

Table 1

EHE Module: Munitions Type Data Element Table

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

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

Classification	Description	Score
Sensitive	<ul style="list-style-type: none"> ◆ 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)	<ul style="list-style-type: none"> ◆ UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive." ◆ DMM containing a high-explosive filler that have: <ul style="list-style-type: none"> ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability. 	25
Pyrotechnic (used or damaged)	<ul style="list-style-type: none"> ◆ UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). ◆ DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: <ul style="list-style-type: none"> ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability. 	20
High explosive (unused)	<ul style="list-style-type: none"> ◆ DMM containing a high-explosive filler that: <ul style="list-style-type: none"> ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability. 	15
Propellant	<ul style="list-style-type: none"> ◆ UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ 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"> ▪ Damaged by burning or detonation ▪ Deteriorated to the point of instability. 	15
Bulk secondary high explosives, pyrotechnics, or propellant	<ul style="list-style-type: none"> ◆ DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). ◆ 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. 	10
Pyrotechnic (not used or damaged)	<ul style="list-style-type: none"> ◆ DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: <ul style="list-style-type: none"> ▪ Have not been damaged by burning or detonation ▪ Are not deteriorated to the point of instability. 	10
Practice	<ul style="list-style-type: none"> ◆ 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: <ul style="list-style-type: none"> ▪ Been damaged by burning or detonation ▪ Deteriorated to the point of instability. 	5
Riot control	<ul style="list-style-type: none"> ◆ UXO or DMM containing a riot control agent filler (e.g., tear gas). 	3
Small arms	<ul style="list-style-type: none"> ◆ 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.) 	2
Evidence of no munitions	<ul style="list-style-type: none"> ◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present. 	0
MUNITIONS TYPE	DIRECTIONS: Record <u>the single highest score</u> from above in the box to the right (maximum score = 30).	25

PA dated May 2013 The use and handling of ordnance and the Japanese attack on two consecutive days at Unalaska resulted in waste entering the marine NDSA by the following mechanisms:

- Ordnance fired over water from CDA and AA gun batteries during target training and gun function testing that did not detonate as intended
- Ordnance lost into the water during transfer from transport ships to the shore, either at a fixed dock or at an explosive anchorage situated in the harbor away from shore installations
- Excess ordnance deliberately disposed of (referred to as DMM) into the marine environment at the conclusion of hostilities
- In the case of Dutch Harbor, ordnance deliberately dropped or fired by Japanese forces during the June 1942 attacks that did not detonate as intended.

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
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 and associated buffer and safety zones.	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 water body) 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 a 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 <u>the single highest score</u> from above in the box to the right (maximum score = 10).	10

PA Dated May 2013 pg 2-8 The sources of MEC released into the marine environment at NOB Dutch Harbor and the surrounding facilities by U.S. forces consist of CDA and AA gun batteries, supply transfer points, and air combat units of the Empire of Japan.

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
Confirmed surface	<ul style="list-style-type: none"> ◆ Physical evidence indicates that there are UXO or DMM on the surface of the MRS. ◆ 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. 	25
Confirmed subsurface, active	<ul style="list-style-type: none"> ◆ 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. ◆ 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. 	20
Confirmed subsurface, stable	<ul style="list-style-type: none"> ◆ 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. ◆ 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. 	15
Suspected (physical evidence)	<ul style="list-style-type: none"> ◆ 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)	<ul style="list-style-type: none"> ◆ There is historical evidence indicating that UXO or DMM may be present at the MRS. 	5
Subsurface, physical constraint	<ul style="list-style-type: none"> ◆ 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)	<ul style="list-style-type: none"> ◆ 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.) 	1
Evidence of no munitions	<ul style="list-style-type: none"> ◆ Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present. 	0
LOCATION OF MUNITIONS	DIRECTIONS: Record <u>the single highest score</u> from above in the box to the right (maximum score = 25).	20

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

See PA dated May 2013 page 2-8.
Page 2-18 valedates physical evidence of MEC.

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
No barrier	<ul style="list-style-type: none"> ♦ 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	<ul style="list-style-type: none"> ♦ 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	<ul style="list-style-type: none"> ♦ 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
Barrier to MRS access is complete and monitored	<ul style="list-style-type: none"> ♦ 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	<p>DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 10).</p>	8

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

147 Square miles of incomplete barrier (<20 Fathoms)

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
Non-DoD control	<ul style="list-style-type: none"> ◆ 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. ◆ 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. 	5
Scheduled for transfer from DoD control	<ul style="list-style-type: none"> ◆ 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. 	3
DoD control	<ul style="list-style-type: none"> ◆ 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. 	0
STATUS OF PROPERTY	<p>DIRECTIONS: Record <u>the single highest score</u> from above in the box to the right (maximum score = 5).</p>	5

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

Though the Navy has given up operational control of the NDSA there are no barriers to prevent entry by receptors.

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	<ul style="list-style-type: none"> ♦ There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located. 	5
100–500 persons per square mile	<ul style="list-style-type: none"> ♦ There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located. 	3
< 100 persons per square mile	<ul style="list-style-type: none"> ♦ There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located. 	1
POPULATION DENSITY	DIRECTIONS: 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 *Population Density* classification in the space provided.

The city of Unalaska has a population of ~ 4,344 people

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
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 inhabited structures	♦ 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.	4
11 to 15 inhabited structures	♦ 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.	3
6 to 10 inhabited structures	♦ 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.	2
1 to 5 inhabited structures	♦ 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.	1
0 inhabited structures	♦ 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** classification in the space provided.

The city of Unalaska has a population of ~ 4,344 people

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
Residential, educational, commercial, or subsistence	<ul style="list-style-type: none"> ◆ 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	<ul style="list-style-type: none"> ◆ 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	<ul style="list-style-type: none"> ◆ 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. 	3
Industrial or warehousing	<ul style="list-style-type: none"> ◆ 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	<ul style="list-style-type: none"> ◆ There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary. 	1
TYPES OF ACTIVITIES/STRUCTURES	DIRECTIONS: 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 *Types of Activities/Structures* classifications in the space provided.

The City of Unalaska is located on Unalaska Island and the smaller Amaknak Island is located within Unalaska Bay. Almost all of the community's port facilities, better known as Dutch Harbor, are located on Amaknak Island. It is the largest fisheries port in the United States by seafood volume caught.

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
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 resources or cultural resources present on the MRS.	0
ECOLOGICAL AND/OR CULTURAL RESOURCES	DIRECTIONS: 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* classification in the space provided.

PA dated May 2013 Alaskan Maritime National Wildlife Refuge (AMNWR). The AMNWR includes the islands of the Aleutian chain, including Unalaska and Umnak Islands. The purpose of the AMNWR is “to conserve fish and wildlife populations and the marine resources upon which they rely” and provide “the opportunity for continued subsistence uses by local residents.”

Table 10
Determining the EHE Module Rating

				Source	Score	Value
<p>DIRECTIONS:</p> <ol style="list-style-type: none"> From Tables 1–9, record the data element scores in the Score boxes to the right. Add the Score boxes for each of the three factors and record this number in the Value boxes to the right. Add the three Value boxes and record this number in the EHE Module Total box below. Circle the appropriate range for the EHE Module Total below. 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. <p>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.</p>	Explosive Hazard Factor Data Elements					
	Munitions Type	Table 1	25			
	Source of Hazard	Table 2	10			
	Accessibility Factor Data Elements					
	Location of Munitions	Table 3	20			
	Ease of Access	Table 4	8			
	Status of Property	Table 5	5			
	Receptor Factor Data Elements					
	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			
	EHE MODULE TOTAL					88
	EHE Module Total			EHE Module Rating		
	92 to 100			A		
	82 to 91			B		
	71 to 81			C		
	60 to 70			D		
	48 to 59			E		
	38 to 47			F		
less than 38			G			
Alternative Module Ratings			Evaluation Pending			
			No Longer Required			
			No Known or Suspected Explosive Hazard			
EHE MODULE RATING			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
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: <ul style="list-style-type: none"> ♦ 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	<ul style="list-style-type: none"> ♦ 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. 	25
CWM, explosive configuration that are undamaged DMM	<ul style="list-style-type: none"> ♦ The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged. 	20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: <ul style="list-style-type: none"> ♦ Nonexplosively configured CWM/DMM either damaged or undamaged ♦ Bulk CWM (e.g., ton container). 	15
CAIS K941 and CAIS K942	<ul style="list-style-type: none"> ♦ 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. 	12
CAIS (chemical agent identification sets)	<ul style="list-style-type: none"> ♦ CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS. 	10
Evidence of no CWM	<ul style="list-style-type: none"> ♦ Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS. 	0
CWM CONFIGURATION	DIRECTIONS: Record <u>the single highest score</u> from above in the box to the right (maximum score = 30).	10

DIRECTIONS:

PA dated May 2013 page 2-18; In January 1987 local divers working on the former Captains Bay ammunition dock (Captains Bay Dock in Figure 2-5) discovered four metal containers washed up on the shore. Each container measured about 5 inches in diameter and 30 inches long and contained a total of 44 glass vials. The containers were turned over to the Unalaska Police Department, which notified the 176th Explosive Ordnance Detachment, Fort Richardson, Alaska. Ordnance specialists identified the vials as elements of the MI War Gas Identification Set, which was a World War II training kit used to teach soldiers how to identify chemical warfare agents by odor and immediate effects. The Explosives Ordnance Detachment repacked and transported the vials to the disposal facility at Johnston Atoll. The Technical Escort Unit conducted an additional underwater search and shoreline survey at the ammunition dock in February 1987. More containers with vials were found in the water and on the shore. A total of 469 additional vials were found, repacked, and transported to Johnston Atoll (U.S. Army Program Manager for Chemical Demilitarization 1996).

Table 12

CHE Module: Sources of CWM Data Element Table

DIRECTIONS: Below are 11 sources of CWM hazards and their descriptions. Review these classifications and circle the scores that correspond with all the sources of CWM hazards known or suspected to be present at the MRS.

Note: The terms *CWM/UXO*, *CWM/DMM*, *CAIS/DMM*, *surface*, *subsurface*, *physical evidence*, and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Live-fire involving CWM	<ul style="list-style-type: none"> ◆ The MRS is a former military range that supported live-fire of explosively configured CWM and the CWM/UXO are known or suspected of being present on the surface or in the subsurface. ◆ The MRS is a former military range that supported live-fire with conventional munitions, and CWM/DMM are on the surface or in the subsurface commingled with conventional munitions that are UXO. 	10
Damaged CWM/DMM surface or subsurface	◆ There are damaged CWM/DMM on the surface or in the subsurface at the MRS.	10
Undamaged CWM/DMM surface	◆ There are undamaged CWM/DMM on the surface at the MRS.	10
CAIS/DMM surface	◆ There are CAIS/DMM on the surface.	10
Undamaged CWM/DMM, subsurface	◆ There are undamaged CWM/DMM in the subsurface at the MRS.	5
CAIS/DMM subsurface	◆ There are CAIS/DMM in the subsurface at the MRS.	5
Former CA or CWM Production Facilities	◆ The MRS is a facility that formerly engaged in production of CA or CWM, and CWM/DMM is suspected of being present on the surface or in the subsurface.	3
Former Research, Development, Testing, and Evaluation (RDT&E) facility using CWM	◆ The MRS is at a facility that formerly was involved in non-live-fire RDT&E activities (including static testing) involving CWM, and there are CWM/DMM suspected of being present on the surface or in the subsurface.	3
Former Training Facility using CWM or CAIS	◆ The MRS is a location that formerly was involved in training activities involving CWM and/or CAIS (e.g., training in recognition of CWM, decontamination training) and CWM/DMM or CAIS/DMM are suspected of being present on the surface or in the subsurface.	2
Former Storage or Transfer points of CWM	◆ The MRS is a former storage facility or transfer point (e.g., intermodal transfer) for CWM.	1
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
SOURCES OF CWM	DIRECTIONS: Record <u>the single highest score</u> from above in the box to the right (maximum score = 10).	5

DIRECTIONS:(QAP) consistent with the MR side, underwater considered subsurface. Site extends only to MLLW, so the intertidal discovery wouldn't pull this into surface.

In January 1987 local divers working on the former Captains Bay ammunition dock (Captains Bay Dock in Figure 2-5) discovered four metal containers washed up on the shore. Each container measured about 5 inches in diameter and 30 inches long and contained a total of 44 glass vials. The containers were turned over to the Unalaska Police Department, which notified the 176th Explosive Ordnance Detachment, Fort Richardson, Alaska. Ordnance specialists identified the vials as elements of the M1 War Gas Identification Set, which was a World War II training kit used to teach soldiers how to identify chemical warfare agents by odor and immediate effects. The Explosives Ordnance Detachment repacked and transported the vials to the disposal facility at Johnston Atoll. The Technical Escort Unit conducted an additional underwater search and shoreline survey at the ammunition dock in February 1987. More containers with vials were found in the water and on the shore. A total of 469 additional vials were found, repacked, and transported to Johnston Atoll (U.S. Army Program Manager for Chemical Demilitarization 1996).

Table 13
CHE Module: Location of CWM Data Element Table

DIRECTIONS: Below are seven classifications of CWM locations and their descriptions. Review these locations and circle the scores that correspond with all the locations where CWM are known or suspected of being found at the MRS.

Note: The terms *confirmed*, *surface*, *subsurface*, *physical evidence*, and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	<ul style="list-style-type: none"> Physical evidence indicates that there are CWM on the surface of the MRS. 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 CWM, regardless of configuration, occurred) indicates there are CWM on the surface of the MRS. 	25
Confirmed subsurface, active	<ul style="list-style-type: none"> Physical evidence indicates the presence of CWM in the subsurface of the MRS and the geological conditions at the MRS are likely to cause CWM 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 CWM. Historical evidence indicates that CWM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause CWM 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 CWM. 	20
Confirmed subsurface, stable	<ul style="list-style-type: none"> Physical evidence indicates the presence of CWM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause CWM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause CWM to be exposed. Historical evidence indicates that CWM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause CWM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause CWM to be exposed. 	15
Suspected (physical evidence)	<ul style="list-style-type: none"> There is physical evidence, other than the documented presence of CWM, indicating that CWM may be present at the MRS. 	10
Suspected (historical evidence)	<ul style="list-style-type: none"> There is historical evidence indicating that CWM may be present at the MRS. 	5
Subsurface, physical constraint	<ul style="list-style-type: none"> There is physical or historical evidence indicating that CWM 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 CWM. 	2
Evidence of no CWM	<ul style="list-style-type: none"> Following investigation of the MRS, there is physical evidence that there is no CWM present or there is historical evidence indicating that no CWM are present. 	0
LOCATION OF CWM	DIRECTIONS: Record <u>the single highest score</u> from above in the box to the right (maximum score = 25).	20

(QAP) changed to confirmed sub active, consistent with prior MR setting.

In January 1987 local divers working on the former Captains Bay ammunition dock (Captains Bay Dock in Figure 2-5) discovered four metal containers washed up on the shore. Each container measured about 5 inches in diameter and 30 inches long and contained a total of 44 glass vials. The containers were turned over to the Unalaska Police Department, which notified the 176th Explosive Ordnance Detachment, Fort Richardson, Alaska. Ordnance specialists identified the vials as elements of the MI War Gas Identification Set, which was a World War II training kit used to teach soldiers how to identify chemical warfare agents by odor and immediate effects. The Explosives Ordnance Detachment repacked and transported the vials to the disposal facility at Johnston Atoll. The Technical Escort Unit conducted an additional underwater search and shoreline survey at the ammunition dock in February 1987. More containers with vials were found in the water and on the shore. A total of 469 additional vials were found, repacked, and transported to Johnston Atoll (U.S. Army Program Manager for Chemical Demilitarization 1996).

Table 14
CHE 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
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 a 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 <u>the single highest score</u> 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** classification in the space provided.

147 square miles of incomplete barrier (<20fathoms)

Table 15

CHE 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
Non-DoD control	<ul style="list-style-type: none"> ♦ 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. ♦ 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. 	5
Scheduled for transfer from DoD control	<ul style="list-style-type: none"> ♦ 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 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. 	3
DoD control	<ul style="list-style-type: none"> ♦ 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 controls access to the MRS 24 hours per day, every day of the calendar year. 	0
STATUS OF PROPERTY	DIRECTIONS: 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 *Status of Property* classification in the space provided.

Though the Navy has been given operational control of the NDSA there are no barriers to prevent entry by receptors.

Table 16

CHE 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.	5
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.	3
< 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.	1
POPULATION DENSITY	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 Density** classification in the space provided.

The city of Unalaska has a population of ~ 4,344 people.

Table 17

CHE 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
26 or more inhabited structures	<ul style="list-style-type: none"> ♦ 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 inhabited structures	<ul style="list-style-type: none"> ♦ 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. 	4
11 to 15 inhabited structures	<ul style="list-style-type: none"> ♦ 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. 	3
6 to 10 inhabited structures	<ul style="list-style-type: none"> ♦ 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. 	2
1 to 5 inhabited structures	<ul style="list-style-type: none"> ♦ 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. 	1
0 inhabited structures	<ul style="list-style-type: none"> ♦ 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* classification in the space provided.

The city of Unalaska has a population of ~ 4,344 people.

Table 18

CHE 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/structures classifications at the MRS.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	<ul style="list-style-type: none"> ◆ 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	<ul style="list-style-type: none"> ◆ 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	<ul style="list-style-type: none"> ◆ 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. 	3
Industrial or warehousing	<ul style="list-style-type: none"> ◆ 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	<ul style="list-style-type: none"> ◆ There are no known of recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary. 	1
TYPES OF ACTIVITIES/STRUCTURES	DIRECTIONS: 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 *Types of Activities/Structures* classifications in the space provided.

The City of Unalaska is located on Unalaska Island and the smaller Amaknak Island is located within Unalaska Bay. Almost all of the community's port facilities, better known as Dutch Harbor, are located on Amaknak Island. It is the largest fisheries port in the United States by volume caught.

Table 19

CHE 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
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 resources or 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).	5

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

(AMNWR). The AMNWR includes the islands of the Aleutian chain, including Unalaska and Umnak Islands. The purpose of the AMNWR is “to conserve fish and wildlife populations and the marine resources upon which they rely” and provide “the opportunity for continued subsistence uses by local residents.”

Table 20
Determining the CHE Module Rating

	Source	Score	Value	
<p>DIRECTIONS:</p> <ol style="list-style-type: none"> From Tables 11–19, record the data element scores in the Score boxes to the right. Add the Score boxes for each of the three factors and record this number in the Value boxes to the right. Add the three Value boxes and record this number in the CHE Module Total box below. Circle the appropriate range for the CHE Module Total below. Circle the CHE Module Rating that corresponds to the range selected and record this value in the CHE Module Rating box found at the bottom of the table. <p>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.</p>	CWM Hazard Factor Data Elements			
	CWM Configuration	Table 11	10	
	Sources of CWM	Table 12	5	
	Accessibility Factor Data Elements			
	Location of CWM	Table 13	20	
	Ease of Access	Table 14	8	
	Status of Property	Table 15	5	
	Receptor Factor Data Elements			
	Population Density	Table 16	5	
	Population Near Hazard	Table 17	5	
	Types of Activities/Structures	Table 18	5	
	Ecological and/or Cultural Resources	Table 19	5	
	CHE MODULE TOTAL			68
	CHE Module Total	CHE Module Rating		
	92 to 100	A		
	82 to 91	B		
	71 to 81	C		
	60 to 70	D		
	48 to 59	E		
	38 to 47	F		
less than 38	G			
Alternative Module Ratings	Evaluation Pending			
	No Longer Required			
	No Known or Suspected CWM Hazard			
CHE MODULE RATING	D			

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

Migratory Pathway Factor

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

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	DIRECTIONS: Record <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
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
RECEPTOR FACTOR	DIRECTIONS: Record <u>the single highest value</u> from above in the box to the right (maximum value = H).	NA

No Known or Suspected Groundwater MC Hazard



Table 22

HHE Module: Surface Water – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

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

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	CHF Value	Sum The Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		

CONTAMINANT HAZARD FACTOR	DIRECTIONS: Record <u>the CHF Value</u> from above in the box to the right (maximum value = H).
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Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L

MIGRATORY PATHWAY FACTOR	DIRECTIONS: Record <u>the single highest value</u> from above in the box to the right (maximum value = H).
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Receptor Factor

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

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L

RECEPTOR FACTOR	DIRECTIONS: Record <u>the single highest value</u> from above in the box to the right (maximum value = H).
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No Known or Suspected Surface Water (Human Endpoint) MC Hazard



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
CHF Scale	CHF Value	Sum The Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		

CONTAMINANT HAZARD FACTOR	DIRECTIONS: 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 sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L

MIGRATORY PATHWAY FACTOR	DIRECTIONS: Record <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 sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L

RECEPTOR FACTOR	DIRECTIONS: Record <u>the single highest value</u> from above in the box to the right (maximum value = H).
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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
CHF Scale	CHF Value	Sum the Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	DIRECTIONS: 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 surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	DIRECTIONS: Record <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 surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	DIRECTIONS: Record <u>the 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 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
CHF Scale	CHF Value	Sum the Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	DIRECTIONS: 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 sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	DIRECTIONS: Record <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 sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	DIRECTIONS: Record <u>the 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 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
CHF Scale	CHF Value	Sum the Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	DIRECTIONS: 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 surface soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	DIRECTIONS: Record <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 surface soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
RECEPTOR FACTOR	DIRECTIONS: Record <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



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)					
Sediment/Human Endpoint (Table 23)					
Surface Water/Ecological Endpoint (Table 24)					
Sediment/Ecological Endpoint (Table 25)					
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.

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

Table 29

MRS Priority

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

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

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

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: _____

Component: _____

Installation/Property Name: _____

Location (City, County, State): _____

Site Name/Project Name (Project No.): _____

Date Information Entered/Updated: _____ Point of Contact (Name/Phone): **Grady May / 360 396 0011**

Project Phase (check only one):

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

MRS Summary:

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

Chemical agent identification sets have been found and partial removal performed by an EOD active duty unit. UXO has yet to be physically indentified. A site inspection is scheduled for 2015.

Description of Pathways for Human and Ecological Receptors: **Possible direct contact**

Description of Receptors (Human and Ecological): **Fishers and divers**