



# Munitions Response Site Prioritization Protocol

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## Module 1. Introduction to the Protocol

April 2007

# Outline

- Munitions Use within DoD
- Protocol Terminology
- Protocol as a Rule
- Applicable and Non-applicable Locations
- Protocol Structure
- Determining the Munitions Response Site (MRS) Priority and Sequencing
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# Munitions Use within DoD

- Military munitions mean all ammunition products and components produced for or used by the Armed Forces for national defense and security, including ammunitions products or components under the control of the DoD, the Coast Guard, the Department of Energy, and the National Guard

– (10 USC 101(e)(4))

- DoD munitions-related activities include –
  - ◆ Production
  - ◆ Training and testing
  - ◆ Storage and maintenance
  - ◆ Demilitarization of excess, obsolete, or unserviceable munitions



*Soldiers conducting training missions*



# Unexploded Ordnance

- UXO are military munitions that –
    - ◆ Have been primed, fuzed, 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 101(e)(5))



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))



*Buried military munitions*

- DMM may have resulted from –
  - ◆ Unauthorized disposal
  - ◆ Past practice of waste burial
  - ◆ Incomplete or improper disposal



# 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)(3))

- 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 –
  - ◆ Unexploded ordnance, as defined in 10 USC § 101(e)(5)
  - ◆ Discarded military munitions, as defined in 10 USC § 2710(e)(2)
  - ◆ Munitions constituents (e.g., TNT, RDX), as defined in 10 USC § 2710(e)(3), present in high enough concentrations to pose an explosive hazard
- 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 is 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 MRSs 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



# Munitions Response

- The process for addressing UXO, DMM, and MC is a munitions response
- Munitions response means response actions, including investigation, removal actions, and remedial actions, to address the explosives safety, human health, or environmental risks presented by UXO, DMM, or MC, or to support a determination that no removal or remedial action is required

– (32 CFR 179.3)



*Munitions response action - investigation (geophysical mapping)*



# Protocol as a Rule

- The Protocol was published as a rule on October 5, 2005 (70 *FR* 58016), codified at 32 CFR Part 179
- The Protocol is the methodology developed by DoD to assign a relative priority to defense sites known or suspected of containing UXO, DMM, or MC
- The risk posed by potential hazards present at an MRS are captured through the Protocol's central feature, three hazard evaluation modules:
  - ◆ Explosive Hazard Evaluation (EHE) Module
  - ◆ CWM Hazard Evaluation (CHE) Module
  - ◆ Health Hazard Evaluation (HHE) Module
- The Protocol prescribes procedures for prioritizing the MRSs and general Component responsibilities



# Applicable Locations

- The Protocol is applied to MRSs that are included in DoD's inventory of defense sites
- Defense sites –
  - ◆ Locations that are or were owned by, leased to, or otherwise possessed or used by the Department
  - ◆ The term 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))



*Defense sites*



# Non-Applicable Locations

- Locations that are not, or were not, owned by, leased to, or otherwise possessed or used by the Department
- 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)



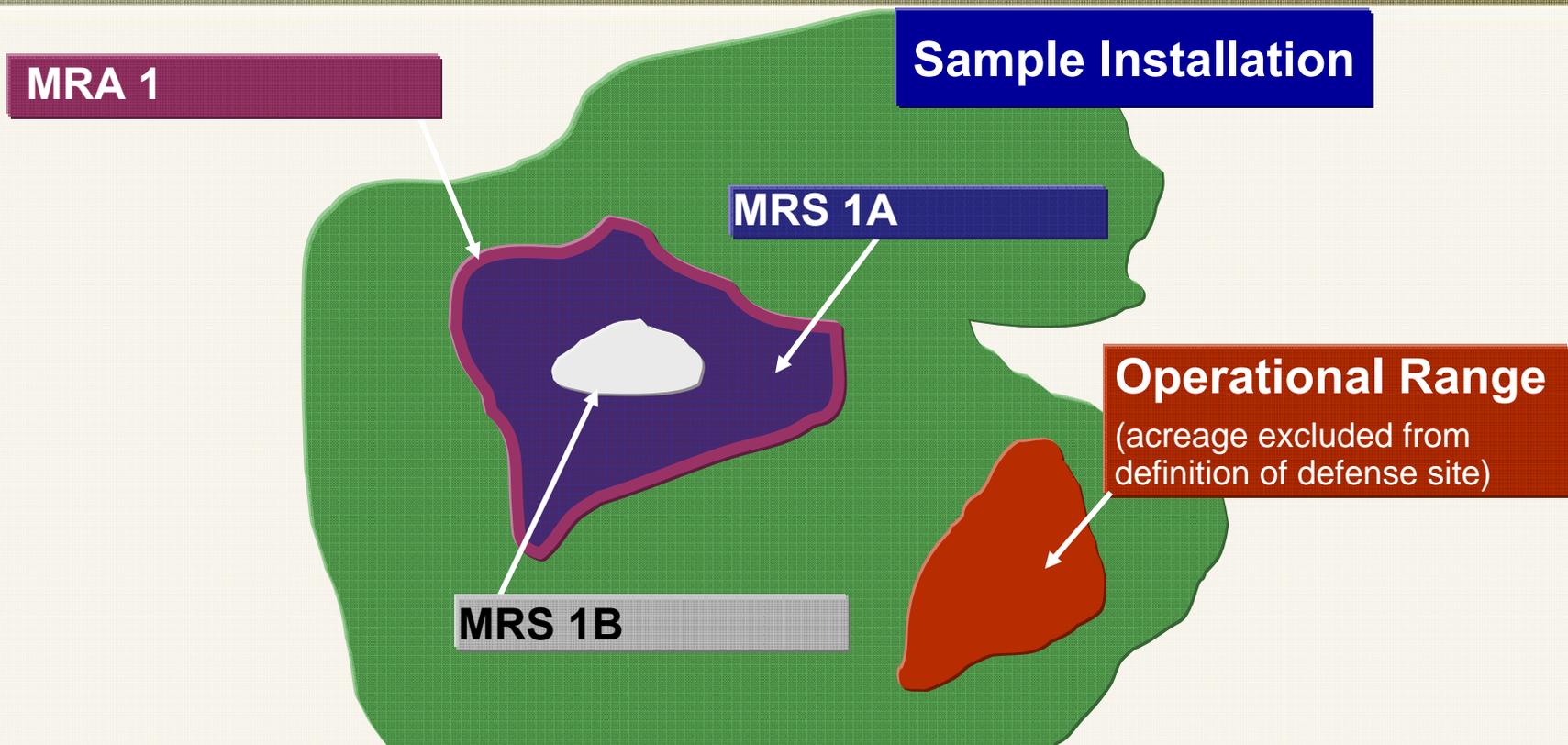
# Applicable Locations – MRA and MRS

- The Protocol assigns a relative priority to each location in DoD's inventory of defense sites
- DoD developed two new terms to describe defense sites subject to the Protocol –
  - ◆ Munitions response area (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
    - A discrete location within an MRA that is known to require a munitions response
    - Subdividing an MRA into multiple MRSs allows better characterization of each MRS and tailoring munitions responses to address specific hazards and end uses
- The Protocol is applied at the MRS level

– (32 CFR 179.3)



# Location Scenarios



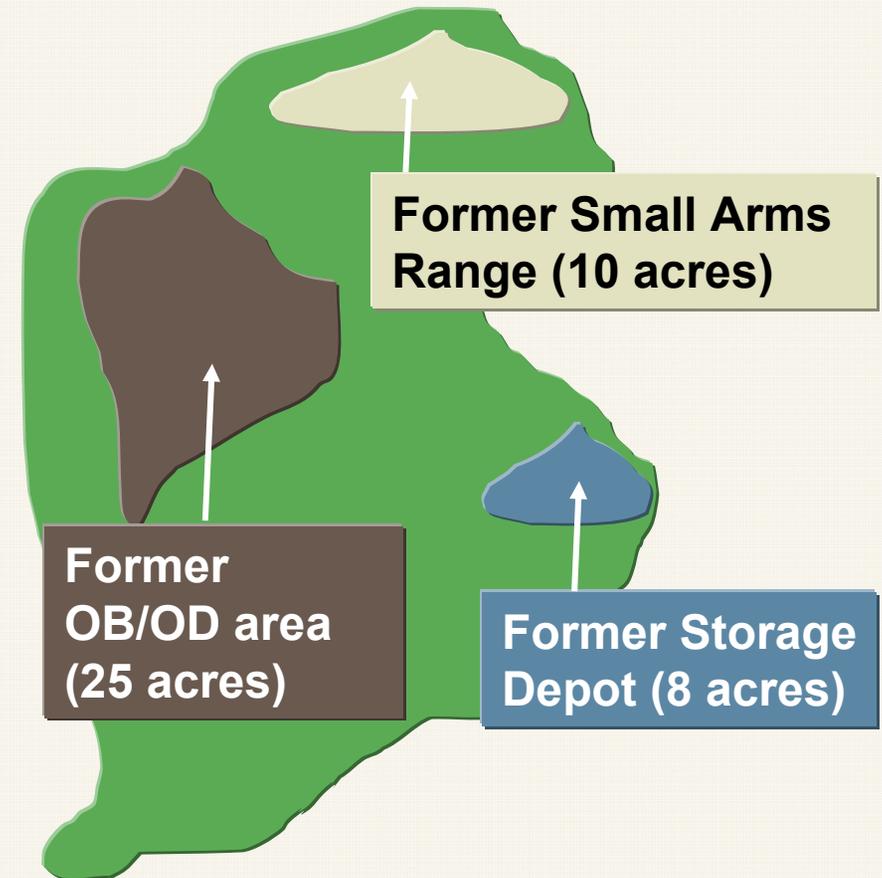
For a subdivided MRA, the sum of all MRSs must equal the total acreage (area) of the MRA ( $\Sigma$  acreage of all MRSs = acreage of MRA)



# MRA Example

- During the record search for identifying defense sites at Camp Swampy, white phosphorus munitions, smoke grenades, demolition charges, and small arms ammunition were identified
- After further record searches and visual inspection, these items were found in several locations: a 25-acre OB/OD area, a 10-acre small arms range, and an 8-acre storage depot
- The total area of the Camp Swampy MRA is 100 acres

## Example MRA 1



How many MRSs would you identify?

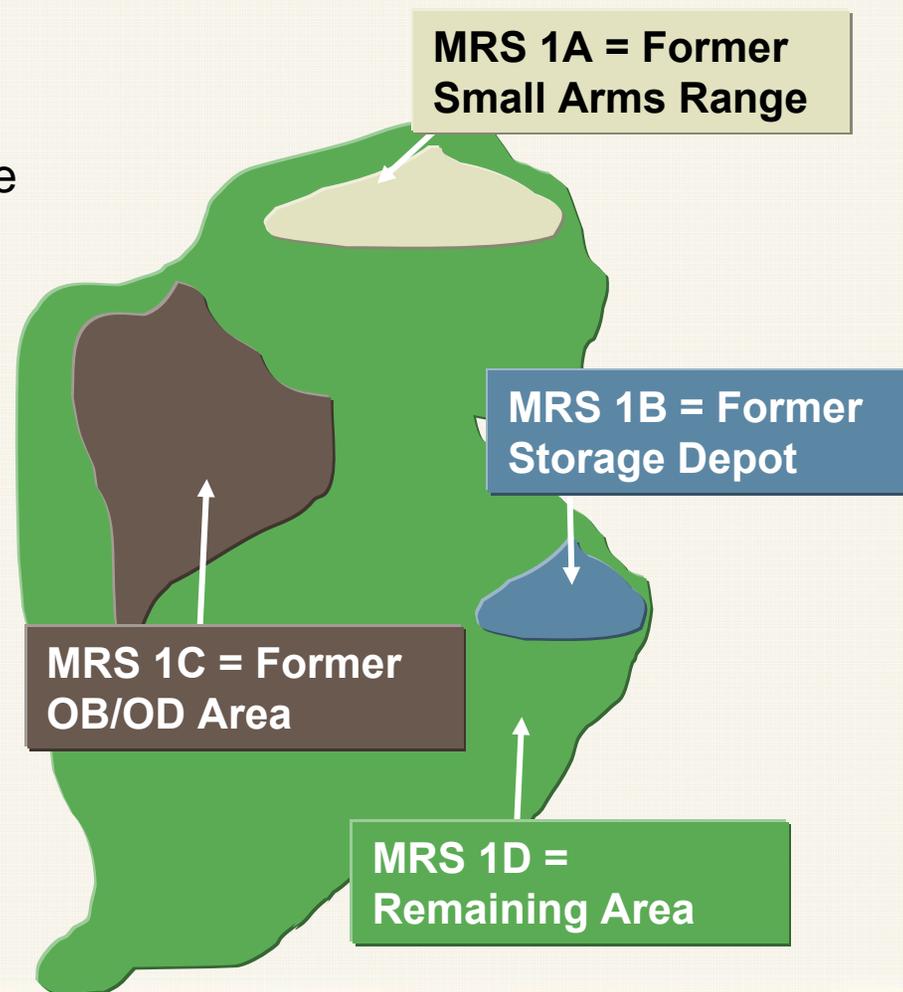
What is the acreage of each MRS?



# MRA Results

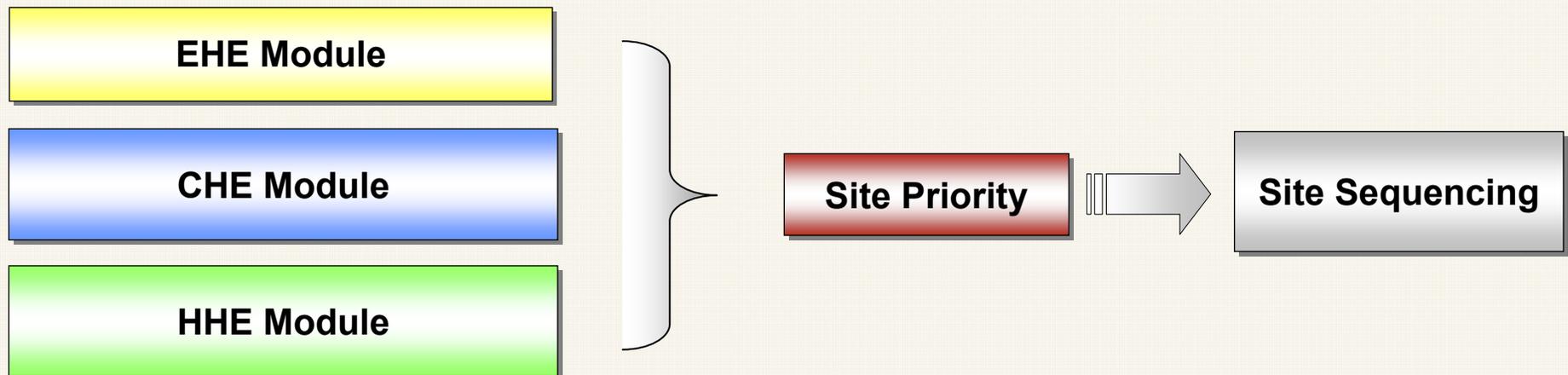
## Four MRSs have been identified within the example MRA

- This 100-acre MRA1 contains –
  - ◆ MRS 1A – Former Small Arms Range (10 acres)
  - ◆ MRS 1B – Former Storage Depot (8 acres)
  - ◆ MRS 1C – Former OB/OD Site (25 acres)
  - ◆ MRS 1D – Remaining Area (57 acres)
- Each MRS will be evaluated to develop MRS-specific data to –
  - ◆ Characterize any hazard present
  - ◆ Design an appropriate munitions response



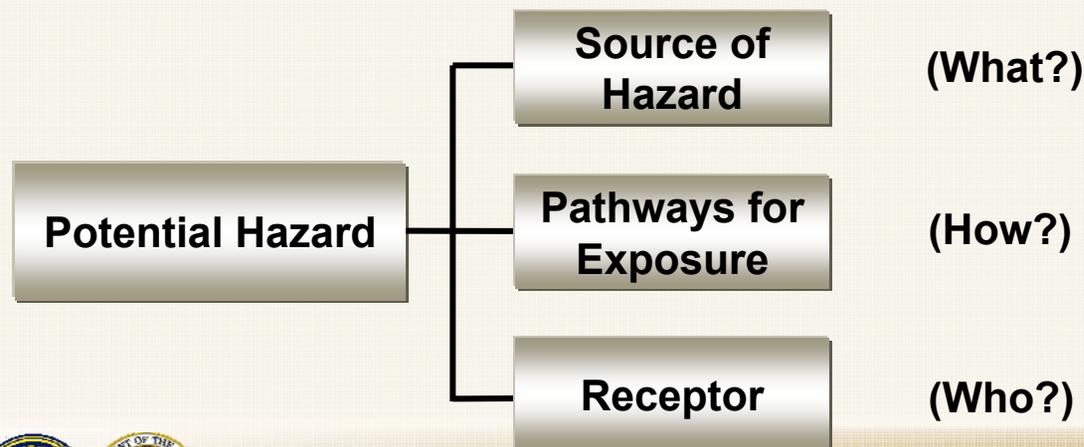
# Protocol Structure – Modules

- The EHE Module addresses explosive hazards posed by MEC (UXO, DMM, and MC in high enough concentrations to pose an explosive hazard)
- The CHE Module addresses chemical hazards associated with the effects of CWM
- The HHE Module addresses chronic health and environmental hazards posed by MC and incidental nonmunitions-related contaminants



# Protocol Structure – Factors

- Each hazard evaluation module (EHE, CHE, HHE) has three categories of information, called factors, used to derive each module's outcome
  - ◆ *Hazard or Contaminant* – What are the potential hazards?
  - ◆ *Accessibility or Migration Pathway* – How might the hazard be encountered?
  - ◆ *Receptor* – Who may be affected by the hazard?
- This structure is important as it limits the influence of any one of the three factors on the outcome



# Protocol Structure – Data Elements

- Each factor is comprised of multiple data elements that use MRS-specific information to evaluate potential hazards
- Data elements were chosen based on characteristics deemed important by the DoD workgroup and interested stakeholders
  - ◆ Essential for characterization of an MRS's condition
  - ◆ Easily collected during the early phases of the CERCLA process
  - ◆ Provide consistent, repeatable, and supportable results for assigning each MRS a relative priority
- Each data element contains a range of classifications and values to evaluate the conditions at an MRS



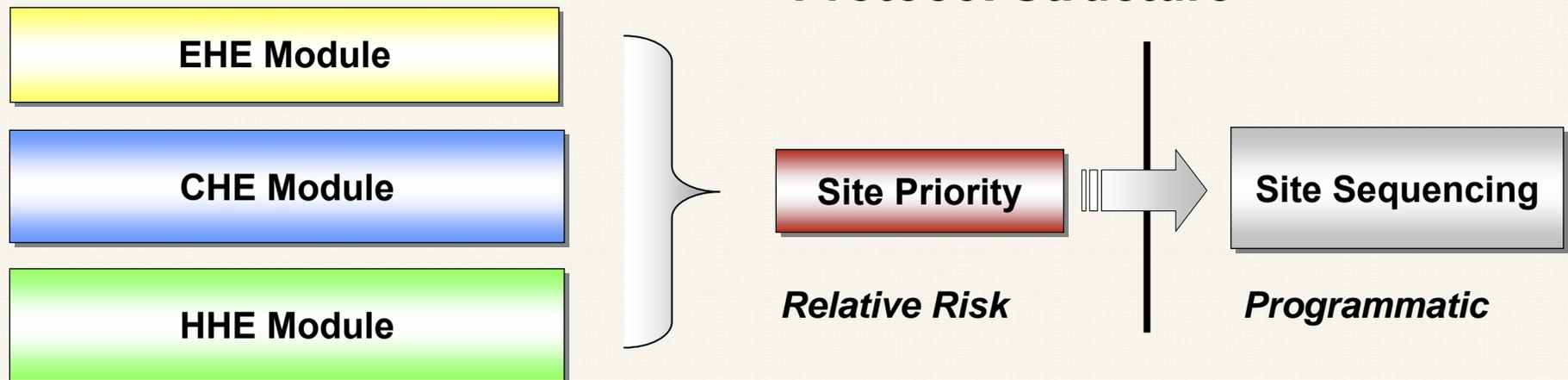
# Determining the MRS Priority

- Project Teams use available MRS-specific data for each data element to score each of the three modules
- At least one module must be completed to assign an MRS a relative priority
- The evaluations from all three modules are used to determine the MRS Priority
- The three module ratings are independent (i.e., they are not added together)
- MRSs are assigned one of eight numerical priorities (1-8) or to one of the three alternative ratings below –
  - ◆ Evaluation Pending
  - ◆ No Longer Required
  - ◆ No Known or Suspected Hazard
- The MRS Priority is based on the module with the greatest potential hazard



# Sequencing the MRS

- After the MRS Priority or Alternative MRS Rating is determined, the Components will sequence the MRS for response action
- The sequencing of an MRS is based primarily on the MRS's relative priority. As a matter of DoD policy, an MRS with higher relative risks will be addressed before an MRS with lower relative risks
- DoD does recognize that other factors (e.g., environmental justice, economic development, programmatic) could influence sequencing decisions



# Additional Requirements

- Following application of the Protocol and determination of a relative priority for an MRS, Components will –
  - ◆ Consider other factors in determining MRS sequencing
  - ◆ Perform quality assurance review
  - ◆ Document the prioritization process
  - ◆ Review and report the priority to the Office of the Deputy Under Secretary of Defense (Installations & Environment) (ODUSD(I&E))
  - ◆ Reapply the Protocol at least annually or as required
- These requirements are mandatory, established as part of the Protocol (codified at 32 CFR Part 179)



# Performance Goals

- DoD has developed several near-term performance goals –
  - ◆ Complete preliminary assessments for all MMRP sites at active installations and FUDS properties by the end of FY 2007
  - ◆ Finalize site inspections for all MMRP sites at active installations and FUDS properties by the end of FY 2010
  - ◆ Achieve Remedy In Place/Response Complete at all MMRP sites identified in the first four BRAC rounds by the end of FY 2009
- DoD will continue to develop program goals and performance metrics as MRSs are prioritized and munitions response actions are sequenced



# Introduction to the Protocol

## Questions?

