive fuze. DMM that are practice munitions that are not associated with a sensitive fuze and that have not: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	**5**
Riot Control	UXO or DMM containing a riot control agent filler (e.g., tear gas).	**3**
Small arms		**2**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Munitions Type	**Directions:** Record **the single highest score** from above in the box to the right (maximum score = 30)	**30**

Directions: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

There have been no documented grenade finds since the installation's closure. There have been no previous investigations on this MRS prior to the RI fieldwork. A total of 0.09 acres were investigated during the RI fieldwork using a mag-and-dig method. There were no MEC or MD observed during the RI fieldwork.

Table 2

Classifications Within the EHE Module *Source of Hazard* Data Element

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond **with all** the munitions types known or suspected to be present at the MRS.
Note: The terms *practice munitions* , *small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former Range	The MRS is a former military range where munitions including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas, associated buffer and safety zones, firing points, and live-fire maneuver areas.	**(10)**
Former Munitions Treatment (I.e., OB/OD) unit	The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	**8**
Former Practice Munitions Range	The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	**6**
Former Maneuver Area	The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	**5**
Former Burial Pit or other Disposal Area	The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a body of water) without prior thermal treatment.	**5**
Former Industrial Operating Facilities	The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	**4**
Former Firing Points	The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of the former military range.	**4**
Former Missile or Air Defense Artillery Emplacements	The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	**2**
Former Storage or Transfer Points	The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	**2**
Former Small Arms Range	The MRS is a former military range where only small arms ammunition was used. [There must be evidence that no other types of munitions (e.g., grenades) were used or are present to place an MRS into this category.	**1**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Source of Hazard	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

Directions: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

There have been no documented grenade finds since the installation's closure. There have been no previous investigations on this MRS prior to the RI fieldwork. A total of 0.09 acres were investigated during the RI fieldwork using a mag-and-dig method. There were no MEC or MD observed during the RI fieldwork.

Table 3

Classifications Within the EHE Module *Information on the Location of Munitions* Data Element

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.
Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed Surface	Physical evidence indicates that there are UXO or DMM on the surface of the MRS. Historical evidence (e.g., a confirmed incident report or accident report) indicates there are UXO or DMM on the surface of the MRS.	**25**
Confirmed Subsurface, Active	Physical evidence indicates that there are UXO or DMM on the surface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. Historical evidence indicates that there are UXO or DMM on the surface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	**20**
Confirmed Subsurface, Stable	Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are ***not*** likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are ***not*** likely to expose UXO or DMM. Historical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are ***not*** likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are ***not*** likely to expose UXO or DMM.	**15**
Suspected (Physical Evidence)	There is physical evidence (e.g., munitions debris, such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	**10**
Suspected (Historical Evidence)	There is historical evidence indicating that UXO or DMM may be present at the MRS.	**(5)**
Subsurface Physical Constraint	There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	**2**
Small Arms (regardless of location)	The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. [There must be evidence that no other types of munitions (e.g., grenades) were used or are present at the MRS to place an MRS in this category.]	**1**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Location of Munitions	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	**5**

Directions: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

There have been no documented grenade finds since the installation's closure. Gas chambers have been identified through analysis historical aerial photos. There have been no previous investigations on this MRS prior to the RI fieldwork. A total of 0.09 acres were investigated during the RI fieldwork using a mag-and-dig method. There were no MEC or MD observed during the RI fieldwork.

US Army Topographic Engineering Center, 2005, GIS -Based Historical Photographic Analysis, Camp Croft Army Training Facility, Spartanburg Couty, SC, October 2005.

Table 4

EHE Module: *Ease of Access* Data Element

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS. **Note:** The term barrier is defined in Appendix C of the Primer.

Classification	Description	Score
No Barrier	There is no barrier preventing access to any part of the MRS (I.e., all parts of the MRS are accessible).	**(10)**
Barrier to MRS Access is Incomplete	There is a barrier preventing access to parts of the MRS, but not the entire MRS.	**8**
Barrier to MRS Access is Complete, But Not Monitored	There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by guard) to ensure that the barrier is effectively preventing access to all parts of the MRS..	**5**
Barrier to MRS Access is Complete and Monitored	There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS..	**0**
Ease of Access	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

Directions: Document any MRS-specific data used in selecting the ***Ease of Access*** classifications in the space provided.

The MRS is located on private property of homeowners and public roadways. There is no physical barrier preventing access to the MRS.

Table 5

EHE Module: *Status of Property* Data Element

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD Control	The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by the Department. Examples are privately-owned land or water bodies, land or water bodies owned or controlled by state, tribal, or local governments, and land or water bodies managed by other federal agencies.	**(5)**
Scheduled for Transfer from DoD Control	The MRS is on land or is a water body that is owned, leased, or otherwise possessed by the Department, and the Department plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government, a private party, another federal agency) within 3 years from the date the rule is applied.	**3**
DoD Control	The MRS is on land or is a water body that is owned, leased, or otherwise possessed by the Department. With respect to property that is leased or otherwise possessed, the Department must control access to the MRS 24 hours per day, every day of the calendar year.	**0**
Status of Property	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***Status of Property*** classifications in the space provided.

Table 6

EHE Module: *Population Density* Data Element

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score. **Note:** Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 Persons per Square Mile	There are more than 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**5**
100 to 500 Persons per Square Mile	There are 100 to 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**(3)**
< 100 Persons per Square Mile	There are fewer than 100 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**1**
Population Density:	Record the **single highest score** from above in the box to the right (maximum score = 5).	**3**

Directions: Document any MRS-specific data used in selecting the ***Population Density*** classifications in the space provided.

The MRS is located in Spartanburg County, South Carolina. According to the 2010 Census, Spartanburg County, South Carolina has a population density of 351.9 persons/square mile. http://quickfacts.census.gov/qfd/states/45/45083.html)

Table 7

EHE Module: *Population Near Hazard* Data Element

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term inhabited structures is defined in Appendix C of the Primer.

Classification	Description	Score
26 or More Inhabited Structures	There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**(5)**
16 to 25	There are 16 to 25 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**4**
11 to 15	There are 11 to 15 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**3**
6 to 10	There are 6 to 10 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**2**
1 to 5	There are 1 to 5 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**1**
0	There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**0**
POPULATION NEAR HAZARD	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classifications in the space provided.

A residental neighborhood is located immediately adjacent to the site; thus, there are more than 26 inhabited structures within a two-mile range.

Table 8

EHE Module: *Types of Activities/ Structures* Data Element

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with all the activities/structure classifications at the MRS.

Note: The term inhabited structure is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, Educational, Commercial, or Subsistence	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets, (e.g., hospitals, fire and rescue, police stations, dams), hotels commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing and gathering.	(5)
Parks and Recreational Areas	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	(4)
Agricultural, Forestry	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture and forestry.	(3)
Industrial or Warehousing	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	(2)
No Known or Recurring Activities	There are no known or recurring activities up to two miles from the MRS's boundary or within the MRS's boundary.	**1**
TYPES OF ACTIVITIES/STRUCTURES	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***TYPES OF ACTIVITIES/STRUCTURES*** classifications in the space provided.

Residential and Commercial structures located within 2 miles.

Table 9

EHE Module: *Ecological and / or Cultural Resources* Data Element

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms ecological resources and cultural resources are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and Cultural Resources Present	There are both ecological and cultural resources present on the MRS.	**5**
Ecological Resources Present	There are ecological resources present on the MRS.	**(3)**
Cultural Resources Present	There are cultural resources present on the MRS.	**3**
No Ecological or Cultural Resources Present	There are no ecological and cultural resources present on the MRS.	**0**
ECOLOGICAL AND/OR CULTURAL RESOURCES	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**3**

Directions: Document any MRS-specific data used in selecting the ***ECOLOGICAL AND/OR CULTURAL RESOURCES*** classifications in the space provided.

As of March 2012, South Carolina Department of Natural Resources (SCDNR) listed the Dwarf-flowered Heatleaf as the only threatened or endangered species in Spartanburg County (http://www.dnr.sc.gov/species/pdf/Spartanburg2012.pdf).

Table 10
Determining the EHE Module Rating

Directions:

1. From Tables 1 - 9, record the data element scores in the **Score** boxes to the right.

2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.

3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.

4. Circle the appropriate range for the **EHE Module Total** below.

5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

		Score	Value
Explosives Hazard Factor Data Elements			
Munitions Type	Table 1	**30**	**40**
Source of Hazard	Table 2	**10**	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	**5**	**20**
Ease of Access	Table 4	**10**	
Status of Property	Table 5	**5**	
Receptors Factor Data Elements			
Population Density	Table 6	**3**	**16**
Population Near Hazard	Table 7	**5**	
Types of Activities/ Structures	Table 8	**5**	
Ecological and/ or Cultural Resources	Table 9	**3**	
		EHE Module Total	**76**

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternate Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE Module Rating	**C**

Table 11

Classifications Within the CHE Module *CWM Configuration* Data Element

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with all the CWM configurations known or suspected to be present at the MRS.
Note: The terms CWM/UXO, CWM/DMM, physical evidence, and historical evidence are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, Explosive Configuration, either UXO or Damaged DMM Damaged	The CWM known or suspected of being present at the MRS is: - Explosively configured CWM that are UXO (I.e., CWM/UXO). - Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	**30**
CWM Mixed With UXO	The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM, or CWM not configured as a munition, that are commingled with conventional munitions that are UXO.	**25**
CWM, Explosive Configuration that are DMM (undamaged)	The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM ,that have not been damaged.	**20**
CWM, Not Explosively Configured or CWM, Bulk Container	The CWM known or suspected of being present at the MRS is: - Non-Explosively configured CWM/DMM. - Bulk CWM/DMM (e.g., ton container).	**15**
CAIS K941 and CAIS K942	The CWM/DMM known or suspected of being present at the MRS is CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	**12**
CAIS (Chemical agent identification sets)	Only CAIS other than CAIS K941 and K942, are known or suspected of being present at the MRS.	**10**
Evidence of No CWM	Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	**(0)**
CWM CONFIGURATION	**DIRECTIONS:** Record the **single highest score** from above in the box to the right (maximum score = 30).	**0**

Directions: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space

No CWM was observed during the RI fieldwork.

Tables 12-19 are intentionally omitted-No Known or Suspected CWM Hazard.

Table 20
Determining the CHE Module Rating

Directions:

1. From Tables 1 - 9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three Value boxes and record this number in the CHE Module Total box below.
4. Circle the appropriate range for the CHE Module Total below.
5. Circle the CHE Module Rating that corresponds to the range selected and record this value in the CHE Module Rating box found at the bottom of the table.

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

		Score	Score	Value
CWM Hazard Factor Data Elements				
CWM Configuration	Table 11	0		**0**
Sources of CWM	Table 12	0		
0				
Location of CWM	Table 13	0		
Ease of Access	Table 14	0		**0**
Status of Property	Table 15	0		
Receptors Factor Data Elements				
Population Density	Table 16	0		
Population Near Hazard	Table17	0		
Types of Activities/ Structures	Table 18	0		**0**
Ecological and/ or Cultural Resources	Table 19	0		
			CHE Module Total	**0**

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternate Module Ratings	Evaluation Pending
	~~No Longer Required~~
	No Known or Suspected CWM Hazard
CHE Module Rating	**No Known or Suspected CWM Hazard**

Table 21
HHE Module: Groundwater Data Element Table
Contaminant Hazard Factor (CHF)

Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the comparison value. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the CHF Value. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	**Sum of the Ratios**	
CHF >100	H (high)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contaminant]	
2 > CHF	L (low)	[Comparison Value for Contaminant]	
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Groundwater MC Hazard

Table 21 Comments: Groundwater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 22
HHE Module: Surface Water-Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's surface water and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional surface water contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
Receptors Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Surface Water (Human Endpoint) MC Hazard

Table 22 Comments: Surfacewater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 23

HHE Module: Sediment-Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Sediment and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Sediment contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Sediment, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
No Analytical Data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contaminant]	
2 > CHF	L (low)	[Comparison Value for Contaminant]	
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Sediment to which contamination has moved or can move.	L
Receptors Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Sediment (Human Endpoint) MC Hazard

Table 23 Comments: Sediment sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 24
HHE Module: Surface Water - Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Surface Water and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Surface Water contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Surface Water, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Surface Water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Surface Water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Surface Water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Surface Water to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Surface Water (Ecological Endpoint) MC Hazard

Table 24 Comments: Surfacewater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 25
HHE Module: Sediment - Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Sediment and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Sediment contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Sediment, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
No Analytical Data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H)	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Sediment to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Sediment (Ecological Endpoint) MC Hazard

Table 25 Comments: Sediment sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 26
HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Surface Soil and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Surface Soil contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Surface Soil, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	**CHF = SUM** [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Surface Soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Surface Soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Surface Soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Surface Soil to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Surface Soil MC Hazard

Table 26 Comments: RI/FS workplan states that soil samples will be collected in high MD or MEC areas, and be determined in the field. Little to no MD or MEC was observed in this MRS during field operations, and no soil samples were collected.

Table 27
HHE Module: Supplemental Contaminant Hazard Factor Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the media in which these contaminants are present. Then record all contaminants, their maximum concentrations and their comparison values (from Appendix B of the Primer) in the table below. Calculate and record the ratio for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the Contaminant Hazard, Migration Pathway, and Receptor Factors for the media (from Tables 21–26) in the corresponding boxes below.

2. Record the media's three-letter combinations in the Three-Letter Combination boxes below (three-letter combinations are arranged from Hs to Ms to Ls).

3. Using the HHE Ratings provided below, determine each media's rating (A–G) and record the letter in the corresponding Media Rating box below.

Media (source)	Contaminant Hazard Factor Value	Migratory Parthway Factor Value	Receptor Factor Value		Three-Letter Combination (Hs-Ms-Ls)		Media Rating (A-G)
Groundwater (Table 21)	No analytical data						
Surface Water/Human Endpoint (Table 22)	No analytical data						
Sediment/Human Endpoint (Table 23)	No analytical data						
Surface Water/Ecological Endpoint (Table 24)	No analytical data						
Sediment/Ecological Endpoint (Table 25)	No analytical data						
Surface Soil (Table 26)	No analytical data						

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the HHE Module Rating box.

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE Module Rating	

HHE Ratings (for reference only)	
Combination	**Rating**
HHH	A
HHM	B
HHL	C
HMM	
HML	D
MMM	
HLL	E
MML	
MLL	F
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter rating for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical priority for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the MRS Priority or Alternative MRS Rating at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		No Known or Suspected CWM Hazard		No Known or Suspected MC Hazard	
MRS or Alternative MRS Rating				**4**	

There have been no documented grenade finds since the installation's closure. There have been no previous investigations on this MRS prior to the RI fieldwork. A total of 0.09 acres were investigated during the RI fieldwork using a mag-and-dig method. There were no MEC or MD observed during the RI fieldwork.

Table A

MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the MRS Summary, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Proposed 105mm Area

Component: U.S. Army

Installation/Property Name: Former Camp Croft

Location (City, County, State): Spartanburg, Spartanburg County, SC

Site Name; (RMIS ID)/Project Name (Project No.): Proposed 105mm Area; (RMS ID); Project Name (I04SC0016-03R02)

Date Information Entered/Updated: January 2014
Point of Contact (Name/Phone): Shawn Boone (843) 329-8158
Project Phase (check only one):

☐ PA	☐ SI Report	☒ RI	☐ FS	☐ RD
☐ RA-C	☐ RIP	☐ RA-O	☐ RC	☐ LTM

☐ Groundwater	☐ Sediment (human receptor)
☒ Surface Soil	☐ Surface Water (ecolocical receptor)
☐ Sediment (ecolocical receptor)	☐ Surface Water (human receptor)

MRS Summary: The proposed 105mm Area A is 483 acres in size and was used as an artillery training and combat range using live and practice munitions. M43 81mm mortar parts, M49 60mm mortar, and M84 105mm HC smoke rounds have been recovered from this MRS.

MRS Description: M43 81mm mortar parts, M49 60mm mortar, and M84 105mm HC smoke rounds have been recovered from this MRS. An EE/CA was performed in 1996 and again in 1998 while a MEC revomal effort was conducted in 2001. Proposed MRS 3a consists of Croft State Natural Area with public roadways and right-of-ways, private residents property, commerical, and religious property is located within the MRS boundary.

Coordination with the stakeholders was conducted during the 1st Technical Project Planning (TPP) Meeting (Reference: 2007 SI Report (Section ES.4; Appendix B) located on FRMD File Number I04FL028701_01.09_0503_a, and during the 2nd and 3rd TPP meetings conducted during the RI (Reference: 2013 Draft RI Report (Section 1.0.d; Appendix L. Reference: FRMD File Numbers I04FL028701_03.10_0500_a and I04FL028701_03.10_0501_a). Per MRSPP requirements, during the SI a public notice was issued announcing the MRSPP (Reference: FRMD File Number I04FL028701_08.13_0502_a).

Summary of Alternative Ratings: For the CHE alternative rating of "No known or suspected CWM Hazard" were given since no evidence of CWM was observed during the RI field work.

Description of Pathways for Human and Ecological Receptors: For MC, multiple pathways exist at this MRS; those include surface soil, air/wind, food chain, and groundwater. For MEC, access is available. Thus, intrusive and non-intrusive activites could allow for exposure.

Description of Receptors (Human and Ecological): Site access is unrestricted. Potential receptors include residential, public, commerical/occupational, and terrestial biota.

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond **with all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions* , *small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	UXO that are considered most likely to function upon any interaction with exposed persons [e.g., submunitions, 40mm high-explosive (HE) grenades, white phosphorus (WP) munitions, high-explosive antitank (HEAT) munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions]. Hand grenades containing energetic filler. Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard	**30**
High Explosive (used or damaged)	UXO containing a high-explosive (HE) filler (e.g., RDX, Composition B), that are not considered "sensitive". DMM containing a high-explosive filler that have: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	**(25)**
Pyrotechnic (used or damaged)	UXO containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades). DMM containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades) that have: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	**20**
High-Explosive (unused)	DMM containing a high-explosive filler that: ■ Have not been damaged by burning or detonation Are not deteriorated to the point of instability	**15**
Propellant	UXO containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor). DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: ■ Damaged by burning or detonation ■ Deteriorated to the point of instability	**15**
Bulk secondary high explosives, pyrotechnics, or propellant	DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor), that are deteriorated. Bulk secondary high-explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	**10**
Pyrotechnic (not used or damaged)	DMM containing a pyrotechnic filler (I.e., red phosphorous), other than white phosphorous filler, that: ■ Have not been damaged by burning or detonation ■ Are not deteriorated to the point of instability	**10**
Practice	UXO that are practice munitions that are not associated with a sensitive fuze. DMM that are practice munitions that are not associated with a sensitive fuze and that have not: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	**5**
Riot Control	UXO or DMM containing a riot control agent filler (e.g., tear gas).	**3**
Small arms		**2**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Munitions Type	**Directions:** Record **the single highest score** from above in the box to the right (maximum score = 30)	**25**

Directions: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

M43 81mm mortar parts, M49 60mm mortar, and M84 105mm HC smoke rounds have been recovered from this MRS. An EE/CA was performed in 1996 and again in 1998 while a MEC revomal effort was conducted in 2001.

Table 2

Classifications Within the EHE Module *Source of Hazard* Data Element

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond **with all** the munitions types known or suspected to be present at the MRS.
Note: The terms *practice munitions* , *small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former Range	The MRS is a former military range where munitions including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas, associated buffer and safety zones, firing points, and live-fire maneuver areas.	**10**
Former Munitions Treatment (I.e., OB/OD) unit	The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	**8**
Former Practice Munitions Range	The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	**6**
Former Maneuver Area	The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	**5**
Former Burial Pit or other Disposal Area	The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a body of water) without prior thermal treatment.	**5**
Former Industrial Operating Facilities	The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	**4**
Former Firing Points	The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of the former military range.	**4**
Former Missile or Air Defense Artillery Emplacements	The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	**2**
Former Storage or Transfer Points	The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	**2**
Former Small Arms Range	The MRS is a former military range where only small arms ammunition was used. [There must be evidence that no other types of munitions (e.g., grenades) were used or are present to place an MRS into this category.	**1**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Source of Hazard	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

Directions: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

M43 81mm mortar parts, M49 60mm mortar, and M84 105mm HC smoke rounds have been recovered from this MRS. An EE/CA was performed in 1996 and again in 1998 while a MEC revomal effort was conducted in 2001.

Table 3

Classifications Within the EHE Module *Information on the Location of Munitions* Data Element

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.
Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed Surface	Physical evidence indicates that there are UXO or DMM on the surface of the MRS. Historical evidence (e.g., a confirmed incident report or accident report) indicates there are UXO or DMM on the surface of the MRS.	(25)
Confirmed Subsurface, Active	Physical evidence indicates that there are UXO or DMM on the surface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. Historical evidence indicates that there are UXO or DMM on the surface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	**20**
Confirmed Subsurface, Stable	Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are ***not*** likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are ***not*** likely to expose UXO or DMM. Historical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are ***not*** likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are ***not*** likely to expose UXO or DMM.	**15**
Suspected (Physical Evidence)	There is physical evidence (e.g., munitions debris, such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	**10**
Suspected (Historical Evidence)	There is historical evidence indicating that UXO or DMM may be present at the MRS.	(5)
Subsurface Physical Constraint	There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	**2**
Small Arms (regardless of location)	The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. [There must be evidence that no other types of munitions (e.g., grenades) were used or are present at the MRS to place an MRS in this category.]	**1**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Location of Munitions	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	**25**

Directions: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

M43 81mm mortar parts, M49 60mm mortar, and M84 105mm HC smoke rounds have been recovered from this MRS. An EE/CA was performed in 1996 and again in 1998 while a MEC revomal effort was conducted in 2001.

Table 4

EHE Module: *Ease of Access* Data Element

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS. **Note:** The term barrier is defined in Appendix C of the Primer.

Classification	Description	Score
No Barrier	There is no barrier preventing access to any part of the MRS (I.e., all parts of the MRS are accessible).	**(10)**
Barrier to MRS Access is Incomplete	There is a barrier preventing access to parts of the MRS, but not the entire MRS.	**8**
Barrier to MRS Access is Complete, But Not Monitored	There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by guard) to ensure that the barrier is effectively preventing access to all parts of the MRS..	**5**
Barrier to MRS Access is Complete and Monitored	There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS..	**0**
Ease of Access	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

Directions: Document any MRS-specific data used in selecting the ***Ease of Access*** classifications in the space provided.

Proposed 105mm Area consists of private property, public roadways, right-of-ways, commerical, and religious property with no barriers to prevent access.

Table 5

EHE Module: *Status of Property* Data Element

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD Control	The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by the Department. Examples are privately-owned land or water bodies, land or water bodies owned or controlled by state, tribal, or local governments, and land or water bodies managed by other federal agencies.	**(5)**
Scheduled for Transfer from DoD Control	The MRS is on land or is a water body that is owned, leased, or otherwise possessed by the Department, and the Department plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government, a private party, another federal agency) within 3 years from the date the rule is applied.	**3**
DoD Control	The MRS is on land or is a water body that is owned, leased, or otherwise possessed by the Department. With respect to property that is leased or otherwise possessed, the Department must control access to the MRS 24 hours per day, every day of the calendar year.	**0**
Status of Property	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***Status of Property*** classifications in the space provided.

Proposed 105mm Area consists of private property, public roadways, right-of-ways, commerical, and religious property.

Table 6

EHE Module: *Population Density* Data Element

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score. **Note:** Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 Persons per Square Mile	There are more than 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**5**
100 to 500 Persons per Square Mile	There are 100 to 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**(3)**
< 100 Persons per Square Mile	There are fewer than 100 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**1**
Population Density:	Record the **single highest score** from above in the box to the right (maximum score = 5).	**3**

Directions: Document any MRS-specific data used in selecting the ***Population Density*** classifications in the space provided.

The MRS is located in Spartanburg County, South Carolina. According to the 2010 Census, Spartanburg County, South Carolina has a population density of 351.9 persons/square mile. http://quickfacts.census.gov/qfd/states/45/45083.html)

Table 7

EHE Module: *Population Near Hazard* Data Element

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term inhabited structures is defined in Appendix C of the Primer.

Classification	Description	Score
26 or More Inhabited Structures	There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**(5)**
16 to 25	There are 16 to 25 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**4**
11 to 15	There are 11 to 15 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**3**
6 to 10	There are 6 to 10 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**2**
1 to 5	There are 1 to 5 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**1**
0	There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**0**
POPULATION NEAR HAZARD	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classifications in the space provided.

Table 8

EHE Module: *Types of Activities/ Structures* Data Element

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with all the activities/structure classifications at the MRS.

Note: The term inhabited structure is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, Educational, Commercial, or Subsistence	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets, (e.g., hospitals, fire and rescue, police stations, dams), hotels commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing and gathering.	**(5)**
Parks and Recreational Areas	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	**4**
Agricultural, Forestry	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture and forestry.	**3**
Industrial or Warehousing	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	**2**
No Known or Recurring Activities	There are no known or recurring activities up to two miles from the MRS's boundary or within the MRS's boundary.	**1**
TYPES OF ACTIVITIES/STRUCTURES	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***TYPES OF ACTIVITIES/STRUCTURES*** classifications in the space provided.

Residential and Commercial structures located within 2 miles.

Table 9

EHE Module: *Ecological and / or Cultural Resources* Data Element

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms ecological resources and cultural resources are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and Cultural Resources Present	There are both ecological and cultural resources present on the MRS.	**5**
Ecological Resources Present	There are ecological resources present on the MRS.	**(3)**
Cultural Resources Present	There are cultural resources present on the MRS.	**3**
No Ecological or Cultural Resources Present	There are no ecological and cultural resources present on the MRS.	**0**
ECOLOGICAL AND/OR CULTURAL RESOURCES	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**3**

Directions: Document any MRS-specific data used in selecting the ***ECOLOGICAL AND/OR CULTURAL RESOURCES*** classifications in the space provided.

As of March 2012, South Carolina Department of Natural Resources (SCDNR) listed the Dwarf-flowered Heatleaf as the only threatened or endangered species in Spartanburg County (http://www.dnr.sc.gov/species/pdf/Spartanburg2012.pdf).

Table 10
Determining the EHE Module Rating

Directions:

1. From Tables 1 - 9, record the data element scores in the **Score** boxes to the right.

2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.

3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.

4. Circle the appropriate range for the **EHE Module Total** below.

5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

		Score	Score	Value
Explosives Hazard Factor Data Elements				
Munitions Type	Table 1	**25**		**35**
Source of Hazard	Table 2	**10**		
Accessibility Factor Data Elements				
Location of Munitions	Table 3	**25**		**40**
Ease of Access	Table 4	**10**		
Status of Property	Table 5	**5**		
Receptors Factor Data Elements				
Population Density	Table 6	**3**		**16**
Population Near Hazard	Table 7	**5**		
Types of Activities/ Structures	Table 8	**5**		
Ecological and/ or Cultural Resources	Table 9	**3**		
			EHE Module Total	**91**

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	(B)
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternate Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE Module Rating	**B**

Table 11

Classifications Within the CHE Module *CWM Configuration* Data Element

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with all the CWM configurations known or suspected to be present at the MRS.
Note: The terms CWM/UXO, CWM/DMM, physical evidence, and historical evidence are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, Explosive Configuration, either UXO or Damaged DMM Damaged	The CWM known or suspected of being present at the MRS is: - Explosively configured CWM that are UXO (I.e., CWM/UXO). - Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	**30**
CWM Mixed With UXO	The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM, or CWM not configured as a munition, that are commingled with conventional munitions that are UXO.	**25**
CWM, Explosive Configuration that are DMM (undamaged)	The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM ,that have not been damaged.	**20**
CWM, Not Explosively Configured or CWM, Bulk Container	The CWM known or suspected of being present at the MRS is: - Non-Explosively configured CWM/DMM. - Bulk CWM/DMM (e.g., ton container).	**15**
CAIS K941 and CAIS K942	The CWM/DMM known or suspected of being present at the MRS is CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	**12**
CAIS (Chemical agent identification sets)	Only CAIS other than CAIS K941 and K942, are known or suspected of being present at the MRS.	**10**
Evidence of No CWM	Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	**(0)**
CWM CONFIGURATION	**DIRECTIONS:** Record the **single highest score** from above in the box to the right (maximum score = 30).	**0**

Directions: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space

No CWM was observed during the RI fieldwork.

Tables 12-19 are intentionally omitted-No Known or Suspected CWM Hazard.

Table 20
Determining the CHE Module Rating

Directions:

1. From Tables 1 - 9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three Value boxes and record this number in the CHE Module Total box below.
4. Circle the appropriate range for the CHE Module Total below.
5. Circle the CHE Module Rating that corresponds to the range selected and record this value in the CHE Module Rating box found at the bottom of the table.

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

		Score	Score	Value
CWM Hazard Factor Data Elements				
CWM Configuration	Table 11	0		**0**
Sources of CWM	Table 12	0		
0				
Location of CWM	Table 13	0		
Ease of Access	Table 14	0		**0**
Status of Property	Table 15	0		
Receptors Factor Data Elements				
Population Density	Table 16	0		
Population Near Hazard	Table17	0		
Types of Activities/ Structures	Table 18	0		**0**
Ecological and/ or Cultural Resources	Table 19	0		
			CHE Module Total	**0**

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternate Module Ratings	Evaluation Pending
	~~No Longer Required~~
	No Known or Suspected CWM Hazard
CHE Module Rating	**No Known or Suspected CWM Hazard**

Table 21
HHE Module: Groundwater Data Element Table

Contaminant Hazard Factor (CHF)

Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the comparison value. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the CHF Value. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	**Sum of the Ratios**	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Groundwater MC Hazard

Table 21 Comments: Groundwater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 22
HHE Module: Surface Water-Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's surface water and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional surface water contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
Receptors Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Surface Water (Human Endpoint) MC Hazard

Table 22 Comments: Surfacewater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 23
HHE Module: Sediment-Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Sediment and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Sediment contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Sediment, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
No Analytical Data			
CHF Scale	CHF Value	Sum of the Ratios	**0.000**
CHF >100	H (high)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contaminant]	
2 > CHF	L (low)	[Comparison Value for Contaminant]	
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Sediment to which contamination has moved or can move.	L
Receptors Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Sediment (Human Endpoint) MC Hazard

Table 23 Comments: Sediment sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 24
HHE Module: Surface Water - Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Surface Water and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Surface Water contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Surface Water, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Surface Water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Surface Water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Surface Water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Surface Water to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Surface Water (Ecological Endpoint) MC Hazard

Table 24 Comments: Surfacewater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 25
HHE Module: Sediment - Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Sediment and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Sediment contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Sediment, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
No Analytical Data			

CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		

Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).	

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Sediment to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Sediment (Ecological Endpoint) MC Hazard

Table 25 Comments: Sediment sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 26
HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Surface Soil and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Surface Soil contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Surface Soil, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
Antimony	**0.19**	**31**	**0.006**
Copper	**80**	**3,100**	**0.026**
Lead	**48.7**	**400**	**0.122**
Zinc	**57.9**	**23000**	**0.003**
CHF Scale	CHF Value	Sum of the Ratios	**0.156**
CHF >100	H (high)	**CHF = SUM** [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		**L**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Surface Soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	**M**

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Surface Soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Surface Soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Surface Soil to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	**L**

No known or Suspected Surface Soil MC Hazard

Table 26 Comments: Surface soil samples were analyzed for antimony, copper, lead, zinc, and explosive compounds, including nitroglycerine and PETN.

Table 27
HHE Module: Supplemental Contaminant Hazard Factor Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the media in which these contaminants are present. Then record all contaminants, their maximum concentrations and their comparison values (from Appendix B of the Primer) in the table below. Calculate and record the ratio for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the Contaminant Hazard, Migration Pathway, and Receptor Factors for the media (from Tables 21–26) in the corresponding boxes below.

2. Record the media's three-letter combinations in the Three-Letter Combination boxes below (three-letter combinations are arranged from Hs to Ms to Ls).

3. Using the HHE Ratings provided below, determine each media's rating (A–G) and record the letter in the corresponding Media Rating box below.

Media (source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value		Three-Letter Combination (Hs-Ms-Ls)		Media Rating (A-G)
Groundwater (Table 21)	No analytical data						
Surface Water/Human Endpoint (Table 22)	No analytical data						
Sediment/Human Endpoint (Table 23)	No analytical data						
Surface Water/Ecological Endpoint (Table 24)	No analytical data						
Sediment/Ecological Endpoint (Table 25)	No analytical data						
Surface Soil (Table 26)	L	M	L		MLL		F

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the HHE Module Rating box.

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE Module Rating	F

HHE Ratings (for reference only)	
Combination	**Rating**
HHH	A
HHM	B
HHL	C
HMM	C
HML	D
MMM	D
HLL	E
MML	E
MLL	(F)
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter rating for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical priority for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the MRS Priority or Alternative MRS Rating at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
(B)	(3)	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	(F)	(7)
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		(No Known or Suspected CWM Hazard)		No Known or Suspected MC Hazard	
MRS or Alternative MRS Rating				**3**	

M43 81mm mortar parts, M49 60mm mortar, and M84 105mm HC smoke rounds have been recovered from this MRS. An EE/CA was performed in 1996 and again in 1998 while a MEC revomal effort was conducted in 2001. Proposed 105mm Area consists of Croft State Natural Area with public roadways and right-of-ways, private residents property, commerical, and religious property is located within the MRS boundary.

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the MRS Summary, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Proposed Maneuver Area

Component: U.S. Army

Installation/Property Name: Former Camp Croft

Location (City, County, State): Spartanburg, Spartanburg County, SC

Site Name; (RMIS ID)/Project Name (Project No.): Proposed Maneuver Area A (RMS ID); Project Name (I04SC0016-03R02)

Date Information Entered/Updated: January 2014
Point of Contact (Name/Phone): Shawn Boone (843) 329-8158
Project Phase (check only one):

☐ PA	☐ SI Report	☒ RI	☐ FS	☐ RD
☐ RA-C	☐ RIP	☐ RA-O	☐ RC	☐ LTM

☐ Groundwater	☐ Sediment (human receptor)
☒ Surface Soil	☐ Surface Water (ecolocical receptor)
☐ Sediment (ecolocical receptor)	☐ Surface Water (human receptor)

MRS Summary: Proposed Maneuver Area A was used as an artillery training and combat range using live and practice munitons. The MRS is 941 acres in size. 37mm and 57mm inerts projectiles have been removed from this MRS either during the EE/CA that was performed in 1996 and again in 1998 or during the RI fieldwork.

MRS Description: Proposed Maneuver Area A was used as an artillery training and combat range using live and practice munitons. The MRS is 941 acres in size. 37mm and 57mm inerts projectiles have been removed from this MRS either during the EE/CA that was performed in 1996 and again in 1998 or during the RI fieldwork. The MRS is located on Croft State Natural Area with public roadways and right-of-ways running throughout the site. General public and recreational users (hikers, bikers,campling, and horseback riders) have unrestricted access to the MRS.

Coordination with the stakeholders was conducted during the 1st Technical Project Planning (TPP) Meeting (Reference: 2007 SI Report (Section ES.4; Appendix B) located on FRMD File Number I04FL028701_01.09_0503_a, and during the 2nd and 3rd TPP meetings conducted during the RI (Reference: 2013 Draft RI Report (Section 1.0.d; Appendix L. Reference: FRMD File Numbers I04FL028701_03.10_0500_a and I04FL028701_03.10_0501_a). Per MRSPP requirements, during the SI a public notice was issued announcing the MRSPP (Reference: FRMD File Number I04FL028701_08.13_0502_a).

Summary of Alternative Ratings: For the CHE module alternative ratings of "No known or suspected CWM Hazard" were given since no evidence of CWM was observed during the RI field work.

Description of Pathways for Human and Ecological Receptors: For MC, multiple pathways exist at this MRS; those include surface soil, air/wind, food chain, and groundwater. For MEC, access is available. Thus, intrusive and non-intrusive activites could allow for exposure.

Description of Receptors (Human and Ecological): Site access is unrestricted. Potential receptors include residential, public, commerical/occupational, and terrestial biota.

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond **with all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions* , *small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	UXO that are considered most likely to function upon any interaction with exposed persons [e.g., submunitions, 40mm high-explosive (HE) grenades, white phosphorus (WP) munitions, high-explosive antitank (HEAT) munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions]. Hand grenades containing energetic filler. Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard	**30**
High Explosive (used or damaged)	UXO containing a high-explosive (HE) filler (e.g., RDX, Composition B), that are not considered "sensitive".	**(25)**
	DMM containing a high-explosive filler that have: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	
Pyrotechnic (used or damaged)	UXO containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades).	**20**
	DMM containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades) that have: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	
High-Explosive (unused)	DMM containing a high-explosive filler that: ■ Have not been damaged by burning or detonation Are not deteriorated to the point of instability	**15**
Propellant	UXO containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor).	**15**
	DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: ■ Damaged by burning or detonation ■ Deteriorated to the point of instability	
Bulk secondary high explosives, pyrotechnics, or propellant	DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor), that are deteriorated.	**10**
	Bulk secondary high-explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	
Pyrotechnic (not used or damaged)	DMM containing a pyrotechnic filler (I.e., red phosphorous), other than white phosphorous filler, that: ■ Have not been damaged by burning or detonation ■ Are not deteriorated to the point of instability	**10**
Practice	UXO that are practice munitions that are not associated with a sensitive fuze.	**5**
	DMM that are practice munitions that are not associated with a sensitive fuze and that have not: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	
Riot Control	UXO or DMM containing a riot control agent filler (e.g., tear gas).	**3**
Small arms		**2**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Munitions Type	**Directions:** Record **the single highest score** from above in the box to the right (maximum score = 30)	**25**

Directions: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

Proposed Maneuver Area was used as an artillery training and combat range using live and practice munitons. The MRS is 941 acres in size. 37mm and 57mm inerts projectiles have been removed from this MRS either during the EE/CA that was performed in 1996 and again in 1998 or during the RI fieldwork.

Table 2

Classifications Within the EHE Module *Source of Hazard* Data Element

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond **with all** the munitions types known or suspected to be present at the MRS.
Note: The terms *practice munitions* , *small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former Range	The MRS is a former military range where munitions including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas, associated buffer and safety zones, firing points, and live-fire maneuver areas.	**10**
Former Munitions Treatment (I.e., OB/OD) unit	The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	**8**
Former Practice Munitions Range	The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	**6**
Former Maneuver Area	The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	**5**
Former Burial Pit or other Disposal Area	The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a body of water) without prior thermal treatment.	**5**
Former Industrial Operating Facilities	The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	**4**
Former Firing Points	The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of the former military range.	**4**
Former Missile or Air Defense Artillery Emplacements	The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	**2**
Former Storage or Transfer Points	The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	**2**
Former Small Arms Range	The MRS is a former military range where only small arms ammunition was used. [There must be evidence that no other types of munitions (e.g., grenades) were used or are present to place an MRS into this category.	**1**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Source of Hazard	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

Directions: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

Proposed Maneuver Area was used as an artillery training and combat range using live and practice munitons. The MRS is 941 acres in size. 37mm and 57mm inerts projectiles have been removed from this MRS either during the EE/CA that was performed in 1996 and again in 1998 or during the RI fieldwork.

Table 3

Classifications Within the EHE Module *Information on the Location of Munitions* Data Element

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.
Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed Surface	Physical evidence indicates that there are UXO or DMM on the surface of the MRS. Historical evidence (e.g., a confirmed incident report or accident report) indicates there are UXO or DMM on the surface of the MRS.	(25)
Confirmed Subsurface, Active	Physical evidence indicates that there are UXO or DMM on the surface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. Historical evidence indicates that there are UXO or DMM on the surface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	**20**
Confirmed Subsurface, Stable	Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are ***not*** likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are ***not*** likely to expose UXO or DMM. Historical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are ***not*** likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are ***not*** likely to expose UXO or DMM.	**15**
Suspected (Physical Evidence)	There is physical evidence (e.g., munitions debris, such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	**10**
Suspected (Historical Evidence)	There is historical evidence indicating that UXO or DMM may be present at the MRS.	(5)
Subsurface Physical Constraint	There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	**2**
Small Arms (regardless of location)	The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. [There must be evidence that no other types of munitions (e.g., grenades) were used or are present at the MRS to place an MRS in this category.]	**1**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Location of Munitions	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	**25**

Directions: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

Proposed Maneuver Area was used as an artillery training and combat range using live and practice munitons. The MRS is 941 acres in size. 37mm and 57mm inerts projectiles have been removed from this MRS either during the EE/CA that was performed in 1996 and again in 1998 or during the RI fieldwork.

Table 4

EHE Module: *Ease of Access* Data Element

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS. **Note:** The term barrier is defined in Appendix C of the Primer.

Classification	Description	Score
No Barrier	There is no barrier preventing access to any part of the MRS (I.e., all parts of the MRS are accessible).	**(10)**
Barrier to MRS Access is Incomplete	There is a barrier preventing access to parts of the MRS, but not the entire MRS.	**8**
Barrier to MRS Access is Complete, But Not Monitored	There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by guard) to ensure that the barrier is effectively preventing access to all parts of the MRS..	**5**
Barrier to MRS Access is Complete and Monitored	There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS..	**0**
Ease of Access	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

Directions: Document any MRS-specific data used in selecting the ***Ease of Access*** classifications in the space provided.

Proposed Maneuver Area consists of state park property with no barriers to prevent access to the MRS.

Table 5

EHE Module: *Status of Property* Data Element

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD Control	The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by the Department. Examples are privately-owned land or water bodies, land or water bodies owned or controlled by state, tribal, or local governments, and land or water bodies managed by other federal agencies.	(5)
Scheduled for Transfer from DoD Control	The MRS is on land or is a water body that is owned, leased, or otherwise possessed by the Department, and the Department plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government, a private party, another federal agency) within 3 years from the date the rule is applied.	**3**
DoD Control	The MRS is on land or is a water body that is owned, leased, or otherwise possessed by the Department. With respect to property that is leased or otherwise possessed, the Department must control access to the MRS 24 hours per day, every day of the calendar year.	**0**
Status of Property	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***Status of Property*** classifications in the space provided.

Proposed Maneuver Area consists of state park owned land.

Table 6

EHE Module: *Population Density* Data Element

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score. **Note:** Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 Persons per Square Mile	There are more than 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**5**
100 to 500 Persons per Square Mile	There are 100 to 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**(3)**
< 100 Persons per Square Mile	There are fewer than 100 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**1**
Population Density:	Record the **single highest score** from above in the box to the right (maximum score = 5).	**3**

Directions: Document any MRS-specific data used in selecting the ***Population Density*** classifications in the space provided.

The MRS is located in Spartanburg County, South Carolina. According to the 2010 Census, Spartanburg County, South Carolina has a population density of 351.9 persons/square mile. http://quickfacts.census.gov/qfd/states/45/45083.html)

Table 7

EHE Module: *Population Near Hazard* Data Element

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term inhabited structures is defined in Appendix C of the Primer.

Classification	Description	Score
26 or More Inhabited Structures	There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**(5)**
16 to 25	There are 16 to 25 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**4**
11 to 15	There are 11 to 15 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**3**
6 to 10	There are 6 to 10 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**2**
1 to 5	There are 1 to 5 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**1**
0	There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**0**
POPULATION NEAR HAZARD	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classifications in the space provided.

Table 8

EHE Module: *Types of Activities/ Structures* Data Element

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with all the activities/structure classifications at the MRS.

Note: The term inhabited structure is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, Educational, Commercial, or Subsistence	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets, (e.g., hospitals, fire and rescue, police stations, dams), hotels commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing and gathering.	**(5)**
Parks and Recreational Areas	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	**4**
Agricultural, Forestry	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture and forestry.	**3**
Industrial or Warehousing	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	**2**
No Known or Recurring Activities	There are no known or recurring activities up to two miles from the MRS's boundary or within the MRS's boundary.	**1**
TYPES OF ACTIVITIES/STRUCTURES	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***TYPES OF ACTIVITIES/STRUCTURES*** classifications in the space provided.

Residential and Commercial structures located within 2 miles

Table 9

EHE Module: *Ecological and / or Cultural Resources* Data Element

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms ecological resources and cultural resources are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and Cultural Resources Present	There are both ecological and cultural resources present on the MRS.	**5**
Ecological Resources Present	There are ecological resources present on the MRS.	**3**
Cultural Resources Present	There are cultural resources present on the MRS.	**3**
No Ecological or Cultural Resources Present	There are no ecological and cultural resources present on the MRS.	**0**
ECOLOGICAL AND/OR CULTURAL RESOURCES	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**3**

Directions: Document any MRS-specific data used in selecting the ***ECOLOGICAL AND/OR CULTURAL RESOURCES*** classifications in the space provided.

As of March 2012, South Carolina Department of Natural Resources (SCDNR) listed the Dwarf-flowered Heatleaf as the only threatened or endangered species in Spartanburg County (http://www.dnr.sc.gov/species/pdf/Spartanburg2012.pdf). Google maps revealed "Lee Cemetary" located within the MRS bourndary. Barnett family cemetary was also discovered on the MRS (http://www.schistory.net/campcroft/cemetery/barnett.html).

Table 10
Determining the EHE Module Rating

Directions:

1. From Tables 1 - 9, record the data element scores in the **Score** boxes to the right.

2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.

3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.

4. Circle the appropriate range for the **EHE Module Total** below.

5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

		Score	Value
Explosives Hazard Factor Data Elements			
Munitions Type	Table 1	**25**	**35**
Source of Hazard	Table 2	**10**	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	**25**	**40**
Ease of Access	Table 4	**10**	
Status of Property	Table 5	**5**	
Receptors Factor Data Elements			
Population Density	Table 6	**3**	**16**
Population Near Hazard	Table 7	**5**	
Types of Activities/ Structures	Table 8	**5**	
Ecological and/ or Cultural Resources	Table 9	**3**	
		EHE Module Total	**91**

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	(B)
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternate Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE Module Rating	**B**

Table 11

Classifications Within the CHE Module *CWM Configuration* Data Element

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with all the CWM configurations known or suspected to be present at the MRS.
Note: The terms CWM/UXO, CWM/DMM, physical evidence, and historical evidence are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, Explosive Configuration, either UXO or Damaged DMM Damaged	The CWM known or suspected of being present at the MRS is: - Explosively configured CWM that are UXO (I.e., CWM/UXO). - Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	**30**
CWM Mixed With UXO	The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM, or CWM not configured as a munition, that are commingled with conventional munitions that are UXO.	**25**
CWM, Explosive Configuration that are DMM (undamaged)	The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM ,that have not been damaged.	**20**
CWM, Not Explosively Configured or CWM, Bulk Container	The CWM known or suspected of being present at the MRS is: - Non-Explosively configured CWM/DMM. - Bulk CWM/DMM (e.g., ton container).	**15**
CAIS K941 and CAIS K942	The CWM/DMM known or suspected of being present at the MRS is CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	**12**
CAIS (Chemical agent identification sets)	Only CAIS other than CAIS K941 and K942, are known or suspected of being present at the MRS.	**10**
Evidence of No CWM	Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	**(0)**
CWM CONFIGURATION	**DIRECTIONS:** Record the **single highest score** from above in the box to the right (maximum score = 30).	**0**

Directions: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space

No evidence of CWM onserved during the RI fieldwork, and no historical evidence suggested.

Tables 12-19 are intentionally omitted-No Known or Suspected CWM Hazard.

Table 20
Determining the CHE Module Rating

Directions:

1. From Tables 1 - 9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three Value boxes and record this number in the CHE Module Total box below.
4. Circle the appropriate range for the CHE Module Total below.
5. Circle the CHE Module Rating that corresponds to the range selected and record this value in the CHE Module Rating box found at the bottom of the table.

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

		Score	Score	Value
CWM Hazard Factor Data Elements				
CWM Configuration	Table 11	0		**0**
Sources of CWM	Table 12	0		
0				
Location of CWM	Table 13	0		**0**
Ease of Access	Table 14	0		
Status of Property	Table 15	0		
Receptors Factor Data Elements				
Population Density	Table 16	0		**0**
Population Near Hazard	Table17	0		
Types of Activities/ Structures	Table 18	0		
Ecological and/ or Cultural Resources	Table 19	0		
			CHE Module Total	**0**

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternate Module Ratings	Evaluation Pending
	~~No Longer Required~~
	No Known or Suspected CWM Hazard
CHE Module Rating	**No Known or Suspected CWM Hazard**

Table 21
HHE Module: Groundwater Data Element Table
Contaminant Hazard Factor (CHF)

Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the comparison value. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the CHF Value. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	**Sum of the Ratios**	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant]	
100 > CHF > 2	M (medium)	[Comparison Value for Contaminant]	
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Groundwater MC Hazard

Table 21 Comments: Groundwater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 22
HHE Module: Surface Water-Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's surface water and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional surface water contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
Receptors Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Surface Water (Human Endpoint) MC Hazard

Table 22 Comments: Surfacewater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 23
HHE Module: Sediment-Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Sediment and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Sediment contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Sediment, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
No Analytical Data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contaminant]	
2 > CHF	L (low)	[Comparison Value for Contaminant]	
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Sediment to which contamination has moved or can move.	L
Receptors Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Sediment (Human Endpoint) MC Hazard

Table 23 Comments: Sediment sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 24
HHE Module: Surface Water - Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Surface Water and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Surface Water contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Surface Water, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Surface Water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Surface Water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Surface Water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Surface Water to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Surface Water (Ecological Endpoint) MC Hazard

Table 24 Comments: Surfacewater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 25
HHE Module: Sediment - Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Sediment and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Sediment contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Sediment, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
No Analytical Results			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H)	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Sediment to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Sediment (Ecological Endpoint) MC Hazard

Table 25 Comments: Sediment sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 26
HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Surface Soil and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Surface Soil contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Surface Soil, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
Antimony	**0.31**	**31**	**0.010**
Copper	**43.6**	**3,100**	**0.014**
Lead	**34.1**	**400**	**0.085**
Zinc	**61.9**	**23000**	**0.003**
CHF Scale	CHF Value	Sum of the Ratios	**0.112**
CHF >100	H (high)	**CHF = SUM** [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		**L**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Surface Soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	**M**

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Surface Soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Surface Soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Surface Soil to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	**L**

No known or Suspected Surface Soil MC Hazard

Table 26 Comments: Surface soil samples were analyzed for antimony, copper, lead, zinc, and explosive compounds, including nitroglycerine and PETN.

Table 27
HHE Module: Supplemental Contaminant Hazard Factor Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the media in which these contaminants are present. Then record all contaminants, their maximum concentrations and their comparison values (from Appendix B of the Primer) in the table below. Calculate and record the ratio for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the Contaminant Hazard, Migration Pathway, and Receptor Factors for the media (from Tables 21–26) in the corresponding boxes below.

2. Record the media's three-letter combinations in the Three-Letter Combination boxes below (three-letter combinations are arranged from Hs to Ms to Ls).

3. Using the HHE Ratings provided below, determine each media's rating (A–G) and record the letter in the corresponding Media Rating box below.

Media (source)	Contaminant Hazard Factor Value	Migratory Parthway Factor Value	Receptor Factor Value		Three-Letter Combination (Hs-Ms-Ls)		Media Rating (A-G)
Groundwater (Table 21)	No analytical data						
Surface Water/Human Endpoint (Table 22)	No analytical data						
Sediment/Human Endpoint (Table 23)	No analytical data						
Surface Water/Ecological Endpoint (Table 24)	No analytical data						
Sediment/Ecological Endpoint (Table 25)	No analytical data						
Surface Soil (Table 26)	L	M	L		MLL		F

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the HHE Module Rating box.

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE Module Rating	F

HHE Ratings (for reference only)	
Combination	**Rating**
HHH	A
HHM	B
HHL	C
HMM	
HML	D
MMM	
HLL	E
MML	
MLL	(F)
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter rating for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical priority for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the MRS Priority or Alternative MRS Rating at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
(B)	3	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	(7)
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		(No Known or Suspected CWM Hazard)		No Known or Suspected MC Hazard	
MRS or Alternative MRS Rating				**3**	

Proposed Maneuver Area was used as an artillery training and combat range using live and practice munitons. The MRS is 941 acres in size. 37mm and 57mm inerts projectiles have been removed from this MRS either during the EE/CA that was performed in 1996 and again in 1998 or during the RI fieldwork.

Table A

MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the MRS Summary, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Proposed 60mm Mortar Area

Component: U.S. Army

Installation/Property Name: Former Camp Croft

Location (City, County, State): Spartanburg, Spartanburg County, SC

Site Name; (RMIS ID)/Project Name (Project No.): Proposed 60mm Mortar Area; RI/FS at Former Camp Croft (W912DY-10-D-0028, Task Order 0005)

Date Information Entered/Updated: January 2014
Point of Contact (Name/Phone): Shawn Boone (843) 329-8158
Project Phase (check only one):

☐ PA	☐ SI Report	☒ RI	☐ FS	☐ RD
☐ RA-C	☐ RIP	☐ RA-O	☐ RC	☐ LTM

☐ Groundwater	☐ Sediment (human receptor)
☐ Surface Soil	☐ Surface Water (ecolocical receptor)
☐ Sediment (ecolocical receptor)	☐ Surface Water (human receptor)

MRS Summary: Prposed 60mm Mortar Area consisted of vaiour munition debris from projectiles and mortars. The area was previously used as an artillery training and combat range using live and practice munitions. The proposed MRS has approximately 182.3 acres in total.

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM (by type of munitions, if known) or munitions constituents (by type, if known) known or suspected to be present) When possible, identify munitions, CWM, and MC by type:

MRS Description: Propsed 60mm Mortar Area consisted of approximately 182.3 acres that was previously used as an artillery training and combat range with live and practice munitions being used. Munitions Debris from vairous projectiles and mortars were discovered along transect segments and in mag-and-dig grids throughout the Proposed MRS. One live 60mm mortar was located during the RI field work other UXO items can be assumed in this proposed MRS.

Coordination with the stakeholders was conducted during the 1st Technical Project Planning (TPP) Meeting (Reference: 2007 SI Report (Section ES.4; Appendix B) located on FRMD File Number I04FL028701_01.09_0503_a, and during the 2nd and 3rd TPP meetings conducted during the RI (Reference: 2013 Draft RI Report (Section 1.0.d; Appendix L. Reference: FRMD File Numbers I04FL028701_03.10_0500_a and I04FL028701_03.10_0501_a). Per MRSPP requirements, during the SI a public notice was issued announcing the MRSPP (Reference: FRMD File Number I04FL028701_08.13_0502_a).

Summary of Alternative Ratings: For the CHE and HHE modules, alternative ratings of "No known or suspected CWM Hazard" and "No known or suspected MC Hazard" (per Section 7 of the HHE Module from the "Handbook on Realignment, Delination, and MRSPP Implementation, v. 1.0.2 dated 10/1/2011) were given since no evidence of MEC and/or MD was observed during the RI field work.

Description of Pathways for Human and Ecological Receptors: For MC, multiple pathways exist at this MRS; those include surface soil, air/wind, food chain, and groundwater. For MEC, access is available. Thus, intrusive and non-intrusive activites could allow for exposure.

Description of Receptors (Human and Ecological): Site access is unrestricted. Potential receptors include residential, public, commerical/occupational, and terrestial biota.

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond **with all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions* , *small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	UXO that are considered most likely to function upon any interaction with exposed persons [e.g., submunitions, 40mm high-explosive (HE) grenades, white phosphorus (WP) munitions, high-explosive antitank (HEAT) munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions]. Hand grenades containing energetic filler. Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard	**30**
High Explosive (used or damaged)	UXO containing a high-explosive (HE) filler (e.g., RDX, Composition B), that are not considered "sensitive". DMM containing a high-explosive filler that have: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	**25**
Pyrotechnic (used or damaged)	UXO containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades). DMM containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades) that have: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	**20**
High-Explosive (unused)	DMM containing a high-explosive filler that: ■ Have not been damaged by burning or detonation Are not deteriorated to the point of instability	**15**
Propellant	UXO containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor). DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: ■ Damaged by burning or detonation ■ Deteriorated to the point of instability	**15**
Bulk secondary high explosives, pyrotechnics, or propellant	DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor), that are deteriorated. Bulk secondary high-explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	**10**
Pyrotechnic (not used or damaged)	DMM containing a pyrotechnic filler (I.e., red phosphorous), other than white phosphorous filler, that: ■ Have not been damaged by burning or detonation ■ Are not deteriorated to the point of instability	**10**
Practice	UXO that are practice munitions that are not associated with a sensitive fuze. DMM that are practice munitions that are not associated with a sensitive fuze and that have not: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	**5**
Riot Control	UXO or DMM containing a riot control agent filler (e.g., tear gas).	**3**
Small arms		**2**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Munitions Type	**Directions:** Record **the single highest score** from above in the box to the right (maximum score = 30)	**25**

Directions: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

Propsed 60mm Mortar Area consisted of approximately 182.3 acres that was previously used as an artillery training and combat range with live and practice munitions being used. Munitions Debris from vairous projectiles and mortars were discovered along transect segments and in mag-and-dig grids throughout the Proposed MRS. One live 60mm mortar was located during the RI field work other UXO items can be assumed in this proposed MRS.

Table 2

Classifications Within the EHE Module *Source of Hazard* Data Element

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond **with all** the munitions types known or suspected to be present at the MRS.
Note: The terms *practice munitions* , *small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former Range	The MRS is a former military range where munitions including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas, associated buffer and safety zones, firing points, and live-fire maneuver areas.	**(10)**
Former Munitions Treatment (I.e., OB/OD) unit	The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	**8**
Former Practice Munitions Range	The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	**6**
Former Maneuver Area	The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	**5**
Former Burial Pit or other Disposal Area	The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a body of water) without prior thermal treatment.	**5**
Former Industrial Operating Facilities	The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	**4**
Former Firing Points	The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of the former military range.	**4**
Former Missile or Air Defense Artillery Emplacements	The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	**2**
Former Storage or Transfer Points	The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	**2**
Former Small Arms Range	The MRS is a former military range where only small arms ammunition was used. [There must be evidence that no other types of munitions (e.g., grenades) were used or are present to place an MRS into this category.	**1**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Source of Hazard	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

Directions: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

Propsed 60mm Mortar Area consisted of approximately 182.3 acres that was previously used as an artillery training and combat range with live and practice munitions being used. Munitions Debris from vairous projectiles and mortars were discovered along transect segments and in mag-and-dig grids throughout the Proposed MRS. One live 60mm mortar was located during the RI field work other UXO items can be assumed in this proposed MRS.

Table 3

Classifications Within the EHE Module *Information on the Location of Munitions* Data Element

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.
Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed Surface	Physical evidence indicates that there are UXO or DMM on the surface of the MRS. Historical evidence (e.g., a confirmed incident report or accident report) indicates there are UXO or DMM on the surface of the MRS.	**25**
Confirmed Subsurface, Active	Physical evidence indicates that there are UXO or DMM on the surface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. Historical evidence indicates that there are UXO or DMM on the surface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	**20**
Confirmed Subsurface, Stable	Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are ***not*** likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are ***not*** likely to expose UXO or DMM. Historical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are ***not*** likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are ***not*** likely to expose UXO or DMM.	**15**
Suspected (Physical Evidence)	There is physical evidence (e.g., munitions debris, such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	**10**
Suspected (Historical Evidence)	There is historical evidence indicating that UXO or DMM may be present at the MRS.	**5**
Subsurface Physical Constraint	There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	**2**
Small Arms (regardless of location)	The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. [There must be evidence that no other types of munitions (e.g., grenades) were used or are present at the MRS to place an MRS in this category.]	**1**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Location of Munitions	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	**15**

Directions: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

Propsed 60mm Mortar Area consisted of approximately 182.3 acres that was previously used as an artillery training and combat range with live and practice munitions being used. Munitions Debris from vairous projectiles and mortars were discovered along transect segments and in mag-and-dig grids throughout the Proposed MRS. One live 60mm mortar was located during the RI field work other UXO items can be assumed in this proposed MRS.

Table 4

EHE Module: *Ease of Access* Data Element

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS. **Note:** The term barrier is defined in Appendix C of the Primer.

Classification	Description	Score
No Barrier	There is no barrier preventing access to any part of the MRS (I.e., all parts of the MRS are accessible).	**(10)**
Barrier to MRS Access is Incomplete	There is a barrier preventing access to parts of the MRS, but not the entire MRS.	**8**
Barrier to MRS Access is Complete, But Not Monitored	There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by guard) to ensure that the barrier is effectively preventing access to all parts of the MRS..	**5**
Barrier to MRS Access is Complete and Monitored	There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS..	**0**
Ease of Access	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

Directions: Document any MRS-specific data used in selecting the ***Ease of Access*** classifications in the space provided.

Proposed 600mm Mortar Area consists of state park property with no barriers to access present.

Table 5

EHE Module: *Status of Property* Data Element

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD Control	The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by the Department. Examples are privately-owned land or water bodies, land or water bodies owned or controlled by state, tribal, or local governments, and land or water bodies managed by other federal agencies.	**(5)**
Scheduled for Transfer from DoD Control	The MRS is on land or is a water body that is owned, leased, or otherwise possessed by the Department, and the Department plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government, a private party, another federal agency) within 3 years from the date the rule is applied.	**3**
DoD Control	The MRS is on land or is a water body that is owned, leased, or otherwise possessed by the Department. With respect to property that is leased or otherwise possessed, the Department must control access to the MRS 24 hours per day, every day of the calendar year.	**0**
Status of Property	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***Status of Property*** classifications in the space provided.

Proposed 60mm Mortar Area consists of state park owned land.

Table 6

EHE Module: *Population Density* Data Element

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score. **Note:** Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 Persons per Square Mile	There are more than 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**5**
100 to 500 Persons per Square Mile	There are 100 to 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**(3)**
< 100 Persons per Square Mile	There are fewer than 100 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**1**
Population Density:	Record the **single highest score** from above in the box to the right (maximum score = 5).	**3**

Directions: Document any MRS-specific data used in selecting the ***Population Density*** classifications in the space provided.

The MRS is located in Spartanburg County, South Carolina. According to the 2010 Census, Spartanburg County, South Carolina has a population density of 351.9 persons/square mile. http://quickfacts.census.gov/qfd/states/45/45083.html)

Table 7

EHE Module: *Population Near Hazard* Data Element

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term inhabited structures is defined in Appendix C of the Primer.

Classification	Description	Score
26 or More Inhabited Structures	There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**(5)**
16 to 25	There are 16 to 25 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**4**
11 to 15	There are 11 to 15 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**3**
6 to 10	There are 6 to 10 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**2**
1 to 5	There are 1 to 5 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**1**
0	There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**0**
POPULATION NEAR HAZARD	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classifications in the space provided.

Table 8

EHE Module: *Types of Activities/ Structures* Data Element

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with all the activities/structure classifications at the MRS.

Note: The term inhabited structure is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, Educational, Commercial, or Subsistence	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets, (e.g., hospitals, fire and rescue, police stations, dams), hotels commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing and gathering.	**(5)**
Parks and Recreational Areas	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	**4**
Agricultural, Forestry	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture and forestry.	**3**
Industrial or Warehousing	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	**2**
No Known or Recurring Activities	There are no known or recurring activities up to two miles from the MRS's boundary or within the MRS's boundary.	**1**
TYPES OF ACTIVITIES/STRUCTURES	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***TYPES OF ACTIVITIES/STRUCTURES*** classifications in the space provided.

Residential and Commercial structures located within 2 miles

Table 9

EHE Module: *Ecological and / or Cultural Resources* Data Element

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms ecological resources and cultural resources are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and Cultural Resources Present	There are both ecological and cultural resources present on the MRS.	**5**
Ecological Resources Present	There are ecological resources present on the MRS.	**3**
Cultural Resources Present	There are cultural resources present on the MRS.	**3**
No Ecological or Cultural Resources Present	There are no ecological and cultural resources present on the MRS.	**(0)**
ECOLOGICAL AND/OR CULTURAL RESOURCES	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**0**

Directions: Document any MRS-specific data used in selecting the ***ECOLOGICAL AND/OR CULTURAL RESOURCES*** classifications in the space provided.

Table 10
Determining the EHE Module Rating

Directions:

1. From Tables 1 - 9, record the data element scores in the **Score** boxes to the right.

2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.

3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.

4. Circle the appropriate range for the **EHE Module Total** below.

5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

		Score	Value
Explosives Hazard Factor Data Elements			
Munitions Type	Table 1	**25**	**35**
Source of Hazard	Table 2	**10**	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	**15**	**30**
Ease of Access	Table 4	**10**	
Status of Property	Table 5	**5**	
Receptors Factor Data Elements			
Population Density	Table 6	**3**	**13**
Population Near Hazard	Table 7	**5**	
Types of Activities/ Structures	Table 8	**5**	
Ecological and/ or Cultural Resources	Table 9	**0**	
		EHE Module Total	**78**

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternate Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE Module Rating	**C**

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

Table 11

Classifications Within the CHE Module *CWM Configuration* Data Element

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with all the CWM configurations known or suspected to be present at the MRS.
Note: The terms CWM/UXO, CWM/DMM, physical evidence, and historical evidence are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, Explosive Configuration, either UXO or Damaged DMM Damaged	The CWM known or suspected of being present at the MRS is: - Explosively configured CWM that are UXO (I.e., CWM/UXO). - Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	**30**
CWM Mixed With UXO	The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM, or CWM not configured as a munition, that are commingled with conventional munitions that are UXO.	**25**
CWM, Explosive Configuration that are DMM (undamaged)	The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM ,that have not been damaged.	**20**
CWM, Not Explosively Configured or CWM, Bulk Container	The CWM known or suspected of being present at the MRS is: - Non-Explosively configured CWM/DMM. - Bulk CWM/DMM (e.g., ton container).	**15**
CAIS K941 and CAIS K942	The CWM/DMM known or suspected of being present at the MRS is CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	**12**
CAIS (Chemical agent identification sets)	Only CAIS other than CAIS K941 and K942, are known or suspected of being present at the MRS.	**10**
Evidence of No CWM	Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	**(0)**
CWM CONFIGURATION	**DIRECTIONS:** Record the **single highest score** from above in the box to the right (maximum score = 30).	**0**

Directions: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space

No CWM was observed during the RI field work, and no evidence of CWM in the historical records.

Tables 12-19 are intentionally omitted-No Known or Suspected CWM Hazard

Table 20
Determining the CHE Module Rating

Directions:

1. From Tables 1 - 9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three Value boxes and record this number in the CHE Module Total box below.
4. Circle the appropriate range for the CHE Module Total below.
5. Circle the CHE Module Rating that corresponds to the range selected and record this value in the CHE Module Rating box found at the bottom of the table.

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

		Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11	0	**0**
Sources of CWM	Table 12	0	
0			
Location of CWM	Table 13	0	**0**
Ease of Access	Table 14	0	
Status of Property	Table 15	0	
Receptors Factor Data Elements			
Population Density	Table 16	0	**0**
Population Near Hazard	Table17	0	
Types of Activities/ Structures	Table 18	0	
Ecological and/ or Cultural Resources	Table 19	0	
		CHE Module Total	**0**

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternate Module Ratings	Evaluation Pending
	~~No Longer Required~~
	No Known or Suspected CWM Hazard
CHE Module Rating	**No Known or Suspected CWM Hazard**

Table 21
HHE Module: Groundwater Data Element Table
Contaminant Hazard Factor (CHF)

Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the comparison value. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the CHF Value. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	**Sum of the Ratios**	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Groundwater MC Hazard

Table 21 Comments: Groundwater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 22
HHE Module: Surface Water-Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's surface water and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional surface water contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
Receptors Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Surface Water (Human Endpoint) MC Hazard

Table 22 Comments: Surfacewater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 23
HHE Module: Sediment-Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Sediment and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Sediment contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Sediment, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
No Analytical Data			
CHF Scale	CHF Value	Sum of the Ratios	**0.000**
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Sediment to which contamination has moved or can move.	L
Receptors Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Sediment (Human Endpoint) MC Hazard

Table 23 Comments: Sediment sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 24
HHE Module: Surface Water - Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Surface Water and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Surface Water contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Surface Water, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Surface Water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Surface Water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Surface Water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Surface Water to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Surface Water (Ecological Endpoint) MC Hazard

Table 24 Comments: Surfacewater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 25
HHE Module: Sediment - Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Sediment and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Sediment contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Sediment, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
No Analytical Data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Sediment to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Sediment (Ecological Endpoint) MC Hazard

Table 25 Comments: Sediment sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 26
HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Surface Soil and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Surface Soil contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Surface Soil, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	**CHF = SUM** [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Surface Soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Surface Soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Surface Soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Surface Soil to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Surface Soil MC Hazard

Table 26 Comments: RI/FS workplan states that soil samples will be collected in high MD or MEC areas, and be determined in the field. Little to no MD or MEC was observed in this MRS during field operations, and no soil samples were collected.

Table 27
HHE Module: Supplemental Contaminant Hazard Factor Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the media in which these contaminants are present. Then record all contaminants, their maximum concentrations and their comparison values (from Appendix B of the Primer) in the table below. Calculate and record the ratio for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the Contaminant Hazard, Migration Pathway, and Receptor Factors for the media (from Tables 21–26) in the corresponding boxes below.

2. Record the media's three-letter combinations in the Three-Letter Combination boxes below (three-letter combinations are arranged from Hs to Ms to Ls).

3. Using the HHE Ratings provided below, determine each media's rating (A–G) and record the letter in the corresponding Media Rating box below.

Media (source)	Contaminant Hazard Factor Value	Migratory Parthway Factor Value	Receptor Factor Value		Three-Letter Combination (Hs-Ms-Ls)		Media Rating (A-G)
Groundwater (Table 21)	No analytical data						
Surface Water/Human Endpoint (Table 22)	No analytical data						
Sediment/Human Endpoint (Table 23)	No analytical data						
Surface Water/Ecological Endpoint (Table 24)	No analytical data						
Sediment/Ecological Endpoint (Table 25)	No analytical data						
Surface Soil (Table 26)	No analytical data						

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the HHE Module Rating box.

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE Module Rating	

HHE Ratings (for reference only)

Combination	Rating
HHH	A
HHM	B
HHL	C
HMM	C
HML	D
MMM	D
HLL	E
MML	E
MLL	F
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter rating for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical priority for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the MRS Priority or Alternative MRS Rating at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		No Known or Suspected CWM Hazard		No Known or Suspected MC Hazard	
MRS or Alternative MRS Rating				**4**	

Propsed 60mm Mortar Area consisted of approximately 182.3 acres that was previously used as an artillery training and combat range with live and practice munitions being used. Munitions Debris from vairous projectiles and mortars were discovered along transect segments and in mag-and-dig grids throughout the Proposed MRS. One live 60mm mortar was located during the RI field work other UXO items can be assumed in this proposed MRS.

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the MRS Summary, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Proposed 60/81mm Mortar Area

Component: U.S. Army

Installation/Property Name: Former Camp Croft

Location (City, County, State): Spartanburg, Spartanburg County, SC

Site Name; (RMIS ID)/Project Name (Project No.): Proposed 60/81mm Mortar Area (RMS ID); Project Name (I04SC0016-03R02)

Date Information Entered/Updated: January 2014
Point of Contact (Name/Phone): Shawn Boone (843) 329-8158
Project Phase (check only one):

☐ PA	☐ SI Report	☒ RI	☐ FS	☐ RD
☐ RA-C	☐ RIP	☐ RA-O	☐ RC	☐ LTM

☐ Groundwater	☐ Sediment (human receptor)
☒ Surface Soil	☐ Surface Water (ecolocical receptor)
☐ Sediment (ecolocical receptor)	☐ Surface Water (human receptor)

MRS Summary: Proposed 60/81mm Mortar Area is 157.1 acres in size. It has been used as an artillery training and combat range using live and practice munitions. 60mm, 81mm, and 4.2" mortar parts have been recovered from this MRS during the EE/CA that was performed in 1996 and 1998 and also during the RI fieldwork.

MRS Description: Proposed 60/81mm Mortar Area is 157.1 acres in size. It has been used as an artillery training and combat range using live and practice munitions. 60mm, 81mm, and 4.2" mortar parts have been recovered from this MRS during the EE/CA that was performed in 1996 and 1998 and also during the RI fieldwork. The MRS is within the Croft State Natural Area with public roadways and right-of-ways throughout the site. The general public and recreational user of the park (hikers, bikers, and horseback riders) all have unrestricted access to the MRS.

Coordination with the stakeholders was conducted during the 1st Technical Project Planning (TPP) Meeting (Reference: 2007 SI Report (Section ES.4; Appendix B) located on FRMD File Number I04FL028701_01.09_0503_a, and during the 2nd and 3rd TPP meetings conducted during the RI (Reference: 2013 Draft RI Report (Section 1.0.d; Appendix L. Reference: FRMD File Numbers I04FL028701_03.10_0500_a and I04FL028701_03.10_0501_a). Per MRSPP requirements, during the SI a public notice was issued announcing the MRSPP (Reference: FRMD File Number I04FL028701_08.13_0502_a).

Summary of Alternative Ratings: For the CHE module alternative ratings of "No known or suspected CWM Hazard" was given since no evidence of CWM was observed during the RI field work.

Description of Pathways for Human and Ecological Receptors: For MC, multiple pathways exist at this MRS; those include surface soil, air/wind, food chain, and groundwater. For MEC, access is available. Thus, intrusive and non-intrusive activites could allow for exposure.

Description of Receptors (Human and Ecological): Site access is unrestricted. Potential receptors include residential, public, commerical/occupational, and terrestial biota.

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond **with all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions* , *small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	UXO that are considered most likely to function upon any interaction with exposed persons [e.g., submunitions, 40mm high-explosive (HE) grenades, white phosphorus (WP) munitions, high-explosive antitank (HEAT) munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions]. Hand grenades containing energetic filler. Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard	**30**
High Explosive (used or damaged)	UXO containing a high-explosive (HE) filler (e.g., RDX, Composition B), that are not considered "sensitive". DMM containing a high-explosive filler that have: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	**25**
Pyrotechnic (used or damaged)	UXO containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades). DMM containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades) that have: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	**20**
High-Explosive (unused)	DMM containing a high-explosive filler that: ■ Have not been damaged by burning or detonation Are not deteriorated to the point of instability	**15**
Propellant	UXO containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor). DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: ■ Damaged by burning or detonation ■ Deteriorated to the point of instability	**15**
Bulk secondary high explosives, pyrotechnics, or propellant	DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor), that are deteriorated. Bulk secondary high-explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	**10**
Pyrotechnic (not used or damaged)	DMM containing a pyrotechnic filler (I.e., red phosphorous), other than white phosphorous filler, that: ■ Have not been damaged by burning or detonation ■ Are not deteriorated to the point of instability	**10**
Practice	UXO that are practice munitions that are not associated with a sensitive fuze. DMM that are practice munitions that are not associated with a sensitive fuze and that have not: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	**5**
Riot Control	UXO or DMM containing a riot control agent filler (e.g., tear gas).	**3**
Small arms		**2**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Munitions Type	**Directions:** Record **the single highest score** from above in the box to the right (maximum score = 30)	**25**

Directions: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

Proposed 60/81mm Mortar Area has been used as an artillery training and combat range using live and practice munitions. 60mm, 81mm, and 4.2" mortar parts have been recovered from this MRS during the EE/CA that was performed in 1996 and 1998 and also during the RI fieldwork.

Table 2

Classifications Within the EHE Module *Source of Hazard* Data Element

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond **with all** the munitions types known or suspected to be present at the MRS.
Note: The terms *practice munitions* , *small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former Range	The MRS is a former military range where munitions including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas, associated buffer and safety zones, firing points, and live-fire maneuver areas.	**(10)**
Former Munitions Treatment (I.e., OB/OD) unit	The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	**8**
Former Practice Munitions Range	The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	**6**
Former Maneuver Area	The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	**5**
Former Burial Pit or other Disposal Area	The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a body of water) without prior thermal treatment.	**5**
Former Industrial Operating Facilities	The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	**4**
Former Firing Points	The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of the former military range.	**4**
Former Missile or Air Defense Artillery Emplacements	The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	**2**
Former Storage or Transfer Points	The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	**2**
Former Small Arms Range	The MRS is a former military range where only small arms ammunition was used. [There must be evidence that no other types of munitions (e.g., grenades) were used or are present to place an MRS into this category.	**1**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Source of Hazard	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

Directions: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

Proposed 60/81mm Mortar Area has been used as an artillery training and combat range using live and practice munitions. 60mm, 81mm, and 4.2" mortar parts have been recovered from this MRS during the EE/CA that was performed in 1996 and 1998 and also during the RI fieldwork.

Table 3

Classifications Within the EHE Module *Information on the Location of Munitions* Data Element

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.
Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed Surface	Physical evidence indicates that there are UXO or DMM on the surface of the MRS. Historical evidence (e.g., a confirmed incident report or accident report) indicates there are UXO or DMM on the surface of the MRS.	**25**
Confirmed Subsurface, Active	Physical evidence indicates that there are UXO or DMM on the surface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. Historical evidence indicates that there are UXO or DMM on the surface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	**20**
Confirmed Subsurface, Stable	Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are ***not*** likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are ***not*** likely to expose UXO or DMM. Historical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are ***not*** likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are ***not*** likely to expose UXO or DMM.	**15**
Suspected (Physical Evidence)	There is physical evidence (e.g., munitions debris, such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	**10**
Suspected (Historical Evidence)	There is historical evidence indicating that UXO or DMM may be present at the MRS.	**5**
Subsurface Physical Constraint	There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	**2**
Small Arms (regardless of location)	The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. [There must be evidence that no other types of munitions (e.g., grenades) were used or are present at the MRS to place an MRS in this category.]	**1**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Location of Munitions	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	**15**

Directions: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

Proposed 60/81mm Mortar Area has been used as an artillery training and combat range using live and practice munitions. 60mm, 81mm, and 4.2" mortar parts have been recovered from this MRS during the EE/CA that was performed in 1996 and 1998 and also during the RI fieldwork.

Table 4

EHE Module: *Ease of Access* Data Element

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS. **Note:** The term barrier is defined in Appendix C of the Primer.

Classification	Description	Score
No Barrier	There is no barrier preventing access to any part of the MRS (I.e., all parts of the MRS are accessible).	**(10)**
Barrier to MRS Access is Incomplete	There is a barrier preventing access to parts of the MRS, but not the entire MRS.	**8**
Barrier to MRS Access is Complete, But Not Monitored	There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by guard) to ensure that the barrier is effectively preventing access to all parts of the MRS..	**5**
Barrier to MRS Access is Complete and Monitored	There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS..	**0**
Ease of Access	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

Directions: Document any MRS-specific data used in selecting the ***Ease of Access*** classifications in the space provided.

Proposed 60/81mm Mortar Area consists of state park property with no barriers to access present.

Table 5

EHE Module: *Status of Property* Data Element

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD Control	The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by the Department. Examples are privately-owned land or water bodies, land or water bodies owned or controlled by state, tribal, or local governments, and land or water bodies managed by other federal agencies.	**(5)**
Scheduled for Transfer from DoD Control	The MRS is on land or is a water body that is owned, leased, or otherwise possessed by the Department, and the Department plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government, a private party, another federal agency) within 3 years from the date the rule is applied.	**3**
DoD Control	The MRS is on land or is a water body that is owned, leased, or otherwise possessed by the Department. With respect to property that is leased or otherwise possessed, the Department must control access to the MRS 24 hours per day, every day of the calendar year.	**0**
Status of Property	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***Status of Property*** classifications in the space provided.

Proposed 60/81mm Mortar Area consists of state park owned land.

Table 6

EHE Module: *Population Density* Data Element

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score. **Note:** Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 Persons per Square Mile	There are more than 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**5**
100 to 500 Persons per Square Mile	There are 100 to 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**(3)**
< 100 Persons per Square Mile	There are fewer than 100 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**1**
Population Density:	Record the **single highest score** from above in the box to the right (maximum score = 5).	**3**

Directions: Document any MRS-specific data used in selecting the ***Population Density*** classifications in the space provided.

The MRS is located in Spartanburg County, South Carolina. According to the 2010 Census, Spartanburg County, South Carolina has a population density of 351.9 persons/square mile. http://quickfacts.census.gov/qfd/states/45/45083.html)

Table 7

EHE Module: *Population Near Hazard* Data Element

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term inhabited structures is defined in Appendix C of the Primer.

Classification	Description	Score
26 or More Inhabited Structures	There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**(5)**
16 to 25	There are 16 to 25 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**4**
11 to 15	There are 11 to 15 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**3**
6 to 10	There are 6 to 10 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**2**
1 to 5	There are 1 to 5 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**1**
0	There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**0**
POPULATION NEAR HAZARD	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classifications in the space provided.

Table 8

EHE Module: *Types of Activities/ Structures* Data Element

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with all the activities/structure classifications at the MRS.

Note: The term inhabited structure is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, Educational, Commercial, or Subsistence	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets, (e.g., hospitals, fire and rescue, police stations, dams), hotels commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing and gathering.	**(5)**
Parks and Recreational Areas	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	**4**
Agricultural, Forestry	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture and forestry.	**3**
Industrial or Warehousing	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	**2**
No Known or Recurring Activities	There are no known or recurring activities up to two miles from the MRS's boundary or within the MRS's boundary.	**1**
TYPES OF ACTIVITIES/STRUCTURES	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***TYPES OF ACTIVITIES/STRUCTURES*** classifications in the space provided.

Residential and Commercial structures located within 2 miles

Table 9

EHE Module: *Ecological and / or Cultural Resources* Data Element

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms ecological resources and cultural resources are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and Cultural Resources Present	There are both ecological and cultural resources present on the MRS.	**5**
Ecological Resources Present	There are ecological resources present on the MRS.	**(3)**
Cultural Resources Present	There are cultural resources present on the MRS.	**3**
No Ecological or Cultural Resources Present	There are no ecological and cultural resources present on the MRS.	**0**
ECOLOGICAL AND/OR CULTURAL RESOURCES	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**3**

Directions: Document any MRS-specific data used in selecting the ***ECOLOGICAL AND/OR CULTURAL RESOURCES*** classifications in the space provided.

As of March 2012, South Carolina Department of Natural Resources (SCDNR) listed the Dwarf-flowered Heatleaf as the only threatened or endangered species in Spartanburg County (http://www.dnr.sc.gov/species/pdf/Spartanburg2012.pdf).

Table 10
Determining the EHE Module Rating

Directions:

1. From Tables 1 - 9, record the data element scores in the **Score** boxes to the right.

2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.

3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.

4. Circle the appropriate range for the **EHE Module Total** below.

5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

		Score	Value
Explosives Hazard Factor Data Elements			
Munitions Type	Table 1	**25**	**35**
Source of Hazard	Table 2	**10**	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	**15**	**30**
Ease of Access	Table 4	**10**	
Status of Property	Table 5	**5**	
Receptors Factor Data Elements			
Population Density	Table 6	**3**	**16**
Population Near Hazard	Table 7	**5**	
Types of Activities/ Structures	Table 8	**5**	
Ecological and/ or Cultural Resources	Table 9	**3**	
		EHE Module Total	**81**

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternate Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE Module Rating	**C**

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

Table 11

Classifications Within the CHE Module *CWM Configuration* Data Element

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with all the CWM configurations known or suspected to be present at the MRS.
Note: The terms CWM/UXO, CWM/DMM, physical evidence, and historical evidence are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, Explosive Configuration, either UXO or Damaged DMM Damaged	The CWM known or suspected of being present at the MRS is: - Explosively configured CWM that are UXO (I.e., CWM/UXO). - Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	**30**
CWM Mixed With UXO	The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM, or CWM not configured as a munition, that are commingled with conventional munitions that are UXO.	**25**
CWM, Explosive Configuration that are DMM (undamaged)	The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM ,that have not been damaged.	**20**
CWM, Not Explosively Configured or CWM, Bulk Container	The CWM known or suspected of being present at the MRS is: - Non-Explosively configured CWM/DMM. - Bulk CWM/DMM (e.g., ton container).	**15**
CAIS K941 and CAIS K942	The CWM/DMM known or suspected of being present at the MRS is CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	**12**
CAIS (Chemical agent identification sets)	Only CAIS other than CAIS K941 and K942, are known or suspected of being present at the MRS.	**10**
Evidence of No CWM	Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	**(0)**
CWM CONFIGURATION	**DIRECTIONS:** Record the **single highest score** from above in the box to the right (maximum score = 30).	**0**

Directions: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space

No evidence of CWM was observed during the RI field work, and no historical evidence of any CWM.

Tables 12-19 are intentionally omitted-No Known or Suspected CWM Hazard.

Table 20
Determining the CHE Module Rating

Directions:

1. From Tables 1 - 9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three Value boxes and record this number in the CHE Module Total box below.
4. Circle the appropriate range for the CHE Module Total below.
5. Circle the CHE Module Rating that corresponds to the range selected and record this value in the CHE Module Rating box found at the bottom of the table.

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

		Score	Score	Value
CWM Hazard Factor Data Elements				
CWM Configuration	Table 11	0		**0**
Sources of CWM	Table 12	0		
0				
Location of CWM	Table 13	0		
Ease of Access	Table 14	0		**0**
Status of Property	Table 15	0		
Receptors Factor Data Elements				
Population Density	Table 16	0		
Population Near Hazard	Table17	0		
Types of Activities/ Structures	Table 18	0		**0**
Ecological and/ or Cultural Resources	Table 19	0		
			CHE Module Total	**0**

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternate Module Ratings	Evaluation Pending
	~~No Longer Required~~
	No Known or Suspected CWM Hazard
CHE Module Rating	**No Known or Suspected CWM Hazard**

Table 21
HHE Module: Groundwater Data Element Table
Contaminant Hazard Factor (CHF)

Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the comparison value. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the CHF Value. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	**Sum of the Ratios**	
CHF >100	H (high)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contaminant]	
2 > CHF	L (low)	[Comparison Value for Contaminant]	
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Groundwater MC Hazard

Table 21 Comments: Groundwater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 22
HHE Module: Surface Water-Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's surface water and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional surface water contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
Receptors Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Surface Water (Human Endpoint) MC Hazard

Table 22 Comments: Surfacewater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 23
HHE Module: Sediment-Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Sediment and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Sediment contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Sediment, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
no analytical data			
CHF Scale	CHF Value	Sum of the Ratios	**0.000**
CHF >100	H (high)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contaminant]	
2 > CHF	L (low)	[Comparison Value for Contaminant]	
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Sediment to which contamination has moved or can move.	L
Receptors Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Sediment (Human Endpoint) MC Hazard

Table 23 Comments: Sediment sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 24
HHE Module: Surface Water - Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Surface Water and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Surface Water contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Surface Water, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Surface Water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Surface Water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Surface Water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Surface Water to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Surface Water (Ecological Endpoint) MC Hazard

Table 24 Comments: Surfacewater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 25
HHE Module: Sediment - Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Sediment and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Sediment contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Sediment, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
No Analytical Data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Sediment to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Sediment (Ecological Endpoint) MC Hazard

Table 25 Comments: Sediment sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 26
HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Surface Soil and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Surface Soil contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Surface Soil, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
Antimony	**0.3**	**31**	**0.010**
Copper	**34.7**	**3,100**	**0.011**
Lead	**46.2**	**400**	**0.116**
Zinc	**1680**	**23000**	**0.073**
CHF Scale	CHF Value	Sum of the Ratios	**0.209**
CHF >100	H (high)	**CHF = SUM** [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		**L**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Surface Soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	**M**

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Surface Soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Surface Soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Surface Soil to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	**L**

No known or Suspected Surface Soil MC Hazard

Table 26 Comments: Surface soil samples were analyzed for antimony, copper, lead, zinc, and explosive compounds, including nitroglycerine and PETN.

Table 27
HHE Module: Supplemental Contaminant Hazard Factor Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the media in which these contaminants are present. Then record all contaminants, their maximum concentrations and their comparison values (from Appendix B of the Primer) in the table below. Calculate and record the ratio for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the Contaminant Hazard, Migration Pathway, and Receptor Factors for the media (from Tables 21–26) in the corresponding boxes below.

2. Record the media's three-letter combinations in the Three-Letter Combination boxes below (three-letter combinations are arranged from Hs to Ms to Ls).

3. Using the HHE Ratings provided below, determine each media's rating (A–G) and record the letter in the corresponding Media Rating box below.

Media (source)	Contaminant Hazard Factor Value	Migratory Parthway Factor Value	Receptor Factor Value		Three-Letter Combination (Hs-Ms-Ls)		Media Rating (A-G)
Groundwater (Table 21)	No analytical data						
Surface Water/Human Endpoint (Table 22)	No analytical data						
Sediment/Human Endpoint (Table 23)	No analytical data						
Surface Water/Ecological Endpoint (Table 24)	No analytical data						
Sediment/Ecological Endpoint (Table 25)	No analytical data						
Surface Soil (Table 26)	L	M	L		MLL		F

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the HHE Module Rating box.

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE Module Rating	F

HHE Ratings (for reference only)	
Combination	**Rating**
HHH	A
HHM	B
HHL	C
HMM	
HML	D
MMM	
HLL	E
MML	
MLL	(F)
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter rating for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical priority for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the MRS Priority or Alternative MRS Rating at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
(C)	(4)	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	(F)	(7)
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		(No Known or Suspected CWM Hazard)		No Known or Suspected MC Hazard	
MRS or Alternative MRS Rating				**4**	

Proposed 60/81mm Mortar Area has been used as an artillery training and combat range using live and practice munitions. 60mm, 81mm, and 4.2" mortar parts have been recovered from this MRS during the EE/CA that was performed in 1996 and 1998 and also during the RI fieldwork.

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the MRS Summary, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Proposed Rocket & Rifle Grenade Area

Component: U.S. Army

Installation/Property Name: Former Camp Croft

Location (City, County, State): Spartanburg, Spartanburg County, SC

Site Name; (RMIS ID)/Project Name (Project No.): Proposed Rocket & Rifle Grenade Area (RMS ID); Project Name (I04SC0016-03R02)

Date Information Entered/Updated: January 2014
Point of Contact (Name/Phone): Shawn Boone (843) 329-8158
Project Phase (check only one):

☐ PA	☐ SI Report	☒ RI	☐ FS	☐ RD
☐ RA-C	☐ RIP	☐ RA-O	☐ RC	☐ LTM

☐ Groundwater	☐ Sediment (human receptor)
☒ Surface Soil	☐ Surface Water (ecolocical receptor)
☐ Sediment (ecolocical receptor)	☐ Surface Water (human receptor)

MRS Summary: Proposed Rocket & Rifle Grenade Area is 78.3 acres in size and was used for artillery training and combat range using live and practice munitions. Grenade spoons, M9 HEAT rifle grenade practice rifle grenades, 2.36" rocket motors, frag, scrap, and MK II grenades and scrap have all been found on the MRS during the EE/CA that was performed in 1996 and again in 1998. Some of these items were also found during the RI fieldwork.

MRS Description: Proposed Rocket & Rifle Grenade Area is 78.3 acres in size and was used for artillery training and combat range using live and practice munitions. Grenade spoons, M9 HEAT rifle grenade practice rifle grenades, 2.36" rocket motors, frag, scrap, and MK II grenades and scrap have all been found on the MRS during the EE/CA that was performed in 1996 and again in 1998. Some of these items were also found during the RI fieldwork. Parts of the Rocket & Rifle Grenade Area lies within the Croft State Natural Area along with private residence properties. Roadways and right-of-ways run throughout the site. Residental landowners, general public, and recreational users (hikers, bikers, and horseback riders) all have unrestricted access to the MRS.

Coordination with the stakeholders was conducted during the 1st Technical Project Planning (TPP) Meeting (Reference: 2007 SI Report (Section ES.4; Appendix B) located on FRMD File Number I04FL028701_01.09_0503_a, and during the 2nd and 3rd TPP meetings conducted during the RI (Reference: 2013 Draft RI Report (Section 1.0.d; Appendix L. Reference: FRMD File Numbers I04FL028701_03.10_0500_a and I04FL028701_03.10_0501_a). Per MRSPP requirements, during the SI a public notice was issued announcing the MRSPP (Reference: FRMD File Number I04FL028701_08.13_0502_a).

Summary of Alternative Ratings: For the CHE module alternative ratings of "No known or suspected CWM Hazard" was given since no evidence of CWM was observed during the RI field work.

Description of Pathways for Human and Ecological Receptors: For MC, multiple pathways exist at this MRS; those include surface soil, air/wind, food chain, and groundwater. For MEC, access is available. Thus, intrusive and non-intrusive activites could allow for exposure.

Description of Receptors (Human and Ecological): Site access is unrestricted. Potential receptors include residential, public, commerical/occupational, and terrestial biota.

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond **with all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions* , *small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	UXO that are considered most likely to function upon any interaction with exposed persons [e.g., submunitions, 40mm high-explosive (HE) grenades, white phosphorus (WP) munitions, high-explosive antitank (HEAT) munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions]. Hand grenades containing energetic filler. Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard	(30)
High Explosive (used or damaged)	UXO containing a high-explosive (HE) filler (e.g., RDX, Composition B), that are not considered "sensitive". DMM containing a high-explosive filler that have: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	**25**
Pyrotechnic (used or damaged)	UXO containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades). DMM containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades) that have: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	**20**
High-Explosive (unused)	DMM containing a high-explosive filler that: ■ Have not been damaged by burning or detonation Are not deteriorated to the point of instability	**15**
Propellant	UXO containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor). DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: ■ Damaged by burning or detonation ■ Deteriorated to the point of instability	**15**
Bulk secondary high explosives, pyrotechnics, or propellant	DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor), that are deteriorated. Bulk secondary high-explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	**10**
Pyrotechnic (not used or damaged)	DMM containing a pyrotechnic filler (I.e., red phosphorous), other than white phosphorous filler, that: ■ Have not been damaged by burning or detonation ■ Are not deteriorated to the point of instability	**10**
Practice	UXO that are practice munitions that are not associated with a sensitive fuze. DMM that are practice munitions that are not associated with a sensitive fuze and that have not: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	**5**
Riot Control	UXO or DMM containing a riot control agent filler (e.g., tear gas).	**3**
Small arms		**2**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Munitions Type	**Directions:** Record **the single highest score** from above in the box to the right (maximum score = 30)	**30**

Directions: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

Proposed Rocket & Rifle Grenade Area was used for artillery training and combat range using live and practice munitions. Grenade spoons, M9 HEAT rifle grenade practice rifle grenades, 2.36" rocket motors, frag, scrap, and MK II grenades and scrap have all been found on the MRS during the EE/CA that was performed in 1996 and again in 1998. Some of these items were also found during the RI fieldwork.

Table 2

Classifications Within the EHE Module *Source of Hazard* Data Element

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond **with all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions* , *small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former Range	The MRS is a former military range where munitions including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas, associated buffer and safety zones, firing points, and live-fire maneuver areas.	**(10)**
Former Munitions Treatment (I.e., OB/OD) unit	The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	**8**
Former Practice Munitions Range	The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	**6**
Former Maneuver Area	The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	**5**
Former Burial Pit or other Disposal Area	The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a body of water) without prior thermal treatment.	**5**
Former Industrial Operating Facilities	The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	**4**
Former Firing Points	The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of the former military range.	**4**
Former Missile or Air Defense Artillery Emplacements	The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	**2**
Former Storage or Transfer Points	The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	**2**
Former Small Arms Range	The MRS is a former military range where only small arms ammunition was used. [There must be evidence that no other types of munitions (e.g., grenades) were used or are present to place an MRS into this category.	**1**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Source of Hazard	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

Directions: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

Proposed Rocket & Rifle Grenade Area was used for artillery training and combat range using live and practice munitions. Grenade spoons, M9 HEAT rifle grenade practice rifle grenades, 2.36" rocket motors, frag, scrap, and MK II grenades and scrap have all been found on the MRS during the EE/CA that was performed in 1996 and again in 1998. Some of these items were also found during the RI fieldwork.

Table 3

Classifications Within the EHE Module *Information on the Location of Munitions* Data Element

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.

Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed Surface	Physical evidence indicates that there are UXO or DMM on the surface of the MRS. Historical evidence (e.g., a confirmed incident report or accident report) indicates there are UXO or DMM on the surface of the MRS.	**25**
Confirmed Subsurface, Active	Physical evidence indicates that there are UXO or DMM on the surface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. Historical evidence indicates that there are UXO or DMM on the surface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	**20**
Confirmed Subsurface, Stable	Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are ***not*** likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are ***not*** likely to expose UXO or DMM. Historical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are ***not*** likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are ***not*** likely to expose UXO or DMM.	**15**
Suspected (Physical Evidence)	There is physical evidence (e.g., munitions debris, such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	**10**
Suspected (Historical Evidence)	There is historical evidence indicating that UXO or DMM may be present at the MRS.	**5**
Subsurface Physical Constraint	There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	**2**
Small Arms (regardless of location)	The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. [There must be evidence that no other types of munitions (e.g., grenades) were used or are present at the MRS to place an MRS in this category.]	**1**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Location of Munitions	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	**15**

Directions: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

Proposed Rocket & Rifle Grenade Area was used for artillery training and combat range using live and practice munitions. Grenade spoons, M9 HEAT rifle grenade practice rifle grenades, 2.36" rocket motors, frag, scrap, and MK II grenades and scrap have all been found on the MRS during the EE/CA that was performed in 1996 and again in 1998. Some of these items were also found during the RI fieldwork.

Table 4

EHE Module: *Ease of Access* Data Element

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS. **Note:** The term barrier is defined in Appendix C of the Primer.

Classification	Description	Score
No Barrier	There is no barrier preventing access to any part of the MRS (I.e., all parts of the MRS are accessible).	**(10)**
Barrier to MRS Access is Incomplete	There is a barrier preventing access to parts of the MRS, but not the entire MRS.	**8**
Barrier to MRS Access is Complete, But Not Monitored	There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by guard) to ensure that the barrier is effectively preventing access to all parts of the MRS..	**5**
Barrier to MRS Access is Complete and Monitored	There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS..	**0**
Ease of Access	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

Directions: Document any MRS-specific data used in selecting the ***Ease of Access*** classifications in the space provided.

Proposed Rocket & Rifle Grenade Area consists of privately-owned and Croft State Park property with no barriers to access present.

Table 5

EHE Module: *Status of Property* Data Element

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD Control	The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by the Department. Examples are privately-owned land or water bodies, land or water bodies owned or controlled by state, tribal, or local governments, and land or water bodies managed by other federal agencies.	**(5)**
Scheduled for Transfer from DoD Control	The MRS is on land or is a water body that is owned, leased, or otherwise possessed by the Department, and the Department plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government, a private party, another federal agency) within 3 years from the date the rule is applied.	**3**
DoD Control	The MRS is on land or is a water body that is owned, leased, or otherwise possessed by the Department. With respect to property that is leased or otherwise possessed, the Department must control access to the MRS 24 hours per day, every day of the calendar year.	**0**
Status of Property	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***Status of Property*** classifications in the space provided.

Proposed Rocket & Rifle Grenade Area consists of privately and Croft State Park owned land.

Table 6

EHE Module: *Population Density* Data Element

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score. **Note:** Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 Persons per Square Mile	There are more than 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**5**
100 to 500 Persons per Square Mile	There are 100 to 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**(3)**
< 100 Persons per Square Mile	There are fewer than 100 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**1**
Population Density:	Record the **single highest score** from above in the box to the right (maximum score = 5).	**3**

Directions: Document any MRS-specific data used in selecting the ***Population Density*** classifications in the space provided.

The MRS is located in Spartanburg County, South Carolina. According to the 2010 Census, Spartanburg County, South Carolina has a population density of 351.9 persons/square mile. http://quickfacts.census.gov/qfd/states/45/45083.html)

Table 7

EHE Module: *Population Near Hazard* Data Element

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term inhabited structures is defined in Appendix C of the Primer.

Classification	Description	Score
26 or More Inhabited Structures	There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**(5)**
16 to 25	There are 16 to 25 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**4**
11 to 15	There are 11 to 15 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**3**
6 to 10	There are 6 to 10 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**2**
1 to 5	There are 1 to 5 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**1**
0	There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**0**
POPULATION NEAR HAZARD	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classifications in the space provided.

Table 8

EHE Module: *Types of Activities/ Structures* Data Element

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with all the activities/structure classifications at the MRS.

Note: The term inhabited structure is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, Educational, Commercial, or Subsistence	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets, (e.g., hospitals, fire and rescue, police stations, dams), hotels commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing and gathering.	**(5)**
Parks and Recreational Areas	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	**4**
Agricultural, Forestry	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture and forestry.	**3**
Industrial or Warehousing	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	**2**
No Known or Recurring Activities	There are no known or recurring activities up to two miles from the MRS's boundary or within the MRS's boundary.	**1**
TYPES OF ACTIVITIES/STRUCTURES	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***TYPES OF ACTIVITIES/STRUCTURES*** classifications in the space provided.

Residential and Commercial structures located within 2 miles

Table 9

EHE Module: *Ecological and / or Cultural Resources* Data Element

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms ecological resources and cultural resources are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and Cultural Resources Present	There are both ecological and cultural resources present on the MRS.	**5**
Ecological Resources Present	There are ecological resources present on the MRS.	**(3)**
Cultural Resources Present	There are cultural resources present on the MRS.	**3**
No Ecological or Cultural Resources Present	There are no ecological and cultural resources present on the MRS.	**0**
ECOLOGICAL AND/OR CULTURAL RESOURCES	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**3**

Directions: Document any MRS-specific data used in selecting the ***ECOLOGICAL AND/OR CULTURAL RESOURCES*** classifications in the space provided.

As of March 2012, South Carolina Department of Natural Resources (SCDNR) listed the Dwarf-flowered Heatleaf as the only threatened or endangered species in Spartanburg County (http://www.dnr.sc.gov/species/pdf/Spartanburg2012.pdf).

Table 10
Determining the EHE Module Rating

Directions:

1. From Tables 1 - 9, record the data element scores in the **Score** boxes to the right.

2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.

3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.

4. Circle the appropriate range for the **EHE Module Total** below.

5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

		Score	Value
Explosives Hazard Factor Data Elements			
Munitions Type	Table 1	**30**	**40**
Source of Hazard	Table 2	**10**	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	**15**	**30**
Ease of Access	Table 4	**10**	
Status of Property	Table 5	**5**	
Receptors Factor Data Elements			
Population Density	Table 6	**3**	**16**
Population Near Hazard	Table 7	**5**	
Types of Activities/ Structures	Table 8	**5**	
Ecological and/ or Cultural Resources	Table 9	**3**	
		EHE Module Total	**86**

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	(B)
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternate Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE Module Rating	**B**

Table 11

Classifications Within the CHE Module *CWM Configuration* Data Element

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with all the CWM configurations known or suspected to be present at the MRS.
Note: The terms CWM/UXO, CWM/DMM, physical evidence, and historical evidence are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, Explosive Configuration, either UXO or Damaged DMM Damaged	The CWM known or suspected of being present at the MRS is: - Explosively configured CWM that are UXO (I.e., CWM/UXO). - Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	**30**
CWM Mixed With UXO	The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM, or CWM not configured as a munition, that are commingled with conventional munitions that are UXO.	**25**
CWM, Explosive Configuration that are DMM (undamaged)	The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM ,that have not been damaged.	**20**
CWM, Not Explosively Configured or CWM, Bulk Container	The CWM known or suspected of being present at the MRS is: - Non-Explosively configured CWM/DMM. - Bulk CWM/DMM (e.g., ton container).	**15**
CAIS K941 and CAIS K942	The CWM/DMM known or suspected of being present at the MRS is CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	**12**
CAIS (Chemical agent identification sets)	Only CAIS other than CAIS K941 and K942, are known or suspected of being present at the MRS.	**10**
Evidence of No CWM	Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	**(0)**
CWM CONFIGURATION	**DIRECTIONS:** Record the **single highest score** from above in the box to the right (maximum score = 30).	**0**

Directions: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space

No evidence of CWM during RI field work, and no historical evidence.

Tables 12-19 are intentionally omitted-No Known or Suspected CWM Hazard.

Table 20
Determining the CHE Module Rating

Directions:

1. From Tables 1 - 9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three Value boxes and record this number in the CHE Module Total box below.
4. Circle the appropriate range for the CHE Module Total below.
5. Circle the CHE Module Rating that corresponds to the range selected and record this value in the CHE Module Rating box found at the bottom of the table.

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

		Score	Score	Value
CWM Hazard Factor Data Elements				
CWM Configuration	Table 11	0		**0**
Sources of CWM	Table 12	0		
0				
Location of CWM	Table 13	0		
Ease of Access	Table 14	0		**0**
Status of Property	Table 15	0		
Receptors Factor Data Elements				
Population Density	Table 16	0		
Population Near Hazard	Table17	0		
Types of Activities/ Structures	Table 18	0		**0**
Ecological and/ or Cultural Resources	Table 19	0		
			CHE Module Total	**0**

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternate Module Ratings	Evaluation Pending
	~~No Longer Required~~
	No Known or Suspected CWM Hazard
CHE Module Rating	**No Known or Suspected CWM Hazard**

Table 21
HHE Module: Groundwater Data Element Table
Contaminant Hazard Factor (CHF)

Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the comparison value. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the CHF Value. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	**Sum of the Ratios**	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Groundwater MC Hazard

Table 21 Comments: Groundwater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 22
HHE Module: Surface Water-Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's surface water and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional surface water contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
Receptors Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Surface Water (Human Endpoint) MC Hazard

Table 22 Comments: Surfacewater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 23
HHE Module: Sediment-Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Sediment and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Sediment contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Sediment, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
no analytical data			
CHF Scale	CHF Value	Sum of the Ratios	**0.000**
CHF >100	H (high)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contaminant]	
2 > CHF	L (low)	[Comparison Value for Contaminant]	
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Sediment to which contamination has moved or can move.	L
Receptors Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Sediment (Human Endpoint) MC Hazard

Table 23 Comments: Sediment sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 24
HHE Module: Surface Water - Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Surface Water and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Surface Water contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Surface Water, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Surface Water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Surface Water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Surface Water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Surface Water to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Surface Water (Ecological Endpoint) MC Hazard

Table 24 Comments: Surfacewater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 25
HHE Module: Sediment - Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Sediment and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Sediment contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Sediment, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
No Analytical Data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Sediment to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Sediment (Ecological Endpoint) MC Hazard

Table 25 Comments: Sediment sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 26
HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Surface Soil and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Surface Soil contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Surface Soil, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
Antimony	**0.75**	**31**	**0.024**
Copper	**129**	**3,100**	**0.042**
Lead	**93.9**	**400**	**0.235**
Zinc	**179**	**23000**	**0.008**
PETN	**1240**	**85,000**	**0.015**
CHF Scale	CHF Value	Sum of the Ratios	**0.323**
CHF >100	H (high)		
100 > CHF > 2	M (medium)	**CHF = SUM** [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		**L**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Surface Soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	**M**

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Surface Soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Surface Soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Surface Soil to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	**L**

No known or Suspected Surface Soil MC Hazard

Table 26 Comments: Surface soil samples were analyzed for antimony, copper, lead, zinc, and explosive compounds, including nitroglycerine and PETN.

Table 27
HHE Module: Supplemental Contaminant Hazard Factor Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the media in which these contaminants are present. Then record all contaminants, their maximum concentrations and their comparison values (from Appendix B of the Primer) in the table below. Calculate and record the ratio for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the Contaminant Hazard, Migration Pathway, and Receptor Factors for the media (from Tables 21–26) in the corresponding boxes below.

2. Record the media's three-letter combinations in the Three-Letter Combination boxes below (three-letter combinations are arranged from Hs to Ms to Ls).

3. Using the HHE Ratings provided below, determine each media's rating (A–G) and record the letter in the corresponding Media Rating box below.

Media (source)	Contaminant Hazard Factor Value	Migratory Parthway Factor Value	Receptor Factor Value		Three-Letter Combination (Hs-Ms-Ls)		Media Rating (A-G)
Groundwater (Table 21)	No analytical data						
Surface Water/Human Endpoint (Table 22)	No analytical data						
Sediment/Human Endpoint (Table 23)	No analytical data						
Surface Water/Ecological Endpoint (Table 24)	No analytical data						
Sediment/Ecological Endpoint (Table 25)	No analytical data						
Surface Soil (Table 26)	L	M	L		MLL		F

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the HHE Module Rating box.

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE Module Rating	F

HHE Ratings (for reference only)	
Combination	**Rating**
HHH	A
HHM	B
HHL	C
HMM	
HML	D
MMM	
HLL	E
MML	
MLL	(F)
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter rating for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical priority for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the MRS Priority or Alternative MRS Rating at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
(B)	(3)	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	(F)	(7)
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		(No Known or Suspected CWM Hazard)		No Known or Suspected MC Hazard	
MRS or Alternative MRS Rating				**3**	

Proposed Rocket & Rifle Grenade Area was used for artillery training and combat range using live and practice munitions. Grenade spoons, M9 HEAT rifle grenade practice rifle grenades, 2.36" rocket motors, frag, scrap, and MK II grenades and scrap have all been found on the MRS during the EE/CA that was performed in 1996 and again in 1998. Some of these items were also found during the RI fieldwork.

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the MRS Summary, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Proposed Rocket/Grenade Maneuver Area

Component: U.S. Army

Installation/Property Name: Former Camp Croft

Location (City, County, State): Spartanburg, Spartanburg County, SC

Site Name; (RMIS ID)/Project Name (Project No.): Proposed Rocket/Grenade Maneuver Area; RI/FS at Former Camp Croft (W912DY-10-D-0028, Task Order 0005)

Date Information Entered/Updated: January 2014
Point of Contact (Name/Phone): Shawn Boone (843) 329-8158
Project Phase (check only one):

☐ PA	☐ SI Report	☒ RI	☐ FS	☐ RD
☐ RA-C	☐ RIP	☐ RA-O	☐ RC	☐ LTM

☐ Groundwater	☐ Sediment (human receptor)
☐ Surface Soil	☐ Surface Water (ecolocical receptor)
☐ Sediment (ecolocical receptor)	☐ Surface Water (human receptor)

MRS Summary: The proposed Rocket/Grenade Maneuver Area MRS consists of 126.3 acres of land. It has also shown to have little or no MEC/Munitions Debris. It was used as artillery and combat range using various types of live and practice munitions.

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM (by type of munitions, if known) or munitions constituents (by type, if known) known or suspected to be present) When possible, identify munitions, CWM, and MC by type:

MRS Description: The MRS range was used as an artillery training and combat range that used live and practice munitions rounds. Portions of original MRS and AOPI areas where no significant MEC/MD finds encountered. Area includes land as well as two lakes and consists of approximately 9,906.5 acres.

Coordination with the stakeholders was conducted during the 1st Technical Project Planning (TPP) Meeting (Reference: 2007 SI Report (Section ES.4; Appendix B) located on FRMD File Number I04FL028701_01.09_0503_a, and during the 2nd and 3rd TPP meetings conducted during the RI (Reference: 2013 Draft RI Report (Section 1.0.d; Appendix L. Reference: FRMD File Numbers I04FL028701_03.10_0500_a and I04FL028701_03.10_0501_a). Per MRSPP requirements, during the SI a public notice was issued announcing the MRSPP (Reference: FRMD File Number I04FL028701_08.13_0502_a).

Summary of Alternative Ratings: For the CHE and HHE modules, alternative ratings of "No known or suspected CWM Hazard" and "No known or suspected MC Hazard" (per Section 7 of the HHE Module from the "Handbook on Realignment, Delination, and MRSPP Implementation, v. 1.0.2 dated 10/1/2011) were given since no evidence of MEC and/or MD was observed during the RI field work.

Description of Pathways for Human and Ecological Receptors: For MC, multiple pathways exist at this MRS; those include surface soil, ait/wind, food chain, and groundwater. For MEC, access is limited but available. Thus, intrusive and non-intrusive activities could allow for an exposure.

Description of Receptors (Human and Ecological): Site access is restricted by fencing. Potential receptors include general/occupational, trespassers, and terrestial biota.

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond **with all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions* , *small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	UXO that are considered most likely to function upon any interaction with exposed persons [e.g., submunitions, 40mm high-explosive (HE) grenades, white phosphorus (WP) munitions, high-explosive antitank (HEAT) munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions]. Hand grenades containing energetic filler. Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard	**30**
High Explosive (used or damaged)	UXO containing a high-explosive (HE) filler (e.g., RDX, Composition B), that are not considered "sensitive".	**25**
	DMM containing a high-explosive filler that have: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	
Pyrotechnic (used or damaged)	UXO containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades).	**(20)**
	DMM containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades) that have: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	
High-Explosive (unused)	DMM containing a high-explosive filler that: ■ Have not been damaged by burning or detonation Are not deteriorated to the point of instability	**15**
Propellant	UXO containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor).	**15**
	DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: ■ Damaged by burning or detonation ■ Deteriorated to the point of instability	
Bulk secondary high explosives, pyrotechnics, or propellant	DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor), that are deteriorated.	**10**
	Bulk secondary high-explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	
Pyrotechnic (not used or damaged)	DMM containing a pyrotechnic filler (I.e., red phosphorous), other than white phosphorous filler, that: ■ Have not been damaged by burning or detonation ■ Are not deteriorated to the point of instability	**10**
Practice	UXO that are practice munitions that are not associated with a sensitive fuze.	**5**
	DMM that are practice munitions that are not associated with a sensitive fuze and that have not: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	
Riot Control	UXO or DMM containing a riot control agent filler (e.g., tear gas).	**3**
Small arms		**2**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Munitions Type	**Directions:** Record **the single highest score** from above in the box to the right (maximum score = 30)	**20**

Directions: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

The MRS range was used as an artillery training and combat range that used live and practice munitions rounds. Portions of original MRS and AOPI areas where no significant MEC/MD finds encountered.

Table 2

Classifications Within the EHE Module *Source of Hazard* Data Element

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond **with all** the munitions types known or suspected to be present at the MRS.
Note: The terms *practice munitions* , *small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former Range	The MRS is a former military range where munitions including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas, associated buffer and safety zones, firing points, and live-fire maneuver areas.	**(10)**
Former Munitions Treatment (I.e., OB/OD) unit	The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	**8**
Former Practice Munitions Range	The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	**6**
Former Maneuver Area	The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	**5**
Former Burial Pit or other Disposal Area	The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a body of water) without prior thermal treatment.	**5**
Former Industrial Operating Facilities	The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	**4**
Former Firing Points	The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of the former military range.	**4**
Former Missile or Air Defense Artillery Emplacements	The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	**2**
Former Storage or Transfer Points	The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	**2**
Former Small Arms Range	The MRS is a former military range where only small arms ammunition was used. [There must be evidence that no other types of munitions (e.g., grenades) were used or are present to place an MRS into this category.	**1**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Source of Hazard	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

Directions: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

The MRS range was used as an artillery training and combat range that used live and practice munitions rounds. Portions of original MRS and AOPI areas where no significant MEC/MD finds encountered.

Table 3

Classifications Within the EHE Module *Information on the Location of Munitions* Data Element

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.
Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed Surface	Physical evidence indicates that there are UXO or DMM on the surface of the MRS. Historical evidence (e.g., a confirmed incident report or accident report) indicates there are UXO or DMM on the surface of the MRS.	**25**
Confirmed Subsurface, Active	Physical evidence indicates that there are UXO or DMM on the surface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. Historical evidence indicates that there are UXO or DMM on the surface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	**20**
Confirmed Subsurface, Stable	Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are ***not*** likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are ***not*** likely to expose UXO or DMM. Historical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are ***not*** likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are ***not*** likely to expose UXO or DMM.	**15**
Suspected (Physical Evidence)	There is physical evidence (e.g., munitions debris, such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	**10**
Suspected (Historical Evidence)	There is historical evidence indicating that UXO or DMM may be present at the MRS.	**5**
Subsurface Physical Constraint	There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	**2**
Small Arms (regardless of location)	The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. [There must be evidence that no other types of munitions (e.g., grenades) were used or are present at the MRS to place an MRS in this category.]	**1**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Location of Munitions	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	**15**

Directions: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

Two landmine fuzes found (DMM). No live HE items found; only scattered munitions debris and small arms.

The MRS range was used as an artillery training and combat range that used live and practice munitions rounds. Portions of original MRS and AOPI areas where no significant MEC/MD finds encountered.

Table 4

EHE Module: *Ease of Access* Data Element

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS. **Note:** The term barrier is defined in Appendix C of the Primer.

Classification	Description	Score
No Barrier	There is no barrier preventing access to any part of the MRS (I.e., all parts of the MRS are accessible).	**10**
Barrier to MRS Access is Incomplete	There is a barrier preventing access to parts of the MRS, but not the entire MRS.	**(8)**
Barrier to MRS Access is Complete, But Not Monitored	There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by guard) to ensure that the barrier is effectively preventing access to all parts of the MRS..	**5**
Barrier to MRS Access is Complete and Monitored	There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS..	**0**
Ease of Access	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**8**

Directions: Document any MRS-specific data used in selecting the ***Ease of Access*** classifications in the space provided.

Consists of privately-owned property with some barriers to access present.

Table 5

EHE Module: *Status of Property* Data Element

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD Control	The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by the Department. Examples are privately-owned land or water bodies, land or water bodies owned or controlled by state, tribal, or local governments, and land or water bodies managed by other federal agencies.	**(5)**
Scheduled for Transfer from DoD Control	The MRS is on land or is a water body that is owned, leased, or otherwise possessed by the Department, and the Department plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government, a private party, another federal agency) within 3 years from the date the rule is applied.	**3**
DoD Control	The MRS is on land or is a water body that is owned, leased, or otherwise possessed by the Department. With respect to property that is leased or otherwise possessed, the Department must control access to the MRS 24 hours per day, every day of the calendar year.	**0**
Status of Property	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***Status of Property*** classifications in the space provided.

Consists of privately owned land.

Table 6

EHE Module: *Population Density* Data Element

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score. **Note:** Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 Persons per Square Mile	There are more than 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**5**
100 to 500 Persons per Square Mile	There are 100 to 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**(3)**
< 100 Persons per Square Mile	There are fewer than 100 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**1**
Population Density:	Record the **single highest score** from above in the box to the right (maximum score = 5).	**3**

Directions: Document any MRS-specific data used in selecting the ***Population Density*** classifications in the space provided.

The MRS is located in Spartanburg County, South Carolina. According to the 2010 Census, Spartanburg County, South Carolina has a population density of 351.9 persons/square mile. http://quickfacts.census.gov/qfd/states/45/45083.html)

Table 7

EHE Module: *Population Near Hazard* Data Element

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term inhabited structures is defined in Appendix C of the Primer.

Classification	Description	Score
26 or More Inhabited Structures	There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**(5)**
16 to 25	There are 16 to 25 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**4**
11 to 15	There are 11 to 15 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**3**
6 to 10	There are 6 to 10 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**2**
1 to 5	There are 1 to 5 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**1**
0	There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**0**
POPULATION NEAR HAZARD	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classifications in the space provided.

Table 8

EHE Module: *Types of Activities/ Structures* Data Element

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with all the activities/structure classifications at the MRS.

Note: The term inhabited structure is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, Educational, Commercial, or Subsistence	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets, (e.g., hospitals, fire and rescue, police stations, dams), hotels commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing and gathering.	**(5)**
Parks and Recreational Areas	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	**4**
Agricultural, Forestry	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture and forestry.	**3**
Industrial or Warehousing	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	**2**
No Known or Recurring Activities	There are no known or recurring activities up to two miles from the MRS's boundary or within the MRS's boundary.	**1**
TYPES OF ACTIVITIES/STRUCTURES	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***TYPES OF ACTIVITIES/STRUCTURES*** classifications in the space provided.

Residential and Commercial structures located within 2 miles

Table 9

EHE Module: *Ecological and / or Cultural Resources* Data Element

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms ecological resources and cultural resources are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and Cultural Resources Present	There are both ecological and cultural resources present on the MRS.	**5**
Ecological Resources Present	There are ecological resources present on the MRS.	**3**
Cultural Resources Present	There are cultural resources present on the MRS.	**3**
No Ecological or Cultural Resources Present	There are no ecological and cultural resources present on the MRS.	**(0)**
ECOLOGICAL AND/OR CULTURAL RESOURCES	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**0**

Directions: Document any MRS-specific data used in selecting the ***ECOLOGICAL AND/OR CULTURAL RESOURCES*** classifications in the space provided.

Table 10
Determining the EHE Module Rating

Directions:

1. From Tables 1 - 9, record the data element scores in the **Score** boxes to the right.

2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.

3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.

4. Circle the appropriate range for the **EHE Module Total** below.

5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

		Score	Value
Explosives Hazard Factor Data Elements			
Munitions Type	Table 1	**20**	**30**
Source of Hazard	Table 2	**10**	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	**15**	**28**
Ease of Access	Table 4	**8**	
Status of Property	Table 5	**5**	
Receptors Factor Data Elements			
Population Density	Table 6	**3**	**13**
Population Near Hazard	Table 7	**5**	
Types of Activities/ Structures	Table 8	**5**	
Ecological and/ or Cultural Resources	Table 9	**0**	
		EHE Module Total	**71**

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternate Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE Module Rating	**C**

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

Table 11

Classifications Within the CHE Module *CWM Configuration* Data Element

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with all the CWM configurations known or suspected to be present at the MRS.
Note: The terms CWM/UXO, CWM/DMM, physical evidence, and historical evidence are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, Explosive Configuration, either UXO or Damaged DMM Damaged	The CWM known or suspected of being present at the MRS is: - Explosively configured CWM that are UXO (I.e., CWM/UXO). - Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	**30**
CWM Mixed With UXO	The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM, or CWM not configured as a munition, that are commingled with conventional munitions that are UXO.	**25**
CWM, Explosive Configuration that are DMM (undamaged)	The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM ,that have not been damaged.	**20**
CWM, Not Explosively Configured or CWM, Bulk Container	The CWM known or suspected of being present at the MRS is: - Non-Explosively configured CWM/DMM. - Bulk CWM/DMM (e.g., ton container).	**15**
CAIS K941 and CAIS K942	The CWM/DMM known or suspected of being present at the MRS is CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	**12**
CAIS (Chemical agent identification sets)	Only CAIS other than CAIS K941 and K942, are known or suspected of being present at the MRS.	**10**
Evidence of No CWM	Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	**(0)**
CWM CONFIGURATION	**DIRECTIONS:** Record the **single highest score** from above in the box to the right (maximum score = 30).	**0**

Directions: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space

No evidence of CWM was observed during the RI field work, and no evidence of historical use.

Tables 12-19 are intentionally omitted-No Known or Suspected CWM Hazard

Table 20
Determining the CHE Module Rating

Directions:

1. From Tables 1 - 9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three Value boxes and record this number in the CHE Module Total box below.
4. Circle the appropriate range for the CHE Module Total below.
5. Circle the CHE Module Rating that corresponds to the range selected and record this value in the CHE Module Rating box found at the bottom of the table.

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

		Score	Score	Value
CWM Hazard Factor Data Elements				
CWM Configuration	Table 11	0		**0**
Sources of CWM	Table 12	0		
0				
Location of CWM	Table 13	0		
Ease of Access	Table 14	0		**0**
Status of Property	Table 15	0		
Receptors Factor Data Elements				
Population Density	Table 16	0		
Population Near Hazard	Table17	0		
Types of Activities/ Structures	Table 18	0		**0**
Ecological and/ or Cultural Resources	Table 19	0		
			CHE Module Total	**0**

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternate Module Ratings	Evaluation Pending
	~~No Longer Required~~
	No Known or Suspected CWM Hazard
CHE Module Rating	**No Known or Suspected CWM Hazard**

Table 21
HHE Module: Groundwater Data Element Table
Contaminant Hazard Factor (CHF)

Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the comparison value. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the CHF Value. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	**Sum of the Ratios**	
CHF >100	H (high)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contaminant]	
2 > CHF	L (low)	[Comparison Value for Contaminant]	
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Groundwater MC Hazard

Table 21 Comments: Groundwater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 22
HHE Module: Surface Water-Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's surface water and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional surface water contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
Receptors Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Surface Water (Human Endpoint) MC Hazard

Table 22 Comments: Surfacewater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 23
HHE Module: Sediment-Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Sediment and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Sediment contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Sediment, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
no analytical data			
CHF Scale	CHF Value	Sum of the Ratios	**0.000**
CHF >100	H (high)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contaminant]	
2 > CHF	L (low)	[Comparison Value for Contaminant]	
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Sediment to which contamination has moved or can move.	L
Receptors Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Sediment (Human Endpoint) MC Hazard

Table 23 Comments: Sediment sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 24
HHE Module: Surface Water - Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Surface Water and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Surface Water contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Surface Water, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Surface Water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Surface Water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Surface Water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Surface Water to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Surface Water (Ecological Endpoint) MC Hazard

Table 24 Comments: Surfacewater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 25
HHE Module: Sediment - Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Sediment and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Sediment contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Sediment, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
No analytical data			

CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Sediment to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Sediment (Ecological Endpoint) MC Hazard

Table 25 Comments: Sediment sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 26
HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Surface Soil and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Surface Soil contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Surface Soil, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
No analtical data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)		
100 > CHF > 2	M (medium)	**CHF = SUM** [Maximum Concentration of Contaminant]	
2 > CHF	L (low)	[Comparison Value for Contaminant]	
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Surface Soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Surface Soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Surface Soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Surface Soil to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Surface Soil MC Hazard

Table 26 Comments: RI/FS workplan states that soil samples will be collected in high MD or MEC areas, and be determined in the field. Little to no MD or MEC was observed in this MRS during field operations, and no soil samples were collected.

Table 27
HHE Module: Supplemental Contaminant Hazard Factor Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the media in which these contaminants are present. Then record all contaminants, their maximum concentrations and their comparison values (from Appendix B of the Primer) in the table below. Calculate and record the ratio for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the Contaminant Hazard, Migration Pathway, and Receptor Factors for the media (from Tables 21–26) in the corresponding boxes below.

2. Record the media's three-letter combinations in the Three-Letter Combination boxes below (three-letter combinations are arranged from Hs to Ms to Ls).

3. Using the HHE Ratings provided below, determine each media's rating (A–G) and record the letter in the corresponding Media Rating box below.

Media (source)	Contaminant Hazard Factor Value	Migratory Parthway Factor Value	Receptor Factor Value		Three-Letter Combination (Hs-Ms-Ls)		Media Rating (A-G)
Groundwater (Table 21)	No analytical data						
Surface Water/Human Endpoint (Table 22)	No analytical data						
Sediment/Human Endpoint (Table 23)	No analytical data						
Surface Water/Ecological Endpoint (Table 24)	No analytical data						
Sediment/Ecological Endpoint (Table 25)	No analytical data						
Surface Soil (Table 26)	No analytical data						

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the HHE Module Rating box.

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE Module Rating	

HHE Ratings (for reference only)	
Combination	**Rating**
HHH	A
HHM	B
HHL	C
HMM	
HML	D
MMM	
HLL	E
MML	
MLL	F
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter rating for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical priority for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the MRS Priority or Alternative MRS Rating at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		No Known or Suspected CWM Hazard		No Known or Suspected MC Hazard	
MRS or Alternative MRS Rating				**4**	

The MRS range was used as an artillery training and combat range that used live and practice munitions rounds. Portions of original MRS and AOPI areas where no significant MEC/MD finds encountered.

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the MRS Summary, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Proposed Remaining Lands

Component: U.S. Army

Installation/Property Name: Former Camp Croft

Location (City, County, State): Spartanburg, Spartanburg County, SC

Site Name; (RMIS ID)/Project Name (Project No.): Proposed Remaining Lands; RI/FS at Former Camp Croft (W912DY-10-D-0028, Task Order 0005)

Date Information Entered/Updated: January 2014
Point of Contact (Name/Phone): Shawn Boone (843) 329-8158
Project Phase (check only one):

☐ PA	☐ SI Report	☒ RI	☐ FS	☐ RD
☐ RA-C	☐ RIP	☐ RA-O	☐ RC	☐ LTM

☐ Groundwater	☐ Sediment (human receptor)
☐ Surface Soil	☐ Surface Water (ecolocical receptor)
☐ Sediment (ecolocical receptor)	☐ Surface Water (human receptor)

MRS Summary: The proposed remaining lands MRS consists of 9,906.5 acres of land and contains two lakes within the MRS. It has also shown to have little or no MEC/Munitions Debris. It was used as artillery and combat range using various types of live and practice munitions.

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM (by type of munitions, if known) or munitions constituents (by type, if known) known or suspected to be present) When possible, identify munitions, CWM, and MC by type:

MRS Description: The MRS range was used as an artillery training and combat range that used live and practice munitions rounds. Portions of original MRS and AOPI areas where no significant MEC/MD finds encountered. Area includes land as well as two lakes and consists of approximately 9,906.5 acres.

Coordination with the stakeholders was conducted during the 1st Technical Project Planning (TPP) Meeting (Reference: 2007 SI Report (Section ES.4; Appendix B) located on FRMD File Number I04FL028701_01.09_0503_a, and during the 2nd and 3rd TPP meetings conducted during the RI (Reference: 2013 Draft RI Report (Section 1.0.d; Appendix L. Reference: FRMD File Numbers I04FL028701_03.10_0500_a and I04FL028701_03.10_0501_a). Per MRSPP requirements, during the SI a public notice was issued announcing the MRSPP (Reference: FRMD File Number I04FL028701_08.13_0502_a).

Summary of Alternative Ratings: For the CHE and HHE modules, alternative ratings of "No known or suspected CWM Hazard" and "No known or suspected MC Hazard" (per Section 7 of the HHE Module from the "Handbook on Realignment, Delination, and MRSPP Implementation, v. 1.0.2 dated 10/1/2011) were given since no evidence of MEC and/or MD was observed during the RI field work.

Description of Pathways for Human and Ecological Receptors: For MC, multiple pathways exist at this MRS; those include surface soil, ait/wind, food chain, and groundwater. For MEC, access is limited but available. Thus, intrusive and non-intrusive activities could allow for an exposure.

Description of Receptors (Human and Ecological): Site access is restricted by fencing. Potential receptors include general/occupational, trespassers, and terrestial biota.

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond **with all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions* , *small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	UXO that are considered most likely to function upon any interaction with exposed persons [e.g., submunitions, 40mm high-explosive (HE) grenades, white phosphorus (WP) munitions, high-explosive antitank (HEAT) munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions]. Hand grenades containing energetic filler. Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard	**30**
High Explosive (used or damaged)	UXO containing a high-explosive (HE) filler (e.g., RDX, Composition B), that are not considered "sensitive".	**25**
	DMM containing a high-explosive filler that have: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	
Pyrotechnic (used or damaged)	UXO containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades).	**20**
	DMM containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades) that have: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	
High-Explosive (unused)	DMM containing a high-explosive filler that: ■ Have not been damaged by burning or detonation Are not deteriorated to the point of instability	**15**
Propellant	UXO containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor).	**15**
	DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: ■ Damaged by burning or detonation ■ Deteriorated to the point of instability	
Bulk secondary high explosives, pyrotechnics, or propellant	DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor), that are deteriorated.	**10**
	Bulk secondary high-explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	
Pyrotechnic (not used or damaged)	DMM containing a pyrotechnic filler (I.e., red phosphorous), other than white phosphorous filler, that: ■ Have not been damaged by burning or detonation ■ Are not deteriorated to the point of instability	**10**
Practice	UXO that are practice munitions that are not associated with a sensitive fuze.	**5**
	DMM that are practice munitions that are not associated with a sensitive fuze and that have not: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	
Riot Control	UXO or DMM containing a riot control agent filler (e.g., tear gas).	**3**
Small arms		**2**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Munitions Type	**Directions:** Record **the single highest score** from above in the box to the right (maximum score = 30)	**5**

Directions: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

The MRS range was used as an artillery training and combat range that used live and practice munitions rounds. Portions of original MRS and AOPI areas where no significant MEC/MD finds encountered. Area includes land as well as two lakes and consists of approximately 9,906.5 acres.

Table 2

Classifications Within the EHE Module *Source of Hazard* Data Element

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond **with all** the munitions types known or suspected to be present at the MRS.
Note: The terms *practice munitions* , *small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former Range	The MRS is a former military range where munitions including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas, associated buffer and safety zones, firing points, and live-fire maneuver areas.	**10**
Former Munitions Treatment (I.e., OB/OD) unit	The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	**8**
Former Practice Munitions Range	The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	**6**
Former Maneuver Area	The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	**5**
Former Burial Pit or other Disposal Area	The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a body of water) without prior thermal treatment.	**5**
Former Industrial Operating Facilities	The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	**4**
Former Firing Points	The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of the former military range.	**4**
Former Missile or Air Defense Artillery Emplacements	The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	**2**
Former Storage or Transfer Points	The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	**2**
Former Small Arms Range	The MRS is a former military range where only small arms ammunition was used. [There must be evidence that no other types of munitions (e.g., grenades) were used or are present to place an MRS into this category.	**1**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Source of Hazard	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

Directions: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

The MRS range was used as an artillery training and combat range that used live and practice munitions rounds. Portions of original MRS and AOPI areas where no significant MEC/MD finds encountered. Area includes land as well as two lakes and consists of approximately 9,906.5 acres.

Table 3

Classifications Within the EHE Module *Information on the Location of Munitions* Data Element

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.
Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed Surface	Physical evidence indicates that there are UXO or DMM on the surface of the MRS. Historical evidence (e.g., a confirmed incident report or accident report) indicates there are UXO or DMM on the surface of the MRS.	**25**
Confirmed Subsurface, Active	Physical evidence indicates that there are UXO or DMM on the surface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. Historical evidence indicates that there are UXO or DMM on the surface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	**20**
Confirmed Subsurface, Stable	Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are ***not*** likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are ***not*** likely to expose UXO or DMM. Historical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are ***not*** likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are ***not*** likely to expose UXO or DMM.	**15**
Suspected (Physical Evidence)	There is physical evidence (e.g., munitions debris, such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	**(10)**
Suspected (Historical Evidence)	There is historical evidence indicating that UXO or DMM may be present at the MRS.	**(5)**
Subsurface Physical Constraint	There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	**2**
Small Arms (regardless of location)	The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. [There must be evidence that no other types of munitions (e.g., grenades) were used or are present at the MRS to place an MRS in this category.]	**1**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Location of Munitions	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	**10**

Directions: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

Two landmine fuzes found (DMM). No live HE items found; only scattered munitions debris and small arms.

The MRS range was used as an artillery training and combat range that used live and practice munitions rounds. Portions of original MRS and AOPI areas where no significant MEC/MD finds encountered. Area includes land as well as two lakes and consists of approximately 9,906.5 acres.

Table 4

EHE Module: *Ease of Access* Data Element

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS. **Note:** The term barrier is defined in Appendix C of the Primer.

Classification	Description	Score
No Barrier	There is no barrier preventing access to any part of the MRS (I.e., all parts of the MRS are accessible).	**(10)**
Barrier to MRS Access is Incomplete	There is a barrier preventing access to parts of the MRS, but not the entire MRS.	**8**
Barrier to MRS Access is Complete, But Not Monitored	There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by guard) to ensure that the barrier is effectively preventing access to all parts of the MRS..	**5**
Barrier to MRS Access is Complete and Monitored	There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS..	**0**
Ease of Access	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

Directions: Document any MRS-specific data used in selecting the ***Ease of Access*** classifications in the space provided.

Proposed Remaining Lands consists of privately-owned property as well as state park property with no barriers to access present.

Table 5

EHE Module: *Status of Property* Data Element

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD Control	The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by the Department. Examples are privately-owned land or water bodies, land or water bodies owned or controlled by state, tribal, or local governments, and land or water bodies managed by other federal agencies.	**(5)**
Scheduled for Transfer from DoD Control	The MRS is on land or is a water body that is owned, leased, or otherwise possessed by the Department, and the Department plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government, a private party, another federal agency) within 3 years from the date the rule is applied.	**3**
DoD Control	The MRS is on land or is a water body that is owned, leased, or otherwise possessed by the Department. With respect to property that is leased or otherwise possessed, the Department must control access to the MRS 24 hours per day, every day of the calendar year.	**0**
Status of Property	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***Status of Property*** classifications in the space provided.

Proposed Remaining Lands consists of privately owned land and state park land.

Table 6

EHE Module: *Population Density* Data Element

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score. **Note:** Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 Persons per Square Mile	There are more than 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**5**
100 to 500 Persons per Square Mile	There are 100 to 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**(3)**
< 100 Persons per Square Mile	There are fewer than 100 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**1**
Population Density:	Record the **single highest score** from above in the box to the right (maximum score = 5).	**3**

Directions: Document any MRS-specific data used in selecting the ***Population Density*** classifications in the space provided.

The MRS is located in Spartanburg County, South Carolina. According to the 2010 Census, Spartanburg County, South Carolina has a population density of 351.9 persons/square mile. http://quickfacts.census.gov/qfd/states/45/45083.html)

Table 7

EHE Module: *Population Near Hazard* Data Element

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term inhabited structures is defined in Appendix C of the Primer.

Classification	Description	Score
26 or More Inhabited Structures	There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**(5)**
16 to 25	There are 16 to 25 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**4**
11 to 15	There are 11 to 15 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**3**
6 to 10	There are 6 to 10 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**2**
1 to 5	There are 1 to 5 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**1**
0	There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**0**
POPULATION NEAR HAZARD	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classifications in the space provided.

Table 8

EHE Module: *Types of Activities/ Structures* Data Element

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with all the activities/structure classifications at the MRS.

Note: The term inhabited structure is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, Educational, Commercial, or Subsistence	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets, (e.g., hospitals, fire and rescue, police stations, dams), hotels commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing and gathering.	**(5)**
Parks and Recreational Areas	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	**4**
Agricultural, Forestry	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture and forestry.	**3**
Industrial or Warehousing	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	**2**
No Known or Recurring Activities	There are no known or recurring activities up to two miles from the MRS's boundary or within the MRS's boundary.	**1**
TYPES OF ACTIVITIES/STRUCTURES	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***TYPES OF ACTIVITIES/STRUCTURES*** classifications in the space provided.

Residential and Commercial structures located within 2 miles

Table 9

EHE Module: *Ecological and / or Cultural Resources* Data Element

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms ecological resources and cultural resources are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and Cultural Resources Present	There are both ecological and cultural resources present on the MRS.	**5**
Ecological Resources Present	There are ecological resources present on the MRS.	**3**
Cultural Resources Present	There are cultural resources present on the MRS.	**3**
No Ecological or Cultural Resources Present	There are no ecological and cultural resources present on the MRS.	**(0)**
ECOLOGICAL AND/OR CULTURAL RESOURCES	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**0**

Directions: Document any MRS-specific data used in selecting the ***ECOLOGICAL AND/OR CULTURAL RESOURCES*** classifications in the space provided.

Table 10
Determining the EHE Module Rating

Directions:

1. From Tables 1 - 9, record the data element scores in the **Score** boxes to the right.

2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.

3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.

4. Circle the appropriate range for the **EHE Module Total** below.

5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

		Score	Value
Explosives Hazard Factor Data Elements			
Munitions Type	Table 1	**5**	**15**
Source of Hazard	Table 2	**10**	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	**10**	**25**
Ease of Access	Table 4	**10**	
Status of Property	Table 5	**5**	
Receptors Factor Data Elements			
Population Density	Table 6	**3**	**13**
Population Near Hazard	Table 7	**5**	
Types of Activities/ Structures	Table 8	**5**	
Ecological and/ or Cultural Resources	Table 9	**0**	
		EHE Module Total	**53**

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternate Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE Module Rating	**E**

Table 11

Classifications Within the CHE Module *CWM Configuration* Data Element

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with all the CWM configurations known or suspected to be present at the MRS.
Note: The terms CWM/UXO, CWM/DMM, physical evidence, and historical evidence are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, Explosive Configuration, either UXO or Damaged DMM Damaged	The CWM known or suspected of being present at the MRS is: - Explosively configured CWM that are UXO (I.e., CWM/UXO). - Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	**30**
CWM Mixed With UXO	The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM, or CWM not configured as a munition, that are commingled with conventional munitions that are UXO.	**25**
CWM, Explosive Configuration that are DMM (undamaged)	The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM ,that have not been damaged.	**20**
CWM, Not Explosively Configured or CWM, Bulk Container	The CWM known or suspected of being present at the MRS is: - Non-Explosively configured CWM/DMM. - Bulk CWM/DMM (e.g., ton container).	**15**
CAIS K941 and CAIS K942	The CWM/DMM known or suspected of being present at the MRS is CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	**12**
CAIS (Chemical agent identification sets)	Only CAIS other than CAIS K941 and K942, are known or suspected of being present at the MRS.	**10**
Evidence of No CWM	Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	**(0)**
CWM CONFIGURATION	**DIRECTIONS:** Record the **single highest score** from above in the box to the right (maximum score = 30).	**0**

Directions: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space

No evidence of CWM was observed during the RI field work, and no evidence of historical use.

Tables 12-19 are intentionally omitted-No Known or Suspected CWM Hazard

Table 20
Determining the CHE Module Rating

Directions:

1. From Tables 1 - 9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three Value boxes and record this number in the CHE Module Total box below.
4. Circle the appropriate range for the CHE Module Total below.
5. Circle the CHE Module Rating that corresponds to the range selected and record this value in the CHE Module Rating box found at the bottom of the table.

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

		Score	Score	Value
CWM Hazard Factor Data Elements				
CWM Configuration	Table 11	0		**0**
Sources of CWM	Table 12	0		
0				
Location of CWM	Table 13	0		
Ease of Access	Table 14	0		**0**
Status of Property	Table 15	0		
Receptors Factor Data Elements				
Population Density	Table 16	0		
Population Near Hazard	Table17	0		
Types of Activities/ Structures	Table 18	0		**0**
Ecological and/ or Cultural Resources	Table 19	0		
			CHE Module Total	**0**

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternate Module Ratings	Evaluation Pending
	~~No Longer Required~~
	No Known or Suspected CWM Hazard
CHE Module Rating	**No Known or Suspected CWM Hazard**

Table 21
HHE Module: Groundwater Data Element Table
Contaminant Hazard Factor (CHF)

Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the comparison value. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the CHF Value. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	**Sum of the Ratios**	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant]	
100 > CHF > 2	M (medium)	[Comparison Value for Contaminant]	
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Groundwater MC Hazard

Table 21 Comments: Groundwater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 22
HHE Module: Surface Water-Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's surface water and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional surface water contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
Receptors Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Surface Water (Human Endpoint) MC Hazard

Table 22 Comments: Surfacewater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 23
HHE Module: Sediment-Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Sediment and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Sediment contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Sediment, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
no analytical data			
CHF Scale	CHF Value	Sum of the Ratios	**0.000**
CHF >100	H (high)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contaminant]	
2 > CHF	L (low)	[Comparison Value for Contaminant]	
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Sediment to which contamination has moved or can move.	L
Receptors Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Sediment (Human Endpoint) MC Hazard

Table 23 Comments: Sediment sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 24
HHE Module: Surface Water - Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Surface Water and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Surface Water contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Surface Water, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Surface Water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Surface Water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Surface Water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Surface Water to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Surface Water (Ecological Endpoint) MC Hazard

Table 24 Comments: Surfacewater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 25
HHE Module: Sediment - Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Sediment and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Sediment contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Sediment, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
No analytical data			

CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Sediment to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Sediment (Ecological Endpoint) MC Hazard

Table 25 Comments: Sediment sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 26
HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Surface Soil and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Surface Soil contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Surface Soil, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
No analtical data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)		
100 > CHF > 2	M (medium)	**CHF = SUM** [Maximum Concentration of Contaminant]	
2 > CHF	L (low)	[Comparison Value for Contaminant]	
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Surface Soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Surface Soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Surface Soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Surface Soil to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Surface Soil MC Hazard

Table 26 Comments: RI/FS workplan states that soil samples will be collected in high MD or MEC areas, and be determined in the field. Little to no MD or MEC was observed in this MRS during field operations, and no soil samples were collected.

Table 27
HHE Module: Supplemental Contaminant Hazard Factor Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the media in which these contaminants are present. Then record all contaminants, their maximum concentrations and their comparison values (from Appendix B of the Primer) in the table below. Calculate and record the ratio for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the Contaminant Hazard, Migration Pathway, and Receptor Factors for the media (from Tables 21–26) in the corresponding boxes below.

2. Record the media's three-letter combinations in the Three-Letter Combination boxes below (three-letter combinations are arranged from Hs to Ms to Ls).

3. Using the HHE Ratings provided below, determine each media's rating (A–G) and record the letter in the corresponding Media Rating box below.

Media (source)	Contaminant Hazard Factor Value	Migratory Parthway Factor Value	Receptor Factor Value		Three-Letter Combination (Hs-Ms-Ls)		Media Rating (A-G)
Groundwater (Table 21)	No analytical data						
Surface Water/Human Endpoint (Table 22)	No analytical data						
Sediment/Human Endpoint (Table 23)	No analytical data						
Surface Water/Ecological Endpoint (Table 24)	No analytical data						
Sediment/Ecological Endpoint (Table 25)	No analytical data						
Surface Soil (Table 26)	No analytical data						

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the HHE Module Rating box.

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE Module Rating	

HHE Ratings (for reference only)	
Combination	**Rating**
HHH	A
HHM	B
HHL	C
HMM	
HML	D
MMM	
HLL	E
MML	
MLL	F
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter rating for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical priority for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the MRS Priority or Alternative MRS Rating at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
(E)	(6)	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		(No Known or Suspected CWM Hazard)		(No Known or Suspected MC Hazard)	
MRS or Alternative MRS Rating				**6**	

The MRS range was used as an artillery training and combat range that used live and practice munitions rounds. Portions of original MRS and AOPI areas where no significant MEC/MD finds encountered. Area includes land as well as two lakes and consists of approximately 9,906.5 acres.

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the MRS Summary, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Proposed Grenade Area

Component: U.S. Army

Installation/Property Name: Former Camp Croft

Location (City, County, State): Spartanburg, Spartanburg County, SC

Site Name; (RMIS ID)/Project Name (Project No.): Proposed Grenade Aare; RI/FS at Former Camp Croft (W912DY-10-D-0028, Task Order 0005)

Date Information Entered/Updated: January 2014
Point of Contact (Name/Phone): Shawn Boone (843) 329-8158
Project Phase (check only one):

☐ PA	☐ SI Report	☒ RI	☐ FS	☐ RD
☐ RA-C	☐ RIP	☐ RA-O	☐ RC	☐ LTM

☐ Groundwater	☐ Sediment (human receptor)
☐ Surface Soil	☐ Surface Water (ecolocical receptor)
☐ Sediment (ecolocical receptor)	☐ Surface Water (human receptor)

MRS Summary: This MRS is being suggested for realingment from AoPI 3 to Grenade Area. This MRS consists of approximately 19.2 acres and was a cantonment area were grenades may be present. Grenades and 2.36" rocket fragments have been found at this MRS since the base closure. An EE/CA was performed on this site in 1996 by Environmental Science and Engineering. Approximately 40 acreas was cleared to depth within the Wedgewood development that encompasses this MRS. The MRS consists of private residences and a recreational golf course. Public roadways and right-of-ways run throughout the site. Only 0.09 acres were investigated during the RI field work due to rights-of-entrys being denied by property owners. Mag-and-dig method was used during the RI field work. No MEC of MD was observed during the RI field work. The previous investigations noted that MKII HE fragmentation grenades, practice hand grenades, grenade parts, various MD and cultural debris have been removed (ESE, 1996).

ESE, (January 1996). "Final Engineering Evaluation/Cost Analysis Former Camp Croft Army Training Facility".

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM (by type of munitions, if known) or munitions constituents (by type, if known) known or suspected to be present) When possible, identify munitions, CWM, and MC by type:

MRS Description: This MRS is being suggested for realingment from AoPI 3 to Grenade Area. This MRS consists of approximately 19.2 acres and was a cantonment area were grenades may be present. Grenades and 2.36" rocket fragments have been found at this MRS since the base closure. An EE/CA was performed on this site in 1996 by Environmental Science and Engineering. Approximately 40 acreas was cleared to depth within the Wedgewood development that encompasses this MRS. The MRS consists of private residences and a recreational golf course. Public roadways and right-of-ways run throughout the site. Only 0.09 acres were investigated during the RI field work due to rights-of-entrys being denied by property owners. Mag-and-dig method was used during the RI field work. No MEC of MD was observed during the RI field work. The previous investigations noted that MKII HE fragmentation grenades, practice hand grenades, grenade parts, various MD and cultural debris have been removed. The general location of gas chamber number 3 was geophysically mapped while investigating this site (ESE, 1996).

ESE, (January 1996). "Final Engineering Evaluation/Cost Analysis Former Camp Croft Army Training Facility".

Coordination with the stakeholders was conducted during the 1st Technical Project Planning (TPP) Meeting (Reference: 2007 SI Report (Section ES.4; Appendix B) located on FRMD File Number I04FL028701_01.09_0503_a, and during the 2nd and 3rd TPP meetings conducted during the RI (Reference: 2013 Draft RI Report (Section 1.0.d; Appendix L. Reference: FRMD File Numbers I04FL028701_03.10_0500_a and I04FL028701_03.10_0501_a). Per MRSPP requirements, during the SI a public notice was issued announcing the MRSPP (Reference: FRMD File Number I04FL028701_08.13_0502_a).

Summary of Alternative Ratings: For the CHE and HHE modules, alternative ratings of "No known or suspected CWM Hazard" and "No known or suspected MC Hazard" (per Section 7 of the HHE Module from the "Handbook on Realignment, Delination, and MRSPP Implementation, v. 1.0.2 dated 10/1/2011) were given since no evidence of MEC and/or MD was observed during the RI field work.

Description of Pathways for Human and Ecological Receptors: The pathways on this MRS are incomplete and unclear as only a small portion of the MRS was available to be investigated during the RI field work effort.

Description of Receptors (Human and Ecological): Private land owners, golfers, golf course maintenance workers, and the general public are the receptors for this MRS.

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond **with all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions* , *small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	UXO that are considered most likely to function upon any interaction with exposed persons [e.g., submunitions, 40mm high-explosive (HE) grenades, white phosphorus (WP) munitions, high-explosive antitank (HEAT) munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions]. Hand grenades containing energetic filler. Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard	**30**
High Explosive (used or damaged)	UXO containing a high-explosive (HE) filler (e.g., RDX, Composition B), that are not considered "sensitive".	**(25)**
	DMM containing a high-explosive filler that have: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	
Pyrotechnic (used or damaged)	UXO containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades).	**20**
	DMM containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades) that have: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	
High-Explosive (unused)	DMM containing a high-explosive filler that: ■ Have not been damaged by burning or detonation Are not deteriorated to the point of instability	**15**
Propellant	UXO containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor).	**15**
	DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: ■ Damaged by burning or detonation ■ Deteriorated to the point of instability	
Bulk secondary high explosives, pyrotechnics, or propellant	DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor), that are deteriorated.	**10**
	Bulk secondary high-explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	
Pyrotechnic (not used or damaged)	DMM containing a pyrotechnic filler (I.e., red phosphorous), other than white phosphorous filler, that: ■ Have not been damaged by burning or detonation ■ Are not deteriorated to the point of instability	**10**
Practice	UXO that are practice munitions that are not associated with a sensitive fuze.	**5**
	DMM that are practice munitions that are not associated with a sensitive fuze and that have not: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	
Riot Control	UXO or DMM containing a riot control agent filler (e.g., tear gas).	**3**
Small arms		**2**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Munitions Type	**Directions:** Record **the single highest score** from above in the box to the right (maximum score = 30)	**25**

Directions: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

No MEC or MD was observed during the RI field work, but previous investigations have discovered MKII HE fragmentation grenades, practice grenades, and 2.36" rocket fragments (ESE, 1996).

ESE, (January 1996). "Final Engineering Evaluation/Cost Analysis Former Camp Croft Army Training Facility".

Table 2

Classifications Within the EHE Module *Source of Hazard* Data Element

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond **with all** the munitions types known or suspected to be present at the MRS.
Note: The terms *practice munitions* , *small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former Range	The MRS is a former military range where munitions including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas, associated buffer and safety zones, firing points, and live-fire maneuver areas.	**10**
Former Munitions Treatment (I.e., OB/OD) unit	The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	**8**
Former Practice Munitions Range	The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	**6**
Former Maneuver Area	The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	**5**
Former Burial Pit or other Disposal Area	The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a body of water) without prior thermal treatment.	**5**
Former Industrial Operating Facilities	The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	**4**
Former Firing Points	The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of the former military range.	**4**
Former Missile or Air Defense Artillery Emplacements	The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	**2**
Former Storage or Transfer Points	The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	**2**
Former Small Arms Range	The MRS is a former military range where only small arms ammunition was used. [There must be evidence that no other types of munitions (e.g., grenades) were used or are present to place an MRS into this category.	**1**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Source of Hazard	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

Directions: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

No MEC or MD was observed during the RI field work, but previous investigations have discovered MKII HE fragmentation grenades, practice grenades, and 2.36" rocket fragments (ESE, 1996).

ESE, (January 1996). "Final Engineering Evaluation/Cost Analysis Former Camp Croft Army Training Facility".

Table 3

Classifications Within the EHE Module *Information on the Location of Munitions* Data Element

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.

Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed Surface	Physical evidence indicates that there are UXO or DMM on the surface of the MRS. Historical evidence (e.g., a confirmed incident report or accident report) indicates there are UXO or DMM on the surface of the MRS.	**25**
Confirmed Subsurface, Active	Physical evidence indicates that there are UXO or DMM on the surface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. Historical evidence indicates that there are UXO or DMM on the surface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	**20**
Confirmed Subsurface, Stable	Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are ***not*** likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are ***not*** likely to expose UXO or DMM. Historical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are ***not*** likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are ***not*** likely to expose UXO or DMM.	**15**
Suspected (Physical Evidence)	There is physical evidence (e.g., munitions debris, such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	**(10)**
Suspected (Historical Evidence)	There is historical evidence indicating that UXO or DMM may be present at the MRS.	**(5)**
Subsurface Physical Constraint	There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	**2**
Small Arms (regardless of location)	The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. [There must be evidence that no other types of munitions (e.g., grenades) were used or are present at the MRS to place an MRS in this category.]	**1**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Location of Munitions	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	**10**

Directions: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

No MEC or MD was observed during the RI field work, but previous investigations have discovered MKII HE fragmentation grenades, practice grenades, and 2.36" rocket fragments (ESE, 1996).

ESE, (January 1996). "Final Engineering Evaluation/Cost Analysis Former Camp Croft Army Training Facility".

Table 4

EHE Module: *Ease of Access* Data Element

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS. **Note:** The term barrier is defined in Appendix C of the Primer.

Classification	Description	Score
No Barrier	There is no barrier preventing access to any part of the MRS (I.e., all parts of the MRS are accessible).	**(10)**
Barrier to MRS Access is Incomplete	There is a barrier preventing access to parts of the MRS, but not the entire MRS.	**8**
Barrier to MRS Access is Complete, But Not Monitored	There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by guard) to ensure that the barrier is effectively preventing access to all parts of the MRS..	**5**
Barrier to MRS Access is Complete and Monitored	There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS..	**0**
Ease of Access	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

Directions: Document any MRS-specific data used in selecting the ***Ease of Access*** classifications in the space provided.

Proposed Grenade Area consists of privately-owned property with no barriers to access present.

Table 5

EHE Module: *Status of Property* Data Element

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD Control	The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by the Department. Examples are privately-owned land or water bodies, land or water bodies owned or controlled by state, tribal, or local governments, and land or water bodies managed by other federal agencies.	**(5)**
Scheduled for Transfer from DoD Control	The MRS is on land or is a water body that is owned, leased, or otherwise possessed by the Department, and the Department plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government, a private party, another federal agency) within 3 years from the date the rule is applied.	**3**
DoD Control	The MRS is on land or is a water body that is owned, leased, or otherwise possessed by the Department. With respect to property that is leased or otherwise possessed, the Department must control access to the MRS 24 hours per day, every day of the calendar year.	**0**
Status of Property	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***Status of Property*** classifications in the space provided.

Proposed Grenade Area consists of privately owned land and state park land.

Table 6

EHE Module: *Population Density* Data Element

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score. **Note:** Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 Persons per Square Mile	There are more than 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**5**
100 to 500 Persons per Square Mile	There are 100 to 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**(3)**
< 100 Persons per Square Mile	There are fewer than 100 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**1**
Population Density:	Record the **single highest score** from above in the box to the right (maximum score = 5).	**3**

Directions: Document any MRS-specific data used in selecting the ***Population Density*** classifications in the space provided.

The MRS is located in Spartanburg County, South Carolina. According to the 2010 Census, Spartanburg County, South Carolina has a population density of 351.9 persons/square mile. http://quickfacts.census.gov/qfd/states/45/45083.html)

Table 7

EHE Module: *Population Near Hazard* Data Element

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term inhabited structures is defined in Appendix C of the Primer.

Classification	Description	Score
26 or More Inhabited Structures	There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**(5)**
16 to 25	There are 16 to 25 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**4**
11 to 15	There are 11 to 15 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**3**
6 to 10	There are 6 to 10 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**2**
1 to 5	There are 1 to 5 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**1**
0	There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**0**
POPULATION NEAR HAZARD	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classifications in the space provided.

Table 8

EHE Module: *Types of Activities/ Structures* Data Element

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with all the activities/structure classifications at the MRS.

Note: The term inhabited structure is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, Educational, Commercial, or Subsistence	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets, (e.g., hospitals, fire and rescue, police stations, dams), hotels commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing and gathering.	**(5)**
Parks and Recreational Areas	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	**4**
Agricultural, Forestry	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture and forestry.	**3**
Industrial or Warehousing	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	**2**
No Known or Recurring Activities	There are no known or recurring activities up to two miles from the MRS's boundary or within the MRS's boundary.	**1**
TYPES OF ACTIVITIES/STRUCTURES	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***TYPES OF ACTIVITIES/STRUCTURES*** classifications in the space provided.

Residential and Commercial structures located within 2 miles

Table 9

EHE Module: *Ecological and / or Cultural Resources* Data Element

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms ecological resources and cultural resources are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and Cultural Resources Present	There are both ecological and cultural resources present on the MRS.	**5**
Ecological Resources Present	There are ecological resources present on the MRS.	**(3)**
Cultural Resources Present	There are cultural resources present on the MRS.	**3**
No Ecological or Cultural Resources Present	There are no ecological and cultural resources present on the MRS.	**0**
ECOLOGICAL AND/OR CULTURAL RESOURCES	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**3**

Directions: Document any MRS-specific data used in selecting the ***ECOLOGICAL AND/OR CULTURAL RESOURCES*** classifications in the space provided.

As of March 2012, South Carolina Department of Natural Resources (SCDNR) listed the Dwarf-flowered Heatleaf as the only threatened or endangered species in Spartanburg County (http://www.dnr.sc.gov/species/pdf/Spartanburg2012.pdf).

Table 10
Determining the EHE Module Rating

Directions:

1. From Tables 1 - 9, record the data element scores in the **Score** boxes to the right.

2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.

3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.

4. Circle the appropriate range for the **EHE Module Total** below.

5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

		Score	Value
Explosives Hazard Factor Data Elements			
Munitions Type	Table 1	**25**	**35**
Source of Hazard	Table 2	**10**	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	**10**	**25**
Ease of Access	Table 4	**10**	
Status of Property	Table 5	**5**	
Receptors Factor Data Elements			
Population Density	Table 6	**3**	**16**
Population Near Hazard	Table 7	**5**	
Types of Activities/ Structures	Table 8	**5**	
Ecological and/ or Cultural Resources	Table 9	**3**	
		EHE Module Total	**76**

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternate Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE Module Rating	**C**

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

Table 11

Classifications Within the CHE Module *CWM Configuration* Data Element

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with all the CWM configurations known or suspected to be present at the MRS.
Note: The terms CWM/UXO, CWM/DMM, physical evidence, and historical evidence are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, Explosive Configuration, either UXO or Damaged DMM Damaged	The CWM known or suspected of being present at the MRS is: - Explosively configured CWM that are UXO (I.e., CWM/UXO). - Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	**30**
CWM Mixed With UXO	The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM, or CWM not configured as a munition, that are commingled with conventional munitions that are UXO.	**25**
CWM, Explosive Configuration that are DMM (undamaged)	The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM ,that have not been damaged.	**20**
CWM, Not Explosively Configured or CWM, Bulk Container	The CWM known or suspected of being present at the MRS is: - Non-Explosively configured CWM/DMM. - Bulk CWM/DMM (e.g., ton container).	**15**
CAIS K941 and CAIS K942	The CWM/DMM known or suspected of being present at the MRS is CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	**12**
CAIS (Chemical agent identification sets)	Only CAIS other than CAIS K941 and K942, are known or suspected of being present at the MRS.	**10**
Evidence of No CWM	Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	**(0)**
CWM CONFIGURATION	**DIRECTIONS:** Record the **single highest score** from above in the box to the right (maximum score = 30).	**0**

Directions: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space

No evidence of CWM observed during RI field work, and no historical records of CWM use.

Tables 12-19 are intentionally omitted-No Known or Suspected CWM Hazard.

Table 20
Determining the CHE Module Rating

Directions:

1. From Tables 1 - 9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three Value boxes and record this number in the CHE Module Total box below.
4. Circle the appropriate range for the CHE Module Total below.
5. Circle the CHE Module Rating that corresponds to the range selected and record this value in the CHE Module Rating box found at the bottom of the table.

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

		Score	Score	Value
CWM Hazard Factor Data Elements				
CWM Configuration		Table 11	0	**0**
Sources of CWM		Table 12	0	
0				
Location of CWM		Table 13	0	**0**
Ease of Access		Table 14	0	
Status of Property		Table 15	0	
Receptors Factor Data Elements				
Population Density		Table 16	0	**0**
Population Near Hazard		Table17	0	
Types of Activities/ Structures		Table 18	0	
Ecological and/ or Cultural Resources		Table 19	0	
			CHE Module Total	**0**

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternate Module Ratings	Evaluation Pending
	~~No Longer Required~~
	No Known or Suspected CWM Hazard
CHE Module Rating	**No Known or Suspected CWM Hazard**

Table 21
HHE Module: Groundwater Data Element Table
Contaminant Hazard Factor (CHF)

Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the comparison value. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the CHF Value. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	**Sum of the Ratios**	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	
No known or Suspected Groundwater MC Hazard		

Table 22
HHE Module: Surface Water-Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's surface water and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional surface water contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
Receptors Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Surface Water (Human Endpoint) MC Hazard

Table 22 Comments: Surfacewater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 23
HHE Module: Sediment-Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Sediment and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Sediment contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Sediment, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
no analytical data			
CHF Scale	CHF Value	Sum of the Ratios	**0.000**
CHF >100	H (high)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contaminant]	
2 > CHF	L (low)	[Comparison Value for Contaminant]	
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Sediment to which contamination has moved or can move.	L
Receptors Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Sediment (Human Endpoint) MC Hazard

Table 23 Comments: Sediment sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 24
HHE Module: Surface Water - Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Surface Water and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Surface Water contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Surface Water, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Surface Water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Surface Water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Surface Water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Surface Water to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Surface Water (Ecological Endpoint) MC Hazard

Table 24 Comments: Surfacewater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 25
HHE Module: Sediment - Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Sediment and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Sediment contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Sediment, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
No Analytical Data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Sediment to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Sediment (Ecological Endpoint) MC Hazard

Table 25 Comments: Sediment sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 26
HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Surface Soil and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Surface Soil contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Surface Soil, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
No Analytical Data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)		
100 > CHF > 2	M (medium)	**CHF = SUM** [Maximum Concentration of Contaminant]	
2 > CHF	L (low)	[Comparison Value for Contaminant]	
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Surface Soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Surface Soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Surface Soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Surface Soil to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Surface Soil MC Hazard

Table 26 Comments: RI/FS workplan states that soil samples will be collected in high MD or MEC areas, and be determined in the field. Little to no MD or MEC was observed in this MRS during field operations, and no soil samples were collected.

Table 27
HHE Module: Supplemental Contaminant Hazard Factor Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the media in which these contaminants are present. Then record all contaminants, their maximum concentrations and their comparison values (from Appendix B of the Primer) in the table below. Calculate and record the ratio for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the Contaminant Hazard, Migration Pathway, and Receptor Factors for the media (from Tables 21–26) in the corresponding boxes below.

2. Record the media's three-letter combinations in the Three-Letter Combination boxes below (three-letter combinations are arranged from Hs to Ms to Ls).

3. Using the HHE Ratings provided below, determine each media's rating (A–G) and record the letter in the corresponding Media Rating box below.

Media (source)	Contaminant Hazard Factor Value	Migratory Parthway Factor Value	Receptor Factor Value		Three-Letter Combination (Hs-Ms-Ls)		Media Rating (A-G)
Groundwater (Table 21)	No analytical data						
Surface Water/Human Endpoint (Table 22)	No analytical data						
Sediment/Human Endpoint (Table 23)	No analytical data						
Surface Water/Ecological Endpoint (Table 24)	No analytical data						
Sediment/Ecological Endpoint (Table 25)	No analytical data						
Surface Soil (Table 26)	No analytical data						

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the HHE Module Rating box.

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE Module Rating	

HHE Ratings (for reference only)	
Combination	**Rating**
HHH	A
HHM	B
HHL	C
HMM	
HML	D
MMM	
HLL	E
MML	
MLL	F
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter rating for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical priority for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the MRS Priority or Alternative MRS Rating at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		No Known or Suspected CWM Hazard		No Known or Suspected MC Hazard	
MRS or Alternative MRS Rating				**4**	

No MEC or MD was observed during the RI field work, but previous investigations have discovered MKII HE fragmentation grenades, practice grenades, and 2.36" rocket fragments (ESE, 1996).

ESE, (January 1996). "Final Engineering Evaluation/Cost Analysis Former Camp Croft Army Training Facility".

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the MRS Summary, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Proposed Rocket Area

Component: U.S. Army

Installation/Property Name: Former Camp Croft

Location (City, County, State): Spartanburg, Spartanburg County, SC

Site Name; (RMIS ID)/Project Name (Project No.): Proposed Rocket Area; RI/FS at Former Camp Croft (W912DY-10-D-0028, Task Order 0005)

Date Information Entered/Updated: January 2014
Point of Contact (Name/Phone): Shawn Boone (843) 329-8158
Project Phase (check only one):

☐ PA	☐ SI Report	☒ RI	☐ FS	☐ RD
☐ RA-C	☐ RIP	☐ RA-O	☐ RC	☐ LTM

☐ Groundwater	☐ Sediment (human receptor)
☒ Surface Soil	☐ Surface Water (ecolocical receptor)
☐ Sediment (ecolocical receptor)	☐ Surface Water (human receptor)

MRS Summary: The Rocket Area is proposed to be realigned from AoPI 10A. The MRS consists of approximately 93.9 acres. No MEC items was observed, but rocket, grenade, landmine, mortars, projectiles, and other MD items were recovered during the RI field work. An EE/CA was performed by QST Environmental in 1998, the same MD was also discovered during the EE/CA field work (QST, 1998). The site is located on private property and part of the Croft State Natural Area. A public right-of-way and private residences are located on the site. There currently is no restrictions for access to this MRS.

QST, (January, 1998). "Engineering Evaluation and Cost Analysis Former Camp Croft Army Training Facility".

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM (by type of munitions, if known) or munitions constituents (by type, if known) known or suspected to be present) When possible, identify munitions, CWM, and MC by type:

MRS Description: The Rocket Area is proposed to be realigned from AoPI 10A. The MRS consists of approximately 93.9 acres. A total of 4.45 acres were investigated during the RI field work. Mag-and-dig and 50'X50' grids were used to survey this MRS. No MEC items was observed, but rockets, grenades, landmine, mortars, projectiles, and other MD items were recovered during the RI field work. An EE/CA was performed by QST Environmental in 1998, the same MD was also discovered during the EE/CA field work (QST, 1998). The site is located on private property and part of the Croft State Natural Area. A public right-of-way and private residences are located on the site. There currently is no restrictions for access to this MRS.

QST, (January, 1998). "Engineering Evaluation and Cost Analysis Former Camp Croft Army Training Facility".

Coordination with the stakeholders was conducted during the 1st Technical Project Planning (TPP) Meeting (Reference: 2007 SI Report (Section ES.4; Appendix B) located on FRMD File Number I04FL028701_01.09_0503_a, and during the 2nd and 3rd TPP meetings conducted during the RI (Reference: 2013 Draft RI Report (Section 1.0.d; Appendix L. Reference: FRMD File Numbers I04FL028701_03.10_0500_a and I04FL028701_03.10_0501_a). Per MRSPP requirements, during the SI a public notice was issued announcing the MRSPP (Reference: FRMD File Number I04FL028701_08.13_0502_a).

Summary of Alternative Ratings: For the CHE module alternative ratings of "No known or suspected CWM Hazard" was given since no evidence of CWM was observed during the RI field work.

Description of Pathways for Human and Ecological Receptors: For MC, multiple pathways exist at this MRS; those include surface soil, air/wind, food chain, and groundwater. For MEC, access is available. Thus, intrusive and non-intrusive activites could allow for exposure.

Description of Receptors (Human and Ecological): Site access is unrestricted. Potential receptors include residential, public, commerical/occupational, and terrestial biota.

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond **with all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions* , *small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	UXO that are considered most likely to function upon any interaction with exposed persons [e.g., submunitions, 40mm high-explosive (HE) grenades, white phosphorus (WP) munitions, high-explosive antitank (HEAT) munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions]. Hand grenades containing energetic filler. Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard	**30**
High Explosive (used or damaged)	UXO containing a high-explosive (HE) filler (e.g., RDX, Composition B), that are not considered "sensitive".	**(25)**
	DMM containing a high-explosive filler that have: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	
Pyrotechnic (used or damaged)	UXO containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades).	**20**
	DMM containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades) that have: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	
High-Explosive (unused)	DMM containing a high-explosive filler that: ■ Have not been damaged by burning or detonation Are not deteriorated to the point of instability	**15**
Propellant	UXO containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor).	**15**
	DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are:	
	■ Damaged by burning or detonation ■ Deteriorated to the point of instability	
Bulk secondary high explosives, pyrotechnics, or propellant	DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor), that are deteriorated.	**10**
	Bulk secondary high-explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	
Pyrotechnic (not used or damaged)	DMM containing a pyrotechnic filler (I.e., red phosphorous), other than white phosphorous filler, that: ■ Have not been damaged by burning or detonation ■ Are not deteriorated to the point of instability	**10**
Practice	UXO that are practice munitions that are not associated with a sensitive fuze.	**5**
	DMM that are practice munitions that are not associated with a sensitive fuze and that have not: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	
Riot Control	UXO or DMM containing a riot control agent filler (e.g., tear gas).	**3**
Small arms		**2**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Munitions Type	**Directions:** Record **the single highest score** from above in the box to the right (maximum score = 30)	**25**

Directions: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

No MEC items was observed, but rockets, grenades, landmine, mortars, projectiles, and other MD items were recovered during the RI field work. An EE/CA was performed by QST Environmental in 1998, the same MD was also discovered during the EE/CA field work (QST, 1998).

QST, (January, 1998). "Engineering Evaluation and Cost Analysis Former Camp Croft Army Training Facility".

Table 2

Classifications Within the EHE Module *Source of Hazard* Data Element

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond **with all** the munitions types known or suspected to be present at the MRS.
Note: The terms *practice munitions* , *small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former Range	The MRS is a former military range where munitions including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas, associated buffer and safety zones, firing points, and live-fire maneuver areas.	**(10)**
Former Munitions Treatment (I.e., OB/OD) unit	The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	**8**
Former Practice Munitions Range	The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	**6**
Former Maneuver Area	The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	**5**
Former Burial Pit or other Disposal Area	The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a body of water) without prior thermal treatment.	**5**
Former Industrial Operating Facilities	The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	**4**
Former Firing Points	The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of the former military range.	**4**
Former Missile or Air Defense Artillery Emplacements	The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	**2**
Former Storage or Transfer Points	The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	**2**
Former Small Arms Range	The MRS is a former military range where only small arms ammunition was used. [There must be evidence that no other types of munitions (e.g., grenades) were used or are present to place an MRS into this category.	**1**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Source of Hazard	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

Directions: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

No MEC items was observed, but rockets, grenades, landmine, mortars, projectiles, and other MD items were recovered during the RI field work. An EE/CA was performed by QST Environmental in 1998, the same MD was also discovered during the EE/CA field work (QST, 1998).

QST, (January, 1998). "Engineering Evaluation and Cost Analysis Former Camp Croft Army Training Facility".

Table 3

Classifications Within the EHE Module *Information on the Location of Munitions* Data Element

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.
Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed Surface	Physical evidence indicates that there are UXO or DMM on the surface of the MRS. Historical evidence (e.g., a confirmed incident report or accident report) indicates there are UXO or DMM on the surface of the MRS.	**25**
Confirmed Subsurface, Active	Physical evidence indicates that there are UXO or DMM on the surface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. Historical evidence indicates that there are UXO or DMM on the surface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	**20**
Confirmed Subsurface, Stable	Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are ***not*** likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are ***not*** likely to expose UXO or DMM. Historical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are ***not*** likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are ***not*** likely to expose UXO or DMM.	**15**
Suspected (Physical Evidence)	There is physical evidence (e.g., munitions debris, such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	**(10)**
Suspected (Historical Evidence)	There is historical evidence indicating that UXO or DMM may be present at the MRS.	**(5)**
Subsurface Physical Constraint	There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	**2**
Small Arms (regardless of location)	The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. [There must be evidence that no other types of munitions (e.g., grenades) were used or are present at the MRS to place an MRS in this category.]	**1**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Location of Munitions	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	**10**

Directions: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

No MEC items was observed, but rockets, grenades, landmine, mortars, projectiles, and other MD items were recovered during the RI field work. An EE/CA was performed by QST Environmental in 1998, the same MD was also discovered during the EE/CA field work (QST, 1998).

QST, (January, 1998). "Engineering Evaluation and Cost Analysis Former Camp Croft Army Training Facility".

Table 4

EHE Module: *Ease of Access* Data Element

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS. **Note:** The term barrier is defined in Appendix C of the Primer.

Classification	Description	Score
No Barrier	There is no barrier preventing access to any part of the MRS (I.e., all parts of the MRS are accessible).	**(10)**
Barrier to MRS Access is Incomplete	There is a barrier preventing access to parts of the MRS, but not the entire MRS.	**8**
Barrier to MRS Access is Complete, But Not Monitored	There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by guard) to ensure that the barrier is effectively preventing access to all parts of the MRS..	**5**
Barrier to MRS Access is Complete and Monitored	There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS..	**0**
Ease of Access	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

Directions: Document any MRS-specific data used in selecting the ***Ease of Access*** classifications in the space provided.

Proposed Rocket Area consists of private property and State Park property with no barriers.

Table 5

EHE Module: *Status of Property* Data Element

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD Control	The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by the Department. Examples are privately-owned land or water bodies, land or water bodies owned or controlled by state, tribal, or local governments, and land or water bodies managed by other federal agencies.	**(5)**
Scheduled for Transfer from DoD Control	The MRS is on land or is a water body that is owned, leased, or otherwise possessed by the Department, and the Department plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government, a private party, another federal agency) within 3 years from the date the rule is applied.	**3**
DoD Control	The MRS is on land or is a water body that is owned, leased, or otherwise possessed by the Department. With respect to property that is leased or otherwise possessed, the Department must control access to the MRS 24 hours per day, every day of the calendar year.	**0**
Status of Property	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***Status of Property*** classifications in the space provided.

Proposed Rocket Area consists of private property and State Park land.

Table 6

EHE Module: *Population Density* Data Element

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score. **Note:** Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 Persons per Square Mile	There are more than 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**5**
100 to 500 Persons per Square Mile	There are 100 to 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**(3)**
< 100 Persons per Square Mile	There are fewer than 100 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**1**
Population Density:	Record the **single highest score** from above in the box to the right (maximum score = 5).	**3**

Directions: Document any MRS-specific data used in selecting the ***Population Density*** classifications in the space provided.

The MRS is located in Spartanburg County, South Carolina. According to the 2010 Census, Spartanburg County, South Carolina has a population density of 351.9 persons/square mile. http://quickfacts.census.gov/qfd/states/45/45083.html)

Table 7

EHE Module: *Population Near Hazard* Data Element

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term inhabited structures is defined in Appendix C of the Primer.

Classification	Description	Score
26 or More Inhabited Structures	There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**(5)**
16 to 25	There are 16 to 25 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**4**
11 to 15	There are 11 to 15 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**3**
6 to 10	There are 6 to 10 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**2**
1 to 5	There are 1 to 5 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**1**
0	There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**0**
POPULATION NEAR HAZARD	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classifications in the space provided.

Table 8

EHE Module: *Types of Activities/ Structures* Data Element

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with all the activities/structure classifications at the MRS.

Note: The term inhabited structure is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, Educational, Commercial, or Subsistence	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets, (e.g., hospitals, fire and rescue, police stations, dams), hotels commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing and gathering.	**(5)**
Parks and Recreational Areas	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	**4**
Agricultural, Forestry	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture and forestry.	**3**
Industrial or Warehousing	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	**2**
No Known or Recurring Activities	There are no known or recurring activities up to two miles from the MRS's boundary or within the MRS's boundary.	**1**
TYPES OF ACTIVITIES/STRUCTURES	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***TYPES OF ACTIVITIES/STRUCTURES*** classifications in the space provided.

Residential and Commercial structures located within 2 miles

Table 9

EHE Module: *Ecological and / or Cultural Resources* Data Element

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms ecological resources and cultural resources are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and Cultural Resources Present	There are both ecological and cultural resources present on the MRS.	**5**
Ecological Resources Present	There are ecological resources present on the MRS.	**3**
Cultural Resources Present	There are cultural resources present on the MRS.	**3**
No Ecological or Cultural Resources Present	There are no ecological and cultural resources present on the MRS.	**0**
ECOLOGICAL AND/OR CULTURAL RESOURCES	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**3**

Directions: Document any MRS-specific data used in selecting the ***ECOLOGICAL AND/OR CULTURAL RESOURCES*** classifications in the space provided.

As of March 2012, South Carolina Department of Natural Resources (SCDNR) listed the Dwarf-flowered Heatleaf as the only threatened or endangered species in Spartanburg County (http://www.dnr.sc.gov/species/pdf/Spartanburg2012.pdf). A soapstone quarry, which is considered an archaeological site, is located on MRS 5 (QST, 1998).

QST, (January, 1998). "Engineering Evaluation and Cost Analysis Former Camp Croft Army Training Facility".

Table 10
Determining the EHE Module Rating

Directions:

1. From Tables 1 - 9, record the data element scores in the **Score** boxes to the right.

2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.

3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.

4. Circle the appropriate range for the **EHE Module Total** below.

5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

		Score	Value
Explosives Hazard Factor Data Elements			
Munitions Type	Table 1	**25**	**35**
Source of Hazard	Table 2	**10**	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	**10**	**25**
Ease of Access	Table 4	**10**	
Status of Property	Table 5	**5**	
Receptors Factor Data Elements			
Population Density	Table 6	**3**	**16**
Population Near Hazard	Table 7	**5**	
Types of Activities/ Structures	Table 8	**5**	
Ecological and/ or Cultural Resources	Table 9	**3**	
		EHE Module Total	**76**

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternate Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE Module Rating	**C**

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

Table 11

Classifications Within the CHE Module *CWM Configuration* Data Element

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with all the CWM configurations known or suspected to be present at the MRS.
Note: The terms CWM/UXO, CWM/DMM, physical evidence, and historical evidence are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, Explosive Configuration, either UXO or Damaged DMM Damaged	The CWM known or suspected of being present at the MRS is: - Explosively configured CWM that are UXO (I.e., CWM/UXO). - Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	**30**
CWM Mixed With UXO	The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM, or CWM not configured as a munition, that are commingled with conventional munitions that are UXO.	**25**
CWM, Explosive Configuration that are DMM (undamaged)	The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM ,that have not been damaged.	**20**
CWM, Not Explosively Configured or CWM, Bulk Container	The CWM known or suspected of being present at the MRS is: - Non-Explosively configured CWM/DMM. - Bulk CWM/DMM (e.g., ton container).	**15**
CAIS K941 and CAIS K942	The CWM/DMM known or suspected of being present at the MRS is CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	**12**
CAIS (Chemical agent identification sets)	Only CAIS other than CAIS K941 and K942, are known or suspected of being present at the MRS.	**10**
Evidence of No CWM	Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	**(0)**
CWM CONFIGURATION	**DIRECTIONS:** Record the **single highest score** from above in the box to the right (maximum score = 30).	**0**

Directions: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space

No CWM was observed during RI fieldwork, and no historical evidence of CWM.

Tables 12-19 are intentionally omitted-No Known or Suspected CWM Hazard.

Table 20
Determining the CHE Module Rating

Directions:

1. From Tables 1 - 9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three Value boxes and record this number in the CHE Module Total box below.
4. Circle the appropriate range for the CHE Module Total below.
5. Circle the CHE Module Rating that corresponds to the range selected and record this value in the CHE Module Rating box found at the bottom of the table.

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

		Score	Score	Value
CWM Hazard Factor Data Elements				
CWM Configuration	Table 11	0		**0**
Sources of CWM	Table 12	0		
0				
Location of CWM	Table 13	0		
Ease of Access	Table 14	0		**0**
Status of Property	Table 15	0		
Receptors Factor Data Elements				
Population Density	Table 16	0		
Population Near Hazard	Table17	0		
Types of Activities/ Structures	Table 18	0		**0**
Ecological and/ or Cultural Resources	Table 19	0		
			CHE Module Total	**0**

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternate Module Ratings	Evaluation Pending
	~~No Longer Required~~
	No Known or Suspected CWM Hazard
CHE Module Rating	**No Known or Suspected CWM Hazard**

Table 21
HHE Module: Groundwater Data Element Table
Contaminant Hazard Factor (CHF)

Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the comparison value. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the CHF Value. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	**Sum of the Ratios**	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Groundwater MC Hazard

Table 21 Comments: Groundwater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 22
HHE Module: Surface Water-Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's surface water and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional surface water contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contaminant]	
2 > CHF	L (low)	[Comparison Value for Contaminant]	
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
Receptors Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Surface Water (Human Endpoint) MC Hazard

Table 22 Comments: Surfacewater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 23
HHE Module: Sediment-Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Sediment and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Sediment contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Sediment, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
No Analytical Data			
CHF Scale	CHF Value	Sum of the Ratios	**0.000**
CHF >100	H (high)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contaminant]	
2 > CHF	L (low)	[Comparison Value for Contaminant]	
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Sediment to which contamination has moved or can move.	L
Receptors Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Sediment (Human Endpoint) MC Hazard

Table 23 Comments: Sediment sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 24
HHE Module: Surface Water - Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Surface Water and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Surface Water contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Surface Water, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Surface Water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Surface Water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Surface Water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Surface Water to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Surface Water (Ecological Endpoint) MC Hazard

Table 24 Comments: Surfacewater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 25
HHE Module: Sediment - Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Sediment and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Sediment contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Sediment, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
No Analytical Data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contaminant]	
2 > CHF	L (low)	[Comparison Value for Contaminant]	
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Sediment to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Sediment (Ecological Endpoint) MC Hazard

Table 25 Comments: Sediment sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 26
HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Surface Soil and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Surface Soil contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Surface Soil, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
Antimony	**0.14**	**31**	**0.005**
Copper	**32.6**	**3,100**	**0.011**
Lead	**22.9**	**400**	**0.057**
Zinc	**38.6**	**23000**	**0.002**
CHF Scale	CHF Value	Sum of the Ratios	**0.074**
CHF >100	H (high)	**CHF = SUM** [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		**L**

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Surface Soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	**M**

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Surface Soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Surface Soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Surface Soil to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	**L**

No known or Suspected Surface Soil MC Hazard

Table 26 Comments: Surface soil samples were analyzed for antimony, copper, lead, zinc, and explosive compounds, including nitroglycerine and PETN.

Table 27
HHE Module: Supplemental Contaminant Hazard Factor Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the media in which these contaminants are present. Then record all contaminants, their maximum concentrations and their comparison values (from Appendix B of the Primer) in the table below. Calculate and record the ratio for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the Contaminant Hazard, Migration Pathway, and Receptor Factors for the media (from Tables 21–26) in the corresponding boxes below.

2. Record the media's three-letter combinations in the Three-Letter Combination boxes below (three-letter combinations are arranged from Hs to Ms to Ls).

3. Using the HHE Ratings provided below, determine each media's rating (A–G) and record the letter in the corresponding Media Rating box below.

Media (source)	Contaminant Hazard Factor Value	Migratory Parthway Factor Value	Receptor Factor Value		Three-Letter Combination (Hs-Ms-Ls)		Media Rating (A-G)
Groundwater (Table 21)	No analytical data						
Surface Water/Human Endpoint (Table 22)	No analytical data						
Sediment/Human Endpoint (Table 23)	No analytical data						
Surface Water/Ecological Endpoint (Table 24)	No analytical data						
Sediment/Ecological Endpoint (Table 25)	No analytical data						
Surface Soil (Table 26)	L	M	L		MLL		F

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the HHE Module Rating box.

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE Module Rating	F

HHE Ratings (for reference only)	
Combination	**Rating**
HHH	A
HHM	B
HHL	C
HMM	
HML	D
MMM	
HLL	E
MML	
MLL	(F)
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter rating for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical priority for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the MRS Priority or Alternative MRS Rating at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
(C)	(4)	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	(F)	(7)
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		(No Known or Suspected CWM Hazard)		No Known or Suspected MC Hazard	
MRS or Alternative MRS Rating				**4**	

No MEC items was observed, but rockets, grenades, landmine, mortars, projectiles, and other MD items were recovered during the RI field work. An EE/CA was performed by QST Environmental in 1998, the same MD was also discovered during the EE/CA field work (QST, 1998).

QST, (January, 1998). "Engineering Evaluation and Cost Analysis Former Camp Croft Army Training Facility".

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the MRS Summary, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Proposed Grenade Maneuver Area

Component: U.S. Army

Installation/Property Name: Former Camp Croft

Location (City, County, State): Spartanburg, Spartanburg County, SC

Site Name; (RMIS ID)/Project Name (Project No.): Proposed Grenade Maneuver Area (RMS ID); Project Name (I04SC0016-03R02)

Date Information Entered/Updated: January 2014
Point of Contact (Name/Phone): Shawn Boone (843) 329-8158
Project Phase (check only one):

☐ PA	☐ SI Report	☒ RI	☐ FS	☐ RD
☐ RA-C	☐ RIP	☐ RA-O	☐ RC	☐ LTM

☐ Groundwater	☐ Sediment (human receptor)
☐ Surface Soil	☐ Surface Water (ecolocical receptor)
☐ Sediment (ecolocical receptor)	☐ Surface Water (human receptor)

MRS Summary: AoPI 10B and AoPI 11B are being proposed to be realigned to be incorporated into one MRS. This MRS would consist of approximately 257.7 acres. QST Environmental conducted an EE/CA on these AoPIs. QST listed small arms, empty flare casings, and M-1 clips as being found on this MRS during the EE/CA (QST, 1998). No MEC was observed during the RI field work while various MD was recovered during the field work. These items included grenades, mortars, and other undifferentiated MD. This area is located within the Camp Croft State Park Natural area, and general access is not prohibited.

QST, (January, 1998). "Final Engineering Evaluation/Cost Analysis Former Camp Croft Army Training Facility".

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM (by type of munitions, if known) or munitions constituents (by type, if known) known or suspected to be present) When possible, identify munitions, CWM, and MC by type:
AoPI 10B and AoPI 11B are being proposed to be realigned to be incorporated into one MRS. This MRS would consist of approximately 257.7 acres. QST Environmental conducted an EE/CA on these AoPIs. QST listed, grenade, moraters, small arms, empty flare casings, and M-1 clips as being found on this MRS during the EE/CA (QST, 1998). No MEC was observed during the RI field work while various MD was recovered during the field work. These items included grenades, mortars, and other undifferentiated MD. This area is located within the Camp Croft State Park Natural area, and general access is not prohibited.

QST, (January, 1998). "Final Engineering Evaluation/Cost Analysis Former Camp Croft Army Training Facility".

Coordination with the stakeholders was conducted during the 1st Technical Project Planning (TPP) Meeting (Reference: 2007 SI Report (Section ES.4; Appendix B) located on FRMD File Number I04FL028701_01.09_0503_a, and during the 2nd and 3rd TPP meetings conducted during the RI (Reference: 2013 Draft RI Report (Section 1.0.d; Appendix L. Reference: FRMD File Numbers I04FL028701_03.10_0500_a and I04FL028701_03.10_0501_a). Per MRSPP requirements, during the SI a public notice was issued announcing the MRSPP (Reference: FRMD File Number I04FL028701_08.13_0502_a).

Summary of Alternative Ratings: For the CHE and HHE modules, alternative ratings of "No known or suspected CWM Hazard" and "No known or suspected MC Hazard" (per Section 7 of the HHE Module from the "Handbook on Realignment, Delination, and MRSPP Implementation, v. 1.0.2 dated 10/1/2011) were given since no evidence of MEC and/or MD was observed during the RI field work.

Description of Pathways for Human and Ecological Receptors: For MC, multiple pathways exist at this MRS; those include surface soil, air/wind, food chain, and groundwater. For MEC, access is available. Thus, intrusive and non-intrusive activites could allow for exposure.

Description of Receptors (Human and Ecological): Site access is unrestricted. Potential receptors include residential, public, commerical/occupational, and terrestial biota.

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond **with all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions* , *small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	UXO that are considered most likely to function upon any interaction with exposed persons [e.g., submunitions, 40mm high-explosive (HE) grenades, white phosphorus (WP) munitions, high-explosive antitank (HEAT) munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions]. Hand grenades containing energetic filler. Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard	**30**
High Explosive (used or damaged)	UXO containing a high-explosive (HE) filler (e.g., RDX, Composition B), that are not considered "sensitive". DMM containing a high-explosive filler that have: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	**25** (circled)
Pyrotechnic (used or damaged)	UXO containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades). DMM containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades) that have: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	**20**
High-Explosive (unused)	DMM containing a high-explosive filler that: ■ Have not been damaged by burning or detonation Are not deteriorated to the point of instability	**15**
Propellant	UXO containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor). DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: ■ Damaged by burning or detonation ■ Deteriorated to the point of instability	**15**
Bulk secondary high explosives, pyrotechnics, or propellant	DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor), that are deteriorated. Bulk secondary high-explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	**10**
Pyrotechnic (not used or damaged)	DMM containing a pyrotechnic filler (I.e., red phosphorous), other than white phosphorous filler, that: ■ Have not been damaged by burning or detonation ■ Are not deteriorated to the point of instability	**10**
Practice	UXO that are practice munitions that are not associated with a sensitive fuze. DMM that are practice munitions that are not associated with a sensitive fuze and that have not: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	**5**
Riot Control	UXO or DMM containing a riot control agent filler (e.g., tear gas).	**3**
Small arms		**2**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Munitions Type	**Directions:** Record **the single highest score** from above in the box to the right (maximum score = 30)	**25**

Directions: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

QST listed, grenade, moraters, small arms, empty flare casings, and M-1 clips as being found on this MRS during the EE/CA (QST, 1998). No MEC was observed during the RI field work while various MD was recovered during the field work. These items included grenades, mortars, and other undifferentiated MD.

QST, (January, 1998). "Final Engineering Evaluation/Cost Analysis Former Camp Croft Army Training Facility".

Table 2

Classifications Within the EHE Module *Source of Hazard* Data Element

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond **with all** the munitions types known or suspected to be present at the MRS.
Note: The terms *practice munitions* , *small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former Range	The MRS is a former military range where munitions including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas, associated buffer and safety zones, firing points, and live-fire maneuver areas.	**10**
Former Munitions Treatment (I.e., OB/OD) unit	The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	**8**
Former Practice Munitions Range	The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	**6**
Former Maneuver Area	The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	**5**
Former Burial Pit or other Disposal Area	The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a body of water) without prior thermal treatment.	**5**
Former Industrial Operating Facilities	The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	**4**
Former Firing Points	The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of the former military range.	**4**
Former Missile or Air Defense Artillery Emplacements	The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	**2**
Former Storage or Transfer Points	The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	**2**
Former Small Arms Range	The MRS is a former military range where only small arms ammunition was used. [There must be evidence that no other types of munitions (e.g., grenades) were used or are present to place an MRS into this category.	**1**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Source of Hazard	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

Directions: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

QST listed, grenade, moraters, small arms, empty flare casings, and M-1 clips as being found on this MRS during the EE/CA (QST, 1998). No MEC was observed during the RI field work while various MD was recovered during the field work. These items included grenades, mortars, and other undifferentiated MD.

QST, (January, 1998). "Final Engineering Evaluation/Cost Analysis Former Camp Croft Army Training Facility".

Table 3

Classifications Within the EHE Module *Information on the Location of Munitions* Data Element

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.
Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed Surface	Physical evidence indicates that there are UXO or DMM on the surface of the MRS. Historical evidence (e.g., a confirmed incident report or accident report) indicates there are UXO or DMM on the surface of the MRS.	**25**
Confirmed Subsurface, Active	Physical evidence indicates that there are UXO or DMM on the surface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. Historical evidence indicates that there are UXO or DMM on the surface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	**20**
Confirmed Subsurface, Stable	Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are ***not*** likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are ***not*** likely to expose UXO or DMM. Historical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are ***not*** likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are ***not*** likely to expose UXO or DMM.	**15**
Suspected (Physical Evidence)	There is physical evidence (e.g., munitions debris, such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	**10**
Suspected (Historical Evidence)	There is historical evidence indicating that UXO or DMM may be present at the MRS.	**5**
Subsurface Physical Constraint	There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	**2**
Small Arms (regardless of location)	The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. [There must be evidence that no other types of munitions (e.g., grenades) were used or are present at the MRS to place an MRS in this category.]	**1**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Location of Munitions	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	**10**

Directions: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

QST listed, grenade, moraters, small arms, empty flare casings, and M-1 clips as being found on this MRS during the EE/CA (QST, 1998). No MEC was observed during the RI field work while various MD was recovered during the field work. These items included grenades, mortars, and other undifferentiated MD.

QST, (January, 1998). "Final Engineering Evaluation/Cost Analysis Former Camp Croft Army Training Facility".

Table 4

EHE Module: *Ease of Access* Data Element

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS. **Note:** The term barrier is defined in Appendix C of the Primer.

Classification	Description	Score
No Barrier	There is no barrier preventing access to any part of the MRS (I.e., all parts of the MRS are accessible).	**(10)**
Barrier to MRS Access is Incomplete	There is a barrier preventing access to parts of the MRS, but not the entire MRS.	**8**
Barrier to MRS Access is Complete, But Not Monitored	There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by guard) to ensure that the barrier is effectively preventing access to all parts of the MRS..	**5**
Barrier to MRS Access is Complete and Monitored	There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS..	**0**
Ease of Access	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

Directions: Document any MRS-specific data used in selecting the ***Ease of Access*** classifications in the space provided.

Proposed Grenade Maneuver Area consists of state park property and privately-owned land with no barriers to access present.

Table 5

EHE Module: *Status of Property* Data Element

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD Control	The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by the Department. Examples are privately-owned land or water bodies, land or water bodies owned or controlled by state, tribal, or local governments, and land or water bodies managed by other federal agencies.	(5)
Scheduled for Transfer from DoD Control	The MRS is on land or is a water body that is owned, leased, or otherwise possessed by the Department, and the Department plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government, a private party, another federal agency) within 3 years from the date the rule is applied.	**3**
DoD Control	The MRS is on land or is a water body that is owned, leased, or otherwise possessed by the Department. With respect to property that is leased or otherwise possessed, the Department must control access to the MRS 24 hours per day, every day of the calendar year.	**0**
Status of Property	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***Status of Property*** classifications in the space provided.

Proposed Grenade Maneuver Area consists of both privately-owned and state park land.

Table 6

EHE Module: *Population Density* Data Element

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score. **Note:** Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 Persons per Square Mile	There are more than 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**5**
100 to 500 Persons per Square Mile	There are 100 to 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**(3)**
< 100 Persons per Square Mile	There are fewer than 100 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**1**
Population Density:	Record the **single highest score** from above in the box to the right (maximum score = 5).	**3**

Directions: Document any MRS-specific data used in selecting the ***Population Density*** classifications in the space provided.

The MRS is located in Spartanburg County, South Carolina. According to the 2010 Census, Spartanburg County, South Carolina has a population density of 351.9 persons/square mile. http://quickfacts.census.gov/qfd/states/45/45083.html)

Table 7

EHE Module: *Population Near Hazard* Data Element

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term inhabited structures is defined in Appendix C of the Primer.

Classification	Description	Score
26 or More Inhabited Structures	There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**(5)**
16 to 25	There are 16 to 25 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**4**
11 to 15	There are 11 to 15 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**3**
6 to 10	There are 6 to 10 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**2**
1 to 5	There are 1 to 5 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**1**
0	There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**0**
POPULATION NEAR HAZARD	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classifications in the space provided.

Table 8

EHE Module: *Types of Activities/ Structures* Data Element

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with all the activities/structure classifications at the MRS.

Note: The term inhabited structure is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, Educational, Commercial, or Subsistence	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets, (e.g., hospitals, fire and rescue, police stations, dams), hotels commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing and gathering.	**(5)**
Parks and Recreational Areas	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	**4**
Agricultural, Forestry	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture and forestry.	**3**
Industrial or Warehousing	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	**2**
No Known or Recurring Activities	There are no known or recurring activities up to two miles from the MRS's boundary or within the MRS's boundary.	**1**
TYPES OF ACTIVITIES/STRUCTURES	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***TYPES OF ACTIVITIES/STRUCTURES*** classifications in the space provided.

Residential and Commercial structures located within 2 miles

Table 9

EHE Module: *Ecological and / or Cultural Resources* Data Element

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms ecological resources and cultural resources are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and Cultural Resources Present	There are both ecological and cultural resources present on the MRS.	**5**
Ecological Resources Present	There are ecological resources present on the MRS.	**(3)**
Cultural Resources Present	There are cultural resources present on the MRS.	**3**
No Ecological or Cultural Resources Present	There are no ecological and cultural resources present on the MRS.	**0**
ECOLOGICAL AND/OR CULTURAL RESOURCES	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**3**

Directions: Document any MRS-specific data used in selecting the ***ECOLOGICAL AND/OR CULTURAL RESOURCES*** classifications in the space provided.

As of March 2012, South Carolina Department of Natural Resources (SCDNR) listed the Dwarf-flowered Heatleaf as the only threatened or endangered species in Spartanburg County (http://www.dnr.sc.gov/species/pdf/Spartanburg2012.pdf).

Table 10
Determining the EHE Module Rating

Directions:

1. From Tables 1 - 9, record the data element scores in the **Score** boxes to the right.

2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.

3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.

4. Circle the appropriate range for the **EHE Module Total** below.

5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

		Score	Value
Explosives Hazard Factor Data Elements			
Munitions Type	Table 1	**25**	**35**
Source of Hazard	Table 2	**10**	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	**10**	**25**
Ease of Access	Table 4	**10**	
Status of Property	Table 5	**5**	
Receptors Factor Data Elements			
Population Density	Table 6	**3**	**16**
Population Near Hazard	Table 7	**5**	
Types of Activities/ Structures	Table 8	**5**	
Ecological and/ or Cultural Resources	Table 9	**3**	
		EHE Module Total	**76**

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternate Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE Module Rating	**C**

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

Table 11

Classifications Within the CHE Module *CWM Configuration* Data Element

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with all the CWM configurations known or suspected to be present at the MRS.
Note: The terms CWM/UXO, CWM/DMM, physical evidence, and historical evidence are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, Explosive Configuration, either UXO or Damaged DMM Damaged	The CWM known or suspected of being present at the MRS is: - Explosively configured CWM that are UXO (I.e., CWM/UXO). - Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	**30**
CWM Mixed With UXO	The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM, or CWM not configured as a munition, that are commingled with conventional munitions that are UXO.	**25**
CWM, Explosive Configuration that are DMM (undamaged)	The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM ,that have not been damaged.	**20**
CWM, Not Explosively Configured or CWM, Bulk Container	The CWM known or suspected of being present at the MRS is: - Non-Explosively configured CWM/DMM. - Bulk CWM/DMM (e.g., ton container).	**15**
CAIS K941 and CAIS K942	The CWM/DMM known or suspected of being present at the MRS is CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	**12**
CAIS (Chemical agent identification sets)	Only CAIS other than CAIS K941 and K942, are known or suspected of being present at the MRS.	**10**
Evidence of No CWM	Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	**(0)**
CWM CONFIGURATION	**DIRECTIONS:** Record the **single highest score** from above in the box to the right (maximum score = 30).	**0**

Directions: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space

No CWM was observed during the RI fieldwork, and there is no historical evidence of CWM.

Tables 12-19 are intentionally omitted-No Known or Suspected CWM Hazard.

Table 20
Determining the CHE Module Rating

Directions:

1. From Tables 1 - 9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three Value boxes and record this number in the CHE Module Total box below.
4. Circle the appropriate range for the CHE Module Total below.
5. Circle the CHE Module Rating that corresponds to the range selected and record this value in the CHE Module Rating box found at the bottom of the table.

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

		Score	Score	Value
CWM Hazard Factor Data Elements				
CWM Configuration	Table 11	0		**0**
Sources of CWM	Table 12	0		
0				
Location of CWM	Table 13	0		
Ease of Access	Table 14	0		**0**
Status of Property	Table 15	0		
Receptors Factor Data Elements				
Population Density	Table 16	0		
Population Near Hazard	Table17	0		
Types of Activities/ Structures	Table 18	0		**0**
Ecological and/ or Cultural Resources	Table 19	0		
			CHE Module Total	**0**

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternate Module Ratings	Evaluation Pending
	~~No Longer Required~~
	No Known or Suspected CWM Hazard
CHE Module Rating	**No Known or Suspected CWM Hazard**

Table 21
HHE Module: Groundwater Data Element Table
Contaminant Hazard Factor (CHF)

Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the comparison value. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the CHF Value. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	**Sum of the Ratios**	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Groundwater MC Hazard

Table 21 Comments: Groundwater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 22
HHE Module: Surface Water-Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's surface water and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional surface water contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
Receptors Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Surface Water (Human Endpoint) MC Hazard

Table 22 Comments: Surfacewater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 23
HHE Module: Sediment-Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Sediment and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Sediment contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Sediment, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
no analytical data			
CHF Scale	CHF Value	Sum of the Ratios	**0.000**
CHF >100	H (high)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contaminant]	
2 > CHF	L (low)	[Comparison Value for Contaminant]	
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Sediment to which contamination has moved or can move.	L
Receptors Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Sediment (Human Endpoint) MC Hazard

Table 23 Comments: Sediment sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 24
HHE Module: Surface Water - Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Surface Water and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Surface Water contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Surface Water, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Surface Water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Surface Water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Surface Water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Surface Water to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Surface Water (Ecological Endpoint) MC Hazard

Table 24 Comments: Surfacewater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 25
HHE Module: Sediment - Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Sediment and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Sediment contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Sediment, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
No Analytical Data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Sediment to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Sediment (Ecological Endpoint) MC Hazard

Table 25 Comments: Sediment sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 26
HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Surface Soil and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Surface Soil contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Surface Soil, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
No Analytical Data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)		
100 > CHF > 2	M (medium)	**CHF = SUM** [Maximum Concentration of Contaminant]	
2 > CHF	L (low)	[Comparison Value for Contaminant]	
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Surface Soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Surface Soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Surface Soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Surface Soil to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Surface Soil MC Hazard

Table 26 Comments: RI/FS workplan states that soil samples will be collected in high MD or MEC areas, and be determined in the field. Little to no MD or MEC was observed in this MRS during field operations, and no soil samples were collected.

Table 27
HHE Module: Supplemental Contaminant Hazard Factor Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the media in which these contaminants are present. Then record all contaminants, their maximum concentrations and their comparison values (from Appendix B of the Primer) in the table below. Calculate and record the ratio for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the Contaminant Hazard, Migration Pathway, and Receptor Factors for the media (from Tables 21–26) in the corresponding boxes below.

2. Record the media's three-letter combinations in the Three-Letter Combination boxes below (three-letter combinations are arranged from Hs to Ms to Ls).

3. Using the HHE Ratings provided below, determine each media's rating (A–G) and record the letter in the corresponding Media Rating box below.

Media (source)	Contaminant Hazard Factor Value	Migratory Parthway Factor Value	Receptor Factor Value		Three-Letter Combination (Hs-Ms-Ls)		Media Rating (A-G)
Groundwater (Table 21)	No analytical data						
Surface Water/Human Endpoint (Table 22)	No analytical data						
Sediment/Human Endpoint (Table 23)	No analytical data						
Surface Water/Ecological Endpoint (Table 24)	No analytical data						
Sediment/Ecological Endpoint (Table 25)	No analytical data						
Surface Soil (Table 26)	No analytical data						

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the HHE Module Rating box.

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE Module Rating	

HHE Ratings (for reference only)	
Combination	**Rating**
HHH	A
HHM	B
HHL	C
HMM	
HML	D
MMM	
HLL	E
MML	
MLL	F
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter rating for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical priority for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the MRS Priority or Alternative MRS Rating at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
(C)	(4)	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		(No Known or Suspected CWM Hazard)		(No Known or Suspected MC Hazard)	
MRS or Alternative MRS Rating				**4**	

QST listed, grenade, moraters, small arms, empty flare casings, and M-1 clips as being found on this MRS during the EE/CA (QST, 1998). No MEC was observed during the RI field work while various MD was recovered during the field work. These items included grenades, mortars, and other undifferentiated MD.

QST, (January, 1998). "Final Engineering Evaluation/Cost Analysis Former Camp Croft Army Training Facility".

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the MRS Summary, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Proposed Practice Grenade Area

Component: U.S. Army

Installation/Property Name: Former Camp Croft

Location (City, County, State): Spartanburg, Spartanburg County, SC

Site Name; (RMIS ID)/Project Name (Project No.): Proposed Practice Grenade Area (RMS ID); Project Name (I04SC0016-03R02)

Date Information Entered/Updated: January 2014
Point of Contact (Name/Phone): Shawn Boone (843) 329-8158
Project Phase (check only one):

☐ PA	☐ SI Report	☒ RI	☐ FS	☐ RD
☐ RA-C	☐ RIP	☐ RA-O	☐ RC	☐ LTM

☐ Groundwater	☐ Sediment (human receptor)
☐ Surface Soil	☐ Surface Water (ecolocical receptor)
☐ Sediment (ecolocical receptor)	☐ Surface Water (human receptor)

MRS Summary: The Practce Grenade Area is being proposed as a realignment to AoPI 11C. The MRS consists of 6.4 acres. M9 rifle grenade fragments have been found at this MRS, accoriding to the QST Environmental EE/CA that was performed back in 1998 (QST, 1998). There have been may different types of MD found at this location since base closure; grenades, grenade fuzes, and anti-tank mines. Grenade parts and pieces were the only MD found during the RI field work.

QST, (January, 1998). "Engineering Evaluation/Cost Analysis Former Camp Croft Traing Area".

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM (by type of munitions, if known) or munitions constituents (by type, if known) known or suspected to be present) When possible, identify munitions, CWM, and MC by type:

MRS Description: The Practice Grenade Area is being proposed as a realignment to AoPI 11C. The MRS consists of 6.4 acres. M9 rifle grenade fragments have been found at this MRS, accoriding to the QST Environmental EE/CA that was performed back in 1998 (QST, 1998). There have been may different types of MD found at this location since base closure; grenades, grenade fuzes, and anti-tank mines. Grenade parts and pieces were the only MD found during the RI field work. The area is privately owned by residential home owners, and a baseball field is also located on the MRS.

QST, (January, 1998). "Engineering Evaluation/Cost Analysis Former Camp Croft Traing Area".

Coordination with the stakeholders was conducted during the 1st Technical Project Planning (TPP) Meeting (Reference: 2007 SI Report (Section ES.4; Appendix B) located on FRMD File Number I04FL028701_01.09_0503_a, and during the 2nd and 3rd TPP meetings conducted during the RI (Reference: 2013 Draft RI Report (Section 1.0.d; Appendix L. Reference: FRMD File Numbers I04FL028701_03.10_0500_a and I04FL028701_03.10_0501_a). Per MRSPP requirements, during the SI a public notice was issued announcing the MRSPP (Reference: FRMD File Number I04FL028701_08.13_0502_a).

Summary of Alternative Ratings: For the CHE and HHE modules, alternative ratings of "No known or suspected CWM Hazard" and "No known or suspected MC Hazard" (per Section 7 of the HHE Module from the "Handbook on Realignment, Delination, and MRSPP Implementation, v. 1.0.2 dated 10/1/2011) were given since no evidence of MEC and/or MD was observed during the RI field work.

Description of Pathways for Human and Ecological Receptors: No MC sampling was conducted at this MRS as there were no MEC found there for the pathways are incomplete.

Description of Receptors (Human and Ecological): Reidents of the homes and recreational users of the ball field are the human receptors while the natural ecology in the area would be the ecological recptors.

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond **with all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions* , *small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	UXO that are considered most likely to function upon any interaction with exposed persons [e.g., submunitions, 40mm high-explosive (HE) grenades, white phosphorus (WP) munitions, high-explosive antitank (HEAT) munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions]. Hand grenades containing energetic filler. Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard	**30**
High Explosive (used or damaged)	UXO containing a high-explosive (HE) filler (e.g., RDX, Composition B), that are not considered "sensitive". DMM containing a high-explosive filler that have: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	**25** (circled)
Pyrotechnic (used or damaged)	UXO containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades). DMM containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades) that have: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	**20**
High-Explosive (unused)	DMM containing a high-explosive filler that: ■ Have not been damaged by burning or detonation Are not deteriorated to the point of instability	**15**
Propellant	UXO containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor). DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: ■ Damaged by burning or detonation ■ Deteriorated to the point of instability	**15**
Bulk secondary high explosives, pyrotechnics, or propellant	DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor), that are deteriorated. Bulk secondary high-explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	**10**
Pyrotechnic (not used or damaged)	DMM containing a pyrotechnic filler (I.e., red phosphorous), other than white phosphorous filler, that: ■ Have not been damaged by burning or detonation ■ Are not deteriorated to the point of instability	**10**
Practice	UXO that are practice munitions that are not associated with a sensitive fuze. DMM that are practice munitions that are not associated with a sensitive fuze and that have not: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	**5**
Riot Control	UXO or DMM containing a riot control agent filler (e.g., tear gas).	**3**
Small arms		**2**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Munitions Type	**Directions:** Record **the single highest score** from above in the box to the right (maximum score = 30)	**25**

Directions: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

M9 rifle grenade fragments have been found at this MRS, accoriding to the QST Environmental EE/CA that was performed back in 1998 (QST, 1998). There have been may different types of MD found at this location since base closure; grenades, grenade fuzes, and anti-tank mines. Grenade parts and pieces were the only MD found during the RI field work.

QST, (January, 1998). "Engineering Evaluation/Cost Analysis Former Camp Croft Traing Area".

Table 2

Classifications Within the EHE Module *Source of Hazard* Data Element

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond **with all** the munitions types known or suspected to be present at the MRS.
Note: The terms *practice munitions* , *small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former Range	The MRS is a former military range where munitions including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas, associated buffer and safety zones, firing points, and live-fire maneuver areas.	**10**
Former Munitions Treatment (I.e., OB/OD) unit	The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	**8**
Former Practice Munitions Range	The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	**6**
Former Maneuver Area	The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	**5**
Former Burial Pit or other Disposal Area	The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a body of water) without prior thermal treatment.	**5**
Former Industrial Operating Facilities	The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	**4**
Former Firing Points	The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of the former military range.	**4**
Former Missile or Air Defense Artillery Emplacements	The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	**2**
Former Storage or Transfer Points	The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	**2**
Former Small Arms Range	The MRS is a former military range where only small arms ammunition was used. [There must be evidence that no other types of munitions (e.g., grenades) were used or are present to place an MRS into this category.	**1**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Source of Hazard	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

Directions: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

M9 rifle grenade fragments have been found at this MRS, accoriding to the QST Environmental EE/CA that was performed back in 1998 (QST, 1998). There have been may different types of MD found at this location since base closure; grenades, grenade fuzes, and anti-tank mines. Grenade parts and pieces were the only MD found during the RI field work.

QST, (January, 1998). "Engineering Evaluation/Cost Analysis Former Camp Croft Traing Area".

Table 3

Classifications Within the EHE Module *Information on the Location of Munitions* Data Element

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.
Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed Surface	Physical evidence indicates that there are UXO or DMM on the surface of the MRS. Historical evidence (e.g., a confirmed incident report or accident report) indicates there are UXO or DMM on the surface of the MRS.	**25**
Confirmed Subsurface, Active	Physical evidence indicates that there are UXO or DMM on the surface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. Historical evidence indicates that there are UXO or DMM on the surface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	**20**
Confirmed Subsurface, Stable	Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are ***not*** likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are ***not*** likely to expose UXO or DMM. Historical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are ***not*** likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are ***not*** likely to expose UXO or DMM.	**15**
Suspected (Physical Evidence)	There is physical evidence (e.g., munitions debris, such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	**(10)**
Suspected (Historical Evidence)	There is historical evidence indicating that UXO or DMM may be present at the MRS.	**(5)**
Subsurface Physical Constraint	There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	**2**
Small Arms (regardless of location)	The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. [There must be evidence that no other types of munitions (e.g., grenades) were used or are present at the MRS to place an MRS in this category.]	**1**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Location of Munitions	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	**10**

Directions: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

M9 rifle grenade fragments have been found at this MRS, accoriding to the QST Environmental EE/CA that was performed back in 1998 (QST, 1998). There have been may different types of MD found at this location since base closure; grenades, grenade fuzes, and anti-tank mines. Grenade parts and pieces were the only MD found during the RI field work.

QST, (January, 1998). "Engineering Evaluation/Cost Analysis Former Camp Croft Traing Area".

Table 4

EHE Module: *Ease of Access* Data Element

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS. **Note:** The term barrier is defined in Appendix C of the Primer.

Classification	Description	Score
No Barrier	There is no barrier preventing access to any part of the MRS (I.e., all parts of the MRS are accessible).	**(10)**
Barrier to MRS Access is Incomplete	There is a barrier preventing access to parts of the MRS, but not the entire MRS.	**8**
Barrier to MRS Access is Complete, But Not Monitored	There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by guard) to ensure that the barrier is effectively preventing access to all parts of the MRS..	**5**
Barrier to MRS Access is Complete and Monitored	There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS..	**0**
Ease of Access	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

Directions: Document any MRS-specific data used in selecting the ***Ease of Access*** classifications in the space provided.

Proposed Practice Grenade Area consists of privately-owned land with no barriers to access present.

Table 5

EHE Module: *Status of Property* Data Element

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD Control	The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by the Department. Examples are privately-owned land or water bodies, land or water bodies owned or controlled by state, tribal, or local governments, and land or water bodies managed by other federal agencies.	**(5)**
Scheduled for Transfer from DoD Control	The MRS is on land or is a water body that is owned, leased, or otherwise possessed by the Department, and the Department plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government, a private party, another federal agency) within 3 years from the date the rule is applied.	**3**
DoD Control	The MRS is on land or is a water body that is owned, leased, or otherwise possessed by the Department. With respect to property that is leased or otherwise possessed, the Department must control access to the MRS 24 hours per day, every day of the calendar year.	**0**
Status of Property	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***Status of Property*** classifications in the space provided.

Proposed Practice Grenade Area consists of privately-owned land.

Table 6

EHE Module: *Population Density* Data Element

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score. **Note:** Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 Persons per Square Mile	There are more than 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**5**
100 to 500 Persons per Square Mile	There are 100 to 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**(3)**
< 100 Persons per Square Mile	There are fewer than 100 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**1**
Population Density:	Record the **single highest score** from above in the box to the right (maximum score = 5).	**3**

Directions: Document any MRS-specific data used in selecting the ***Population Density*** classifications in the space provided.

The MRS is located in Spartanburg County, South Carolina. According to the 2010 Census, Spartanburg County, South Carolina has a population density of 351.9 persons/square mile. http://quickfacts.census.gov/qfd/states/45/45083.html)

Table 7

EHE Module: *Population Near Hazard* Data Element

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term inhabited structures is defined in Appendix C of the Primer.

Classification	Description	Score
26 or More Inhabited Structures	There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**(5)**
16 to 25	There are 16 to 25 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**4**
11 to 15	There are 11 to 15 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**3**
6 to 10	There are 6 to 10 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**2**
1 to 5	There are 1 to 5 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**1**
0	There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**0**
POPULATION NEAR HAZARD	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classifications in the space provided.

Table 8

EHE Module: *Types of Activities/ Structures* Data Element

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with all the activities/structure classifications at the MRS.

Note: The term inhabited structure is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, Educational, Commercial, or Subsistence	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets, (e.g., hospitals, fire and rescue, police stations, dams), hotels commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing and gathering.	**(5)**
Parks and Recreational Areas	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	**4**
Agricultural, Forestry	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture and forestry.	**3**
Industrial or Warehousing	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	**2**
No Known or Recurring Activities	There are no known or recurring activities up to two miles from the MRS's boundary or within the MRS's boundary.	**1**
TYPES OF ACTIVITIES/STRUCTURES	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***TYPES OF ACTIVITIES/STRUCTURES*** classifications in the space provided.

Residential and Commercial structures located within 2 miles

Table 9

EHE Module: *Ecological and / or Cultural Resources* Data Element

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms ecological resources and cultural resources are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and Cultural Resources Present	There are both ecological and cultural resources present on the MRS.	**5**
Ecological Resources Present	There are ecological resources present on the MRS.	**3**
Cultural Resources Present	There are cultural resources present on the MRS.	**3**
No Ecological or Cultural Resources Present	There are no ecological and cultural resources present on the MRS.	**(0)**
ECOLOGICAL AND/OR CULTURAL RESOURCES	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**0**

Directions: Document any MRS-specific data used in selecting the ***ECOLOGICAL AND/OR CULTURAL RESOURCES*** classifications in the space provided.

As of March 2012, South Carolina Department of Natural Resources (SCDNR) listed the Dwarf-flowered Heatleaf as the only threatened or endangered species in Spartanburg County (http://www.dnr.sc.gov/species/pdf/Spartanburg2012.pdf).

Table 10
Determining the EHE Module Rating

Directions:

1. From Tables 1 - 9, record the data element scores in the **Score** boxes to the right.

2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.

3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.

4. Circle the appropriate range for the **EHE Module Total** below.

5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

		Score	Value
Explosives Hazard Factor Data Elements			
Munitions Type	Table 1	**25**	**35**
Source of Hazard	Table 2	**10**	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	**10**	**25**
Ease of Access	Table 4	**10**	
Status of Property	Table 5	**5**	
Receptors Factor Data Elements			
Population Density	Table 6	**3**	**13**
Population Near Hazard	Table 7	**5**	
Types of Activities/ Structures	Table 8	**5**	
Ecological and/ or Cultural Resources	Table 9	**0**	
		EHE Module Total	**73**

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternate Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE Module Rating	**C**

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

Table 11

Classifications Within the CHE Module *CWM Configuration* Data Element

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with all the CWM configurations known or suspected to be present at the MRS.
Note: The terms CWM/UXO, CWM/DMM, physical evidence, and historical evidence are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, Explosive Configuration, either UXO or Damaged DMM Damaged	The CWM known or suspected of being present at the MRS is: - Explosively configured CWM that are UXO (I.e., CWM/UXO). - Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	**30**
CWM Mixed With UXO	The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM, or CWM not configured as a munition, that are commingled with conventional munitions that are UXO.	**25**
CWM, Explosive Configuration that are DMM (undamaged)	The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM ,that have not been damaged.	**20**
CWM, Not Explosively Configured or CWM, Bulk Container	The CWM known or suspected of being present at the MRS is: - Non-Explosively configured CWM/DMM. - Bulk CWM/DMM (e.g., ton container).	**15**
CAIS K941 and CAIS K942	The CWM/DMM known or suspected of being present at the MRS is CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	**12**
CAIS (Chemical agent identification sets)	Only CAIS other than CAIS K941 and K942, are known or suspected of being present at the MRS.	**10**
Evidence of No CWM	Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	**(0)**
CWM CONFIGURATION	**DIRECTIONS:** Record the **single highest score** from above in the box to the right (maximum score = 30).	**0**

Directions: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space

No evidence of CWM was observed, and not suspected from the historical evidence.

Tables 12-19 are intentionally omitted-No Known or Suspected CWM Hazard.

Table 20
Determining the CHE Module Rating

Directions:

1. From Tables 1 - 9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three Value boxes and record this number in the CHE Module Total box below.
4. Circle the appropriate range for the CHE Module Total below.
5. Circle the CHE Module Rating that corresponds to the range selected and record this value in the CHE Module Rating box found at the bottom of the table.

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

		Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11	0	**0**
Sources of CWM	Table 12	0	
0			
Location of CWM	Table 13	0	**0**
Ease of Access	Table 14	0	
Status of Property	Table 15	0	
Receptors Factor Data Elements			
Population Density	Table 16	0	**0**
Population Near Hazard	Table17	0	
Types of Activities/ Structures	Table 18	0	
Ecological and/ or Cultural Resources	Table 19	0	
		CHE Module Total	**0**

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternate Module Ratings	Evaluation Pending
	~~No Longer Required~~
	No Known or Suspected CWM Hazard
CHE Module Rating	**No Known or Suspected CWM Hazard**

Table 21
HHE Module: Groundwater Data Element Table
Contaminant Hazard Factor (CHF)

Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the comparison value. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the CHF Value. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	**Sum of the Ratios**	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant]	
100 > CHF > 2	M (medium)	[Comparison Value for Contaminant]	
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Groundwater MC Hazard

Table 21 Comments: Groundwater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 22
HHE Module: Surface Water-Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's surface water and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional surface water contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
Receptors Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Surface Water (Human Endpoint) MC Hazard

Table 22 Comments: Surfacewater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 23
HHE Module: Sediment-Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Sediment and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Sediment contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Sediment, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
no analytical data			
CHF Scale	CHF Value	Sum of the Ratios	**0.000**
CHF >100	H (high)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contaminant]	
2 > CHF	L (low)	[Comparison Value for Contaminant]	
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Sediment to which contamination has moved or can move.	L
Receptors Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Sediment (Human Endpoint) MC Hazard

Table 23 Comments: Sediment sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 24
HHE Module: Surface Water - Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Surface Water and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Surface Water contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Surface Water, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Surface Water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Surface Water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Surface Water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Surface Water to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Surface Water (Ecological Endpoint) MC Hazard

Table 24 Comments: Surfacewater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 25
HHE Module: Sediment - Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Sediment and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Sediment contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Sediment, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
No Analytical Data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Sediment to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Sediment (Ecological Endpoint) MC Hazard

Table 25 Comments: Sediment sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 26
HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Surface Soil and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Surface Soil contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Surface Soil, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
No Analytical Data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)		
100 > CHF > 2	M (medium)	**CHF = SUM** [Maximum Concentration of Contaminant]	
2 > CHF	L (low)	[Comparison Value for Contaminant]	
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Surface Soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Surface Soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Surface Soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Surface Soil to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Surface Soil MC Hazard

Table 26 Comments: RI/FS workplan states that soil samples will be collected in high MD or MEC areas, and be determined in the field. Little to no MD or MEC was observed in this MRS during field operations, and no soil samples were collected.

Table 27
HHE Module: Supplemental Contaminant Hazard Factor Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the media in which these contaminants are present. Then record all contaminants, their maximum concentrations and their comparison values (from Appendix B of the Primer) in the table below. Calculate and record the ratio for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the Contaminant Hazard, Migration Pathway, and Receptor Factors for the media (from Tables 21–26) in the corresponding boxes below.

2. Record the media's three-letter combinations in the Three-Letter Combination boxes below (three-letter combinations are arranged from Hs to Ms to Ls).

3. Using the HHE Ratings provided below, determine each media's rating (A–G) and record the letter in the corresponding Media Rating box below.

Media (source)	Contaminant Hazard Factor Value	Migratory Parthway Factor Value	Receptor Factor Value		Three-Letter Combination (Hs-Ms-Ls)		Media Rating (A-G)
Groundwater (Table 21)	No analytical data						
Surface Water/Human Endpoint (Table 22)	No analytical data						
Sediment/Human Endpoint (Table 23)	No analytical data						
Surface Water/Ecological Endpoint (Table 24)	No analytical data						
Sediment/Ecological Endpoint (Table 25)	No analytical data						
Surface Soil (Table 26)	No analytical data						

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the HHE Module Rating box.

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE Module Rating	

HHE Ratings (for reference only)	
Combination	**Rating**
HHH	A
HHM	B
HHL	C
HMM	
HML	D
MMM	
HLL	E
MML	
MLL	F
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter rating for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical priority for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the MRS Priority or Alternative MRS Rating at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
(C)	(4)	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		(No Known or Suspected CWM Hazard)		(No Known or Suspected MC Hazard)	
MRS or Alternative MRS Rating				**4**	

M9 rifle grenade fragments have been found at this MRS, accoriding to the QST Environmental EE/CA that was performed back in 1998 (QST, 1998). There have been may different types of MD found at this location since base closure; grenades, grenade fuzes, and anti-tank mines. Grenade parts and pieces were the only MD found during the RI field work.

QST, (January, 1998). "Engineering Evaluation/Cost Analysis Former Camp Croft Traing Area".

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the MRS Summary, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Proposed Mortar/Rifle Grenade Area

Component: U.S. Army

Installation/Property Name: Former Camp Croft

Location (City, County, State): Spartanburg, Spartanburg County, SC

Site Name; (RMIS ID)/Project Name (Project No.): Proposed Mortar/Rifle Grenade Area (RMS ID); Project Name (I04SC0016-03R02)

Date Information Entered/Updated: January 2014
Point of Contact (Name/Phone): Shawn Boone (843) 329-8158
Project Phase (check only one):

☐ PA	☐ SI Report	☒ RI	☐ FS	☐ RD
☐ RA-C	☐ RIP	☐ RA-O	☐ RC	☐ LTM

☐ Groundwater	☐ Sediment (human receptor)
☐ Surface Soil	☐ Surface Water (ecolocical receptor)
☐ Sediment (ecolocical receptor)	☐ Surface Water (human receptor)

MRS Summary: Mortar/Rifle Grenade Area is being proposed by realigning AoPI 11D. The MRS is 22.9 acres in size with private property, and a golf course located on it. QST Environmental conducted an EE/CA on this MRS in 1998. The site is a suspected grenade range. Historical evidence points to other ordnance types being allegedly being found in this area, but they were not found during the EE/CA while a piece of a mortar was discovered during the RI field work (QST, 1998).

QST, (January, 1998). "Engineering Evaluation/Cost Analysis Former Camp Croft Army Training Area".

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM (by type of munitions, if known) or munitions constituents (by type, if known) known or suspected to be present) When possible, identify munitions, CWM, and MC by type:

MRS Description: Mortar/Rifle Grenade Area is being proposed by realigning AoPI 11D. The MRS is 22.9 acres in size with private property, and a golf course located on it. QST Environmental conducted an EE/CA on this MRS in 1998. The site is a suspected grenade range. Historical evidence points to other ordnance types being allegedly being found in this area, but they were not found during the EE/CA while a piece of a mortar was discovered during the RI field work (QST, 1998). Only 0.21 acres of the MRS was investigated due to residents not giving right-of-entry for their properties. Mag-and-dig was performed over this MRS. No grids were placed on site due to lack of right-of-entries, and the limited area allowed to survey.

QST, (January, 1998). "Engineering Evaluation/Cost Analysis Former Camp Croft Army Training Area".

Coordination with the stakeholders was conducted during the 1st Technical Project Planning (TPP) Meeting (Reference: 2007 SI Report (Section ES.4; Appendix B) located on FRMD File Number I04FL028701_01.09_0503_a, and during the 2nd and 3rd TPP meetings conducted during the RI (Reference: 2013 Draft RI Report (Section 1.0.d; Appendix L. Reference: FRMD File Numbers I04FL028701_03.10_0500_a and I04FL028701_03.10_0501_a). Per MRSPP requirements, during the SI a public notice was issued announcing the MRSPP (Reference: FRMD File Number I04FL028701_08.13_0502_a).

Summary of Alternative Ratings: For the CHE and HHE modules, alternative ratings of "No known or suspected CWM Hazard" and "No known or suspected MC Hazard" (per Section 7 of the HHE Module from the "Handbook on Realignment, Delination, and MRSPP Implementation, v. 1.0.2 dated 10/1/2011) were given since no evidence of MEC and/or MD was observed during the RI field work.

Description of Pathways for Human and Ecological Receptors: No MC sampling was conducted on this MRS, and there for the pathways are incomplete.

Description of Receptors (Human and Ecological): Residents, receational users (golfers), and the general public are the human receptors while the natural surrounding ecology would be the ecological receptors for this MRS.

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond **with all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions* , *small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	UXO that are considered most likely to function upon any interaction with exposed persons [e.g., submunitions, 40mm high-explosive (HE) grenades, white phosphorus (WP) munitions, high-explosive antitank (HEAT) munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions]. Hand grenades containing energetic filler. Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard	**30**
High Explosive (used or damaged)	UXO containing a high-explosive (HE) filler (e.g., RDX, Composition B), that are not considered "sensitive".	**(25)**
	DMM containing a high-explosive filler that have: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	
Pyrotechnic (used or damaged)	UXO containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades).	**20**
	DMM containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades) that have: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	
High-Explosive (unused)	DMM containing a high-explosive filler that: ■ Have not been damaged by burning or detonation Are not deteriorated to the point of instability	**15**
Propellant	UXO containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor).	**15**
	DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: ■ Damaged by burning or detonation ■ Deteriorated to the point of instability	
Bulk secondary high explosives, pyrotechnics, or propellant	DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor), that are deteriorated.	**10**
	Bulk secondary high-explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	
Pyrotechnic (not used or damaged)	DMM containing a pyrotechnic filler (I.e., red phosphorous), other than white phosphorous filler, that: ■ Have not been damaged by burning or detonation ■ Are not deteriorated to the point of instability	**10**
Practice	UXO that are practice munitions that are not associated with a sensitive fuze.	**5**
	DMM that are practice munitions that are not associated with a sensitive fuze and that have not: ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability	
Riot Control	UXO or DMM containing a riot control agent filler (e.g., tear gas).	**3**
Small arms		**2**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Munitions Type	**Directions:** Record **the single highest score** from above in the box to the right (maximum score = 30)	**25**

Directions: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

QST Environmental conducted an EE/CA on this MRS in 1998. The site is a suspected grenade range. Historical evidence points to other ordnance types being allegedly being found in this area, but they were not found during the EE/CA while a piece of a mortar was discovered during the RI field work (QST, 1998).

QST, (January, 1998). "Engineering Evaluation/Cost Analysis Former Camp Croft Army Training Area".

Table 2

Classifications Within the EHE Module *Source of Hazard* Data Element

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond **with all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions* , *small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former Range	The MRS is a former military range where munitions including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas, associated buffer and safety zones, firing points, and live-fire maneuver areas.	**10**
Former Munitions Treatment (I.e., OB/OD) unit	The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	**8**
Former Practice Munitions Range	The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	**6**
Former Maneuver Area	The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	**5**
Former Burial Pit or other Disposal Area	The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a body of water) without prior thermal treatment.	**5**
Former Industrial Operating Facilities	The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	**4**
Former Firing Points	The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of the former military range.	**4**
Former Missile or Air Defense Artillery Emplacements	The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	**2**
Former Storage or Transfer Points	The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	**2**
Former Small Arms Range	The MRS is a former military range where only small arms ammunition was used. [There must be evidence that no other types of munitions (e.g., grenades) were used or are present to place an MRS into this category.	**1**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Source of Hazard	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

Directions: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

QST Environmental conducted an EE/CA on this MRS in 1998. The site is a suspected grenade range. Historical evidence points to other ordnance types being allegedly being found in this area, but they were not found during the EE/CA while a piece of a mortar was discovered during the RI field work (QST, 1998).

Table 3

Classifications Within the EHE Module *Information on the Location of Munitions* Data Element

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.
Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence, and historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed Surface	Physical evidence indicates that there are UXO or DMM on the surface of the MRS. Historical evidence (e.g., a confirmed incident report or accident report) indicates there are UXO or DMM on the surface of the MRS.	**25**
Confirmed Subsurface, Active	Physical evidence indicates that there are UXO or DMM on the surface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. Historical evidence indicates that there are UXO or DMM on the surface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	**20**
Confirmed Subsurface, Stable	Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are ***not*** likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are ***not*** likely to expose UXO or DMM. Historical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are ***not*** likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, (e.g., drought, flooding, erosion, frost, heat heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are ***not*** likely to expose UXO or DMM.	**15**
Suspected (Physical Evidence)	There is physical evidence (e.g., munitions debris, such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	**(10)**
Suspected (Historical Evidence)	There is historical evidence indicating that UXO or DMM may be present at the MRS.	**(5)**
Subsurface Physical Constraint	There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	**2**
Small Arms (regardless of location)	The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. [There must be evidence that no other types of munitions (e.g., grenades) were used or are present at the MRS to place an MRS in this category.]	**1**
Evidence of no munitions	Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	**0**
Location of Munitions	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	**10**

Directions: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

QST Environmental conducted an EE/CA on this MRS in 1998. The site is a suspected grenade range. Historical evidence points to other ordnance types being allegedly being found in this area, but they were not found during the EE/CA while a piece of a mortar was discovered during the RI field work (QST, 1998).

QST, (January, 1998). "Engineering Evaluation/Cost Analysis Former Camp Croft Army Training Area".

Table 4

EHE Module: *Ease of Access* Data Element

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS. **Note:** The term barrier is defined in Appendix C of the Primer.

Classification	Description	Score
No Barrier	There is no barrier preventing access to any part of the MRS (I.e., all parts of the MRS are accessible).	**(10)**
Barrier to MRS Access is Incomplete	There is a barrier preventing access to parts of the MRS, but not the entire MRS.	**8**
Barrier to MRS Access is Complete, But Not Monitored	There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by guard) to ensure that the barrier is effectively preventing access to all parts of the MRS..	**5**
Barrier to MRS Access is Complete and Monitored	There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS..	**0**
Ease of Access	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

Directions: Document any MRS-specific data used in selecting the ***Ease of Access*** classifications in the space provided.

Proposed Mortar/Rifle Grenade Area consists of privately-owned land and a golf course with no barriers to access present MRS.

Table 5

EHE Module: *Status of Property* Data Element

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD Control	The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by the Department. Examples are privately-owned land or water bodies, land or water bodies owned or controlled by state, tribal, or local governments, and land or water bodies managed by other federal agencies.	**(5)**
Scheduled for Transfer from DoD Control	The MRS is on land or is a water body that is owned, leased, or otherwise possessed by the Department, and the Department plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government, a private party, another federal agency) within 3 years from the date the rule is applied.	**3**
DoD Control	The MRS is on land or is a water body that is owned, leased, or otherwise possessed by the Department. With respect to property that is leased or otherwise possessed, the Department must control access to the MRS 24 hours per day, every day of the calendar year.	**0**
Status of Property	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***Status of Property*** classifications in the space provided.

Proposed Mortar/Rifle Grenade Area consists of privately-owned land and a golf course

Table 6

EHE Module: *Population Density* Data Element

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score. **Note:** Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 Persons per Square Mile	There are more than 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**5**
100 to 500 Persons per Square Mile	There are 100 to 500 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**(3)**
< 100 Persons per Square Mile	There are fewer than 100 persons per square mile in the county in which the MRS is located, based on U.S. Census Bureau data.	**1**
Population Density:	Record the **single highest score** from above in the box to the right (maximum score = 5).	**3**

Directions: Document any MRS-specific data used in selecting the ***Population Density*** classifications in the space provided.

As of March 2012, South Carolina Department of Natural Resources (SCDNR) listed the Dwarf-flowered Heatleaf as the only threatened or endangered species in Spartanburg County (http://www.dnr.sc.gov/species/pdf/Spartanburg2012.pdf).

Table 7

EHE Module: *Population Near Hazard* Data Element

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term inhabited structures is defined in Appendix C of the Primer.

Classification	Description	Score
26 or More Inhabited Structures	There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**(5)**
16 to 25	There are 16 to 25 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**4**
11 to 15	There are 11 to 15 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**3**
6 to 10	There are 6 to 10 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**2**
1 to 5	There are 1 to 5 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**1**
0	There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	**0**
POPULATION NEAR HAZARD	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classifications in the space provided.

Table 8

EHE Module: *Types of Activities/ Structures* Data Element

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with all the activities/structure classifications at the MRS.

Note: The term inhabited structure is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, Educational, Commercial, or Subsistence	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets, (e.g., hospitals, fire and rescue, police stations, dams), hotels commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing and gathering.	**(5)**
Parks and Recreational Areas	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	**4**
Agricultural, Forestry	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture and forestry.	**3**
Industrial or Warehousing	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	**2**
No Known or Recurring Activities	There are no known or recurring activities up to two miles from the MRS's boundary or within the MRS's boundary.	**1**
TYPES OF ACTIVITIES/STRUCTURES	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**5**

Directions: Document any MRS-specific data used in selecting the ***TYPES OF ACTIVITIES/STRUCTURES*** classifications in the space provided.

Residential and Commercial structures located within 2 miles

Table 9

EHE Module: *Ecological and / or Cultural Resources* Data Element

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms ecological resources and cultural resources are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and Cultural Resources Present	There are both ecological and cultural resources present on the MRS.	**5**
Ecological Resources Present	There are ecological resources present on the MRS.	**(3)**
Cultural Resources Present	There are cultural resources present on the MRS.	**3**
No Ecological or Cultural Resources Present	There are no ecological and cultural resources present on the MRS.	**0**
ECOLOGICAL AND/OR CULTURAL RESOURCES	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	**3**

Directions: Document any MRS-specific data used in selecting the ***ECOLOGICAL AND/OR CULTURAL RESOURCES*** classifications in the space provided.

As of March 2012, South Carolina Department of Natural Resources (SCDNR) listed the Dwarf-flowered Heatleaf as the only threatened or endangered species in Spartanburg County (http://www.dnr.sc.gov/species/pdf/Spartanburg2012.pdf).

Table 10
Determining the EHE Module Rating

Directions:

1. From Tables 1 - 9, record the data element scores in the **Score** boxes to the right.

2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.

3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.

4. Circle the appropriate range for the **EHE Module Total** below.

5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

		Score	Value
Explosives Hazard Factor Data Elements			
Munitions Type	Table 1	**25**	**35**
Source of Hazard	Table 2	**10**	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	**10**	**25**
Ease of Access	Table 4	**10**	
Status of Property	Table 5	**5**	
Receptors Factor Data Elements			
Population Density	Table 6	**3**	**16**
Population Near Hazard	Table 7	**5**	
Types of Activities/ Structures	Table 8	**5**	
Ecological and/ or Cultural Resources	Table 9	**3**	
		EHE Module Total	**76**

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternate Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE Module Rating	**C**

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

Table 11

Classifications Within the CHE Module *CWM Configuration* Data Element

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with all the CWM configurations known or suspected to be present at the MRS.
Note: The terms CWM/UXO, CWM/DMM, physical evidence, and historical evidence are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, Explosive Configuration, either UXO or Damaged DMM Damaged	The CWM known or suspected of being present at the MRS is: - Explosively configured CWM that are UXO (I.e., CWM/UXO). - Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	**30**
CWM Mixed With UXO	The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM, or CWM not configured as a munition, that are commingled with conventional munitions that are UXO.	**25**
CWM, Explosive Configuration that are DMM (undamaged)	The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM ,that have not been damaged.	**20**
CWM, Not Explosively Configured or CWM, Bulk Container	The CWM known or suspected of being present at the MRS is: - Non-Explosively configured CWM/DMM. - Bulk CWM/DMM (e.g., ton container).	**15**
CAIS K941 and CAIS K942	The CWM/DMM known or suspected of being present at the MRS is CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	**12**
CAIS (Chemical agent identification sets)	Only CAIS other than CAIS K941 and K942, are known or suspected of being present at the MRS.	**10**
Evidence of No CWM	Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	**(0)**
CWM CONFIGURATION	**DIRECTIONS:** Record the **single highest score** from above in the box to the right (maximum score = 30).	**0**

Directions: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space

No evidence of CWM was observed during the RI fieldwork, and no evidence of historical use.

Tables 12-19 are intentionally omitted-No Known or Suspected CWM Hazard.

Table 20
Determining the CHE Module Rating

Directions:

1. From Tables 1 - 9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three Value boxes and record this number in the CHE Module Total box below.
4. Circle the appropriate range for the CHE Module Total below.
5. Circle the CHE Module Rating that corresponds to the range selected and record this value in the CHE Module Rating box found at the bottom of the table.

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

		Score	Score	Value
CWM Hazard Factor Data Elements				
CWM Configuration	Table 11	0		**0**
Sources of CWM	Table 12	0		
0				
Location of CWM	Table 13	0		
Ease of Access	Table 14	0		**0**
Status of Property	Table 15	0		
Receptors Factor Data Elements				
Population Density	Table 16	0		
Population Near Hazard	Table17	0		
Types of Activities/ Structures	Table 18	0		**0**
Ecological and/ or Cultural Resources	Table 19	0		
			CHE Module Total	**0**

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternate Module Ratings	Evaluation Pending
	~~No Longer Required~~
	No Known or Suspected CWM Hazard
CHE Module Rating	**No Known or Suspected CWM Hazard**

Table 21
HHE Module: Groundwater Data Element Table
Contaminant Hazard Factor (CHF)

Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the comparison value. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the CHF Value. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	**Sum of the Ratios**	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Groundwater MC Hazard

Table 22
HHE Module: Surface Water-Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's surface water and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional surface water contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
Receptors Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Surface Water (Human Endpoint) MC Hazard

Table 22 Comments: Surfacewater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 23
HHE Module: Sediment-Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Sediment and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Sediment contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Sediment, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
no analytical data			
CHF Scale	CHF Value	Sum of the Ratios	**0.000**
CHF >100	H (high)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contaminant]	
2 > CHF	L (low)	[Comparison Value for Contaminant]	
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Sediment to which contamination has moved or can move.	L
Receptors Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Sediment (Human Endpoint) MC Hazard

Table 23 Comments: Sediment sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 24
HHE Module: Surface Water - Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Surface Water and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Surface Water contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Surface Water, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios
No analytical data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Surface Water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Surface Water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Surface Water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Surface Water to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Surface Water (Ecological Endpoint) MC Hazard

Table 24 Comments: Surfacewater sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 25
HHE Module: Sediment - Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Sediment and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Sediment contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Sediment, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
No Analytical Data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)	CHF = SUM [Maximum Concentration of Contaminant] / [Comparison Value for Contaminant]	
100 > CHF > 2	M (medium)		
2 > CHF	L (low)		
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Sediment to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Sediment (Ecological Endpoint) MC Hazard

Table 25 Comments: Sediment sampling was not proposed in the RI/FS workplan for this project. See Appendix E "Final Work Plan Camp Croft RI/FS" September 9, 2011.

Table 26
HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the maximum concentrations of all contaminants in the MRS's Surface Soil and their comparison values (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the ratios for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF by adding the contaminant ratios together, including any additional Surface Soil contaminants recorded on Table 27. Based on the CHF, use the CHF Scale to determine and record the CHF Value. If there is no known or suspected MC hazard with human endpoints present in the Surface Soil, select the box at the bottom of the table.

Note: Use dissolved, rather than total, metals analyses when both are available.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
No Analytical Data			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)		
100 > CHF > 2	M (medium)	**CHF = SUM** [Maximum Concentration of Contaminant]	
2 > CHF	L (low)	[Comparison Value for Contaminant]	
Contaminant Hazard Factor	Directions: Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the Surface Soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in Surface Soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the Surface Soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
Migratory Pathway Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

Receptors Factor

DIRECTIONS: Circle the value that corresponds most closely to the Surface Soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to Surface Soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to Surface Soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to Surface Soil to which contamination has moved or can move.	L
Receptor Factor	Directions: Record the **single highest value** from above in the box to the right (maximum value = H).	

No known or Suspected Surface Soil MC Hazard

Table 26 Comments: RI/FS workplan states that soil samples will be collected in high MD or MEC areas, and be determined in the field. Little to no MD or MEC was observed in this MRS during field operations, and no soil samples were collected.

Table 27
HHE Module: Supplemental Contaminant Hazard Factor Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the media in which these contaminants are present. Then record all contaminants, their maximum concentrations and their comparison values (from Appendix B of the Primer) in the table below. Calculate and record the ratio for each contaminant by dividing the maximum concentration by the comparison value. Determine the CHF for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the Contaminant Hazard, Migration Pathway, and Receptor Factors for the media (from Tables 21–26) in the corresponding boxes below.

2. Record the media's three-letter combinations in the Three-Letter Combination boxes below (three-letter combinations are arranged from Hs to Ms to Ls).

3. Using the HHE Ratings provided below, determine each media's rating (A–G) and record the letter in the corresponding Media Rating box below.

Media (source)	Contaminant Hazard Factor Value	Migratory Parthway Factor Value	Receptor Factor Value		Three-Letter Combination (Hs-Ms-Ls)		Media Rating (A-G)
Groundwater (Table 21)	No analytical data						
Surface Water/Human Endpoint (Table 22)	No analytical data						
Sediment/Human Endpoint (Table 23)	No analytical data						
Surface Water/Ecological Endpoint (Table 24)	No analytical data						
Sediment/Ecological Endpoint (Table 25)	No analytical data						
Surface Soil (Table 26)	No analytical data						

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the HHE Module Rating box.

Note: An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE Module Rating	

HHE Ratings (for reference only)	
Combination	**Rating**
HHH	A
HHM	B
HHL	C
HMM	
HML	D
MMM	
HLL	E
MML	
MLL	F
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter rating for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical priority for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the MRS Priority or Alternative MRS Rating at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		No Known or Suspected CWM Hazard		No Known or Suspected MC Hazard	
MRS or Alternative MRS Rating				**4**	

QST Environmental conducted an EE/CA on this MRS in 1998. The site is a suspected grenade range. Historical evidence points to other ordnance types being allegedly being found in this area, but they were not found during the EE/CA while a piece of a mortar was discovered during the RI field work (QST, 1998).

QST, (January, 1998). "Engineering Evaluation/Cost Analysis Former Camp Croft Army Training Area".