# APPENDIX H MEC HA AND MRSPP SCORING TABLES (INCLUDED ELECTRONICALLY ONLY)

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# **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 older	
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.

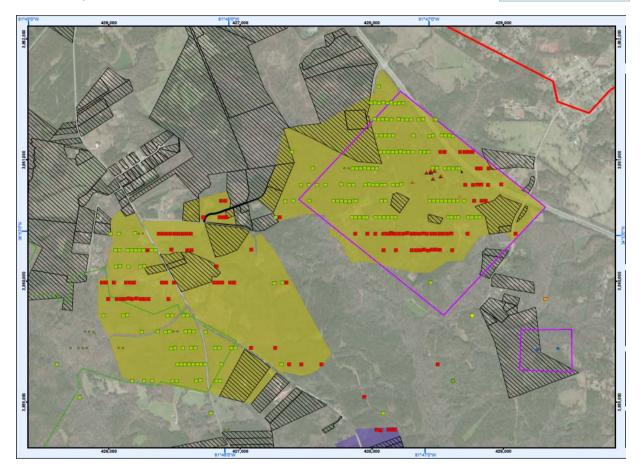
Reference(s) for Part C:

ZAPATA, 2002, Site Specific Final Report, OOU6, Former Camp Croft Army Training Facility, Spartanburg County, Spartanburg, SC, September 2002.



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

See Exhibit 8-3.



Proposed 105mm Area 8/12/2014

# **Cased Munitions Information**

	Munition Type (e.g., mortar, projectile, etc.)	Munition Size	Munition Size Units	Mark/ Model	Energetic Material Type	Is Munition Fuzed?	Fuzing Type	Fuze Condition		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	м49	High Explosive	UNK	UNK	UNK		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		Surface and Subsurface	
5	Artillery	155	mm	M107	High Explosive	UNK	UNK	UNK	0	Surface and Subsurface	
6											
7											
8											
10											
11											
12											
13											
14											
15											
16 17											
17											
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

#### **Bulk Explosive Information**

em 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:

Public Review Draft - Do Not Cite or Quote Contract No.: W912DY-10-D-0028 Task Order No.: 0005

Munitions, Bulk Explosive Info Worksheet October 2014 Revision 0

Site ID: Proposed 105mm Area

Date: 8/12/2014

# **Activities Currently Occurring at the Site**

Activity No.	Activity	Number of people per year	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					
1	0					
1	1					
1:	2					

880,500

3

Maximum intrusive depth at site (ft):

Total Potential Contact Time (receptor hrs/yr):

Reference(s) for table above:

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

Activity	A and in the co	people per year who participate	spends on the		Maximum intrusive	Community
No.	Activity	in the activity	activity	hours/year)	depth (11)	Comments
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
1	0					
1	1					
1	2					
	Total Potent	ial Contact Timo (r	cocontar bro/vr).	_		

Maximum intrusive depth at site (ft):

Reference(s) for table above:

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

Planned Re	emedial or	Removal	Actions
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ponse ion 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
	()	Moderate			
1 No Action (Baseline Condition)	C	Accessibility	No	No MEC cleanup	
2					
3					
4					
5					
6					
cording to the 'Summary Info' worksheet, no					
ere you answered 'No' in Column E, the land	use activities wil	i be assessed again	st current land uses.		

Reference(s) for table above:

Remedial-Removal Action Worksheet October 2014 Revision 0

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)



otal Potential Contact Time (receptor hrs/yr)

Maximum intrusive depth at site (ft):

Reference(s) for table above:

Public Review Draft - Do Not Cite or Quote Contract No.: W912DY-10-D-0028 Task Order No.: 0005

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Comments

Proposed 105mm Area 8/12/2014

**Energetic Material Type Input Factor Categories** 

Site ID: Date:

The following table is used to determine scores associate are listed in order from most hazardous to least hazardou							
		etic materia	als. Materials				
are listed in order from most nazardous to least nazardot	s. Baseline	Surface	Subsurface				
	Conditions	Cleanup	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 Incendiary	40 30	40 30	40 30				
incendiary	30	30	30				
The most hazardous type of energetic material listed	in the 'Munition	s, Bulk Ex	plosive Info'				
Worksheet falls under the category 'High Explosive a							
Rounds'.				Score			
Baseline Conditions:				1	00		
Surface Cleanup:					00		
Subsurface Cleanup:				1	00		
Location of Additional Human Receptors I							
<ol> <li>What is the Explosive Safety Quantity Distance (ESQE Explosive Safety Submission for the MRS?</li> </ol>	) from the Explo	sive Siting i	Plan or the	4	50 feet		
Are there currently any features or facilities where per	ple may congre	gate within	the MRS, or	-			
within the ESQD arc?	. , ,	-	•	Yes			
Please describe the facility or feature.					_		
Residential, Argiculture							
MEC Item(s) used to calculate the ESQD for current use	ctivities						
Item #5. Artillery (155mm, High Explosive)		6! .!!!!					
The following table is used to determine scores associate	a with the location						
recentors (current use activities):		on or addition	onai numan				
receptors (current use activities):	Baseline	Surface	Subsurface				
	Conditions	Surface Cleanup	Subsurface Cleanup	0			
Inside the MRS or inside the ESQD arc	Conditions 3	Surface Cleanup 0 3	Subsurface Cleanup 0 3				
Inside the MRS or inside the ESQD arc Outside of the ESQD arc	Conditions 3	Surface Cleanup 0 3	Subsurface Cleanup 0 30	0			
Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or ins 2.'	Conditions 3	Surface Cleanup 0 3	Subsurface Cleanup 0 30	Score			
Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or ins 2.' Baseline Conditions:	Conditions 3	Surface Cleanup 0 3	Subsurface Cleanup 0 30	Score	30		
Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or ins 2.' Baseline Conditions: Surface Cleanup:	Conditions 3	Surface Cleanup 0 3	Subsurface Cleanup 0 30	Score	30		
Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or ins 2.' Baseline Conditions: Sufface Cleanup: Subsurface Cleanup:	Conditions 30 ide the ESQD	Surface Cleanup 0 3 0 arc', basec	Subsurface Cleanup 0 30 0 1	Score			
Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or ins 2.' Baseline Conditions: Surface Cleanup:	Conditions 30 ide the ESQD	Surface Cleanup 0 3 0 arc', basec	Subsurface Cleanup 0 30 0 1	Score	30		
Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or ins 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features within the MRS, or within the ESQD arc?	Conditions 30 ide the ESQD	Surface Cleanup 0 3 0 arc', basec	Subsurface Cleanup 0 30 0 1	Score	30		
Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or ins 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features within the MRS, or within the ESQD arc?	Conditions 30 ide the ESQD	Surface Cleanup 0 3 0 arc', basec	Subsurface Cleanup 0 30 0 1	Score	30		
Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or ins 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features within the MRS, or within the ESQD arc? 6. Please describe the facility or feature.	Conditions 30 ide the ESQD a	Surface Cleanup 0 3 0 arc', basec	Subsurface Cleanup 0 30 0 1	Score	30		
Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or ins 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features within the MRS, or within the ESQD arc? 6. Please describe the facility or feature.	Conditions 30 ide the ESQD a	Surface Cleanup 0 3 0 arc', basec	Subsurface Cleanup 0 30 0 1	Score	30		
Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or ins 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features 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 and the support of the	Conditions 30 ide the ESQD a or facilities where	Surface Cleanup 0 3 0 arc', based	Subsurface Cleanup 0 30 0 0 I on Question	Score	30		
Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or ins 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: Subsurface Cleanup: Subsurface Outside or construct features 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 and the following table is used to determine scores associate.	Conditions 30 ide the ESQD a or facilities where	Surface Cleanup 0 3 0 arc', based	Subsurface Cleanup 0 30 0 0 I on Question	Score	30		
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Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or ins 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: Subsurface Cleanup: Subsurface Outside or construct features 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 and the following table is used to determine scores associate.	Conditions 30 ide the ESQD and a control of the con	Surface Cleanup 0 3 0 0 3 0 on of addittic	Subsurface Cleanup 0 30 0 10 d on Question ay congregate	Score	30		
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Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or ins 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features 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 and the following table is used to determine scores associate receptors (future use activities):	Conditions 30 ide the ESQD and a control or facilities where the control of the c	Surface Cleanup 0 3 0 0 3 0 on of addition Surface Cleanup	Subsurface Cleanup 0 30 0 10 I on Question ay congregate  onal human Subsurface Cleanup	Score	30		
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Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or ins 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features 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 as The following table is used to determine scores associate receptors (future use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 7. Please answer Question 5 above to determine t Baseline Conditions:	Conditions 31 ide the ESQD and a control of facilities where  tivities  d with the location  Baseline  Conditions	Surface Cleanup 0 3 0 3 arc', based on of addittic Surface Cleanup 0 3	Subsurface Cleanup 0 30 0 10 1 on Question  ay congregate  bonal human Subsurface Cleanup 0 3	Score	30		
Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or ins 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: Subsurface Cleanup: Subsurface Cleanup: On the ESQD arc? Outside of the ESQD for future use and the following table is used to determine scores associate receptors (future use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 7. Please answer Question 5 above to determine to	Conditions 31 ide the ESQD and a control of facilities where  tivities  d with the location  Baseline  Conditions	Surface Cleanup 0 3 0 3 arc', based on of addittic Surface Cleanup 0 3	Subsurface Cleanup 0 30 0 10 1 on Question  ay congregate  bonal human Subsurface Cleanup 0 3	Score	30		
Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or ins 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features 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 and the substitution of the substitution of the substitution of the substitution of the ESQD arc Outside of the ESQD arc 7. Please answer Question 5 above to determine the Baseline Conditions: Surface Cleanup:	Conditions 31 ide the ESQD and a control of facilities where  tivities  d with the location  Baseline  Conditions	Surface Cleanup 0 3 0 3 arc', based on of addittic Surface Cleanup 0 3	Subsurface Cleanup 0 30 0 10 1 on Question  ay congregate  bonal human Subsurface Cleanup 0 3	Score	30		

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Site Accessibility	Input Factor Categories						
	sed to determine scores associated wi			Code			
	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup			
	No barriers to entry, including						
Full Accessibility	signage but no fencing	80	) 80	0 80	)		
	Some barriers to entry, such as						
Moderate Accessibility	barbed wire fencing or rough terrain Significant barriers to entry, such as	55	5 5!	5 55			
	unguarded chain link fence or						
Limited Associability	requirements for special	10	- 1	- 10			
Limited Accessibility	transportation to reach the site  A site with guarded chain link fence	15	5 15	5 15			
	or terrain that requires special						
Very Limited Accessibility	equipment and skills (e.g., rock climbing) to access	5	, ,	5 5			
riccessibility	climbing) to access		,	,			
Current Use Activi					Score		
Select the category tha Full Accessibilit	t best describes the site accessibility u	inder the curi	rent use sce	enario:			
Baseline Conditions:	2					80	
Surface Cleanup: Subsurface Cleanup:						80 80	
эчьэчнасе стеанир:						50	
Future Use Activit							
Select the category tha	t best describes the site accessibility u	inder the futu	ure use scer	nario:			
Baseline Conditions:							
Surface Cleanup: Subsurface Cleanup:							
Reference(s) for above							
D		0					
	tive No. 1: No Action (Baseline ed Remedial or Removal Actions'			native will			
lead to 'Moderate Ad							
Baseline Conditions: Surface Cleanup:						55 55	
Subsurface Cleanup:						55	
Response Alternat	tive No. 2: cessibility information in the 'Plar	ned Remed	lial or Ren	noval			
Actions' Worksheet							
Baseline Conditions: Surface Cleanup:							
Subsurface Cleanup:							
Response Alternat	t/ve No. 3: cessibility information in the 'Plar	ned Demod	lial or Don	noval			
Actions' Worksheet		inca remed	ilai oi itoii	iovai			
Baseline Conditions:							
Surface Cleanup: Subsurface Cleanup:							
Response Alternat		nod Dom-	lial or Dr -	aoval			
Actions' Worksheet	cessibility information in the 'Plar to continue.	meu Kemeo	нагот кеп	ivvai			
Baseline Conditions:							
Surface Cleanup: Subsurface Cleanup:							
Response Alternat		mod D	liel er D	a a va l			
Please enter site acc Actions' Worksheet	essibility information in the 'Plar to continue.	iriea Kemed	nai or Ren	iovai			
Baseline Conditions:							
Surface Cleanup: Subsurface Cleanup:							
outsurface ofcariup.							
Response Alternat							
Please enter site acc Actions' Worksheet	cessibility information in the 'Plar to continue.	ned Remed	lial or Ren	noval			
Baseline Conditions:							
Surface Cleanup: Subsurface Cleanup:							

Potential Conta	ct Hours Input Factor Categor	ies						
The following table is	used to determine scores associated with	Baseline	Surface	Subsurface				
Many Hours	Description ≥1,000,000 receptor-hrs/yr	Conditions 120	cieanup 90	Cleanup	30			
Some Hours	100,000 to 999,999 receptor hrs/yr	70	50		20			
Few Hours Very Few Hours	10,000 to 99,999 receptor-hrs/yr <10,000 receptor-hrs/yr	40 15	20 10		10 5			
Current Use Activi	tles:							
'Current and Future A	y determined for baseline conditions for octivities' Worksheet, the Total Potential bove, this corresponds to a input factor ses:	Contact Time i	s:				receptor 00 hrs/yr 70 Score	
'Current and Future A	determined for baseline conditions for factivities' Worksheet, the Total Potential bove, this corresponds to a input factor s	Contact Time i		ed on the			receptor hrs/yr Score	
	live No. 1: No Action (Baseline Cond						30016	
	ned Remedial or Removal Actions' \ alternative is implemented.	Worksheet, la	and use a	ctivities wi	II			
Total Potential Cor	ntact Time, based on the contact tin	ne listed for	current u	se activitie	s	000 E	00	
	Future Activities' Worksheet) bove, this corresponds to input factor sco	res of:			5	880,50 Score		
Baseline Conditions: Surface Cleanup:							70 50	
Subsurface Cleanup:	due No. 2					:	20	
Response Alternat  Not enough inform	<i>ive No. 2:</i> nation has been entered in the 'Plan	ned Remedia	al or Rem	oval				
Actions' Workshee	t. Please complete the table before	returning to	this sec	tion.				
Total Potential Con						Score		
Baseline Conditions:	bove, this corresponds to input factor sco					3007E		
Surface Cleanup: Subsurface Cleanup:								
Response Alternat	Ive No. 3:							
	nation has been entered in the 'Plan t. Please complete the table before							
Total Potential Cor	ntact Time bove, this corresponds to input factor sco	aros of				Score		
Baseline Conditions:	bove, this corresponds to input factor sct					30076		
Surface Cleanup: Subsurface Cleanup:								
Response Alternat	Ive No. 4:							
	nation has been entered in the 'Plan t. Please complete the table before							
Total Potential Cor	ntact Time bove, this corresponds to input factor sco	ares of				Score		
Baseline Conditions:	over, and corresponds to input ructor soc	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						
Surface Cleanup: Subsurface Cleanup:								
Response Alternat								
	nation has been entered in the 'Plan t. Please complete the table before							
Total Potential Cor	ntact Time bove, this corresponds to input factor sco	roo of			9	Score		
Baseline Conditions:	bove, this corresponds to input factor sct	nes or.			,	30010		
Surface Cleanup: Subsurface Cleanup:								
Response Alternat	Ive No. 6:							
	nation has been entered in the 'Plan t. Please complete the table before							
Total Potential Cor	ntact Time							
Based on the table al	bove, this corresponds to input factor sco	res of:			S	Score		
Baseline Conditions: Surface Cleanup:								
Subsurface Cleanup:								

Amount of MEC	Input Factor Categories						
The following table is u	used to determine scores associated wi		of MEC: Surface	Subsurface			
	Description Areas at which munitions fire was	Conditions		Cleanup			
Target Area	directed Sites where munitions were disposed of by open burn or open	180	120	) ;	30		
OB/OD Area	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	) 2	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	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	at best describes the <b>most hazardous</b>	amount of M	EC:		Score		
Target Area Baseline Conditions:						180	
Surface Cleanup: Subsurface Cleanup:						120 30	
•		m Intrusiv	e Depth	n Input			
The shallowest minimu	um MEC depth, based on the 'Cased Mu depth:	ınitions Inform	ation' Wo	rksheet:		0 ft 3 ft	
The table below is use maximum intrusive de	d to determine scores associated with to the determine scores associated with the pth:	he minimum N	MEC depth	relative to th	e		
Baseline Condition: ME	EC located surface and subsurface.		Surface Cleanup	Subsurface Cleanup			
After Cleanup: Intrusiv MEC.	ve depth overlaps with subsurface	240	150	) (	95		
After Cleanup: Intrusiv subsurface MEC.	ve depth does not overlap with	240	50	) 2	25		
	EC located only subsurface. Baseline anup: Intrusive depth overlaps with	150	N/A	4 9	95		
	EC located only subsurface. Baseline snup: Intrusive depth does not overlap onth.	50	N/A	<b>A</b> :	25		
	•						
intrusive depth, the both the surface an Worksheet. Therefo	west minimum MEC depth is less the intrusive depth will overlap after d subsurface, based on the 'Muniti ore, the category for this input fac I subsurface. After Cleanup: Intrus	cleanup. ME ons, Bulk Ex tor is 'Baseli	Cs are lo plosive I ne Condi	ocated at nfo' tion: MEC			
subsurface MEC.' Fo	or 'Current Use Activities', only Ba	seline Condit	tions are	considered.		240 Score	

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Future Use Activities		
Deepest intrusive depth:	ft	
	<b>2</b>	
Not enough information has been entered to determine the input factor category.  Response Alternative No. 1: No Action (Baseline Condition)	Score	
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet):  Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will	<b>0</b> ft	
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)	<b>3</b> 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:	EL.	
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet):  Not enough information has been entered in the 'Planned Remedial or Removal	ft	
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.		
	ft	
Maximum Intrusive Depth		
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.	0	
Baseline Conditions:	Score	
Surface Cleanup: Subsurface Cleanup:		
Response Alternative No. 5:	alle.	
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet):  Not enough information has been entered in the 'Planned Remedial or Removal	ft	
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:	1000/6	
Surface Cleanup: Subsurface Cleanup:		
·		

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Not enough informat	e No. 6: depth (from the 'Planned Remedial oion has been entered in the 'Planned Please complete the table before	ned Remedia	I or Rem	ioval		ft		
Maximum Intrusive [	Depth					ft		
Not enough informat	ion has been entered to calculate	this input fa	ictor.		Score			
Is there any physical or the area (e.g., frost hea subsurface MEC items? If "yes", describe the na	al Input Factor Categories historical evidence that indicates it is judy, erosion) to expose subsurface MEC ture of natural forces. Indicate key ai a map as appropriate (attach a map to	C items, or mo	ve surfaci al migrati	e or on (e.g.,	Yes			
Erosion on some sl	opes may expose buried items ed to determine scores associated wit		n potentia	ıl:				
3			Surface	Subsurface Cleanup				
Possible Unlikely		30 10	30 10					
Based on the questio Baseline Conditions: Surface Cleanup: Subsurface Cleanup:	n above, migration potential is 'P	ossible.'			Score	30 30 10		
Reference(s) for above i	nformation:							
Cased munitions info	n Input Factor Categories rmation has been inputed into the e, bulk explosives do not comprise							
that the MEC items fr assumption is that th	category is 'Target Area'. It cannow this category are DMM. There we MEC items in this MRS are UXO	efore, the co						
Are any of the munitions	ment shown that MEC in the OB/OD As is listed in the 'Munitions, Bulk Explosis - Submunitions - Rifle-propelled 40mm projectiles (oft - Munitions with white phosphorus fille - High explosive anti-tank (HEAT) rour - Hand grenades - Fuzes - Mortars	ve Info' Works en called 40m er		es)	Yes			
None of the items liste 'fuzed'.	d in the 'Munitions, Bulk Explosive	Info' Workshe	eet were i	dentified as				
	ed to determine scores associated wit		Surface	egories: Subsurface Cleanup				
UXO Special Case UXO	UXO Special Case	180 110	180 110	18				
Fuzed DMM Special Case Fuzed DMM	e	105 55	105 55	10	5			
Unfuzed DMM Bulk Explosives		45 45	45 45					
	ers above, the MEC classification is	s 'UXO Speci	al Case'.		Score			
Baseline Conditions: Surface Cleanup:						180 180		
Subsurface Cleanup: MEC Size Input Fa	actor Categories					180		
	ed to determine scores associated wit		Surface	Subsurface				
	Description	Conditions (	Cleanup	Cleanup				
	Any munitions (from the 'Munitions, Bulk Explosive Info' Worksheet) weigh less than 90 lbs; small enough for a receptor to be able to							
Small	move and initiate a detonation All munitions weigh more than 90 lbs; too large to move without	40	40					
Large Based on the definitions Info' Worksheet), the M	equipment above and the types of munitions at t EC Size Input Factor is:	0 the site (see 'M	O Munitions,		Small			
Baseline Conditions: Surface Cleanup:	•				Score	40 40		
Subsurface Cleanup:						40		

Input Factors Worksheet

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# Scoring Summary

Site ID: Proposed 105mm Area	a. Scoring Summary for Current Use Activities	
Date: 8/12/20°	4 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 Hazard Level Category	

Site ID: Propos	sed 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 N	Material Type	High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additio	nal Human Receptors		
III. Site Ad	ccessibility		
IV. Potential (	Contact Hours		
V. Amour	nt of MEC	Target Area	180
VI. Minimum MEC Depth Rel De	lative to Maximum Intrusive pth		
VII. Migratio	on Potential	Possible	30
VIII. MEC C	lassification	UXO Special Case	180
IX. ME	EC Size	Small	40
		Total Score Hazard Level Category	530 3

Site ID: Proposed 105mm Area	c. Scoring Summary for Response Alternative 1: No Action (Baselin	c. Scoring Summary for Response Alternative 1: No Action (Baseline Condition)				
Date: 8/12/2	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 Intrus 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					
	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?	N	lo				
Are cultural resources located within the MRS or within the ESQD	N	lo.				
arc?  Are significant ecological resources located within the MRS or	IV.	lo				
within the ESQD arc?	N	lo				

MEC HA Summary Information	
Site ID: Proposed Maneuver Area	Comments
Date: 8/12/2014	
Dutc. 0/12/2011	
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	
1. Area (include units):  1. Area (include units):  1. Area (include units):	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:  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, Newspace 2004	
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?
- 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.

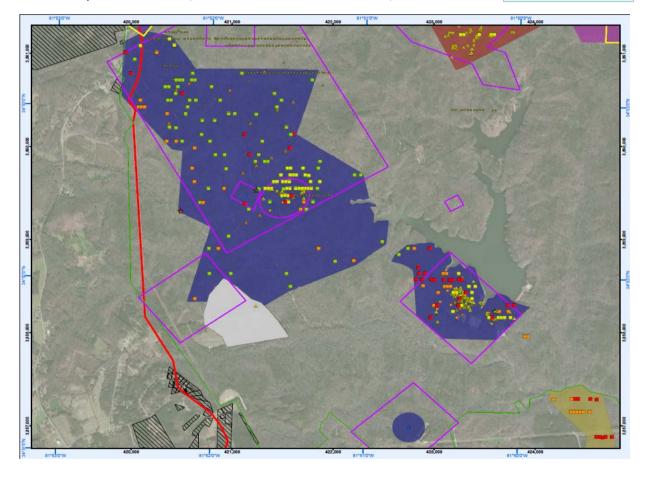
Reference(s) for Part C:



Yes, subsurface clearance

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

See Exhibit 8-4.



Proposed Maneuver Area 8/12/2014

# **Cased Munitions Information**

	Munition Type (e.g.,	Munition	Munition		Energetic Material	Is Munition		Fuze	Minimum Depth for Munition	Location of	Comments (include rationale for munitions that are
Item No.	mortar, projectile, etc.)	Size	Size Units	Mark/ Model		Fuzed?	Fuzing Type	Condition	(ft)	Munitions	"subsurface only")
										Surface	
1	Mortars	81	mm	M43	High Explosive	UNK			0	and Subsurface	
						-				Surface	
					High					and	
2	Mortars	60	mm	M49	Explosive	UNK			0	Subsurface	
										Surface and	
3		37	mm			UNK			0	Subsurface	UNK
										Surface	
			mm						_	and Subsurface	UNK
4 5		57	mm			UNK			U	Subsuriace	UNK
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**

UIK EX	piosive illibilitation		
em No.	Explosive Type	Comments	
1	TNT		
2	TNT		
3		UNK	
4		UNK	
5			
6			
7			
8			
9			
10			

Reference(s) for table above:

Munitions, Bulk Explosive Info Worksheet October 2014 Revision 0

Site ID: **Proposed Maneuver Area** 

8/12/2014 Date:

# **Activities Currently Occurring at the Site**

		, ,		Number of			
				hours per			
			Number of	year a single	Potential		
			people per year	person	Contact Time	Maximum	
Activity			who participate	spends on the	(receptor	intrusive	
No.		Activity	in the activity	activity	hours/year)	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						
1	10						
1	11						
1	12						
		Total Potentia	al Contact Time (r	eceptor hrs/yr):	1,380,000		
			Maxi	mum intrusive of	depth at site (ft):	1	

Reference(s) for table above:

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

Activity	A although	people per year who participate	spends on the		Maximum intrusive	Community
No.	Activity	in the activity	activity	hours/year)	depth (ft)	Comments
	1					
	2					
	3					
	4					
	5					
	6					
	7					
	8			-		
	9			-		
1	10			-		
1	11			-		
1	12					
	Total Data	atial Contact Time (	constar bro (ur).	-		

Maximum intrusive depth at site (ft):

Reference(s) for table above:

Task Order No.: 0005

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

Planned Remedial or Removal Actions		
	Evnected	

Response	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				
Action No.	response retion bescription	Deptil (it)	Full	implementeu.	What is the expected scope of cleanup.	Comments				
1	No Action (Baseline Condition)	0	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:

Remedial-Removal Action Worksheet October 2014 Revision 0

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)



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Reference(s) for table above:

Comments

Proposed Maneuver Area 8/12/2014

**Energetic Material Type Input Factor Categories** 

Site ID: Date:

The following table is used to determine scores associated w	ith the energ	etic materia	als. Materials						
are listed in order from most hazardous to least hazardous.	Baseline	Surface	Subsurface						
	Conditions	Cleanup	Cleanup						
High Explosive and Low Explosive Filler in Fragmenting			•						
Rounds	100	100	100						
White Phosphorus	70	70	70						
Pyrotechnic	60 50	60 50	60 50						
Propellant Spotting Charge	40	40	40						
Incendiary	30	30	30						
The most hazardous type of energetic material listed in t Worksheet falls under the category 'High Explosive and Rounds'.  Baseline Conditions:			plosive Info'	Score	100				
Surface Cleanup:					100				
Subsurface Cleanup:					100				
Cabbarrage cicarrap.									
Location of Additional Human Receptors Inp 1. What is the Explosive Safety Quantity Distance (ESQD) fr Explosive Safety Submission for the MRS? 2. Are there currently any features or facilities where people within the ESQD arc?	om the Explo	sive Siting I	Plan or the	Yes	209	eet .			
Please describe the facility or feature.     State Park									
MEC Item(s) used to calculate the ESQD for current use active	rities								
Item #1. Mortars (81mm, High Explosive)									
The following table is used to determine scores associated w receptors (current use activities):	th the location	on of addition	onal human						
The following table is used to determine scores associated w	Baseline	Surface	Subsurface						
The following table is used to determine scores associated w receptors (current use activities):	Baseline Conditions	Surface Cleanup	Subsurface Cleanup	0					
The following table is used to determine scores associated w receptors (current use activities):  Inside the MRS or inside the ESQD arc	Baseline Conditions	Surface Cleanup O 3	Subsurface Cleanup 0 30						
The following table is used to determine scores associated w receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc	Baseline Conditions 30	Surface Cleanup O 3	Subsurface Cleanup 0 30	0					
The following table is used to determine scores associated w receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc  4. Current use activities are 'Inside the MRS or inside	Baseline Conditions 30	Surface Cleanup O 3	Subsurface Cleanup 0 30	0					
The following table is used to determine scores associated w receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc	Baseline Conditions 30	Surface Cleanup O 3	Subsurface Cleanup 0 30	0	30				
The following table is used to determine scores associated w receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.'	Baseline Conditions 30	Surface Cleanup O 3	Subsurface Cleanup 0 30	0	30 30				
The following table is used to determine scores associated we receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions:	Baseline Conditions 30	Surface Cleanup O 3	Subsurface Cleanup 0 30	0					
The following table is used to determine scores associated w receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup:	Baseline Conditions 30 the ESQD a	Surface Cleanup O 3 O arc', based	Subsurface Cleanup 0 30 0 (d	0	30				
The following table is used to determine scores associated w receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or features or features.	Baseline Conditions 30 the ESQD a	Surface Cleanup O 3 O arc', based	Subsurface Cleanup 0 30 0 (d	0	30				
The following table is used to determine scores associated w receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or finith the MRS, or within the ESQD arc?	Baseline Conditions 30 the ESQD a	Surface Cleanup O 3 O arc', based	Subsurface Cleanup 0 30 0 (d	0	30				
The following table is used to determine scores associated w receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or finith the MRS, or within the ESQD arc?	Baseline Conditions 30 the ESQD a	Surface Cleanup O 3 O arc', based	Subsurface Cleanup 0 30 0 (d	0	30	_			
The following table is used to determine scores associated w receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or fivithin 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.	Baseline Conditions 3( the ESQD :	Surface Cleanup ) 3 ) arc', based	Subsurface Cleanup 0 30 0 0 d on Question	0	30				
The following table is used to determine scores associated w receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or fivilin the MRS, or within the ESQD arc? 6. Please describe the facility or feature.	Baseline Conditions 36 (the ESQD at the ES	Surface Cleanup  3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	Subsurface Cleanup 0 3( 0 0 0 d on Question	0	30				
The following table is used to determine scores associated w receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or favilthin 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 w	Baseline Conditions 3( the ESQD :	Surface Cleanup 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	Subsurface Cleanup 0 30 0 0 d on Question	0	30				
The following table is used to determine scores associated w receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or fix 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 to the following table is used to determine scores associated w receptors (future use activities):	Baseline Conditions 36 (the ESQD at the ES	Surface Cleanup 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	Subsurface Cleanup 0 30 0 0 d on Question  ay congregate  onal human Subsurface Cleanup	Score	30				
The following table is used to determine scores associated w receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or favilthin 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 w	Baseline Conditions 36 ( the ESQD :	Surface Cleanup  3 3  arc', based  a people ma  on of additti  Surface Cleanup  3 3	Subsurface Cleanup 0 3(0) 0 (d on Question  ay congregate  onal human Subsurface Cleanup 0 3(	Score	30	•			
The following table is used to determine scores associated w receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or fawithin 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 is used to determine scores associated w receptors (future use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc	Baseline Conditions 36 the ESQD : the ESQD state of the ESQD state	Surface Cleanup  3 3  arc', based  a people ma  on of additti  Surface Cleanup  3 3	Subsurface Cleanup 0 3(0) 0 (d on Question  ay congregate  onal human Subsurface Cleanup 0 3(	Score	30				
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			sibility:							
		Baseline	Surface	Subsurfac	e					
	Description	Conditions	Cleanup	Cleanup						
ull Accessibility	No barriers to entry, including signage but no fencing	80	) 8	80	80					
	Some barriers to entry, such as									
oderate Accessibility	barbed wire fencing or rough terrain	55	5 5	55	55					
	Significant barriers to entry, such as unguarded chain link fence or									
	requirements for special									
mited Accessibility	transportation to reach the site	15	1	5	15					
	A site with guarded chain link fence or terrain that requires special									
ery Limited	equipment and skills (e.g., rock									
ccessibility	climbing) to access	5	i	5	5					
urrent Use Activi	tles					Score				
	t best describes the site accessibility u	nder the curr	ent use so	enario:						
<mark>ıll Accessibilit</mark> Aseline Conditions:	У						80			
rface Cleanup:							80			
bsurface Cleanup:							80			
uduna Hai aidi i	la a									
uture Use Activit		ndor the fire								
nect the category tha	t best describes the site accessibility u	nuer ine rutu	ne use sce	andHU:						
seline Conditions:										
rface Cleanup:										
bsurface Cleanup:										
ference(s) for above	information:									
								l		
Connance Alterna	this No. 1. No Action (Bossimo	Condition	,							
	tive No. 1: No Action (Baseline ed Remedial or Removal Actions' \			rnative will						
ead to 'Full Accessil			tino unto							
aseline Conditions:										
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urface Cleanup:							80			
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Potential Contac	ct Hours Input Factor Categor	ies					
	used to determine scores associated wit	h the total potenti		me:			
Manuellaum	Description	Baseline Surf Conditions Clea 120					
Many Hours Some Hours	≥1,000,000 receptor-hrs/yr  100,000 to 999,999 receptor hrs/yr	70	50	30 20			
Few Hours	10,000 to 99,999 receptor-hrs/yr	40	20	10			
Very Few Hours	<10,000 to 99,999 receptor-hrs/yr	15	10	5			
Current Use Activit	tles:						
Input factors are only	determined for baseline conditions for o	urrent use activitie	es. Based o	n the		receptor	
	ctivities' Worksheet, the Total Potential cove, this corresponds to a input factor ses:		conditions of		1,380,00 12	00 hrs/yr 20 Score	
	determined for baseline conditions for f		s. Based on	the		receptor	
Based on the table ab	ctivities' Worksheet, the Total Potential pove, this corresponds to a input factor s	core of:				hrs/yr Score	
•	<i>lve No. 1: No Action (Baseline Cond</i> ned Remedial or Removal Actions' \	-	use activit	ies will			
	Ilternative is implemented. Itact Time, based on the contact tin	ne listed for curr	rent use ac	tivities			
Based on the table ab	tuture Activities' Worksheet) bove, this corresponds to input factor sco	ores of:			1,380,00 <i>Score</i>		
Baseline Conditions: Surface Cleanup:					12	20 20	
Subsurface Cleanup: Response Alternati	lve No. 2:				3	80	
Not enough inform	ation has been entered in the 'Plan t. Please complete the table before						
Total Potential Con							
Baseline Conditions:	pove, this corresponds to input factor sco	ores of:			Score		
Surface Cleanup: Subsurface Cleanup:							
Not enough inform	Ive No. 3: ation has been entered in the 'Plan	ned Demodial o	r Domoval				
	t. Please complete the table before						
Total Potential Con	ntact Time hove, this corresponds to input factor sco	ares of			Score		
Baseline Conditions:	ovo, mo corresponds to input ractor see						
Surface Cleanup: Subsurface Cleanup:							
Not enough inform	Ive No. 4: ation has been entered in the 'Plan	ned Remedial o	r Removal				
	t. Please complete the table before						
Total Potential Con	ntact Time nove, this corresponds to input factor sco	ires of:			Score		
Baseline Conditions: Surface Cleanup:							
Subsurface Cleanup:							
Response Alternati Not enough inform	<i>ive No. b:</i> ation has been entered in the 'Plan	ned Remedial o	r Removal				
Actions' Worksheet	t. Please complete the table before	returning to th	is section.				
Total Potential Con Based on the table ab	ntact Time nove, this corresponds to input factor sco	ores of:			Score		
Baseline Conditions: Surface Cleanup:							
Subsurface Cleanup:							
Response Alternati Not enough inform	<i>ive No. 6:</i> ation has been entered in the 'Plan	ned Remedial or	r Removal				
	t. Please complete the table before						
Total Potential Con	ntact Time bove, this corresponds to input factor sco	ares of			Score		
Baseline Conditions:	soro, and corresponds to input factor set	03 01.					
Surface Cleanup: Subsurface Cleanup:							

Amount of MEC	Input Factor Categories							
The following table is	used to determine scores associated wi			Culturate				
	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup				
arget Area	Areas at which munitions fire was directed	180	120	30	ı			
20,400	Sites where munitions were disposed of by open burn or open detonation methods. This category	400						
OB/OD Area	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	l			
	Areas where the serviceability of stored munitions or weapons							
unction Test Range	systems are tested. Testing may include components, partial functioning or complete functioning of stockpile or developmental items.	165	90	) 25	i			
urial Pit	The location of a burial of large quantities of MEC items.  Areas used for conducting military	140	140	) 10	ı			
laneuver Areas	exercises in a simulated conflict area or war zone	115	15	5 5	i			
iring 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	i			
afety 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	30	10	) 5	i			
torage	OB/OD areas.  Any facility used for the storage of military munitions, such as earth-covered magazines, above-ground magazines, and open-air storage	25	10	) 5	i			
xplosive-Related ndustrial Facility	areas. Former munitions manufacturing or demilitarization sites and TNT production plants	20	10	) 5	i			
elect the category th	at best describes the <b>most hazardous</b>	amount of N	ΛFC:		Score			
arget Area								
aseline Conditions: urface Cleanup:						180 120		
ubsurface Cleanup:						30		
linimum MEC D	Depth Relative to the Maximu	m Intrusi	e Depth	Input				
urrent Use Activit								
ne deepest intrusive						0 ft 1 ft		
he table below is use aximum intrusive de	ed to determine scores associated with t epth:	he minimum	MEC depth	relative to the				
		Baseline Conditions	Surface Cleanup	Subsurface Cleanup				
fter Cleanup: Intrusiv IEC.	EC located surface and subsurface. ve depth overlaps with subsurface	240	150	) 95	i			
	EC located surface and subsurface, ve depth does not overlap with	240	50	) 25	i			
	EC located only subsurface. Baseline anup: Intrusive depth overlaps with	150	N/A	A 95	i			
aseline Condition: Mi	EC located only subsurface. Baseline anup: Intrusive depth does not overlap soth.	50	N/A	۸ 25	i			
ntrusive depth, the oth the surface an Vorksheet. Theref	west minimum MEC depth is less the intrusive depth will overlap after id subsurface, based on the 'Muniti ore, the category for this input fact	cleanup. M ons, Bulk Ex tor is 'Basel	ECs are lo oplosive I ine Condi	cated at nfo' tion: MEC				
	I subsurface. After Cleanup: Intrus or 'Current Use Activities', only Ba					240 Score		

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Task Order No.: 0005

Future Use Activities		
Deepest intrusive		
depth:	ft	
Not according to form which have been supported to determine the largest factor and	Score	
Not enough information has been entered to determine the input factor category.  Response Alternative No. 1: No Action (Baseline Condition)	Score	
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet):	<b>o</b> 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)	<b>1</b> 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):  Not enough information has been entered in the 'Planned Remedial or Removal	ft	
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.		
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.	0	
Baseline Conditions:	Score	
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.		
	ft	
Maximum Intrusive Depth		
Not enough information has been entered to calculate this input factor.	Score	
Baseline Conditions:	00076	
Surface Cleanup: Subsurface Cleanup:		
Subsurface Godflup.		

Response Alternative	No. 6:								
Expected minimum MEC	depth (from the 'Planned Remedial of	or Removal Ad	tions' Wo	rksheet):				ft	
	ion has been entered in the 'Plan								
Actions Worksneet.	Please complete the table before	returning t	this se	ction.					
Maximum Intrusive I	Depth							ft	
Not enough informat	ion has been entered to calculate	this input	factor.						
						Score			
Baseline Conditions:									
Surface Cleanup:									
Subsurface Cleanup:									
	al Input Factor Categories	nassible for m	otural abo	minal farancin					
	historical evidence that indicates it is ve, erosion) to expose subsurface ME				'				
subsurface MEC items?	ve, crosion, to expose subsurface we	o itoms, or ii	iove surra	DC OI		Yes			
	ture of natural forces. Indicate key a								
	a map as appropriate (attach a map	to the bottom	of this sh	eet, or as a					
separate worksheet).	opes may expose buried item	g							
	ed to determine scores associated with		on potent	ial:					
<b>3</b>		Baseline	Surface	Subsurface					
			Cleanup	Cleanup					
Possible		30			10				
Unlikely		10	'	0	10				
Based on the questio	n above, migration potential is 'P	ossible.'				Score			
Baseline Conditions:	abovo,g. at.o poteritia is :	00012101					30		
Surface Cleanup:							30		
Subsurface Cleanup:							10		
Reference(s) for above	nformation:								
					1				
					J				
<b>MEC Classification</b>	Input Factor Categories								
	rmation has been inputed into th				o <b>'</b>				
Worksheet; therefore	e, bulk explosives do not compris	e all MECs f	or this M	RS.					
The 'Amount of MEC'	category is 'Target Area'. It can	not be autor	matically	assumed					
	om this category are DMM. Ther								
	e MEC items in this MRS are UXO								
	ment shown that MEC in the OB/OD A								
	s listed in the 'Munitions, Bulk Explosi	ve Info' Work	sheet:			Yes			
	<ul> <li>Submunitions</li> <li>Rifle-propelled 40mm projectiles (off</li> </ul>	ten called 40r	mm arena	des)					
	Munitions with white phosphorus fille		iiii gi ciid	ucs)					
	· High explosive anti-tank (HEAT) rou								
	· Hand grenades								
	· Fuzes								
	· Mortars								
None of the items liste 'fuzed'.	d in the 'Munitions, Bulk Explosive	Into' Worksl	neet were	identified as					
	ed to determine scores associated wit	th MEC classit	fication ca	teanries:					
The following table is as	od to determine soores assessated with	Baseline	Surface	Subsurface					
	UXO Special Case	Conditions		Cleanup					
UXO Special Case		180			80				
UXO		110 105	11 10		10 05				
Fuzed DMM Special Cas Fuzed DMM	5	55			55				
Unfuzed DMM		45			45				
Bulk Explosives		45	4	5	45				
Based on your answer Baseline Conditions:	rs above, the MEC classification i	is 'UXO Spec	cial Case	-		Score	400		
Surface Cleanup:							180 180		
Subsurface Cleanup:							180		
•									
MEC Size Input Fa	ed to determine scores associated wit	th MEC Size.							
The following table is us	to determine scores associated with	Baseline	Surface	Subsurface					
	Description	Conditions	Cleanup	Cleanup					
	Any munitions (from the 'Munitions,								
	Bulk Explosive Info' Worksheet) weigh less than 90 lbs; small								
	enough for a receptor to be able to								
Small	move and initiate a detonation	40	4	0	40				
	All munitions weigh more than 90								
Largo	lbs; too large to move without	^		0	0				
Large	equipment above and the types of munitions at	the site (see	'Munitions	0 Rulk Evolosis	0				
Info' Worksheet), the M		rue are (266	wunttions	, buik Explosi		Small			
						Score			
Baseline Conditions:							40		
Surface Cleanup:							40		
Subsurface Cleanup:							40		

Input Factors Worksheet

# Scoring Summary

Site ID: P	roposed Maneuver Area	a. Scoring Summary for Current Use Activities			
Date:	8/12/2014	Response Action Cleanup:	No Response Action		
lr I	nput Factor	Input Factor Category	Score		
I. Energ	getic Material Type	High Explosive and Low Explosive Filler in Fragmenting Rounds	100		
II. Location of A	dditional Human Receptors	Inside the MRS or inside the ESQD arc	30		
III. S	Site Accessibility	Full Accessibility	80		
IV. Pote	ntial Contact Hours	≥1,000,000 receptor-hrs/yr	12		
	Amount of MEC	Target Area	180		
VI. Minimum MEC Dep	- ··	Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240		
VII. M	ligration Potential	Possible	30		
VIII. N	MEC Classification	UXO Special Case	180		
I	X. MEC Size	Small	40		
		Total Score Hazard Level Category			
		Hazard Level Category			

Site ID: Propose	ed Maneuver Area	b. Scoring Summary for Future Use Activities	
Date:	8/12/2014	Response Action Cleanup:	No Response Action
Input F	actor	Input Factor Category	Score
I. Energetic M.	aterial Type	High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Addition	al Human Receptors		
III. Site Acc	cessibility		
IV. Potential Co	ontact Hours		
V. Amount	of MEC	Target Area	180
VI. Minimum MEC Depth Rela Dept			
VII. Migration	n Potential	Possible	30
VIII. MEC CIa	assification	UXO Special Case	180
IX. MEC	Size	Small	40
		Total Score Hazard Level Category	530 3

Site ID: Proposed Maneuver Area	c. Scoring Summary for Response Alternative 1: No Action (Baselin	e Condition)		
Date: 8/12/20	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	12		
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 Hazard Level Category			

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?	N	lo								
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?	N	lo								

# **MEC HA Summary Information**

			Comments
Site ID:	Proposed Mortar/Grenade Area		
Date:	7/16/2013		
Date.	7/10/2013		
Please ide	ntify the single specific area to be assessed in this hazard ass	essment From this point forward	
	ces to "site" or "MRS" refer to the specific area that you have		
	· · · · · · · · · · · · · · · · · · ·	defilled.	
A. Enter	a unique identifier for the site:		
Proposed	d Mortar/Grenade Area		
Provido a	list of information sources used for this hazard assessment. A	As you are completing the	
	s, use the "Select Ref(s)" buttons at the ends of each subsect	tion to select the applicable	
informatio	n sources from the list below.		
Ref. No.	Title (include version, publication date)		
1	(EE/CA), Former Camp Croft Army Training Faci	lity	
	(EE/CA) Action Memorandum, Former Camp Croft		
3	Removal Report (August 8, 1994 - January 19,	1995),	
4	Removal Report (March 8, 1995 - March 30, 199	95),	
5	Removal Action, Former Camp Croft - Spartanbu	rg. SC.	
	(EE/CA), Former Camp Croft Army Training Faci		
	Report , Findings for the Former Camp Croft F		
8	Report Supplement, Findings for the Former Ca	mp Croft	
9	Action, Ordnance Operable Units OOU-3 A, B, a	and C;	
10	Camp Croft Army Training Facility, Spartanbur	ca County.	
	Addendum 01, Ordnance Operable Unit (OOU) 3,		
		September	
12	ZAPATA, 2011, Work Plans For the RI/FS		
B. Briefly	describe the site:		
1. Area (i	nclude units): 181.3 Acres	3	
2. Past m	unitions-related use:		
	n Test Range		
	t land-use activities (list all that occur):		
Recreati	ional		
4. Are cha	anges to the future land-use planned?	No	
5 What is	s the basis for the site boundaries?		
or mac.	the basis for the site boardaness		
within to II era now 81mm Minclude	a is within former Range 8, at the furthest exche current MRS 3, which is a 12,102-acre Rang ranges. Ranges 7 though 9 included a Rifle Ran Mortar Range, respectively. Documented muniti small arms, rifle grenades, 2.36-inch rockets A limited clearance has been conducted near the	e Complex containing 12 WW ge, Machine Gun Range, 60mm ons used at the ranges , and mortars (60mm and	
	ertain are the site boundaries?		
was a mo	nge Complex contained WWII era ranges 1-11 and ortar range, anti-tank range, and several smal es are based off historical data and findings	l arms ranges. Site	
Reference	(s) for Part B:		
ESE, 199	6a, Final Engineering Evaluation/Cost Analysis		
	Former Camp Croft Army Training Facility,		
	ourg, SC, Volume I and II, January 1996.		
	6b, Final Engineering Evaluation/Cost Analysis		
(EE/CA)	Action Memorandum, Former Camp Croft Army		
Training	Facility, Spartanburg, SC, February 1996.		
HFA. 199	7, Final Removal Action Report, Ordnance Removal		
	ormer Camp Croft – Spartanburg, SC, August 1997.		
	2011, Work Plans For the RI/FS		
LAPATA,	ZUTT, WUIK FIAITS FULLITIE KI/F3		
	de l'Oleman		
C. Histor	rical Clearances		
1. Have t	here been any historical clearances at the site?	Yes, surface clearance	only a small portion.
	arance occurred:		
	a. What year was the clearance performed?	1998	
		2000	

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.



Proposed Mortar/Grenade Area

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		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				Surface and Subsurface	
				-						Surface and	
3	Rockets	2.36	inches	M6A3	Pyrotechnic	UNK			0	Subsurface	
4											
5											
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. 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**

in Explosive Illioillation								
n 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:

Munitions, Bulk Explosive Info Worksheet October 2014 Page H-35 Revision 0

Public Review Draft - Do Not Cite or Quote

Contract No.: W912DY-10-D-0028 Task Order No.: 0005

0

Site ID: Proposed Mortar/Grenade Area

Date: 7/16/2013

# **Activities Currently Occurring at the Site**

A aktivita .		people per year	hours per year a single person	Potential Contact Time	Maximum				
Activity No.	Activity	who participate in the activity	spends on the activity	(receptor hours/year)	intrusive depth (ft)	Comments			
	Hiking	20,000		400,000		Comments			
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):

Reference(s) for table above:

# 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	hours per year a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
	1			1	doptii (it)	
	2			-		
	3					
	4			-		
	5					
	6					
	7					
	8					
	9					
1	10					
1	1					
1	12					
	Total Poton	tial Contact Time (	rocontor bro /vr).			

Maximum intrusive depth at site (ft):

Reference(s) for table above:

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

Date:	"	10/	201	3

Planned	Remedial or Removal Actions	Expected Resulting		Will land use activities change if this		
Response		Minimum MEC	Expected Resulting	response action is		
Action No.	Response Action Description	Depth (ft)	Site Accessibility	implemented?	What is the expected scope of cleanup?	Comments
			Full			
1	No Action (Baseline Condition)	0	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:

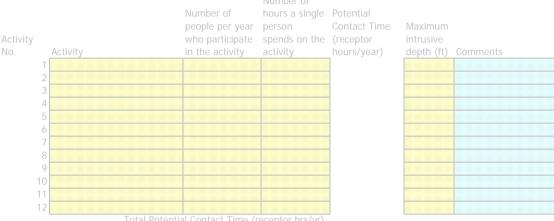
Remedial-Removal Action Worksheet
October 2014
Revision 0

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.





Reference(s) for table above:

Comments

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

**Energetic Material Type Input Factor Categories** 

Energetic Material Type Input Factor Catego	UI IC3					COMMITTEE	
The following table is used to determine scores associated	with the energ	etic materia	als. Materials				
are listed in order from most hazardous to least hazardous.							
	Baseline	Surface	Subsurface				
	Conditions	Cleanup	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 'Munition	s. Bulk Ex	plosive Info'				
Worksheet falls under the category 'High Explosive and							
Rounds'.	•			Score			
Baseline Conditions:					100		
Surface Cleanup:					100		
Subsurface Cleanup:					100		
Subsurius Sicuriup.							
	_						
Location of Additional Human Receptors In							
1. What is the Explosive Safety Quantity Distance (ESQD)	from the Explo	sive Siting F	Plan or the				
Explosive Safety Submission for the MRS?					152 feet		
2. Are there currently any features or facilities where peop	le may congre	gate within	the MRS, or				
within the ESQD arc?				Yes			
Please describe the facility or feature.							
State Park							
State Fark							
MEC Item(s) used to calculate the ESQD for current use ac	tivities						
Item #2. Mortars (60mm, High Explosive)							
Item #2. Mortars (60mm, High Explosive) The following table is used to determine scores associated	with the location	on of addition	onal human				
The following table is used to determine scores associated	with the location	on of addition	onal human				
	with the location	on of addition	onal human Subsurface				
The following table is used to determine scores associated		Surface					
The following table is used to determine scores associated	Baseline	Surface Cleanup	Subsurface Cleanup	)			
The following table is used to determine scores associated receptors (current use activities):	Baseline Conditions	Surface Cleanup	Subsurface Cleanup				
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc	Baseline Conditions 30	Surface Cleanup 0 3	Subsurface Cleanup 0 30				
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc	Baseline Conditions 30	Surface Cleanup 0 3	Subsurface Cleanup 0 30				
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc  4. Current use activities are 'Inside the MRS or inside 2.'	Baseline Conditions 30	Surface Cleanup 0 3	Subsurface Cleanup 0 30	)	30		
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions:	Baseline Conditions 30	Surface Cleanup 0 3	Subsurface Cleanup 0 30	)	30 30		
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup:	Baseline Conditions 30	Surface Cleanup 0 3	Subsurface Cleanup 0 30	)	30		
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup:	Baseline Conditions 30 de the ESQD a	Surface Cleanup 0 30 0 arc', based	Subsurface Cleanup 0 3( 0 ( d on Question	)			
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside the ESQD arc  3. Are there future plans to locate or construct features or	Baseline Conditions 30 de the ESQD a	Surface Cleanup 0 30 0 arc', based	Subsurface Cleanup 0 3( 0 ( d on Question	)	30		
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or within the MRS, or within the ESQD arc?	Baseline Conditions 30 de the ESQD a	Surface Cleanup 0 30 0 arc', based	Subsurface Cleanup 0 3( 0 ( d on Question	)	30		
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.  Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or	Baseline Conditions 30 de the ESQD a	Surface Cleanup 0 30 0 arc', based	Subsurface Cleanup 0 3( 0 ( d on Question	)	30		
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or within the MRS, or within the ESQD arc?	Baseline Conditions 30 de the ESQD a	Surface Cleanup 0 30 0 arc', based	Subsurface Cleanup 0 3( 0 ( d on Question	)	30		
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2. Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or within the MRS, or within the ESQD arc? 6. Please describe the facility or feature.	Baseline Conditions 30 de the ESQD a	Surface Cleanup 0 30 0 arc', based	Subsurface Cleanup 0 3( 0 ( d on Question	)	30		
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or within the MRS, or within the ESQD arc?	Baseline Conditions 30 de the ESQD a	Surface Cleanup 0 30 0 arc', based	Subsurface Cleanup 0 3( 0 ( d on Question	)	30		
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2. Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or within the MRS, or within the ESQD arc? 6. Please describe the facility or feature.	Baseline Conditions 30 de the ESQD a	Surface Cleanup 0 30 0 arc', based	Subsurface Cleanup 0 3( 0 ( d on Question	)	30		
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2. Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or 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 are constructed as a construct feature activities.	Baseline Conditions 30 de the ESQD a facilities where	Surface Cleanup 0 3:0 0 cleanur arc', basec	Subsurface Cleanup 0 30 0 0 d on Question	)	30		
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or 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 and the following table is used to determine scores associated.	Baseline Conditions 30 de the ESQD a facilities where	Surface Cleanup 0 3:0 0 cleanur arc', basec	Subsurface Cleanup 0 30 0 0 d on Question	)	30		
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or 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 are constructed as a construct feature activities.	Baseline Conditions 36 (de the ESQD a facilities where	Surface Cleanup 0 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Subsurface Cleanup 0 3( 0 0 0 d on Question  ay congregate	)	30		
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: 5. Are there future plans to locate or construct features or 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 and the facility or feature.	Baseline Conditions 30 Get the ESQD a facilities where vities with the location Baseline	Surface Cleanup 0 30 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Subsurface Cleanup 0 30 0 0 d on Question  ay congregate	)	30		
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: 5. Are there future plans to locate or construct features or 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 and the facility or feature.	Baseline Conditions 36 (de the ESQD a facilities where	Surface Cleanup 0 30 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Subsurface Cleanup 0 3( 0 0 0 d on Question  ay congregate	)	30		
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or 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 and the following table is used to determine scores associated.	Baseline Conditions 30 Get the ESQD a facilities where vities with the location Baseline	Surface Cleanup 0 30 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Subsurface Cleanup 0 30 0 0 d on Question  ay congregate	)	30		
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: 5. Are there future plans to locate or construct features or 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 in the following table is used to determine scores associated receptors (future use activities):	Baseline Conditions 30 de the ESQD a facilities where vities with the location Baseline Conditions	Surface Cleanup 0 30 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Subsurface Cleanup 0 30 0 0 d on Question  ay congregate  onal human Subsurface Cleanup	Score	30		
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: 5. Are there future plans to locate or construct features or 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 is used to determine scores associated receptors (future use activities):	Baseline Conditions 30 de the ESQD a facilities where vities with the location Baseline Conditions	Surface Cleanup 0 3 3 arc', based a people ma on of addition Surface Cleanup 0 3 3	Subsurface Cleanup 0 3(0) d on Question  ay congregate  bonal human Subsurface Cleanup 0 3(	Score	30		
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: 5. Are there future plans to locate or construct features or 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 in the following table is used to determine scores associated receptors (future use activities):	Baseline Conditions 30 de the ESQD a facilities where vities with the location Baseline Conditions	Surface Cleanup 0 3 3 arc', based a people ma on of addition Surface Cleanup 0 3 3	Subsurface Cleanup 0 3(0) d on Question  ay congregate  bonal human Subsurface Cleanup 0 3(	Score	30		
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Site Accessibility			ibility					
	sed to determine scores associated wi	th site accessi Baseline	Surface	Subsurface				
	Description	Conditions		Cleanup				
Full Assessibility	No barriers to entry, including	00	0.					
Full Accessibility	signage but no fencing	80	8	0 8	0			
A4	Some barriers to entry, such as		-		-			
Moderate Accessibility	barbed wire fencing or rough terrain Significant barriers to entry, such as	55	5	5 5	5			
	unguarded chain link fence or							
Limited Accessibility	requirements for special transportation to reach the site	15	1	5 1	5			
Emiliou 71000551Emily	A site with guarded chain link fence		•					
Managa I landa at	or terrain that requires special							
Very Limited Accessibility	equipment and skills (e.g., rock climbing) to access	5		5	5			
	5,							
Current Use Activi		ndor the corre	ont 1100 00	onorio.	Score			
Select the category that Full Accessibilit	t best describes the site accessibility u	nder the curr	ent use sc	enario:				
Baseline Conditions:					_	80		
Surface Cleanup: Subsurface Cleanup:						80 80		
Future Use Activity	<i>les</i> t best describes the site accessibility u	ndor the futur						
Scient the category tha	it best describes the site accessibility u	naer trie futui	i o use ste	nario.				
Baseline Conditions:								
Surface Cleanup: Subsurface Cleanup:								
Reference(s) for above								
Pasnonsa Altarna	tive No. 1 · No Action (Raseline	Condition	)					
	tive No. 1: No Action (Baseline ed Remedial or Removal Actions' V			native will				
Based on the 'Planne lead to 'Full Accessit	ed Remedial or Removal Actions'			native will		80		
Based on the 'Planne lead to 'Full Accessib Baseline Conditions:	ed Remedial or Removal Actions'			native will		80 80		
Based on the 'Planne lead to 'Full Accessil Baseline Conditions: Surface Cleanup:	ed Remedial or Removal Actions'			native will				
Based on the 'Planne lead to 'Full Accessil Baseline Conditions: Surface Cleanup: Subsurface Cleanup:	ed Remedial or Removal Actions' ' oillty'.			native will		80		
Based on the 'Planne lead to 'Full Accessit Baseline Conditions: Surface Cleanup: Subsurface Cleanup: Response Alternal Please enter site acc	ed Remedial or Removal Actions' ' illity'.  tive No. 2: ressibility information in the 'Plan	Worksheet,	this alter			80		
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Potential Contac	ct Hours Input Factor Categor	ies							
The following table is	used to determine scores associated will	Baseline	Surface	Subsurfac	e				
Many Hours	Description ≥1,000,000 receptor-hrs/yr	Conditions 120		O Cleanup 90	30				
Some Hours	100,000 to 999,999 receptor hrs/yr	70	)	50	20				
Few Hours Very Few Hours	10,000 to 99,999 receptor-hrs/yr <10,000 receptor-hrs/yr	40 15		20 10	10 5				
Current Use Activit	les:								
'Current and Future A	determined for baseline conditions for c ctivities' Worksheet, the Total Potential love, this corresponds to a input factor s	Contact Time	is:		•		receptor 000 hrs/yr 120 Score		
'Current and Future A	determined for baseline conditions for f ctivities' Worksheet, the Total Potential love, this corresponds to a input factor s	Contact Time		Based on the			receptor hrs/yr Score		
	ve No. 1: No Action (Baseline Cond								
	ned Remedial or Removal Actions' \ Iternative is implemented.	Vorksheet,	land us	e activities	will				
Total Potential Con	itact Time, based on the contact tin	ne listed for	r curren	t use activit	ies	1,460,0	200		
Based on the table ab	ove, this corresponds to input factor sco	res of:				Score			
Baseline Conditions: Surface Cleanup:						•	120 90		
Subsurface Cleanup: Response Alternati	lyo No. 2:						30		
Not enough inform	ation has been entered in the 'Plan  Delta Please complete the table before								
Total Potential Con	tact Time								
Based on the table ab Baseline Conditions:	love, this corresponds to input factor sco	res of:				Score			
Surface Cleanup:									
Subsurface Cleanup: Response Alternation	ve No. 3:								
Not enough inform	ation has been entered in the 'Plan t. Please complete the table before								
Total Potential Con						C			
Baseline Conditions:	nove, this corresponds to input factor sco					Score			
Surface Cleanup: Subsurface Cleanup:									
Response Alternati	ve No. 4:								
	ation has been entered in the 'Plan t. Please complete the table before								
Total Potential Con	stact Time love, this corresponds to input factor sco	roc of				Score			
Baseline Conditions: Surface Cleanup:	ove, this corresponds to input factor scc					00070			
Subsurface Cleanup:									
Response Alternati	<i>lve No. 5:</i> ation has been entered in the 'Plan	nod Domod	lial or D	omoval					
	t. Please complete the table before								
Total Potential Con	stact Time love, this corresponds to input factor sco	ires of				Score			
Baseline Conditions:	ove, the corresponds to input factor see	100 011							
Surface Cleanup: Subsurface Cleanup:									
Response Alternati									
	ation has been entered in the 'Plan  . Please complete the table before								
Total Potential Con	tact Time								
Based on the table ab	ove, this corresponds to input factor sco	res of:				Score			
Baseline Conditions: Surface Cleanup:									
Subsurface Cleanup:									

OBI/OD area. See the "Safety Buffer Areas" category for safety fars and kick-outs.  Areas where the serviceability of stored munitions or weapons systems are tested. Testing may include components, partial functioning or complete functioning or of stockpile or developmental items.  Burial PIX The location of a burial of large quantities of MEC Rems.  Areas well or ode burial of large quantities of MEC Rems.  Areas used for ode burial of large quantities of MEC Rems.  Areas used for ode burial of large quantities of MEC Rems.  Areas could not a burial of large quantities of MEC Rems.  Areas could on a burial of large quantities of MEC Rems.  Areas outside of large tareas, test ranges, or OB/OD areas that were burial rems.  Areas outside of larget areas, test ranges, or OB/OD areas that were burial rems.  Areas outside of larget areas, test ranges, or OB/OD areas that were burial rems.  Areas outside of larget areas, test ranges, or OB/OD areas that were burial rems.  Areas outside of larget areas, test ranges, or OB/OD areas that were burial rems.  Areas outside of larget areas, test ranges, or OB/OD areas that were burial rems.  Areas outside of larget areas, test ranges, or OB/OD areas that were burial rems.  Areas outside of larget areas, test ranges, or OB/OD areas.  Ary facility used for the storage of military munitions that do not have a contain kick-outs from OB/OD areas.  Ary facility used for the storage of military munitions that do not have a contain large areas and that ranges are storage.  Explosive-Related industrial facility burial rems.  Explosive-Related industrial facility burial rems.  Former munitions are and that rems.  Baseline Contilions and on the Cased Munitions Information Worksheet:  Of It the deepers indusive depth:  Baseline Contilion MEC located surface and subsurface.  Are Cleanup: Intrusive depth overlaps with subsurface.  Are Conditions of MEC located any subsurface.  Baseline Contilion MEC located only subsurface. Baseline Contilion of MEC located only subsurface. Baseline Cont	Amount of MEC I	nput Factor Categories						
Description Conditions Consults Consult	The following table is us	sed to determine scores associated wi			Subsurface			
Function Test Runge  Function								
disposed of by spen burn or spen determined in the care activity area of an excellent present of a control to the care activity area of an excellent present of a control to the care activity area of an excellent present of a control to the care activity and the control to the care activity and the control to the care activity and the control to the care activity of a control to the care activity of activity of a control to the care activity of a cont	Target Area		180	120	)	30		
deciration methods. This category effects to the core activity area of an office S to the core activity area of an OR/OD area. See the "Safety buffer Avena" of the Core of Carlo D area as the third Safety Buffer Avena of Carlo D area as the third Test and the Carlo D area as the safety of the Carlo D area as the core of Carlo D area as the safety of the Carlo D area as the core of Carlo D ar								
OBCO pare. See the "Salety Buffer Areas" charges for salety fam and bick-outs.  Areas where he expriseability of stored muniflance or veraginary.  Function Test Range  Function Test Range  Burlial PI  The location of an aburlial of large quantities of MCP Cames.  Areas sead for conducting military experience or or or other conducting military experience or or other conducting or or other conducting or other conducting or or other conducting or other conduct								
Areas - Language from the production of the prod	OB/OD Area		180	110	)	30		
Function Test Range  Function Test Range  Suprising any leaded Testing may include components, partial functioning of stockpiler of desegmental believes greater and leader of the testing may include components, partial functioning of stockpiler of desegmental believes.  Burial Pit Tele location of a burist of large quantities of MEC interns. You worknown of the		Areas" category for safety fans and						
Surcisor Test Range Function Test Range Sylems are relevant. Testing may include compenents, partial functioning or complete f								
Function lest larger  functioning or complete functioning functioning or complete functioning functioning or complete functioning for stockagle or developmental liters.  Burial Pit  The location of a burial of large quantities of MEC liters Areas used for conducting military Areas used for conducting military  firing Points  The location from which a projectile, geneade, ground signal, rocket, guided missile, or other device is to be lightled, projectile, guided missile, or other device is to be lightled, projectile, guided missile, or other device is to be lightled, projectile, guided missile, or other device is to be lightled, projectile, guided missile, or other device is to be lightled, projectile, or released.  Areas outside of target areas, text ranges, or ORIOZ areas that were designed to act as a safety zone to combin multipose that do not hit targute or to contain NGS-outs from Any facility used for the storage of military multions, such as outh- covered magazines, adverage outh magazines, and open-air storage  Explosive-Related ministration facility in the storage of military multions, such as outh- covered magazines, adverage outh magazines, and open-air storage  Explosive related ministration facility in the storage of military multions, such as outh- magazines, and open-air storage  Explosive related ministration facility in the storage of military multions, such as outh- magazines, and open-air storage  Explosive related  former multions manufacturing or deministration facility in the storage  Explosive related  former multions manufacturing or deministration for the storage  Storage cleaning  Minimum MEC Depth Relative to the Maximum Intrusive Depth Input  Factor Categories  Current lists Activities  The deepens intrusive depth order of the storage  Baseline condition. MEC located surface and subsurface.  Explosive related  Conditions MEC located surface and subsurface.  Baseline Condition. MEC located surface and subsurface.  Conditions MEC located surface and subsurface.  Baseline Condition. ME								
Burlial Pit	Function Test Range		165	90	) :	25		
Burial Pit The location of a burial of large quantities of MC Items. 140 140 10  Areas used for conducting military exercises in a simulated conflict area or war zone  The location from which a projectile, grenate, ground signal, rocket, guided missile, or other deserts in the lighting, projectile, grenate, ground signal, rocket, guided missile, or other deserts in the lighting, projectile, guided missile, or other deserts in the lighting, projectile, guided missile, or other deserts in the lighting, projectile, guided missile, or other deserts in the lighting, projection or contain which clusts from Charles and the lighting of th	•							
Quantities of MEC Items.  40 10 10  Areas used for conducting military exercises in a simulated conflict area or var zone  The location from which a projectile, greade, ground signal, rocket, guided missile, or other device is to be ignited, promotisoral crocket, guided missile, or other device is to be ignited, promotisoral rocket, guided missile, or other device is to be ignited, promotisoral crocket, guided missile, or other device is to be ignited, propelled, or released.  Areas outside of target areas, test ranges, or OROOD areas that were contain municinism that do not be contain municinism, such as earth- covered magazines, and open air strong  Explosive-Related industrial Facility overed magazines, and open air strong  Explosive-Related industrial Facility overed magazines, and open air strong  Explosive-Related industrial Facility overed magazines, and and TNT overed magazines, and open air strong  Explosive-Related industrial Facility overed magazines, and open air strong  Explosive-Related industrial Facility overed magazines, and that overed magazines, and that overed magazines, and open air strong  Explosive-Related industrial Facility overed magazines, and that overed magazines, and that overed magazines, and that overed magazines, and open air strong  Explosive-Related industrial Facility overed magazines, and open air strong  Explosive-Related industrial Facility overed magazines, and open air strong  Explosive-Related industrial Facility overed magazines, and that overed magazines, and		of stockpile or developmental items.						
Acres used for conducting military exercises in a simulated conflict area of the searches of the search	Burial Pit		140	140	)	10		
The location from which a projectile, granade, ground signal, rocket, guided missile, or other device is to the ignited, propelled, or released.  Acrass cuckide of target areas, test are								
Firing Points  The location from which a projectile, grenade, ground signal, rocket, guided missile, or other device is to be ignited, propelled, or released.  Areas outside of target areas, test tranges, or OB/OD areas that were designed to act as a safety zone to contain muniforus hat do not hit targets or to combin Mcs.couts from Any facility content face, or other or other or the contain muniforus hat do not hit targets or to combin Mcs.couts from Any facility content face, and the content muniforus has can'the covered magazines, above-ground 25 10 5 magazines, and open-air storage of military munificons, such as earth-covered magazines, and open-air storage areas.  Explosive-Related, Including of demilitarization sites and TNT 20 10 5 magazines. Active and TNT production plants  Salect the category that best describes the most hazardous amount of MEC:  Score  The special area as a second content of the	Maneuver Areas		115	15	5	5		
Firring Points  grenade, ground signal, rocket, guided missile, or other device is to be legited, propelled, or released.  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 thit targets or to contain suck-outs from Any facility used for this storage of military munitions, such as earth-covered magazines, above ground 25 10 5 military munitions such as earth-covered magazines, above ground areas.  Explosive-Related former munitions manufacturing or demilitarization sites and TNT 20 10 5 magazines, above ground areas.  Explosive-Related industrial Facility production plants  Select the category hat best describes the most hazardous amount of MEC:  Secre  Secre  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 debepost intrusive depth:  The depest intrusive depth:  Baseline Condition: MEC located surface and subsurface.  After Cleanup: Intrusive depth overlaps with subsurface and subsurface.  After Cleanup: Intrusive depth overlaps with subsurface Baseline Condition: MEC located only subsurface. Baseline Condition: MEC located and subsurface, based on the Victoria of the collection of the Coll								
spiring Points  guided missile, or other device is to be lighted, propelled, or released.  Areas outside of target areas, test ranges, or DB/DD areas that were designed to act as a safety zone to contain munitions that do not hit targets or to contain incursions that do not hit targets or to contain incursions that do not hit targets or to contain lick-outs from OB/DD areas.  Any facility used for the storage of military munitions, such as earth-covered magazines, above-ground 25 10 5 magazines, and open-aid storage reported industrial Facility production plants  Select the category that best describes the <i>most hazardous</i> amount of MEC:  Secre  Explosive-Related industrial Facility production plants  Select the category that best describes the <i>most hazardous</i> amount of MEC:  Secre  Explosive-Related industrial Facility production plants  Select the category that best describes the <i>most hazardous</i> amount of MEC:  Secre  Explosive-Related industrial Facility production plants  Select the category that best describes the <i>most hazardous</i> amount of MEC:  Secre  Explosive-Related industrial Facility production plants  Select the category that best describes the <i>most hazardous</i> amount of MEC:  Secre  Explosive-Related industrial Facility production plants  Select the category that best describes the <i>most hazardous</i> amount of MEC:  Secre  Explosive-Related industrial Facility production plants  Subsubsriare MEC deanup:  The dependent of the Maximum Intrusive Depth Input  Factor Categories  Current Use Activities  The adependent indusive depth:  Baseline Condition or MEC located surface and subsurface.  And Cleanup: Intrusive depth:  Baseline Condition MEC located surface and subsurface.  And Cleanup: Intrusive depth overlaps with minimum MEC depth with subsurface.  Because the shallowest minimum MEC depth is less than or eq								
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 sumitions that do not hit targets or to contain such zone and zone zone zone zone zone zone zone zone	Firing Points	guided missile, or other device is to	75	10	)	5		
Safety Buffer Areas  Safety Buffer Areas  Safety Buffer Areas  Contain munitions that do not hit largets or to contain kits with start of the storage of military munitions, such as earth-storage areas.  Storage  Covered magazines, above-ground 25 10 5 magazines, above-ground 25 10 5 magazines, and open-air storage areas.  Explosive-Related former munitions manufacturing or definitiarization sites and TNT 20 10 5 magazines. Above-ground 25 magazines, and areas area		pe ignited, propelled, or released.						
Safety Buffer Areas designed to act as a safety zone to contain munitions that do not hit targets or to contain kick-outs from OR/00 areas.  Any facility used for the storage of military munitions, such as earth-Storage convered magazines, above-ground 25 10 5 military munitions such as earth-Ground and search-Ground								
Safety Buffer Areas contain munitions that do not hit targets or to contain kick couls from OB/OD areas.  Any facility used for the storage of military munitions, such as earth-Covered magazines, and open-air storage areas.  Explosive-Related covered magazines, and open-air storage areas.  Explosive-Related demilitarization sites and TNT 20 10 5 magazines, and open-air storage areas.  Explosive-Related demilitarization sites and TNT 20 10 5 magazines, and open-air storage areas.  Explosive-Related demilitarization sites and TNT 20 10 5 magazines, and open-air storage areas.  Explosive-Related demilitarization sites and TNT 20 10 5 magazines, and open-air storage areas.  Explosive-Related demilitarization sites and TNT 20 10 5 magazines, and the category that best describes the most hazardous amount of MEC:  **Score***  **Target Area**  Baseline Condition:  **Score**  **Target Area**  Baseline Condition:  **Score**  **Target Area**  Baseline Condition:  **Score**  **Target Area**  Baseline Condition:  **Windowst minimum MEC depth, based on the 'Cased Munitions Information' Worksheet:  **O ft The deepest Intrusive depth:  **The deepest Intrusive depth:  **Description:  **Baseline Condition:  **MEC located surface and subsurface and subsurface.  **After Cleanup: Intrusive depth worksps with subsurface.  **MEC.**  Baseline Condition:  **MEC located surface and subsurface.  **After Cleanup: Intrusive depth does not overlap with subsurface.  **After Cleanup: Intrusive depth does not overlap with minimum MEC depth.  **Baseline Condition:  **MEC located only subsurface.  **Baseline Condi								
OB/OD areas. Any facility used for the storage of military munitions, such as earth-covered magazines, and open-air storage areas.  Explosive-Related industrial Facility form munitions manufacturing or demilitarization sites and TNT production plants  Select the category that best describes the most hazardous amount of MEC:  Score  Tarsete Axes.  Baseline Conditions:  Sufface Cleanup:  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:  The table below is used to determine scores associated with the minimum MEC depth relative to the maximum intrusive depth:  Baseline Condition: MEC located surface and subsurface.  After Cleanup: Intrusive depth does not overlap with subsurface MEC.  240 150 95  Baseline Condition: MEC located surface and subsurface.  After Cleanup: Intrusive depth does not overlap with minimum MEC depth overlaps with minimum MEC depth does not overlap with minimum MEC depth overlaps with minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth does not overlap with minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth does not overlap with minimum MEC depth the infortion or After Cleanup: Intrusive depth does not overlap with minimum MEC depth the infortion or After Cleanup: Intrusive depth does not overlap with minimum MEC depth.  Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth does not overlap with minimum MEC depth.  Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth will overlap after cleanup. MECs are located at both the surface and subsurface, After Cleanup: Intrusive depth overlaps with bill overlaps with bill overlaps with subsurface and subsurface, After Cleanup: Intrusive depth overlaps with bill overlaps with bill overlaps with subsurface and subsurface, After Cleanu	Safety Buffer Areas	contain munitions that do not hit	30	10	)	5		
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Storage covered magazines, above-ground 25 10 5 magazines, and open-air storage areas.  Explosive-Related industrial Facility production plants  Select the category that best describes the <i>most hazardous</i> amount of MEC:  Scare  Tarses.  Select the category that best describes the <i>most hazardous</i> amount of MEC:  Scare  Tarses.  Select the category that best describes the <i>most hazardous</i> amount of MEC:  Scare  Tarses.  Select the category that best describes the <i>most hazardous</i> amount of MEC:  Scare  Tarses.  Scare  Tarses.  Surface Cleanup:  Subsurface Cleanup:  Subsurface Cleanup:  Subsurface Cleanup:  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:  The deepest Intrusive depth:  Baseline Surface  Conditions Scleanup  Cleanup  Baseline Condition: MEC located surface and subsurface.  After Cleanup: Intrusive depth overlaps with subsurface  MEC.  After Cleanup: Intrusive depth overlaps with minimum MEC depth.  Baseline Condition: MEC located only subsurface and subsurface.  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 overlaps with minimum MEC depth.  150 N/A 95  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 overlaps with minimum MEC depth.  150 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, After Cleanup: Intrusive depth overlaps with both the surface and subsurface, After Cleanup: Intrusive depth overlaps with both the surface and subsurface, After Cleanup: Intrusive depth overlaps with		Any facility used for the storage of						
magazines, and open-air storage areas.  Explosive-Related industrial Facility  Former munitions manufacturing or demilitarization sites and TNT 20 10 5  Solect the category that best describes the <i>most hazardous</i> amount of MEC:  Solect the category that best describes the <i>most hazardous</i> amount of MEC:  Solect the category that best describes the <i>most hazardous</i> amount of MEC:  Solect the category that best describes the <i>most hazardous</i> amount of MEC:  Solect the category that best describes the <i>most hazardous</i> amount of MEC:  Solect the category that best describes the <i>most hazardous</i> amount of MEC:  Solect the category that best describes the <i>most hazardous</i> amount of MEC:  Solect the category that best describes the <i>most hazardous</i> amount of MEC:  Solect the category that best describes the <i>most hazardous</i> amount of MEC:  Solect the category that best describes the <i>most hazardous</i> amount of MEC:  Solect the category that best describes the <i>most hazardous</i> amount of MEC:  Solect the category that best describes the <i>most hazardous</i> amount of MEC:  Solect the category that best describes the <i>most hazardous</i> amount of MEC:  Solect the category that best describes the <i>most hazardous</i> amount of MEC:  Solect the category that best describes the <i>most hazardous</i> amount of MEC:  Solect the category that best describes the <i>most hazardous</i> amount of MEC:  Solect the category that best describes the most described the minimum MEC depth overlaps with minimum MEC depth.  Solect the category that best depth does not overlap with subsurface and subsurface, and subsurface, based in the Munitions but he surface and subsurface, batter of the Munitions but he category for this input factor is 'Baseline Condition: MEC located and solect and the full thin the minimum MEC depth.  Solect the category for this input factor is 'Baseline Condition: MEC located and subsurface, batter of the Munitions but he surface and subsurface, and the category for this input factor is 'Baseline Condition: MEC located and subsurface,	Storage		25	10	)	5		
Explosive-Related Industrial Facility    Former munitions manufacturing or demilitarization sites and TNT		magazines, and open-air storage						
Industrial Facility production plants  Select the category that best describes the <i>most hazardous</i> amount of MEC:  Target Area  Baseline Conditions:  Surface Cleanup:  Subsurface Cleanup:  Subsurface Cleanup:  Subsurface Cleanup:  Subsurface Cleanup:  The deepest intrusive depth, based on the 'Cased Munitions Information' Worksheet:  The deepest intrusive depth:  The deepest intrusive depth:  Baseline Surface Subsurface Conditions:  Baseline Conditions:	Evolosiva Palated	Former munitions manufacturing or						
Select the category that best describes the <i>most hazardous</i> amount of MEC:  Target Area Baseline Conditions: Surface Cleanup: Subsurface Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface. After Cleanup: Intrusive depth does not overlap with subsurface MEC. Subsurface Condition: MEC located only subsurface. Baseline Condition: MEC located and subsurface. Baseline Condition: MEC located and subsurface. Baseline Condition: MEC located surface and subsurface. Baseline Condition: MEC located s	•		20	10	)	5		
Baseline Condition: MEC located surface and subsurface.  Baseline Condition: MEC located surface and subsurface.  Baseline Condition: MEC located only subsurface.  Baseline Condition: MEC located surface and subsurface.  Baseline Condition: MEC located only subsurface.	Calcat the actoriory that		omount of N	AEC.		Score		
Surface Cleanup: Subsurface Condition: MEC depth, based on the 'Cased Munitions Information' Worksheet: Of the Saseline Condition: MEC depth, based on the 'Cased Munitions Information' Worksheet: Of the Saseline Condition: MEC depth subsurface Subsurface Conditions Cleanup Saseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface. MEC. Saseline Condition: MEC located surface and subsurface, After Cleanup: Intrusive depth does not overlap with subsurface MEC. Saseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with Saseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with Saseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth does not overlap with minimum MEC depth.  So N/A 25  Because the shallowest minimum MEC depth is less than or equal to the depest 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	Target Area	t best describes the <i>most nazardous</i>	amount of K	/IEU:		30016		
Subsurface Cleanup:  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:  The deepest intrusive depth:  The deepest intrusive depth:  Baseline Surface Condition:  Baseline Surface Subsurface Conditions Cleanup 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 overlaps with subsurface, After Cleanup: Intrusive depth overlaps 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 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, 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	Baseline Conditions:							
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The shallowest minimum MEC depth, based on the 'Cased Munitions Information' Worksheet:  The deepest intrusive depth:  The table below is used to determine scores associated with the minimum MEC depth relative to the maximum intrusive depth:  Baseline Surface Subsurface Conditions Cleanup  Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.  Baseline Condition: MEC located surface and subsurface, After Cleanup: Intrusive depth does not overlap with subsurface MEC.  Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.  Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth does not overlap with minimum MEC depth.  Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth does not overlap with minimum MEC depth.  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			in minuasi	е Бери	· mpat			
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Conditions Cleanup Cleanup  Baseline Condition: MEC located surface and subsurface  MEC. 240 150 95  Baseline Condition: MEC located surface and subsurface, After Cleanup: Intrusive depth overlaps with subsurface  MEC. 240 50 25  Baseline Condition: MEC located surface and subsurface, After Cleanup: Intrusive depth does not overlap with subsurface MEC.  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								
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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	Baseline Condition: MEC							
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	Condition or After Clean minimum MEC depth.	iup: intrusive depth overlaps with	150	N/A	4	95		
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	Baseline Condition: MEC							
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			50	N/A	A :	25		
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								
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								
located surface and subsurface. After Cleanup: Intrusive depth overlaps with	both the surface and	subsurface, based on the 'Muniti	ons, Bulk Ex	plosive I	nfo'			
							240 Score	

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Futura II.a Antivitia		
Future Use Activities Deepest intrusive		
depth:	ft	
	Caara	
Not enough information has been entered to determine the input factor category.  Response Alternative No. 1: No Action (Baseline Condition)	Score	
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet):	<b>0</b> 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)	<b>0</b> ft	
Because the shallowest minimum MEC depth is less than or equal to the deepest		
intrusive depth, the intrusive depth overlaps. MECs are located at both the surface and subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the		
category for this input factor is 'Baseline Condition: MEC located surface and		
subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.'		
	Score	
Baseline Conditions: Surface Cleanup:	240	
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:	30016	
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	
maximum mitusive Deptil		
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.	Coore	
Baseline Conditions:	Score	
Surface Cleanup:		
Subsurface Cleanup:		
Response Alternative No. 5:	£4	
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet):  Not enough information has been entered in the 'Planned Remedial or Removal	ft	
Actions' Worksheet. Please complete the table before returning to this section.		
	£L	
Maximum Intrusive Depth	ft	
Not enough information has been entered to calculate this input factor.		
Not enough information has been entered to calculate this input factor.	Score	
Baseline Conditions:	1	
Surface Cleanup:		
Subsurface Cleanup:		

Not enough informat	e No. 6: depth (from the 'Planned Remedial of ion has been entered in the 'Plan Please complete the table before	ned Remed	ial or Rei	noval			ft		
Maximum Intrusive I	Depth						ft		
Not enough informat	ion has been entered to calculate	this input	factor.		Scor				
Baseline Conditions: Surface Cleanup: Subsurface Cleanup:					3001				
Is there any physical or the area (e.g., frost hea subsurface MEC items? If "yes", describe the na overland water flow) on	al Input Factor Categories historical evidence that indicates it is ve, erosion) to expose subsurface ME ture of natural forces. Indicate key a a map as appropriate (attach a map	C items, or m	ove surfa	tion (e.g.,	No				
separate worksheet).									
The following table is us	ed to determine scores associated wil	Baseline	Surface	Subsurface					
Possible		Conditions 30 10	. 3		10 10				
Unlikely	n above, migration potential is 'U			·	Score	•			
Baseline Conditions: Surface Cleanup:	n above, migration potential is c	illikely.			3007	10 10			
Subsurface Cleanup:						10			
Reference(s) for above i	nformation:								
Cased munitions info	n Input Factor Categories rmation has been inputed into the p, bulk explosives do not comprise				o'				
The 'Amount of MEC' that the MEC items fr assumption is that the	category is 'Target Area'. It can com this category are DMM. Ther ie MEC items in this MRS are UXO	not be autor efore, the c	matically onservat	assumed					
	ment shown that MEC in the OB/OD As listed in the 'Munitions, Bulk Explosi				Yes				
	<ul> <li>Submunitions</li> <li>Rifle-propelled 40mm projectiles (off</li> </ul>	en called 40r	nm grena	des)					
	<ul> <li>Munitions with white phosphorus fille</li> <li>High explosive anti-tank (HEAT) rou</li> </ul>								
	· Hand grenades · Fuzes								
	<ul> <li>Mortars</li> <li>d in the 'Munitions, Bulk Explosive</li> </ul>	Info' Worksl	neet were	identified as					
'fuzed'.	ed to determine scores associated wit	h MEC classit	ication ca	tegories:					
LIVO Caradal Cara	UXO Special Case	Baseline Conditions 180		Subsurface Cleanup	80				
UXO Special Case		110	11	0 1	10				
Fuzed DMM Special Case Fuzed DMM	9	105 55	10 5	5	05 55				
Unfuzed DMM Bulk Explosives		45 45			45 45				
Based on your answe	ers above, the MEC classification i	s 'UXO Spec	ial Case		Scor	9			
Baseline Conditions: Surface Cleanup:						180 180			
Subsurface Cleanup:  MEC Size Input Fa	actor Categories					180			
	ed to determine scores associated wil	h MEC Size: Baseline	Surface	Subsurface					
	Description	Conditions	Cleanup	Cleanup					
	Any munitions (from the 'Munitions, Bulk Explosive Info' Worksheet)								
Small	weigh less than 90 lbs; small enough for a receptor to be able to move and initiate a detonation	40	4	0	40				
	All munitions weigh more than 90 lbs; too large to move without								
Large Based on the definitions Info' Worksheet), the M	equipment above and the types of munitions at EC Size Input Factor is:	0 the site (see	'Munitions	0 , Bulk Explosi	o ve Smal	1			
Baseline Conditions:	F				Scor				
Surface Cleanup: Subsurface Cleanup:						40 40			

Input Factors Worksheet

## Scoring Summary

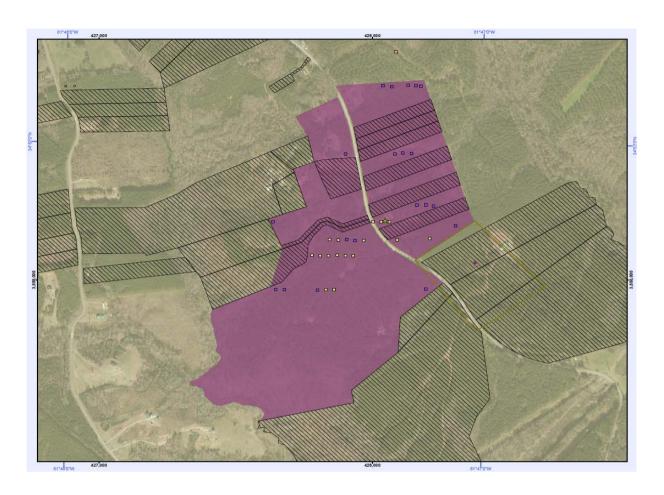
Site ID: Proposed Mortar/Grenade Are	a. Scoring Summary for Current Use Activities	
Date: 7/16/20	Response Action Cleanup:	No Response Action
Input Factor	Input Factor Category	Score
I. Energetic Material Type	High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional 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. Ene	ergetic Material Type	High Explosive and Low Explosive Filler in Fragmenting Rounds	100
	Additional Human Receptors . Site Accessibility		
	tential Contact Hours		
	. Amount of MEC	Target Area	180
VI. Minimum MEC De	epth Relative to Maximum Intrusive Depth		
VII.	Migration Potential	Unlikely	10
VIII	. MEC Classification	UXO Special Case	180
	IX. MEC Size	Small	40
		Total Score Hazard Level Category	510 4

Site ID: Proposed Mortar/Grenade Are	c. Scoring Summary for Response Alternative 1: No Action (Baselin	e Condition)
Date: 7/16/201	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	
	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?	N	lo
Are cultural resources located within the MRS or within the ESQD arc?	N	lo
Are significant ecological resources located within the MRS or within the ESQD arc?	N	lo

## **MEC HA Summary Information** Comments 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: ZAPATA, 2011, Work Plans For the RI/FS C. Historical Clearances 1. Have there been any historical clearances at the site? No, none a. What year was the clearance performed? b. Provide a description of the clearance activity (e.g., extent, depth, amount of munitionsrelated items removed, types and sizes of removed items, and whether metal detectors were Reference(s) for Part C: D. Attach maps of the site below (select 'Insert/Picture' on the menu bar.) See Exhibit 8-7.



Proposed 60mm Mortar Area 7/16/2013

## **Cased Munitions Information**

	Munition Type (e.g., mortar, projectile, etc.)		Munition Size Units	Mark/ Model	Energetic Material Type		Fuzing Type	Fuze Condition	Location of	Comments (include rationale for munitions that are "subsurface only")
					Spotting				Surface and	
1	Mortars	60	mm	м83	Charge	No	UNK		Subsurface	
2										
3										
4										
5										
6										
7										
8										
9										
10										
11 12										
12										
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
Illuminating
Compound Comments 10

Reference(s) for table above:

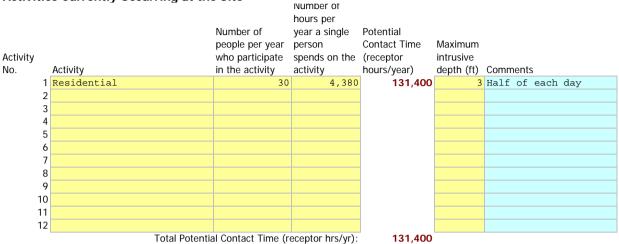
Page H-50

3

Site ID: Proposed 60mm Mortar Area

Date: 7/16/2013

#### **Activities Currently Occurring at the Site**



Maximum intrusive depth at site (ft):

Reference(s) for table above:

# 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	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						
1	10						
1	11						
1	12				-		
		Total Potentia	al Contact Time (r Max		depth at site (ft):		

Reference(s) for table above:

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

Planned	Remedial	or	Removal	Actions
---------	----------	----	---------	---------

oonse on 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
		Moderate			
1 No Action (Baseline Condition)	0	Accessibility	No	No MEC cleanup	
2					
3					
4					
5					
6					
ording to the 'Summary Info' worksheet, no					

Reference(s) for table above:

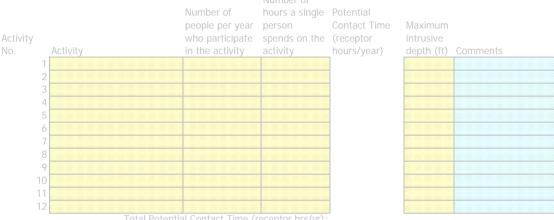
Remedial-Removal Action Worksheet
October 2014
Revision 0

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.





otal Potential Contact Time (receptor hrs/yr):

Maximum intrusive depth at site (ft):

Reference(s) for table above:

<b>Energetic Material Type Input Factor Categor</b>	ries						Commen	ts		
The following table is used to determine scores associated w are listed in order from most hazardous to least hazardous.		etic materia	ls. Materials							
	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 t Worksheet falls under the category 'Spotting Charge'.	he 'Munition	s, Bulk Exp	plosive Info'	Score						
g.										
Baseline Conditions:					40					
Surface Cleanup:					40 40					
Subsurface Cleanup:					40					
Location of Additional Human Receptors Inp	ut Factor	Categori	es							
What is the Explosive Safety Quantity Distance (ESQD) from Explosive Safety Submission for the MRS?	om the Explos	sive Siting F	Plan or the		f	et				
2. Are there currently any features or facilities where people within the ESQD arc?	may congreç	gate within	the MRS, or	Yes						
Please describe the facility or feature.										
Residential										
	ritiae									
MEC Item(s) used to calculate the ESQD for current use active	ities									
Item #1. Mortars (60mm, Spotting Charge) The following table is used to determine scores associated w		n of additio	onal human							
Item #1. Mortars (60mm, Spotting Charge)	ith the location	Surface	Subsurface							
Item #1. Mortars (60mm, Spotting Charge) The following table is used to determine scores associated w	ith the locatio	Surface Cleanup	Subsurface Cleanup							
Item #1. Mortars (60mm, Spotting Charge) The following table is used to determine scores associated w receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc	Baseline Conditions	Surface Cleanup ) 30	Subsurface Cleanup 0 30							
Item #1. Mortars (60mm, Spotting Charge) The following table is used to determine scores associated w receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside	Baseline Conditions	Surface Cleanup ) 30	Subsurface Cleanup 0 30	)						
Item #1. Mortars (60mm, Spotting Charge) The following table is used to determine scores associated w receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.'	Baseline Conditions	Surface Cleanup ) 30	Subsurface Cleanup 0 30		30					
Item #1. Mortars (60mm, Spotting Charge) The following table is used to determine scores associated w receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside	Baseline Conditions	Surface Cleanup ) 30	Subsurface Cleanup 0 30	)	30 30					
Item #1. Mortars (60mm, Spotting Charge) The following table is used to determine scores associated w receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions:	Baseline Conditions	Surface Cleanup ) 30	Subsurface Cleanup 0 30	)						
Item #1. Mortars (60mm, Spotting Charge) The following table is used to determine scores associated w receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or features or features.	Baseline Conditions 30 the ESQD a	Surface Cleanup ) 30 ) ( urc', based	Subsurface Cleanup 0 30 0 (	)	30					
Item #1. Mortars (60mm, Spotting Charge) The following table is used to determine scores associated w receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or favithin the MRS, or within the ESQD arc?	Baseline Conditions 30 the ESQD a	Surface Cleanup ) 30 ) ( urc', based	Subsurface Cleanup 0 30 0 (	)	30					
Item #1. Mortars (60mm, Spotting Charge) The following table is used to determine scores associated w receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or features or features.	Baseline Conditions 30 the ESQD a	Surface Cleanup ) 30 ) ( urc', based	Subsurface Cleanup 0 30 0 (	)	30					
Item #1. Mortars (60mm, Spotting Charge) The following table is used to determine scores associated w receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or favithin the MRS, or within the ESQD arc?	Baseline Conditions 30 the ESQD a	Surface Cleanup ) 30 ) ( urc', based	Subsurface Cleanup 0 30 0 (	)	30					
Item #1. Mortars (60mm, Spotting Charge) The following table is used to determine scores associated w receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or favithin the MRS, or within the ESQD arc?	th the location  Baseline Conditions 30 C the ESOD a	Surface Cleanup ) 30 ) ( urc', based	Subsurface Cleanup 0 30 0 (	)	30					
Item #1. Mortars (60mm, Spotting Charge) The following table is used to determine scores associated w receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or favithin the MRS, or within the ESQD arc? 6. Please describe the facility or feature.	th the location  Baseline Conditions 30 C the ESOD a	Surface Cleanup ) 30 ) ( urc', based	Subsurface Cleanup 0 30 0 (	)	30					
Item #1. Mortars (60mm, Spotting Charge) The following table is used to determine scores associated w receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or fawithin 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 w	Baseline Conditions 30 (Conditions) 4 (Conditions) 4 (Conditions) 5 (Conditions) 5 (Conditions) 6 (Conditions) 7 (Conditions)	Surface Cleanup ) 30 ) ( urc', based	Subsurface Cleanup 0 30 0 0 1 on Question	)	30					
Item #1. Mortars (60mm, Spotting Charge) The following table is used to determine scores associated w receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or fewithin 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.	Baseline Conditions 30 (Conditions) 4 (Conditions) 4 (Conditions) 5 (Conditions) 5 (Conditions) 6 (Conditions) 7 (Conditions)	Surface Cleanup ) 3( ) ( urc', based  people ma	Subsurface Cleanup 0 30 0 0 1 on Question	)	30					
Item #1. Mortars (60mm, Spotting Charge) The following table is used to determine scores associated w receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or fawithin 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 w	Baseline Conditions 33 (the ESQD a	Surface Cleanup ) 3( ) ( urc', based  people ma	Subsurface Cleanup 0 30 0 0 1 on Question  any congregate  anal human Subsurface	)	30	1				
Item #1. Mortars (60mm, Spotting Charge) The following table is used to determine scores associated w receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or fawithin 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 in the Item (s) used to determine scores associated w receptors (future use activities):	Baseline Conditions 30 ( the ESOD a conditions) the ESOD a conditions where the ESOD according to the ESOD acc	Surface Cleanup  30  10  10  10  10  10  10  10  10  10	Subsurface Cleanup  0 30 0  1 on Question  onal human  Subsurface Cleanup  0 30	Score	30	1				
Item #1. Mortars (60mm, Spotting Charge) The following table is used to determine scores associated w receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: 5. Are there future plans to locate or construct features or fawithin 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 to determine scores associated w receptors (future use activities):	Baseline Conditions 33 (the ESQD at the ES	Surface Cleanup  30  10  10  10  10  10  10  10  10  10	Subsurface Cleanup  O 30 O Cleanup  O no Question  O no Question	Score	30	1				
Item #1. Mortars (60mm, Spotting Charge) The following table is used to determine scores associated w receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: 5. Are there future plans to locate or construct features or favithin 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 w receptors (future use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc	Baseline Conditions 30 (Conditions) 30 (Conditions) 31 (Conditions) 32 (Conditions) 33 (Conditions) 34 (Conditions) 35 (Conditions) 36 (Conditions) 36 (Conditions) 36 (Conditions) 37 (Condit	Surface Cleanup  30  10  10  10  10  10  10  10  10  10	Subsurface Cleanup  0 30 0  1 on Question  onal human  Subsurface Cleanup  0 30	Score	30	1				
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Site Accessibility			ibility					
	ised to determine scores associated wi			0.16			-	
	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup				
5 U.A	No barriers to entry, including							
Full Accessibility	signage but no fencing	80	8	0 8	10		-	
Moderate Accessibility	Some barriers to entry, such as barbed wire fencing or rough terrain	55	5	5 1	i5			
Woderate Accessionity	Significant barriers to entry, such as	33			.5			
	unguarded chain link fence or requirements for special							
Limited Accessibility	transportation to reach the site	15	1	5	5			
	A site with guarded chain link fence							
Very Limited	or terrain that requires special equipment and skills (e.g., rock							
Accessibility	climbing) to access	5		5	5			
Current Use Activi	Itles				Score			
Select the category that	at best describes the site accessibility u	ınder the curr	ent use sc	enario:				
Moderate Accessit Baseline Conditions:	oility					55		
Surface Cleanup:						55		
Subsurface Cleanup:						55	-	
Future Use Activit								
select the category that	at best describes the site accessibility u	inder the futu	re use sce	nario:				
Baseline Conditions:								
Surface Cleanup: Subsurface Cleanup:								
Reference(s) for above								
	tive No. 1: No Action (Baseline							
Based on the 'Plann	ed Remedial or Removal Actions'			native will				
Based on the 'Plann lead to 'Moderate Ad Baseline Conditions:	ed Remedial or Removal Actions'			native will		55		
Based on the 'Plann' lead to 'Moderate Ad Baseline Conditions: Surface Cleanup:	ed Remedial or Removal Actions'			native will		55		
Based on the 'Plann' lead to 'Moderate Ad Baseline Conditions: Surface Cleanup:	ed Remedial or Removal Actions'			native will				
Based on the 'Plann- lead to 'Moderate Ad Baseline Conditions: Surface Cleanup: Subsurface Cleanup: Response Alternation	ed Remedial or Removal Actions' coessibility'.  tive No. 2:	Worksheet,	this alter			55		
Based on the 'Plann lead to 'Moderate Ao Baseline Conditions: Surface Cleanup: Subsurface Cleanup: Response Alterna Please enter site acc	ed Remedial or Removal Actions' coessibility'.  tive No. 2: cessibility information in the 'Plan	Worksheet,	this alter			55		
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Potential Conta	ct Hours Input Factor Categor	ies						
The following table is	used to determine scores associated with	Baseline S	Surface	Subsurface				
Many Hours	Description ≥1,000,000 receptor-hrs/yr	Conditions (	Jieanup 90	Cleanup	30			
Some Hours	100,000 to 999,999 receptor hrs/yr	70	50		20			
Few Hours Very Few Hours	10,000 to 99,999 receptor-hrs/yr <10,000 receptor-hrs/yr	40 15	20 10		10 5			
Current Use Activit	tles:							
'Current and Future A	r determined for baseline conditions for octivities' Worksheet, the Total Potential bove, this corresponds to a input factor ses:	Contact Time is	S:				receptor 00 hrs/yr 70 Score	
'Current and Future A	determined for baseline conditions for factivities' Worksheet, the Total Potential bove, this corresponds to a input factor s	Contact Time is		ed on the			receptor hrs/yr Score	
	ive No. 1: No Action (Baseline Cond						30010	
	ned Remedial or Removal Actions' Natternative is implemented.	Worksheet, la	and use a	ctivities wi	II			
Total Potential Cor	ntact Time, based on the contact tin	ne listed for o	current u	se activitie	5	121 4	00	
	Future Activities' Worksheet) bove, this corresponds to input factor sco	res of:			S	131,40 <i>core</i>		
Baseline Conditions: Surface Cleanup:							70 50	
Subsurface Cleanup:	lue No. 2.					:	20	
	nation has been entered in the 'Plan							
	t. Please complete the table before	returning to	this sect	tion.				
Total Potential Cor Based on the table at	ntact Time bove, this corresponds to input factor sco	res of:			Si	core		
Baseline Conditions: Surface Cleanup:								
Subsurface Cleanup:								
Response Alternati								
	nation has been entered in the 'Plan t. Please complete the table before							
Total Potential Cor	ntact Time bove, this corresponds to input factor sco	ires of			S	core		
Baseline Conditions:	ove, this corresponds to input factor set					0070		
Surface Cleanup: Subsurface Cleanup:								
Response Alternat	Ive No. 4:							
	nation has been entered in the 'Plan t. Please complete the table before							
Total Potential Cor	ntact Time pove, this corresponds to input factor sco	res of:			Si	core		
Baseline Conditions: Surface Cleanup:								
Subsurface Cleanup:								
Response Alternati	<i>Ive No. 5:</i> ation has been entered in the 'Plan	nod Domodin	l or Dom	oval				
	t. Please complete the table before							
Total Potential Cor		was of			e.	core		
Based on the table at Baseline Conditions:	pove, this corresponds to input factor sco				30	COLG		
Surface Cleanup: Subsurface Cleanup:								
Response Alternati	Ive No. 6:							
	nation has been entered in the 'Plan t. Please complete the table before							
Total Potential Cor	ntact Time							
Based on the table at	pove, this corresponds to input factor sco	res of:			So	core		
Baseline Conditions: Surface Cleanup:								
Subsurface Cleanup:								

Amount of MEC I	Input Factor Categories						
The following table is u	used to determine scores associated wi						
	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup	)		
Target Area	Areas at which munitions fire was directed	180			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	11	0	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	9	0	25		
Burial Pit	The location of a burial of large quantities of MEC items.	140	14	0	10		
Maneuver Areas	Areas used for conducting military exercises in a simulated conflict area or war zone	115	1	5	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	1	0	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	1	0	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	1	0	5		
Explosive-Related Industrial Facility	Former munitions manufacturing or demilitarization sites and TNT production plants	20	1	0	5		
Select the category that	at best describes the <i>most hazardous</i>	amount of I	MEC:		Scor	re	
Maneuver Areas Baseline Conditions:						115	
Surface Cleanup: Subsurface Cleanup:						15 5	
Minimum MEC De Factor Categories Current Use Activiti		m Intrusi	ve Dept	h Input			
The shallowest minimu	ım MEC depth, based on the 'Cased Mu	ınitions Inforr	mation' Wo	orksheet:		0 ft	
	d to determine scores associated with t	he minimum	MEC dept	h relative to	he	<b>3</b> ft	
maximum intrusive dep	otn:	Baseline Conditions	Surface Cleanup	Subsurface Cleanup	:		
	C located surface and subsurface. e depth overlaps with subsurface	240	15	0	95		
After Cleanup: Intrusiv subsurface MEC.	C located surface and subsurface, e depth does not overlap with	240	5	0	25		
Condition or After Clea minimum MEC depth.	nup: Intrusive depth overlaps with	150	N/	Ά	95		
	C located only subsurface. Baseline nup: Intrusive depth does not overlap pth.	50	N/	A	25		
Because the shallow intrusive depth, the both the surface and Worksheet. Therefollocated surface and	west minimum MEC depth is less the intrusive depth will overlap after d subsurface, based on the 'Munit' ore, the category for this input fac subsurface. After Cleanup: Intrus or 'Current Use Activities', only Ba:	cleanup. M ons, Bulk Ex tor is 'Basel sive depth o	to the de ECs are le eplosive le ine Cond verlaps v	eepest ocated at Info' ition: MEC vith	ı.	240 Score	

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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):	o 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)	<b>3</b> ft	
Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth overlaps. MECs are located at both the surface and		
subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located surface and		
subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	Score	
Baseline Conditions: Surface Cleanup:	240	
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): Not enough information has been entered in the 'Planned Remedial or Removal	ft	
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):  Not enough information has been entered in the 'Planned Remedial or Removal	ft	
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.		
Baseline Conditions:	Score	
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:	100010	
Surface Cleanup: Subsurface Cleanup:		

Response Alternative						£1		
	depth (from the 'Planned Remedial o ion has been entered in the 'Plan					ft		
	Please complete the table before							
Maximum Intrusive I	Depth					ft		
Not enough informat	ion has been entered to calculate	this input	factor.		Sco	iro		
Baseline Conditions:					000	,, 0		
Surface Cleanup:								
Subsurface Cleanup:  Migration Potenti	al Input Factor Categories							
Is there any physical or	historical evidence that indicates it is							
the area (e.g., frost hea subsurface MEC items?	ive, erosion) to expose subsurface ME	C items, or m	ove surfac	e or	No			
If "yes", describe the na	ature of natural forces. Indicate key a				NO			
overland water flow) on separate worksheet).	a map as appropriate (attach a map	to the botton	of this sh	eet, or as a				
The following table is us	sed to determine scores associated wit	th the migrat Baseline	on potenti Surface	al: Subsurface				
		Conditions		Cleanup				
Possible		30			0			
Unlikely		10	10	ا	0			
	n above, migration potential is 'U	Inlikely.'			Sco			
Baseline Conditions: Surface Cleanup:						10 10		
Subsurface Cleanup:						10		
Reference(s) for above	information:							
							_	
MEC Classification	n Input Factor Categories							
Cased munitions info	rmation has been inputed into th							
Worksheet; therefore	e, bulk explosives do not comprise	e all MECs f	or this MI	RS.				
The 'Amount of MEC' this MRS are DMM.	category is 'Maneuver Areas'. It	is assumed	that the	MEC items ir	ı			
Has a technical assessi	ment shown that MEC in the OB/OD A							
	s listed in the 'Munitions, Bulk Explosi · Submunitions	ve Info' Work	sheet:		Yes			
	Rifle-propelled 40mm projectiles (oft	ten called 40	mm grenad	les)				
	Munitions with white phosphorus fille							
	<ul> <li>High explosive anti-tank (HEAT) rou</li> <li>Hand grenades</li> </ul>	iius						
	Fuzes							
	· Mortars	Info! Works	noot word	identified as				
'fuzed'.	ed in the 'Munitions, Bulk Explosive	IIIIO WOIKS	ieet were	identined as				
The following table is us	sed to determine scores associated wit	th MEC classi Baseline	fication cat Surface	egories: Subsurface				
	Fuzed DMM Special Case	Conditions		Cleanup				
UXO Special Case		180						
UXO Fuzed DMM Special Cas	e	110 105						
Fuzed DMM		55			5			
Unfuzed DMM Bulk Explosives		45 45	4! 4!	_	5 5			
Daik Explosives								
Based on your answer Baseline Conditions:	ers above, the MEC classification i	is 'Fuzed DN	IM Specia	I Case'.	Sco	105		
Surface Cleanup:						105		
Subsurface Cleanup:						105		
MEC Size Input Fa								
The following table is us	sed to determine scores associated wit	th MEC Size: Baseline	Surface	Subsurface				
	Description	Conditions	Cleanup	Cleanup				
	Any munitions (from the 'Munitions,							
	Bulk Explosive Info' Worksheet)							
	weigh less than 90 lbs; small enough for a receptor to be able to							
Small	move and initiate a detonation	40	4	) 4	0			
	All munitions weigh more than 90							
Large	lbs; too large to move without equipment	0		)	0			
Based on the definitions	above and the types of munitions at				•			
Info' Worksheet), the M	EC Size Input Factor is:				Sma Sco			
Baseline Conditions:					560	40		
Surface Cleanup:						40		
Subsurface Cleanup:						40		

Input Factors Worksheet

# Scoring Summary

Site ID: Proposed 60mm Mortar Area	a. Scoring Summary for Current Use Activities	
Date: 7/16/201	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: 7/16/201	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 (Baselin	e Condition)
Date: 7/16/201	Response Action Cleanup:	No MEC cleanup
Input Factor	Input Factor Category	Score
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

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Task Order No.: 0005

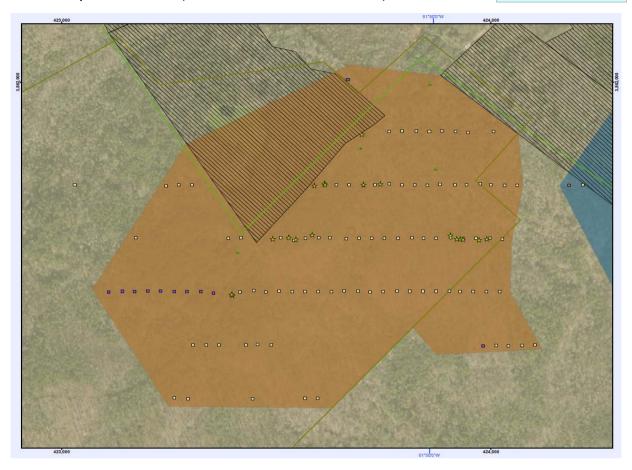
MEC HA Hazard Level Determination							
Site ID: Proposed 60mm Mortar Area							
Date: 7/16/2013							
	<b>Hazard Level Category</b>	Score					
a. Current Use Activities	3	705					
b. Future Use Activities	4	310					
c. Response Alternative 1: No Action (Baseline Condition)	3	705					
d. Response 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?	N	lo					
Are cultural resources located within the MRS or within the ESQD arc?	N	lo					
Are significant ecological resources located within the MRS or within the ESQD arc?	N	lo					

## **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,	
Addendum 01, Ordnance Operable Unit (OOU) 3, September	
12 ZAPATA, 2011, Work Plans For the RI/FS	
P. Deletin describe the city.	
B. Briefly describe the site:  1. Area (include units):  157.1 Acres	
1. Area (include units): 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?	
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:	
· · · · · · · · · · · · · · · · · · ·	
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	
Have there been any historical clearances at the site?     No, none	
2. If a clearance occurred:	
a. What year was the clearance performed?	
<ul> <li>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):</li> </ul>	
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.)



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		Energetic Material Type		Fuzing Type	Fuze Condition			Comments (include rationale for munitions that are "subsurface only")
					High					Surface and	
1	Mortars	81	mm	м43	Explosive	UNK				Subsurface	
2	Mortars	60	mm	м49	High Explosive	UNK				Surface and Subsurface	
3	MOICAIS	00	ши	Maj	EXPIOSIVE	OIVIC			0	Subsurrace	
4											
5											
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.
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**

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

Reference(s) for table above:

Site ID: Proposed 60/81mm Mortar Area

7/16/2013 Date:

# **Activities Currently Occurring at the Site**

			Number of			
Activity No.	Activity	Number of people per year who participate in the activity	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	
	General Park Activities	40,000	20	800,000	0	
	6					
	7					
	8					
	9					
1	0					
1	1					
1	2					
	Total Potenti	al Contact Time (r Maxi		1,423,800 depth at site (ft):		

Reference(s) for table above:

# 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	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					
1	0					
1	1					
1	2					
	Total Potent	al Contact Time (r Max		depth at site (ft)		

Reference(s) for table above:

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

Planned	Remedial	or Remova	Actions
---------	----------	-----------	---------

onse n No. Response Action Description	Minimum MEC Depth (ft)	Expected Resulting Site Accessibility	response action is implemented?	What is the expected scope of cleanup?	Comments
The response region bescription	Boptii (ity	Full	implementou:	What is the expected scope of dicanap.	Commonts
1 No Action (Baseline Condition)	0	Accessibility	No	No MEC cleanup	
2					
3					
4					
5					
6					

Reference(s) for table above:

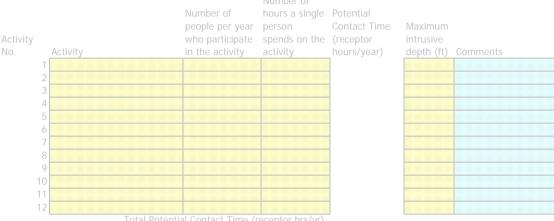
Remedial-Removal Action Worksheet
October 2014
Revision 0

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)



otal Potential Contact Time (receptor hrs/yr):

Maximum intrusive depth at site (ft):

Reference(s) for table above:

Comments

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

**Energetic Material Type Input Factor Categories** 

Energetic Material Type Input Factor Catego	ries						Comme	nts	
The following table is used to determine scores associated v		etic materia	als. Materials						
are listed in order from most hazardous to least hazardous.									
	Baseline	Surface	Subsurface						
	Conditions	Cleanup	Cleanup						
High Explosive and Low Explosive Filler in Fragmenting	400	400	400						
Rounds	100	100	100						
White Phosphorus	70	70	70						
Pyrotechnic	60 50	60 50	60 50						
Propellant	40	40	40						
Spotting Charge Incendiary	30	30	30						
incertular y	30	30	30						
The most hazardous type of energetic material listed in Worksheet falls under the category 'High Explosive and Rounds'.				Score	,				
- " - "									
Baseline Conditions:					100				
Surface Cleanup:					100 100				
Subsurface Cleanup:					100				
Location of Additional Human Receptors Inp 1. What is the Explosive Safety Quantity Distance (ESQD) fi									
Explosive Safety Submission for the MRS?					152	feet			
2. Are there currently any features or facilities where peopl within the ESQD arc?	e may congre	gate within	the MRS, or	Yes					
Please describe the facility or feature.									
State Park, Residential									
MEC Item(s) used to calculate the ESQD for current use act	ivities								
(,									
Item #2. Mortars (60mm, High Explosive)									
The following table is used to determine scores associated v	vith the location	on of addition	onal human						
	vith the location	on of addition	onal human						
The following table is used to determine scores associated v	Baseline	Surface	Subsurface						
The following table is used to determine scores associated v receptors (current use activities):	Baseline Conditions	Surface Cleanup	Subsurface Cleanup						
The following table is used to determine scores associated v receptors (current use activities):  Inside the MRS or inside the ESQD arc	Baseline Conditions	Surface Cleanup O 3	Subsurface Cleanup 0 3						
The following table is used to determine scores associated v receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc	Baseline Conditions 30	Surface Cleanup 3	Subsurface Cleanup 0 30	0					
The following table is used to determine scores associated v receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside	Baseline Conditions 30	Surface Cleanup 3	Subsurface Cleanup 0 30	0		_			
The following table is used to determine scores associated v receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc  4. Current use activities are 'Inside the MRS or inside 2.'	Baseline Conditions 30	Surface Cleanup 3	Subsurface Cleanup 0 30						
The following table is used to determine scores associated vereceptors (current use activities):  Inside the MRS or inside the ESOD arc Outside of the ESOD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions:	Baseline Conditions 30	Surface Cleanup 3	Subsurface Cleanup 0 30	0	30	_			
The following table is used to determine scores associated v receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup:	Baseline Conditions 30	Surface Cleanup 3	Subsurface Cleanup 0 30	0	30 30	_			
The following table is used to determine scores associated vareceptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup:	Baseline Conditions 30 (e the ESQD a	Surface Cleanup ) 30 ) arc', based	Subsurface Cleanup 0 31 0 1 d on Question	0	30	_			
The following table is used to determine scores associated vareceptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: 5. Are there future plans to locate or construct features or inside the management of the conditions of the condit	Baseline Conditions 30 (e the ESQD a	Surface Cleanup ) 30 ) arc', based	Subsurface Cleanup 0 30 0 0	0	30 30	-			
The following table is used to determine scores associated vereceptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or within the MRS, or within the ESQD arc?	Baseline Conditions 30 (e the ESQD a	Surface Cleanup ) 30 ) arc', based	Subsurface Cleanup 0 30 0 0	0	30 30	-			
The following table is used to determine scores associated vareceptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: 5. Are there future plans to locate or construct features or inside the management of the conditions of the condit	Baseline Conditions 30 (e the ESQD a	Surface Cleanup ) 30 ) arc', based	Subsurface Cleanup 0 30 0 0	0	30 30	-			
The following table is used to determine scores associated vereceptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or within the MRS, or within the ESQD arc?	Baseline Conditions 30 (e the ESQD a	Surface Cleanup ) 30 ) arc', based	Subsurface Cleanup 0 30 0 0	0	30 30	-			
The following table is used to determine scores associated vereceptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or within the MRS, or within the ESQD arc?	Baseline Conditions 30 e the ESQD a	Surface Cleanup ) 30 ) arc', based	Subsurface Cleanup 0 30 0 0	0	30 30	-			
The following table is used to determine scores associated v receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or within the MRS, or within the ESQD arc? 6. Please describe the facility or feature.	Baseline Conditions 30 e the ESQD a	Surface Cleanup ) 30 ) arc', based	Subsurface Cleanup 0 30 0 0	0	30 30	_			
The following table is used to determine scores associated v receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or within the MRS, or within the ESQD arc? 6. Please describe the facility or feature.	Baseline Conditions 30 e the ESQD a	Surface Cleanup ) 30 ) arc', based	Subsurface Cleanup 0 30 0 0	0	30 30	<b>-</b>			
The following table is used to determine scores associated v receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or within the MRS, or within the ESQD arc? 6. Please describe the facility or feature.	Baseline Conditions 30 (e the ESQD a	Surface Cleanup ) 3: ) (1) Arc', based	Subsurface Cleanup 0 30 0 d d on Question	0	30 30				
The following table is used to determine scores associated vareceptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc  4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or 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.	Baseline Conditions 30 (e the ESQD a	Surface Cleanup ) 3: ) (1) Arc', based	Subsurface Cleanup 0 30 0 d d on Question	0	30 30				
The following table is used to determine scores associated v receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc  4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or 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 v	Baseline Conditions 30 (e the ESQD a	Surface Cleanup 3 33 7 arc', basec	Subsurface Cleanup 0 30 0 6 d on Question  ay congregate	0	30 30				
The following table is used to determine scores associated v receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc  4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or 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 v	Baseline Conditions 30 (e the ESQD a	Surface Cleanup 3 33 7 arc', basec	Subsurface Cleanup 0 30 0 0 0 d on Question ay congregate	0	30 30				
The following table is used to determine scores associated v receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc  4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or 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 v	Baseline Conditions 30 (e the ESQD a	Surface Cleanup 3 33 7 arc', basec	Subsurface Cleanup 0 30 0 6 d on Question  ay congregate	0	30 30	•			
The following table is used to determine scores associated v receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: 5. Are there future plans to locate or construct features or 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):	Baseline Conditions 30 (e the ESQD a facilities where vittes vith the location Baseline Conditions	Surface Cleanup 3 33 3 arc', basec e people ma	Subsurface Cleanup 0 30 0 6 d on Question  ay congregate  Donal human Subsurface Cleanup	Score	30 30				
The following table is used to determine scores associated vireceptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: 5. Are there future plans to locate or construct features or 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 in the following table is used to determine scores associated vireceptors (future use activities):  Inside the MRS or inside the ESQD arc	Baseline Conditions 30 (a the ESQD a facilities where with the location Baseline Conditions	Surface Cleanup  3 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Subsurface Cleanup 0 30 0 10 d on Question  ay congregate  Donal human Subsurface Cleanup 0 31	Score	30 30	•			
The following table is used to determine scores associated v receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: 5. Are there future plans to locate or construct features or 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):	Baseline Conditions 30 (e the ESQD a facilities where vittes vith the location Baseline Conditions	Surface Cleanup  3 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Subsurface Cleanup 0 30 0 10 d on Question  ay congregate  Donal human Subsurface Cleanup 0 31	Score	30 30	•			
The following table is used to determine scores associated v receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: 5. Are there future plans to locate or construct features or 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):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc	Baseline Conditions 30 (e the ESQD a facilities where with the location Baseline Conditions	Surface Cleanup  3 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Subsurface Cleanup 0 30 0 10 d on Question  ay congregate  Donal human Subsurface Cleanup 0 31	Score	30 30 30				
The following table is used to determine scores associated v receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or 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 in the following table is used to determine scores associated v receptors (future use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 7. Please answer Question 5 above to determine the	Baseline Conditions 30 (e the ESQD a facilities where with the location Baseline Conditions	Surface Cleanup  3 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Subsurface Cleanup 0 30 0 10 d on Question  ay congregate  Donal human Subsurface Cleanup 0 31	Score	30 30 30				
The following table is used to determine scores associated vereceptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or 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 in the MRS or inside the ESQD arc Outside of the ESQD arc 7. Please answer Question 5 above to determine the Baseline Conditions:	Baseline Conditions 30 (e the ESQD a facilities where with the location Baseline Conditions	Surface Cleanup  3 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Subsurface Cleanup 0 30 0 10 d on Question  ay congregate  Donal human Subsurface Cleanup 0 31	Score	30 30 30				
The following table is used to determine scores associated vereceptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: Subsurface Cleanup: Subsurface Cleanup: Outside of the ESQD arc? Are there future plans to locate or construct features or within the MRS, or within the ESQD arc? Delase describe the facility or feature.  MEC Item(s) used to calculate the ESQD for future use activities in the Company of the ESQD arc Outside of the ESQD arc Outside of the ESQD arc  7. Please answer Question 5 above to determine the Baseline Conditions: Surface Cleanup:	Baseline Conditions 30 (e the ESQD a facilities where with the location Baseline Conditions	Surface Cleanup  3 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Subsurface Cleanup 0 30 0 10 d on Question  ay congregate  Donal human Subsurface Cleanup 0 31	Score	30 30 30				
The following table is used to determine scores associated vireceptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or 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 in the Inside the MRS or inside the ESQD arc Outside of the ESQD arc 7. Please answer Question 5 above to determine the Baseline Conditions:	Baseline Conditions 30 (e the ESQD a facilities where with the location Baseline Conditions	Surface Cleanup  3 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Subsurface Cleanup 0 30 0 10 d on Question  ay congregate  Donal human Subsurface Cleanup 0 31	Score	30 30 30				

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	Input Factor Categories sed to determine scores associated wi	ith site arress	ihility:				
The following table is a	sed to determine scores associated wi	Baseline	Surface	Subsurface			
	Description	Conditions	Cleanup	Cleanup			
Full Accessibility	No barriers to entry, including signage but no fencing	80	80	80			
Moderate Accessibility	Some barriers to entry, such as	55	55	55			
woderate Accessibility	barbed wire fencing or rough terrain Significant barriers to entry, such as	33	55	33			
	unguarded chain link fence or						
Limited Accessibility	requirements for special	15	15	15			
Limited Accessibility	transportation to reach the site  A site with guarded chain link fence	13	13	13			
	or terrain that requires special						
Very Limited	equipment and skills (e.g., rock	_	_	_			
Accessibility	climbing) to access	5	5	5			
Current Use Activi	ties				Score		
Select the category tha	t best describes the site accessibility u	under the curr	ent use sce	nario:			
Full Accessibility Baseline Conditions:	У					80	
Surface Cleanup:						80	
Subsurface Cleanup:						80	
Francisco III - 1 - 1 - 1	la a						
Future Use Activity Select the category tha	<i>les</i> t best describes the site accessibility u	inder the futu					
Sciedt the dategory tha	c post describes the site accessibility t	ander the full	ic use stell	ano.			
Baseline Conditions:					-		
Surface Cleanup:							
Subsurface Cleanup:							
Reference(s) for above	information:						
	lve No. 1: No Action (Baseline						
	ed Remedial or Removal Actions'	Worksheet,	this altern	native will			
lead to 'Full Accessibe Baseline Conditions:	omty.					80	
Surface Cleanup:						80	
Subsurface Cleanup:						80	
Boononco Altornos	Huo Mo. 2.						
Response Alternat	eessibility information in the 'Plar	ned Remed	ial or Rem	oval			
Actions' Worksheet	to continue.						
Baseline Conditions:							
Surface Cleanup: Subsurface Cleanup:							
oubsarrage ordarrap.							
Response Alternat							
Please enter site acc Actions' Worksheet	essibility information in the 'Plar	nned Remed	ial or Rem	oval			
Baseline Conditions:	to continue.						
Surface Cleanup:							
Subsurface Cleanup:							
Donnanca Altares	No No A						
Response Alternat	TIVE IVO. 4: essibility information in the 'Plar	ned Remed	ial or Rem	oval			
Actions' Worksheet							
Baseline Conditions:							
Surface Cleanup: Subsurface Cleanup:							
Sabsarrace Oleanup.							
Response Alternat	live No. 5:						
Please enter site acc	essibility information in the 'Plar	ned Remed	ial or Rem	oval			
Actions' Worksheet to Baseline Conditions:	to continue.						
Surface Cleanup:							
Subsurface Cleanup:							
Response Alternat							
Please enter site acc Actions' Worksheet	essibility information in the 'Plar	nned Remed	ial or Rem	oval			
Baseline Conditions:	to continue.						
Surface Cleanup:							
Subsurface Cleanup:							

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The following table is used to determine scores associated with the total potential contact time:    Baseline   Surface   Subsurface   Subsurface	
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 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: 1,423,800 hrs/yr  Based on the table above, this corresponds to a input factor score of: 120 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)  Based on the table above, this corresponds to input factor score of: 120  Score Subsurface Cleanup: 90  Subsurface Cleanup: 90  Subsurface Cleanup: 90  Subsurface Cleanup: 90  Surface	
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:  Input factors are only determined for baseline conditions for for tuture use activities. Based on the table above, this corresponds to a input factor score for baseline conditions of:  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:  Rased on the Hable above this corresponds to a input factor score of:  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)  Based on the table above, this corresponds to input factor scores of:  Score  Baseline Conditions:  1,423,800  Score  1,423,800  For institution of the second of the contact time listed for current use activities will not change if this alternative is implemented.  Total Potential Contact Time, based on the contact time listed for current use activities will not change if this alternative is implemented.  Total Potential Contact Time  Based on the table above, this corresponds to input factor scores of:  Score  Score  Score  Score  Baseline Conditions:  100  11,423,800	
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:  Input factors are only determined for baseline conditions for current use activities. Based on the Sased on the table above, this corresponds to a input factor score for baseline conditions of:  Input factors are only determined for baseline conditions for future use activities. Based on the Vas Activities' Worksheet, the Total Potential Contact Time is:  Input factors are only determined for baseline conditions of:  Input factor sare only determined	
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:  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:  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:  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)  Based on the table above, this corresponds to input factor scores of:  Score  Baseline Conditions:  Surface Cleanup:  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:  Baseline Conditions:  Score  Score  Baseline Conditions:  Score  Score  Baseline Conditions:  120  Score  Baseline Conditions:  120  Score  Baseline Conditions:  Score  Score  Baseline Conditions:  Score  Baseline Conditions:  Score	
'Current and Future Activities' Worksheet, the Total Potential Contact Time is:  Based on the table above, this corresponds to a input factor score for baseline conditions of:  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:  Based on the table above, this corresponds to a input factor score of:  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)  Based on the table above, this corresponds to input factor scores of:  Score  Baseline Conditions:  1,423,800  1,423,800  Score  Baseline Conditions:  20  Surface Cleanup:  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:  Score  Baseline Conditions:  Score	
'Current and Future Activities' Worksheet, the Total Potential Contact Time is: Based on the table above, this corresponds to a input factor score of:  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)  Based on the table above, this corresponds to input factor scores of:  Score  Baseline Conditions:  120  Subsurface 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:	
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)  Based on the table above, this corresponds to input factor scores of:  Baseline Conditions:  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:  Baseline Conditions:  Surface Cleanup:	
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)  Based on the table above, this corresponds to input factor scores of:  Score  Baseline Conditions:  Surface Cleanup:  Subsurface Cleanup:  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:	
Total Potential Contact Time, based on the contact time listed for current use activities (see 'Current and Future Activities' Worksheet)  Based on the table above, this corresponds to input factor scores of:  Score  Baseline Conditions:  Surface Cleanup:  Subsurface Cleanup:  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: Baseline Conditions: Surface Cleanup:	
Baseline Conditions: Baseline	
Surface Cleanup: 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:	
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:  Saseline Conditions:  Surface Cleanup:	
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:  Baseline Conditions: Surface Cleanup:	
Based on the table above, this corresponds to input factor scores of:  Baseline Conditions: Surface Cleanup: Surface Teanup:	
Baseline Conditions: Surface Cleanup:	
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	
Based on the table above, this corresponds to input factor scores of:  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:  Baseline Conditions:	
Surface Cleanup:	
Subsurface Cleanup:	

Amount of MEC	Input Factor Categories							
The following table is u	used to determine scores associated wi							
	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup				
Target Area	Areas at which munitions fire was directed Sites where munitions were	180	120	o :	80			
OB/OD Area	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	1!	5	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	25	10	)	5			
Explosive-Related Industrial Facility	areas. Former munitions manufacturing or demilitarization sites and TNT production plants	20	10	)	5			
Select the category that	at best describes the <i>most hazardous</i>	amount of N	MEC:		Score			
unction Test Rar						145		
Baseline Conditions: Surface Cleanup: Subsurface Cleanup:						165 90 25		
Minimum MEC D Factor Categorie Current Use Activiti		m Intrusiv	ve Depth	n Input				
	um MEC depth, based on the 'Cased Mu	ınitions Inforr	nation' Wo	rksheet:		o ft		
he deepest intrusive he table below is use	depth: d to determine scores associated with t				e	<b>3</b> ft		
naximum intrusive de <sub>l</sub>	pin:	Baseline Conditions	Surface	Subsurface				
	EC located surface and subsurface. ve depth overlaps with subsurface	240	Cleanup 150	Cleanup	95			
Baseline Condition: ME	EC located surface and subsurface, ve depth does not overlap with	240			25			
Baseline Condition: ME	C located only subsurface. Baseline unup: Intrusive depth overlaps with	150			95			
Baseline Condition: ME Condition or After Clea	EC located only subsurface. Baseline nup: Intrusive depth does not overlap							
with minimum MEC de	pth.	50	N/A	A :	25			
ntrusive depth, the both the surface an Worksheet. Therefo	vest minimum MEC depth is less the intrusive depth will overlap after d subsurface, based on the 'Munitione, the category for this input fac	cleanup. M ons, Bulk Ex tor is 'Basel	ECs are lo oplosive I ine Condi	ocated at nfo' tion: MEC				
	subsurface. After Cleanup: Intrus or 'Current Use Activities', only Ba					240 Score		

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Folian Han Anti-Man		
Future Use Activities Deepest intrusive		
depth:	ft	
	_	
Not enough information has been entered to determine the input factor category.  Response Alternative No. 1: No Action (Baseline Condition)	Score	
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet):	<b>o</b> 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)  Because the shallowest minimum MEC depth is less than or equal to the deepest	<b>3</b> ft	
intrusive depth, the intrusive depth overlaps. MECs are located at both the surface and		
subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the		
category for this input factor is 'Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.'		
	Score	
Baseline Conditions: Surface Cleanup:	240	
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.		
not changer allocation has been entered to calculate this hiput factor.	Score	
Baseline Conditions:		
Surface Cleanup: Subsurface Cleanup:		
Response Alternative No. 3:		
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet):  Not enough information has been entered in the 'Planned Remedial or Removal	ft	
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):  Not enough information has been entered in the 'Planned Remedial or Removal	ft	
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:	00010	
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.		
Baseline Conditions:	Score	
Surface Cleanup:		
Subsurface Cleanup:		

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Not enough informat	e No. 6: C depth (from the 'Planned Remedial o cion has been entered in the 'Plan Please complete the table before	ned Remedi	al or Re	moval			ft		
Maximum Intrusive E	Depth						ft		
Not enough informat	ion has been entered to calculate	this input f	actor.						
						Score			
Baseline Conditions: Surface Cleanup: Subsurface Cleanup:									
Migration Potentia Is there any physical or the area (e.g., frost hea subsurface MEC items? If "yes", describe the na	al Input Factor Categories historical evidence that indicates it is ive, erosion) to expose subsurface ME sture of natural forces. Indicate key at a map as appropriate (attach a map to	C items, or m	ove surfa	ice or		No			
separate worksneet).									
The following table is us	sed to determine scores associated wit	h the migrati Baseline Conditions	Surface	Subsurf					
Possible Unlikely		30 10		30 10	10 10				
Based on the question	n above, migration potential is 'U	nlikely '				Score			
Baseline Conditions:	azoro,g. ation potential is o						10		
Surface Cleanup: Subsurface Cleanup:							10 10		
Reference(s) for above i	information:								
	n Input Factor Categories ormation has been inputed into th	e 'Munition:	s, Bulk E	xplosive	Info'				
Worksheet; therefore	e, bulk explosives do not comprise	e all MECs fo	or this N	IRS.					
assumed that the ME	category is 'Function Test Range' C items from this category are DN ne MEC items in this MRS are UXO	MM. Therefo							
	ment shown that MEC in the OB/OD A s listed in the 'Munitions, Bulk Explosiv					Yes			
	· Submunitions								
	<ul> <li>Rifle-propelled 40mm projectiles (oft</li> <li>Munitions with white phosphorus fille</li> </ul>	er	iiii grena	iues)					
	<ul> <li>High explosive anti-tank (HEAT) rour</li> <li>Hand grenades</li> </ul>	nds							
	· Fuzes · Mortars								
	ed in the 'Munitions, Bulk Explosive	Info' Worksh	neet were	e identified	las				
'fuzed'. The following table is us	sed to determine scores associated wit	h MEC classif Baseline	ication ca Surface	ategories: Subsurf	ace				
LIVO Special Case	UXO Special Case	Conditions 180		Cleanup 30	180				
UXO Special Case UXO		110	1	10	110				
Fuzed DMM Special Case Fuzed DMM	e	105 55		05 55	105 55				
Unfuzed DMM		45 45		45 45	45 45				
Bulk Explosives		45		45	45				
Based on your answer Baseline Conditions:	ers above, the MEC classification i	s 'UXO Spec	ial Case	<b>'</b> .		Score	180		
Surface Cleanup:							180		
Subsurface Cleanup:	nator Catomorica						180		
MEC Size Input Fa The following table is us	sed to determine scores associated wit								
	Description	Baseline Conditions	Surface Cleanup	Subsurf Cleanup					
	Any munitions (from the 'Munitions, Bulk Explosive Info' Worksheet) weigh less than 90 lbs; small								
Small	enough for a receptor to be able to move and initiate a detonation	40		40	40				
	All munitions weigh more than 90 lbs; too large to move without								
Large	equipment			0	0				
Based on the definitions Info' Worksheet), the M	above and the types of munitions at EC Size Input Factor is:	the site (see	Munition	s, Bulk Exp	Iosive	Small Score			
Baseline Conditions:						20010	40		
Surface Cleanup: Subsurface Cleanup:							40 40		

Input Factors Worksheet

# Scoring Summary

Site ID: Proposed 60/81mm Mortar Ar	ea a. Scoring Summary for Current Use Activities	
Date: 7/16/20°	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		No Response Action
	Input Factor	Input Factor Category	Score
I. Ene	ergetic Material Type	High Explosive and Low Explosive Filler in Fragmenting Rounds	100
	f Additional Human Receptors		
	. Site Accessibility		
IV. Po	tential Contact Hours		
V	. Amount of MEC	Function Test Range	165
VI. Minimum MEC De	epth Relative to Maximum Intrusive Depth		
VII.	Migration Potential	Unlikely	10
VIII	. MEC Classification	UXO Special Case	180
	IX. MEC Size	Small	40
		Total Score Hazard Level Category	495 4

Site ID: Proposed 60/81mm Mortar Ar	ea c. Scoring Summary for Response Alternative 1: No Action (Baselin	e Condition)
Date: 7/16/20	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	
	Hazard Level Category	1

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MEC HA Hazard Level Determination							
Site ID: Area							
Date: 7/16/2013							
	<b>Hazard Level Category</b>	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?	N	lo					
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?	N	lo					

# **MEC HA Summary Information**

	•	Comments
	Proposed Rocket and Rifle	
Site ID:	Grenade Area	
Date:	7/16/2013	
Please ider	ntify the single specific area to be assessed in this hazard assessment. From th	is point forward,
all reference	ces 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 I	ist of information sources used for this hazard assessment. As you are complete	ing the
worksheets	s, use the "Select Ref(s)" buttons at the ends of each subsection to select the a	pplicable
information	n sources from the list below.	
Ref. No.	Title (include version, publication date)	
	(EE/CA), Former Camp Croft Army Training Facility,	
	(EE/CA) Action Memorandum, Former Camp Croft Army	
	Removal Report (August 8, 1994 - January 19, 1995),	
	Removal Report (March 8, 1995 - March 30, 1995),	
	Removal Action, Former Camp Croft - Spartanburg, SC,	
	(EE/CA), Former Camp Croft Army Training Facility,	
	Report , Findings for the Former Camp Croft Army	
	Report Supplement, Findings for the Former Camp Croft Action, Ordnance Operable Units OOU-3 A, B, and C;	
	Camp Croft Army Training Facility, Spartanburg County,	
	Addendum 01, Ordnance Operable Unit (OOU) 3, September	
	ZAPATA, 2011, Work Plans For the RI/FS	
12	ZAFATA, ZUTT, WOLK FLAMS FOL CHE KI/FS	
B. Briefly	describe the site:	
-	nclude units): 78.3 Acres	
•	unitions-related use:	
Target A		
	t land-use activities (list all that occur):	
Resident	ial, Industrial	
4. Are cha	anges to the future land-use planned?	
5. What is	the basis for the site boundaries?	
	is at the furthest extent of Ranges 3 through 5, and with	
	hich is a 12,102-acre Range Complex containing 12 WW II era though 5 included a Landscape Target Range, AA Miniature I	_
_	lange, respectively. Documented munitions used at the range	= '
	rms, rifle grenades, 2.36-inch rockets, and mortars (60mm and	
TCRA was	completed in 2013, following discoveries made during RI.	
6. How ce	rtain are the site boundaries?	
	ea is contained within the southern extent of WWII era range	
	l site boudaries are based off historical data and findings	from an RI.
Reference(	(s) for Part B:	
	8a, Final Engineering Evaluation/Cost Analysis	
•	Former Camp Croft Army Training Facility,	
•	urg, SC, January 1998.	
	ock Island District, 1993, Archives Search Report,	
•	for the Former Camp Croft Army Training Facility,	
•	urg, SC, September 1993	
	ock Island District, 2004, Archives Search Report ent, Findings for the Former Camp Croft Army	
_	Facility, Spartanburg, SC, November 2004. 2011, Work Plans For the RI/FS	
ERI AIA,	2011, WORK HAIRS FOR THE KITTS	
C. Histor	ical Clearances	
	the contract of the contract o	ce clearance
	arance occurred:	
	What year was the clearance performed?	2013
	2	

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 8-10.

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Proposed Rocket and Rifle Grenade Area 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		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	мбаз	Low Explosive Filler in a fragmenting round	UNK				Surface and Subsurface	
4	Grenades	2.25	inches	м9	Low Explosive Filler in a fragmenting round	UNK			0	Surface and Subsurface	
-	Grenades	2.26	inches	MK II	High Explosive	UNK			0	Subsurface Only	
6											
8											
9											
10											
11											
12 13											
13											
15											
16											
17											
18											
19											
20											

Reference(s) for table above:
OST, 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

#### **Bulk Explosive Information**

UIK EX	Jiosive Illioilliation		
em No.	Explosive Type	Comments	
1	TNT		
2	TNT		
3	Pentolite		
4	Pentolite		
5	TNT		
6			
7			
8			
9			
10			

Reference(s) for table above:

Munitions, Bulk Explosive Info Worksheet October 2014 Revision 0

Site ID: **Proposed Rocket and Rifle Grenade Area** 

7/16/2013 Date:

# **Activities Currently Occurring at the Site**

Activity No.	Activity	people per year	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 Potentia	al Contact Time (ro Maxi		147,800 depth at site (ft):		

Reference(s) for table above:

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# 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	hours per year a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
	1			1	doptii (it)	
	2			-		
	3					
	4			-		
	5					
	6					
	7					
	8					
	9					
1	10					
1	1					
1	12					
	Total Poton	tial Contact Time (	rocontor bro/vr).			

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Maximum intrusive depth at site (ft):

Reference(s) for table above:

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

Planned I	Remedial	or Re	emoval	Actions
-----------	----------	-------	--------	---------

sponse	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
	<u> </u>	1	Moderate		l i i i i i i i i i i i i i i i i i i i	
1 N	No Action (Baseline Condition)	0	Accessibility	No	No MEC cleanup	
2						
3						
4						
5						
6						
_						
	to the 'Summary Info' worksheet, no f answered 'No' in Column E, the land u					

Reference(s) for table above:

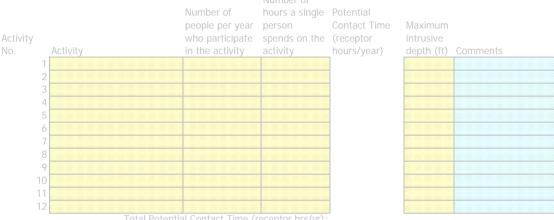
Remedial-Removal Action Worksheet October 2014 Revision 0

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.





otal Potential Contact Time (receptor hrs/yr):

Maximum intrusive depth at site (ft):

Reference(s) for table above:

Comments

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

**Energetic Material Type Input Factor Categories** 

The following table is used to determine scores associated	with the energ	etic materia	als. Materials			
are listed in order from most hazardous to least hazardous						
a.os.ca sraci mom most nazaradas to least nazaradas	Baseline	Surface	Subsurface			
	Conditions	Cleanup	Cleanup			
High Explosive and Low Explosive Filler in Fragmenting						
Rounds	100	100	100			
White Phosphorus	70	70	70			
Pyrotechnic	60	60	60			
	50	50	50			
Propellant						
Spotting Charge	40	40	40			
Incendiary	30	30	30			
·						
The weet housedown time of accounts westerful listed in	. 46 - 184 141	- B. II. F.				
The most hazardous type of energetic material listed in						
Worksheet falls under the category 'High Explosive an	d Low Explosi	ve Filler in	Fragmenting			
Rounds'.				Score		
Baseline Conditions:					100	
					100	
Surface Cleanup:						
Subsurface Cleanup:					100	
Location of Additional Human Receptors In	put Factor	Categori	ies			
1. What is the Explosive Safety Quantity Distance (ESQD)						
Explosive Safety Submission for the MRS?	J the Explo	Jiting I	0. 110		152 feet	
					1001	
<ol><li>Are there currently any features or facilities where people</li></ol>	ole may congre	gate within	tne MRS, or			
within the ESQD arc?				Yes		
<ol><li>Please describe the facility or feature.</li></ol>						
Residential, Industrial						
Residential, mudstrial						
MEC Item(s) used to calculate the ESQD for current use a	rtivitios					
WEG REIT(3) used to calculate the ESQD for current use at	LIVILIES					
Item #2. Mortars (60mm, High Explosive)						
	with the location	on of addition	onal human			
The following table is used to determine scores associated	with the location	on of addition	onal human			
The following table is used to determine scores associated	Baseline	Surface	Subsurface			
The following table is used to determine scores associated receptors (current use activities):	Baseline Conditions	Surface Cleanup	Subsurface Cleanup			
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc	Baseline Conditions	Surface Cleanup 0 3	Subsurface Cleanup 0 3			
The following table is used to determine scores associated receptors (current use activities):	Baseline Conditions	Surface Cleanup 0 3	Subsurface Cleanup 0 3	0		
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc	Baseline Conditions 30	Surface Cleanup 0 3	Subsurface Cleanup 0 30			
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc  4. Current use activities are 'Inside the MRS or inside the MRS or in	Baseline Conditions 30	Surface Cleanup 0 3	Subsurface Cleanup 0 30	0		
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside.'	Baseline Conditions 30	Surface Cleanup 0 3	Subsurface Cleanup 0 30		30	
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside the ESQD arc	Baseline Conditions 30	Surface Cleanup 0 3	Subsurface Cleanup 0 30	0	30	
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or insi 2.' Baseline Conditions: Surface Cleanup:	Baseline Conditions 30	Surface Cleanup 0 3	Subsurface Cleanup 0 30	0	30	
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside the ESQD arc	Baseline Conditions 30	Surface Cleanup 0 3	Subsurface Cleanup 0 30	0		
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup:	Baseline Conditions 30 de the ESQD a	Surface Cleanup 0 3 0 arc', basec	Subsurface Cleanup 0 30 0 0	0	30	
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or insi 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or	Baseline Conditions 30 de the ESQD a	Surface Cleanup 0 3 0 arc', basec	Subsurface Cleanup 0 30 0 0	0	30	
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc  4. Current use activities are 'Inside the MRS or insi 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or within the MRS, or within the ESQD arc?	Baseline Conditions 30 de the ESQD a	Surface Cleanup 0 3 0 arc', basec	Subsurface Cleanup 0 30 0 0	0	30	
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or insi 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or	Baseline Conditions 30 de the ESQD a	Surface Cleanup 0 3 0 arc', basec	Subsurface Cleanup 0 30 0 0	0	30	
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc  4. Current use activities are 'Inside the MRS or insi 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or within the MRS, or within the ESQD arc?	Baseline Conditions 30 de the ESQD a	Surface Cleanup 0 3 0 arc', basec	Subsurface Cleanup 0 30 0 0	0	30	
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc  4. Current use activities are 'Inside the MRS or insi 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or within the MRS, or within the ESQD arc?	Baseline Conditions 30 de the ESQD a	Surface Cleanup 0 3 0 arc', basec	Subsurface Cleanup 0 30 0 0	0	30	
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or insi 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or within the MRS, or within the ESQD arc? 6. Please describe the facility or feature.	Baseline Conditions 30 de the ESQD a	Surface Cleanup 0 3 0 arc', basec	Subsurface Cleanup 0 30 0 0	0	30	
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc  4. Current use activities are 'Inside the MRS or insi 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or within the MRS, or within the ESQD arc?	Baseline Conditions 30 de the ESQD a	Surface Cleanup 0 3 0 arc', basec	Subsurface Cleanup 0 30 0 0	0	30	
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or insi 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or within the MRS, or within the ESQD arc? 6. Please describe the facility or feature.	Baseline Conditions 30 de the ESQD a	Surface Cleanup 0 3 0 arc', basec	Subsurface Cleanup 0 30 0 0	0	30	
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or insi 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features of 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 act	Baseline Conditions 30 de the ESQD a	Surface Cleanup 0 3 0 arc', based	Subsurface Cleanup 0 30 0 6 d on Question	0	30	
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or insi 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or within the MRS, or within the ESQD arc? 6. Please describe the facility or feature.	Baseline Conditions 30 de the ESQD a	Surface Cleanup 0 3 0 arc', based	Subsurface Cleanup 0 30 0 6 d on Question	0	30	
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or insi 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features of 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 act	Baseline Conditions 30 de the ESQD a	Surface Cleanup 0 3 0 arc', based	Subsurface Cleanup 0 30 0 6 d on Question	0	30	
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or insident to the MRS or 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 and the MRS of the MR	Baseline Conditions 30 de the ESQD a	Surface Cleanup 0 3 0 arc', based	Subsurface Cleanup 0 30 0 0 0 d on Question ay congregate	0	30	
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or insident to the MRS or 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 and the MRS of the MR	Baseline Conditions 30 de the ESQD and the E	Surface Cleanup 0 3 0 arc', basec	Subsurface Cleanup 0 30 0 10 d on Question  ay congregate  onal human Subsurface	0	30	
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or insident to the MRS or 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 and the MRS of the MR	Baseline Conditions 30 de the ESQD a r facilities where ivitles	Surface Cleanup 0 3 0 arc', basec	Subsurface Cleanup 0 30 0 0 0 d on Question ay congregate	0	30	
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or insident to the MRS or 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 and the MRS of the MR	Baseline Conditions 30 de the ESQD and the E	Surface Cleanup 0 3 0 arc', basec	Subsurface Cleanup 0 30 0 10 d on Question  ay congregate  onal human Subsurface	0	30	
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 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 in the following table is used to determine scores associated receptors (future use activities):	Baseline Conditions 30 de the ESQD a facilities where ivities with the location Baseline Conditions	Surface Cleanup 0 3 0 0 arc', basec e people ma	Subsurface Cleanup 0 30 0 10 d on Question  ay congregate  onal human Subsurface Cleanup	Score	30	
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or insidents' and the MRS or insidents' and the MRS or insidents' activities are 'Inside the MRS or insidents' activities are 'Insid	Baseline Conditions 30 de the ESQD a facilities where ivities with the location Baseline Conditions	Surface Cleanup 0 3 0 3 arc', based on of addittice Surface Cleanup 0 3	Subsurface Cleanup 0 30 0 10 d on Question ay congregate  Donal human Subsurface Cleanup 0 31	Score	30	
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 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 in the following table is used to determine scores associated receptors (future use activities):	Baseline Conditions 30 de the ESQD a facilities where ivities with the location Baseline Conditions	Surface Cleanup 0 3 0 3 arc', based on of addittice Surface Cleanup 0 3	Subsurface Cleanup 0 30 0 10 d on Question ay congregate  Donal human Subsurface Cleanup 0 31	Score	30	
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The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc  4. Current use activities are 'Inside the MRS or inside.'  2.' Baseline Conditions: Surface Cleanup: 5. Are there future plans to locate or construct features or 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):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc  7. Please answer Question 5 above to determine the	Baseline Conditions 30 de the ESQD and the E	Surface Cleanup 0 3 0 3 arc', based on of addittice Surface Cleanup 0 3	Subsurface Cleanup 0 30 0 10 d on Question ay congregate  Donal human Subsurface Cleanup 0 31	Score	30	
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or 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 is used to determine scores associated receptors (future use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc	Baseline Conditions 30 de the ESQD and the E	Surface Cleanup 0 3 0 3 arc', based on of addittice Surface Cleanup 0 3	Subsurface Cleanup 0 30 0 10 d on Question ay congregate  Donal human Subsurface Cleanup 0 31	Score	30	
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or 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):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 7. Please answer Question 5 above to determine the Baseline Conditions: Surface Cleanup:	Baseline Conditions 30 de the ESQD and the E	Surface Cleanup 0 3 0 3 arc', based on of addittice Surface Cleanup 0 3	Subsurface Cleanup 0 30 0 10 d on Question ay congregate  Donal human Subsurface Cleanup 0 31	Score	30	
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside. 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or 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 is used to determine scores associated receptors (future use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 7. Please answer Question 5 above to determine the Baseline Conditions:	Baseline Conditions 30 de the ESQD and the E	Surface Cleanup 0 3 0 3 arc', based on of addittice Surface Cleanup 0 3	Subsurface Cleanup 0 30 0 10 d on Question ay congregate  Donal human Subsurface Cleanup 0 31	Score	30	
The following table is used to determine scores associated receptors (current use activities):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 4. Current use activities are 'Inside the MRS or inside 2.' Baseline Conditions: Surface Cleanup: Subsurface Cleanup: 5. Are there future plans to locate or construct features or 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):  Inside the MRS or inside the ESQD arc Outside of the ESQD arc 7. Please answer Question 5 above to determine the Baseline Conditions: Surface Cleanup:	Baseline Conditions 30 de the ESQD and the E	Surface Cleanup 0 3 0 3 arc', based on of addittice Surface Cleanup 0 3	Subsurface Cleanup 0 30 0 10 d on Question ay congregate  Donal human Subsurface Cleanup 0 31	Score	30	

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Some barriers to entry, such as bertod wire forcing or rough therein is some barriers to entry, such as bertod wire forcing or rough therein is some barriers to entry, such as bertod wire forcing or rough therein is some or requirements for special transportation to reach the state in some or requirements for special transportation to reach the state in some or requirements for special transportation to reach the state in some or requirements for special transportation to reach the state of the	Sita Accessibility	Input Factor Categories						
Description No barriers to entify inciding signaps but no ferring signaps signa			ith site accessi	bility:				
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Potential Contac	ct Hours Input Factor Categor	ies					
The following table is	used to determine scores associated with	th the total potent	ial contact ti	me:			
	Description	Baseline Surf Conditions Clea	nup Clear	urface nup			
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 Very Few Hours	10,000 to 99,999 receptor-hrs/yr <10,000 receptor-hrs/yr	40 15	20 10	10 5			
Current Use Activit	tles:						
'Current and Future A	determined for baseline conditions for octivities' Worksheet, the Total Potential pove, this corresponds to a input factor ses:	Contact Time is:			147,8	receptor 800 hrs/yr 70 Score	
	determined for baseline conditions for f		s. Based on	the		receptor	
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Baseline Conditions: Surface Cleanup:							
Subsurface Cleanup:							

Amount of MEC	Input Factor Categories						
The following table is	used to determine scores associated wi	th the Amour Baseline	nt of MEC: Surface	Subsurface			
	Description	Conditions		Cleanup			
Target Area	Areas at which munitions fire was directed Sites where munitions were	180	12	D	30		
	disposed of by open burn or open detonation methods. This category						
OB/OD Area	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	0	30		
	Areas where the serviceability of stored munitions or weapons systems are tested. Testing may						
Function Test Range	include components, partial functioning or complete functioning of stockpile or developmental items.	165	91	0	25		
Burial Pit	The location of a burial of large quantities of MEC items.	140	14	D	10		
Maneuver Areas	Areas used for conducting military exercises in a simulated conflict area or war zone	115	1!	5	5		
Firing Daints	The location from which a projectile, grenade, ground signal, rocket,	75		n	_		
Firing Points	guided missile, or other device is to be ignited, propelled, or released.	75	11	U	5		
	Areas outside of target areas, test ranges, or OB/OD areas that were						
Safety Buffer Areas	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	11	0	5		
Storago	Any facility used for the storage of military munitions, such as earth-covered magazines, above-ground	25	. 10	n	5		
Storage	magazines, and open-air storage areas.	23		J	5		
Explosive-Related Industrial Facility	Former munitions manufacturing or demilitarization sites and TNT production plants	20	1	0	5		
Select the category th	at best describes the <i>most hazardous</i>	amount of I	MEC:		Score	1	
Target Area						180	
Baseline Conditions: Surface Cleanup:						120	
Subsurface Cleanup:						30	
Minimum MEC D	Depth Relative to the Maximu	m Intrusi	ve Deptl	n Input			
Current Use Activit							
The shallowest miniming The deepest intrusive	um MEC depth, based on the 'Cased Mu depth:	ınitions Inforr	mation' Wo	rksheet:		0 ft 3 ft	
The table below is use maximum intrusive de	ed to determine scores associated with t	he minimum	MEC depth	relative to t	he		
		Baseline Conditions	Surface Cleanup	Subsurface Cleanup			
	EC located surface and subsurface. ve depth overlaps with subsurface	240	150	0	95		
	EC located surface and subsurface, we depth does not overlap with	240	5	n	25		
Baseline Condition: MI	EC located only subsurface. Baseline anup: Intrusive depth overlaps with						
	EC located only subsurface. Baseline	150	N/A	A	95		
Condition or After Clea with minimum MEC de	anup: Intrusive depth does not overlap epth.	50	N/A	A	25		
intrusive depth, the both the surface an Worksheet. Theref	west minimum MEC depth is less the e intrusive depth will overlap after nd subsurface, based on the 'Muniti ore, the category for this input fac	cleanup. M ons, Bulk Ex tor is 'Basel	ECs are lo xplosive I ine Condi	ocated at nfo' tion: MEC			
	I subsurface. After Cleanup: Intrus or 'Current Use Activities', only Ba					240 Score	

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Task Order No.: 0005

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):	o 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)	<b>3</b> ft	
Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth overlaps. MECs are located at both the surface and		
subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located surface and		
subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	Score	
Baseline Conditions: Surface Cleanup:	240	
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): Not enough information has been entered in the 'Planned Remedial or Removal	ft	
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):  Not enough information has been entered in the 'Planned Remedial or Removal	ft	
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.		
Baseline Conditions:	Score	
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:	100010	
Surface Cleanup: Subsurface Cleanup:		

Response Alternative		_								
	depth (from the 'Planned Remedial o ion has been entered in the 'Plan									
	Please complete the table before									
Maximum Intercipe C	) on the							ft		
Maximum Intrusive D	peptn									
Not enough informati	ion has been entered to calculate	this input	factor.							
						Score				
Baseline Conditions:										
Surface Cleanup: Subsurface Cleanup:										
	al Input Factor Categories									
	historical evidence that indicates it is	possible for n	atural ph	ysical forces in	n [					
	ve, erosion) to expose subsurface ME	C items, or m	ove surfa	ice or						
subsurface MEC items?  If "ves", describe the na	ture of natural forces. Indicate key a	reas of poten		ition (e.g.,	1	No				
	a map as appropriate (attach a map t									
separate worksheet).										
The following table is us	ed to determine scores associated wit	h the migrati	on noten	tial:						
The following table is us	ed to determine scores associated wit	Baseline	Surface	Subsurface	9					
		Conditions								
Possible		30		30	10					
Unlikely		10		10	10					
Based on the question	n above, migration potential is 'U	nlikely.'				Score				
Baseline Conditions:							10			
Surface Cleanup: Subsurface Cleanup:							10 10			
							10			
Reference(s) for above i	nformation:							_		
					-					
MEC Classification	Input Factor Categories									
	rmation has been inputed into th	e 'Munition	s, Bulk E	xplosive Inf	o'					
Worksheet; therefore	e, bulk explosives do not comprise	e all MECs f	or this N	IRS.						
The 'Amount of MFC'	category is 'Target Area'. It canr	not be autor	natically	assumed						
	om this category are DMM. There									
•	e MEC items in this MRS are UXO									
	nent shown that MEC in the OB/OD A					· · ·				
	listed in the 'Munitions, Bulk Explosive Submunitions	ve iiiio vvoik	Sileet.			Yes				
	Rifle-propelled 40mm projectiles (oft	en called 40r	nm grena	ides)						
	Munitions with white phosphorus fille									
	<ul> <li>High explosive anti-tank (HEAT) rour</li> <li>Hand grenades</li> </ul>	nas								
	Fuzes									
	Mortars									
	d in the 'Munitions, Bulk Explosive	Info' Worksl	neet were	e identified as	S					
'fuzed'. The following table is us	ed to determine scores associated wit	h MEC classit	ication c	togorios:						
The following table is us	ed to determine scores associated wit	Baseline	Surface	Subsurface	9					
	UXO Special Case	Conditions								
UXO Special Case		180			180					
UXO Fuzed DMM Special Case	5	110 105			110 105					
Fuzed DMM	•	55		55	55					
Unfuzed DMM		45		45	45					
Bulk Explosives		45		45	45					
Based on your answe	rs above, the MEC classification i	s 'UXO Sper	ial Case			Score				
Baseline Conditions:							180			
Surface Cleanup:							180			
Subsurface Cleanup:							180			
MEC Size Input Fa		h MEO Ci								
The following table is us	ed to determine scores associated wit	Baseline	Surface	Subsurface	)					
	Description	Conditions	Cleanup	Cleanup						
	A									
	Any munitions (from the 'Munitions, Bulk Explosive Info' Worksheet)									
	weigh less than 90 lbs; small									
CII	enough for a receptor to be able to			10	40					
Small	move and initiate a detonation	40		40	40					
	All munitions weigh more than 90 lbs; too large to move without									
Large	equipment	0		0	0					
Based on the definitions	above and the types of munitions at	the site (see	'Munition	s, Bulk Explosi						
Info' Worksheet), the Mi	EC Size Input Factor is:					Small Score				
Baseline Conditions:						JUJI 8	40			
Surface Cleanup:							40			
Subsurface Cleanup:							40			

Input Factors Worksheet

# Scoring Summary

Site ID: Proposed Rocket and Rifle Gre	na a. Scoring Summary for Current Use Activities	
Date: 7/16/20	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. En	ergetic Material Type	High Explosive and Low Explosive Filler in Fragmenting Rounds	100
	f Additional Human Receptors		
	I. Site Accessibility		
	otential Contact Hours	T	
	. Amount of MEC	Target Area	180
VI. Minimum MEC De	epth Relative to Maximum Intrusive Depth		
VII.	Migration Potential	Unlikely	10
VIII	. MEC Classification	UXO Special Case	180
	IX. MEC Size	Small	40
	·	Total Score Hazard Level Category	510 4

Site ID:	Proposed Rocket and Rifle Grena	c. Scoring Summary for Response Alternative 1: No Action (Baselin	e Condition)
Date:			
	Input Factor	Input Factor Category	Score
I. Ene	ergetic 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. Po	tential Contact Hours	100,000 to 999,999 receptor hrs/yr	70
V	. Amount of MEC	Target Area	180
VI. Minimum MEC De	opin modure to maximum mindore	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	
		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?	N	lo					
Are cultural resources located within the MRS or within the ESQD arc?	N	lo					
Are significant ecological resources located within the MRS or within the ESQD arc?	N	lo					

# **MEC HA Summary Information**

		_		Comments
	Proposed Rocket/Grenade Maneuver			
Site ID:	Area			
Date:	8/12/2014			
	ntify the single specific area to be assessed in		this point forward,	
	ces to "site" or "MRS" refer to the specific area	that you have defined.		
	a unique identifier for the site:			
Proposed	Rocket/Grenade Maneuver Area			
5				
	ist of information sources used for this hazard	,	· ·	
	s, use the "Select Ref(s)" buttons at the ends	or each subsection to select the	e applicable	
Ref. No.	n sources from the list below.			
	Title (include version, publication date)  (EE/CA), Former Camp Croft Army Tr	coining Engility		
	(EE/CA) Action Memorandum, Former	J		
	Removal Report (August 8, 1994 - 5			
	Removal Report (March 8, 1995 - Ma			
	Removal Action, Former Camp Croft			
	(EE/CA), Former Camp Croft Army Tr			
	Report , Findings for the Former C			
8	Report Supplement, Findings for th	e Former Camp Croft		
9	Action, Ordnance Operable Units OC	OU-3 A, B, and C;		
10	Camp Croft Army Training Facility,	Spartanburg County,		
11	Addendum 01, Ordnance Operable Uni	t (OOU) 3, September		
12	ZAPATA, 2011, Work Plans For the F	ZI/FS		
-	describe the site:			
•	nclude units):	126.3 Acres		
	unitions-related use:			
Maneuver	land-use activities (list all that occur):			
Resident	, ,			
	nges to the future land-use planned?	7	No	
	the basis for the site boundaries?	1	NO	
J. WHAT IS	the busis for the site boundaries:			
	3 is a 12,102-acre Range Complex c			
	g a mortar range, an anti-tank ran			
	s, Lake Johnson and Lake Craig, res. Documented munitions used at t			
	, 2.36-inch rockets, and mortars (			
_	nitions have been discovered withi			
	5mm, and 155mm mortars. Several a			
	ared during previous removal actio		nowever,	
	e depths may have been less than o	r equal to 1 foot bgs.		
	rtain are the site boundaries?			
	a includes WWII era ranges 1-11 an			
	ange, anti-tank range, and several f historical data and findings fro		te boudaries are	
	s) for Part B:	111.		
2. 2. 2.100	.,			

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):

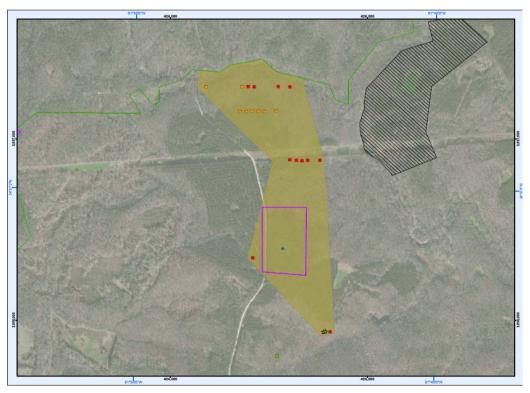
A TCRA was performed in 2013, subsequent to the RI investigation.

Reference(s) for Part C:



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

See Exhibit 8-8.



Summary Info Worksheet October 2014 Revision 0

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		Location of Munitions	Comments (include rationale for munitions that are "subsurface only")
										Surface	
1	_		Fuze (N/A)		Spotting			*****		and Subsurface	1
1	Fuzes		(N/A)		Charge	UNK	UNK	UNK	U	Subsurface	Unk
2	Grenades	2.25	inches		Low Explosive Filler in a fragmenting round	UNK	UNK	UNK		Surface and Subsurface	UNK
3	Grenades	2.25	inches	М9	rouna	UNK	UNK	UNK	U	Subsurface	UNK
3											
5											
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.

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 R1/FS

# **Bulk Explosive Information**

SUIK EX	Bulk Explosive Information											
tem No.	Explosive Type	Comments										
1	Black Powder											
2	UNK											
3	TNT											
4												
5												
6												
7												
8												
9												
10												

Reference(s) for table above:

Public Review Draft - Do Not Cite or Quote Contract No.: W912DY-10-D-0028

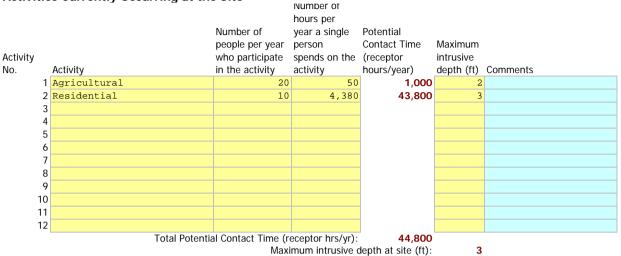
Task Order No.: 0005

 $\begin{array}{c} \mbox{Munitions, Bulk Explosive Info Worksheet} \\ October\ 2014 \\ Revision\ 0 \end{array}$ 

Site ID: Proposed Rocket/Grenade Maneuver Area

Date: 8/12/2014

## **Activities Currently Occurring at the Site**



Reference(s) for table above:

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

Activity	A and in the co	people per year who participate	spends on the		Maximum intrusive	Community
No.	Activity	in the activity	activity	hours/year)	depth (11)	Comments
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
1	0					
1	1					
1	2					
	Total Dotant	ial Contact Timo (r	cocontar bro/vr).	_		

WAXIIMII III W

Maximum intrusive depth at site (ft):

Reference(s) for table above:

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

Planned	Remedial	or I	Removal	Actions
---------	----------	------	---------	---------

Response		Expected Resulting Minimum MEC	Expected Resulting	Will land use activities change if this response action is		
Action No.	Response Action Description	Depth (ft)	Site Accessibility	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						
	g to the 'Summary Info' worksheet, no f u answered 'No' in Column E, the land u					

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Reference(s) for table above:

Remedial-Removal Action Worksheet October 2014 Revision 0

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)



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Reference(s) for table above:

Proposed Rocket/Gre nade Maneuver Area

8/12/2014 Date: **Energetic Material Type Input Factor Categories** Comments The following table is used to determine scores associated with the energetic materials. Materials are listed in order from most hazardous to least hazardous. Conditions Cleanup Cleanup High Explosive and Low Explosive Filler in Fragmenting Rounds White Phosphorus 100 100 100 70 70 70 Pyrotechnic Propellant 50 50 50 40 40 40 Spotting Charge Incendiary 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'. Baseline Conditions: 100 100 Surface Cleanup: 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? 3. Please describe the facility or feature. Residential, Argiculture MEC Item(s) used to calculate the ESOD 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): Raseline Surface Subsurface Conditions Cleanup Cleanup Inside the MRS or inside the ESQD arc 30 30 Outside of the ESQD arc Λ 4. Current use activities are 'Inside the MRS or inside the ESQD arc', based on Question Score Baseline Conditions: 30 30 Surface Cleanup: 30 Subsurface Cleanup: Are there future plans to locate or construct features or facilities where people may congregate The following table is used to determine scores associated with the location of additional human Inside the MRS or inside the ESQD arc Outside of the ESQD arc 7. Please answer Question 5 above to determine the scores. Score

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	Input Factor Categories sed to determine scores associated wit		bility: Surface	Subsurface			
Full Accessibility	Description  No barriers to entry, including signage but no fencing	Conditions 80		Cleanup			
Moderate Accessibility	Some barriers to entry, such as barbed wire fencing or rough terrain Significant barriers to entry, such as unguarded chain link fence or	55	55	55			
Limited Accessibility	requirements for special transportation to reach the site A site with guarded chain link fence or terrain that requires special	15	15	15			
Very Limited Accessibility	equipment and skills (e.g., rock climbing) to access	5	5	5			
	t best describes the site accessibility u	nder the curre	ent use sce	nario:	Score		
Full Accessibility Baseline Conditions: Surface Cleanup: Subsurface Cleanup:	у				ı	80 80 80	
Future Use Activity Select the category tha	<i>les</i> t best describes the site accessibility u	nder the futur	e use scen	ario:	1		
Baseline Conditions: Surface Cleanup: Subsurface Cleanup:					]		
Reference(s) for above	information:						
	tive No. 1: No Action (Baseline ad Remedial or Removal Actions' \ bility'.			ative will		80 80 80	
Response Alternat Please enter site acc Actions' Worksheet of Baseline Conditions: Surface Cleanup: Subsurface Cleanup:	essibility information in the 'Plan	ned Remedia	al or Rem	oval			
Response Alternat Please enter site acc Actions' Worksheet & Baseline Conditions: Surface Cleanup: Subsurface Cleanup:	essibility information in the 'Plan	ned Remedia	al or Rem	oval			
Response Alternate Please enter site acc Actions' Worksheet Baseline Conditions: Surface Cleanup: Subsurface Cleanup:	essibility information in the 'Plan	ned Remedia	al or Rem	oval			
Response Alternat Please enter site acc Actions' Worksheet & Baseline Conditions: Surface Cleanup: Subsurface Cleanup:	essibility information in the 'Plan	ned Remedia	al or Rem	oval			
Response Alternat Please enter site acc Actions' Worksheet of Baseline Conditions: Surface Cleanup: Subsurface Cleanup:	essibility information in the 'Plan	ned Remedia	al or Rem	oval			

Potential Contac	t Hours Input Factor Categor	ies						
The following table is u	used to determine scores associated wi	Baseline	Surface	e Subsuri	face			
Many Hours	Description ≥1,000,000 receptor-hrs/yr	Conditions 120		p Cleanu <sub>l</sub> 90	р 30			
Some Hours	100,000 to 999,999 receptor hrs/yr	70	)	50	20			
Few Hours Very Few Hours	10,000 to 99,999 receptor-hrs/yr	40 15		20 10	10 5			
very rew riburs	<10,000 receptor-hrs/yr	1.	,	10	J			
Current Use Activiti	'es:							
'Current and Future Ad	determined for baseline conditions for ctivities' Worksheet, the Total Potential ove, this corresponds to a input factor ss:	Contact Time	e is:		he	44,8	receptor 00 hrs/yr 40 Score	
'Current and Future Ad	determined for baseline conditions for tivities' Worksheet, the Total Potential	Contact Time		Based on th	ie		receptor hrs/yr Score	
	ove, this corresponds to a input factor : I'e No. 1: No Action (Baseline Cond						Score	
not change if this al	ed Remedial or Removal Actions' ternative is implemented.							
(see 'Current and Fu	tact Time, based on the contact tir uture Activities' Worksheet)		r currer	nt use activ		44,8	00	
Based on the table abo Baseline Conditions:	ove, this corresponds to input factor so	ores of:				Score	40	
Surface Cleanup: Subsurface Cleanup:							20 10	
Response Alternativ								
	ntion has been entered in the 'Plar Please complete the table before							
Total Potential Conf						Canan		
Baseline Conditions:	ove, this corresponds to input factor so					Score		
Surface Cleanup: Subsurface Cleanup:								
Response Alternativ								
	ntion has been entered in the 'Plar Please complete the table before							
Total Potential Conf	tact Time ove, this corresponds to input factor so	ares of:				Score		
Baseline Conditions:	ove, this corresponds to input factor se	JI C3 01.				00070		
Surface Cleanup: Subsurface Cleanup:								
Response Alternativ		ned Demos	dial au D	lowe avel				
	ntion has been entered in the 'Plan Please complete the table before							
Total Potential Conf	tact Time ove, this corresponds to input factor so	ores of:				Score		
Baseline Conditions: Surface Cleanup:	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,							
Subsurface Cleanup:								
Not enough informa	<i>re No. 5:</i> Ition has been entered in the 'Plar	ned Remed	dial or R	emoval				
	Please complete the table before							
Total Potential Cont Based on the table abo	tact Time  ove, this corresponds to input factor so	ores of:				Score		
Baseline Conditions: Surface Cleanup:	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,							
Subsurface Cleanup:								
Not enough information	<i>re No. 6:</i> ation has been entered in the 'Plar	ned Remer	dial or R	emoval				
	Please complete the table before							
Total Potential Conf						C		
Based on the table abo Baseline Conditions:	ove, this corresponds to input factor sc	ores of:				Score		
Surface Cleanup: Subsurface Cleanup:								
сарзанасе отеанар.								

The following table is used to determine scores associated with the Arcount of MCC Description Description Description Conditions Cleanup Clea		nput Factor Categories						
Description Conditions (Consulty Consulty Consul	The following table is us	sed to determine scores associated wi			Subsurface	,		
disclored disclored 190 LO 30  GROD Area Category refers to the one activity area of an 190 110 30  OR/OD Area Category refers to the cone schilly area of an 190 110 30  Function Test Range  Functio		Description						
Siles where numitions were disposed of by open burn or open distriction methods. This satisfy part of the property of the prop	Target Area		180	12	D	30		
deficiation methods. The category refers to the rose actility area of an OB/CD area. See the "Safety Buffer Access" collection of the Safety Buffer Access from the Safety Buffer Access f		Sites where munitions were						
OB/OD Area  refers to the core activity area of an OB/OD Area. See the "Safety Buffer Areas" cologopy for selety from and Areas substantial to a select of the service selection sele								
Areas category for safety fains and lock outs.  Arass where the sent-closability of stored murinions or evapors systems are tested. Testing may of stocipile or developmental items.  Burial PRI	OB/OD Area	refers to the core activity area of an	180	11	D	30		
Function Test Range  Function Test Range  Function Fest Range  Suprison Are Secure Sec								
Signature in tested. Testing may into the components, partial functioning or complete functioning or c								
Function Test Range Include components, partial Include Co								
Burial PIL  The location of a burid of targe quantities of HC items Areas used for conducting military covercises in a shadded conflict area or war zone  Firing Points  The location for a burid of targe quantities of HC items Areas used for conducting military covercises in a shadded conflict area or war zone  Firing Points  The location for which a projectile, generate, ground signal, colont, guided missile, or other device is to be lighted, projectile, or released.  Areas outside of larget areas, test ranges, or ORICO areas that were designed to act as a safety zone it be depited, projectile, or released.  Areas outside of the storage of military munifices, such as earth- covered magazines, above-ground migranises.  Former munifiers, above-ground migranises,	Function Test Range	systems are tested. Testing may	165	9	0	25		
Burial PII The location of a burial of large quantities of MIC tiems. Id-0 Id-0 ID Areas used for conducting military exercises in a simulated conflict area or war zone exercises in a simulated conflict area or war zone.  The location from which a projectile, geneade, ground signal, rockel, guilded missile, or other devices to be ignited, proposed, or released.  Areas outside of larget areas, test ranges, or ORION areas that were designed to act as a safety zone to contain multimost that do not hit targets or to contain lock-outs from Contain multimost that do not hit targets or to contain lock-outs from Contain multimost that do not hit targets or to contain lock-outs from Contain multimost that along the contain lock-outs from Contain multimost that and the second of the contain multimost that and the second of the contain multimost that and the second of the contain multimost that are second or secon	· =g-							
Agrandation of MEC located surface and subsurface.  Maneuver Areas  Areas used for conducting military  exercises in a simulated conflict area  or war zone  The location from which a projectile, grander ground signal, rocket, guided missile, or other device is to be lighted, promoting common signal, rocket, guided missile, or other device is to be lighted, propelled, or released.  Areas outside of target areas, test ranges, or OROOD areas that were being the projectile, grander ground signal, rocket, guided missile, or other device is to be lighted, propelled, or released.  Areas outside of target areas, test ranges, or OROOD areas that were being the project of the projec		of stockpile or developmental items.						
Areas used for conducting military covered by an admitted conflict area of 15 to 5 to 5 core and the conduction of the c	Burial Pit		140	14	D	10		
The location from which a projectile, grenade, ground signal, rocket, guided missile, or other device is to be ignited, propelled, or released.  Areas couside of target areas, test arange, or SIOD areas that vere alongs, or SIOD areas that vere contains whick-outs from OR/OD areas.  Safety Buffer Areas  Any facility used for the storage of milliary munitions, such as earth-covered magazines, above-ground 25 10 5 milliary munitions, such as earth-covered magazines, above-ground 25 10 5 milliary munitions, such as earth-covered magazines, and open-air Storage areas.  Explosive-Related industrial Facility  Areas Areas  Baseline Conditions  Sufface Cleanup: 115  Subsarface Cleanup: 115  Subsarface Cleanup: 15  Minimum MEC Depth Relative to the Maximum Intrusive Depth Input  Factor Calegories  Current Use Activities  The shallowest minimum MEC depth, based on the "Cased Munitions Information" Worksheet: 0 ft. The deepers intrusive depth overlaps with suburface Conditions (Cleanup) Cleanup  Baseline Condition: MEC located surface and subsurface.  Conditions of Area Cleanup: Intrusive depth overlaps with subsurface MEC.  Baseline Condition: MEC located only subsurface. 240 50 25  Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth does not overlap with subsurface MCC.  Condition or After Cleanup: Intrusive depth of son to overlap with subsurface MCC.  Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth of son to overlap with minimum MEC depth. See not overlap with subsurface MCC.  Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth of son son overlap with minimum MEC depth. See and subsurface, Subsect o								
Firing Points  The location from which a projectile, grenade, ground signal, rocket, guided missile, or other device is to be ignited, propelled, or released.  Areas outside of target areas, test ranges, or OB/OD areas that were designed to act as a safety zone to be contain Nack-outs from Any facility used for the storage of military munitions had to not hit targets or it comiain Nack-outs from Any facility used for the storage of military munitions. Such as centre.  Storage covered magazines, above-ground 25 10 5 magazines, and open-air storage areas.  Explosive-Related incovered magazines, above-ground 25 10 5 magazines, and open-air storage areas.  Former munitions manufacturing or demilitration sites and TNT 20 10 5 magazines. Beside the category that best describes the most hezardous amount of MEC:  Score  Minimum MEC alloy the best describes the most hezardous amount of MEC:  Score  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 table below is used to determine scores associated with the minimum MEC depth relative to the maximum intrusive depth: 3 ft The deepest intrusive depth: 3 ft The deepest intrusive depth overtage with subsurface.  After Cleanup: Intrusive depth overtage with subsurface.  After Cleanup: Intrusive depth overtage with subsurface MEC.  Baseline Condition: MEC located surface and subsurface. Baseline with subsurface MEC.  Baseline Condition: MEC located orly subsurface. Baseline with subsurface MEC.  Baseline Condition: MEC located durface and subsurface. Baseline with subsurface MEC.  Baseline Condition: MEC located orly subsurface. Baseline without overface and subsurface. After Cleanup: Intrusive depth overtage with subsurface with subsurface and subsurface. Baseline conditions: MEC located orly subsurface. Baseline without overface and subsurface. Baseline conditions: MEC located and subsurface. Baseline conditions: MEC located	Maneuver Areas		115	1	5	5		
Firing Points  grenade, ground signal, rocket, guided missile, or other device is to be lighted, propelled, or released.  Areas outside of target areas, test ranges, or OB/OD areas that were designed to act as a safety zone to contain multions that do not thit targets or to contain Mck-auts from Ary scalibly used for this strange of military munitions, such as earth-covered magazines, above ground a magazines, above ground a magazines, above ground areas.  Storage covered magazines, above ground 25 10 5 magazines, above ground areas.  Explosive-Related former munitions manufacturing or demilitarization sites and TNT 20 10 5 magazines. Above ground areas.  Explosive-Related relative to the most hazardous amount of MEC:  Societ the category hat best describes the most hazardous amount of MEC:  Societ the category that best describes the most hazardous amount of MEC:  Societ the category that best describes the most hazardous amount of MEC:  Societ Constitution of the most hazardous amount of MEC:  Societ Magazines, above ground areas of the most hazardous amount of MEC:  Societ Magazines, above ground areas of the most hazardous amount of MEC:  Societ Magazines, above ground areas of the most hazardous amount of MEC:  Societ Magazines, above ground areas of the most hazardous amount of MEC:  Societ Magazines, above ground areas of the most hazardous amount of MEC:  Societ Magazines, above ground areas of the most hazardous amount of MEC:  Societ Magazines, above ground areas of the most hazardous amount of MEC:  Societ Magazines, above ground areas of the most hazardous amount of MEC:  Societ Magazines, above ground areas of the most hazardous amount of MEC:  Societ Magazines, above ground areas of the most process of the most process of the magazines, and the magazines, and the most process of th								
suided missile, or other device is to be lighted, propelled, or released.  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 fixed act as a safety zone to contain munitions that do not hit targets or to contain fixed act as a safety zone to contain fixed zone zone and zone zone zone zone zone zone zone zone								
Areas outside of larget 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 six outside from OB/OD areas.  Any Scality used for the storage of military munitions, such as earth-covered magazines, above-ground 25 10 5 military munitions, such as earth-covered magazines, above-ground 25 10 5 military munitions manufacturing or demilitarization sites and TNT 20 10 5 military munitions manufacturing or demilitarization sites and TNT production plants  Select the category that best describes the <i>most hazardous</i> amount of MEC:  Score  Maneuver Areas  Subsubrace Cleanup:  Subsubrace Cleanup:  Subsubrace Cleanup:  Subsubrace Cleanup:  Minimum MEC Depth Relative to the Maximum Intrusive Depth Input  Factor Categories  Winimum MEC depth, based on the 'Cased Munitions Information' Worksheet:  The depest intrusive depth:  Baseline Condition: MEC located surface and subsurface.  Macro Condition: MEC located surface and subsurface.  Macro Condition: MEC located surface and subsurface.  Macro Cleanup: Intrusive depth does not overlap with military military military depth.  Subsubrace MEC.  Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth workings with subsurface.  Baseline Condition: MEC located and subsurface.  Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth does not overlap with minimum MEC depth.  Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth. The intrusive depth does not overlap with minimum MEC depth.  Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth workings after cleanup: Intrusive depth workings with minimum MEC depth.  Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth workings after Cleanup: Intrusive depth workings after Cleanup: Intrusive depth workings after Cleanup: In	Firing Points	guided missile, or other device is to	75	1	0	5		
Safety Buffer Areas  Safety Buffer Areas  Safety Buffer Areas  Contain munitions that do not hit largets or to contain kits. Author Storage of military munitions, such as earth-Storage areas.  Storage  Covered magazines, above-ground  Storage  Explosive-Related former munitions manufacturing or demilitarization sites and TNT groduction plants  Select the category that best describes the most hazardous amount of MEC:  Socre  Manueruser Areas  Baseline Conditions:  Subsurface Cleanup:  The deepest intrusive depth.  Subsurface Obstances and Subsurface.  Baseline Condition:  MEC located surface and subsurface.  After Cleanup: Intrusive depth overlaps with milmimum MEC located only subsurface.  Baseline Condition: MEC located surface and subsurface.  After Cleanup: Intrusive depth overlaps with milmimum MEC depth.  Subsurface.  Surface Cleanup: Intrusive depth overlaps with subsurface.  After Cleanup: Intrusive depth overlaps with milmimum MEC depth.  Subsurface.  Surface Cleanup: Intrusive depth overlaps with subsurface.  After Cleanup: Intrusive depth overlaps with milmimum MEC depth.  Subsurface.  Surface Subsurface  Condition: MEC located surface and subsurface.  After Cleanup: Intrusive depth overlaps with milmimum MEC depth.  Subsurface.  Surface Subsurface.  Surface Subsurface.  Surface Subsurface.  After Cleanup: Intrusive depth overlaps with milmimum MEC depth.  Subsurface MEC.  Subsurface MEC.  Subsurface Subsurface.  After Cleanup: Intrusive depth overlaps with milmimum MEC depth.  Subsurface MEC.  Subsurface MEC.  Subsurface Subsurface.  Subsurface Subsurface.  Surface Subsurface.  Subsurface Subsurface.  Subsurface MEC.  Subsurface MEC.  Subsurface Subsurface.  Subsurface MEC.  Subsurface Subsurface.  Subsurface MEC.  S		be ignited, propelled, or released.						
Safety Buffer Areas designed to act as a safety zone to contain munitions that do not hit targets or to contain kick-outs from ORO/OD areas.  Any facility used for the storage of military munitions, such as earth-Storage covered magazines, above-ground 25 10 5 military munitions muniform such as earth-Storage areas.  Explosive-Related magazines, above-ground 25 10 5 military munitions muniform sunfacturing or demilitarization sites and TNT 20 10 5 military munitions muniform sunfacturing or demilitarization sites and TNT 20 10 5 military munitions muniform sunfacturing or demilitarization sites and TNT 20 10 5 military munitions muniform sunfacturing or demilitarization sites and TNT 20 10 5 military muniform sunfacturing or demilitarization sites and TNT 20 10 5 military muniform sunfacturing or demilitarization sites and TNT 20 10 5 military muniform sunfacturing or demilitarization sites and TNT 20 10 5 military muniform sunfacturing or demilitarization sites and TNT 20 10 5 military muniform sunfacturing or demilitarization sites and TNT 20 10 5 military muniform sunfacturing or demilitarization sites and TNT 20 10 5 military muniform sunfacturing or demilitarization sites and TNT 20 10 5 military muniform sunfacturing or demilitarization sites and TNT 20 10 5 military muniform sunfacturing or demilitarization sites and TNT 20 10 5 military muniform sunfacturing or demilitarization sites and TNT 20 10 5 military muniform sunfacturing or demilitarization sites and TNT 20 10 5 military muniform sunfacturing or demilitarization sites and TNT 20 10 5 military muniform sunfacturing or demilitarization sites and TNT 20 10 5 military muniform sunfacturing s								
Safety Buffer Areas contain munitions that do not hit targets or to contain kick-couls from OB/OD areas. Any facility used for the storage of military munitions, such as earth- Storage covered magazines, and open-air storage areas.  Explosive-Related former munitions manufacturing or demilitarization sites and TNT 20 10 5 magazines, and open-air storage areas.  Explosive-Related former munitions manufacturing or demilitarization sites and TNT 20 10 5 magazines, and open-air storage areas.  Explosive-Related former munitions manufacturing or demilitarization sites and TNT 20 10 5 magazines, and open-air storage areas.  Explosive-Related former munitions manufacturing or demilitarization sites and TNT 20 10 5 magazines, and open-air storage areas.  Explosive-Related former munitions manufacturing or demilitarization sites and TNT 20 10 5 magazines, and open-air storage areas.  Explosive-Related former munitions manufacturing or demilitarization sites and TNT 20 10 5 magazines, and open-air storage areas.  Explosive-Related former munitions manufacturing or demilitarization sites and TNT 20 10 5 magazines, and open-air storage areas.  Score  Manueuver X-reas  Baseline Conditions:  Storage  Minimum MEC depth, based on the 'Cased Munitions Information' Worksheet: 0 ft The deepest intrusive depth  The deepest intrusive depth.  The table below is used to determine scores associated with the minimum MEC depth relative to the maximum intrusive depth.  Baseline Surface Subsurface.  Conditions Cleanup: Intrusive depth overlaps with subsurface MEC.  Baseline Condition: MEC located surface and subsurface.  After Cleanup: Intrusive depth overlaps with minimum MEC depth.  Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.  Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth with minimum MEC depth overlaps with minimum MEC depth.  Because the shallowest minimum MEC depth is less than or equal to the dee								
OB/OD areas. Any facility used for the storage of military munitions, such as earth-covered magazines, and open-air storage areas.  Explosive-Related conditions and advantage and TNT and the production plants  Select the category that best describes the <i>most hazardous</i> amount of MEC:  Score  Maneuver Arease Baseline Conditions:  Surface Cleanup:  Minimum MEC Depth Relative to the Maximum Intrusive Depth Input Factor Categories  Current Use Activities  The depest intrusive depth:  Baseline Condition: MEC located surface and subsurface.  After Cleanup: Intrusive depth does not overlap with subsurface  MEC.  240 150 95  Baseline Condition: MEC located surface and subsurface.  After Cleanup: Intrusive depth does not overlap with milmimum MEC depth is less than or equal to the depest intrusive depth, the intrusive depth overlaps with milmimum MEC depth is less than or equal to the depest intrusive depth, the intrusive depth overlaps with milmimum MEC depth is less than or equal to the depest intrusive depth, the intrusive depth overlaps with milmimum MEC depth is less than or equal to the depest intrusive depth, the intrusive depth overlaps with subsurface.  After Cleanup: Intrusive depth does not overlap with milmimum MEC depth overlaps with milmimum MEC depth is less than or equal to the depest intrusive depth, the intrusive depth overlaps with with milmimum MEC depth overlaps with both the surface and subsurface, after Cleanup: Intrusive depth overlaps with with milmimum MEC depth intrusive depth overlaps with bulk Explosive Info' Worksheet. Therefore, the category for this input factor is Baseline Condition: MEC located and subsurface, after Cleanup: Intrusive depth overlaps with bulk Explosive Info' Worksheet. Therefore, the category for this input factor is Baseline Condition: MEC located and subsurface. After Cleanup: Intrusive depth overlaps with bulk with subsurface.	Safety Buffer Areas	contain munitions that do not hit	30	1	0	5		
Any facility used for the storage of millitary munitions, such as earth-covered magazines, above-ground 25 10 5 magazines, and open-art storage areas.  Explosive-Related Industrial Facility Production plants  Select the category that best describes the <i>most hazardous</i> amount of MEC:  Select the category that best describes the <i>most hazardous</i> amount of MEC:  Select the category that best describes the <i>most hazardous</i> amount of MEC:  Select the category that best describes the <i>most hazardous</i> amount of MEC:  Select the category that best describes the <i>most hazardous</i> amount of MEC:  Select the category that best describes the <i>most hazardous</i> amount of MEC:  Select the category that best describes the <i>most hazardous</i> amount of MEC:  Select the category that best describes the <i>most hazardous</i> amount of MEC:  Select the category that best describes the <i>most hazardous</i> amount of MEC:  Select the category that best describes the <i>most hazardous</i> amount of MEC:  Select the category that best describes the <i>most hazardous</i> amount of MEC:  Select the category that best describes the <i>most hazardous</i> amount of MEC:  Select the category that best describes the <i>most hazardous</i> amount of MEC:  Select the category that best describes the <i>most hazardous</i> amount of MEC:  Select the category that best describes the <i>most hazardous</i> amount of MEC:  Select the category that best describes the <i>most hazardous</i> amount of MEC:  Select the category that best describes the <i>most hazardous</i> amount of MEC:  Select the category that best describes amount of MEC:  Select the category that best describes the <i>most hazardous</i> amount of MEC:  Select the category that best describes the <i>most hazardous</i> amount of MEC destribes the condition: MEC located and subsurface.  Alter Cleanup: Intrusive depth overlaps with minimum MEC depth.  Select the category that best describes the most depth overlaps with minimum MEC depth.  Select the category that best describes the most depth overlaps with minimum MEC depth.  Select the category tha								
Storage covered magazines, above-ground 25 10 5 magazines, and open-air storage areas.  Explosive-Related Industrial Facility production plants  Select the category that best describes the <i>most hazardous</i> amount of MEC:  Score  Maneuver Areas  Baseline Conditions:  Surface Cleanup:  Subsurface Cleanup:  Subsurface Cleanup:  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:  The deepest intrusive depth:  Baseline Condition: MEC located surface and subsurface.  After Cleanup: Intrusive depth offers not overlap with minimum MEC depth, Baseline Condition: MEC located only subsurface. Baseline  Conditions of After Cleanup: Intrusive depth overlaps with minimum MEC depth, Baseline Condition: MEC located only subsurface. Baseline  Condition: MEC located only subsurface. Baseline  Condition: MEC located only subsurface. Baseline  Condition: MEC located only subsurface. Baseline  Condition: MEC located uniformation with minimum MEC depth.  Baseline Condition: MEC located only subsurface. Baseline  Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.  Baseline Condition: MEC located only subsurface. Baseline  Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.  Baseline Condition: MEC located only subsurface. Baseline  Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.  Baseline Condition: MEC located only subsurface. Baseline  Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.  Baseline Condition: MEC located only subsurface. Baseline  Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.  Baseline Condition: MEC located only subsurface, Baseline Condition: MEC		Any facility used for the storage of						
Explosive-Related Industrial Facility Former munitions manufacturing or demilitarization sites and TNT 20 10 5 Former munitions manufacturing or demilitarization sites and TNT 20 10 5 Select the category that best describes the most hazardous amount of MEC:  Secore  Maneaver Axeas Baseline Conditions: Surface Cleanup: Subsurface Cleanup:  Minimum MEC Depth Relative to the Maximum Intrusive Depth Input Factor Categories Current Use Activities  Minimum MEC depth, based on the "Cased Munitions Information" Worksheet: 0 ft The deepest intrusive depth: Baseline Condition: MEC located surface and subsurface. Conditions Cleanup  Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC. After Cleanup: Intrusive depth overlaps with minimum MEC depth, based not overlap with minimum MEC depth, the Intrusive depth overlaps with minimum MEC depth.  150 N/A 95 Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.  Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.  Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with Minimum MEC depth.  Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with Minimum MEC depth.  Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: 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 and subsurface. After Cleanup: Intrusive depth wethough with will overlap after cleanup. MECs are located at both the surface and subsurface, After Cleanup: Intrusive depth overlaps with	Storage		25	1	0	5		
Explosive-Related Industrial Facility  Former munitions manufacturing or demilitarization sites and TNT		magazines, and open-air storage						
Industrial Facility production plants  Select the category that best describes the most hazardous amount of MEC:  Secore  Maneuver Areas  Baseline Conditions:  Surface Cleanup:  Subsurface Cleanup:  Subsurface Cleanup:  Minimum MEC Depth Relative to the Maximum Intrusive Depth Input  Factor Categories  Current Use Activities  The deepest intrusive depth:  Baseline Surface Subsurface Conditions Cleanup  Baseline Surface Subsurface Conditions MEC located surface and subsurface.  After Cleanup: Intrusive depth overlaps with subsurface MEC.  240 150 95  Baseline Conditions MEC located only subsurface. Baseline Conditions After Cleanup: Intrusive depth overlaps with Minimum MEC depth.  150 N/A 95  Baseline Conditions MEC located only subsurface. Baseline Conditions After Cleanup: Intrusive depth does not overlap with minimum MEC depth.  Baseline Conditions MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth does not overlap with minimum MEC depth.  Baseline Conditions MEC located only subsurface. Baseline Condition or After Cleanup: 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 Conditions MEC located at aboth the surface and subsurface, based on the Munitions, Bulk Explosive Info Worksheet. Therefore, the category for this input factor is Baseline Conditions MEC located at a both the surface and subsurface, After Cleanup: Intrusive depth worksheet. Therefore, the category for this input factor is Baseline Conditions MEC located at a both the surface and subsurface, After Cleanup: Intrusive depth overlaps with	Evaloriya Balatad							
Select the category that best describes the <i>most hazardous</i> amount of MEC:    Maneuver Areas	•		20	1	0	5		
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Surface Cleanup: Surface Subsurface Condition: Subsurface Condition: Surface Subsurface Condition: Subsurface Condition: Subsurface Subsurface Condition: Sufface Subsurface Condition: Subsurface Subs		t best describes the <i>most nazardous</i>	amount of N	/IEU:		360	n e	
Subsurface Cleanup:  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:  The deepest intrusive depth:  The table below is used to determine scores associated with the minimum MEC depth relative to the maximum intrusive depth:  Baseline Surface Subsurface Conditions Cleanup 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, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located 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								
Factor Categories  Current Use Activities  The shallowest minimum MEC depth, based on the 'Cased Munitions Information' Worksheet: 0 ft to the deepest intrusive depth: 3 ft to the deepest intrusive depth: 3 ft to the maximum intrusive depth: 8 Baseline Conditions MEC located surface and subsurface. Conditions 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 depest 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 and subsurface, After Cleanup: Intrusive depth overlaps with the control of the control								
Factor Categories  Current Use Activities  The shallowest minimum MEC depth, based on the 'Cased Munitions Information' Worksheet: 0 ft to the deepest intrusive depth: 3 ft to the deepest intrusive depth: 3 ft to the maximum intrusive depth: 8 Baseline Conditions MEC located surface and subsurface. Conditions 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 depest 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 and subsurface, After Cleanup: Intrusive depth overlaps with the control of the control	Minimum MEC De	onth Polative to the Maximus	m Intrucia	a Dont	a Innut			
The shallowest minimum MEC depth, based on the 'Cased Munitions Information' Worksheet:  The deepest intrusive depth:  The table below is used to determine scores associated with the minimum MEC depth relative to the maximum intrusive depth:  Baseline Surface Subsurface Conditions Cleanup  Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.  Baseline Condition: MEC located surface and subsurface, After Cleanup: Intrusive depth does not overlap with subsurface MEC.  Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.  Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth does not overlap with minimum MEC depth.  Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth does not overlap with minimum MEC depth.  Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: 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			iii iiitiusiv	е Бери	Tiliput			
The deepest intrusive depth:  The table below is used to determine scores associated with the minimum MEC depth relative to the maximum intrusive depth:  Baseline Conditions Surface Subsurface Conditions Cleanup  Baseline Conditions 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	Current Use Activitie	es						
The table below is used to determine scores associated with the minimum MEC depth relative to the maximum intrusive depth:    Baseline	The shallowest minimum	m MEC depth, based on the 'Cased Mu	initions Inforn	nation' Wo	rksheet:		o ft	
maximum intrusive depth:  Baseline Conditions MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.  Baseline Conditions: MEC located surface and subsurface MEC.  Baseline Condition: MEC located surface and subsurface, After Cleanup: Intrusive depth does not overlap with subsurface MEC.  Baseline Condition: MEC located only subsurface, Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.  Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth does not overlap with minimum MEC depth.  Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth does not overlap with minimum MEC depth.  Because the shallowest minimum MEC depth is less than or equal to the depest 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	•	•	he minimum	MEC dont	relative to t	ho	<b>3</b> ft	
Conditions Cleanup Cleanup  Baseline Condition: MEC located surface and subsurface  MEC.  After Cleanup: Intrusive depth overlaps with subsurface  MEC.  Baseline Condition: MEC located surface and subsurface,  After Cleanup: Intrusive depth does not overlap with  subsurface MEC.  Baseline Condition: MEC located only subsurface. Baseline  Condition or After Cleanup: Intrusive depth overlaps with  minimum MEC depth.  Baseline Condition: MEC located only subsurface. Baseline  Condition or After Cleanup: Intrusive depth does not overlap with minimum MEC depth.  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								
Baseline Condition: MEC located surface and subsurface.  After Cleanup: Intrusive depth overlaps with subsurface  MEC.  Baseline Condition: MEC located surface and subsurface,  After Cleanup: Intrusive depth does not overlap with  subsurface MEC.  Baseline Condition: MEC located only subsurface. Baseline  Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.  Baseline Condition: MEC located only subsurface. Baseline  Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.  Baseline Condition: MEC located only subsurface. Baseline  Condition or After Cleanup: Intrusive depth does not overlap with minimum MEC depth.  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						9		
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: MEC located only subsurface. 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								
Baseline Condition: MEC located surface and subsurface, After Cleanup: Intrusive depth does not overlap with subsurface MEC.  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	•	e depth overlaps with subsurface	240	15	0	95		
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	Baseline Condition: MEG							
Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.  Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth does not overlap with minimum MEC depth.  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		e depth does not overlap with	240	5	0	25		
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	Baseline Condition: MEG							
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		nup: intrusive depth overlaps with	150	N/	A	95		
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	Baseline Condition: MEG							
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			50	N/	Ą	25		
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								
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								
located surface and subsurface. After Cleanup: Intrusive depth overlaps with	both the surface and	subsurface, based on the 'Muniti	ons, Bulk Ex	plosive I	nfo'			
Salada nace made . 1.5. Saliton de notivities ; only buschine dollations are definitions						d.	240 Score	

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Futura II.a Antivitia		
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)	30016	
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet):	<b>o</b> 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)	<b>3</b> 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	
maximum mitudito popul		
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.		
Actions worksheet. I lease complete the table before retaining to this section.		
Maximum Intrusive Depth	ft	
Not enough information has been entered to calculate this input factor.		
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:	00016	
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.		
Recolling Conditions	Score	
Baseline Conditions: Surface Cleanup:		
Subsurface Cleanup:		

Response Alternative										
	depth (from the 'Planned Remedial o on has been entered in the 'Plan									
	Please complete the table before									
Maximum Intrusive D	epth									
Not opough informati	on hoo boom outored to coloulate	this immust	factor							
Not enough informati	on has been entered to calculate	tnis input	actor.			Score				
Baseline Conditions:										
Surface Cleanup:										
Subsurface Cleanup:										
	al Input Factor Categories instorical evidence that indicates it is	nossible for n	atural nh	veical forces in	n [					
	/e, erosion) to expose subsurface ME				"					
subsurface MEC items?					1	No				
	ture of natural forces. Indicate key a									
separate worksheet).	a map as appropriate (attach a map	to the botton		neet, or as a						
The following table is use	ed to determine scores associated wit									
		Baseline Conditions	Surface	Subsurface Cleanup	3					
Possible		30		30	10					
Unlikely		10		10	10					
						C				
Based on the question Baseline Conditions:	n above, migration potential is 'U	inlikely.				Score	10			
Surface Cleanup:							10			
Subsurface Cleanup:							10			
Reference(s) for above in	nformation:									
	Input Factor Categories									
	mation has been inputed into th			•	o'					
worksneet; therefore	, bulk explosives do not comprise	e all MECS fo	or this iv	IKS.						
	category is 'Maneuver Areas'. It	is assumed	that the	e MEC items	in					
this MRS are DMM.	nent shown that MEC in the OB/OD A	Vroa is DMMS	,							
	listed in the 'Munitions, Bulk Explosi				1	Yes				
	Submunitions									
	Rifle-propelled 40mm projectiles (off		nm grena	ades)						
	Munitions with white phosphorus fille High explosive anti-tank (HEAT) roun									
	Hand grenades	ilas								
	Fuzes									
	Mortars									
	d in the 'Munitions, Bulk Explosive	Info' Works	neet wer	e identified as	S					
'fuzed'. The following table is use	ed to determine scores associated wit	th MEC classit	ication c	ategories:						
The renorming table is as	sa to actornimo scoros associatea un	Baseline	Surface	Subsurface	9					
	Fuzed DMM Special Case	Conditions								
UXO Special Case		180 110			180 110					
UXO Fuzed DMM Special Case	1	105			105					
Fuzed DMM		55		55	55					
Unfuzed DMM		45		45	45					
Bulk Explosives		45		45	45					
Based on your answer	rs above, the MEC classification i	s 'Fuzed DM	IM Speci	ial Case'		Score				
Baseline Conditions:	a above, the MEO classification i	3 Tuzcu Div	ии эрсс	iai oasc .			105			
Surface Cleanup:							105			
Subsurface Cleanup:							105			
MEC Size Input Fa										
The following table is use	ed to determine scores associated wit	th MEC Size: Baseline	Surface	Subsurface						
	Description	Conditions	Cleanup							
	•									
	Any munitions (from the 'Munitions,									
	Bulk Explosive Info' Worksheet) weigh less than 90 lbs; small									
	enough for a receptor to be able to									
Small	move and initiate a detonation	40		40	40					
	All munitions weigh more than 90									
Large	lbs; too large to move without	0		0	0					
-	equipment above and the types of munitions at	-	'Munition							
Info' Worksheet), the ME		51.0 (306		_, Dain Enpi03		Small				
						Score				
Baseline Conditions: Surface Cleanup:							40 40			
Subsurface Cleanup:							40			

Input Factors Worksheet

# Scoring Summary

Site ID: Proposed Rocket/Grenade Ma	ne a. Scoring Summary for Current Use Activities	
Date: 8/12/20	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	p. Scoring Summary for Future Use Activities	
Date:	8/12/2014		No Response Action
Input Factor		Input Factor Category	Score
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
III.	Additional Human Receptors Site Accessibility tential Contact Hours		
	Amount of MEC	Maneuver Areas	115
VI. Minimum MEC De	epth 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 Hazard Level Category	370 4

Site ID: Proposed Rocket/Grenade Mane c. Scoring Summary for Response Alternative 1: No Action (Baseline Condition)				
Date: 8/12/20	4 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		

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Task Order No.: 0005

MEC HA Hazard Level Determination					
Site ID: Maneuver Area					
Date: 8/12/2014					
	<b>Hazard Level Category</b>	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?	N	lo			
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?	N	lo			

# **MEC HA Summary Information**

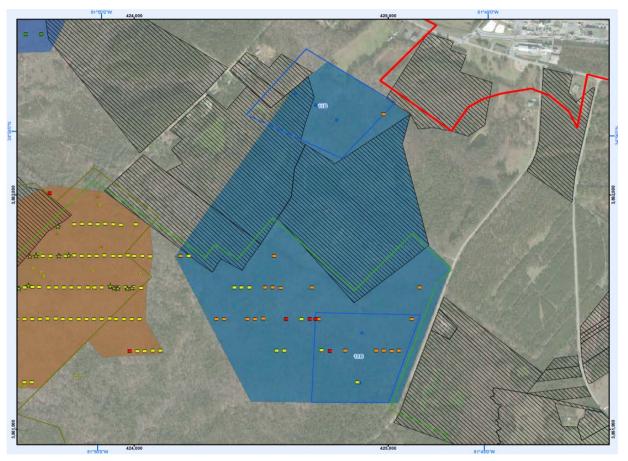
		Comments
Site ID:	Proposed Grenade Maneuver Area	
Date:	7/16/2013	
Please ide	vard	
	lana,	
	nces to "site" or "MRS" refer to the specific area that you have defined.  The aunique identifier for the site:	
	d Grenade Maneuver Area	
Provide a	list of information sources used for this hazard assessment. As you are completing the	
worksheet	ts, use the "Select Ref(s)" buttons at the ends of each subsection to select the applicable	
informatio	on 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,	
	(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	y describe the site:	
1. Area (i	include units): 257.7 Acres	
2. Past m	nunitions-related use:	
Maneuver	r Areas	
3. Curren	It land-use activities (list all that occur):	
Recreati	ional, Residential	
4. Are cha	anges to the future land-use planned? No	
5. What is	s the basis for the site boundaries?	
Thic are	ea encompasses both State Park and residential property outside of MF	20 3
	omposed, primarily, of AoPI 10B and AoPI 11B and the acreage between	
	wo areas. This area is not associated with a former range. However,	,
	ns have been discovered within this area including various rifle	
	s. No clearance activities have been conducted.	
6. How ce	ertain are the site boundaries?	
_	d site boudaries are based off historical data and findings from an F	RI.
Reference	e(s) for Part B:	
QST, 199	8a, Final Engineering Evaluation/Cost Analysis	
i	Former Camp Croft Army Training Facility,	
	ourg, SC, January 1998.	
•	Rock Island District, 1993, Archives Search Report,	
Findings	for the Former Camp Croft Army Training Facility,	
Spartanb	ourg, SC, September 1993	
USACE, R	Rock Island District, 2004, Archives Search Report	
Supplem	ent, Findings for the Former Camp Croft Army	
Training	Facility, Spartanburg, SC, November 2004.	
ZAPATA,	2011, Work Plans For the RI/FS	
C. Histor	rical Clearances	
1. Have t	here been any historical clearances at the site?  No, none	
2. If a cle	earance 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 we	ere
	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 8-18.



Proposed Grenade Maneuver Area 7/16/2013

# **Cased Munitions Information**

	Munition Type (e.g., mortar, projectile, etc.)	Munition Size	Munition Size Units	Mark/ Model	Energetic Material		Fuzing Type	Fuze Condition	Minimum Depth for Munition (ft)	Location of Munitions	Comments (include rationale for munitions that are "subsurface only")
item No.	mortar, projectne, etc.)	SIZE	Size Offics	Wark/ Woder		T uzcu:	ruzing rype	Condition	(11)	Widthtions	substitute only )
1	Rockets	2.36	inches	M6A3	Low Explosive Filler in a fragmenting round	UNK			0	Surface and Subsurface	
2	Grenades	2.25	inches	м9	Low Explosive Filler in a fragmenting round	UNK			0	Surface and Subsurface	
3	or chadeb	2.23	THORICO		Tourid	OTTE				Dubburrace	
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

ulk Ex	plosive Information		
em No.	Explosive Type	Comments	
1	Pentolite		
2	Pentolite		
3			
4			
5			
6			
7			
8			
9			
10			

Reference(s) for table above:

Munitions, Bulk Explosive Info Worksheet October 2014 Revision 0

3

Site ID: Proposed Grenade Maneuver Area

Date: 7/16/2013

# **Activities Currently Occurring at the Site**

			Number of			
		Number of people per year	hours per year a single person	Potential Contact Time	Maximum	
Activity		who participate	spends on the	(receptor	intrusive	
No.	Activity	in the activity	activity	hours/year)	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					
1	0					
1	1					
1	2					
	Total Potent	ial Contact Time (r	eceptor hrs/yr):	1,423,800		

Maximum intrusive depth at site (ft):

Reference(s) for table above:

# 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	hours per year a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
	1			1	doptii (it)	
	2			-		
	3					
	4			-		
	5					
	6					
	7					
	8					
	9					
1	10					
1	1					
1	12					
	Total Poton	tial Contact Time (	rocontor bro (vr).			

Maximum intrusive depth at site (ft):

Reference(s) for table above:

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Site ID: Proposed Grenade Maneuver Area
Date: 7/16/2013

sponse	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
	<u> </u>	1	Moderate		l i i i i i i i i i i i i i i i i i i i	
1 N	No Action (Baseline Condition)	0	Accessibility	No	No MEC cleanup	
2						
3						
4						
5						
6						
_						
	to the 'Summary Info' worksheet, no f answered 'No' in Column E, the land u					

Reference(s) for table above:

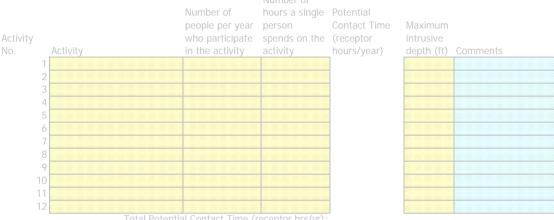
Remedial-Removal Action Worksheet
October 2014
Revision 0

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.





otal Potential Contact Time (receptor hrs/yr):

Maximum intrusive depth at site (ft):

Reference(s) for table above:

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Comments

Proposed Grenade Maneuver
Site ID: Area
Date: 7/16/2013

**Energetic Material Type Input Factor Categories** 

Ellergetic Material Type Hiput Factor Catego	11162						Commen	เร	
The following table is used to determine scores associated v	vith the energ	etic materia	als. Materials						
are listed in order from most hazardous to least hazardous.	Baseline	Surface	Subsurface						
	Conditions	Cleanup	Cleanup						
High Explosive and Low Explosive Filler in Fragmenting	100	100	100						
Rounds White Phosphorus	70	70	70						
Pyrotechnic	60	60	60						
Propellant	50	50	50						
Spotting Charge Incendiary	40 30	40 30	40 30						
incential y	30	30	30						
The most hazardous type of energetic material listed in									
Worksheet falls under the category 'High Explosive and Rounds'.	Low Explosi	ve Filler in	Fragmenting	Score					
Rounds.				30016					
Baseline Conditions:					100				
Surface Cleanup:					100 100				
Subsurface Cleanup:					100				
Location of Additional Human Receptors Ing	out Factor	Categori	ies						
1. What is the Explosive Safety Quantity Distance (ESQD) fi									
Explosive Safety Submission for the MRS?			the MDC		142	feet			
2. Are there currently any features or facilities where peopl within the ESQD arc?	e may congre	gate within	the MRS, or	Yes					
Please describe the facility or feature.				100					
State Park, Residential									
MEC Item(s) used to calculate the ESQD for current use act	ivities								
Item #1. Rockets (2.36inches, Low Explosive Filler i									
The following table is used to determine scores associated v receptors (current use activities):	vith the location	on of addition	onal human						
receptors (current use activities).	Baseline	Surface	Subsurface						
	Conditions	Cleanup	Cleanup	0					
Inside the MRS or inside the ESQD arc Outside of the ESQD arc	30			0					
4. Current use activities are 'Inside the MRS or inside	e the ESQD a			_					
2.'				Score	20				
Baseline Conditions: Surface Cleanup:					30 30				
Subsurface Cleanup:					30				
5. Are there future plans to locate or construct features or	facilities where	e people ma	ay congregate						
within the MRS, or within the ESQD arc?									
Please describe the facility or feature.									
MEC Item(s) used to calculate the ESQD for future use active	rities					_			
The following table is used to determine scores associated v	vith the location	on of addition	onal human			_			
receptors (future use activities):									
	Baseline Conditions	Surface Cleanup	Subsurface Cleanup						
	CONCINIONS	Cleanup	Cleariup						
Inside the MRS or inside the ESQD arc Outside of the ESQD arc	30								
Outgine of the E2GD arc	,	U							
7. Please answer Question 5 above to determine the	scores.			Score					
Baseline Conditions: Surface Cleanup:									
Subsurface Cleanup:									

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	Input Factor Categories sed to determine scores associated wi			surface		
Full Accessibility	Description  No barriers to entry, including	Conditions Cle	anup Clea	nup 80		
Moderate Accessibility	signage but no fencing  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 A site with guarded chain link fence	15	15	15		
Very Limited Accessibility	or terrain that requires special equipment and skills (e.g., rock climbing) to access	5	5	5		
Current Use Activities Select the category that	itles It best describes the site accessibility u	nder the current	use scenario		Score	
Moderate Accessib	ility				55	
Baseline Conditions: Surface Cleanup:					55 55	
Subsurface Cleanup:					55	
Future Use Activit						
Select the category tha	t best describes the site accessibility u	naer the future u	se scenario:			
Baseline Conditions:						
Surface Cleanup: Subsurface Cleanup:						
	information.					
Reference(s) for above	mormation:					
Dannana 4/4anna	No No 1. No Action (Boschine	Condition)				
	tive No. 1: No Action (Baseline ed Remedial or Removal Actions'		alternative	e will		
lead to 'Moderate Ad						
Baseline Conditions: Surface Cleanup:					55 55	
Subsurface Cleanup:					55	
Dannana Altannai	Nua Na 2					
Response Alternati	cessibility information in the 'Plan	ned Remedial o	or Removal			
Actions' Worksheet	to continue.					
Baseline Conditions: Surface Cleanup:						
Subsurface Cleanup:						
Response Alternat	tive No. 3:					
Please enter site acc Actions' Worksheet	cessibility information in the 'Plan to continue.	ned Remedial o	or Removal			
Baseline Conditions: Surface Cleanup:						
Subsurface Cleanup:						
Response Alternat	tive No. 4:					
	cessibility information in the 'Plan	ned Remedial o	or Removal			
Baseline Conditions: Surface Cleanup:						
Subsurface Cleanup:						
	Mus No. F.					
Response Alternate Please enter site acc Actions' Worksheet	cessibility information in the 'Plan	ned Remedial o	or Removal			
Baseline Conditions:	to continue.					
Surface Cleanup:						
Subsurface Cleanup:						
Response Alternat	tive No. 6:					
Please enter site acc	cessibility information in the 'Plan	ned Remedial o	or Removal			
Actions' Worksheet : Baseline Conditions:	to continue.					
Surface Cleanup:						
Subsurface Cleanup:						

9	s used to determine scores associated with						
any Hours		aseline Sur onditions Clea 120		urface nup 30			
me Hours	21,000,000 receptor-ins/yr	70	50	20			
w Hours	10,000 to 99,999 receptor-hrs/yr	40	20	10			
y Few Hours	<10,000 receptor-hrs/yr	15	10	5			
rrent Use Activi	Itles:						
rrent and Future A	y determined for baseline conditions for cur Activities' Worksheet, the Total Potential Co bove, this corresponds to a input factor sco les:	ntact Time is:				receptor 00 hrs/yr 20 Score	
irrent and Future A	y determined for baseline conditions for fut Activities' Worksheet, the Total Potential Co	ntact Time is:	s. Based on	the		receptor hrs/yr Score	
	bove, this corresponds to a input factor sco Live No. 1: No Action (Baseline Conditi					Score	
	ned Remedial or Removal Actions' Wo alternative is implemented.	orksheet, land	l use activi	ties will			
otal Potential Co	ntact Time, based on the contact time	listed for cur	rent use ac	tivities	1,423,80	20	
sed on the table a	Future Activities' Worksheet) bove, this corresponds to input factor score	s of:			Score		
seline Conditions: rface Cleanup:						20 90	
bsurface Cleanup:	Nuo No. 2					30	
<i>esponse Alternat</i> ot enough inforn	ave No. 2: nation has been entered in the 'Planne	d Remedial o	r Removal				
	t. Please complete the table before re						
otal Potential Co	ntact Time bove, this corresponds to input factor score	s of:			Score		
seline Conditions:	bove, this corresponds to input factor score	3 01.			00070		
rface Cleanup: bsurface Cleanup:							
esponse Alternat							
	nation has been entered in the 'Planne et. Please complete the table before re						
otal Potential Co							
ised on the table a iseline Conditions:	bove, this corresponds to input factor score	s of:			Score		
rface Cleanup:							
bsurface Cleanup: Esponse Alternat	tive No. 4:						
	nation has been entered in the 'Planne et. Please complete the table before re						
otal Potential Co							
seline Conditions:	bove, this corresponds to input factor score	S OT:			Score		
rface Cleanup: bsurface Cleanup:							
esponse Alternat	tive No. 5:						
	nation has been entered in the 'Planne et. Please complete the table before re						
tal Potential Co					C		
sed on the table a seline Conditions:	bove, this corresponds to input factor score	s of:			Score		
rface Cleanup:							
bsurface Cleanup: E <b>sponse Alternat</b>	tive No. 6:						
	nation has been entered in the 'Planne et. Please complete the table before re						
otal Potential Co		_					
sed on the table a	bove, this corresponds to input factor score	s of:			Score		
aseline Conditions: urface Cleanup:							

Amount of MEC	Input Factor Categories						
The following table is	used to determine scores associated wi						
	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup			
arget Area	Areas at which munitions fire was directed	180	120	) :	30		
DB/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	180	110	) :	30		
unction Test Range	kick-outs.  Areas where the serviceability of stored munitions or weapons systems are tested. Testing may include components, partial	165	90	) :	25		
	functioning or complete functioning of stockpile or developmental items.						
urial Pit	The location of a burial of large quantities of MEC items. Areas used for conducting military	140	140	)	10		
laneuver Areas	exercises in a simulated conflict area or war zone	115	1!	5	5		
iring 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		
afety 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		
torage	Any facility used for the storage of military munitions, such as earth- covered magazines, above-ground magazines, and open-air storage	25	10	)	5		
xplosive-Related ndustrial Facility	areas. Former munitions manufacturing or demilitarization sites and TNT production plants	20	10	)	5		
elect the category that	at best describes the <b>most hazardous</b>	amount of I	MEC:		Score		
aneuver Areas						115	
aseline Conditions: urface Cleanup:						115 15	
ubsurface Cleanup:						5	
linimum MEC D actor Categorie	epth Relative to the Maximu	m Intrusi	ve Depth	n Input			
urrent Use Activiti							
ne shallowest minimu ne deepest intrusive	um MEC depth, based on the 'Cased Mu depth:	initions Inforr	nation' Wo	rksheet:		0 ft 3 ft	
	d to determine scores associated with t	he minimum	MEC depth	relative to th	е		
	•	Baseline Conditions	Surface Cleanup	Subsurface Cleanup			
fter Cleanup: Intrusiv IEC.	EC located surface and subsurface. ve depth overlaps with subsurface	240	150	) (	95		
	EC located surface and subsurface, ve depth does not overlap with	240	50	) ;	25		
aseline Condition: ME	EC located only subsurface. Baseline anup: Intrusive depth overlaps with	150		4	95		
aseline Condition: ME ondition or After Clea	EC located only subsurface. Baseline inup: Intrusive depth does not overlap						
ith minimum MEC de	ptn.	50	N/A	4 :	25		
ntrusive depth, the oth the surface an Vorksheet. Therefo	west minimum MEC depth is less the intrusive depth will overlap after d subsurface, based on the 'Munitione, the category for this input fac	cleanup. M ons, Bulk Ex tor is 'Basel	ECs are lo oplosive I ine Condi	ocated at nfo' tion: MEC			
	subsurface. After Cleanup: Intrus or 'Current Use Activities', only Ba					240 Score	

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Future Use Activities Deepest intrusive depth:	ft	
Not enough information has been entered to determine the input factor category.  Response Alternative No. 1. No Action (Baseline Condition) Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): 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) 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 O ft 3 ft	
Baseline Conditions: Surface Cleanup: Subsurface Cleanup: Response Alternative No. 2: Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): 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	<b>Score</b> 240 ft	
Not enough information has been entered to calculate this input factor.  Baseline Conditions: Surface Cleanup: Subsurface Cleanup: Response Alternative No. 3: Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): 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	Score ft	
Not enough information has been entered to calculate this input factor.  Baseline Conditions: Surface Cleanup: Subsurface Cleanup: Response Alternative No. 4: Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): 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	Score ft	
Not enough information has been entered to calculate this input factor.  Baseline Conditions: Surface Cleanup: Subsurface Cleanup: Response Alternative No. 5: Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): 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	Score ft	
Not enough information has been entered to calculate this input factor.  Baseline Conditions: Surface Cleanup: Subsurface Cleanup:	Score	

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Response Alternative			41114/	-ll4\			6				4
	depth (from the 'Planned Remedial o ion has been entered in the 'Plan						fl				Н
	Please complete the table before										
Maximum Intrusive D	Depth						f				-
Not enough informati	ion has been entered to calculate	this input t	actor.			Score					Н
						00070					Н
Surface Cleanup:											
Subsurface Cleanup:											_
	al Input Factor Categories										
	historical evidence that indicates it is ve, erosion) to expose subsurface ME				ın						
subsurface MEC items?	ve, crosion) to expose subsurface inc	o items, or m	ove surra	JC 01		No					
	ture of natural forces. Indicate key a										
overland water flow) on separate worksheet).	a map as appropriate (attach a map	to the bottom	of this sh	eet, or as a							
separate worksneet).											Н
The following table is us	ed to determine scores associated wit	th the migration	on potent	ial:							П
			Surface	Subsurfac	ce						
Dibi-		Conditions 30	Cleanup 3	Cleanup	10						4
Possible Unlikely		10	ა 1		10						Н
Orinkery											
	n above, migration potential is 'U	Inlikely.'				Score					
Baseline Conditions:							10				
Surface Cleanup: Subsurface Cleanup:							10 10				Н
							10				
Reference(s) for above in	nformation:										4
								_			٦
MEC Classification	Input Factor Categories										П
	rmation has been inputed into th	e 'Munitions	s. Bulk E	xplosive Ir	nfo'						Н
	, bulk explosives do not comprise										
The 'Amount of MEC'	catogory is 'Managuer Aroas' . It	ic accumed	that the	MEC itom	r in						
this MRS are DMM.	category is 'Maneuver Areas'. It	is assumed	that the	WEC Items	5 111						
	nent shown that MEC in the OB/OD A	Area is DMM?									
	listed in the 'Munitions, Bulk Explosi	ve Info' Works	sheet:			No					
	Submunitions	ton called 40n		dos)							-
	<ul> <li>Rifle-propelled 40mm projectiles (off Munitions with white phosphorus fille</li> </ul>		iiii grena	ues)							Н
	High explosive anti-tank (HEAT) rou										П
	Hand grenades										
	Fuzes										
	Mortars										-
None of the items lister 'fuzed'.	d in the 'Munitions, Bulk Explosive	Info' Worksh	eet were	identified a	as						
	ed to determine scores associated wit	h MFC classifi	ication ca	tegories:							Н
		Baseline	Surface	Subsurfac	ce						П
	Unfuzed DMM		Cleanup	Cleanup							
UXO Special Case		180	18		180						4
UXO Fuzed DMM Special Case		110 105	11 10		110 105						
Fuzed DMM		55	5		55						П
Unfuzed DMM		45	4		45						
Bulk Explosives		45	4	5	45						4
Pacad on your answe	rs above, the MEC classification i	c "Infuzod F	יאמאמ			Score					
Baseline Conditions:	is above, the MEC classification i	S Ulliuzeu L	JIVIIVI .			30076	45				٦
Surface Cleanup:							45				П
Subsurface Cleanup:							45				
MEC Size Input Fa	ctor Categories										
The following table is use	ed to determine scores associated wit										
	D	Baseline	Surface	Subsurfac	ce						
	Description	Conditions	Cleanup	Cleanup							-
	Any munitions (from the 'Munitions,										
	Bulk Explosive Info' Worksheet)										
	weigh less than 90 lbs; small										
Small	enough for a receptor to be able to move and initiate a detonation	40	4	0	40						
	All munitions weigh more than 90	40	4	-	10						
	lbs; too large to move without										
Large	equipment	0		0	0						
	above and the types of munitions at	the site (see '	Munitions	, Bulk Explo	sive						
Info' Worksheet), the ME	C Size Input Factor is:					Small Score					
Baseline Conditions:						JUJI 6	40				
Surface Cleanup:							40				
Subsurface Cleanup:							40				

Input Factors Worksheet

# **Scoring Summary**

Site ID: Proposed Grenade Maneuver	rea. Scoring Summary for Current Use Activities	
Date: 7/16/20	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. Ene	rgetic Material Type	High Explosive and Low Explosive Filler in Fragmenting Rounds	100
	Additional Human Receptors		
111.	Site Accessibility		
IV. Pot	tential Contact Hours		
V.	Amount of MEC	Maneuver Areas	115
VI. Minimum MEC De	epth Relative to Maximum Intrusive Depth		
VII.	Migration Potential	Unlikely	10
VIII.	MEC Classification	Unfuzed DMM	45
	IX. MEC Size	Small	40
		Total Score Hazard Level Category	310 4

Site ID: Proposed Grenade Maneuver	rec. Scoring Summary for Response Alternative 1: No Action (Baselin	e Condition)
Date: 7/16/20	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	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

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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?	N	lo
Are cultural resources located within the MRS or within the ESQD arc?	N	lo
Are significant ecological resources located within the MRS or within the ESQD arc?	N	0

#### 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	X 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.

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# **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	3 0 . 0. 0,	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	<b>Directions:</b> Record <u>the single highest score</u> 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.

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#### 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	<b>DIRECTIONS:</b> 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.

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#### 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 <u>all</u> 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
	Physical evidence indicates that there are UXO or DMM on the surface of the MRS.	
Confirmed Surface	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	20
	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.	
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 <b>not</b> 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 <b>not</b> likely to expose UXO or DMM.	15
	Historical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are <b>not</b> 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 <b>not</b> likely to expose UXO or DMM.	
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	<b>DIRECTIONS:</b> 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.

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# **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 (l.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	<b>DIRECTIONS:</b> 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.

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# 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 Score 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 Non-DoD Control 5 water bodies owned or controlled by state, tribal, or local governments, and land or water bodies managed by other federal agencies. 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 Scheduled for Transfer from DoD Control 3 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. 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 **DoD Control** 0 Department must control access to the MRS 24 hours per day, every day of the calendar year. DIRECTIONS: Record the single highest score from above in the **Status of Property** 5 box to the right (maximum score = 5). Directions: Document any MRS-specific data used in selecting the Status of Property classifications in the space provided.

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# **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 <u>highest</u> 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 <u>single highest score</u> 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)

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# 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.

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# 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
<b>Directions:</b> Document any MRS-specific data used in provided.	n selecting the TYPES OF ACTIVITIES/STRUCTURES classifications in the spa	ice
Residential and Commercial structures located v	vithin 2 miles.	

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# 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
	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).

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Table 10  Determining the EHE Module Rating				
Directions:	Explosives Hazard Factor Data	Score Elements	Score	Value
From Tables 1 - 9, record the data element scores in the <b>Score</b> boxes to the	Munitions Type	Table 1	3	8
right.	Source of Hazard	Table 2	5	
Add the <b>Score</b> boxes for each of the	Accessibility Factor Data Elem	ents		
three factors and record this number in the <b>Value</b> boxes to the right.	Location of Munitions	Table 3	0	
3. Add the three <b>Value</b> boxes and record	Ease of Access	Table 4	0	5
this number in the <b>EHE Module Total</b> box below.	Status of Property	Table 5	5	
4. Circle the appropriate range for the <b>EHE</b>	Receptors Factor Data Elemen	its		
Module Total below.	Population Density	Table 6	3	
5. Circle the <b>EHE Module Rating</b> that	Population Near Hazard	Table 7	5	
corresponds to the range selected and	Types of Activities/ Structures	Table 8	5	16
record this value in the EHE Module Rating box found at the bottom of the table.	Ecological and/ or Cultural Resources	Table 9	3	
		EHE Mo	dule Total	29
	EHE Module Total	EHE M	lodule Rati	ing
	92 to 100		Α	
Note: An alternative module rating	82 to 91		В	
may be assigned when a module letter	71 to 81	С		
rating is inappropriate. An alternative module rating is used when more	60 to 70		D	
information is needed to score one or	48 to 59	E		
more data elements, contamination at	38 to 47	<u></u>		
an MRS was previously addressed, or	less than 38		<u>(G)</u>	
there is no reason to suspect		Evaluation Pending		)
contamination was ever present at an MRS.	Alternate Module Ratings	No Longer Required		
Wil CO.		No Known or Suspected Explosive Hazard		
	EHE Module Rating	LAPIC	G G	u

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# 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.	(
CWM CONFIGURATION	<b>DIRECTIONS:</b> Record the <u>single highest score</u> from above in the box to the right (maximum score = 30).	0

Directions: Document any MRS-specific data used in selecting the CWM Configuration classifications in the space

No CWM was observed during the RI fieldwork.

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Tables 12-19 are intentionally omitted-No Known or Suspected CWM Hazard.

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Table 20					
Determining the CHE Module Rating					
Directions:	CWM Hazard Factor Data Elen	Score nents	Score	Value	
		1			
1. From Tables 1 - 9, record the data element scores in the <b>Score</b> boxes to the	CWM Configuration	Table 11	0	0	
right.	Sources of CWM	Table 12	0		
Add the <b>Score</b> boxes for each of the three factors and record this number in the	0				
Value boxes to the right.	Location of CWM	Table 13	0		
3. Add the three Value boxes and record	Ease of Access	Table 14	0	0	
this number in the CHE Module Total box below.	Status of Property	Table 15	0		
4. Circle the appropriate range for the CHE	Receptors Factor Data Elemer	nts			
Module Total below.	Population Density	Table 16	0		
5. Citada tha CUE Madada Datin a that	Population Near Hazard	Table17	0		
Circle the CHE Module Rating that corresponds to the range selected and	Types of Activities/ Structures	Table 18	0	0	
record this value in the CHE Module Rating box found at the bottom of the table.	Ecological and/ or Cultural Resources	Table 19	0		
		CHE Mo	dule Total	0	
	CHE Module Total	CHE N	lodule Rat	ing	
	92 to 100		Α		
Note: An alternative module rating	82 to 91		В		
may be assigned when a module letter	71 to 81	С			
rating is inappropriate. An alternative	60 to 70		D		
module rating is used when more	48 to 59 38 to 47		E F		
information is needed to score one or more data elements, contamination at	less than 38		G G		
an MRS was previously addressed, or	less than 50	Fyalu	ation Pendi	na	
there is no reason to suspect		No Lenger Required		ŭ	
contamination was ever present at an MRS.	Alternate Module Ratings	No Known or Suspected		_	
		CWM Hazard			
	CHE Module Rating		n or Suspo /M Hazard	ected	

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# **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 Co	ntaminant]
2 > CHF	L (low)	[Comparison Value for Conta	minant]
Contaminant Hazard Factor	Directions: Record the CHF Value from above	e in the box to the right (maximum value = H).	

	Migratory Pathway Factor_				
DIRECTIONS: Circle the	e 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.	Н			
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.	М			
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 <u>single highest value</u> 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).	н	
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).	М	
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 <u>single highest value</u> 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.

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# 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 Contamin	<u>nan</u> t
2 > CHF	L (low)	[Comparison Value for Contaminan	t]
Contaminant Hazard			
Factor	Directions: Record the CHF Value from above	e 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.	Н	
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.	М	
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 <u>single highest value</u> from above in the box to the right (maximum value = H).		

Receptors Factor					
DIRECTIONS: Circle th	DIRECTIONS: Circle the value that corresponds most closely to the Surface Water receptors at the MRS.				
Classification	Classification Description Value				
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	н			
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	М			
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 <u>single highest value</u> from above in the box to the right (maximum value = H).				

No known or Suspected Surface Water (Human Endpoint) MC Hazard

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.

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# 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 Contam	inant]
2 > CHF	L (low)	[Comparison Value for Contaminar	nt]
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	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.	Н				
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.	М				
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				
Mintatory Pathway Factor	Directions: Record the <u>single highest value</u> 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.	н			
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	М			
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 <u>single highest value</u> 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.

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# **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)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contamir	nan <b>t</b>
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.	Н	
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.	М	
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 <u>single highest value</u> from above in the box to the right (maximum value = H).		

Receptor Factor_					
DIRECTIONS: Circle to	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.	Н			
Potential	Potential for receptors to have access to Surface Water to which contamination has moved or can move.	М			
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 <u>single highest value</u> from above in the box to the right (maximum value = H).				
No known or Suspected Surface Water (Ecological Endpoint) MC Hazard					

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.

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# **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 Conta	minan <b>i</b>
2 > CHF	L (low)	[Comparison Value for Contamin	ant]
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.	Н	
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.	М	
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 nignest 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	·				
Identified	Identified receptors have access to Sediment to which contamination has moved or can move.	Н			
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	М			
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 <u>single highest value</u> 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.

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# 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)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Conta	minant]
2 > CHF	L (low)	[Comparison Value for Contamin	ant]
Contaminant Hazard Factor	Directions: Record the CHF Value from above in	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.	Н	
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.	М	
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 <u>single highest value</u> 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.	Н		
Potential	Potential for receptors to have access to Surface Soil to which contamination has moved or can move.	М		
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 <u>single highest value</u> 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.

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# **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 mediaspecific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

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# 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.): HHE Module Rating

 Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the HHE Module Rating box.

Combination	Rating			
ннн	Α			
ннм	В			
HHL	С			
нмм				
HML	D			
ммм				
HLL	E			
MML	L			
MLL	F			
LLL	G			
	Evaluation Pending			
Alternative Module Ratings	No Longer Required			
1	No Known or			

HHE Ratings (for reference only)

contamination was ever present at an MRS.

**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

Suspected MC Hazard

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# 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
		Α	1		
Α	2	В	2	Α	2
В	3	С	3	В	3
С	4	D	4	С	4
D	5	E	5	D	5
E	6	F	6	E	6
Ę	7	G	7	F	7
<b>(</b> G)	(8)			G	8
Evaluation Pending		Evaluation F	Pending	Evaluation	Pending
No Longer	Required	No Longer R	Required	No Longer Required	
No Known or Suspected No Known or Suspected Mo Known or Suspected MC Hazard 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.

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### 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	X 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 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 activities could allow for exposure.

Description of Receptors (Human and Ecological): Site access is unrestricted. Potential receptors include residential, public, commerical/occupational, and terrestial biota.

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### **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.

	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	30	
	mixture poses an explosive hazard		
High Explosive (used or	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:	25	
damaged)	■ Been damaged by burning or detonation		
	■ Deteriorated to the point of instability		
	UXO containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades).		
Pyrotechnic (used or damaged)	DMM containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades) that have:	20	
,	■ Been damaged by burning or detonation		
	■ Deteriorated to the point of instability		
High Explosive (upused)	DMM containing a high-explosive filler that:	45	
High-Explosive (unused)	Have not been damaged by burning or detonation  Assumed to the project of the detailed of the detail of the d	15	
	Are not deteriorated to the point of instability  UXO containing mostly single-, or triple-based propellant, or composite propellants		
	(e.g., a rocket motor).		
Burnettent	DMM containing mostly single-, or triple-based propellant, or composite propellants		
Propellant	(e.g., a rocket motor) that are:	15	
	■ Damaged by burning or detonation		
	■ Deteriorated to the point of instability		
Bulk secondary high	DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor), that are deteriorated.		
explosives, pyrotechnics, or propellant	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	DMM containing a pyrotechnic filler (I.e., red phosphorous), other than white phosphorous filler, that:	40	
damaged)	■ Have not been damaged by burning or detonation	10	
aamagea,	Are not deteriorated to the point of instability		
	UXO that are practice munitions that are not associated with a sensitive fuze.		
Practice	DMM that are practice munitions that are not associated with a sensitive fuze and that have not:	5	
	■ 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	<b>Directions:</b> Record the single highest score from above in the box to the right (maximum score = 30)	30	
D: 11 D 1 MD0 1			

**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.

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### 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	sification Description	
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) er 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).	
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	<b>DIRECTIONS:</b> Record <u>the single highest score</u> from above in the box to the right (maximum score = 10).	10

Directions: Document any MRS-specific data used in selecting the Source of Hazard classifications in the space provided.

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.

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### 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 <u>all</u> 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 <i>not</i> 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 <i>not</i> 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 <i>not</i> 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 <i>not</i> 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	<b>DIRECTIONS:</b> Record <u>the single highest score</u> 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.

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### 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).	
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  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	<b>DIRECTIONS:</b> 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.

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### 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 Score 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 Non-DoD Control 5 water bodies owned or controlled by state, tribal, or local governments, and land or water bodies managed by other federal agencies. 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 Scheduled for Transfer from DoD Control 3 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. 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 **DoD Control** 0 Department must control access to the MRS 24 hours per day, every day of the calendar year. DIRECTIONS: Record the single highest score from above in the **Status of Property** 5 box to the right (maximum score = 5). Directions: Document any MRS-specific data used in selecting the Status of Property classifications in the space provided.

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### **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 <u>highest</u> population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	
> 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.	
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 <u>single highest score</u> 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)

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# 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
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
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.

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### 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	Classification Description	
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 provided.  Residential and Commercial structures located w	selecting the TYPES OF ACTIVITIES/STRUCTURES classifications in the spanithin 2 miles.	ice

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## 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	
Ecological and Cultural Resources Present	There are both ecological and cultural resources present on the MRS.	
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
	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).

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Table 10 Determining the EHE Module Rating					
Determi	ining the Line Module Rati	Score	Score	Value	
Directions:	Explosives Hazard Factor Data	a Elements			
1. From Tables 1 - 9, record the data element scores in the <b>Score</b> boxes to the	Munitions Type	Table 1	30	40	
right.	Source of Hazard	Table 2	10		
Add the <b>Score</b> boxes for each of the	Accessibility Factor Data Elem	ents			
three factors and record this number in the <b>Value</b> boxes to the right.	Location of Munitions	Table 3	5		
3. Add the three <b>Value</b> boxes and record	Ease of Access	Table 4	10	20	
this number in the <b>EHE Module Total</b> box below.	Status of Property	Table 5	5		
4. Circle the appropriate range for the <b>EHE</b>	Receptors Factor Data Elemen	its			
Module Total below.	Population Density	Table 6	3		
5. Circle the <b>EHE Module Rating</b> that	Population Near Hazard	Table 7	5		
corresponds to the range selected and	Types of Activities/ Structures	Table 8	5	16	
record this value in the <b>EHE Module Rating</b> box found at the bottom of the table.	Ecological and/ or Cultural Resources	Table 9	3		
		EHE Mo	dule Total	76	
	EHE Module Total	EHE N	lodule Rat	ing	
	92 to 100		Α		
Note: An alternative module rating	82 to 91				
may be assigned when a module letter	71 to 81	<b>(</b> c <b>)</b>			
rating is inappropriate. An alternative	60 to 70	D			
module rating is used when more information is needed to score one or	48 to 59	E			
more data elements, contamination at	38 to 47	F			
an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an	less than 38	G			
			ation Pendi	Ū	
	Alternate Module Ratings ————		nger Required		
MRS.	90	No Known or Suspe			
		Explo	Explosive Hazard		
	EHE Module Rating		С		

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# 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.	9
CWM CONFIGURATION	<b>DIRECTIONS:</b> Record the <u>single highest score</u> from above in the box to the right (maximum score = 30).	0

Directions: Document any MRS-specific data used in selecting the CWM Configuration classifications in the space

No CWM was observed during the RI fieldwork.

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Tables 12-19 are intentionally omitted-No Known or Suspected CWM Hazard.

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Table 20				
Determini	ng the CHE Module	Rating Score	Score	Value
Directions:	CWM Hazard Factor Data Elem		Score	value
From Tables 1 - 9, record the data		1	0	
element scores in the Score boxes to the	CWM Configuration	Table 11	0	0
right.	Sources of CWM	Table 12	0	
Add the <b>Score</b> boxes for each of the three factors and record this number in the	0			
Value boxes to the right.	Location of CWM	Table 13	0	
Add the three Value boxes and record this number in the CHE Module Total box	Ease of Access	Table 14	0	0
below.	Status of Property	Table 15	0	
4. Circle the appropriate range for the CHE	Receptors Factor Data Elemer	nts		
Module Total below.	Population Density	Table 16	0	
5. Circle the CHE Module Rating that	Population Near Hazard	Table17	0	
corresponds to the range selected and	Types of Activities/ Structures	Table 18	0	0
record this value in the CHE Module Rating box found at the bottom of the table.	Ecological and/ or Cultural Resources	Table 19	0	
		CHE Mo	dule Total	0
	CHE Module Total	CHE N	lodule Rat	ing
	92 to 100		А	
Note: An alternative module rating	82 to 91		В	
may be assigned when a module letter	71 to 81	С		
rating is inappropriate. An alternative	60 to 70	D		
module rating is used when more	48 to 59 38 to 47		E F	
information is needed to score one or more data elements, contamination at	less than 38		G G	
an MRS was previously addressed, or	less than 50	Evalu	ation Pendi	na
there is no reason to suspect		No Lenger Required		ŭ
contamination was ever present at an MRS.	Alternate Module Ratings	No Known or Suspected		_
		CWM Hazard		
	CHE Module Rating		n or Suspo /M Hazard	ected

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### **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 Co	ntaminant]
2 > CHF	L (low)	[Comparison Value for Contain	minant]
Contaminant Hazard	Directions: Record the CHF Value from above	in the box to the right (maximum value = H).	
Factor		÷ ,	

	Migratory Pathway Factor			
DIRECTIONS: Circle the	e 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.	Н		
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.	М		
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 <u>single highest value</u> 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).	н	
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).	М	
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 <u>single highest value</u> 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.

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# 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 Contamin	iant]
2 > CHF	L (low)	[Comparison Value for Contaminant	]
Contaminant Hazard			
Factor	Directions: Record the CHF Value from above	e 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.	Н	
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.	М	
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 <u>single highest value</u> from above in the box to the right (maximum value = H).		

Receptors Factor				
DIRECTIONS: Circle to	DIRECTIONS: Circle the value that corresponds most closely to the Surface Water receptors at the MRS.			
Classification	Classification Description Value			
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	н		
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.	Ĺ		
Receptors Factor	Directions: Record the <u>single highest value</u> from above in the box to the right (maximum value = H).			

No known or Suspected Surface Water (Human Endpoint) MC Hazard

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.

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# **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 Contami	nant]
2 > CHF	L (low)	[Comparison Value for Contaminar	t]
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.	Н	
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.	М	
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	
I MINISTORY PATRWAY FACTOR	Directions: Record the <u>single highest value</u> 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	Classification Description Value				
Identified	Identified receptors have access to Sediment to which contamination has moved or can move.	н			
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	М			
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 <u>single highest value</u> from above in the box to the right (maximum value = H).				
No known or Suspected Sediment (Human Endpoint) MC Hazard					

No known of ouspected ocument (numan Endpoint) we mazard

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.

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# **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)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contamin	ant]
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.	Н			
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.	М			
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 1	the value that corresponds most closely to the Surface Water receptors at th	e MRS.				
Classification	Description	Value				
Identified	Identified receptors have access to Surface Water to which contamination has moved or can move.	Н				
Potential	Potential for receptors to have access to Surface Water to which contamination has moved or can move.	М				
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 <u>single highest value</u> from above in the box to the right (maximum value = H).					
No known or Suspected Surface Water (Ecological Endpoint) MC Hazard						

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.

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# **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 Contar	minant]
2 > CHF	L (low)	[Comparison Value for Contamina	ant]
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.	н			
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.	М			
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 <u>single nignest value</u> from above in the box to the right (maximum value = H)				

Receptors Factor					
DIRECTIONS: Circle the va	alue 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.	н			
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	М			
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 <u>single highest value</u> 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.

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# 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)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contain	minant]
2 > CHF	L (low)	[Comparison Value for Contamin	ant]
Contaminant Hazard Factor	Directions: Record the CHF Value from above in	n 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.	Н			
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.	М			
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 <u>single highest value</u> 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	Classification Description Value						
Identified	Identified receptors have access to Surface Soil to which contamination has moved or can move.	Н					
Potential	Potential for receptors to have access to Surface Soil to which contamination has moved or can move.	М					
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 <u>single highest value</u> 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.

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# **HHE Module: Supplemental Contaminant Hazard Factor Table**

### Contaminant Hazard Factor (CHF)

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.

Note: Do not add ratios  Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

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# 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.): **HHE Module Rating** 

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the HHE Module Rating box.

HHE Ratings (for reference only)

Combination

	ннн	Α
	ннм	В
	HHL	С
	нмм	C
Note: An alternative module rating may be assigned when a module	HML	D
<b>Note:</b> 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	ммм	D
at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.	HLL	E
contamination was ever present at an write.	MML	_
	MLL	F
	Ш	G
		Evaluation Pending
	Alternative Module Ratings	No Longer Required  No Known or
	· · · · · · · · · · · · · · · · · · ·	Suspected MC Hazard

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Rating

# 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
		Α	1		
Α	2	В	2	Α	2
В	3	С	3	В	3
(c)	(4)	D	4	С	4
ط	90	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	
Suspecied Explosive N		No Known or MC Ha	•		
	MRS	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.

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### 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	X RI	FS	RD
RA-C	RIP	RA-O	RC	LTM

Groundwater	Sediment (human receptor)
XSurface 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, commercial, 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, commercial/occupational, and terrestial biota.

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### **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.

	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 fuzzes, but excluding all other practice munitions].	30	
	Hand grenades containing energetic filler.  Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard		
High Explosive (used or	UXO containing a high-explosive (HE) filler (e.g., RDX, Composition B), that are not considered "sensitive".		
damaged)	DMM containing a high-explosive filler that have:  ■ Been damaged by burning or detonation	(25)	
	■ Deteriorated to the point of instability		
Dimeta abuda (wa a di an	UXO containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades).		
Pyrotechnic (used or damaged)	DMM containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades) that have:	20	
<b>.</b>	<ul> <li>Been damaged by burning or detonation</li> <li>Deteriorated to the point of instability</li> </ul>		
Himb Frankskin (mansk)	DMM containing a high-explosive filler that:	45	
High-Explosive (unused)	Have not been damaged by burning or detonation  Are not detoriorated to the point of instability.	15	
	Are not deteriorated to the point of instability  UXO containing mostly single-, or triple-based propellant, or composite propellants		
Propellant	(e.g., a rocket motor).  DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are:	15	
	Damaged by burning or detonation     Deteriorated to the point of instability		
Bulk secondary high	DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor), that are deteriorated.		
explosives, pyrotechnics, or propellant	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	DMM containing a pyrotechnic filler (I.e., red phosphorous), other than white phosphorous filler, that:		
damaged)	Have not been damaged by burning or detonation     Are not deteriorated to the point of instability	10	
	UXO that are practice munitions that are not associated with a sensitive fuze.		
Practice	DMM that are practice munitions that are not associated with a sensitive fuze and that have not:	5	
	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	3	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	<b>Directions:</b> Record the single highest score from above in the box to the right (maximum score = 30)	25	
Discotioned Description MDC	C 14 11 1 C 0 44 24 T 1 1C C 1 1 0		

**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.

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### 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.	
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.	
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	<b>DIRECTIONS:</b> 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.

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### 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 <i>not</i> 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 <i>not</i> 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 <i>not</i> 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 <i>not</i> 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	<b>DIRECTIONS:</b> 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.

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### 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	<b>DIRECTIONS:</b> 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.

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# 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	
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.	
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.	
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.	
Status of Property	<b>DIRECTIONS:</b> 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.

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### **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 <u>highest</u> population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	
> 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.	
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 <u>single highest score</u> 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)

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### 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	<b>26 or More Inhabited Structures</b> 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.	
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.	
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.	
6 to 10	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.	
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
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.

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### 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	Classification Description	
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.	
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
<b>Directions:</b> Document any MRS-specific data used in provided.	selecting the TYPES OF ACTIVITIES/STRUCTURES classifications in the spa	ace
Residential and Commercial structures located wi	ithin 2 miles.	

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## 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	
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
	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).

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Table 10  Determining the EHE Module Rating					
Directions:	Explosives Hazard Factor Data	Score Elements	Score	Value	
From Tables 1 - 9, record the data element scores in the <b>Score</b> boxes to the	Munitions Type	Table 1	25	35	
right.	Source of Hazard	Table 2	10		
Add the <b>Score</b> boxes for each of the	Accessibility Factor Data Elem	ents			
three factors and record this number in the <b>Value</b> boxes to the right.	Location of Munitions	Table 3	25		
3. Add the three <b>Value</b> boxes and record	Ease of Access	Table 4	10	40	
this number in the <b>EHE Module Total</b> box below.	Status of Property	Table 5	5		
4. Circle the appropriate range for the <b>EHE</b>	Receptors Factor Data Elemen	ts			
Module Total below.	Population Density	Table 6	3		
5. Circle the <b>EHE Module Rating</b> that	Population Near Hazard	Table 7	5		
corresponds to the range selected and	Types of Activities/ Structures	Table 8	5	16	
record this value in the EHE Module Rating box found at the bottom of the table.	Ecological and/ or Cultural Resources	Table 9	3		
		EHE Module Total 9		91	
	EHE Module Total	EHE M	odule Rati	ing	
	92 to 100		A		
Note: An alternative module rating	82 to 91		<b>(</b> B <b>)</b>		
may be assigned when a module letter	71 to 81	Y			
rating is inappropriate. An alternative module rating is used when more	60 to 70		D		
information is needed to score one or	48 to 59		E		
more data elements, contamination at	38 to 47	F			
an MRS was previously addressed, or	less than 38	G			
there is no reason to suspect		Evaluation Pending		_	
contamination was ever present at an MRS.	Allemaie Montile Railings		ger Required		
IVINO.	j			or Suspected	
		Explosive Hazard		u	
	EHE Module Rating		В		

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# 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	<b>DIRECTIONS:</b> Record the <u>single highest score</u> from above in the box to the right (maximum score = 30).	0

**Directions:** Document any MRS-specific data used in selecting the **CWM Configuration** classifications in the space

No CWM was observed during the RI fieldwork.

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Tables 12-19 are intentionally omitted-No Known or Suspected CWM Hazard.

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Table 20				
Determini	ng the CHE Module	Rating Score	Score	Value
Directions:	CWM Hazard Factor Data Elen			7 0.10.0
1. From Tables 1 - 9, record the data element scores in the <b>Score</b> boxes to the	CWM Configuration	Table 11	0	0
right.	Sources of CWM	Table 12	0	
2. Add the <b>Score</b> boxes for each of the	0			
three factors and record this number in the <b>Value</b> boxes to the right.	Location of CWM	Table 13	0	
3. Add the three Value boxes and record	Ease of Access	Table 14	0	0
this number in the CHE Module Total box below.	Status of Property	Table 15	0	
4. Circle the appropriate range for the CHE	Receptors Factor Data Elemer	nts		
Module Total below.	Population Density	Table 16	0	
E Circle the CUE Medule Deting that	Population Near Hazard	Table17	0	
Circle the CHE Module Rating that corresponds to the range selected and	Types of Activities/ Structures	Table 18	0	0
record this value in the CHE Module Rating box found at the bottom of the table.	Ecological and/ or Cultural Resources	Table 19	0	•
		CHE Mo	dule Total	0
	CHE Module Total	CHE N	lodule Rat	ing
	92 to 100		А	
Note: An alternative module rating	82 to 91		В	
may be assigned when a module letter	71 to 81	С		
rating is inappropriate. An alternative	60 to 70		D E	
module rating is used when more	48 to 59 38 to 47		<u> </u>	
information is needed to score one or more data elements, contamination at	less than 38		G	
an MRS was previously addressed, or	less than 50	Evalu	ation Pendi	na
there is no reason to suspect		No Longer Required		ŭ
contamination was ever present at an MRS.	Alternate Module Ratings	No Known or Suspected		
			VM Hazard	
	CHE Module Rating		n or Suspe /M Hazard	ected

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## **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 Co	ntaminant]
2 > CHF	L (low)	[Comparison Value for Conta	minant]
Contaminant Hazard Factor	Directions: Record the CHF Value from above	in the box to the right (maximum value = H).	

	Migratory Pathway Factor			
DIRECTIONS: Circle th	e value that corresponds most closely to the groundwater migratory pathwa	y 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.	Н		
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.	М		
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 <u>single highest value</u> 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).	Н	
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).	М	
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 <u>single highest value</u> 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.

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## 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 Contamin	iant]
2 > CHF	L (low)	[Comparison Value for Contaminant	]
Contaminant Hazard			
Factor	Directions: Record the CHF Value from above	e 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.	Н	
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.	М	
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 <u>single highest value</u> from above in the box to the right (maximum value = H).		

Receptors Factor				
DIRECTIONS: Circle t	<b>DIRECTIONS:</b> Circle the value that corresponds most closely to the Surface Water receptors at the MRS.			
Classification	Classification Description Value			
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	н		
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	М		
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 <u>single highest value</u> from above in the box to the right (maximum value = H).			

No known or Suspected Surface Water (Human Endpoint) MC Hazard

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.

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## 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 Contam	inant]
2 > CHF	L (low)	[Comparison Value for Contaminar	nt]
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.	Н	
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.	М	
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	
I Midratory Pathway Factor	Directions: Record the <u>single highest value</u> 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.	Н	
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 <u>single highest value</u> 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.

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## **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)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contamin	ant]
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.	Н	
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.	М	
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 <u>single highest value</u> from above in the box to the right (maximum value = H).		

Receptor Factor_							
DIRECTIONS: Circle 1	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.	н					
Potential	Potential for receptors to have access to Surface Water to which contamination has moved or can move.	М					
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 <u>single highest value</u> from above in the box to the right (maximum value = H).						

No known or Suspected Surface Water (Ecological Endpoint) MC Hazard

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.

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## 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	No Analytical Data		
<u> </u>			
CHF Scale	CHF Value	Sum of the Ratios	
CHF >100	H (high)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contam	ninant]
2 > CHF	L (low)	[Comparison Value for Contaminal	nt]
Contaminant Hazard Factor	Directions: Record the CHF Value from above i	n 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	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.	Н					
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.	М					
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 <u>single highest value</u> from above in the box to the right (maximum value = H).						

Receptors Factor					
	lue that corresponds most closely to the Sediment receptors at the MRS.	Walio			
Classification	Description	Value			
Identified	Identified receptors have access to Sediment to which contamination has moved or can move.	Н			
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	М			
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 <u>single highest value</u> 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.

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## 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)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contaminan	<u>t</u> ]
2 > CHF	L (low)	[Comparison Value for Contaminant]	
Contaminant Hazard Facto	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.	Н			
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.	М			
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 <u>single highest value</u> from above in the box to the right (maximum value = H).	М			

Receptors Factor						
DIRECTIONS: Circle the value	ue 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.	Н				
Potential	Potential for receptors to have access to Surface Soil to which contamination has moved or can move.	М				
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 <u>single highest value</u> 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.

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## 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

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## 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	М	L	MLL	F

DIRECTIONS (cont.): HHE Module Rating F

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the HHE Module Rating box.

Combination	Rating	
ннн	A	
ннм	В	
HHL	С	
нмм	Č	
HML	D	
ммм	U	
HLL	E	
MML	_	
MLL	F	
LLL	G	
	Evaluation Pending	
Alternative Module Ratings	No Longer Required	
	No Known or Suspected MC Hazard	

**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.

## 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
		Α	1		
A	2	В	2	Α	2
<b>(</b> B <b>)</b>	(3)	С	3	В	3
ى(	4	D	4	С	4
D	5	E	5	D	5
E	6	F	6	<b>F</b> (	4
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	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, commercial, and religious property is located within the MRS boundary.

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### 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	X RI	FS	RD
RA-C	RIP	RA-O	RC	LTM

Groundwater	Sediment (human receptor)
XSurface 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.

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### **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.

 $\textbf{Note:} \ \ \textbf{The terms} \ \textit{practice munitions} \ , \ \textit{small arms ammunition, physical evidence, and historical evidence} \ \ \text{are defined in} \ \ \textbf{Note:} \ \ \textbf{Note:}$ 

Append		

	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.	30	
	Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard		
High Explosive (used or	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:	(25)	
damaged)	Been damaged by burning or detonation     Deteriorated to the point of instability		
	UXO containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades).		
Pyrotechnic (used or damaged)	DMM containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades) that have:	20	
,	Been damaged by burning or detonation     Deteriorated to the point of instability		
	DMM containing a high-explosive filler that:		
High-Explosive (unused)	■ Have not been damaged by burning or detonation	15	
	Are not deteriorated to the point of instability		
	UXO containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor).		
L	DMM containing mostly single-, or triple-based propellant, or composite propellants		
Propellant	(e.g., a rocket motor) that are:	15	
	■ Damaged by burning or detonation		
	■ Deteriorated to the point of instability		
Bulk secondary high	DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor), that are deteriorated.		
explosives, pyrotechnics, or propellant	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	DMM containing a pyrotechnic filler (l.e., red phosphorous), other than white phosphorous filler, that:	40	
damaged)	■ Have not been damaged by burning or detonation	10	
	Are not deteriorated to the point of instability		
	UXO that are practice munitions that are not associated with a sensitive fuze.		
Practice	DMM that are practice munitions that are not associated with a sensitive fuze and that have not:	5	
	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	<b>Directions:</b> 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.

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### 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.	
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	<b>DIRECTIONS:</b> 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.

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### 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 <u>all</u> 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 <i>not</i> 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 <i>not</i> 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 <i>not</i> 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 <i>not</i> likely to expose UXO or DMM.	
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	<b>DIRECTIONS:</b> 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.

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### **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	<b>DIRECTIONS:</b> 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.

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### 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 Score 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 Non-DoD Control 5 water bodies owned or controlled by state, tribal, or local governments, and land or water bodies managed by other federal agencies. 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 Scheduled for Transfer from DoD Control 3 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. 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 **DoD Control** 0 Department must control access to the MRS 24 hours per day, every day of the calendar year. DIRECTIONS: Record the single highest score from above in the **Status of Property** 5 box to the right (maximum score = 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.

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## **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	
> 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.	
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 <b>single highest score</b> 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.

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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)

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## 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	Classification Description	
<b>26 or More Inhabited Structures</b> 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.

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## 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	Classification Description	
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
<b>Directions:</b> Document any MRS-specific data used in provided.	a selecting the TYPES OF ACTIVITIES/STRUCTURES classifications in the spa	ıce
Residential and Commercial structures located w	rithin 2 miles	

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## 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
	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).

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Table 10 Determining the EHE Module Rating					
Determi	ining the Line Module Rati	Score	Score	Value	
Directions:	Explosives Hazard Factor Data	a Elements			
1. From Tables 1 - 9, record the data element scores in the <b>Score</b> boxes to the	Munitions Type	Table 1	25	35	
right.	Source of Hazard	Table 2	10		
2. Add the <b>Score</b> boxes for each of the	Accessibility Factor Data Elem	ents			
three factors and record this number in the <b>Value</b> boxes to the right.	Location of Munitions	Table 3	25		
3. Add the three <b>Value</b> boxes and record	Ease of Access	Table 4	10	40	
this number in the <b>EHE Module Total</b> box below.	Status of Property	Table 5	5		
4. Circle the appropriate range for the <b>EHE</b>	Receptors Factor Data Elemen	its			
Medule Tetal below	Population Density	Table 6	3		
5. Circle the <b>EHE Module Rating</b> that	Population Near Hazard	Table 7	5		
corresponds to the range selected and	Types of Activities/ Structures	Table 8	5	16	
record this value in the EHE Module Rating box found at the bottom of the table.	Ecological and/ or Cultural Resources	Table 9	3		
		EHE Mo	dule Total	91	
	EHE Module Total	EHE M	lodule Rat	ing	
	92 to 100		A		
Note: An alternative module rating	82 to 91	<b>(</b> B <b>)</b>			
may be assigned when a module letter	71 to 81	)			
rating is inappropriate. An alternative module rating is used when more	60 to 70	D			
information is needed to score one or	48 to 59	E			
more data elements, contamination at	38 to 47	F			
an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an	less than 38		G		
		Evaluation Pending			
	Alternate Module Ratings No Longer				
MRS.	. 0		n or Suspe sive Hazar		
	EHE Module Rating	LAPIC	B		

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## 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	<b>DIRECTIONS:</b> Record the <u>single highest score</u> from above in the box to the right (maximum score = 30).	0

Directions: Document any MRS-specific data used in selecting the CWM Configuration classifications in the space

No evidence of CWM onserved during the RI fieldwork, and no historical evidence suggested.

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Final Remedial Investigation Report for the Former Camp Croft Spartanburg, South Carolina Appendices

Tables 12-19 are intentionally omitted-No Known or Suspected CWM Hazard.

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Table 20 Determining the CHE Module Rating				
		Score	Score	Value
Directions:	CWM Hazard Factor Data Elem	nents		
1. From Tables 1 - 9, record the data element scores in the <b>Score</b> boxes to the	CWM Configuration	Table 11	0	0
right.	Sources of CWM	Table 12	0	,
Add the <b>Score</b> boxes for each of the three factors and record this number in the	0			
Value boxes to the right.	Location of CWM	Table 13	0	
3. Add the three Value boxes and record	Ease of Access	Table 14	0	0
this number in the CHE Module Total box below.	Status of Property	Table 15	0	,
4. Circle the appropriate range for the CHE	Receptors Factor Data Elemen	its		
Module Total below.	Population Density	Table 16	0	
5. Circle the CHE Module Rating that	Population Near Hazard	Table17	0	•
corresponds to the range selected and	Types of Activities/ Structures	Table 18	0	0
record this value in the CHE Module Rating box found at the bottom of the table.	Ecological and/ or Cultural Resources	Table 19	0	
		CHE Mo	dule Total	0
	CHE Module Total	CHE N	lodule Rat	ing
	92 to 100		А	
Note: An alternative module rating	82 to 91		В	
may be assigned when a module letter	71 to 81	С		
rating is inappropriate. An alternative	60 to 70	D E		
module rating is used when more	48 to 59 38 to 47		<u> </u>	
information is needed to score one or more data elements, contamination at	less than 38		G	
an MRS was previously addressed, or	iess than 30	Evalu	ation Pendi	na
there is no reason to suspect		No Longer Required		·
contamination was ever present at an MRS.	Alternate Module Ratings	No Known or Suspected CWM Hazard		
	CHE Module Rating		n or Suspe /M Hazard	ected

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### **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 Co	ntaminant]
2 > CHF	L (low)	[Comparison Value for Conta	minant]
Contaminant Hazard Factor	Directions: Record the CHF Value from above	e in the box to the right (maximum value = H).	

	Migratory Pathway Factor_			
DIRECTIONS: Circle the	e 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.	Н		
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.	М		
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 <u>single highest value</u> 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).	н	
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).	М	
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 <u>single highest value</u> 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.

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## 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 Contamin	iant]
2 > CHF	L (low)	[Comparison Value for Contaminant	]
Contaminant Hazard			
Factor	Directions: Record the CHF Value from above	e 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.	Н	
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.	М	
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 <u>single highest value</u> from above in the box to the right (maximum value = H).		

Receptors Factor				
DIRECTIONS: Circle to	DIRECTIONS: Circle the value that corresponds most closely to the Surface Water receptors at the MRS.			
Classification	Classification Description Value			
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	н		
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.	Ĺ		
Receptors Factor	Directions: Record the <u>single highest value</u> from above in the box to the right (maximum value = H).			

No known or Suspected Surface Water (Human Endpoint) MC Hazard

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.

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## 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 Contam	inant]
2 > CHF	L (low)	[Comparison Value for Contaminar	nt]
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.	Н	
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.	М	
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	
I Midratory Pathway Factor	Directions: Record the <u>single highest value</u> 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.	н	
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	М	
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 <u>single highest value</u> 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.

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## **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)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contamin	nant]
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.	Н			
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.	М			
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 <u>single highest value</u> from above in the box to the right (maximum value = H).				

Receptor Factor						
DIRECTIONS: Circle t	he value that corresponds most closely to the Surface Water receptors at th	e MRS.				
Classification	Description	Value				
Identified	Identified receptors have access to Surface Water to which contamination has moved or can move.	Н				
Potential	Potential Potential for receptors to have access to Surface Water to which contamination has moved or can move.					
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 <u>single highest value</u> from above in the box to the right (maximum value = H).					
No known or Suspected Surface Water (Ecological Endpoint) MC Hazard						

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.

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## **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)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contar	minant]
2 > CHF	L (low)	[Comparison Value for Contamina	ınt]
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.	Н		
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.	М		
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 nignest 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.	Н			
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	М			
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 <u>single highest value</u> 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.

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## 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)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contan	ninant]
2 > CHF	L (low) [Comparison Value for Contaminal		ant]
Contaminant Hazard Factor	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.	Н		
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.	М		
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 <u>single highest value</u> from above in the box to the right (maximum value = H).	M		

Receptors Factor							
DIRECTIONS: Circle the value	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.	Н					
Potential	Potential for receptors to have access to Surface Soil to which contamination has moved or can move.	М					
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 <u>single highest value</u> 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.

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## **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 mediaspecific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

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## 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	М	L	MLL	F

DIRECTIONS (cont.): HHE Module Rating F

 Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the HHE Module Rating box.

Combination	Rating	
ннн	Α	
ннм	В	
HHL	С	
нмм	Č	
HML	D	
ммм	, ,	
HLL	E	
MML		
MLL	F	
LLL	G	

HHE Ratings (for reference only)

**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.

No Known or Suspected MC Hazard

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**Alternative Module Ratings** 

Task Order No.: 0005

**Evaluation Pending** 

No Longer Required

# 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
		Α	1		
A	2	В	2	Α	2
<b>(</b> B)	3	С	3	В	3
<b>)</b>	4	D	4	С	4
D	5	E	5	D	5
E	6	F	6	E	ھ(
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 Know Suspected E Haza	Explosive	A.	No Known or Suspected No Known of CWM Hazard MC I		•
	MRS	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.

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## 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): $\square$ FS $\square$ PA ⊠ RI $\square$ RD ☐SI Report $\square$ RC ☐ RA-C ☐ RA-O $\square$ RIP ☐ Groundwater $\sqcup$ Sediment (human receptor) ☐ Surface Soil □ Surface Water (ecolocical receptor) □ Sediment (ecolocical receptor) $\sqcup$ 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

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 magand-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, commercial/occupational, and terrestial biota.

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## **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

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 (l.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	<u> </u>	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	<b>Directions:</b> 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.

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# 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.	
Source of Hazard	<b>DIRECTIONS:</b> 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.

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# 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 <u>all</u> 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 <i>not</i> 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 <i>not</i> 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 <i>not</i> 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 <i>not</i> 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
There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface Physical Constraint 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	<b>DIRECTIONS:</b> 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.

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# 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 ncomplete	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	<b>DIRECTIONS:</b> Record the single highest score from above in the box to the right (maximum score = 10).	10	

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# 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 Score 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 5 Non-DoD Control water bodies owned or controlled by state, tribal, or local governments, and land or water bodies managed by other federal agencies. 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 Scheduled for Transfer from DoD Control 3 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. 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 **DoD Control** 0 Department must control access to the MRS 24 hours per day, every day of the calendar year. **DIRECTIONS:** Record **the single highest score** from above in the **Status of Property** 5 box to the right (maximum score = 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.

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# **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 <u>highest</u> 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.	
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 <u>single highest score</u> 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.

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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)

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Score

# Table 7

# EHE Module: Population Near Hazard Data Element

**Description** 

**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

	2 000 mp. 10 m			
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.			
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.	the 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		
DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).				
Directions: Document any MRS-specific date	a used in selecting the <i>Population Near Hazard</i> classifications in the space provi	ded.		

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# 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 MRS's boundary or within the MRS's boundary, that are associated with any of following purposes: residential, educational, child care, critical assets, (e.g., lifter and rescue, police stations, dams), hotels commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subhunting, 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.	
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
provided.	n selecting the TYPES OF ACTIVITIES/STRUCTURES classifications in the spa	ce
Residential and Commercial structures located w	vithin 2 miles	

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# 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.	(9)	
	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	0	
<b>Directions:</b> Document any MRS-specific data used in selecting the <b>ECOLOGICAL AND/OR CULTURAL RESOURCES</b> classifications in the space provided.			

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Table 10				
Determi	ning the EHE Module Rati	ng Score	Score	Value
Directions:	Explosives Hazard Factor Data			7 0.11 0.1
1. From Tables 1 - 9, record the data element scores in the <b>Score</b> boxes to the	Munitions Type	Table 1	25	35
right.	Source of Hazard	Table 2	10	
2. Add the <b>Score</b> boxes for each of the	Accessibility Factor Data Elem	ents		
three factors and record this number in the <b>Value</b> boxes to the right.	Location of Munitions	Table 3	15	
3. Add the three <b>Value</b> boxes and record	Ease of Access	Table 4	10	30
this number in the <b>EHE Module Total</b> box below.	Status of Property	Table 5	5	
4. Circle the appropriate range for the <b>EHE</b>	Receptors Factor Data Elemen	its		
Module Total below.	Population Density	Table 6	3	
5. Circle the <b>EHE Module Rating</b> that	Population Near Hazard	Table 7	5	
corresponds to the range selected and	Types of Activities/ Structures	Table 8	5	13
record this value in the EHE Module Rating box found at the bottom of the table.	Ecological and/ or Cultural Resources	Table 9	0	
		EHE Mo	dule Total	78
	EHE Module Total	EHE M	lodule Rati	ng
	92 to 100		А	
Note: An alternative module rating	82 to 91		B	
may be assigned when a module letter	71 to 81	(c)		
rating is inappropriate. An alternative module rating is used when more	60 to 70			
information is needed to score one or	48 to 59		<u> </u>	
more data elements, contamination at	38 to 47	F		
an MRS was previously addressed, or	less than 38	F .1	G	
there is no reason to suspect			ation Pendi	Ŭ
contamination was ever present at an MRS.	Alternate Module Ratings	No Longer Require  No Known or Suspect		
WII.CO.			n or Suspe sive Hazar	
	EHE Module Rating	Елріс	C	<u>~</u>

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# 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.	
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.	
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.	9
CWM CONFIGURATION	<b>DIRECTIONS:</b> Record the <u>single highest score</u> from above in the box to the right (maximum score = 30).	0

Directions: Document any MRS-specific data used in selecting the CWM Configuration classifications in the space

No CWM was observed during the RI field work, and no evidence of CWM in the historical records.

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Tables 12-19 are intentionally omitted-No Known or Suspected CWM Hazard

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Table 20 Determining the CHE Module Rating				
		Score	Score	Value
Directions:	CWM Hazard Factor Data Elem	nents		
1. From Tables 1 - 9, record the data element scores in the <b>Score</b> boxes to the	CWM Configuration	Table 11	0	0
right.	Sources of CWM	Table 12	0	
2. Add the <b>Score</b> boxes for each of the	0			
three factors and record this number in the <b>Value</b> boxes to the right.	Location of CWM	Table 13	0	
3. Add the three Value boxes and record	Ease of Access	Table 14	0	0
this number in the CHE Module Total box below.	Status of Property	Table 15	0	
4. Circle the appropriate range for the CHE	Receptors Factor Data Elemer	nts		
Module Total below.	Population Density	Table 16	0	
E. Cirola the CLIE Modula Dating that	Population Near Hazard	Table17	0	
Circle the CHE Module Rating that corresponds to the range selected and	Types of Activities/ Structures	Table 18	0	0
record this value in the CHE Module Rating box found at the bottom of the table.	Ecological and/ or Cultural Resources	Table 19	0	
		CHE Mo	dule Total	0
	CHE Module Total	CHE N	lodule Rati	ing
	92 to 100		Α	
Note: An alternative module rating	82 to 91		В	
may be assigned when a module letter	71 to 81	С		
rating is inappropriate. An alternative	60 to 70	D		
module rating is used when more	48 to 59	E		
information is needed to score one or	38 to 47		F G	
more data elements, contamination at an MRS was previously addressed, or	less than 38	Evolu		200
there is no reason to suspect		Evaluation Pending No Lenger Required		Ŭ
contamination was ever present at an	Alternate Module Ratings  No Known or St			
MRS.			/M Hazard	
	CHE Module Rating		n or Suspe /M Hazard	ected

# **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 Co	ntaminant]
2 > CHF	L (low)	[Comparison Value for Contain	minant]
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	e 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.	н		
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.	М		
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 <u>single highest value</u> 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).	Н	
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).	М	
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 <u>single highest value</u> 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.

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# 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 Contamin	ant]
2 > CHF	L (low)	[Comparison Value for Contaminant	]
Contaminant Hazard			
Factor	Directions: Record the CHF Value from above	e 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.	Н	
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.	М	
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 <u>single highest value</u> from above in the box to the right (maximum value = H).		

Receptors Factor				
DIRECTIONS: Circle t	the value that corresponds most closely to the Surface Water receptors at the MRS	S.		
Classification	Description	Value		
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	н		
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	М		
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 <u>single highest value</u> from above in the box to the right (maximum value = H).			
No known or Suspected Surface Water (Human Endpoint) MC Hazard				

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.

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# **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 Contami	nant]
2 > CHF	L (low)	[Comparison Value for Contaminan	t]
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.	Н	
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.	М	
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	
I WII Gratory Pathway Factor	Directions: Record the <u>single highest value</u> 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.	Н	
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	М	
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 <b>single highest value</b> 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.

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# 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)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contamin	ant]
2 > CHF	L (low)	[Comparison Value for Contaminant	]
Contaminant Hazard			
Factor	Directions: Record the CHF Value from above	e 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.	Н	
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.	М	
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 <u>single highest value</u> from above in the box to the right (maximum value = H).		

Receptor Factor  DIRECTIONS: Circle the value that corresponds most closely to the Surface Water receptors at the MRS.					
Classification	Classification Description Value				
Identified	Identified receptors have access to Surface Water to which contamination has moved or can move.	Н			
Potential	Potential for receptors to have access to Surface Water to which contamination has moved or can move.	М			
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 <u>single highest value</u> from above in the box to the right (maximum value = H).				
No known or Suspected Surface Water (Ecological Endpoint) MC Hazard					

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.

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# 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 Contam	ninant]
2 > CHF	L (low)	[Comparison Value for Contaminal	nt]
Contaminant Hazard Factor	Directions: Record the CHF Value from above i	n 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.	Н	
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.	М	
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 <u>single highest value</u> from above in the box to the right (maximum value = H).		

Receptors Factor				
DIRECTIONS: Circle the v	alue 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.	н		
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	М		
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 <u>single highest value</u> from above in the box to the right (maximum value = H).			
	No known or Supported Sediment (Feelegies) Endpoint) MC Hozord			

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.

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# 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)				
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Conta	aminant]		
2 > CHF	L (low)	[Comparison Value for Contamir	nant]		
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.	н		
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.	М		
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 <u>single highest value</u> from above in the box to the right (maximum value = H).			

Receptors Factor					
DIRECTIONS: Circle the v	alue 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.	Н			
Potential	Potential for receptors to have access to Surface Soil to which contamination has moved or can move.	М			
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 <b>single highest value</b> 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.

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# 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 mediaspecific tables.

Note: Do not add ratios from different media.

Note: Do not add ratios		Maximum Consentration	Comparison Value	Patio
Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

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# 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	ino analytical data				
(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.):

**HHE Module Rating** 

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the HHE Module Rating box.

a	HHE Ratings (for referen	nce only)	
	Combination	Rating	
	ннн	A	
	ннм	В	
	HHL	С	
	нмм	C	
	HML	D	
ו ר	ммм		
•	HLL	ш	
	MML.		
	MLL	F	
	LLL	G	
		Evaluation Pending	
	Alternative Module Ratings	No Longer Required	
		No Known or Suspected MC Hazard	

**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.

# 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
		Α	1		
Α	2	В	2	Α	2
В	ო(	С	3	В	3
(c)	(4)	D	4	С	4
٥	٦)	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Evaluation	Pending	Evaluation F	Pending	Evaluation Pending	
No Longer	No Longer Required		No Longer Required		Required
No Known or Suspected Explosive Hazard		No Known or Suspected CWM Hazard		No Known or MC Ha	
	MRS	or Alternative N	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.

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### 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	X RI	FS	RD
RA-C	RIP	RA-O	RC	LTM

Groundwater	Sediment (human receptor)
XSurface 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 104FL028701\_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 104FL028701\_03.10\_0500\_a and 104FL028701\_03.10\_0501\_a). Per MRSPP requirements, during the SI a public notice was issued announcing the MRSPP (Reference: FRMD File Number 104FL028701\_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.

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## **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.

	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 fuzzes, but excluding all other practice munitions].	30	
	Hand grenades containing energetic filler.  Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard		
High Explosive (used or	UXO containing a high-explosive (HE) filler (e.g., RDX, Composition B), that are not considered "sensitive".		
damaged)	DMM containing a high-explosive filler that have:  Been damaged by burning or detonation	(25)	
	■ Deteriorated to the point of instability		
	UXO containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades).		
Pyrotechnic (used or damaged)	DMM containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades) that have:	20	
<b>3</b> ,	<ul> <li>Been damaged by burning or detonation</li> <li>Deteriorated to the point of instability</li> </ul>		
III ala Familia da Garaga de A	DMM containing a high-explosive filler that:	4=	
High-Explosive (unused)	<ul> <li>Have not been damaged by burning or detonation</li> <li>Are not deteriorated to the point of instability</li> </ul>	15	
	UXO containing mostly single-, or triple-based propellant, or composite propellants		
Propellant	(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		
Bulk secondary high	DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor), that are deteriorated.		
explosives, pyrotechnics, or propellant	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	DMM containing a pyrotechnic filler (I.e., red phosphorous), other than white phosphorous filler, that:		
damaged)	Have not been damaged by burning or detonation     Are not deteriorated to the point of instability	10	
	UXO that are practice munitions that are not associated with a sensitive fuze.		
Practice	DMM that are practice munitions that are not associated with a sensitive fuze and that have not:	5	
	■ 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	<b>Directions:</b> Record the single highest score from above in the box to the right (maximum score = 30)	25	
Di			

**Directions:** Document any MRS-specific data used in selecting the *Munitions Type* classifications in the space provided.

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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.

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## 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	<b>DIRECTIONS:</b> 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.

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## 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 <i>not</i> 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 <i>not</i> 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 <i>not</i> 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 <i>not</i> 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	<b>DIRECTIONS:</b> 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.

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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.

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## **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	<b>DIRECTIONS:</b> 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.

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## 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 Score 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 Non-DoD Control 5 water bodies owned or controlled by state, tribal, or local governments, and land or water bodies managed by other federal agencies. 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 Scheduled for Transfer from DoD Control 3 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. 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 **DoD Control** 0 Department must control access to the MRS 24 hours per day, every day of the calendar year. DIRECTIONS: Record the single highest score from above in the **Status of Property** 5 box to the right (maximum score = 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.

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# **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 <u>highest</u> 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 <u>single highest score</u> 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)

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# 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.

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# 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
provided.	n selecting the TYPES OF ACTIVITIES/STRUCTURES classifications in the spa	ice
Residential and Commercial structures located v	vithin 2 miles	

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# 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
	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).

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Table 10  Determining the EHE Module Rating					
Determin	ming the Line module Rati	Score	Score	Value	
Directions:	Explosives Hazard Factor Data Elements				
1. From Tables 1 - 9, record the data element scores in the <b>Score</b> boxes to the	Munitions Type	Table 1	25	35	
right.	Source of Hazard	Table 2	10		
2. Add the <b>Score</b> boxes for each of the	Accessibility Factor Data Elem	ents			
three factors and record this number in the <b>Value</b> boxes to the right.	Location of Munitions	Table 3	15		
3. Add the three <b>Value</b> boxes and record	Ease of Access	Table 4	10	30	
this number in the <b>EHE Module Total</b> box below.	Status of Property	Table 5	5		
4. Circle the appropriate range for the <b>EHE</b>	Receptors Factor Data Elemen	its			
Module Total below.	Population Density	Table 6	3		
5. Circle the <b>EHE Module Rating</b> that	Population Near Hazard	Table 7	5		
corresponds to the range selected and	Types of Activities/ Structures	Table 8	5	16	
record this value in the <b>EHE Module Rating</b> box found at the bottom of the table.	Ecological and/ or Cultural Resources	Table 9	3		
		EHE Mo	dule Total	81	
	EHE Module Total	EHE N	lodule Rat	ing	
	92 to 100		A		
Note: An alternative module rating	82 to 91	P			
may be assigned when a module letter	71 to 81	(c)			
rating is inappropriate. An alternative	60 to 70	D			
module rating is used when more information is needed to score one or	48 to 59	E			
more data elements, contamination at	38 to 47	F			
an MRS was previously addressed, or	less than 38	G			
there is no reason to suspect		Evaluation Pending		Ū	
contamination was ever present at an	Alternate Module Ratings ————		nger Required		
MRS.		No Known or Suspected Explosive Hazard			
				ď	
	EHE Module Rating		С		

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# 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	Sooro
	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	<b>DIRECTIONS:</b> Record the <u>single highest score</u> from above in the box to the right (maximum score = 30).	0

Directions: Document any MRS-specific data used in selecting the CWM Configuration classifications in the space

No evidence of CWM was observed during the RI field work, and no historical evidence of any CWM.

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Tables 12-19 are intentionally omitted-No Known or Suspected CWM Hazard.

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Table 20				
Determinii	ng the CHE Module	Score	Score	Value
Directions:	CWM Hazard Factor Data Elen	nents		
1. From Tables 1 - 9, record the data element scores in the <b>Score</b> boxes to the	CWM Configuration	Table 11	0	0
right.	Sources of CWM	Table 12	0	J
2. Add the <b>Score</b> boxes for each of the three factors and record this number in the	0			
Value boxes to the right.	Location of CWM	Table 13	0	
3. Add the three Value boxes and record	Ease of Access	Table 14	0	0
this number in the CHE Module Total box below.	Status of Property	Table 15	0	
Circle the appropriate range for the CHE	Receptors Factor Data Elemer	nts		
Module Total below.	Population Density	Table 16	0	
E Circle the CUE Medule Deting that	Population Near Hazard	Table17	0	
Circle the CHE Module Rating that corresponds to the range selected and	Types of Activities/ Structures	Table 18	0	0
record this value in the CHE Module Rating box found at the bottom of the table.	Ecological and/ or Cultural Resources	Table 19	0	
		CHE Mo	dule Total	0
	CHE Module Total	CHE N	lodule Rat	ing
	92 to 100		Α	
Note: An alternative module rating	82 to 91		В	
may be assigned when a module letter	71 to 81	С		
rating is inappropriate. An alternative	60 to 70	D		
module rating is used when more	48 to 59		E	
information is needed to score one or	38 to 47 less than 38	F G		
more data elements, contamination at an MRS was previously addressed, or	less than 30	Evalu		na
there is no reason to suspect		Evaluation Pending No Lenger Required		)
contamination was ever present at an	Alternate Module Ratings  No Known or S			
MRS.		4	VM Hazard	
	CHE Module Rating		n or Suspo VM Hazard	ected

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## **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 Co	ntaminant]
2 > CHF	L (low)	[Comparison Value for Conta	minant]
Contaminant Hazard	Directions: Record the CHF Value from above	in the box to the right (maximum value = H)	
Factor	Directions. Record the CHF Value Iron above	the box to the right (maximum value = 11).	

	Migratory Pathway Factor		
DIRECTIONS: Circle t	he 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.	Н	
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.	М	
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 <u>single highest value</u> 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).	н	
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).	М	
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 <u>single highest value</u> 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.

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## 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 Contamin	iant]
2 > CHF	L (low)	[Comparison Value for Contaminant	]
Contaminant Hazard			
Factor	Directions: Record the CHF Value from above	e 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	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.	Н			
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.	М			
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 <u>single highest value</u> 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	Classification Description Value				
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	Н			
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	М			
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 <u>single highest value</u> from above in the box to the right (maximum value = H).				

No known or Suspected Surface Water (Human Endpoint) MC Hazard

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.

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## 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 Contam	inant]
2 > CHF	L (low)	[Comparison Value for Contaminan	t]
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	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.	Н			
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.	М			
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.	н		
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	М		
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 <u>single highest value</u> 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.

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## **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)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contamin	nant]
2 > CHF	L (low)	[Comparison Value for Contaminant	]
Contaminant Hazard			
Factor	Directions: Record the CHF Value from above	e 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.	Н	
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.	М	
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.	Н	
Potential	Potential for receptors to have access to Surface Water to which contamination has moved or can move.	М	
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 <u>single highest value</u> from above in the box to the right (maximum value = H).		
No known or Suspected Surface Water (Ecological Endpoint) MC Hazard			

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.

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## **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 Conta	minan <b>i</b>
2 > CHF	L (low)	[Comparison Value for Contamin	ant]
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	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.	Н		
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.	М		
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 nignest 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	·				
Identified	Identified receptors have access to Sediment to which contamination has moved or can move.	Н			
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	М			
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 <u>single highest value</u> 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.

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## 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)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contam	inant]
2 > CHF	L (low)	[Comparison Value for Contamina	nt]
Contaminant Hazard Facto	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.	Н	
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.	М	
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 <u>single highest value</u> from above in the box to the right (maximum value = H).	М	

Receptors Factor				
DIRECTIONS: Circle the value	ue 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.	Н		
Potential	Potential for receptors to have access to Surface Soil to which contamination has moved or can move.	М		
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 <u>single highest value</u> 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.

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## **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 mediaspecific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

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## 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	М	L	MLL	F

DIRECTIONS (cont.): HHE Module Rating F

 Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the HHE Module Rating box.

,	• /	
Combination	Rating	
ннн	Α	
ннм	В	
HHL	С	
нмм	Č	
HML	D	
ммм	J	
HLL	E	
MML	_	
MLL	F	
LLL	G	
	Evaluation Pending	
Alternative Module Ratings	No Longer Required	

HHE Ratings (for reference only)

**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.

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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
		Α	1		
Α	2	В	2	Α	2
В	3	С	3	В	3
(c)	(4)	D	4	С	4
ط(	)5	E	5	D	5
E	6	F	6	Ę(	ھ
F	7	G	7	<b>(</b> F)	<b>(</b> 7)
G	8			Ğ	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.

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## 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	X <sub>RI</sub>	FS	RD
RA-C	RIP	RA-O	RC	LTM

Groundwater	Sediment (human receptor)
XSurface 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.

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## **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.

	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	30	
	mixture poses an explosive hazard		
High Explosive (used or	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:	25	
damaged)	■ Been damaged by burning or detonation		
	■ Deteriorated to the point of instability		
	UXO containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades).		
Pyrotechnic (used or damaged)	DMM containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades) that have:	20	
'	Been damaged by burning or detonation		
	■ Deteriorated to the point of instability		
High Familianian (amangad)	DMM containing a high-explosive filler that:	45	
High-Explosive (unused)	Have not been damaged by burning or detonation	15	
	Are not deteriorated to the point of instability		
	UXO containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor).		
<b>_</b>	DMM containing mostly single-, or triple-based propellant, or composite propellants	15	
Propellant	(e.g., a rocket motor) that are:		
	■ Damaged by burning or detonation		
	■ Deteriorated to the point of instability		
Bulk secondary high	DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor), that are deteriorated.		
explosives, pyrotechnics, or propellant	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	DMM containing a pyrotechnic filler (I.e., red phosphorous), other than white phosphorous filler, that:		
damaged)	■ Have not been damaged by burning or detonation	10	
damagoa,	Are not deteriorated to the point of instability		
	UXO that are practice munitions that are not associated with a sensitive fuze.		
Practice	DMM that are practice munitions that are not associated with a sensitive fuze and that have not:	5	
	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	<b>Directions:</b> Record <u>the single highest score</u> from above in the box to the right (maximum score = 30)	30	
B: 11 B 1 14B0 :	5 14 15 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		

**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.

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#### 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	<b>DIRECTIONS:</b> Record <u>the single highest score</u> from above in the box to the right (maximum score = 10).	10

Directions: Document any MRS-specific data used in selecting the Source of Hazard classifications in the space provided.

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.

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#### 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 <u>all</u> 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 <i>not</i> 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 <i>not</i> 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 <i>not</i> 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 <i>not</i> 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	<b>DIRECTIONS:</b> Record <u>the single highest score</u> 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.

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## **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	<b>DIRECTIONS:</b> 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.

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## 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 Score 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 Non-DoD Control 5 water bodies owned or controlled by state, tribal, or local governments, and land or water bodies managed by other federal agencies. 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 Scheduled for Transfer from DoD Control 3 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. 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 **DoD Control** 0 Department must control access to the MRS 24 hours per day, every day of the calendar year. DIRECTIONS: Record the single highest score from above in the **Status of Property** 5 box to the right (maximum score = 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.

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## **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 <u>highest</u> 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 <u>single highest score</u> 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)

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## 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.

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## 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 provided.  Residential and Commercial structures located w	selecting the TYPES OF ACTIVITIES/STRUCTURES classifications in the spatithin 2 miles	ice
Residential and Commercial structures located w	ithin 2 miles	

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## 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).

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Table 10  Determining the EHE Module Rating  Score Score Value					
Directions:	Explosives Hazard Factor Data			Value	
1. From Tables 1 - 9, record the data element scores in the <b>Score</b> boxes to the	Munitions Type	Table 1	30	40	
right.	Source of Hazard	Table 2	10	40	
2. Add the <b>Score</b> boxes for each of the	Accessibility Factor Data Elem	ents			
three factors and record this number in the <b>Value</b> boxes to the right.	Location of Munitions	Table 3	15		
3. Add the three <b>Value</b> boxes and record this number in the <b>EHE Module Total</b> box	Ease of Access	Table 4	10	30	
below.	Status of Property	Table 5	5		
4. Circle the appropriate range for the <b>EHE</b>	Receptors Factor Data Elemen	its			
Module Total below.	Population Density	Table 6	3		
5. Circle the <b>EHE Module Rating</b> that	Population Near Hazard	Table 7	5		
corresponds to the range selected and	Types of Activities/ Structures	Table 8	5	16	
record this value in the EHE Module Rating box found at the bottom of the table.	Ecological and/ or Cultural Resources	Table 9	3		
		EHE Mo	dule Total	86	
	EHE Module Total	EHE M	lodule Rati	ing	
	92 to 100		$\triangle$		
Note: An alternative module rating	82 to 91		<b>(</b> B <b>)</b>		
may be assigned when a module letter	71 to 81	C			
rating is inappropriate. An alternative module rating is used when more	60 to 70	D			
information is needed to score one or	48 to 59		E		
more data elements, contamination at	38 to 47	F			
an MRS was previously addressed, or	less than 38	Finalis	G ation Dondi		
there is no reason to suspect		Evaluation Pending		_	
contamination was ever present at an MRS.	Allemaie Woodlie Railnos ————————————————————————————————————			er Required	
		No Known or Suspe Explosive Hazar			
	EHE Module Rating	=- \p\·	В	-	

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## 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.	9
CWM CONFIGURATION	<b>DIRECTIONS:</b> Record the <u>single highest score</u> from above in the box to the right (maximum score = 30).	0

Directions: Document any MRS-specific data used in selecting the CWM Configuration classifications in the space

No evidence of CWM during RI field work, and no historical evidence.

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Tables 12-19 are intentionally omitted-No Known or Suspected CWM Hazard.

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Table 20					
Determining the CHE Module Rating  Score Score Value					
Directions:	CWM Hazard Factor Data Elen	nents			
1. From Tables 1 - 9, record the data element scores in the <b>Score</b> boxes to the	CWM Configuration	Table 11	0	0	
right.	Sources of CWM	Table 12	0		
2. Add the <b>Score</b> boxes for each of the three factors and record this number in the	0				
Value boxes to the right.	Location of CWM	Table 13	0		
3. Add the three Value boxes and record	Ease of Access	Table 14	0	0	
this number in the CHE Module Total box below.	Status of Property	Table 15	0	,	
Circle the appropriate range for the CHE	Receptors Factor Data Elemer	nts			
Module Total below.	Population Density	Table 16	0		
E. Cirolo the CUE Madula Dating that	Population Near Hazard	Table17	0	•	
Circle the CHE Module Rating that corresponds to the range selected and	Types of Activities/ Structures	Table 18	0	0	
record this value in the CHE Module Rating box found at the bottom of the table.	Ecological and/ or Cultural Resources	Table 19	0	,	
		CHE Mo	dule Total	0	
	CHE Module Total	CHE N	lodule Rat	ing	
	92 to 100		А		
Note: An alternative module rating	82 to 91		В		
may be assigned when a module letter	71 to 81		С		
rating is inappropriate. An alternative	60 to 70		<u>D</u>		
module rating is used when more	48 to 59		E		
information is needed to score one or	38 to 47		F G		
more data elements, contamination at an MRS was previously addressed, or	less than 38	- Fyely			
there is no reason to suspect		Evaluation Pending No Lenger Required			
contamination was ever present at an	Alternate Module Ratings				
MRS.		No Known or Suspected CWM Hazard			
	CHE Module Rating		n or Suspo VM Hazard	ected	

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## **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 Co	ontaminant]
2 > CHF	L (low)	[Comparison Value for Conta	aminant]
Contaminant Hazard Factor	Directions: Record the CHF Value from above	e in the box to the right (maximum value = H).	

	Migratory Pathway Factor			
DIRECTIONS: Circle th	ne value that corresponds most closely to the groundwater migratory pathwa	y 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.	Н		
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.	М		
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 <u>single highest value</u> 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).	н	
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).	М	
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 <u>single highest value</u> 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.

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## **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 Contamin	nan <b>i</b>
2 > CHF	L (low)	[Comparison Value for Contaminan	t]
Contaminant Hazard			
Factor	Directions: Record the CHF Value from about	ove 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.	Н	
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.	М	
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 <u>single highest value</u> from above in the box to the right (maximum value = H).		

Receptors Factor				
DIRECTIONS: Circle th	ne value that corresponds most closely to the Surface Water receptors at the Mi	RS.		
Classification	Description	Value		
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	Н		
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	М		
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 <u>single highest value</u> from above in the box to the right (maximum value = H).				
No known or Suspected Surface Water (Human Endpoint) MC Hazard				

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.

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## 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 Cont	aminant]
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.	Н		
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.	М		
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				

Receptors Factor				
DIRECTIONS: Circle the v	alue 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.	Н		
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	М		
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 <u>single highest value</u> 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.

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## **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)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contamin	ant]
2 > CHF	L (low)	[Comparison Value for Contaminant	]
Contaminant Hazard			
Factor	Directions: Record the CHF Value from above	e 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.	Н	
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 <u>single highest value</u> from above in the box to the right (maximum value = H).		

Receptor Factor_				
DIRECTIONS: Circle t	he value that corresponds most closely to the Surface Water receptors at th	e MRS.		
Classification	Description	Value		
Identified	Identified receptors have access to Surface Water to which contamination has moved or can move.	н		
Potential	Potential for receptors to have access to Surface Water to which contamination has moved or can move.	М		
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 <u>single highest value</u> from above in the box to the right (maximum value = H).			
No known or Suspected Surface Water (Ecological Endpoint) MC Hazard				

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.

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## **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 Conta	minan <b>i</b>
2 > CHF	L (low)	[Comparison Value for Contamin	ant]
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.	н		
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.	М		
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 nignest value from above in the box to the right (maximum value = H)			

Receptors Factor				
Classification	value that corresponds most closely to the Sediment receptors at the MRS.  Description	Value		
Identified	Identified receptors have access to Sediment to which contamination has moved or can move.	Н		
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	М		
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 <u>single highest value</u> 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.

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## 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 Conta	minant]
2 > CHF	L (low)	[Comparison Value for Contamina	ant]
Contaminant Hazard Fact	Or 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.	Н	
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.	М	
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 <u>single highest value</u> from above in the box to the right (maximum value = H).	М	

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.	Н		
Potential	Potential for receptors to have access to Surface Soil to which contamination has moved or can move.	М		
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 <u>single highest value</u> 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.

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## 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

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## 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	М	L	MLL	F

DIRECTIONS (cont.): HHE Module Rating F

 Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the HHE Module Rating box.

Combination	Rating	
ннн	Α	
ннм	В	
HHL	С	
нмм	Č	
HML	D	
ммм	D	
HLL	Е	
MML	_	
MLL	(±)	
LLL	G	
	Evaluation Pending	
Alternative Module Ratings	No Longer Required	
	No Known or	

HHE Ratings (for reference only)

**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.

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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
		Α	1		
A	2	В	2	Α	2
<b>(</b> B <b>)</b>	(3)	С	3	В	3
بر	4	D	4	С	4
D	5	Е	5	D	5
E	6	F	6	Щ	ھ(
F	7	G	7	<b>(</b> F)	(7)
G	8			) હ	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			
	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.

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#### 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	X 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.

## **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.

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 (l.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 2	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	<b>Directions:</b> Record <u>the single highest score</u> 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.

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#### 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.

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#### 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 <u>all</u> 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 <i>not</i> 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 <i>not</i> 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 <i>not</i> 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 <i>not</i> 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	<b>DIRECTIONS:</b> 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.

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## **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	<b>DIRECTIONS:</b> 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.

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#### 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 Score 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 Non-DoD Control 5 water bodies owned or controlled by state, tribal, or local governments, and land or water bodies managed by other federal agencies. 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 Scheduled for Transfer from DoD Control 3 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. 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 **DoD Control** 0 Department must control access to the MRS 24 hours per day, every day of the calendar year. DIRECTIONS: Record the single highest score from above in the **Status of Property** 5 box to the right (maximum score = 5). Directions: Document any MRS-specific data used in selecting the Status of Property classifications in the space provided. Consists of privately owned land.

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#### **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 <u>highest</u> 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 <u>single highest score</u> 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)

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#### 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.

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#### 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
provided.	n selecting the TYPES OF ACTIVITIES/STRUCTURES classifications in the spa	ice
Residential and Commercial structures located v	vithin 2 miles	

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#### 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.	<u>©</u>	
ECOLOGICAL AND/OR CULTURAL RESOURCES	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	0	
<b>Directions:</b> Document any MRS-specific data used in selecting the <b>ECOLOGICAL AND/OR CULTURAL RESOURCES</b> classifications in the space provided.			

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Table 10  Determining the EHE Module Rating				
Directions:	Evaluatives Hazard Factor Date	Score	Score	Value
Directions:	Explosives Hazard Factor Data	i Elements		
1. From Tables 1 - 9, record the data element scores in the <b>Score</b> boxes to the	Munitions Type	Table 1	20	30
right.	Source of Hazard	Table 2	10	
Add the <b>Score</b> boxes for each of the	Accessibility Factor Data Elem	ents		
three factors and record this number in the <b>Value</b> boxes to the right.	Location of Munitions	Table 3	15	
3. Add the three <b>Value</b> boxes and record this number in the <b>EHE Module Total</b> box	Ease of Access	Table 4	8	28
below.	Status of Property	Table 5	5	
4. Circle the appropriate range for the <b>EHE</b>	Receptors Factor Data Elemen	ts		
Module Total below.	Population Density	Table 6	3	
5. Circle the <b>EHE Module Rating</b> that	Population Near Hazard	Table 7	5	
corresponds to the range selected and	Types of Activities/ Structures	Table 8	5	13
record this value in the EHE Module Rating box found at the bottom of the table.	Ecological and/ or Cultural Resources	Table 9	0	
		EHE Mo	dule Total	71
	EHE Module Total	EHE M	odule Rati	ing
	92 to 100		Α	
Note: An alternative module rating	82 to 91		Å	
may be assigned when a module letter	71 to 81	(c)		
rating is inappropriate. An alternative module rating is used when more	60 to 70		<u> </u>	
information is needed to score one or	48 to 59	E		
more data elements, contamination at	38 to 47	F		
an MRS was previously addressed, or	less than 38		G	
there is no reason to suspect		Evaluation Pending		_
contamination was ever present at an MRS.	Alternate Module Ratings		No Longer Required	
IVINO.		No Known or Sus Explosive Haz		
	EHE Module Rating	LAPIC	C	-

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#### 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.	
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).	
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.	
CAIS (Chemical agent identification sets)		
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.	
CWM CONFIGURATION	<b>DIRECTIONS:</b> Record the <u>single highest score</u> from above in the box to the right (maximum score = 30).	0

Directions: Document any MRS-specific data used in selecting the CWM Configuration classifications in the space

No evidence of CWM was observed during the RI field work, and no evidence of historical use.

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Final Remedial Investigation Report for the Former Camp Croft Spartanburg, South Carolina Appendices

Tables 12-19 are intentionally omitted-No Known or Suspected CWM Hazard

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Table 20 Determining the CHE Module Rating				
	ing the one medale	Score	Score	Value
Directions:	CWM Hazard Factor Data Elem	nents		
1. From Tables 1 - 9, record the data element scores in the <b>Score</b> boxes to the	CWM Configuration	Table 11	0	0
right.	Sources of CWM	Table 12	0	
Add the <b>Score</b> boxes for each of the three factors and record this number in the	0			
Value boxes to the right.	Location of CWM	Table 13	0	
3. Add the three Value boxes and record this number in the CHE Module Total box	Ease of Access	Table 14	0	0
below.	Status of Property	Table 15	0	
Circle the appropriate range for the CHE	Receptors Factor Data Elemen	nts		
Module Total below.	Population Density	Table 16	0	
E Circle the CUE Medule Deting that	Population Near Hazard	Table17	0	
Circle the CHE Module Rating that corresponds to the range selected and	Types of Activities/ Structures	Table 18	0	0
record this value in the CHE Module Rating box found at the bottom of the table.	Ecological and/ or Cultural Resources	Table 19	0	•
		CHE Mo	dule Total	0
	CHE Module Total	CHE N	lodule Rat	ing
	92 to 100		А	
Note: An alternative module rating	82 to 91		В	
may be assigned when a module letter	71 to 81		С	
rating is inappropriate. An alternative	60 to 70	D		
module rating is used when more	48 to 59		E F	
information is needed to score one or more data elements, contamination at	38 to 47 less than 38		G G	
an MRS was previously addressed, or	less than 30	Evalu		na
there is no reason to suspect		Evaluation Pending		
contamination was ever present at an MRS.	Alternate Module Ratings	No Known or Suspected CWM Hazard		
	CHE Module Rating		n or Suspe /M Hazard	ected

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#### **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 Co	ntaminant]
2 > CHF	L (low)	[Comparison Value for Contain	minant]
Contaminant Hazard	Directions: Record the CHF Value from above	in the box to the right (maximum value = H).	
Factor		÷ ,	

Migratory Pathway Factor			
DIRECTIONS: Circle the	e 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.	Н	
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.	М	
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 <u>single highest value</u> 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).	н	
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).	М	
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 <u>single highest value</u> 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.

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# 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 Contamin	<u>nan</u> t
2 > CHF	L (low)	[Comparison Value for Contaminan	t]
Contaminant Hazard			
Factor	Directions: Record the CHF Value from above	e 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.	Н	
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.	М	
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 <u>single highest value</u> from above in the box to the right (maximum value = H).		

Receptors Factor				
DIRECTIONS: Circle to	he value that corresponds most closely to the Surface Water receptors at the MRS	S		
Classification	Description	Value		
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	н		
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	М		
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	Ĺ		
Receptors Factor	Directions: Record the <u>single highest value</u> from above in the box to the right (maximum value = H).			

No known or Suspected Surface Water (Human Endpoint) MC Hazard

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.

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### 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 Contam	
2 > CHF	L (low)	[Comparison Value for Contaminar	nt]
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.	Н		
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.	М		
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		
I Midratory Pathway Factor	Directions: Record the <u>single highest value</u> 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.	Н		
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	М		
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 <u>single highest value</u> 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.

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#### **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)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contamir	nan <b>t</b>
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.	Н	
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.	М	
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 <u>single highest value</u> from above in the box to the right (maximum value = H).		

Receptor Factor  DIRECTIONS: Circle the value that corresponds most closely to the Surface Water receptors at the MRS.			
Classification	Description	Value	
Identified	Identified receptors have access to Surface Water to which contamination has moved or can move.	Н	
Potential	Potential for receptors to have access to Surface Water to which contamination has moved or can move.	М	
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 <u>single highest value</u> from above in the box to the right (maximum value = H).		
No known or Suspected Surface Water (Ecological Endpoint) MC Hazard			

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.

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#### **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 Contant	ninant]
2 > CHF	L (low)	[Comparison Value for Contamina	int]
Contaminant Hazard Factor	Directions: Record the CHF Value from above i	n 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.	н		
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.	М		
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 <u>single highest value</u> from above in the box to the right (maximum value = H).			

Receptors Factor_				
DIRECTIONS: Circle the va	alue 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.	Н		
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	М		
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.

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### 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 Cont	aminant]
2 > CHF	L (low)	[Comparison Value for Contami	nant]
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.	Н	
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.	М	
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 <u>single highest value</u> 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.	н		
Potential	Potential for receptors to have access to Surface Soil to which contamination has moved or can move.	М		
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 <u>single highest value</u> 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.

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#### **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 mediaspecific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

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# 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				

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DIRECTIONS (cont.): HHE Module Rating

 Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the HHE Module Rating box.

Combination	Rating
ннн	Α
ннм	В
HHL	С
НММ	
HML	_
ммм	D
HLL	Е
	<u></u>

MML MLL

HHE Ratings (for reference only)

**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.

Alternative Module Ratings

No Longer Required

No Known or Suspected MC Hazard

G

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# 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
		Α	1		
Α	2	В	2	Α	2
В	3	С	3	В	3
(c)	(4)	D	4	С	4
ط	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	No Longer Required No Longer Required No Longer Requ		Required		
No Known or Suspected No Known or Suspected Mo Known or Suspected MC Hazard 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.

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#### 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	X 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.

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#### **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.

	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	23-1	(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	<b>Directions:</b> 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.

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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

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#### 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	<b>DIRECTIONS:</b> 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.

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#### 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 <u>all</u> 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 <i>not</i> 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 <i>not</i> 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 <i>not</i> 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 <i>not</i> 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	<b>DIRECTIONS:</b> Record <u>the single highest score</u> from above in the box to the right (maximum score = 25).	10

Directions: Document any MRS-specific data used in selecting the Location of Munitions classifications in the space provided.

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.

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#### **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	<b>DIRECTIONS:</b> 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.

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#### 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 Score 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 Non-DoD Control 5 water bodies owned or controlled by state, tribal, or local governments, and land or water bodies managed by other federal agencies. 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 Scheduled for Transfer from DoD Control 3 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. 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 **DoD Control** 0 Department must control access to the MRS 24 hours per day, every day of the calendar year. DIRECTIONS: Record the single highest score from above in the **Status of Property** 5 box to the right (maximum score = 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.

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#### **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 <u>highest</u> 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 <u>single highest score</u> 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)

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#### 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.

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#### 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		
<b>Directions:</b> Document any MRS-specific data used in selecting the <b>TYPES OF ACTIVITIES/STRUCTURES</b> classifications in the space provided.				
Residential and Commercial structures located within 2 miles				

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#### 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.	(9)	
ECOLOGICAL AND/OR CULTURAL RESOURCES	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	0	
<b>Directions:</b> Document any MRS-specific data used in selecting the <b>ECOLOGICAL AND/OR CULTURAL RESOURCES</b> classifications in the space provided.			

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Table 10				
Determining the EHE Module Rating Score Score Value				
Directions:	Explosives Hazard Factor Data	a Elements		
1. From Tables 1 - 9, record the data element scores in the <b>Score</b> boxes to the	Munitions Type	Table 1	5	15
right.	Source of Hazard	Table 2	10	
2. Add the <b>Score</b> boxes for each of the	Accessibility Factor Data Elem	ents		
three factors and record this number in the <b>Value</b> boxes to the right.	Location of Munitions	Table 3	10	
3. Add the three <b>Value</b> boxes and record	Ease of Access	Table 4	10	25
this number in the <b>EHE Module Total</b> box below.	Status of Property	Table 5	5	1
4. Circle the appropriate range for the <b>EHE</b>	Receptors Factor Data Elemen	its		
Module Total below.	Population Density	Table 6	3	
5. Circle the <b>EHE Module Rating</b> that	Population Near Hazard	Table 7	5	1
corresponds to the range selected and	Types of Activities/ Structures	Table 8	5	13
record this value in the EHE Module Rating box found at the bottom of the table.	Ecological and/ or Cultural Resources	Table 9	0	
		EHE Mo	dule Total	53
	EHE Module Total	EHE N	lodule Rat	ing
	92 to 100		Α	
Note: An alternative module rating	82 to 91		В	
may be assigned when a module letter	71 to 81	С		
rating is inappropriate. An alternative module rating is used when more	60 to 70			
information is needed to score one or	48 to 59		(E)	
more data elements, contamination at	38 to 47		F	
an MRS was previously addressed, or	less than 38		G	
there is no reason to suspect		Evaluation Pending		ŭ
contamination was ever present at an	Alternate Module Ratings	ngs No Longer Re		
MRS.			vn or Suspected osive Hazard	
	EHE Module Rating	·	E F	u
	Life Module Rating		_	

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#### 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.	9
CWM CONFIGURATION	<b>DIRECTIONS:</b> Record the <u>single highest score</u> from above in the box to the right (maximum score = 30).	0

Directions: Document any MRS-specific data used in selecting the CWM Configuration classifications in the space

No evidence of CWM was observed during the RI field work, and no evidence of historical use.

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Tables 12-19 are intentionally omitted-No Known or Suspected CWM Hazard

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Table 20					
Determini	ng the CHE Module	Rating Score	Score	Value	
Directions:	CWM Hazard Factor Data Elem		Ocore	Value	
From Tables 1 - 9, record the data element scores in the <b>Score</b> boxes to the	CWM Configuration	Table 11	0	0	
right.	Sources of CWM	Table 12	0		
2. Add the <b>Score</b> boxes for each of the	0				
three factors and record this number in the <b>Value</b> boxes to the right.	Location of CWM	Table 13	0		
3. Add the three Value boxes and record	Ease of Access	Table 14	0	0	
this number in the CHE Module Total box below.	Status of Property	Table 15	0		
Circle the appropriate range for the CHE	Receptors Factor Data Elemen	nts			
Module Total below.	Population Density	Table 16	0		
Circle the CHE Mediale Detires that	Population Near Hazard	Table17	0	<b>,</b>	
Circle the CHE Module Rating that corresponds to the range selected and	Types of Activities/ Structures	Table 18	0	0	
record this value in the CHE Module Rating box found at the bottom of the table.	Ecological and/ or Cultural Resources	Table 19	0		
		CHE Mo	dule Total	0	
	CHE Module Total	CHE N	lodule Rat	ing	
	92 to 100		Α		
Note: An alternative module rating	82 to 91		В		
may be assigned when a module letter	71 to 81		С		
rating is inappropriate. An alternative	60 to 70		<u>D</u>		
module rating is used when more	48 to 59	E			
information is needed to score one or more data elements, contamination at	38 to 47 less than 38		F G		
an MRS was previously addressed, or	less than 30	Evalu	ation Pendi	na	
there is no reason to suspect					
contamination was ever present at an	Alternate Module Ratings	No Longer Required  No Known or Suspected			
MRS.		1	VM Hazard		
	CHE Module Rating		n or Suspo /M Hazard	ected	

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#### **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 Co	ntaminant]
2 > CHF	L (low)	[Comparison Value for Contain	minant]
Contaminant Hazard	Directions: Record the CHF Value from above	in the box to the right (maximum value = H).	
Factor		÷ ,	

	Migratory Pathway Factor			
DIRECTIONS: Circle the	e 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.	Н		
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.	М		
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 <u>single highest value</u> 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).	н	
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).	М	
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 <u>single highest value</u> 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.

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# 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 Contamir	<u>nan</u> t
2 > CHF	L (low)	[Comparison Value for Contaminant	t]
Contaminant Hazard			
Factor	Directions: Record the CHF Value from above	in the box to the right (maximum value = H).	

Migratory Pathway Factor			
	ne value that corresponds most closely to the surface water migratory pathway at		
Classification	Description	Value	
	Analytical data or observable evidence indicates that contamination in the		
Evident	surface water is present at, moving toward, or has moved to a point of	Н	
	exposure.		
	Contamination in Surface Water has moved only slightly beyond the source		
Potential	(i.e., tens of feet), could move but is not moving appreciably, or information is	M	
	not sufficient to make a determination of Evident or Confined.		
	Information indicates a low potential for contaminant migration from the		
Confined	source via the Surface Water to a potential point of exposure (possibly due to	L	
	the presence of geological structures or physical controls).		
Migratory Pathway	Directions: Record the single highest value from above in the box to the right (maximum value =		
Factor	H).		

Receptors Factor			
DIRECTIONS: Circle to	he value that corresponds most closely to the Surface Water receptors at the MRS	S	
Classification	Description	Value	
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	н	
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	М	
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	Ĺ	
Receptors Factor	Directions: Record the <u>single highest value</u> from above in the box to the right (maximum value = H).		
		_	

No known or Suspected Surface Water (Human Endpoint) MC Hazard

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.

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# 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 Contam	
2 > CHF	L (low)	[Comparison Value for Contaminar	nt]
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.	н	
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.	М	
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 <u>single highest value</u> 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.			
Identified	Identified receptors have access to Sediment to which contamination has moved or can move.	н	
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	М	
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 <u>single highest value</u> 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.

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#### **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)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contamin	anţ
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.	Н	
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.	М	
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 <u>single highest value</u> from above in the box to the right (maximum value = H).		

Receptor Factor			
DIRECTIONS: Circle the value that corresponds most closely to the Surface Water receptors at the MRS.			
Classification	Description	Value	
Identified	Identified receptors have access to Surface Water to which contamination has moved or can move.	Н	
Potential	Potential for receptors to have access to Surface Water to which contamination has moved or can move.	М	
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 <u>single highest value</u> from above in the box to the right (maximum value = H).		
No known or Suspected Surface Water (Ecological Endpoint) MC Hazard			

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.

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### **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 Contan	ninant]			
2 > CHF	L (low)	[Comparison Value for Contamina	int]			
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	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.	Н					
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.	М					
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 <u>single highest value</u> from above in the box to the right (maximum value = H).						

Receptors Factor						
DIRECTIONS: Circle the va	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.	Н				
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	М				
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 <u>single highest value</u> 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.

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# 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 Conta	aminant]
2 > CHF	L (low)	[Comparison Value for Contami	nant]
Contaminant Hazard Factor			

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.	Н			
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.	М			
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 <u>single highest value</u> 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.	н			
Potential	Potential for receptors to have access to Surface Soil to which contamination has moved or can move.	М			
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 <u>single highest value</u> 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.

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# **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 mediaspecific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

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# 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.): **HHE Module Rating** 

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the HHE Module Rating box.

Combination	Rating	
ннн	Α	
ннм	В	
HHL	С	
нмм	C	
HML	D	
МММ	D	

HLL

MML MLL LLL

HHE Ratings (for reference only)

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.

	Evaluation Pending
Alternative Module Ratings	No Longer Required

No Known or Suspected MC Hazarg

Ε

G

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# 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			
Α	2	В	2	Α	2
В	3	С	3	В	3
С	4	D	4	С	4
4	5	E	5	D	5
(E)	(6)	F	6	E	6
F	)	G	7	F	7
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation	Pending
No Longer Required		No Longer F	Required	No Longer	Required
No Know Suspected E Haza	Explosive	No Known or S CWM Ha	. ,	No Known or MC Ha	-
	MRS	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.

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### 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	X 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

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 l04FL028701\_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.

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### **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.

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	<b>Directions:</b> 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".

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### 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	
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	<b>DIRECTIONS:</b> 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".

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### 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 <u>all</u> 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	ion Description	
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.	
Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are <i>not</i> 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 <i>not</i> 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 <i>not</i> 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 <i>not</i> 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
There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface Physical Constraint 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	<b>DIRECTIONS:</b> 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".

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### **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	<b>DIRECTIONS:</b> 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.

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### 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 Score 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 Non-DoD Control 5 water bodies owned or controlled by state, tribal, or local governments, and land or water bodies managed by other federal agencies. 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 Scheduled for Transfer from DoD Control 3 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. 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 **DoD Control** 0 Department must control access to the MRS 24 hours per day, every day of the calendar year. DIRECTIONS: Record the single highest score from above in the **Status of Property** 5 box to the right (maximum score = 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.

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### **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 <u>highest</u> population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	
> 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.	
< 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 <u>single highest score</u> 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)

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### 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	
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.	
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.	
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.	
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.

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### 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.

Activities are conducted, or inhabited structures are located up to two miles from the	
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.	
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
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
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.	
There are no known or recurring activities up to two miles from the MRS's boundary or within the MRS's boundary.	1
DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	5
selecting the TYPES OF ACTIVITIES/STRUCTURES classifications in the spatithin 2 miles	ice
	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.  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.  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.  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.  There are no known or recurring activities up to two miles from the MRS's boundary or within the MRS's boundary.  DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).

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### 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	
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).

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Table 10  Determining the EHE Module Rating				
Determi	ining the Line Module Rati	Score	Score	Value
Directions:	Explosives Hazard Factor Data Elements			
1. From Tables 1 - 9, record the data element scores in the <b>Score</b> boxes to the	Munitions Type	Table 1	25	35
right.	Source of Hazard	Table 2	10	
2. Add the <b>Score</b> boxes for each of the	Accessibility Factor Data Elem	ents		
three factors and record this number in the <b>Value</b> boxes to the right.	Location of Munitions	Table 3	10	
Add the three <b>Value</b> boxes and record this number in the <b>EHE Module Total</b> box	Ease of Access	Table 4	10	25
below.	Status of Property	Table 5	5	
4. Circle the appropriate range for the <b>EHE</b>	Receptors Factor Data Elemen	nts		
Module Total below.	Population Density	Table 6	3	
5. Circle the <b>EHE Module Rating</b> that	Population Near Hazard	Table 7	5	
corresponds to the range selected and	Types of Activities/ Structures	Table 8	5	16
record this value in the <b>EHE Module Rating</b> box found at the bottom of the table.	Ecological and/ or Cultural Resources	Table 9	3	
		EHE Mo	dule Total	76
	EHE Module Total	EHE N	lodule Rat	ing
	92 to 100		Α	
Note: An alternative module rating	82 to 91	B		
may be assigned when a module letter	71 to 81		<b>(</b> C <b>)</b>	
rating is inappropriate. An alternative module rating is used when more	60 to 70	T T		
information is needed to score one or	48 to 59	E		
more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.	38 to 47	F		
	less than 38	G		
			ation Pendi	Ū
	Alternate Module Ratings	No Longer Required		
			No Known or Suspec	
		·	sive Hazar	u
	EHE Module Rating		С	

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# 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	<b>DIRECTIONS:</b> Record the <u>single highest score</u> from above in the box to the right (maximum score = 30).	0

**Directions:** Document any MRS-specific data used in selecting the **CWM Configuration** classifications in the space

No evidence of CWM observed during RI field work, and no historical records of CWM use.

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Tables 12-19 are intentionally omitted-No Known or Suspected CWM Hazard.

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Table 20 Determining the CHE Module Rating				
		Score	Score	Value
Directions:	CWM Hazard Factor Data Elem	nents		
1. From Tables 1 - 9, record the data element scores in the <b>Score</b> boxes to the	CWM Configuration	Table 11	0	0
right.	Sources of CWM	Table 12	0	
2. Add the <b>Score</b> boxes for each of the	0			
three factors and record this number in the <b>Value</b> boxes to the right.	Location of CWM	Table 13	0	
Add the three Value boxes and record this number in the CHE Module Total box	Ease of Access	Table 14	0	0
below.	Status of Property	Table 15	0	
4. Circle the appropriate range for the CHE	Receptors Factor Data Elemen	nts		
Module Total below.	Population Density	Table 16	0	
F. Circle the CHE Medule Poting that	Population Near Hazard	Table17	0	
Circle the CHE Module Rating that corresponds to the range selected and	Types of Activities/ Structures	Table 18	0	0
record this value in the CHE Module Rating box found at the bottom of the table.	Ecological and/ or Cultural Resources	Table 19	0	
		CHE Mo	dule Total	0
	CHE Module Total	CHE N	lodule Rat	ing
	92 to 100		Α	
Note: An alternative module rating	82 to 91		В	
may be assigned when a module letter	71 to 81	С		
rating is inappropriate. An alternative	60 to 70	D		
module rating is used when more	48 to 59 38 to 47	E		
information is needed to score one or more data elements, contamination at	less than 38	F G		
an MRS was previously addressed, or	iess than so	Evaluation Pending		na
there is no reason to suspect contamination was ever present at an MRS.			nger Requi	·
	Alternate Module Ratings  No Known or Suspect			
		4	VM Hazard	
	CHE Module Rating		n or Susp /M Hazard	ected

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### **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 Co	ontaminant]
2 > CHF	L (low)	[Comparison Value for Conta	aminant]
Contaminant Hazard Factor	Directions: Record the CHF Value from above	e in the box to the right (maximum value = H).	

	Migratory Pathway Factor		
DIRECTIONS: Circle th	e 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.	Н	
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.	М	
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 <u>single highest value</u> 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).	н	
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).	М	
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 <u>single highest value</u> from above in the box to the right (maximum value = H).		
No known or Suspected Groundwater MC Hazard			

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# 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 Contamin	<u>nan</u> i
2 > CHF	L (low)	[Comparison Value for Contaminan	t]
Contaminant Hazard			
Factor	Directions: Record the CHF Value from above	e 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.	Н	
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.	М	
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 <u>single highest value</u> from above in the box to the right (maximum value = H).		

Receptors Factor			
DIRECTIONS: Circle th	ne value that corresponds most closely to the Surface Water receptors at the MRS	S.	
Classification	Description	Value	
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	Н	
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	М	
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 <u>single highest value</u> from above in the box to the right (maximum value = H).		

No known or Suspected Surface Water (Human Endpoint) MC Hazard

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.

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# 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 Contam	
2 > CHF	L (low)	[Comparison Value for Contaminar	nt]
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.	Н	
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.	М	
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	
I Midratory Pathway Factor	Directions: Record the <u>single highest value</u> 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.	н		
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	М		
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 <u>single highest value</u> 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.

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# **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)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contamin	anţ
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.	Н	
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.	М	
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 <u>single highest value</u> from above in the box to the right (maximum value = H).		

	Receptor Factor		
DIRECTIONS: Circle t	he value that corresponds most closely to the Surface Water receptors at th	e MRS.	
Classification	Description	Value	
Identified	Identified receptors have access to Surface Water to which contamination has moved or can move.	н	
Potential	Potential for receptors to have access to Surface Water to which contamination has moved or can move.	М	
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 <u>single highest value</u> from above in the box to the right (maximum value = H).		
No lineary and Course and all Conferes Water (Foods wheat Foods and MO Uses and			

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.

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# **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 Conta	minan <b>i</b>			
2 > CHF	L (low)	[Comparison Value for Contamin	ant]			
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.	Н			
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.	М			
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 nignest 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.	Н			
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 <u>single highest value</u> 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.

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# 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 Conta	aminant]			
2 > CHF	L (low)	[Comparison Value for Contamir	nant]			
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.	Н			
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.	М			
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 <u>single highest value</u> 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.	Н				
Potential	Potential for receptors to have access to Surface Soil to which contamination has moved or can move.	М				
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 <u>single highest value</u> 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.

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# **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 mediaspecific tables.

Note: Do not add ratios from different media.

Note: Do not add ratios  Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

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# 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.): HHE Module Rating

4. Select the	single highest Me	dia Rating (A is	highest; G is l	lowest) and
	enter the letter in	the HHE Modul	e Rating box.	

HHE Ratings (for reference only)				
	Combination	Rating		
	ннн	Α		
	ннм	В		
	HHL	С		
	нмм			
	HML	D		
	ммм			
1	HLL	E		
	MML			
	MLL	F		
	LLL	G		
		Evaluation Pending		
	Alternative Module Ratings	No Longer Required		
		No Known or Suspected MC Hazard		

**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.

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# 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.

<b>EHE Rating</b>	Priority	CHE Rating	Priority	HHE Rating	Priority
		Α	1		
Α	2	В	2	Α	2
В	3	С	3	В	3
(c)	(4)	D	4	С	4
ď	ه(	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 Suspecte CWM Hazard				No Known or MC Ha	-
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".

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#### 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	X RI	FS	RD
RA-C	RIP	RA-O	RC	LTM

Groundwater	Sediment (human receptor)
XSurface 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.

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### **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.

	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.	30
	Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard	
High Explosive (used or	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:	(25)
damaged)	■ Been damaged by burning or detonation	
	■ Deteriorated to the point of instability	
	UXO containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades).	
Pyrotechnic (used or damaged)	DMM containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades) that have:	20
	■ Been damaged by burning or detonation	
	■ Deteriorated to the point of instability	
High Explanity (consend)	DMM containing a high-explosive filler that:	45
High-Explosive (unused)	Have not been damaged by burning or detonation  As and detailered to the point of instability.	15
	Are not deteriorated to the point of instability  UXO containing mostly single-, or triple-based propellant, or composite propellants	
	(e.g., a rocket motor).	
Propellant	DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are:	15
	■ Damaged by burning or detonation	
	■ Deteriorated to the point of instability	
Bulk secondary high	DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor), that are deteriorated.	
explosives, pyrotechnics,	Bulk secondary high-explosives, pyrotechnic compositions, or propellant (not contained	10
or propellant	in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	
Pyrotechnic (not used or	DMM containing a pyrotechnic filler (I.e., red phosphorous), other than white phosphorous filler, that:	
damaged)	■ Have not been damaged by burning or detonation	10
uamageu)	■ Are not deteriorated to the point of instability	
	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	
Practice	have not:	5
	■ Been damaged by burning or detonation	
Dist Ossitual	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	<b>Directions:</b> 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".

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### 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	<b>DIRECTIONS:</b> 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".

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### 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 <u>all</u> 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 <i>not</i> 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 <i>not</i> 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 <i>not</i> 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 <i>not</i> 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	<b>DIRECTIONS:</b> 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".

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### **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	<b>DIRECTIONS:</b> 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.

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### 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 Score 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 Non-DoD Control 5 water bodies owned or controlled by state, tribal, or local governments, and land or water bodies managed by other federal agencies. 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 Scheduled for Transfer from DoD Control 3 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. 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 **DoD Control** 0 Department must control access to the MRS 24 hours per day, every day of the calendar year. DIRECTIONS: Record the single highest score from above in the **Status of Property** 5 box to the right (maximum score = 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.

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### **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 <u>highest</u> 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 <u>single highest score</u> 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)

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### 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.

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#### 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	TYPES OF ACTIVITIES/STRUCTURES  DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).					
<b>Directions:</b> Document any MRS-specific data used in provided.  Residential and Commercial structures located with the commercial struc	n selecting the TYPES OF ACTIVITIES/STRUCTURES classifications in the span	ice				
residential and estimated structures located v	Tunio Linico					

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#### 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
	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".

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Table 10  Determining the EHE Module Rating					
Score Score Value					
Directions:	Explosives Hazard Factor Data	a Elements			
1. From Tables 1 - 9, record the data element scores in the <b>Score</b> boxes to the	Munitions Type	Table 1	25	35	
right.	Source of Hazard	Table 2	10		
2. Add the <b>Score</b> boxes for each of the	Accessibility Factor Data Elem	ents			
three factors and record this number in the <b>Value</b> boxes to the right.	Location of Munitions	Table 3	10		
3. Add the three <b>Value</b> boxes and record	Ease of Access	Table 4	10	25	
this number in the <b>EHE Module Total</b> box below.	Status of Property	Table 5	5		
4. Circle the appropriate range for the <b>EHE</b>	Receptors Factor Data Elemen	its			
Module Total below.	Population Density	Table 6	3		
5. Circle the <b>EHE Module Rating</b> that	Population Near Hazard	Table 7	5		
corresponds to the range selected and	Types of Activities/ Structures	Table 8	5	16	
record this value in the <b>EHE Module Rating</b> box found at the bottom of the table.	Ecological and/ or Cultural Resources	Table 9	3		
		EHE Mo	dule Total	76	
	EHE Module Total	EHE N	lodule Rat	ing	
	92 to 100		Α		
Note: An alternative module rating	82 to 91		В		
may be assigned when a module letter	71 to 81	(c)			
rating is inappropriate. An alternative module rating is used when more	60 to 70	•			
information is needed to score one or	48 to 59	Е			
more data elements, contamination at	38 to 47	F			
an MRS was previously addressed, or	less than 38	G			
there is no reason to suspect		Evaluation Pending		Ū	
contamination was ever present at an	Alternate Module Ratings	No Longer Required			
MRS.		No Known or Suspected			
		Explosive Hazard		u	
	EHE Module Rating		С		

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# 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	Sooro
	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	<b>DIRECTIONS:</b> Record the <u>single highest score</u> from above in the box to the right (maximum score = 30).	0

Directions: Document any MRS-specific data used in selecting the CWM Configuration classifications in the space

No CWM was observed during RI fieldwork, and no historical evidence of CWM.

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Tables 12-19 are intentionally omitted-No Known or Suspected CWM Hazard.

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Table 20				
Determini	ng the CHE Module	Rating Score	Score	Value
Directions:	CWM Hazard Factor Data Elen		Score	value
		1		
1. From Tables 1 - 9, record the data element scores in the <b>Score</b> boxes to the	CWM Configuration	Table 11	0	0
right.	Sources of CWM	Table 12	0	
Add the <b>Score</b> boxes for each of the three factors and record this number in the	0			
Value boxes to the right.	Location of CWM	Table 13	0	
3. Add the three Value boxes and record	Ease of Access	Table 14	0	0
this number in the CHE Module Total box below.	Status of Property	Table 15	0	
4. Circle the appropriate range for the CHE	Receptors Factor Data Elemer	nts		
Module Total below.	Population Density	Table 16	0	
	Population Near Hazard	Table17	0	
Circle the CHE Module Rating that corresponds to the range selected and	Types of Activities/ Structures	Table 18	0	0
record this value in the CHE Module Rating box found at the bottom of the table.	Ecological and/ or Cultural Resources	Table 19	0	
		CHE Mo	dule Total	0
	CHE Module Total	CHE N	lodule Rat	ing
	92 to 100		А	
Note: An alternative module rating	82 to 91		В	
may be assigned when a module letter	71 to 81	С		
rating is inappropriate. An alternative	60 to 70		D	
module rating is used when more	48 to 59 38 to 47		E F	
information is needed to score one or more data elements, contamination at	less than 38		G G	
an MRS was previously addressed, or	less than 50	Fyalu	ation Pendi	na
there is no reason to suspect		No Lenger Required		ŭ
contamination was ever present at an MRS.	Alternate Module Ratings	No Known or Suspected		_
		CV	VM Hazard	
	CHE Module Rating		n or Suspo /M Hazard	ected

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#### **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 Co	ontaminant]
2 > CHF	L (low)	[Comparison Value for Conta	aminant]
Contaminant Hazard Factor	Directions: Record the CHF Value from above	e in the box to the right (maximum value = H).	

	W	
	Migratory Pathway Factor	
DIRECTIONS: Circle th	ne value that corresponds most closely to the groundwater migratory pathwa	y 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.	н
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.	М
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 <b>single highest value</b> 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).	н	
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).	М	
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 <u>single highest value</u> 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.

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# **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 Contami	nant]
2 > CHF	L (low)	[Comparison Value for Contaminar	nt]
Contaminant Hazard			
Factor	Directions: Record the CHF Value from above	e 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.	Н	
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.	М	
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 <u>single highest value</u> from above in the box to the right (maximum value = H).		

Receptors Factor			
DIRECTIONS: Circle th	ne 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.	н	
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	М	
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 <u>single highest value</u> from above in the box to the right (maximum value = H).		
No known or Suspected Surface Water (Human Endpoint) MC Hazard			

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.

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# 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 Contam	inant]
2 > CHF	L (low)	[Comparison Value for Contaminar	nt]
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.	Н		
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.	М		
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		
I Midratory Pathway Factor	Directions: Record the <u>single highest value</u> 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.	Н		
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 <u>single highest value</u> 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.

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# **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)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contamin	anţ
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.	Н	
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.	М	
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 <u>single highest value</u> from above in the box to the right (maximum value = H).		

Receptor Factor_				
DIRECTIONS: Circle t	he value that corresponds most closely to the Surface Water receptors at th	e MRS.		
Classification	Description	Value		
Identified	Identified receptors have access to Surface Water to which contamination has moved or can move.	н		
Potential	Potential for receptors to have access to Surface Water to which contamination has moved or can move.	М		
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 <u>single highest value</u> from above in the box to the right (maximum value = H).			
No lineary and Oversiants of Overface Wester (Facility in India) in INO University				

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.

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# **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 Contamin	ant]	
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.	Н		
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.	М		
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 <u>single highest value</u> from above in the box to the right (maximum value = H).			

Receptors Factor				
DIRECTIONS: Circle the v	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.	Н		
Potential	Potential Potential for receptors to have access to Sediment to which contamination has moved or can move.			
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 <u>single highest value</u> 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.

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# 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	38.6 23000	
CHF Scale	CHF Value	Sum of the Ratios	0.074
CHF >100	H (high)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contan	ninant]
2 > CHF	L (low)	[Comparison Value for Contamina	ant]
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.	Н	
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.	М	
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 <u>single highest value</u> from above in the box to the right (maximum value = H).	М	

Receptors Factor				
DIRECTIONS: Circle the value	ue 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.	Н		
Potential	Potential for receptors to have access to Surface Soil to which contamination has moved or can move.	М		
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 <u>single highest value</u> 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.

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# 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

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# 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	М	L		MLL	F
DIRECTIONS (cont.):			Н	HE N	Module Rating	F

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the HHE Module Rating box.

HHE Ratings (for reference only)

Rating

Combination

ннн	Α	
ннм	В	
HHL	С	
нмм	C	
HML	D	
ммм	5	
HLL	E	
MML		
MLL	F	
LLL	G	
	Evaluation Pending	
Alternative Module Ratings	No Longer Required	
	No Known or Suspected MC Hazard	

**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.

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# 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
		Α	1		
Α	2	В	2	Α	2
В	۳(	С	3	В	3
(c)	(4)	D	4	С	4
9	95	E	5	D	5
E	6	F	6	E(	4
F	7	G	7	<b>(</b> F)	7)
G	8			9	8
Evaluation Pending		Evaluation F	Pending	Evaluation	Pending
No Longer	Required	No Longer Required		No Longer Required	
Suspected F	No Known or Suspected Explosive Hazard		No Known or Suspected CWM Hazard		Suspected azard
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".

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#### 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	X 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.

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#### **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

	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 pages an explosive hearer!	30			
	mixture poses an explosive hazard  UXO containing a high-explosive (HE) filler (e.g., RDX, Composition B), that are not				
III ale Frants des des des des	considered "sensitive".	_			
High Explosive (used or	DMM containing a high-explosive filler that have:	(25)			
damaged)	■ Been damaged by burning or detonation				
	■ Deteriorated to the point of instability				
	UXO containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals,				
Pyrotechnic (used or	simulators, smoke grenades).  DMM containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals,				
•	simulators, smoke grenades) that have:	20			
damaged)	■ Been damaged by burning or detonation				
	■ Deteriorated to the point of instability				
	DMM containing a high-explosive filler that:				
High-Explosive (unused)	■ Have not been damaged by burning or detonation	15			
	Are not deteriorated to the point of instability				
	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	15			
Propellant	(e.g., a rocket motor) that are:				
	■ Damaged by burning or detonation				
	■ Deteriorated to the point of instability				
Bulk secondary high	DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor), that are deteriorated.				
explosives, pyrotechnics, or propellant	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	DMM containing a pyrotechnic filler (l.e., red phosphorous), other than white phosphorous filler, that:	40			
damaged)	■ Have not been damaged by burning or detonation	10			
	■ Are not deteriorated to the point of instability				
	UXO that are practice munitions that are not associated with a sensitive fuze.				
Practice	DMM that are practice munitions that are not associated with a sensitive fuze and that have not:	5			
	■ 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	<b>Directions:</b> Record <u>the single highest score</u> from above in the box to the right (maximum score = 30)	25			
D: (: D : MD0 :	C 1 4 1 1 1 C 0 88 55 7 1 1 C C 1 1 1 1 1 1				

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".

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#### 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	<b>DIRECTIONS:</b> 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".

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#### 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 <u>all</u> 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 <i>not</i> 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 <i>not</i> 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 <i>not</i> 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 <i>not</i> 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	<b>DIRECTIONS:</b> 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".

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#### **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 (l.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.

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#### 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 Score 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 Non-DoD Control 5 water bodies owned or controlled by state, tribal, or local governments, and land or water bodies managed by other federal agencies. 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 Scheduled for Transfer from DoD Control 3 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. 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 **DoD Control** 0 Department must control access to the MRS 24 hours per day, every day of the calendar year. DIRECTIONS: Record the single highest score from above in the **Status of Property** 5 box to the right (maximum score = 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.

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#### **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 <u>highest</u> 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 <u>single highest score</u> 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)

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#### 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.

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#### 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
<b>Directions:</b> Document any MRS-specific data used in provided.  Residential and Commercial structures located w	n selecting the TYPES OF ACTIVITIES/STRUCTURES classifications in the spanishin 2 miles	ace
residential and Commercial structures located w	num 2 mic3	

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### 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
	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).

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Table 10  Determining the EHE Module Rating					
Determi	Score Score Value				
Directions:	Explosives Hazard Factor Data	a Elements			
1. From Tables 1 - 9, record the data element scores in the <b>Score</b> boxes to the	Munitions Type	Table 1	25	35	
right.	Source of Hazard	Table 2	10		
2. Add the <b>Score</b> boxes for each of the	Accessibility Factor Data Elem	ents			
three factors and record this number in the <b>Value</b> boxes to the right.	Location of Munitions	Table 3	10		
3. Add the three <b>Value</b> boxes and record	Ease of Access	Table 4	10	25	
this number in the <b>EHE Module Total</b> box below.	Status of Property	Table 5	5		
4. Circle the appropriate range for the <b>EHE</b>	Receptors Factor Data Elemen	its			
Module Total below.	Population Density	Table 6	3		
5. Circle the <b>EHE Module Rating</b> that	Population Near Hazard	Table 7	5		
corresponds to the range selected and	Types of Activities/ Structures	Table 8	5	16	
record this value in the <b>EHE Module Rating</b> box found at the bottom of the table.	Ecological and/ or Cultural Resources	Table 9	3		
		EHE Mo	dule Total	76	
	EHE Module Total	EHE N	lodule Rat	ing	
	92 to 100		Α		
Note: An alternative module rating	82 to 91		В		
may be assigned when a module letter	71 to 81	(C)			
rating is inappropriate. An alternative module rating is used when more	60 to 70	8			
information is needed to score one or	48 to 59	Е			
more data elements, contamination at	38 to 47	F			
an MRS was previously addressed, or	less than 38		G		
there is no reason to suspect		Evaluation Pending		Ū	
contamination was ever present at an	Alternate Module Ratings	s No Longer Req			
MRS.	No Known o		•		
		Explosive Hazard		u	
	EHE Module Rating		С		

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# 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	<b>DIRECTIONS:</b> Record the <u>single highest score</u> from above in the box to the right (maximum score = 30).	0

**Directions:** Document any MRS-specific data used in selecting the **CWM Configuration** classifications in the space

No CWM was observed during the RI fieldwork, and there is no historical evidence of CWM.

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Tables 12-19 are intentionally omitted-No Known or Suspected CWM Hazard.

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Table 20				
Determini	ng the CHE Module	Rating Score	Score	Value
Directions:	CWM Hazard Factor Data Elem	nents		
1. From Tables 1 - 9, record the data element scores in the <b>Score</b> boxes to the	CWM Configuration	Table 11	0	0
right.	Sources of CWM	Table 12	0	
2. Add the <b>Score</b> boxes for each of the three factors and record this number in the	0			
Value boxes to the right.	Location of CWM	Table 13	0	
Add the three Value boxes and record this number in the CHE Module Total box	Ease of Access	Table 14	0	0
below.	Status of Property	Table 15	0	
4. Circle the appropriate range for the CHE	Receptors Factor Data Elemen	its		
Module Total below.	Population Density	Table 16	0	
5. Circle the CHE Module Rating that	Population Near Hazard	Table17	0	
corresponds to the range selected and	Types of Activities/ Structures	Table 18	0	0
record this value in the CHE Module Rating box found at the bottom of the table.	Ecological and/ or Cultural Resources	Table 19	0	
		CHE Mo	dule Total	0
	CHE Module Total	CHE N	lodule Rat	ing
	92 to 100		Α	
Note: An alternative module rating	82 to 91		В	
may be assigned when a module letter	71 to 81	С		
rating is inappropriate. An alternative	60 to 70 48 to 59		D E	
module rating is used when more information is needed to score one or	38 to 47		F	
more data elements, contamination at	less than 38		G	
an MRS was previously addressed, or		Evalu	ation Pendi	ng
there is no reason to suspect contamination was ever present at an	Alternate Module Ratings	No Lenger Required		
MRS.	Alternate Module Natings	No Known or Suspected CWM Hazard		cted
	CHE Module Rating	No Know	n or Suspo /M Hazard	ected

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#### **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 Co	ontaminant]
2 > CHF	L (low)	[Comparison Value for Conta	aminant]
Contaminant Hazard Factor	Directions: Record the CHF Value from above	e in the box to the right (maximum value = H).	

	Migratory Pathway Factor		
DIRECTIONS: Circle th	ne 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.	Н	
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.	М	
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 <u>single highest value</u> 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).	н	
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).	М	
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.

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# 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 Contamin	<u>nan</u> t
2 > CHF	L (low)	[Comparison Value for Contaminan	t]
Contaminant Hazard			
Factor	Directions: Record the CHF Value from above	e in the box to the right (maximum value = H).	

Migratory Pathway Factor				
DIRECTIONS: Circle th	<b>DIRECTIONS:</b> 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.	Н		
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.	М		
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 <u>single highest value</u> from above in the box to the right (maximum value = H).			

Receptors Factor				
DIRECTIONS: Circle th	DIRECTIONS: Circle the value that corresponds most closely to the Surface Water receptors at the MRS.			
Classification	Classification Description Value			
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	н		
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	М		
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 <u>single highest value</u> from above in the box to the right (maximum value = H).			

No known or Suspected Surface Water (Human Endpoint) MC Hazard

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 Contam	
2 > CHF	L (low)	[Comparison Value for Contaminar	nt]
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.	Н	
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.	М	
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	
I Midratory Pathway Factor	Directions: Record the <u>single highest value</u> 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.	н		
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	М		
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 <u>single highest value</u> 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.

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# **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)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contamir	nan <b>t</b>
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.	Н	
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.	М	
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 <u>single highest value</u> from above in the box to the right (maximum value = H).		

Receptor Factor_					
DIRECTIONS: Circle to	DIRECTIONS: Circle the value that corresponds most closely to the Surface Water receptors at the MRS.				
Classification	Classification Description Value				
Identified	Identified receptors have access to Surface Water to which contamination has moved or can move.	Н			
Potential	Potential for receptors to have access to Surface Water to which contamination has moved or can move.	М			
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 <u>single highest value</u> from above in the box to the right (maximum value = H).				
No known or Suspected Surface Water (Ecological Endpoint) MC Hazard					

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.

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# **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 Contan	ninant]
2 > CHF	L (low)	[Comparison Value for Contamina	int]
Contaminant Hazard Factor	Directions: Record the CHF Value from above i	n 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.	н	
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.	М	
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 <u>single highest value</u> 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.	Н		
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	М		
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 <u>single highest value</u> 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.

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# 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 Conta	aminant]
2 > CHF	L (low)	[Comparison Value for Contami	nant]
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.	н	
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.	М	
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 <u>single highest value</u> 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.	н	
Potential	Potential for receptors to have access to Surface Soil to which contamination has moved or can move.	М	
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 <u>single highest value</u> 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.

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# **HHE Module: Supplemental Contaminant Hazard Factor Table**

#### Contaminant Hazard Factor (CHF)

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.

Note: Do not add ratios  Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

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## 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.): **HHE Module Rating** 

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the HHE Module Rating box.

Combination Rating HHH Α ннм В HHL С нмм **HML** D MMM

HLL

MML MLL

LLL

HHE Ratings (for reference only)

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.

> **Evaluation Pending Alternative Module Ratings** No Longer Required

> > No Known or Suspected MC Hazard

Ε

F

G

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# 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.

<b>EHE Rating</b>	Priority	CHE Rating	Priority	HHE Rating	Priority
		Α	1		
Α	2	В	2	Α	2
В	ო	С	3	В	3
(c)	(4)	D	4	С	4
9	ە(	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Evaluation	Evaluation Pending Evaluation Pending		Pending	Evaluation	Pending
No Longer	No Longer Required		No Longer Required		Required
No Know Suspected E Haza	Explosive	No Known or Suspected No Known or Susp		-	
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".

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#### 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	X 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 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, according 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 tvpe:

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.

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### **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.

	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.	30
	Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard	
High Explosive (used or	UXO containing a high-explosive (HE) filler (e.g., RDX, Composition B), that are not considered "sensitive".	_
High Explosive (used or	DMM containing a high-explosive filler that have:	(25)
damaged)	■ Been damaged by burning or detonation	
	Deteriorated to the point of instability	
	UXO containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades).	
Pyrotechnic (used or damaged)	DMM containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades) that have:	20
<b></b>	■ Been damaged by burning or detonation	
	■ Deteriorated to the point of instability	
High Explosive (concerd)	DMM containing a high-explosive filler that:	45
High-Explosive (unused)	Have not been damaged by burning or detonation  As a set deteriorated to the project of instability.	15
	Are not deteriorated to the point of instability  UXO containing mostly single-, or triple-based propellant, or composite propellants	
	(e.g., a rocket motor).	
Propellant	DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are:	15
	<ul> <li>Damaged by burning or detonation</li> <li>Deteriorated to the point of instability</li> </ul>	
Bulk secondary high	DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor), that are deteriorated.	
explosives, pyrotechnics, or propellant	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	DMM containing a pyrotechnic filler (I.e., red phosphorous), other than white	
damaged)	phosphorous filler, that:  Have not been damaged by burning or detonation	10
uamageu)	Are not deteriorated to the point of instability  ■ Are not deteriorated to the point of instability	
	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	_
Practice	have not:	5
	Been damaged by burning or detonation     Deteriorated to the point of instability	
Riot Control	■ Deteriorated to the point of instability	3
Small arms	UXO or DMM containing a riot control agent filler (e.g., tear gas).	2
Oman arms		
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	<b>Directions:</b> Record <u>the single highest score</u> 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, according 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".

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#### 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	<b>DIRECTIONS:</b> 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, according 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 antitank 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".

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#### 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 <u>all</u> 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 <i>not</i> 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 <i>not</i> 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 <i>not</i> 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 <i>not</i> 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	<b>DIRECTIONS:</b> 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, according 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 antitank 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".

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### **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	<b>DIRECTIONS:</b> 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.

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### 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 Score 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 Non-DoD Control 5 water bodies owned or controlled by state, tribal, or local governments, and land or water bodies managed by other federal agencies. 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 Scheduled for Transfer from DoD Control 3 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. 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 **DoD Control** 0 Department must control access to the MRS 24 hours per day, every day of the calendar year. DIRECTIONS: Record the single highest score from above in the **Status of Property** 5 box to the right (maximum score = 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.

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## **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 <u>highest</u> 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 <u>single highest score</u> 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)

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## 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.

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## 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
<b>Directions:</b> Document any MRS-specific data used in provided.	n selecting the TYPES OF ACTIVITIES/STRUCTURES classifications in the spa	ace
Residential and Commercial structures located w	ithin 2 miles	

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## 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
	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).

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Table 10				
Determining the EHE Module Rating  Score Score Val				
Directions:	Explosives Hazard Factor Data	a Elements		
1. From Tables 1 - 9, record the data element scores in the <b>Score</b> boxes to the	Munitions Type	Table 1	25	35
right.	Source of Hazard	Table 2	10	
2. Add the <b>Score</b> boxes for each of the	Accessibility Factor Data Elem	ents		
three factors and record this number in the <b>Value</b> boxes to the right.	Location of Munitions	Table 3	10	
3. Add the three <b>Value</b> boxes and record	Ease of Access	Table 4	10	25
this number in the <b>EHE Module Total</b> box below.	Status of Property	Table 5	5	
4. Circle the appropriate range for the <b>EHE</b>	Receptors Factor Data Elemen	its		
Module Total below.	Population Density	Table 6	3	
5. Circle the <b>EHE Module Rating</b> that	Population Near Hazard	Table 7	5	
corresponds to the range selected and	Types of Activities/ Structures	Table 8	5	13
record this value in the <b>EHE Module Rating</b> box found at the bottom of the table.	Ecological and/ or Cultural Resources	Table 9	0	
		EHE Mo	dule Total	73
	EHE Module Total	EHE M	lodule Rati	ing
	92 to 100		Α	
Note: An alternative module rating	82 to 91		В	
may be assigned when a module letter	71 to 81	<b>(</b> C <b>)</b>		
rating is inappropriate. An alternative module rating is used when more	60 to 70		<u> </u>	
information is needed to score one or	48 to 59		E	
more data elements, contamination at	38 to 47	F		
an MRS was previously addressed, or	less than 38		G	
there is no reason to suspect		Evaluation Pending		Ū
contamination was ever present at an	No Kno		No Longer Required	
MRS.			Known or Suspected	
		Explosive Hazard		a
	EHE Module Rating		С	

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## 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	<b>DIRECTIONS:</b> Record the <u>single highest score</u> from above in the box to the right (maximum score = 30).	0

**Directions:** Document any MRS-specific data used in selecting the *CWM Configuration* classifications in the space

No evidence of CWM was observed, and not suspected from the historical evidence.

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Tables 12-19 are intentionally omitted-No Known or Suspected CWM Hazard.

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Table 20 Determining the CHE Module Rating				
		Score	Score	Value
Directions:	CWM Hazard Factor Data Elem	nents		
1. From Tables 1 - 9, record the data element scores in the <b>Score</b> boxes to the	CWM Configuration	Table 11	0	0
right.	Sources of CWM	Table 12	0	
Add the <b>Score</b> boxes for each of the three factors and record this number in the	0			
Value boxes to the right.	Location of CWM	Table 13	0	
3. Add the three Value boxes and record this number in the CHE Module Total box	Ease of Access	Table 14	0	0
below.	Status of Property	Table 15	0	
4. Circle the appropriate range for the CHE	Receptors Factor Data Elemen	nts		
Module Total below.	Population Density	Table 16	0	
5. Circle the CHE Module Rating that	Population Near Hazard	Table17	0	
corresponds to the range selected and	Types of Activities/ Structures	Table 18	0	0
record this value in the CHE Module Rating box found at the bottom of the table.	Ecological and/ or Cultural Resources	Table 19	0	
		CHE Mo	dule Total	0
	CHE Module Total	CHE N	lodule Rat	ing
	92 to 100		Α	
Note: An alternative module rating	82 to 91		В	
may be assigned when a module letter	71 to 81		С	
rating is inappropriate. An alternative	60 to 70		D E	
module rating is used when more	48 to 59 38 to 47		<u> </u>	
information is needed to score one or more data elements, contamination at	less than 38		G	
an MRS was previously addressed, or	iess than so	Evalu		na
there is no reason to suspect		Evaluation Pending No Lenger Required		
contamination was ever present at an MRS.	Alternate Module Ratings	No Known or Suspected		_
IVING.		CWM Hazard		
	CHE Module Rating		n or Suspo /M Hazard	ected

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#### **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 Co	ntaminant]
2 > CHF	L (low)	[Comparison Value for Conta	minant]
Contaminant Hazard Factor	Directions: Record the CHF Value from above	e in the box to the right (maximum value = H).	

	Migratory Pathway Factor			
DIRECTIONS: Circle the	e 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.	Н		
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.	М		
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 <u>single highest value</u> 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).	н	
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).	М	
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 <u>single highest value</u> 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.

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## 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 Contamin	nan <b>i</b>
2 > CHF	L (low)	[Comparison Value for Contaminan	t]
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.	Н	
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.	М	
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 <u>single highest value</u> from above in the box to the right (maximum value = H).		

Receptors Factor			
DIRECTIONS: Circle to	he value that corresponds most closely to the Surface Water receptors at the MRS	S	
Classification	Description	Value	
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	н	
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	М	
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	Ĺ	
Receptors Factor	Directions: Record the <u>single highest value</u> from above in the box to the right (maximum value = H).		
		_	

No known or Suspected Surface Water (Human Endpoint) MC Hazard

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.

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## 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 Contam	
2 > CHF	L (low)	[Comparison Value for Contaminar	nt]
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.	Н	
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.	М	
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	
I Midratory Pathway Factor	Directions: Record the <u>single highest value</u> 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.	Н	
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 <u>single highest value</u> 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.

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## **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)					
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contamir	nan <b>t</b>			
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.	Н		
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.	М		
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 <u>single highest value</u> from above in the box to the right (maximum value = H).			

Receptor Factor					
DIRECTIONS: Circle t	he value that corresponds most closely to the Surface Water receptors at th	e MRS.			
Classification	Description	Value			
Identified	Identified receptors have access to Surface Water to which contamination has moved or can move.	н			
Potential	Potential for receptors to have access to Surface Water to which contamination has moved or can move.	М			
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 <u>single highest value</u> from above in the box to the right (maximum value = H).				
	No los como as Occasionado Occasiona Water (Facilia signal Facilia signal MO Harrand				

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.

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## **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.	Н		
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.	М		
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 nignest value from above in the box to the right (maximum value = H)			

Receptors Factor				
Classification	value that corresponds most closely to the Sediment receptors at the MRS.  Description	Value		
Identified	Identified receptors have access to Sediment to which contamination has moved or can move.	Н		
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	М		
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 <u>single highest value</u> 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.

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## 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 Cont.	aminant]
2 > CHF	L (low)	[Comparison Value for Contami	nant]
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.	Н		
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.	М		
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 <u>single highest value</u> from above in the box to the right (maximum value = H).			

	Receptors Factor	
DIRECTIONS: Circle the va	alue 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.	н
Potential	Potential for receptors to have access to Surface Soil to which contamination has moved or can move.	М
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 <u>single highest value</u> 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.

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## **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 mediaspecific tables.

Note: Do not add ratios from different media.  Media Contaminant Maximum Concentration Comparison Value Ratio					

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## 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.): **HHE Module Rating** HHE Ratings (for reference only)

<ol> <li>Select the single highest Media Rating (A is highest; G is lowest) and</li> </ol>	t
enter the letter in the HHE Module Rating box.	П

J. (1. 1. 1.	***	
Combination	Rating	
ннн	Α	
ннм	В	
HHL	С	
нмм		
HML	D	
ммм	, b	
HLL	Е	
MML		
MLL	F	
LLL	G	
	Evaluation Pending	
Alternative Module Ratings	No Longer Required	
	No Known or	

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.

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# 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
		Α	1		
Α	2	В	2	Α	2
В	3	С	3	В	3
(c)	(4)	D	4	С	4
ď	)5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Evaluation	Pending	Evaluation F	Pending	ng Evaluation Pending	
No Longer	Required	No Longer Required No Longer Req		Required	
No Know Suspected I Haza	Explosive	No Known or Suspected CWM Hazard MC Hazard		-	
MRS or Alternative MRS Rating		4			

M9 rifle grenade fragments have been found at this MRS, according 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".

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## 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	X 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.

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### **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.

	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].	30
	Hand grenades containing energetic filler.  Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard	
High Explosive (used or	UXO containing a high-explosive (HE) filler (e.g., RDX, Composition B), that are not considered "sensitive".	
High Explosive (used or damaged)	DMM containing a high-explosive filler that have:  Been damaged by burning or detonation	<b>(25)</b>
	■ Deteriorated to the point of instability  UXO containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals,	
Direct cabaile (wood or	simulators, smoke grenades).	
Pyrotechnic (used or damaged)	DMM containing pyrotechnic fillers other than white phosphorous (e.g., flares, signals, simulators, smoke grenades) that have:	20
,	<ul> <li>Been damaged by burning or detonation</li> <li>Deteriorated to the point of instability</li> </ul>	
High-Explosive (unused)	DMM containing a high-explosive filler that:  Have not been damaged by burning or detonation	15
Propellant	Are not deteriorated to the point of instability  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:	15
•	■ Damaged by burning or detonation ■ Deteriorated to the point of instability	
Bulk secondary high	DMM containing mostly single-, or triple-based propellant, or composite propellants (e.g., a rocket motor), that are deteriorated.	
explosives, pyrotechnics, or propellant	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	DMM containing a pyrotechnic filler (I.e., red phosphorous), other than white phosphorous filler, that:	40
damaged)	<ul> <li>Have not been damaged by burning or detonation</li> <li>Are not deteriorated to the point of instability</li> </ul>	10
	UXO that are practice munitions that are not associated with a sensitive fuze.	
Practice	DMM that are practice munitions that are not associated with a sensitive fuze and that have not:	5
	<ul> <li>Been damaged by burning or detonation</li> <li>Deteriorated to the point of instability</li> </ul>	
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	<b>Directions:</b> Record <u>the single highest score</u> from above in the box to the right (maximum score = 30)	25
Directions, Desument on MDC enesi	find the world in a leasting the Munitime Time placeifications in the appearance in the	

**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".

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#### 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	<b>DIRECTIONS:</b> 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).

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#### 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 <u>all</u> 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 <i>not</i> 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 <i>not</i> 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 <i>not</i> 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 <i>not</i> 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	<b>DIRECTIONS:</b> 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".

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### **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	<b>DIRECTIONS:</b> 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.

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### 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 Score 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 Non-DoD Control 5 water bodies owned or controlled by state, tribal, or local governments, and land or water bodies managed by other federal agencies. 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 Scheduled for Transfer from DoD Control 3 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. 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 **DoD Control** 0 Department must control access to the MRS 24 hours per day, every day of the calendar year. DIRECTIONS: Record the single highest score from above in the **Status of Property** 5 box to the right (maximum score = 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

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## **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 <u>highest</u> 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 <u>single highest score</u> 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).

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## 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.

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## 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
<b>Directions:</b> Document any MRS-specific data used in provided.	n selecting the TYPES OF ACTIVITIES/STRUCTURES classifications in the spa	ice
Residential and Commercial structures located w	vithin 2 miles	

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## 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).

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Table 10  Determining the EHE Module Rating				
Determi	illing the Line Module Rati	Score	Score	Value
Directions:	Explosives Hazard Factor Data Elements			
From Tables 1 - 9, record the data element scores in the <b>Score</b> boxes to the right.	Munitions Type	Table 1	25	35
	Source of Hazard	Table 2	10	
2. Add the <b>Score</b> boxes for each of the three factors and record this number in the <b>Value</b> boxes to the right.	Accessibility Factor Data Elements			
	Location of Munitions	Table 3	10	
3. Add the three <b>Value</b> boxes and record this number in the <b>EHE Module Total</b> box below.	Ease of Access	Table 4	10	25
	Status of Property	Table 5	5	
Circle the appropriate range for the EHE     Module Total below.	Receptors Factor Data Elements			
	Population Density	Table 6	3	
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.	Population Near Hazard	Table 7	5	16
	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	А		
	82 to 91	В		
	71 to 81	<b>(</b> C <b>)</b>		
	60 to 70			
	48 to 59	E		
	38 to 47	F		
	less than 38	G Free least to a Dana disco		
	Alternate Module Ratings	Evaluation Pending		
		No Longer Required		
		No Known or Suspected Explosive Hazard		
	EUE Madula Dation	Explosive Hazard C		
	EHE Module Rating		C	

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# 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	Sooro
	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	<b>DIRECTIONS:</b> Record the <u>single highest score</u> from above in the box to the right (maximum score = 30).	0

Directions: Document any MRS-specific data used in selecting the CWM Configuration classifications in the space

No evidence of CWM was observed during the RI fieldwork, and no evidence of historical use.

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Tables 12-19 are intentionally omitted-No Known or Suspected CWM Hazard.

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Table 20				
Determini	ng the CHE Module	_	_	
		Score	Score	Value
Directions:	CWM Hazard Factor Data Elem	nents		
1. From Tables 1 - 9, record the data element scores in the <b>Score</b> boxes to the	CWM Configuration	Table 11	0	0
right.	Sources of CWM	Table 12	0	
2. Add the <b>Score</b> boxes for each of the	0			
three factors and record this number in the <b>Value</b> boxes to the right.	Location of CWM	Table 13	0	
3. Add the three Value boxes and record	Ease of Access	Table 14	0	0
this number in the CHE Module Total box below.	Status of Property	Table 15	0	
4. Circle the appropriate range for the CHE	Receptors Factor Data Elemen	its		
Module Total below.	Population Density	Table 16	0	
5. Circle the CHE Module Rating that	Population Near Hazard	Table17	0	
corresponds to the range selected and	Types of Activities/ Structures	Table 18	0	0
record this value in the CHE Module Rating box found at the bottom of the table.	Ecological and/ or Cultural Resources	Table 19	0	
		CHE Mo	dule Total	0
	CHE Module Total	CHE N	lodule Rat	ing
	92 to 100		А	
Note: An alternative module rating	82 to 91		В	
may be assigned when a module letter	71 to 81	С		
rating is inappropriate. An alternative	60 to 70	D		
module rating is used when more	48 to 59		E F	
information is needed to score one or more data elements, contamination at	38 to 47 less than 38		G G	
an MRS was previously addressed, or	less than 30	Evalu		na
there is no reason to suspect		Evaluation Pending No Lenger Required		
contamination was ever present at an	Alternate Module Ratings	No Known or Suspected		
MRS.		CWM Hazard		
	CHE Module Rating		n or Suspe /M Hazard	ected

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### **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 Co	ontaminant]
2 > CHF	L (low)	[Comparison Value for Conta	aminant]
Contaminant Hazard	Directions: Record the CHF Value from above	in the box to the right (maximum value = H)	
Factor	Directions. Necord the CHF Value Holl above	e in the box to the right (Maximum value - H).	

	Migratory Pathway Factor		
DIRECTIONS: Circle th	e 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.	Н	
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.	М	
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 <u>single highest value</u> 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).	н	
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).	М	
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 <u>single highest value</u> from above in the box to the right (maximum value = H).		
No known or Suspected Groundwater MC Hazard			

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# 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 Contamin	<u>nan</u> i
2 > CHF	L (low)	[Comparison Value for Contaminan	t]
Contaminant Hazard			
Factor	Directions: Record the CHF Value from above	e 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.	Н	
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.	М	
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 <u>single highest value</u> from above in the box to the right (maximum value = H).		

Receptors Factor				
DIRECTIONS: Circle th	DIRECTIONS: Circle the value that corresponds most closely to the Surface Water receptors at the MRS.			
Classification	Classification Description Value			
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	Н		
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 <u>single highest value</u> from above in the box to the right (maximum value = H).			

No known or Suspected Surface Water (Human Endpoint) MC Hazard

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.

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# 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 Contam	inant]
2 > CHF	L (low)	[Comparison Value for Contaminar	t]
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.	н	
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.	М	
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 <u>single highest value</u> 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 Value			
Identified	Identified receptors have access to Sediment to which contamination has moved or can move.	Н	
Potential	Potential for receptors to have access to Sediment to which contamination has moved or can move.	М	
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 <u>single highest value</u> from above in the box to the right (maximum value = H).		
No known or Suspected Sediment (Human Endnoint) MC Hazard			

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.

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# **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)		
100 > CHF > 2	M (medium)	CHF = SUM [Maximum Concentration of Contamir	nan <b>t</b>
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.	Н			
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.	М			
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 <u>single highest value</u> from above in the box to the right (maximum value = H).				

	Receptor Factor	
DIRECTIONS: Circle t	he value that corresponds most closely to the Surface Water receptors at th	e MRS.
Classification	Description	Value
Identified	Identified receptors have access to Surface Water to which contamination has moved or can move.	н
Potential	Potential for receptors to have access to Surface Water to which contamination has moved or can move.	М
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 <u>single highest value</u> from above in the box to the right (maximum value = H).	
	No los como as Occasionado Occasiona Water (Facilia signal Facilia signal MO Harrand	

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.

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# **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 Conta	minan <b>i</b>
2 > CHF	L (low)	[Comparison Value for Contamin	ant]
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.	Н			
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.	М			
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 <u>single nignest value</u> 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.	Н			
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 <u>single highest value</u> 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.

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# 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 Cont.	aminant]			
2 > CHF	L (low)	[Comparison Value for Contami	nant]			
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.	Н			
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.	М			
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 <u>single highest value</u> 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.	Н			
Potential	Potential for receptors to have access to Surface Soil to which contamination has moved or can move.	М			
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 <u>single highest value</u> 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.

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# **HHE Module: Supplemental Contaminant Hazard Factor Table**

### Contaminant Hazard Factor (CHF)

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.

Note: Do not add ratios  Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

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# 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.): HHE Module Rating

 Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the HHE Module Rating box.

HHE Ratings (for reference only)

Combination Rating

**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.

ннн	Α	
ннм	В	
HHL	С	
нмм	Č	
HML	D	
ммм	D	
HLL	E	
MML	L	
MLL	F	
LLL	G	
	Evaluation Pending	
Alternative Module Ratings	No Longer Required	
	No Known or Suspected MC Hazard	

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# 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
		Α	1		
Α	2	В	2	Α	2
В	3	С	3	В	3
(c)	(4)	D	4	С	4
ط	٥(	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 <b>(</b> Hazard		No Known or Suspected CWM Hazard		No Known or Suspected MC Hazard	
	MRS	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".

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