

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

October 2004



MRC HA is under development for use as site specific tool.

You will hear this theme a lot

Much like the Hazard Ranking Score (HRS) & Human Health Risk Assessment, the Munitions Response Site Prioritization Protocol (MRSP) and the Munitions and Explosives of Concern Hazard Assessment (MEC HA) can serve analogous purposes. The HRS and the MRSP serve as national prioritization tools. The human health risk assessment serves as a tool for making site-specific risk-based evaluations, including evaluation of response actions. The MEC HA development is being approach in a similar manner. That is to develop a tool to help with site-specific evaluations.

Purpose of this Briefing

- Overview – Why a MEC HA?
- Discuss the participants, progress, and process
- Discuss the purpose of the MEC HA initiative
- Discuss next steps and outreach

Talk to the slide

Why a MEC HA ?

- CERCLA & NCP require “**risk assessment**”
- Traditional risk assessment methods not applicable to MEC hazards
- Need for consistent method under CERCLA for MEC response actions
- **Emphasis** for EE/CA, RI/FS analysis to support remedy selection

The MEC HA is being developed to “fill in the box” in the CERCLA process for “risk assessment” under the National Contingency Plan for MEC sites response actions.

Talk to slide

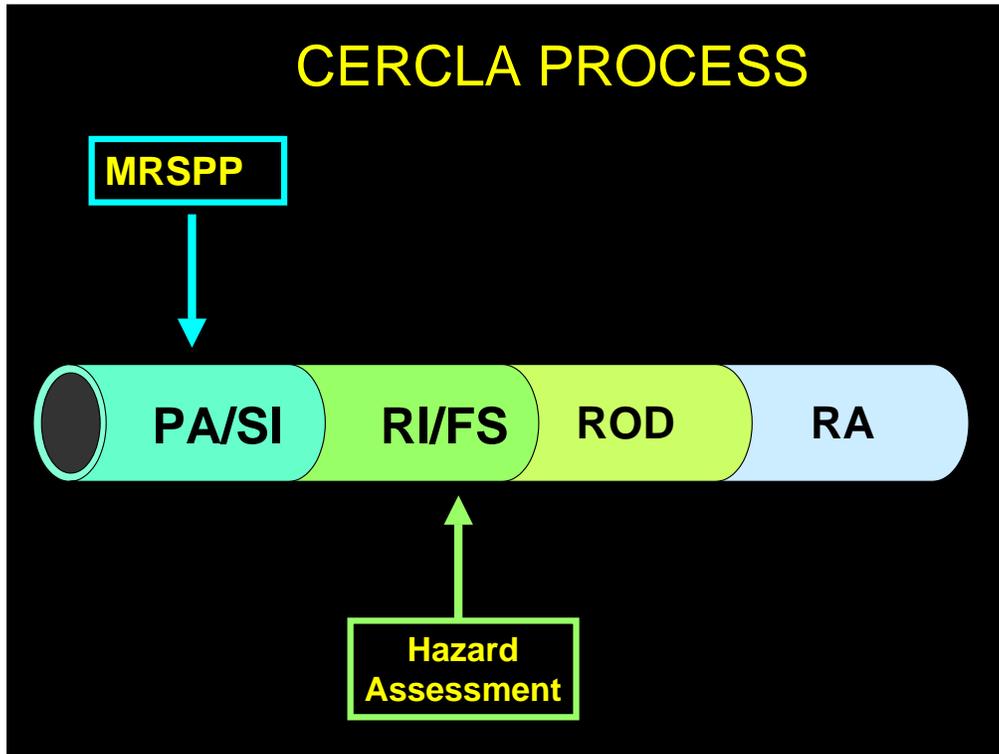
Relationship Between the MEC HA and the MRSPP

- MRSPP Supports Programmatic Goals
 - *Funding Priorities for Munitions Response*
- MEC HA Supports Site Specific Decisions
 - *Removal & Remedial Actions*
 - *Land Use Options*

MRSPP – national priorities between munitions sites based on relative risks and “Other Factors”.

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

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



MRSPP and MEC HA serve two different functions

MRSPP applied primarily at PA/SI step for relative ranking for priorities.

MEC HA applied primarily at Feasibility Study step to support 9 criteria analysis and remedy selection.

MEC HA under development to be more sensitive to different land uses, comparative analysis of alternatives, relative risk reduction between response action alternatives.

Work Group Underlying Principles

- Support the management of uncertainty
- Connection to the Conceptual Site Model
- Utilize a relative hazard assessment approach

Next two 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. Probabilistic methods not used. Too complex, difficult for non-technical participants.

Rely on a combination of qualitative and quantitative input factors that will result in a qualitative output. The MEC HA structure is being designed to be compatible with MRSPP.

Work Group Underlying Principles (cont.)

- Rely on process factors compatible with the MRSPP
- Support early decision making
- Support communication with stakeholders.

Next two 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. Probabilistic methods not used. Too complex, difficult for non-technical participants.

Rely on a combination of qualitative and quantitative input factors that will result in a qualitative output. The MEC HA structure is being designed to be compatible with MRSPP.

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 groups 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 info

Issue papers = Program level considerations [e.g. review of existing risk methods; 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 brief

Issue Papers

- Review of Existing Methods
- Purpose of MEC HA
- Role of Uncertainty
- Probabilistic Risk
- Input Factors
- Analysis of Response Alternatives
- MEC HA as Communication Tool

Talk to the slide

The complete papers will be posted on the EPA website listed later in this presentation.

Framework Papers

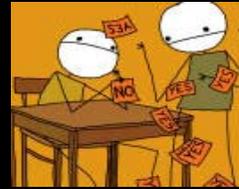
- Performance Objectives
- Comparison of MRSPP to MEC HA
- Input Factors
- Structure and Output
- MEC HA in the CERCLA Process

Talk to the slide.

The complete papers will be posted on the EPA website listed later in this presentation.

What is the Purpose of MEC HA ?

- Site-specific hazard assessment methodology
- 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
- Facilitate site-specific land use decisions

•**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.

What will the MEC HA Provide ? (cont.)

- Evaluation of hazard management choices – response actions
- Support 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.

MEC HA Structure

- Includes scoring, weighting, and combining input factors
- 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.

MEC HA Structure (cont.)

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 MRSP Relative Risk Site Evaluation module where the structure for it is cross-linked between the Contaminant Hazard Factor, Migration Potential 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)

- The CSM components (source, pathways, receptors) are addressed by the MEC HA
- MEC HA organization follows the Hazard Assessment functions
 - Recognizes the fundamental differences from human health risk assessment
 - Focus 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	Recommended Input Factor	CSM Based Input Factor Category
Potential severity of the impact should an MEC item function.	Type of filler	Source
	Amount of filler	Source
	Proximity to Inhabited Buildings or Commonly Used Public Facilities	Pathway
	Proximity to Critical Infrastructure, Cultural Resources, or Ecological Resources	Pathway
Likelihood that a receptor can interact with an MEC item	Site accessibility	Pathway
	Frequency of entry	Receptor
	Amount of MEC	Receptor
	Minimum MEC depth/Maximum intrusive depth	Pathway/ Receptor
	Migration potential	Pathway
Likelihood that item will function should receptor interaction occur	MEC Category	Source
	Fuzing sensitivity	Source
	MEC portability	Receptor
	Intensity of Activity	Receptor

Talk to slide.

Take home message is there are logical, consistent linkages between CSM categories, the input factors, and the explosive hazard components.

Outreach Plan

- The Outreach Plan will include:
 - Munitions Response Committee involvement
 - Opportunities for Stakeholder involvement.
 - Schedule for informational briefings.
 - Identification of outlets such as websites, fact sheets and mailing lists.
 - 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 TWG 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
- Stand Up MEC HA web site
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 ?

Kevin Oates
334-270-3427
oates.kevin@epa.gov

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.