

# **Munitions and Explosives of Concern Hazard Assessment (MEC HA) Initiative**

October 2004

Site Specific Tool

You will hear this theme a lot

Much like the Hazard Ranking Score & Human Health Risk Assessment, the Munitions Response Site Prioritization Protocol and the Munitions and Explosives of Concern Hazard Assessment can serve analogous purposes when it comes to explosive hazards at a site.

## **Purpose of this Briefing**

- Discuss the participants, progress, and process
- Discuss the purpose of the MEC HA Initiative
- Discuss next steps and outreach

Overview Slide

Also talk to MRSPP – the MEC HA is meant to complement the protocol

The MEC HA will provide more sensitivity for site-specific evaluations and decision making.

## **MEC HA Work Group Participants**

- EPA
- DOD
- DOI
- ASTSWMO
- TASWER

6 month outreach program before work group kick off in Spring 2004. Solicitation of interest at December 2003 USACE Stand Down; 2004 UXO Forum; through presentations to munitions response committee and others.

Work group kept small in order to maintain focus. Also, experience has shown that large work group generally are not as efficient as smaller groups.

Participants – act as conduits to organizations to bring back progress reports, seek feedback on specific topics.

# Work Group Progress

- Issue Papers
- Framework Papers
- Outreach Plan

Quick background information.

Issue papers = Program level considerations [e.g. review of existing risk methods; role of uncertainty; 9 Criteria analysis of alternatives; etc]

Framework papers = Technical level considerations [ input & output factors; role in decision making; MEC-HA MRSPP comparisons]

Outreach plan – more on this at the end of the presentation.

FFRRO will stand up a website in October with all work group materials. You will find a lot more info than I can hope to cover in an overview briefing

## Work Group Underlying Principles:

- Support the management of uncertainty
- Support early decision making
- Connection to the Conceptual Site Model
- Communication with stakeholders.
- Utilize a relative hazard assessment approach
- Rely on process factors compatible with the Munitions Response Site Prioritization Protocol

Next three slides will cover these common themes and how the work group has looked at them.

Uncertainty will be explicitly addressed and managed throughout the MEC HA process. How much info is needed to make a decision and when?

The MEC HA process will be designed to support decision-making at the earliest time that sufficient information becomes available. This principle of acting when sufficient data are available, and of not collecting data just for the purpose of updating a hazard assessment, will carry forward through the guidance document. The guidance document will provide criteria to identify when reassessment is appropriate and when it may not be appropriate.

The CSM is directly linked to the MEC-HA and provides the key inputs to the assessment.

Present these issues in transparent ways understandable to non-technical stakeholders

Rely on a combination of qualitative and quantitative input factors that will result in a qualitative output

Probabilistic methods not used

The MEC HA structure is being designed to be compatible with MRSPP.

## What is the Purpose of MEC HA ?

- Site-specific assessment methodology
- Consistent data organization
- Meet CERCLA & NCP requirements
- Consistent evaluations of removal and remedial actions
- Consistent decision making

A MEC HA is required as there is no widely accepted guidance for the site-specific assessment and management process for explosive hazards at munitions response sites.

Consistent data organization to meet DQO's, support consistency in scoping and execution of site activities.

Project teams are faced with choices of using existing methods that have limitations (e.g. Ordnance and Explosives Risk Impact Assessment); deciding to not use a hazard assessment framework; or developing their own site-specific methodology.

CERCLA & NCP requirements for risk assessments, 9 criteria analysis, compare contrast remedial and/or removal alternatives.

The outcome of working with an accepted, consistent framework can streamline evaluations and decision-making, and decisions, and provide the documentation necessary to support and defend them.

## What will the MEC HA Provide ?

- Consistent framework for developing a site-specific hazard assessment
- Assistance in managing uncertainty
- Evaluation of hazard management choices - response actions
- Facilitates site-specific land use decisions
- Supports hazard communication
- Build confidence in decision making process

•**Provide a consistent framework.** The development and application of a consistent framework for MEC HA will allow project teams to organize and communicate information systematically. It ensures that project teams in different parts of the country have a similar understanding of hazards and should make similar hazard management decisions for similar site situations.

•**Assist project teams to manage uncertainty.** Site-specific hazard assessment guidance will provide a consistent framework for evaluating site explosive hazard, and can also be used to identify when sufficient quantity and quality of information is available to make management decisions supporting no action, removal, or remedial decisions.

•**Focus attention on hazard management choices.** Project teams can use a site specific hazard assessment to evaluate approaches to cleanup to support future land uses and assess the impact of those approaches in the decision making process.

•**Ensure continuity of hazard management evaluations and decisions.** When a consistent, accepted framework is in use, decisions for a munitions response site are more likely to continue to be supported when the project team changes, such as when new staff and contractors, and new stakeholders become involved.

## **Relationship Between the MEC HA and the MRSPP**

- Programmatic Goals
- Site Specific Evaluations
- Site Specific Decisions

MRSPP – national priorities between sites

MEC-HA – site specific evaluations of removal and response actions.

- more sensitive to land use decisions
- more sensitive to 9 criteria analysis
- technical tool.



## MEC HA Model

- The functional relationships addressed in the MEC HA are:
- Severity: The potential severity of the result should an MEC item function.
- Accessibility: The likelihood that a receptor will be able to interact with an MEC item.
- Sensitivity: The likelihood that an MEC item will function should a receptor interact with it.

The next few minutes and slides I will talk about the framework we are developing and its relationship to Conceptual Site Model (CSM).

This is where we shift gears. We are working with a framework to get more to cause and effect issues. As a result, the starting point for organizing the major elements of the framework look different, and are specifically designed to try to better capture the acute nature of interactions between people and MEC.

This structural organization is somewhat analogous to the Relative Risk Site Evaluation module where the structure for it is cross-linked between the Contaminant Hazard Factor, Migration Pathway Factor, and Receptor Factor to the CSM.

The framework of an MEC HA can be described by specifying its input factors, its structure (the way in which the input factors are weighted and combined), and the nature of its output.

## Relationship to Conceptual Site Model (CSM)

- Each of the traditional components of the CSM (source, pathways receptors) are addressed by the components of the MEC HA
- Organization of the MEC HA in accordance with the Hazard Assessment functions
  - Recognizes the fundamental differences from traditional risk assessment
  - Focuses on the functions of the MEC HA

However, the traditional Hazardous and Toxic Waste (HTW) organization does not reflect the understanding that a MEC HA is fundamentally different from traditional chemical risk assessment. This is due to the fact that for MEC the effects are acute and immediate, whereas for traditional chemical risk assessment, chronic effects are evaluated. Therefore, the description of the functional relationships between input factors will differ from the traditional “source, pathway, receptor” organization. The functional relationships addressed in the MEC HA are:

- Severity: The potential severity of the result should an MEC item function.
- Accessibility: The likelihood that a receptor will be able to interact with an MEC item.
- Sensitivity: The likelihood that an MEC item will function should a receptor interact with it.

•The following table compares the two different concepts and builds the relationship between the two concepts.

Explosive Hazard Component	Input Factor	Relationship to CSM Categories
<b>Severity</b>	Type of Filler	<b>Source Pathway</b>
	Amount of Filler	
	Proximately to Inhabited Building or commonly used public facilities	
	Proximately to Critical Infrastructure, Cultural or Ecological Resources	
<b>Accessibility</b>	Site Accessibility	<b>Pathway Receptor</b>
	Frequency of Entry	
	Amount of MEC	
	Minimum MEC Depth/Maximum Intrusive Depth	
	Migration Potential	
<b>Sensitivity</b>	MEC Category	<b>Source Receptor</b>
	Fuzing Sensitivity	
	MEC Portability	
	Intensity of Activity	

For several of the input factors from the table above (Filler Type, Filler Amount and MEC Portability), a lookup table (pick list) based on standard munitions classifications will be developed as a user tool to facilitate use of the hazard assessment and promote consistency.

Focus data collection on only what is needed to make remediation decisions

CSM & HA have different purposes. The CSM is a tool to organize site information for multiple purposes. The HA is inform remediation decisions in terms of evaluating different response actions, as well as the impacts of different land uses.

## Hazard Assessment Structure

- The structure encompasses scoring, weighting and combining input factors and will use a relative numeric approach, similar to the approach used in the EHE module of the MRSPP.
- The organization of the structure will follow the severity, accessibility and sensitivity components.

In summary, we are looking at these principles, model, and linkages to develop and test a structure to see if it will provide a level of sensitivity, transparency, and reproducibility to help with site-specific evaluations and decision making.

The relative numeric approach provides greater flexibility in the identification and definition of these categories, assists in prioritizing sites, and supports reclassification of the hazard of a site based on new information or changes in conditions at the site.

The hazard assessment structure encompasses the methods used to score, weight and combine the input factors. The methods used to score, weight and combine input factors will use a relative numeric approach, similar to the approach used in the EHE module. The organization of the structure will follow the severity, accessibility and sensitivity components describe in the previous chart.

## Outreach Plan

- The Outreach Plan will include:
  - Involvement with the Munitions Response Committee (MRC). October 2004 Briefing
  - Identification of Opportunities for Stakeholder Involvement.
  - Establishment of a schedule for informational briefings.
  - Identification of outlets such as websites, fact sheets and mailing lists.
  - [www.epa.gov/fedfac](http://www.epa.gov/fedfac) in October 2004

Outreach is a critical component to developing wider stakeholder involvement with and buy-in to the process. The plan will detail activities and outreach opportunities over the course of the development and implementation of the MEC HA. The outreach plan will include:

- Involvement and buy-in by the Munitions Response Committee (MRC).
- Identification of opportunities for stakeholder involvement. The work group has asked Lenny Seigel for assistance in identifying these kind of opportunities.
- Establishment of a schedule for informational briefings.
- Munitions Response Committee October 2004
- ASTSWMO November 2004
- Federal Facilities Leadership Council January 2005

Identification of outlets such as websites, fact sheets and mailing lists.

## Next Steps

- Finalize Outreach Plan
- Brief MRC
- Stand Up FFRRO web site  
[www.epa.gov/fedfac](http://www.epa.gov/fedfac)
- Brief ASTSWMO
- Complete Draft Framework review
- Pilot Test Framework
- Issue Framework for Public Comment (Winter, 2004-2005)
- Draft Guidance in Spring 2005

Talk to the slide

## Questions ?

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Has this presentation answered any questions you had before listening to this ?

Is the TWG-HA on the right track ?

Feedback on the presentation itself.