

# 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 non-munitions-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:** FTBL-004-R-01 **WEBCASS #:** 51105.1050  
**Component:** Active Army  
**Installation/Property Name:** Fort Belvoir  
**Location (City, County, State):** Fort Belvoir, Fairfax County, Virginia  
**Site Name/Project Name (Project No.):** FTBL-004-R-01; COMBAT RANGE COMPLEX-WATER (CRCW)

**Date Information Entered / Updated:** 1 May 2024  
**Point of Contact (Name/Phone):** Chris Manikas, (703) 806-0030  
Project Phase (check only one):

<input type="checkbox"/> PA	<input type="checkbox"/> SI	<input type="checkbox"/> RI	<input checked="" type="checkbox"/> FS	<input type="checkbox"/> RD
<input type="checkbox"/> RA-C	<input type="checkbox"/> RIP	<input type="checkbox"/> RA-O	<input type="checkbox"/> RC	<input type="checkbox"/> LTM

### Media Evaluated (check all that apply):

<input type="checkbox"/> Groundwater	<input checked="" type="checkbox"/> Sediment (human receptor)
<input type="checkbox"/> Surface soil	<input checked="" type="checkbox"/> Surface Water (ecological receptor)
<input checked="" type="checkbox"/> Sediment (ecological receptor)	<input checked="" type="checkbox"/> Surface Water (human receptor)

**MRS Summary:** The MRS is expected to reach RC in FY 25  
Documents used throughout this MRSPP include the following:  
- Remedial Investigation & Focused Feasibility Study (RIFS), Dated January 2021.  
- Proposed Plan (PP), Dated January 2023.

The MRS is a 246-acre site located within Accotink Bay and a portion of Pohick Bay (Figure 2-2). The acreage and footprint include the downrange portions of three ranges operated historically at the MRS: Bayliss Combat Range, Lorton Assault Course, and Lorton Combat Range. It is currently being used for recreation and a portion of it is within the Accotink Wildlife Refuge. The ranges were used for training with frag and rifle grenades, rocket launchers, 60- and 81-mm mortars from 1941 through 1957 (RIFS, Section 2.1, Page 2-1).

Suspected munitions at the site include: frag and rifle grenades, rocket launchers, 60- and 81-mm mortars (RIFS, Section 2.1, Page 2-1).

A 1945 report states that a landscape range and pistol submachine gun line were part of the Bayliss Combat Range; practice antitank rockets were fired at targets and that there was a practice hand grenade court for HE and practice rifle grenades (RIFS, Section 2.4.1, Page 2-9/10).

No MEC or Munitions Debris (MD) was identified during the RI (RIFS, Section 3.1, Page 3-2).

Risk to potential receptors at the MRS from an explosive hazard to residual MEC are "Acceptable" (with Land Use Controls (LUCs)). Based on the results of the RI, the types of munitions used, the maximum ranges of the munitions used, and the historical best practices used at the ranges, MEC or MD are not likely present in the MRS. However, uncertainty associated with the lack of documented or physical evidence of munitions impacts in the Accotink Bay, the focused "avoidance" nature of analog geophysical surveys conducted during the MRS RI, and dynamic sedimentation and erosional conditions warrant the implementation of institutional controls to address the uncertainty for potential future recreational exposure to MEC or MD (RIFS, Section 7.4, Page 7-5).

While the probable MEC hazards at the site are considered low, it is the Army's assessment that LUCs outlined in the preferred alternative identified in this Proposed Plan are necessary to protect public health and the environment from effects that could be caused by MEC potentially present at the MRS (PP, Page 6).

The preferred alternative to address MEC at the MRS is Alternative 2 (LUCs). LUCs would be implemented to address residual potential hazards from MEC (PP, Page 10).

## Table A Continued

**CHE Rated as NKSH:** Per the RIFS, Section 2.1, Page 2-1; Section 2.4.1, Page 2-9/10; & Section 3.1, Page 3-2, only conventional munitions were suspected. There is no historical use of CWM at the MRS and no documentation of CWM use was found during the review of historical documents of FTBL-004-R-01.

**HHE Rated as NKSH:** MC detected in surface water and pore water do not pose unacceptable risk to human or ecological receptors. The risk assessment concluded sediment tested does not pose unacceptable risk to humans or ecological receptors (RIFS, Section 7.4, Page 7-5).

### **Stakeholder Involvement - TBD**

**Description of Pathways for Human and Ecological Receptors:** The human receptor pathways for MEC are considered potentially complete through surface and subsurface soils (RIFS, Figure 6-2, Page 167).

The hazard identification did not select any Chemicals of Protective Concern (COPCs) in surface water or sediment as maximum detected concentrations are below screening levels protective of adverse health effects. Therefore, human exposure to MC present in surface water and sediment are not anticipated to pose unacceptable human health risks (RIFS, Section 6.4.3, Page 6-8).

**Description of Receptors (Human and Ecological):** base personnel, Pohick Bay Regional Park rangers and workers, Accotink Bay Wildlife Refuge rangers and workers, visitors (e.g., boaters, anglers), and trespassers (RIFS, Section 6.2, Page 6-2).

There are ecological receptors on the MRS (RIFS, Section 6.2, Page 6-2).

# Table 1

## EHE Module: Munitions Type Data Element Table

**DIRECTIONS:** Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond with all the munitions types known or suspected to be present at the MRS.

**Note:** The terms *practice munitions*, *small arms ammunition*, *physical evidence*, and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
<b>Sensitive</b>	<ul style="list-style-type: none"> <li>◆ 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).</li> <li>◆ Hand grenades containing energetic filler.</li> <li>◆ Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.</li> </ul>	<b>30</b>
<b>High explosive (used or damaged)</b>	<ul style="list-style-type: none"> <li>◆ UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive."</li> <li>◆ DMM containing a high-explosive filler that have:                             <ul style="list-style-type: none"> <li>▪ Been damaged by burning or detonation</li> <li>▪ Deteriorated to the point of instability.</li> </ul> </li> </ul>	<b>25</b>
<b>Pyrotechnic (used or damaged)</b>	<ul style="list-style-type: none"> <li>◆ UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades).</li> <li>◆ DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have:                             <ul style="list-style-type: none"> <li>▪ Been damaged by burning or detonation</li> <li>▪ Deteriorated to the point of instability.</li> </ul> </li> </ul>	20
<b>High explosive (unused)</b>	<ul style="list-style-type: none"> <li>◆ DMM containing a high-explosive filler that:                             <ul style="list-style-type: none"> <li>▪ Have not been damaged by burning or detonation</li> <li>▪ Are not deteriorated to the point of instability.</li> </ul> </li> </ul>	15
<b>Propellant</b>	<ul style="list-style-type: none"> <li>◆ UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor).</li> <li>◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are:                             <ul style="list-style-type: none"> <li>▪ Damaged by burning or detonation</li> <li>▪ Deteriorated to the point of instability.</li> </ul> </li> </ul>	<b>15</b>
<b>Bulk secondary high explosives, pyrotechnics, or propellant</b>	<ul style="list-style-type: none"> <li>◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor).</li> <li>◆ DMM that are 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.</li> </ul>	10
<b>Pyrotechnic (not used or damaged)</b>	<ul style="list-style-type: none"> <li>◆ DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that:                             <ul style="list-style-type: none"> <li>▪ Have not been damaged by burning or detonation</li> <li>▪ Are not deteriorated to the point of instability.</li> </ul> </li> </ul>	10
<b>Practice</b>	<ul style="list-style-type: none"> <li>◆ UXO that are practice munitions that are not associated with a sensitive fuze.</li> <li>◆ DMM that are practice munitions that are not associated with a sensitive fuze and that have not:                             <ul style="list-style-type: none"> <li>▪ Been damaged by burning or detonation</li> <li>▪ Deteriorated to the point of instability.</li> </ul> </li> </ul>	<b>5</b>
<b>Riot control</b>	<ul style="list-style-type: none"> <li>◆ UXO or DMM containing a riot control agent filler (e.g., tear gas).</li> </ul>	<b>3</b>
<b>Small arms</b>	<ul style="list-style-type: none"> <li>◆ Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.)</li> </ul>	2
<b>Evidence of no munitions</b>	<ul style="list-style-type: none"> <li>◆ 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.</li> </ul>	0
<b>MUNITIONS TYPE</b>	<b>DIRECTIONS:</b> Record <u>the single highest score</u> from above in the box to the right (maximum score = 30).	<b>30</b>

**DIRECTIONS:** Document any MRS-specific data used in selecting the **Munitions Type** classifications

Suspected munitions at the site include: frag and rifle grenades, rocket launchers, 60- and 81-mm mortars (RIFS, Section 2.1, Page 2-1).

A 1945 report states that a landscape range and pistol submachine gun line were part of the Bayliss Combat Range; practice antitank rockets were fired at targets and that there was a practice hand grenade court for high explosive (HE) and practice rifle grenades (RIFS, Section 2.4.1, Page 2-9/10).

No MEC or MD was identified during the RI (RIFS, Section 3.1, Page 3-2).

Hand Grenades are considered Sensitive.

## Table 2

### EHE Module: Source of Hazard Data Element Table

**DIRECTIONS:** Below are 11 classifications describing sources of explosive hazards. Circle the scores that correspond with all the sources of explosive hazards known or suspected to be present at the MRS.

**Note:** The terms *former range*, *practice munitions*, *small arms range*, *physical evidence*, and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
<b>Former range</b>	♦ 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 and associated buffer and safety zones.	<b>10</b>
<b>Former munitions treatment (i.e., OB/OD) unit</b>	♦ 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
<b>Former practice munitions range</b>	♦ The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
<b>Former maneuver area</b>	♦ 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
<b>Former burial pit or other disposal area</b>	♦ The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	5
<b>Former industrial operating facilities</b>	♦ The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	4
<b>Former firing points</b>	♦ The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
<b>Former missile or air defense artillery emplacements</b>	♦ The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
<b>Former storage or transfer points</b>	♦ 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
<b>Former small arms range</b>	♦ 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
<b>Evidence of no munitions</b>	♦ 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
<b>SOURCE OF HAZARD</b>	<b>DIRECTIONS:</b> Record <b>the single highest score</b> 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 ranges were used for training from 1941 through 1957 (RIFS, Section 2.1, Page 2-1).

## Table 3

### EHE Module: Location of Munitions Data Element Table

**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
<b>Confirmed surface</b>	<ul style="list-style-type: none"> <li>◆ Physical evidence indicates that there are UXO or DMM on the surface of the MRS.</li> <li>◆ Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report that an incident or accident that involved UXO or DMM occurred) indicates there are UXO or DMM on the surface of the MRS.</li> </ul>	25
<b>Confirmed subsurface, active</b>	<ul style="list-style-type: none"> <li>◆ Physical evidence indicates the presence of UXO or DMM in the subsurface 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 heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.</li> <li>◆ Historical evidence indicates that UXO or DMM are located in the subsurface 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 heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.</li> </ul>	20
<b>Confirmed subsurface, stable</b>	<ul style="list-style-type: none"> <li>◆ Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.</li> <li>◆ Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.</li> </ul>	15
<b>Suspected (physical evidence)</b>	<ul style="list-style-type: none"> <li>◆ 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.</li> </ul>	10
<b>Suspected (historical evidence)</b>	<ul style="list-style-type: none"> <li>◆ There is historical evidence indicating that UXO or DMM may be present at the MRS.</li> </ul>	<b>5</b>
<b>Subsurface, physical constraint</b>	<ul style="list-style-type: none"> <li>◆ 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.</li> </ul>	2
<b>Small arms (regardless of location)</b>	<ul style="list-style-type: none"> <li>◆ 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 into this category.)</li> </ul>	1
<b>Evidence of no munitions</b>	<ul style="list-style-type: none"> <li>◆ 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.</li> </ul>	0
<b>LOCATION OF MUNITIONS</b>	<b>DIRECTIONS:</b> Record <b>the single highest score</b> 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

No MEC or MD was identified during the RI (RIFS, Section 3.1, Page 3-2).

## Table 4

### EHE Module: Ease of Access Data Element Table

**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
<b>No barrier</b>	♦ There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	<b>10</b>
<b>Barrier to MRS access is incomplete</b>	♦ There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
<b>Barrier to MRS access is complete but not monitored</b>	♦ There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
<b>Barrier to MRS access is complete and monitored</b>	♦ 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
<b>EASE OF ACCESS</b>	<b>DIRECTIONS:</b> Record <b>the single highest score</b> 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*** classification in the space provided.

There is no barrier to the MRS (RIFS, Section 2.1, Page 2-1).

## Table 5

### EHE Module: Status of Property Data Element Table

**DIRECTIONS:** Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
<b>Non-DoD control</b>	<ul style="list-style-type: none"> <li>◆ The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. 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.</li> <li>◆ The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.</li> </ul>	<b>5</b>
<b>Scheduled for transfer from DoD control</b>	<ul style="list-style-type: none"> <li>◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD 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 Protocol is applied.</li> </ul>	<b>3</b>
<b>DoD control</b>	<ul style="list-style-type: none"> <li>◆ The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.</li> </ul>	<b>0</b>
<b>STATUS OF PROPERTY</b>	<b>DIRECTIONS:</b> Record <u>the single highest score</u> from above in the box to the right (maximum score = 5).	<b>5</b>

**DIRECTIONS:** Document any MRS-specific data used in selecting the *Status of Property* classification in the space provided.

The MRS is not under DoD control (FS, Section 2.2.5, Page 2-3).

## Table 6

### EHE Module: Population Density Data Element Table

**DIRECTIONS:** Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

**Note:** Use the U.S. Census Bureau tract data available to capture the highest population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	♦ There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	<b>5</b>
100–500 persons per square mile	♦ There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	<b>3</b>
< 100 persons per square mile	♦ There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	<b>1</b>
<b>POPULATION DENSITY</b>	<b>DIRECTIONS:</b> Record <u>the single highest score</u> from above in the box to the right (maximum score = 5).	<b>5</b>

**DIRECTIONS:** Document any MRS-specific data used in selecting the *Population Density* classification in the space provided.

There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located for both Fort Belvoir and Fairfax County.

<https://www.census.gov/quickfacts/fact/table/fairfaxcountyvirginia,fortbelvoircdpvirginia/PST045223>

## Table 7

### EHE Module: Population Near Hazard Data Element Table

**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
<b>26 or more inhabited structures</b>	<ul style="list-style-type: none"> <li>◆ 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.</li> </ul>	<b>5</b>
<b>16 to 25 inhabited structures</b>	<ul style="list-style-type: none"> <li>◆ There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.</li> </ul>	4
<b>11 to 15 inhabited structures</b>	<ul style="list-style-type: none"> <li>◆ There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.</li> </ul>	3
<b>6 to 10 inhabited structures</b>	<ul style="list-style-type: none"> <li>◆ There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.</li> </ul>	2
<b>1 to 5 inhabited structures</b>	<ul style="list-style-type: none"> <li>◆ There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.</li> </ul>	1
<b>0 inhabited structures</b>	<ul style="list-style-type: none"> <li>◆ There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.</li> </ul>	0
<b>POPULATION NEAR HAZARD</b>	<b>DIRECTIONS:</b> Record <b>the single highest score</b> from above in the box to the right (maximum score = 5).	<b>5</b>

**DIRECTIONS:** Document any MRS-specific data used in selecting the *Population Near Hazard*

There are 26 or more inhabited structures located within 2 miles from the boundary of the MRS.

<https://earth.google.com/web/@38.69334902,-77.16973526,59.22284802a,6475.16857992d,35y,0h,0t,0r>

## Table 8

### EHE Module: Types of Activities/Structures Data Element Table

**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
<b>Residential, educational, commercial, or subsistence</b>	<ul style="list-style-type: none"> <li>♦ 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.</li> </ul>	<b>5</b>
<b>Parks and recreational areas</b>	<ul style="list-style-type: none"> <li>♦ 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.</li> </ul>	<b>4</b>
<b>Agricultural, forestry</b>	<ul style="list-style-type: none"> <li>♦ 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 or forestry.</li> </ul>	<b>3</b>
<b>Industrial or warehousing</b>	<ul style="list-style-type: none"> <li>♦ 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.</li> </ul>	<b>2</b>
<b>No known or recurring activities</b>	<ul style="list-style-type: none"> <li>♦ There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.</li> </ul>	<b>1</b>
<b>TYPES OF ACTIVITIES/STRUCTURES</b>	<b>DIRECTIONS:</b> Record <b>the single highest score</b> from above in the box to the right (maximum score = 5).	<b>5</b>

**DIRECTIONS:** Document any MRS-specific data used in selecting the **Types of Activities/Structures** classifications

The MRS has been designated as a wildlife refuge since 1979 (RIFS, Section 2.2.5, Page 2-3).

There are residences and industrial activities within two miles of the MRS.

<https://earth.google.com/web/@38.69334902,-77.16973526,59.22284802a,6475.16857992d,35y,0h,0t,0r>

## Table 9

### EHE Module: Ecological and/or Cultural Resources Data Element Table

**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
<b>Ecological and cultural resources present</b>	♦ There are both ecological and cultural resources present on the MRS.	<b>5</b>
<b>Ecological resources present</b>	♦ There are ecological resources present on the MRS.	3
<b>Cultural resources present</b>	♦ There are cultural resources present on the MRS.	3
<b>No ecological or cultural resources present</b>	♦ There are no ecological resources or cultural resources present on the MRS.	0
<b>ECOLOGICAL AND/OR CULTURAL RESOURCES</b>	<b>DIRECTIONS:</b> Record <u>the single highest score</u> from above in the box to the right (maximum score = 5).	5

**DIRECTIONS:** Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources***

There are ecological receptors on the MRS (FS, Section 2.2.6, Page 2-3/4). There are two federally-listed threatened animal species and one federally-listed threatened plant species (FS, Section 2.2.6, Page 2-3/4).

There are Cultural Resources on the MRS according to Google Earth

<https://earth.google.com/web/>

@38.69312176,-77.16346438,28.24578856a,1685.99995171d,35y,-0h,0t,0r/

data=CkUaQxI9CiUweDg5YjdhYjY1YzcxY2FkZjU6MHg3NjQ3NjhINjQ3NjdjMDk3KhRDZWRhcm92ZSBDZW1ldGVyeRgCIAE

**Table 10**  
**Determining the EHE Module Rating**

	Source	Score	Value	
<p><b>DIRECTIONS:</b></p> <ol style="list-style-type: none"> <li>From Tables 1–9, record the data element scores in the <b>Score</b> boxes to the right.</li> <li>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.</li> <li>Add the three <b>Value</b> boxes and record this number in the <b>EHE Module Total</b> box below.</li> <li>Circle the appropriate range for the <b>EHE Module Total</b> below.</li> <li>Circle the <b>EHE Module Rating</b> that corresponds to the range selected and record this value in the <b>EHE Module Rating</b> box found at the bottom of the table.</li> </ol> <p><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 data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.</p>	<b>Explosive Hazard Factor Data Elements</b>			
	Munitions Type	Table 1	30	<b>40</b>
	Source of Hazard	Table 2	10	
	<b>Accessibility Factor Data Elements</b>			<b>20</b>
	Location of Munitions	Table 3	5	
	Ease of Access	Table 4	10	
	Status of Property	Table 5	5	
	<b>Receptor Factor Data Elements</b>			<b>20</b>
	Population Density	Table 6	5	
	Population Near Hazard	Table 7	5	
	Types of Activities/Structures	Table 8	5	
	Ecological and/or Cultural Resources	Table 9	5	
	<b>EHE MODULE TOTAL</b>			<b>80</b>
	<b>EHE Module Total</b>		<b>EHE Module Rating</b>	
	92 to 100		A	
	82 to 91		B	
	<b>71 to 81</b>		<b>C</b>	
	60 to 70		D	
	48 to 59		E	
	38 to 47		F	
less than 38		G		
Alternative Module Ratings	Evaluation Pending			
	No Longer Required			
	No Known or Suspected Explosive Hazard			
<b>EHE MODULE RATING</b>		<b>C</b>		

# Table 11

## CHE Module: CWM Configuration Data Element Table

**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
<b>CWM, that are either UXO, or explosively configured damaged DMM</b>	The CWM known or suspected of being present at the MRS are: <ul style="list-style-type: none"> <li>♦ CWM that are UXO (i.e., CWM/UXO)</li> <li>♦ Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.</li> </ul>	30
<b>CWM mixed with UXO</b>	<ul style="list-style-type: none"> <li>♦ The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO.</li> </ul>	25
<b>CWM, explosive configuration that are undamaged DMM</b>	<ul style="list-style-type: none"> <li>♦ The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.</li> </ul>	20
<b>CWM/DMM, not explosively configured or CWM, bulk container</b>	The CWM known or suspected of being present at the MRS are: <ul style="list-style-type: none"> <li>♦ Nonexplosively configured CWM/DMM either damaged or undamaged</li> <li>♦ Bulk CWM (e.g., ton container).</li> </ul>	15
<b>CAIS K941 and CAIS K942</b>	<ul style="list-style-type: none"> <li>♦ The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.</li> </ul>	12
<b>CAIS (chemical agent identification sets)</b>	<ul style="list-style-type: none"> <li>♦ CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.</li> </ul>	10
<b>Evidence of no CWM</b>	<ul style="list-style-type: none"> <li>♦ 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.</li> </ul>	0
<b>CWM CONFIGURATION</b>	<b>DIRECTIONS:</b> Record <u>the 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

CHE Rated as NKSH: Per the RIFS, Section 2.1, Page 2-1; Section 2.4.1, Page 2-9/10; & Section 3.1, Page 3-2, only conventional munitions were suspected. There is no historical use of CWM at the MRS and no documentation of CWM use was found during the review of historical documents of FTBL-004-R-01.

**IAW Army Guidance, Tables 12-19  
have been omitted.**

**Table 20**  
**Determining the CHE Module Rating**

	Source	Score	Value	
<p><b>DIRECTIONS:</b></p> <ol style="list-style-type: none"> <li>From Tables 11–19, record the data element scores in the <b>Score</b> boxes to the right.</li> <li>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.</li> <li>Add the three <b>Value</b> boxes and record this number in the <b>CHE Module Total</b> box below.</li> <li>Circle the appropriate range for the <b>CHE Module Total</b> below.</li> <li>Circle the <b>CHE Module Rating</b> that corresponds to the range selected and record this value in the <b>CHE Module Rating</b> box found at the bottom of the table.</li> </ol> <p><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 data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.</p>	<b>CWM Hazard Factor Data Elements</b>			
	CWM Configuration	Table 11	0	0
	Sources of CWM	Table 12		
	<b>Accessibility Factor Data Elements</b>			
	Location of CWM	Table 13		
	Ease of Access	Table 14		
	Status of Property	Table 15		
	<b>Receptor Factor Data Elements</b>			
	Population Density	Table 16		
	Population Near Hazard	Table 17		
	Types of Activities/Structures	Table 18		
	Ecological and/or Cultural Resources	Table 19		
	<b>CHE MODULE TOTAL</b>			0
	<b>CHE Module Total</b>		<b>CHE Module Rating</b>	
	92 to 100		A	
	82 to 91		B	
	71 to 81		C	
	60 to 70		D	
	48 to 59		E	
	38 to 47		F	
less than 38		G		
Alternative Module Ratings		Evaluation Pending		
		No Longer Required		
		<b>No Known or Suspected CWM Hazard</b>		
<b>CHE MODULE RATING</b>		<b>No Known or Suspected CWM Hazard</b>		

# Table 21

## HHE Module: Groundwater Data Element Table

### Contaminant Hazard Factor (CHF)

**DIRECTIONS:** 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 (µg/L)	Comparison Value (µg/L)	Ratios
		Total From Table 27	
<b>CHF Scale</b>	<b>CHF Value</b>	<b>Sum The Ratios</b>	
<b>CHF &gt; 100</b>	<b>H (High)</b>	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
<b>100 &gt; CHF &gt; 2</b>	<b>M (Medium)</b>		
<b>2 &gt; CHF</b>	<b>L (Low)</b>		
<b>CONTAMINANT HAZARD FACTOR</b>	<b>DIRECTIONS:</b> Record <u>the CHF Value</u> from above in the box to the right (maximum value = H).		

### Migratory Pathway Factor

**DIRECTIONS:** Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
<b>Evident</b>	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
<b>Potential</b>	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
<b>Confined</b>	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
<b>MIGRATORY PATHWAY FACTOR</b>	<b>DIRECTIONS:</b> Record <u>the 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 groundwater receptors at the MRS.

Classification	Description	Value
<b>Identified</b>	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
<b>Potential</b>	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
<b>Limited</b>	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
<b>RECEPTOR FACTOR</b>	<b>DIRECTIONS:</b> Record <u>the single highest value</u> from above in the box to the right (maximum value = H).	

No Known or Suspected Groundwater MC Hazard

Media Not Sampled.

Groundwater sampling was conducted at the Combat Range Complex – Land MRS (FTBL-003-R-01-CRCL) adjacent to this water MRS (RIFS, Section 2.3.7, Page 2-8).

## 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.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
ANTIMONY	2.1	6.0	.350
COPPER	7.49	620	.012
LEAD	1.3	15	.087
ZINC	17.3	4700	.004
<b>CHF Scale</b>	<b>CHF Value</b>	<b>Sum The Ratios</b>	.453
<b>CHF &gt; 100</b>	<b>H (High)</b>	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
<b>100 &gt; CHF &gt; 2</b>	<b>M (Medium)</b>		
<b>2 &gt; CHF</b>	<b>L (Low)</b>		
<b>CONTAMINANT HAZARD FACTOR</b>	<b>DIRECTIONS:</b> Record <u>the CHF Value</u> from above in the box to the right (maximum value = H).		L
<b><u>Migratory Pathway Factor</u></b>			
<b>DIRECTIONS:</b> Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.			
<b>Classification</b>	<b>Description</b>		<b>Value</b>
<b>Evident</b>	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.		H
<b>Potential</b>	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
<b>Confined</b>	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
<b>MIGRATORY PATHWAY FACTOR</b>	<b>DIRECTIONS:</b> Record <u>the single highest value</u> from above in the box to the right (maximum value = H).		M
<b><u>Receptor Factor</u></b>			
<b>DIRECTIONS:</b> Circle the value that corresponds most closely to the surface water receptors at the MRS.			
<b>Classification</b>	<b>Description</b>		<b>Value</b>
<b>Identified</b>	Identified receptors have access to surface water to which contamination has moved or can move.		H
<b>Potential</b>	Potential for receptors to have access to surface water to which contamination has moved or can move.		M
<b>Limited</b>	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.		L
<b>RECEPTOR FACTOR</b>	<b>DIRECTIONS:</b> Record <u>the single highest value</u> from above in the box to the right (maximum value = H).		M
No Known or Suspected Surface Water (Human Endpoint) MC Hazard			<input type="checkbox"/>

Sampling Data can be found in the RIFS, Table 4-4, Pages 122-132; Table 4-5, Page 134; & Table 6.2.1, Page 142).

## 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.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
ANTIMONY	1.38	31	.045
COPPER	679	3100	.219
LEAD	544	400	1.36
ZINC	256	23000	.011
<b>CHF Scale</b>	<b>CHF Value</b>	<b>Sum The Ratios</b>	1.635
<b>CHF &gt; 100</b>	<b>H (High)</b>	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
<b>100 &gt; CHF &gt; 2</b>	<b>M (Medium)</b>		
<b>2 &gt; CHF</b>	<b>L (Low)</b>		
<b>CONTAMINANT HAZARD FACTOR</b>	<b>DIRECTIONS:</b> Record <u>the CHF Value</u> 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 sediment migratory pathway at the MRS.

Classification	Description	Value
<b>Evident</b>	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
<b>Potential</b>	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
<b>Confined</b>	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
<b>MIGRATORY PATHWAY FACTOR</b>	<b>DIRECTIONS:</b> Record <u>the single highest value</u> from above in the box to the right (maximum value = H).	M

#### Receptor Factor

**DIRECTIONS:** Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
<b>Identified</b>	Identified receptors have access to sediment to which contamination has moved or can move.	H
<b>Potential</b>	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
<b>Limited</b>	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
<b>RECEPTOR FACTOR</b>	<b>DIRECTIONS:</b> Record <u>the single highest value</u> from above in the box to the right (maximum value = H).	M

No Known or Suspected Sediment (Human Endpoint) MC Hazard

## Table 24

### HHE Module: Surface Water – Ecological Endpoint Data Element Table

#### Contaminant Hazard Factor (CHF)

**DIRECTIONS:** Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
ANTIMONY	2.1	30	.070
COPPER	7.49	9	.832
LEAD	1.3	2.5	.520
ZINC	17.3	120	.144
<b>CHF Scale</b>	<b>CHF Value</b>	<b>Sum the Ratios</b>	1.566
<b>CHF &gt; 100</b>	<b>H (High)</b>	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
<b>100 &gt; CHF &gt; 2</b>	<b>M (Medium)</b>		
<b>2 &gt; CHF</b>	<b>L (Low)</b>		
<b>CONTAMINANT HAZARD FACTOR</b>	<b>DIRECTIONS:</b> Record <u>the CHF Value</u> 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 water migratory pathway at the MRS.

Classification	Description	Value
<b>Evident</b>	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
<b>Potential</b>	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
<b>Confined</b>	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
<b>MIGRATORY PATHWAY FACTOR</b>	<b>DIRECTIONS:</b> Record <u>the single highest value</u> from above in the box to the right (maximum value = H).	M

#### Receptor Factor

**DIRECTIONS:** Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
<b>Identified</b>	Identified receptors have access to surface water to which contamination has moved or can move.	H
<b>Potential</b>	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
<b>Limited</b>	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
<b>RECEPTOR FACTOR</b>	<b>DIRECTIONS:</b> Record <u>the single highest value</u> from above in the box to the right (maximum value = H).	M

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

## 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 ecological endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
ANTIMONY	1.38	2	.690
COPPER	679	31.6	21.487
LEAD	544	35.8	15.196
ZINC	256	121	2.116
<b>CHF Scale</b>	<b>CHF Value</b>	<b>Sum the Ratios</b>	39.489
<b>CHF &gt; 100</b>	<b>H (High)</b>	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
<b>100 &gt; CHF &gt; 2</b>	<b>M (Medium)</b>		
<b>2 &gt; CHF</b>	<b>L (Low)</b>		
<b>CONTAMINANT HAZARD FACTOR</b>	<b>DIRECTIONS:</b> Record <u>the CHF Value</u> from above in the box to the right (maximum value = H).		M

#### Migratory Pathway Factor

**DIRECTIONS:** Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
<b>Evident</b>	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
<b>Potential</b>	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
<b>Confined</b>	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
<b>MIGRATORY PATHWAY FACTOR</b>	<b>DIRECTIONS:</b> Record <u>the single highest value</u> from above in the box to the right (maximum value = H).	M

#### Receptor Factor

**DIRECTIONS:** Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
<b>Identified</b>	Identified receptors have access to sediment to which contamination has moved or can move.	H
<b>Potential</b>	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
<b>Limited</b>	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
<b>RECEPTOR FACTOR</b>	<b>DIRECTIONS:</b> Record <u>the single highest value</u> from above in the box to the right (maximum value = H).	M

No Known or Suspected Sediment (Ecological Endpoint) MC Hazard

# 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 present in the surface soil, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio
<b>CHF Scale</b>	<b>CHF Value</b>	<b>Sum the Ratios</b>	
<b>CHF &gt; 100</b>	<b>H (High)</b>	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
<b>100 &gt; CHF &gt; 2</b>	<b>M (Medium)</b>		
<b>2 &gt; CHF</b>	<b>L (Low)</b>		
<b>CONTAMINANT HAZARD FACTOR</b>	<b>DIRECTIONS:</b> Record <u>the CHF Value</u> from above in the box to the right (maximum value = H).		
<b><u>Migratory Pathway Factor</u></b>			
<b>DIRECTIONS:</b> Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.			
<b>Classification</b>	<b>Description</b>		<b>Value</b>
<b>Evident</b>	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.		H
<b>Potential</b>	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.		M
<b>Confined</b>	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
<b>MIGRATORY PATHWAY FACTOR</b>	<b>DIRECTIONS:</b> Record <u>the single highest value</u> from above in the box to the right (maximum value = H).		
<b><u>Receptor Factor</u></b>			
<b>DIRECTIONS:</b> Circle the value that corresponds most closely to the surface soil receptors at the MRS.			
<b>Classification</b>	<b>Description</b>		<b>Value</b>
<b>Identified</b>	Identified receptors have access to surface soil to which contamination has moved or can move.		H
<b>Potential</b>	Potential for receptors to have access to surface soil to which contamination has moved or can move.		M
<b>Limited</b>	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.		L
<b>RECEPTOR FACTOR</b>	<b>DIRECTIONS:</b> Record <u>the single highest value</u> from above in the box to the right (maximum value = H).		
No Known or Suspected Surface Soil MC Hazard			<input type="checkbox"/>

Media Not Sampled.

The entire MRS is located on water. See the RIFS, Figure 2-2, Page 157.



## Table 28

### Determining the HHE Module Rating

**DIRECTIONS:**

1. Record the letter values (H, M, L) for the **Contaminant Hazard, Migration Pathway, and Receptor Factors** for the media (from Tables 21–26) in the corresponding boxes below.
2. Record the media’s three-letter combinations in the **Three-Letter Combination** boxes below (three-letter combinations are arranged from Hs to Ms to Ls).
3. Using the **HHE Ratings** provided below, determine each media’s rating (A–G) and record the letter in the corresponding **Media Rating** box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value	Three-Letter Combination (Hs-Ms-Ls)	Media Rating (A-G)
Groundwater (Table 21)					
Surface Water/Human Endpoint (Table 22)	L	M	M	MML	E
Sediment/Human Endpoint (Table 23)	L	M	M	MML	E
Surface Water/Ecological Endpoint (Table 24)	L	M	M	MML	E
Sediment/Ecological Endpoint (Table 25)	M	M	M	MMM	D
Surface Soil (Table 26)					

**DIRECTIONS (cont.):**

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

**Note:**

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

<b>HHE MODULE RATING</b>	<b>D</b>
<b>HHE Ratings (for reference only)</b>	
<b>Combination</b>	<b>Rating</b>
HHH	A
HHM	B
HHL	C
HMM	
HML	D
MMM	
HLL	E
MML	
MLL	F
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

MC detected in surface water and pore water do not pose unacceptable risk to human or ecological receptors. The risk assessment concluded sediment tested does not pose unacceptable risk to humans or ecological receptors (RIFS, Section 7.4, Page 7-5).

**Table 29**  
**MRS Priority**

**DIRECTIONS:** In the chart below, circle the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical **priority** for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the **MRS Priority or Alternative MRS Rating** at the bottom of the table.

**Note:** An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating		Priority	CHE Rating		Priority	HHE Rating		Priority
			A		1			
A		2	B		2	A		2
B		3	C		3	B		3
<b>C</b>		<b>4</b>	D		4	C		4
D		5	E		5	D		5
E		6	F		6	E		6
F		7	G		7	F		7
G		8				G		8
Evaluation Pending			Evaluation Pending			Evaluation Pending		
No Longer Required			No Longer Required			No Longer Required		
No Known or Suspected Explosive Hazard			<b>No Known or Suspected CWM Hazard</b>			<b>No Known or Suspected MC Hazard</b>		
<b>MRS PRIORITY or ALTERNATIVE MRS RATING</b>						<b>4</b>		

MC detected in surface water and pore water do not pose unacceptable risk to human or ecological receptors. The risk assessment concluded sediment tested does not pose unacceptable risk to humans or ecological receptors (RIFS, Section 7.4, Page 7-5).