



Munitions Response Site Prioritization Protocol

2 Feb 2006

Agenda

Session 1 – Introduction
Session 2 – Explosives Hazards Evaluation (EHE)
Class Exercise EHE
Break
Session 3 – Chemical Warfare Materiel Hazards Evaluation (CHE)
Class Exercise CHE
Session 4 – Health Hazard Evaluation (HHE)
Class Exercise HHE
Break
Session 5 – Prioritization, Sequencing, Admin Requirements
Class Exercise prioritization
Session 6 – Conclusion/HQ Instructions



Session 1

Introduction



Welcome

- ***The Secretary shall develop, in consultation with representatives of the States and Indian Tribes, a proposed protocol for assigning to each defense site a relative priority for response activities related to unexploded ordnance, discarded military munitions, and munitions constituents based on the overall conditions at the defense site***



2710(b)(1)]

– [10 USC



Background

- DoD needed a method to prioritize the sites in its inventory
- DoD developed the Protocol as a framework to prioritize these sites
- The Protocol is designed to ensure that the priority assigned to a site sufficiently reflects actual site conditions and potential hazards
- The Protocol is a federal regulation and deviations from the requirements of the regulations are not allowed.



EOD specialist examines munitions



Protocol Fundamentals

- The Protocol sets requirements for –
 - ◆ Protocol application
 - ◆ Regulatory agency and stakeholder involvement
 - ◆ Recordkeeping
 - ◆ Reporting requirements



Unexploded Ordnance

- UXO are military munitions that –
 - ◆ Have been primed, fused, armed, or otherwise prepared for action;
 - ◆ Have been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installations, personnel, or material; and
 - ◆ Remain unexploded, whether by malfunction, design, or any other cause

– [10 USC § 2710(e)(9)]



UXO



Discarded Military Munitions

- DMM are military munitions that have been abandoned without proper disposal or removed from storage in a military magazine or other storage area for the purpose of disposal

– [10 USC 2710(e)(2)]



- DMM may have resulted from –
 - ◆ Unauthorized disposal
 - ◆ Past national practice of burial of wastes
 - ◆ Incomplete or improper disposal (OB/ODs)



Munitions Constituents

- MC are any materials originating from UXO; DMM; or other military munitions, including explosive and nonexplosive materials; and emission, degradation, or breakdown elements of such ordnance or munitions

– [10 USC 2710(e)(4)]

- Examples of MC include –

- ◆ Metals: lead, copper, mercury
- ◆ Explosives: RDX, TNT, HMX
- ◆ Chemical agents (CA) in environmental media (e.g., soil): mustard, lewisite
- ◆ Breakdown products of explosives: 4-amino-2,6-DNT and 2-amino-4,6-DNT
- ◆ Pyrotechnics: white phosphorus
- ◆ Propellants: nitroglycerine, nitrocellulose, 2,4-DNT, ammonium perchlorate



Munitions and Explosives of Concern

- MEC refers to specific categories of military munitions that may pose unique explosives safety risks –
 - ◆ UXO, as defined in 10 USC § 2710(e)(9)
 - ◆ DMM, as defined in 10 USC § 2710(e)(2)
 - ◆ MC (e.g., TNT, RDX), as defined in 10 USC § 2710(e)(3), is present in high enough concentrations to pose an explosive hazard
- This term does not create a new category of materials covered under the Protocol and is adopted for consistency with DoD explosive safety terminology



Chemical Warfare Materiel

- CA means a chemical compound (to include experimental compounds) that, through its chemical properties produces lethal or other damaging effects on human beings, is intended for use in military operations to kill, seriously injure, or incapacitate persons through its physiological effects – [32 CFR 179.3]
- CWM is generally configured as a munition containing a chemical compound that is intended to kill, seriously injure, or incapacitate a person through its physiological effects – [32 CFR 179.3]
- Because of DoD's past training and testing, CWM may remain on sites as munitions with CA fill, bulk containers of CA, or CA released into the environment as MC
- For the purposes of the Protocol, chemical agent identification sets (CAIS) are considered CWM



Applicable Locations

- The Protocol is applied to MRSs that are included in DoD's inventory of defense sites
 - *Defense site* –
 - ◆ Is a location that is or was owned by, leased to, or otherwise possessed or used by the DoD
 - ◆ Does not include any operational range, operating storage or manufacturing facility, or facility that is used for or was permitted for the treatment or disposal of military munitions
- [10 USC 2710(e)(1)]
- DoD developed two new terms to describe defense sites subject to the Protocol –
 - ◆ Munitions response area (MRA)
 - ◆ Munitions response site (MRS)



Applicable Locations – MRA and MRS

■ MRA

- ◆ Any area on a defense site that is known or suspected to contain UXO, DMM, or MC (e.g., former ranges or munitions burial areas)
- ◆ Must be comprised of at least one MRS, but may contain multiple MRSs

■ MRS

– [32 CFR Part 179.3]

- ◆ Defined as “a discrete location within an MRA that is known to require a munitions response”
– [32 CFR Part 179.3]
- ◆ Subdividing an MRA into multiple MRSs allows:
 - Better characterization of each MRS
 - Tailoring munitions responses to address specific hazards and end uses

■ The Protocol is applied at the MRS level

- For a subdivided MRA, the sum of all MRS areas must equal the total acreage (area) of the MRA (Σ acreage of all MRS = acreage of MRA)



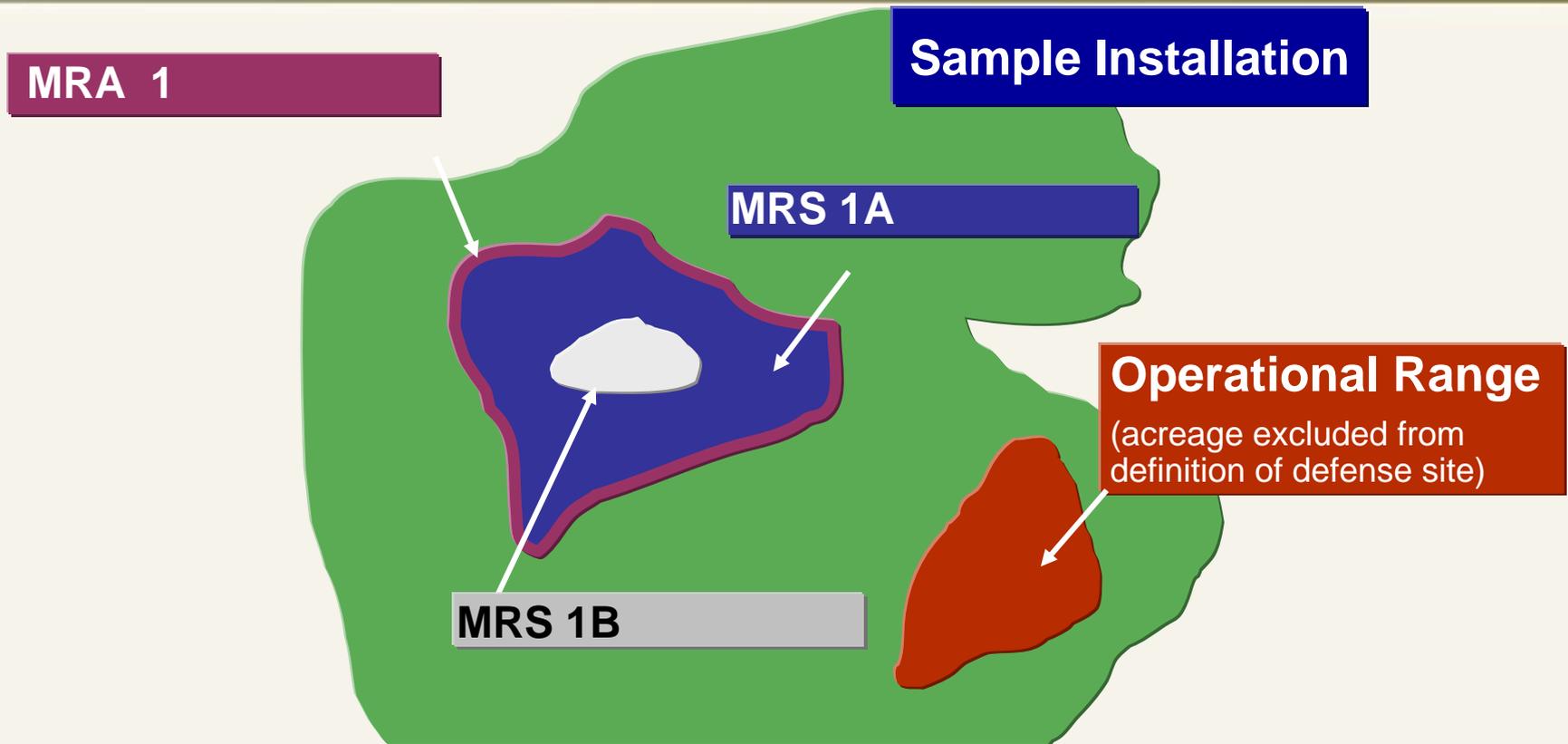
Non-Applicable Locations

- Locations that are not, or were not, owned by, leased to, or otherwise possessed or used by DoD
- Locations neither known to contain, or suspected of containing, UXO, DMM, or MC
- Locations outside the United States
- Locations where the presence of military munitions results from combat operations
- Currently operating military munitions storage and manufacturing facilities
- Locations that are used for, or were permitted for, the treatment or disposal of military munitions
- Operational ranges

– [32 CFR Part 179]



Location Scenarios



- ✓ MRA 1 is made up of MRS 1A and MRS 1B
- ✓ Each MRA will be divided into one or more MRS for assessing UXO, DMM, and MC



Component Responsibilities

Protocol Application	<ul style="list-style-type: none">✓ Ensure the total acreage of each MRA is evaluated and apply the Protocol to all MRSs✓ Update the priority as necessary to reflect new information when it becomes available✓ Establish a quality assurance panel to review all MRS prioritization decisions
Regulatory Agency and Stakeholder Involvement	<ul style="list-style-type: none">✓ Involve regulators and stakeholders as early as possible and seek their continual involvement throughout the munitions response process✓ Use a team approach for Protocol application with team members comprised of DoD Component representatives and other stakeholders
Recordkeeping	<ul style="list-style-type: none">✓ Develop and maintain records on the application of the Protocol for each MRS✓ Document results in an installation Management Action Plan (MAP), or its equivalent
Reporting Requirements	<ul style="list-style-type: none">✓ Report the priority for each MRS and the ratings for each hazard evaluation module to DoD for inclusion in the inventory of MRSs made available to the public



Stakeholder Involvement

- DoD understands that communication and cooperation with stakeholders is fundamental to the success of the Protocol
- The Protocol requires DoD Components to offer stakeholders opportunities to comment and participate in the application of the Protocol and sequencing recommendations



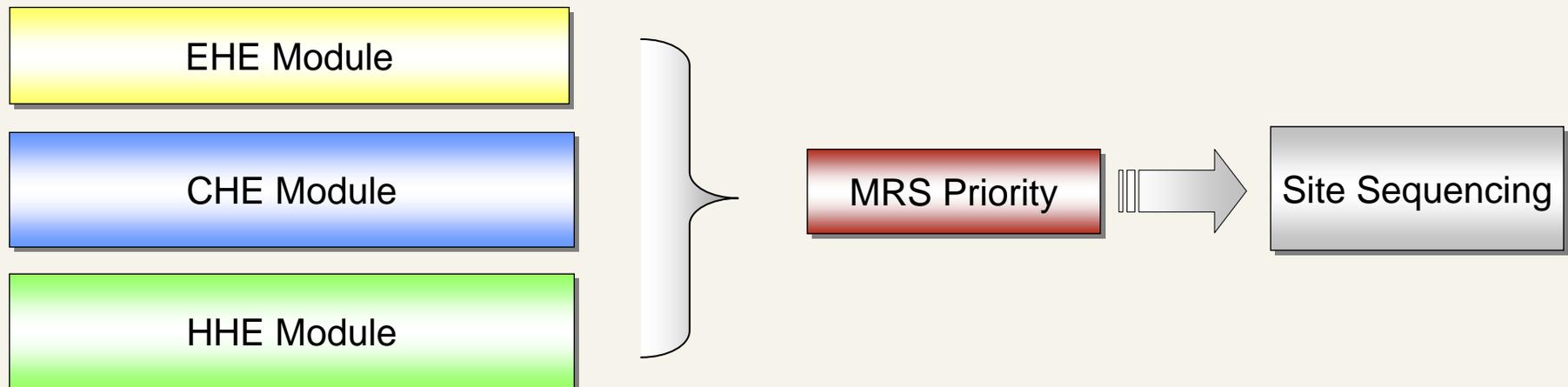
Protocol Stakeholders



Contents of Rule

- Purpose
- Applicability and Scope
- Policy
- Responsibilities
- Procedures

Protocol Structure



Protocol Hazard Evaluation Modules

- The workgroup developed the Protocol to evaluate the hazards that might be present on a former munitions site
- The Protocol contains three modules to evaluate the unique characteristics of each potential hazard
 - ◆ The Explosive Hazard Evaluation (EHE) Module addresses explosive hazards posed by MEC (i.e., UXO, DMM, and MC in high enough concentrations to pose an explosive hazard)
 - ◆ The CWM Hazard Evaluation (CHE) Module addresses chemical hazards associated with the effects of CWM
 - ◆ The Health Hazard Evaluation (HHE) Module addresses health and environmental hazards posed by MC, to include CA, and incidental non-munitions related contaminants, if MC is present



Table 10
Determining the EHE Module Rating

DIRECTIONS:

- 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.

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.

	Source	Score	Value
Explosive Hazard Factor Data Elements			
Munitions Type	Table 1		
Source of Hazard	Table 2		
Accessibility Factor Data Elements			
Location of Munitions	Table 3		
Ease of Access	Table 4		
Status of Property	Table 5		
Receptors Factor Data Elements			
Population Density	Table 6		
Population Near Hazard	Table 7		
Types of Activities/ Structures	Table 8		
Ecological and/or Cultural Resources	Table 9		
EHE MODULE TOTAL			
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			

Use the following tables to determine the an MRS's priority

**Table 10-
EHE Module Rating**

Table 20
Determining the CHE Module Rating

DIRECTIONS:

- 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.

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.

	Source	Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11		
Sources of CWM	Table 12		
Accessibility Factor Data Elements			
Location of CWM	Table 13		
Ease of Access	Table 14		
Status of Property	Table 15		
Receptors Factor Data Elements			
Population Density	Table 16		
Population Near Hazard	Table 17		
Types of Activities/ Structures	Table 18		
Ecological and /or Cultural Resources	Table 19		
CHE MODULE TOTAL			
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			

**Table 20-
CHE Module Rating**

Table 28
Determining the HHE Module Rating

**Table 28-
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 3-letter combinations in the **3-Letter Combination** boxes below (3-letter combinations are arranged from Hs to Ms to Ls).
3. Using the reference 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	Receptor Factor Value	Migratory Pathway Factor Value	3-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 below.

Note:

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

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

Determining an MRS's Priority

- Information from Tables 10, 20, and 28 are used to complete Table 29 (see Primer, Appendix A) to determine an MRS's priority
- As long as one module can be evaluated, an MRS's priority can be assigned
- If there is insufficient data to complete all modules, Components will assign a priority based on the hazard modules evaluated and reapply the Protocol once sufficient data are available



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

Determining an MRS's Priority (cont)

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 number in the **MRS or Alternative Priority** box at the bottom of the table.

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

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

Circle the priority associated with each module rating from Tables 10, 20, and 28

The MRS's priority is determined by the single highest module priority

