

**Hazard Assessment for Munitions and Explosives of Concern
Workgroup Meeting
Versar Offices, Springfield, VA
May 4-5, 2004**

ATTENDEES:

Kevin Oates, EPA	Dick Wright, Mitretek
Doug Maddox, EPA	Vic Weiszek, DoD
Dania Rodriguez, ASTSWMO	Laura Wrench, Versar, Inc.
Jennifer Roberts, State of Alaska	Clem Rastatter, Versar, Inc.
Clarence Smith, State of Illinois	Norrell Lantzer, Versar, Inc.
Rich Henry, DOI, FWS	Holly Riester, Versar, Inc.
Andrea McLaughlin, DOI	

INTRODUCTION AND OPENING REMARKS

The meeting began at 8:30 AM, with introductions and opening remarks. Kevin Oates outlined the agenda and the steps envisioned to develop Hazard Assessment Guidance for Munitions and Explosives of Concern (HA MEC).

Kevin reviewed the nature and purpose of this working group. This is a technical working group appointed by an Executive Committee convened by the Federal Facilities Restoration and Reuse Office to achieve the objectives established in the invitation letter. The Executive Committee is made up of senior management from each participating agency or organization – EPA, Department of Defense, Association of State and Territorial Solid Waste Management Officials (ASTSWMO), Tribal Association of Solid Waste and Emergency Response (TSWER) and the Department of Interior. It will be the role of the technical group to develop a strawman framework for an approach to hazard assessment, and present it to the Executive Committee. The Executive Committee will resolve issues presented by the technical group, and approve the strawman framework prior to its release to the public for the review.

Kevin presented an overview of the process that is envisioned by EPA. He suggested that the first step is to develop a preliminary strawman document to be reviewed by the executive group and then further distributed for widespread review by various stakeholders. After receiving input and suggestions on the general structure and approach as presented in the strawman, the working group would then reconvene and develop a guidance consensus document.

This first meeting is a technical brainstorming session from which will be developed an annotated outline on which to base the strawman. Kevin suggest the goal is to have the strawman ready for the executive group within three to six months and an overall target of 12-18 months for a final product. Both the initial strawman and the draft guidance will go out for widespread public review.

A number of questions were raised concerning the review process within organizations participating in the workgroup during strawman development. Kevin answered that the workgroup participants would need to make the decision about how to involve other parts of their organizations—whether that is throughout the process, or bringing them in at the end, or at key points along the way. The ASTSWMO representatives indicated a need to keep their BRAC committee in the review loop as well as their board of directors. Vic Wieszek had a question about how this process (Hazard Assessment for MEC) was related to the Munitions Response Committee. Kevin explained that this group would bring its' products to the MRC for review and comment. Furthermore, several of the work group members are also members of the MRC.

There was discussion about how the final product would be completed and adopted by the different agencies. The discussion pointed out that there are a variety of models for how this could be accomplished. The Intergovernmental Data Quality Task Force (comprised of EPA, DoD and DOE) has released joint quality system standards with a letter signed by all three agencies. All three agency logos are on the cover of the document, along with the separate three agency publication numbers. In another model, EPA could release the document, with the endorsement of the participating agencies.

The question was raised as to whether the draft and final document would be published in the Federal Register. Kevin indicated that Federal Register publication is generally reserved for rule making actions or other significant events with legal ramifications. Doug pointed out that FFRRO typically puts documents for which it is seeking comment on its' web site. Since the document is a guidance document, publication in the Federal Register is not required, and may not be the most effective way to get stakeholder comment. The group agreed that it is important to involve the public in the discussion of the content, however how that is done will be determined later.

There was discussion about why more organizations were not involved in this initial effort. Several responses were offered. First, it would be difficult to keep the group to an effective working level if more groups are involved. The plan is to quickly develop a strawman, and to release it for comment at the earliest time. Second, in expanding the group to include public members, it would be difficult to determine who to invite.

AGENDA REVIEW AND GROUNDRULES

Clem reviewed the idea of consensus—what it is and how it works—and how the meeting would proceed. Each person will be asked whether they are in consensus with (“like”) a decision, whether they can live with a decision, or whether they don't agree. If all either agree or can live with the decision, then the group is in consensus. In giving consensus we recognize that the consensus given is as individuals. While the participants represent their organizations (and reflect their concerns) they cannot speak for their organization. However by giving consensus the individuals in the workgroup are committed to trying to sell the workgroup product.

There may be issues for which no consensus is possible, or for which the group wishes to seek the advise of the Executive Committee. In these instances, the group will present the issue in debate, or options, to the Executive Committee for resolution.

Ground Rules:

The group discussed and came to consensus on ground rules for their meetings and work together.

- The workgroup will conduct business by consensus.
- Toward the end of meetings, the group will discuss and clearly determine next steps, responsibilities and calendar (i.e. upcoming dates for tasks, conference calls and meetings).
- Cell phones off.
- Workgroup members will participate fully and speak up to be heard
- Consideration will be given to all to have a chance to speak their mind.

OVERVIEW AND SUMMARY OF ISSUES:

Kevin reviewed the framework for the discussion (see attachment) and the approach that will be used in discussions and developing the strawman. After going over each issue identified in the road ahead, Kevin organized these into four framework issues that will guide the discussion:

- What is the purpose of the hazard assessment for MEC? (e.g., baseline, alternatives analysis, action/no action)?
- What are the implications of the purposes that we want the framework to serve? (Sub-issues include level of consistency, communication with the public, independent analysis of hazard through probability estimate, level of discernment required between sites).
- Given the decisions on previous questions, what input factors should be included in the HA MEC? (e.g. for source/inherent hazard, pathway, receptors).
- Should we use the term “hazard assessment” in place of “risk assessment” to signal the differences between an assessment tool for MEC versus an assessment tool for hazardous and toxic waste (HTW)?

The group discussed the overall approach of what is to be developed and the reasons it may be needed. Kevin outlined three points as extremely important as a part of this discussion: the need to have consistency from site to site; the need to have the tool assist in making action/no action decisions and aid footprint reduction; and the need to have some trigger to go ahead with further investigation or cleanup (go/no-go decisions).

Additional Issues:

The group was asked to identify additional issues that go beyond the issues discussed in the read ahead, or issues that require special emphasis. Some of the issues identified included:

- Are we clear that there is a need for a national hazard assessment process?

- How will the hazard assessment be used? What will the output look like?
- Will this product take the place of the traditional RI/FS process under response alternatives?
- How will this fit into the NCP process? Will the HA MEC feed into the remedial investigation?
- Concern that the process not be unnecessarily data intensive such that it drives the expenditure of time and money on characterization that is unnecessary to make the required decisions.
- Whatever process is developed, we need to acknowledge that there will always be uncertainty and address how much uncertainty is acceptable.
- Communication with the public regarding the hazards of MEC. The HA MEC model needs to acknowledge that given the nature of the hazard, each community will define what combination of remedy is safe and acceptable.

Uncertainty

The workgroup focused initial attention on the uncertainty associated with understanding the hazard associated with MEC at the site. The inevitable uncertainty associated with any environmental investigation, plays a particularly important role in the management of MEC. In issue paper #3, on page C-15 there is a discussion of uncertainty. Members of the workgroup emphasized that it is very important to focus on the issue of uncertainty and acknowledge and highlight it. Clem pointed out that uncertainty is something that runs through most, if not all, of the topics that are presented for discussion. She suggested that the workgroup deal with it as they go through the individual topics to make it more concrete.

The workgroup discussed the fact that there needs to be a national dialogue on the acceptability of risk and addressing the hazards to the public etc. They emphasized that the hazard assessment process will not be able to use the term “acceptable risk” in the manner that it is used in chemical risk assessment. They emphasized the need for a national understanding that the risk of exposure to an MEC hazard can never be zero, even after cleanup has occurred. The workgroup agreed that it would be important to make an upfront acknowledgement of this fact in the HA MEC documents that will emerge from their efforts.

The group discussed a statement to go in introductions or other preliminary language of the document(s) on the degree of uncertainty and the need for institutional controls and/or land use controls (ICs, LUCs). Later in the meeting the group came to consensus on the wording of a statement that presupposes that MEC has been found, and that MEC cleanup of some sort has occurred.

CONSENSUS:

The following statement will be an up-front part of the introduction to the HA MEC guidance.

“Due to uncertainty there may be residual hazard at an MEC site where MEC removal has occurred. At most of these sites ICs/LUCs will be required. ICs/LUCs can range from a simple deed notification to a more stringent...”

ACTION ITEM:

It was agreed that Versar will fill in example ICs/LUCs to complete this statement.

Issues for Design of Hazard Assessment

The group proceeded to systematically discuss the framework issues outlined in Kevin’s presentation and in the read ahead package sent to workgroup members in advance of the meeting.

Framework Issue # 1: What is the purpose of Hazard Assessment for MEC?

Options:

- Baseline
- Action/No-action
- Evaluation of Alternatives
- Prioritization
- Communication

Discussion: Use as a Baseline Hazard Assessment and Making a No Action Decision

There was extensive discussion on the use of the HA MEC process to provide a baseline hazard assessment. Although the group agreed that the HA would provide an understanding of the hazards associated with the site in the absence of action, they felt it would not be valuable to establish a purpose of the hazard assessment as being one of providing for a baseline. The concerns expressed by the workgroup centered around the fact that a baseline risk assessment is a term of art that has come to mean a complex process in which a threshold of acceptable risk is calculated. For a hazard assessment the answer is much more simple—either an MEC hazard is present or it is not. The concern was that using a hazard assessment to establish a baseline would not add value, and could drive the hazard assessment toward more data collection than necessary.

Questions/Issues:

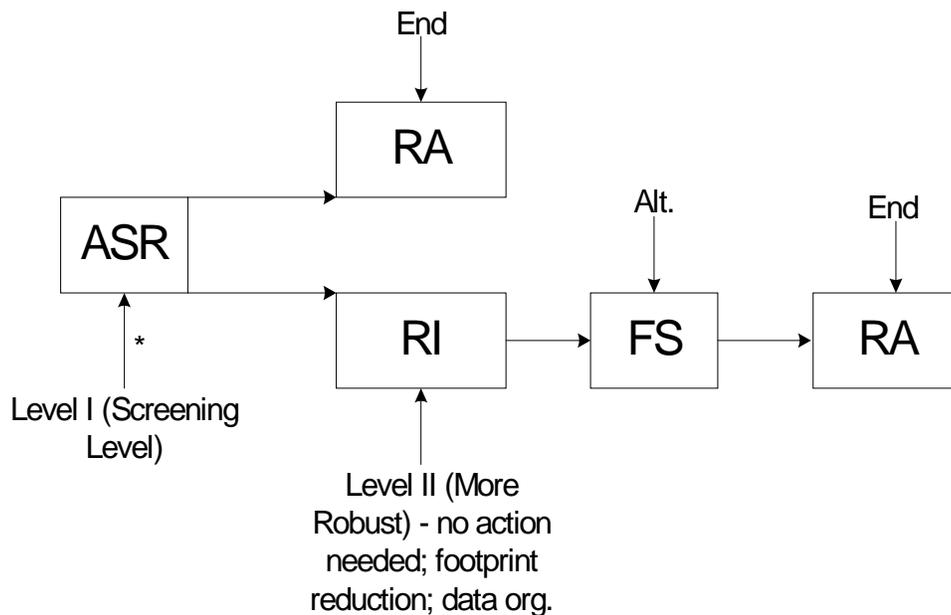
- The main concern for an HA MEC is whether or not MEC is present. The answer is a binary response – yes or no. If there is insufficient information to make this decision, then more information is collected until you can answer the question. A project team also could determine that the collection of more information is impracticable at a certain step, and then assume the answer is yes.
- The yes or no answer (and the resulting action or no-action decision) can come before the development of a hazard assessment. If it is determined that there is sufficient information to come to a no action decision, a hazard assessment may not be

necessary. If an action decision is required, a hazard assessment can be conducted at any point where there is sufficient information to evaluate the hazard.

- Confidently determining the absence of MEC is much more difficult than confirming the presence.
- Known or suspected areas are of the most concern. We need to focus efforts on the known or suspected areas.
- The hazard assessment should be an iterative process; as you get more information your assessment and conceptual site models should reflect this new information.
- This should be a step-wise process. More so than with a chemical Risk Assessment, at each stage the project team should ask the question, do I have enough information to feel the site is safe for its intended land use or to make a decision to take an action.

Kevin outlined a diagram that pointed out that a hazard assessment could be used at multiple points in the data collection process, and can take place earlier in the information collection process than a typical baseline risk assessment for chemicals. It can be a dynamic tool that changes with more data.

Role of HA MEC in CERCLA Process



* Arrows = Points where HA MEC may play a role.

Discussion: Other Purposes of a Hazard Assessment

There was immediate and general agreement that a significant purpose of the hazard assessment is communication with the public. This discussion once again emphasized the role of uncertainty. When a decision is made that a site is “clean” and no action is required (the Level 1 assessment in the Adak Island hazard assessment process was cited as an example), it is important to communicate to the public whether or not we are saying that clean includes a level of certainty that no bombs can be present.

Other issues discussed in association with the initiative include:

- How does this fit into the Munitions Response Site Prioritization Protocol (MRSPP)?
- We want to stay consistent with the MRSPP, but also set up a framework for site specific uses.
- Consistency in organizing data is extremely important and a hazard assessment process offers a way of supporting that consistency.
- An HA MEC can provide a framework for addressing sites where anecdotal information suggests that MEC is present. More information is needed to move to a yes or no decision, or to footprint reduction, at these sites. An “off-ramp” is needed.
- There is an acknowledged need to have the re-use discussions early in the planning process. However, the HA MEC could result in decisions to change the re-use decision as more data is gathered to support the Conceptual Site Model (CSM). Land use decisions may initially be made with little information and low funds. One use of HA MEC may be to facilitate a better understanding of the ability of management actions to support a re-use decision.
- It is important to acknowledge the differences between a hazard assessment and a risk assessment.

The group discussed the potential role of the CERCLA nine criteria in the HA MEC process. They felt that the HA MEC informs and is informed by the criteria. The HA MEC provides input to the nine criteria analysis. Once the nine criteria analysis of alternatives is complete the HA MEC can be used to examine the nature of the hazard after the response action.

Several members of the group expressed concern about whether the nine criteria are appropriate for the management of hazards associated with MEC. These members suggested that while the nine criteria are good for making chemical risk decisions, they might not be appropriate for hazard decisions. They pointed out that there is a limited group of actions you can take, and questioned whether there is a more efficient way to analyze alternatives than the nine criteria. They argued that with only a few remedies available (e.g. blow-in-place, consolidated detonation) that the real alternative analysis is the depth of the removal based on alternative remedial objectives. It was pointed out, however, that the nine criteria, and equivalent criteria under the removal program, are embedded in CERCLA regulation, and that it is not the role of this group to change the overarching regulatory process for CERCLA.

The group discussed the role of the HA MEC in prioritization, particularly at one location with multiple sites. The question was raised as to whether and why a site specific tool different from the MRSPP would be necessary. This issue requires further exploration.

CONSENSUS:

Consensus was reached on the purposes of the Hazard Assessment model to be developed as described below:

- Organize information in a consistent manner
- Consistent hazard communication
- To inform land use determinations
- To inform the evaluation of alternatives
- To build confidence in the decision-making process (takes us to a decision with all the associated elements).
- To inform a site-specific prioritization process.

Framework Issue #2: What are the implications of the purposes identified for the design of the HA MEC.

Four sub-issues were identified for discussion with regard to the implications of the purposes for the design of the hazard assessment.

Issue: Consistency:

The group discussed the options for gaining consistency in the process. Those options, as described in Issue paper #7, are:

- Option 1. The guidance presents a general framework for approaching a HA MEC, including input factors and a suggested process for interpreting data. It is left to the individual project teams (the “users”) to implement a process that meets the general requirements of the guidance at their sites.
- Option 2. The guidance is very specific as to the process and the rules for data interpretation, but it leaves the individual project teams with the decision of how best to organize and present the information.
- Option 3. The guidance not only specifies the process and the rules for data interpretation, it also includes detailed tools (e.g., tables to fill out using specific procedures) that support a consistent format in the development and presentation of information.

The group felt it very important to provide for some reproducibility of process and maintain consistency across sites and project teams. In addition, they felt that they should seek to encourage consistency of format by providing tools to aid the project team in implementing the HA MEC. The workgroup was concerned, however, that required formats and tools might cause an unproductive negative reaction. The workgroup decided to follow an approach midway between options 2 and 3.

CONSENSUS:

Consensus was reached that the guidance, when developed, will specify the process and rules for data interpretation, and will include detailed tools (e.g. fill in the blank tables) supporting a consistent format in the development and presentation of the information, but the use of these tools will be optional. The expectation is that it will be easier and more appealing for the project teams to use the tools than to go out and create their own tools.

Issue: To what extent is communication with the public a driver for the manner in which the framework is constructed?

The workgroup discussed the issue of communication again. In particular the question of whether communication is an overarching driver in the development of the framework, or whether, instead communication is an important goal, but one that may not drive every decision in the development of the HA MEC.

The group felt that communication is of great importance and of central concern, however that technical elements of the hazard assessment should not be sacrificed for ease of communication. Even if a particular technical decision may be difficult to communicate, the technical integrity must be maintained. However, the group further agreed that communication with stakeholders is so important that special attention should be paid to communicating any technically complex features of the hazard assessment.

Another way of putting it may be that communication may not influence the choice of inputs, but may influence the design of outputs. The hazard assessment process should be designed to support community input at various points in the process. Communication and dialogue are critical to public acceptance of the HA MEC and it must be designed to support that communication. On the other hand, if the science behind the guidance is not sound, then the communication won't matter.

CONSENSUS:

The group reached consensus that communication is a central concern of the HA MEC guidance. However, technical soundness of the guidance will not be sacrificed in order to ease communication. Instead, special attention will be paid to facilitating communication of technically complex issues.

Issue: To what degree should the HA MEC Guidance provide for an independent (site specific) estimate of the unique hazard of a particular site? (Use of probabilistic risk.)

The group discussed the issue of probabilistic risk and whether this guidance should include an absolute estimate (e.g., numeric value) of probabilistic risk. They came to consensus that it should not, for the following reasons:

- The hazard associated with MEC is binary – either yes or no. Unlike chemical risk assessment, there is no safe threshold for hazards posed by MEC.

- Human behavior (in this case the interaction between humans and the MEC) is beyond estimation.
- There is extreme difficulty in getting agreement on the degree of hazard associated with specific actions and activities.
- There are other options that can serve the purpose equally well.
- The level of complexity with an estimate of probabilistic risk would be prohibitive.
- The amount of data needed is excessive.
- An estimate of probabilistic risk is very difficult to communicate to the public.

CONSENSUS:

Hazards of munitions response sites will be relative to each other. The HA guidance will not attempt to establish a process for a probabilistic hazard assessment.

Issue: What level of discernment is required between sites?

This discussion centered around the following question:

What level of discernment is required to meet the purposes of the hazard assessment. Do the sites need to be compared to each other individually such that each site is seen in relationship to another, or can sites be categorized and compared in the relationship between categories (e.g. high, medium or low...or as in ADAK or Fort Ord, A,B,C,D,E).

Specifically, the question arose of whether it is important to be able to rank all the sites within a Munitions Response Area against each other, or whether grouping them into categories or bins were sufficient.

The group discussed whether there would be any utility to an absolute ranking between sites, and concluded that this approach would be data intensive and not add to the usefulness of the process. Sites with similar hazards could be grouped into categories.

CONSENSUS:

The group came to consensus on the use of bins for discernment between sites at one response area or facility. In addition, they emphasized that there can be a re-assessment of the hazard of a site (and potentially its' bin) based on new information or technical action. The group recommended that the guidance include criteria for when this re-assessment should take place.

Framework Issue # 3: Input factors:

The group began a discussion of the various input factors that should be included. They agreed (by **consensus**) that there are three categories of input factors that should be included: Source/Hazard, Pathway, and Receptor.

Discussion of “Source/Inherent Hazard” input factors

The group discussed a variety of potential input factors that could fall under this category.

These include:

- Portability – Can the MEC item be easily picked up by a receptor?
- Amount of energetic material—sometimes a smaller amount can be just as hazardous, if not more than, a larger amount. This is due to the higher level of portability as well as the greater accessibility of smaller items.
- MEC Type: defined as, at least, the condition (UXO, DMM, inert, practice round, etc), munitions type (e.g., 105 HE round), and (potentially) explicit information on fuzing.
Consensus: MEC type needs to be included as an input factor, the specific details are to be determined later.
- Fuze sensitivity vs. Armed/Unarmed: Fuze sensitivity is often considered separately from the MEC type. Should it be considered in this framework? If so, separately or as part of MEC type?

After discussing the topic in detail, the suggestion was made that perhaps the hazard of a representative sample of common types of ordnance found on munitions response sites could be pre-calculated and provided to project teams. With such a tool, the source/inherent hazard of each type of munition would be provided as the input factor for this category. A variety of issues were raised regarding the implementability and desirability of this approach. This is addressed in more detail in the section “Options for HA model development.”

Some other potential elements for inclusion in MEC Source:

- *Location:* Information about the location where MEC is found (for example, in a former target area, as opposed to a firing area) can stand in for other information (such as the amount or density of MEC). This issue could also be addressed with regard to the pathway factors.
- *Age of munition:* Do age and other similar factors affect the inherent hazard? Stability? How does age play into condition? The discussion acknowledged that a variety of munition and other site specific factors affect increased sensitivity of munitions with time.
 - While some site specific factors may lead to the corrosion (and potential leaching) of munitions, other site specific factors may encase a container, and prevent corrosion.
 - Some munitions/fillers do become more sensitive over time, but this is very site specific and munition specific.

The workgroup discussed the inclusion of an element for “increased sensitivity of ordnance item due to age or environmental factors. However, the group felt that perhaps it would be better to include this as a discussion point for the Project Teams rather than a specific input factor.

CONSENSUS:

The group came to consensus on including the following input factors in the Source/Inherent Hazard Category:

- Condition of MEC
- Type of MEC
- Fuzed (Armed/Unarmed)
- Fuze Sensitivity
- Net Explosive Weight
- Source Area Type

Discussion of Pathway and Receptor Input Factors:

Pathway and receptor input factors were discussed together. Part of the discussion acknowledged that the differences between these two types of factors are not well defined. There is overlap between some of the individual factors. It was agreed that although we will identify input factors associated with Pathways and Receptors now, we may wish to reconsider the placement of these factors when we begin to pull together the HA MEC model.

The “Pathway” factor was described as factors that bring people closer to MEC.

- Is the total size of the area important? How does it fit in? Does it really affect accessibility? Total size of the area may also be captured under the source factors if we include type of range (e.g. artillery range) with in the source/ inherent hazard factor.
- Type of buildings and distance to buildings and neighbors should be included.
- Questions were raised as to whether current and future Land Use should be separated out from each other?
- Should UXO Depth be a separate item?
- Migration/Erosion potential is included with this category.
- Intrusion is a factor of intensity
- Range features such as topography and vegetation may also play an important role in understanding of the pathways.

A lengthy discussion of intensity of activity made clear that there are differing understandings of what this factor means, and the differences between intensity of activity and frequency and intrusiveness of activity, both of which are captured under the receptor category. Kevin described intensity of activity as the interaction of the activity on the land. He used an example of an agricultural land use for which action on the land may not be very frequent, but that when it occurs it may impact the top several feet of soil. A question then arose as to if one gets this specific with regard to activity that also addresses land use, and whether land use is redundant.

The receptor factors were described as the specific actions of receptors that bring them potentially in contact with MEC. As pointed out in the discussion of pathway factors, some

of these factors were felt to be similar to pathway factors, and concern was expressed about overlap between the two categories.

- Discussion around frequency of entry centered around whether this input factor is similar to intensity.
- Intrusion level of activity—should be included as an input factor in either the pathway or receptor category, but not both.
- Portability can also relate to the source/ inherent hazard category. The group decided to leave portability in the receptor category for the time being with the understanding that it may be accounted for in the source category later.
- Discussion continued with regard to the differences between intensity of use, intrusiveness of use and frequency. Questions continue to be raised about the differences between the three, and whether these factors are factors associated with the behavior of the receptor or whether they are factors associated with accessibility of the pathways to receptors?

UXO density and amount of UXO were discussed together. Several people expressed the concern that the term UXO density has come to mean the calculation of a specific density that is used to calculate a probability of encounter. All of the group agreed that amount of UXO, in some form, should be a factor. However, several argued that given uncertainties, the calculation of density cannot be accomplished in a meaningful way, and that such calculations are very difficult to use, and explain to the public. It was pointed out that type of range area (called source area type) in the source/inherent hazard factors, can be a surrogate for amount of MEC. Several people felt that it was best to include amount of MEC with the source/ inherent hazard factors. It was agreed that *all else being equal*, a site with more UXO is more dangerous than a site with less UXO. The definition of this factor is very important

CONSENSUS:

The group reached consensus on the input factors that they will at least consider in the development of the HA model. In addition to the ones listed above (for MEC Source) they are:

Pathway

- Current/Future Land use (may be separated out as two different factors)
- Site Accessibility and Site barriers (possibly combined into one factor)
- UXO depth as a separate item
- Migration/Erosion
- Intensity of Activity
- Range Features

Receptor

- Frequency of Entry
- Intrusion Level
- Intensity (whether under pathway or receptor is not clear yet)
- UXO amount

- Portability

The consensus on these factors, and the factors related to source/ inherent hazard is preliminary, and may change as the model is structured, and the relationship between the different factors becomes clear.

Options for HA Model Development

The group discussed a variety of approaches for organizing the variety of input factors into a hazard assessment model. Three options were identified, and are discussed below:

1. Provide a look-up table for common munitions.
2. Adopt the input factors and weighting specified in the MRSPP.
3. Develop our own proposed model.

Option 1 was based on the idea that it may be possible to pre-calculate the inherent hazard severity of the most commonly found munitions, incorporating such factors as net explosive weight, fuze sensitivity, portability, and other factors proposed for the source category. These pre-calculated values for the most commonly found munitions could be based on weighted factors that the group agreed to, and that would be made available to project teams so that when they encountered munitions for which there were no precalculated source/inherent hazard severity value, they could calculate the source hazard severity themselves. A number of members of the workgroup were very intrigued by the possibility of this approach. It was suggested that this kind of “look up” table on source/inherent hazard severity is similar to having toxicity values for specific chemicals. Workgroup members requested that the implementability of this option be further explored.

Some questions about this approach were raised:

- Will having precalculated values undercut the understanding of the hazard by the project team? Is there value in having the project team do this calculation themselves?
- How many munitions would need to be included for this approach to be beneficial? Is it possible to come up with a defined list of munitions that will capture a large percentage of the munitions types commonly found on former ranges?
- How difficult will it be to get agreement, even within the DoD munitions community, of the relative scoring of these inherent hazard severities?
- Can the workgroup get the data needed to create this table or list?
- What elements or categories would need to be included in the calculation?

Option 2 reflected a concern that a lot of work has gone into the DoD MRSPP and that if the site specific hazard assessment was to be different it had better be well-explained. Some proposed that at the very least the MRSPP input factors and weighting factors should be a point of departure for whatever hazard assessment model is developed. It was agreed that the Versar team will explore the differences (if any) between the MRSPP, and the input factors and issues identified for the site specific HA model that the workgroup has been identifying.

Option 3 would involve developing a unique HA MEC tool by the workgroup, with the associated guidance (including rules for combining and weighting factors)

The group felt these options should be explored in-depth and their implementability and pros and cons weighed and recommendations presented to the executive committee.

ACTION ITEM: Versar will explore the implications of options 1 and 2 before the next meeting.

Hazard Assessment vs. Risk Assessment Terminology

Kevin brought up to the group that the discussion had been moving along using the term Hazard Assessment rather than Risk Assessment, but that they had not made a decision as to whether to formally adopt the HA term.

CONSENSUS:

The group came to consensus that they will use the term Hazard Assessment rather than Risk Assessment.

NEXT STEPS

In the discussion of next steps, it was the sense of the workgroup that it is important to develop the details of the HA methodology, and test them out for stakeholder review. They suggested the development of a white paper that describes the decisions made so far, and the issues that have been identified. This white paper would then be used by the members of the workgroup to facilitate discussions within their organizations and with other stakeholders.

The group discussed next steps to be taken as follows:

- Develop white paper (similar in length to originally discussed strawman)
- Get comments from executive group and other stakeholders
- Develop and test approach for the model
- Draft guidance (or perhaps some intermediate product)
- Get public comment throughout the process.

ACTION ITEM: Versar will quickly develop a draft white paper and give it to the workgroup for review by June 4th. The workgroup will quickly review the white paper, and a conference call will be scheduled. This has been scheduled for June 9, 2004.

Involving Stakeholders

The workgroup discussed existing opportunities for outreach and communication with various groups. The ASTSWMO board meetings in July and October, as well as their annual convention and other conferences and subcommittee meetings are opportunities to communicate about the process. Short standard briefings should be developed that can be sent out to a variety of audiences. These will all be compiled in one place. All work group members agreed to share briefing materials.

ACTION ITEM: The workgroup will send additional suggestions and ideas to Kevin and Clem as to what meetings and conferences represent an opportunity for outreach.

ACTION ITEM: Versar will develop a draft briefing that can be used by members of the workgroup (and adjusted as appropriate) for their use in outreach activities.

White Paper Outline

The group discussed an outline for the white paper as described below:

1. Executive Summary
2. Background
3. Purpose/Needs
4. Issues, conclusions and recommendations
5. Elements of the framework/Structure (with detail)
6. Next Steps

Specific Elements to be Included in White Paper

The group discussed ideas and issues to be included and addressed in the background section of the White Paper. These included:

- The critical linkage with the CSM, and the importance of updating the CSM as new information is developed or the situation changes.
- Institutional Controls/Land-use Controls
- An emphasis on communication with the public
- Clarify the relationship with the MRSPP (general relationship and specifics for going forward).
- Due to uncertainty, there cannot be a perfect hazard assessment. There is an expectation that the HA MEC will have both qualitative and quantitative aspects so it won't necessarily look like traditional risk assessment output.
- No absolute value that equates to probabilistic risk.
- Acknowledge difference between risk assessment and hazard assessment.
- Qualitative output will feed into the Hazard Management at the site—not an absolute. Acknowledge the limitations of any Hazard Assessment tool.
- Vehicle to open dialogue.
- The HA MEC of any given site will change after clearance.
- The HA MEC is a dynamic tool— There is a potential for re-assessment with more/new information, change in status, etc.
- The HA MEC has to add value to the process—Need to describe how the tool adds value to the process?

Overarching concerns and issues

In addition, the group discussed overarching issues and concerns that they want to be sure to address as they move forward with developing the guidance. These issues are as follows:

- Is national level hazard assessment guidance required? Is it a foregone conclusion?
- What will the final output look like?
- If the hazard assessment is too complex, do we end up doing unnecessary site characterization?
- How do we deal with the issue of uncertainty of data at a national level?
- How do we address the need to take action as soon as you have enough information?
- Concerns about how well project teams understand the acceptability of uncertainty.
- The biggest problem related to uncertainty is determining the boundaries of target areas. There are also often large areas that one knows very little about.
- How do you describe “safe” in the context of MEC? How do you communicate/evaluate changes to the “safety” of the sites?
- To what degree will the upfront statement about uncertainty and the role of Institutional/Land-use controls affect the potential remedies at sites?

Timeline

ACTION ITEM: Versar will develop a detailed work plan for the whole process.

Upcoming Calendar, Activities and Meetings

- | | |
|------------|---|
| May 14 | Draft minutes out (Versar, Inc.) |
| May 21 | Comments due back to Versar (all workgroup members) |
| June 4 | White paper draft to the working group (Versar, Inc.) |
| June 9 | Conference Call, 3 pm eastern time, on HA White Paper (Versar to email the call-in number: 1-877-558-5229, code 7036426937) |
| June 18 | revised white paper back to the group (Versar, Inc.) |
| July 29-30 | Next workgroup meeting 1 to 1½ days, hopefully meeting at someone’s office in Crystal Gateway, either EPA or DoD offices (all workgroup members). |

Laura Wrench asked the group for suggestions of real locations that could be used to test the framework. Two locations in Illinois were suggested: Camp Grant, a World War II confinement with mostly mortars and 37 mm projectiles; and Joliet Army Ammunition Plant. Others will think about additional suggestions and send them to LW, with EECA or RI/FS reports if available. Alternatively they can send ideas for hypothetical scenarios that could be used for testing as well.

The group adjourned at 12 noon.