Executive Summary

Hazard Assessment for Munitions and Explosives of Concern Workgroup Meeting

January 11-12, 2005

The Technical Work Group for Hazard Assessment met on January 11-12 in Crystal City, Virginia. The following action items, consensus items and schedule were agreed upon at that meeting.

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ACTION ITEMS:

- *Versar Staff* will add text to the December minutes reflecting the group's consensus to remove construction support as a separate category from the Minimum MEC Depth/Maximum Intrusive Depth of Activity input factor.
- *Laura* will add information to the definition of QA Function Test Range explaining the inclusion of R&D or Surveillance Test Range as types of QA function test ranges.
- *TWG HA* will have gathered further information and made a decision on the sites for the pilot test by the end of January.
- *Kevin* will contact Roger Young and see about having a meeting of the Ad Hoc group address the MEC HA (continued from last meeting).
- *Dick* will investigate the possibility of having a session at NAID in Denver (June).
- *Dick* will talk to the Army contacts about Ft. Ord's participation in the pilot test.
- *Dick, Bill and Lantz* will work together on further developing the options for the Munitions Pick list and how to utilize the Maximum Horizontal Fragmentation Distance, and report back to the group.
- *Jennifer* will contact Dania about availability of meeting space at the Hall of States for the June meeting.
- *Kevin and Bill* will confer and look at some of the USACE sites and see which sites might be appropriate for a pilot test. .
- *Kevin* will send changes to the December minutes to Versar Staff.
- *Kevin* will call the EPA contacts for Ft. Ord as well as contacts at Camp Butner and get their input on participating in the MEC HA pilot.
- *Kevin* will contact Tobyhanna and determine their interest and suitability to participate in the pilot test.
- *Kevin* will coordinate with Jim Woolford's schedule and take the lead on scheduling the Executive committee meeting to coordinate with his schedule.
- *Kevin* will get more information about the NARPM meeting and provide it to Versar for inclusion on the Outreach Matrix
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- *Kevin* will work on identifying the appropriate ITRC Meeting for the MEC HA to be presented, and work on getting on their agenda. If Doug is available for travel, then he and Laura can possibility present at the February meeting. If not, we will look into having a web briefing for them as their June meeting would be too late.

- *Laura* will get out a redline strikeout version of the input factor section of the annotated outline. It is also to be included as part of the minutes.

- *Laura* will rewrite the description of Bounding the Area of Assessment, Section 2.3 of the Annotated Outline to more clearly explain the concern and how it will be addressed in the MEC HA.

- *Laura* will put together a smaller group of representative scenarios (about 30) with adjusted scoring and send it out by COB on Monday, January 17th. The TWG HA will provide comments and questions as soon as possible for a discussion in a January 25th conference call.

- *Holly* will send the list of "things to be included" in the guidance to the workgroup.

- *Syed* will work on setting up a meeting with the National Tribal Operations Committee to present the MEC HA.

- *Versar staff* will include the updated Outreach Matrix with the executive summary of the minutes. It will also be provided to EPA for inclusion on the FFRRO website for input from the public on additional outreach opportunities.

- *Versar staff* will develop a schedule for conducting the pilot test, and for the teams in participating in the pilot.

- *Versar staff* will provide additional information to Brandon Carter of EPA to post on the FFRRO MEC HA website.

- *Versar staff* will provide Bill Veith with the details of the stakeholder group meeting so that he may attend as well.

- *Vic* will provide a text box clarifying the relationship between the MMRP sites that are a part of the DERP program, and sites such as buildings that may be contaminated with MEC or MC that DoD does not consider eligible for DERP funding.

- *Work Group* to get comments on the annotated outline to Holly as soon as possible—particularly related to things that are not included but should be.

- *Bill* will contact the Baltimore office and Tobyhanna and talk to them about participating in the pilot test. He will contact Former Camp Beale as well.

- *Versar Staff* will provide draft responses to Doug Murray's comments on the annotated outline.

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CONSENSUS ITEMS:

- The group agreed to change the name of the input factor from Total Exposure Hours to Potential Contact Hours.
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- The work group agreed to add bulk and explosive soil in the input factor MEC Category. This will also impact the distance to additional receptors factors which should be adjusted to use either MHFD or Overpressure, whichever is greater.

- The group came to consensus on adding back in the language on receptor activity to the Migration Potential input factor (i.e. "ease with which an MEC item can be moved by receptor activity.")

- The group reached consensus on changing the scoring to address concerns about the score for range fans being too high. The group also agreed to reduce the hazard associated with Storage Areas and Burial Pits.

- The group agreed to change the Output category names and descriptions as described below:
  <u>Category 1</u>: Sites which have the highest potential for an explosive incident under current use conditions
  <u>Category 2</u>: Sites which have potential for an explosive incident under current use conditions
  <u>Category 3</u>: Sites which are compatible with their current use, but which have potential for an explosive incident under changed use conditions
  <u>Category 4</u>: Sites which are compatible with their current or future use conditions

- The group agreed that Fort Ord is promising enough to move forward with as a potential pilot test site.

- The group agreed that when the fact sheet is ready for distribution, stakeholders will be sent a copy and told that it can be further disseminated.

- The group reached consensus on taking out the threshold level for spotting charges and propellant in the Type of Filler input factor. Any type of propellant is now rated as hazardous as incendiary filler; spotting charges are still rated a very low hazard.

- The group came to consensus on adding a category for Industrial Sites (e.g. manufacturing areas, pack and loading areas) in the Amount of MEC input factor.

- The group agreed that prioritization will not be included as a use of the MEC HA. CERCLA requires a risk assessment (this statement relates to NCP action item), and the MEC HA is designed to fill that requirement for MEC sites.

- The group agreed to use the Maximum Horizontal Fragmentation Distance instead of the Hazardous Fragmentation Distance.

- The group reached consensus on how to incorporate the yes/no questions related to the Ecological Resources, Cultural Resources and Critical Infrastructure. The explanation and description will be included with the other severity input factors, and the questions will be included with the input factor table (perhaps at the bottom) and tagged on the output categories, rather than only described at the output point of the process.

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GUIDANCE ITEMS:
The following items were recommended for inclusion in the guidance document for the MEC HA framework at this meeting.
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- Include an explanation that the MEC HA is not designed to address risks to UXO technicians doing their job--The risk of remediation is explicitly dealt with in the short-term effects criteria of the nine criteria analysis.

- Highlight in the guidance the fact that all fuzes are dangerous, but some are *more* dangerous than others.

- We need to incorporate into the description an explanation about how the different input factors work together to describe the hazard and the explosive chain of events. We also need to crosswalk the interaction between the hazard elements and the activities taking place at, or considered for, the site.

- Include an explanation about how the factors are set up to deal with the level of uncertainty related to all munitions response sites.

- Include information about and the impact of the quality of data on the overall hazard assessment.

- An appendix needs to be included in the guidance explaining the sources of the information for the Potential Contact Hours input factor, including rationale for any extrapolated numbers.

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FUTURE MEETINGS AND SCHEDULE:

- January 18th – comments on annotated outline
- January 25th – 3 pm conference call on scoring
- February 24th – Focus Group, in Denver, Colo.
- February 28th – Framework document out for comments
- March 4th – comments on the framework document
- March 9th – 3 pm conference call (optional) on framework comments
- March 11 – The framework will be released as a
  pre-draft for technical review by the TWG participating organizations,
  and other organizations.
- March date TBD – Executive Steering Committee (tentatively week of 28 March)
- June 14-16 – TWG HA Meeting, Washington, DC Hall of States?
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Draft Minutes
Technical Working Group: MEC HA
January 11-12, 2005

ATTENDEES:

Dwight Hempel, Bureau of Land Management
Kevin Oates, EPA
Syed Rizvi, TASWER
Jennifer Roberts, State of Alaska
Bill Veith, USACE, Huntsville
Dick Wright, Mitretek
Vic Weiszek, DoD

Versar, Inc.
Clem Rastatter
Holly Riester
Laura Wrench

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INTRODUCTIONS AND WELCOMING REMARKS

Kevin Oates welcomed the group to the FFRRO offices and introduced Bill Veith, with USACE Huntsville, who is joining the TWGHA.

Clem Rastatter went over the ground rules with the group, particularly as we have new members. She explained that the group works by consensus, and how that works, as well as a short explanation of the purposes of the MEC HA.

Although we know that Bill will have a lot of questions as he is just joining us, we want to minimize the extent to which we re-visit all the decisions that have been made previously.

Minutes From Previous Meeting

The December minutes have been sent out and the group was asked to comment on them. They all liked having the executive summary sent out quickly after the meeting, followed later by the full minutes. Staff will continue to do that with future meetings. Kevin had some editorial comments that he will send to staff, but otherwise there were no changes.

ACTION ITEM: Kevin will send changes to the December minutes to Versar staff.

Action Items from Previous Meeting

Clem reviewed this list of action items from the December minutes and updated the group of the status of each item. Those items are listed below with their status.

Action Item	*Status*
Kevin: Will incorporate his changes into the minutes from the November meeting in redline strikeout version to be passed along to Versar.	Complete
Versar Staff: To create a list of items to be included in the guidance as footnotes.	Complete (sent with January Executive Summary)
Versar Staff: To create a summary-level matrix of items from the Outreach Plan that can be periodically updated. This matrix should include the target audience, venues, date and status and will be updated as	Complete
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items are completed or planned or changed.

All Group Members: To brief their steering committee members and determine potential dates of availability for a meeting in March (dates to Versar by week of 1/3/05).	In progress
Clem Rastatter: Will prepare an abstract and send it to Vic for possible inclusion on the JSEM Agenda.	Complete
Versar Staff: Include on agenda for January meeting a discussion of any remaining questions about input factor definitions	Complete
All Group Members: come to the next meeting with, or send in advance, questions about input factor definitions and terms.	Complete
Kevin: Will set up ad hoc group meeting to review MEC HA in March as he has previously discussed with Roger Young.	To be completed
Kevin: Will contact Camp Butner and Tobyhanna to gauge their applicability and interest in participating in the pilot test of the MEC HA Framework.	To be completed
Kevin: Will call Bill Veith and Doug Murray to get their input on the pilot test participants and options, by the next meeting.	Complete
Dick: Will call Fort Ord and explore whether they are interested in participating in the pilot, by next meeting	Preliminary conversation held, additional conversations to take place.
Versar: Will perform a dry run with data from 5-10 MRSs from Adak with various land uses.	Ongoing
Versar: An updated annotated outline will be sent out for the TWG to review and comment on. *Work group members* should begin sending their comments by email even before the next meeting so we can be prepared to discuss and address any concerns at that time.	Ongoing

OLD BUSINESS

Outreach Plan Matrix

Clem introduced the matrix (attached) and explained that we had developed it based on the discussion at the December meeting. We would like to have a work group member assigned as the lead person for each of the various items to help move the planning along.

In terms of scheduling an executive steering committee meeting, Kevin has some specific dates when Jim Woolford is available, and will coordinate with the other work group members and their respective executive committee members' calendars in order to schedule that meeting.

ACTION ITEM: Kevin will take the lead for coordinating calendars and scheduling a meeting of the executive steering committee.

The group discussed some additional events and conferences that may be good opportunities for outreach. These will be added in to the matrix and disseminated to the group. Some of the items included:

- There is the possibility of a session at the National Association of Installation Developers (NAID) conference in Denver in June with the possibility of a breakout session.
  ACTION ITEM: Dick will investigate the possibility of having a session at the NAID conference in June

- The group is still interested in briefing the Ad Hoc Committee.
  ACTION ITEM: Kevin will contact Roger Young and see about having a meeting of the Ad Hoc group address the MEC HA

- ITRC: The work group discussed presenting the MEC HA to the ITRC. A concern was raised that the ITRC is really a technical group and it may not be the time to address them when we don't have all the technical details worked out. However others countered that the ITRC routinely deals with both policy and technical issues and that the two cannot be separated. The group agreed to try to find an opportunity to present to the ITRC, either at the next meeting of the UXO subgroup in February, or at a later time. There was concern that their June meeting may be too late, so if the February meeting does not work, then we will look into having a web conference call to make the briefing.
  ACTION ITEM: *Kevin* will work on identifying the appropriate ITRC Meeting for the MEC HA to be presented, and work on getting on their agenda. If Doug Maddox is available for travel, then he and Laura can possibly present at the February meeting. If not, we will look into having a web briefing for them or a presentation at the June meeting.

- Tribal Outreach Opportunities: Syed mentioned several opportunities to provide outreach to the tribal community:
  - Direct mailing to the Tribal community
  - Briefing to the National Tribal Operations Committee
  - Presentation at the TASWER Annual Conference (to be held in October/November 2005 in Connecticut)
  - Posting information on the TASWER website
  - Presentation to the National Tribal Environmental Council (meeting in April 2005)
  - Discussions at the January 2005 EPA/Tribal Science Council Workshop

  ACTION ITEM: Syed will work on setting up a meeting with the National Tribal Operations Committee to present the MEC HA. He will also coordinate other outreach to the Tribal community.

- In regards to the UXO Forum, the timing of it (November 2005) makes it more difficult to use it as a venue for getting early input on the MEC HA framework; however it is important to reach that audience on the overall MEC HA guidance effort

- **ACTION ITEM:** Kevin will get more information about the NARPM meeting in May 2005 and provide it to Versar for inclusion on the Outreach Matrix

- Information can be provided for use in trade newsletters, such as the *Federal Facilities Journal*, *Inside EPA*, *Defense Environmental Alert* and others.

- **CONSENSUS:** The group agreed that when the fact sheet is ready for distribution, stakeholders will be sent a copy and told that it can be further disseminated.

The group also discussed using the matrix itself as a form of outreach. It can be posted on the EPA-HQ public MEC HA website for others to comment on and make suggestions of additional outreach opportunities.

Stakeholder Meeting:
The Stakeholder meeting is scheduled for February 24th at the EPA Region 8 offices in Denver, Colorado. We need one or two work group members to attend as observers, but do not want more than that. Bill Veith said that he would be interested and available to attend.
ACTION ITEM: *Versar staff* will provide Bill Veith with the details of the stakeholder group meeting so that he may attend as well.

Update on FFRRO MEC HA website
EPA has had some technical and contract difficulties getting the public website up and running. It has now been assigned to an internal EPA IT person who will be getting it online

PILOT TEST DEVELOPMENTS
The work group discussed progress on determining sites for the pilot test of the framework.

Choosing Participants
Dick has had some preliminary discussions with Fort Ord, and they are interested in participating, however we need more information about the site and the team before we can be sure about moving forward with the site.

Several other sites were suggested as possibilities:

- Spencer in Tennessee and Kirkland FUD site. Spencer has a fair amount of data although it is not RI-level data. It also has a functional team including state regulators and multiple re-uses
- Kirkland has a lot of data, multiple sites, and has completed one TCRA.
- Camp Maxie and Camp Howze are both in North Texas, and both have had work going on for years.
- Camp Beale is an old Army installation which had moving targets, tanks, and one area for direct fire. After World War II the Air Force took it over, and used it for bombing, and there was also some Navy activity. They would have a lot of data and a lot of situations to compare.
- Tobyhanna and Camp Butner are still options.
- Jackson Park might be an appropriate Navy site as well.
- Fort Ord developed and used a site-specific Hazard Assessment, but it did not leave enough room for changes in the results due to clearance or other response actions. With Ord we could compare to a site that has already been dealt with. Another benefit of using Ord is that EPA is heavily involved as well—John Chestnut and Claire Trombadore are the contacts**.** If we do use Ord, we will have to stay out of comparing with the other HA.

CONSENSUS: The group agreed that Ft. Ord is promising enough to move forward with as a potential pilot test site.

ACTION ITEM: TWG HA will have gathered further information and made a decision on the sites for the pilot test by the end of January.

ACTION ITEM: Dick will talk to the Army contacts about Ft. Ord's participation in the pilot test.

ACTION ITEM: Kevin and Bill will confer and look at some of the USACE sites and see which sites might be appropriate for a pilot test.

ACTION ITEM: Kevin will call the EPA contacts for Ft. Ord as well as contacts at Camp Butner and get their input on participating in the MEC HA pilot.

ACTION ITEM: Kevin will contact Tobyhanna and Camp Butner Project Teams and determine their interest and suitability to participate in the pilot test.

ACTION ITEM: Bill will contact the Baltimore office and Tobyhanna and talk to them about participating in the pilot test. He will contact Former Camp Beale as well.

ACTION ITEM: By the end of January will have gathered further information and made a decision on the sites for pilot tests

Logistics and Details

The group discussed the materials and information that will need to be provided to the pilot teams in order for them to undertake the assessment. The group identified the following items to be provided or completed for the pilot test teams:

- Contact by government personnel
- Fact Sheet mailing
- Review of Framework Description
- Web or in-person briefing
- Data collection forms/instructions
- Project team organization of data
- In-person ranking/assessment
- Evaluation
    - Criteria
    - Sheet for participants

Someone commented that there will also be some costs associated with running the pilot test and processing the information, so we won't want to do too many pilots, two or three should be sufficient.

Kevin suggested that the pilot test be run in a similar manner as the training modules in the munitions training course, but instead of giving them sample data, they will bring their own data. The time to complete the pilot tests should be no more than a few hours for the project teams.

It would also be helpful, to the extent possible, to coordinate with a meeting that is already on the project team's schedule.

ACTION ITEM: *Versar staff* will develop a schedule for conducting the pilot test, and for the teams in participating in the pilot.

Dry Run

The group discussed locations that might be appropriate for additional dry runs. Laura will be doing dry runs on sites at Adak, but there may be other sites that would also be appropriate for dry runs. The group suggested that Fort Meade Air Field would be a good location. It's completed, has lots of data, and a lot of different types of areas.

The group concluded that we can do a lot of dry runs, and the more we do, the more information we have, but there is a tradeoff – it will also add time and effort to the project. And the real test is what a project team is going to do with their own data with the instructions and information that we give them. The group agreed to do a dry run with Adak information only.

TOTAL PEOPLE HOURS INPUT FACTOR
Laura gave a presentation on Total Exposure hours (attached). She explained that she had divided the scoring into three categories: Many, Some and Few, and explained what each of those categories meant.

She used some sample facilities, and created some scenarios to develop the breakpoints between the categories. She then used the activity assumptions from Holly's Spreadsheet (attached) to determine the related total exposure hours for the different scenarios. She divided the exposure hours by the number of hours per year to normalize the data a little bit and to give a sense of how many people are on the site at any given time. Using this information, the recommended breakdown of hours between categories and the recommended scoring is as follows:

Exposure Hour Category	**Exposure Hour Range**	**MEC HA Score**
1	<10,000	15
2	10,000 to 99,999	60
3	100,000 to 999,999	100
4	>=1,000,000	140

Each category for total exposure hours goes up by an order of magnitude. This only reflects the untreated column since the number of hours does not change with treatment. Although this score is not affected by clearance, it can be affected by land use changes.

The group discussed residential activity as having one of the lowest scores. This is counter-intuitive when considering the traditional HTRW sites. The MEC HA, however, is focused on intrusive versus non-intrusive activities, that is those activities that bring you into contact with the hazardous items. Residential activity is predominantly indoor and typically will not bring many people into contact with the hazardous items. The more significant hazard activity associated with residential use is likely to be the initial construction where excavation equipment can encounter subsurface MEC. In this regard, construction of residential housing is likely to have a great potential for encounter with an MEC item than most post-construction residential activities. We will have to explain this very carefully since residential use is typically thought in association with greater exposures and therefore high risks.

There was also discussion about whether the current name of this input factor is really the most appropriate. The word "exposure" has connotations that really don't quite fit with what we are representing here. The suggestion was made to use the term "**Potential Contact Hours"** which is more appropriate, and explain that the term means people hours in proximity to MEC items.

CONSENSUS: The group agreed to change the name of the input factor from Total Exposure Hours to Potential Contact Hours.

The TWG HA discussed whether the number of categories for potential contact hours was appropriate. Is it broken down too finely? Or do we need more categories? The feeling of the group was that 4 was the correct number of categories.

Someone raised the question of whether the intensity of the activity is captured within the MEC HA, or if that needs to somehow be captured in this input factor? The response was that the intensity is really covered under the Minimum MEC Depth/Maximum Intrusive Depth of Receptor Activity Factor.

Staff was also asked to round the numbers of sample activity durations to one significant digit, so that the numbers do not appear to be more definitive than they actually are.

The group also asked that an appendix be included in the guidance explaining the sources of the information for the Potential Contact Hours input factor, including rationale for any extrapolated numbers.

FRAMEWORK TECHNICAL DISCUSSION
The group discussed elements of the Annotated outline dated January 3rd, particularly the input factors and any questions that members of the group may have about them.

Severity Factors
Regarding the input factors that describe severity, several questions were raised.

Question: What do you mean by HFD? Are we using it as the DDESB defines it? Laura explained that we had meant to, but hadn't realized that definition is for occupied buildings, so instead we will need to use Maximum Horizontal Fragment Distance.

Question: How are we categorizing thermite/thermate? Laura responded it is not HE but Laura would characterize is as more than just an incendiary filler. The group discussed this question and came to the conclusion that Thermite may burn hotter than other incendiaries, but doesn't have any additional effects. Therefore, it should be included in that category.

The TWG also discussed that White Phosphorus should be included with the incendiaries: even if WP is not an incendiary, it does have incendiary effects and due to that it will be included in the MEC HA as an incendiary. A note should explain that it is not classified as an incendiary, but because it has similar impacts it is included in that category for ranking purposes.

Question: In the minutes from November there was a mention of classifying spotting charge or propellant based on the amount.

The group discussed the various characteristics of spotting charges and propellant that might contribute to explosive hazard. There is a difference if the propellant is in a system or out of a system—namely, whether or not it is confined. If it is "bag propellant" (not confined) then it will burn, but it will not detonate by itself. If it is confined then it could act as HE.

In terms of spotting charges, there is a fire hazard, but not an explosive hazard. It would be something less than an HE hazard. There is no horizontal fragment range associated with a spotting charge – it would not fracture the casing. The group concluded that in any case, there could be injury from spotting charges and propellants, even in small amounts. They did not want to be in the position of trying to establish a threshold for injury. Therefore, they do not want to have a reduced score for small quantities of spotting charges and propellants.

CONSENSUS: The group agreed to take out the threshold level for spotting charges and propellant.

This discussion brought up a communication issue. It will be very important to crosswalk the land use and response actions, but also to communicate how the various separate factors work together to describe the chain of events that occur in an explosive incident. That description also needs to be woven together with the elements that relate to the activities that take place on the land and the response actions as well. That will all be addressed in "Using the Input Factors to Describe the Site" Section 3.4 in the outline.

Distance to Additional Receptors
As was previously explained we are now using the Maximum Horizontal Fragmentation Distance, and that is only to be used for HE rounds. The group discussed how to address bulk explosives in this category. The suggestion was made to have project teams use either the MHFD or the Overpressure distance depending on whether they were dealing with HE or bulk explosives.

CONSENSUS: The group agreed to use the Maximum Horizontal Fragmentation Distance instead of the Hazardous Fragmentation Distance, but only for HE.

Accessibility Factors

Potential Contact Hours
Laura explained that the idea is that the "Site Accessibility" factor captures casual use rather than sanctioned use or planned use: the ease with which someone can get on the site. The "Potential Contact Hours" factor is supposed to reflect the sanctioned and planned activities. We want to be able to capture the casual versus the planned and intentional use of the site.

Amount of MEC
Someone suggested that we incorporate manufacturing areas into the Amount of MEC input factor. It would cover the bulk explosives and explosive soil. The group discussed the types of situations you would have in manufacturing, recycling and filling areas. These could include pink water lagoons, sewer lines, explosive soils, and a variety of other situations not covered by the other categories in this input factor.

In creating this category we would want to very carefully describe and define the terms. We need to make sure that we don't lead to double counting for an area such as QA Test Ranges or OB/OD areas that may be on the industrial facility. The category concerns areas where the deposition of explosive materials occurs due to some sort of industrial process. It only applies to that part of a facility that handles or disposes of bulk explosives; it does not include ranges that are accounted for elsewhere. It is also important to note that the releases from the infrastructure must be of an amount to propagate an explosion.

CONSENSUS: The group came to consensus on adding a category for Industrial Sites (e.g. manufacturing areas, pack and loading areas) in the Amount of MEC input factor.

A question was raised as to whether the QA Function Test range should be changed to an R&D or Surveillance Range. The group agreed that those were types of QA Function Test Ranges, and not mutually exclusive. Instead of changing the name of the category, the definition will be adjusted to include the R&D and Surveillance Test Ranges.

Minimum Depth of MEC/Max Intrusive Depth of Receptor Activity
The name of this input factor was slightly adjusted to add back in the "Receptor" activity. For this factor we would use the same list of activities as in the potential contact hours, but only those that have an intrusive depth associated with them.

Someone asked whether there is anywhere in the model where we address situations where the risk to EOD workers would be too great to not do a response action? The group discussed that situation and agreed that it is addressed through the CERCLA Nine Criteria, under short-term effectiveness and requirements to mitigate short-term hazards to workers and nearby community members. It is a hazard management issue. The work group asked that a footnote be developed

explaining that the MEC HA is not designed to address the risks to UXO technicians doing their job in a response action; that issue should be addressed through the Nine Criteria.

MEC Category
The issue of bulk explosives and explosive soil was raised again in the discussion of this input factor. The group felt that it is important to include it here since we have agreed to include manufacturing/industrial areas in the Amount of MEC factor (above). Bulk explosives and explosive soils will be found in those types of situations and needs to be addressed.

In terms of the level of scoring, bulk explosives and explosive soils would need to be scored lower than the unfuzed category because it is not confined. We could attribute some level of hazard to it, although that may be relatively low.

CONSENSUS: The work group agreed to add bulk and explosive soil in the input factor MEC Category. This will also impact the distance to additional receptors factor, which should be adjusted to use either MHFD or Overpressure, whichever is greater.

The group next discussed the issue of having the sensitivity incorporated into the input factor categories for MEC Category. There was a concern that including the term "sensitive fuze" in the description could lead to confusion with the public when at the outreach communication phase of a project. However, the MEC HA is designed for trained project teams who must have a level of understanding of the munitions issues in order to conduct the assessment and any related response action. There is a difference in the likelihood of an accident with the different fuze types, and so there must be a distinction in the framework.

There is already some explanation of this issue in the framework, but we will want to include additional explanation. All fuzes are dangerous, but some are more dangerous than others.

Another person asked whether certain fuzes had sensitivity to electromagnetic (EM) energy that would need to be captured here as well. The group responded that only very high energy EM is an issue, the low energy EM is not an issue. The high energy EM is not portable enough to cause a problem for munitions sites. It is only the low energy EM that is going be portable enough to be brought into a munitions site, and it is not powerful enough to set off a fuze.

MEC Size
The group discussed the description of MEC Size. It was suggested that the description be changed to "the ease with which a MEC item can be moved and carried away". The group discussed this and felt that it should be the "ease with which an MEC item can be moved by receptor activity."

CONSENSUS: The group came to consensus on adding back in the language on receptor activity to the Migration Potential input factor (i.e. "ease with which an MEC item can be moved by receptor activity.")

The work group also discussed whether there should be an intermediate category, to differentiate between what a child can move and what an adult can move. They decided not to change the categories, as those distinctions were difficult to make and do not necessarily add much to the understanding of the hazard level. For example, how would one determine at what age a child is capable of moving a munition item versus and adult? A strong child could move items that some adults cannot.

Section 3.5: Input Factor Categories

Laura asked the group to comment on the three tables in this section, Tables 3, 4, and 5. She asked the group whether we have settled on all the input factors we need, and no more than we need. She also asked if we have determined categories that fully describe what they need to describe.

Table 3
Someone commented that Nitroglycerine should not be included as filler, as it has never been used as such, but rather was used as a propellant.

The group asked for a redline strikeout version of this section to be included as part of the minutes for this meeting.

ACTION ITEM: *Laura* will get out a redline strikeout version of the input factor section (3.5) of the annotated outline. It is also to be included as part of the minutes.

Table 4
Laura explained that she had added the term "reasonable assurance" that munitions are only located beneath the surface of the ground into the definitions for the Minimum MEC Depth Relative to Maximum Intrusive Depth. The group agreed with this change.

Laura also explained that she had taken out the reference to what had been called "Active Construction Support". This has now been subsumed into the definition. Some of the discussion of construction support and anomaly avoidance will be called out in the definitions and explanation.

Someone pointed out that there is no conclusion on the issue of construction support reflected in the minutes from the December meeting. The group agreed that they had reached consensus on this issue at that time and a revision should be made to the minutes to reflect that decision.

ACTION ITEM: *Versar Staff* will add text to the December minutes reflecting the group's consensus to remove construction support as a separate category from the Minimum MEC Depth/Maximum Intrusive Depth of Activity input factor.

Table 5
The group reiterated their decision on including bulk and explosive soil as described under MEC Category.

One person expressed a concern that certain items (e.g., explosive contaminated buildings) are not eligible for DERP funding as a matter of policy. The issue for the hazard assessment is that if bulk explosives are ranked, stakeholders may be confused and assume eligibility for funding under the MMRP.

ACTION ITEM: *Vic* will provide a text box clarifying the relationship between the MMRP sites that are a part of the DERP program, and sites such as buildings that may be contaminated with MEC or MC that DoD does not consider eligible for DERP funding.

WEIGHTING, SCORING AND OUTPUT CATEGORIES
(January 9 Handout—weights and scores, rev 5)
Laura created a set of scenarios that she ran using the scoring and output categories as adjusted at the December meeting. Using those discussions she made measured changes to the relative weights of the input factor scoring.

In the revised version the greens and blues are more heavily weighted. Some of the points from the orange categories have been put into the green categories. Additionally, some of the input factors were removed at the December meeting, particularly in the Orange category.

Laura ran through some of the scenarios and explained how she had developed the output categories from these scenarios. She ran scenarios that had target areas, 40 mm range, items on the surface, accessible site, and small items – all the highest scoring categories of the input factors, to get the maximum score of 1000. That is the upper limit for the highest hazard category. Then she looked for the upper limit of the next category down. This included surface clearance, but everything else was the same. She then scored an OB/OD area and determined that the scores did not go down as much with clearance. From that she determined the upper limit of category 3 – including an OB/OD area which is fully accessible, the intrusive depth overlaps and surface clearance has taken place – with a score of 855.

The next category down, Category 2 included scenarios with a surface clearance where the intrusive depth does not overlap, but where you may want to do something intrusive in the future. Again she came up with an OB/OD area with small items, sensitive, fully accessible, surface cleared…etc. This category had an upper limit of 705.

The final category, Category 1, included subsurface clearance on a target area—resulting in an upper limit of 470.

These scenarios demonstrated the drop in hazard that you can achieve with just a surface clearance, at least in certain situations.

The group discussed the output scoring and the relationship between the land use and the output categories. However at this point, the descriptions of the output categories are still open for discussion. And to some extent the project teams will need to determine for themselves what a particular output category means to them in terms of what they do with their site.

The group raised several issues of concern that they would like to see addressed in further discussions of the scoring. These are associated with the results of sensitivity runs of the current framework.

- How could you have a hand grenade on the surface today as safe for current use? What is happening to consider MEC on surface to be suitable for current use?
- What is the difference between the surface clearance, and subsurface clearance?
- Is there any circumstance where MEC on the surface would be less than a category 2?
- Should MEC on the surface, untreated, HE weigh more? Maybe that is more of an issue than the category 1 fuzes.

Some of these issues will be addressed after looking at the smaller group of scenarios and discussing them at the upcoming conference call, but in the discussion, the group determined that the output category descriptions were contributing some confusion.

Laura made adjustments to the scoring in response to earlier discussion. As a result of those changes, some of the category breaks have changed.

What you can see if you look at the numbers in the last column, you can see that some of the scenarios shifted their output category.

The changes included:

- DMM with Category 1 fuzing should be as or nearly as hazardous as UXO with normal fuzing…Right now they are equal, but maybe 100-105 may be more appropriate for Category1.Those do not change with clearance.

- Changed the balance between exposure hours and accessibility—the accessibility has been more heavily weighted in relation to the exposure hours.

- May need to change the balance between the MEC amount and the depth factor some, to more heavily weight for the stuff on the surface.

- Need to consider how scoring addresses things that are on the surface.

The group discussed extensively the issue of items on the surface and how those should be scored, particularly how the scoring may change with surface clearance.

There was also a lengthy discussion of range fans and how they fit into the output categories and how they would score. If you assume that anything on the surface should be scored as not appropriate for current use, you may get sites such as range fans that are defined as not considered appropriate for their use. That arises because we have defined the output categories in relation to the end use of the site. However, if you didn't include that in the description, then it may not be as useful.

The group looked at several scenarios for range fans and discussed whether the problem is the scoring of the input factors or where they fall in the output factors. The problem may be more related to the descriptions of the output factors rather than the scoring itself.

Someone pointed out that all this discussion was about the difference in score between scenarios when they all fall into the same output category, and we have said that as long as they are in the same category, then the scores themselves do not matter. The group responded that no matter what we say, teams will use the numeric score to compare sites that fall into the same category.

The work group members felt that there were too many scenarios for them to really evaluate how the scoring reflected the priorities and hazards of the different situations and asked to see a smaller number of representative scenarios to get a better feel for how the scoring worked.

ACTION ITEM: *Laura* will put together a smaller group of representative scenarios (about 30) with adjusted scoring and send it out by COB on Monday, January 17th. The TWG HA will provide comments and questions as soon as possible for a discussion in a January 25th conference call.

Output Category Descriptions

Currently we have relatively minimal descriptions for the output categories, as agreed upon at the December meeting:

- Most Hazardous: Sites which pose an immediate threat if not treated.
- Very Hazardous: Sites which pose a threat under current land use conditions.
- Hazardous: Sites which pose a threat under future land use conditions.
- Less Hazardous: Sites which are suitable for their current or future land use.

The group discussed these output categories how they are defined. Several concerns were raised about he descriptions and wording as they are at this point. Those include:

- Use of the word "threat" in the descriptions

- How do you define the word "immediate"? How does that add to the output category description?
- Using the term "land use" in the descriptions. We need to communicate that the intrusive nature of the activity is more important than the land use category (residential, commercial, etc) itself.
- The use of temporal distinctions between the categories – some work group members felt that the hazard level is different regardless of the time frame.

The group discussed a variety of options for naming and describing the output categories. They were concerned about implying too much definitiveness into the descriptions, when there is really a lot of variation in sites and even within the output categories. On the other hand there are differences between the categories and it is important to communicate those differences also.

From the discussion of these issues the following categories and descriptions were suggested:

Category 1: Sites which have the highest potential for an explosive incident under current use conditions
Category 2: Sites which have potential for an explosive incident under current use conditions
Category 3: Sites which are compatible with their current use, but which have potential for an explosive incident under changed use conditions
Category 4: Sites which are compatible with their current or future use conditions

CONSENSUS: The group came to consensus on the output categories as described above.

Issue Paper on MEC HA and CERCLA
In the initial discussions the work group had talked about site prioritization as one of the functions of the MEC HA. Subsequent discussions with the DoD community have led to the realization of a potential perception of competing prioritization schemes between the MEC HA and the MSRPP. The group discussed four options for discussing the MEC HA for prioritization:

1. No, do not discuss prioritization at all.
2. Discuss the MEC HA as a prioritization tool until the MRSPP is fully implemented.
3. Discuss using the MEC HA for prioritizing smaller sites within larger sites that are ranked with the MRSPP.
4. Discuss using the MEC HA for prioritization, but explain that projects must be ranked by MRSPP in order to get funding from DOD

Several pointed out that the central purpose of the MEC HA is to facilitate hazard management decisions – selection of alternative responses and appropriate use conditions. We should stay focused on this purpose, and the role of the MEC HA in fulfilling the NCP requirement for risk assessment, rather than prioritization. Prioritization is associated with funding and will be driven by implementation of the DoD MRSPP.

CONSENSUS: The group agreed that prioritization will not be included as a use of the MEC HA. CERCLA requires a risk assessment, and the MEC HA is designed to fill that requirement for MEC sites.

There was some discussion of the flowchart of the CERCLA process and the points at which the MEC HA may be useful in that process. We want to emphasize that there may be multiple points where the organization of information for the MEC HA may be particularly useful. For example, at the end or toward the end of the SI phase is when we are going to be forming project teams and will be doing limited sampling, so it would be very helpful to do it at that time. It would highlight

the gaps in information and then you would use that information to inform your decision on what the next step would be—whether that is to gather more information, or to move into action.

Someone commented that there is another very important use of the MEC HA that needs to be addressed, and that is, using it to inform interim decisions. If you have a site that people are using, it may not be a very high priority for the Army Corps of Engineers to get to for clean up, but you want to make sure that you make the appropriate decisions to protect the people that are currently on the land. The MEC HA would help provide that information to determine if changes in activities or access need to be made.

Someone raised a question about what a team does once they have the final result, the output score. What does it mean?

The group discussed this question. It depends on where you are in the process. This is a decision support tool. If you were using it at an MRA with multiple sites, you would take the results and see which sites need to have action now, which sites you need more information about, which sites are ready for a decision.

If the current activities come out as a high hazard, you either figure out if you can do more response, or you change the use. It's no different than HTRW in that respect. It takes the team into the hazard management process; they can see how the different actions change their level of hazard, relative to other options. And that is where the scores have to make sense relative to each other.

We need to have this tool as transparent as possible so that the project team can sit down and see what factors need to be adjusted in order to be able to support a particular use for the site. Someone suggested creating an imaginary site in an appendix that would demonstrate how different changes in assumptions would change the output, things you would need to do/change in order to support a particular use.

DISCUSSION OF ANNOTATED MEC HA OUTLINE

Bounding the Area of Assessment, Section 2.3

Laura explained what this section is about. We have in mind that we are assessing a contiguous piece of land, and the past use was the same, and that the future use activities would be the same. But that may not coincide with the boundaries of the MRS. So the idea is that the MRA will be broken into areas for which you may get separate answers from the MEC HA. .

The group felt that the idea was sound but that the description was confusing and needs to be clarified. The description will also explain that for running the model you may break up an MRS into parts for scoring purposes.

Ecological Resources, Cultural Resources and Critical Infrastructure, Section 6.2

The TWG HA has discussed a variety of different ways to address this issue, and we need to clarify the specific approach. The three options for addressing this are:

1. Have a check box with the output description.
2. Not include it with the scoring (at either the input or output point) but address is in the "Application of the MEC HA Process" section of the framework description.
3. Include checkboxes for Yes/No question with the input factors, so it is part of the scoring, but not part of the numerical value.

The group discussed this and felt that the issue should work in at multiple places. There should be check boxes with the input factors, with a slide box explaining that if the answer is yes, then the

issue needs to be addressed through the CERCLA 9 Criteria. In this way it will not be a part of the numerical scoring, but will bring the issue up earlier in the process. It should also be covered in the framework document, and included with the output score.

Munitions Pick List
Laura updated the group on the munitions pick list. Some of the minimum information that the teams will have to have is the kind of munition that is out there and the type of fuze. The idea is to allow the team to enter that information into a look-up table, and get the information about type of fuze (e.g., sensitive or normal, category 1, or category 2 for DMM), the Maximum Horizontal Fragmentation Distance and also the bulk explosive or over pressure calculation.

Someone asked about using the Maximum Horizontal Fragmentation Distance for the pick list. MHFD is not trivial or easy to calculate. Michelle Crull at the USACE has a database with pre-calculated MHFDs that may be used. In order to make the pick list easier for project teams to use, and in recognition that we don't need the same level of precision of boundary for the purpose of the MEC HA model, like munitions items with similar MHFDs will be grouped.

The group agreed with the general technical approach, and the idea of a small work group of Lantz, Dick and Bill to further flesh it out and report back to the full work group.

General Comments on Annotated Outline
Laura asked the group to comment on the annotated outline; particularly whether there is anything that is missing – are there any issues that aren't addressed that need to be?

The general response was positive, but the group will read through it carefully and get comments on this version to Laura in the next few days.

FUTURE MEETINGS AND SCHEDULE

- January 18th – comments on annotated outline
- January 25th – 3 pm conference call on scoring
- February 24th – Focus Group, in Denver, Colo.
- February 28th – Framework document out for comments
- March 4th – comments on the framework document
- March 9th – 3 pm conference call (optional) on framework comments
- March 11 – The framework will be released as a pre-draft for technical review by the TWG participating organizations, and other organizations.
- March date TBD – Executive Steering Committee (tentatively week of 28 March)
- June 14-16 – TWG HA Meeting, Washington, DC Hall of States?

MEC HA Outreach Plan Matrix

Mechanism	Venue/Location (if applicable)	Actual Audience/ Attendees	Schedule	TWG HA Lead	Status	Target Audience Code
Concept Paper/White Papers	N/A	EPA, DOD, States, Tribes, DOI, Stakeholders	July-04		Completed 7/04	A
			October-04			
			March-05			
High Level Briefings	DoD Cleanup Committee, D.C.		July-04	Kevin	Completed 7/04	A
	MRC (1), D.C.		November-04	Kevin	Completed	A,B
	DOI, D.C.	Willie Taylor, Director, OEPC Jim Ortiz, OEPC Ruth Lodder, OEPC Linda Lyon, FWS Roxanna Hinzman, FWS/DEQ Craig Moore, FWS/DEQ Chip Murphy, FWS/DSH Celeste Mitchell, BLM Dwight Hempel, BLM	January-05	Dwight	Completed 1/05	A,B
	MRC (2), D.C.		March-05	Vic		A,B
Executive Steering Committee Meetings	D.C.		March-05	Kevin	In planning	A
			July-05			A
			September-05			A
			January - March 2006			A
Participation in pilot test	TBD	Two Project Teams with sites meeting MEC HA requirements	April-05	Kevin, Bill	planning stages; various action items assigned	B
Websites	EPA Public Website for MEC HA	Public	October/ November 2004	Kevin	Online in January 2005	A, B, C
			January – August 2005		additional information on draft framework and guidance	A, B, C
			September – December 2005		information on final framework and guidance.	A,B,C
	TASWER Website Link		TBD	Syed		A,B

Target Audiences and codes:

A = Organizations with specific high-level interest in the MEC HA

B = Stakeholders with specific technical interest in the MEC HA

C = Other Stakeholders, including the general public

MEC HA Outreach Plan Matrix

Mechanism	Venue/Location (if applicable)	Actual Audience/ Attendees	Schedule	TWG HA Lead	Status	Target Audience Code
Special Meetings	USACE Huntsville, Alabama	DoD and DoD contractor personnel	December-04	Kevin, Doug	Completed Dec14, 2004	A, B
	Federal Facilities Leadership Council	EPA HQ and Regional managers	January-05	Kevin		A, B
	Ad Hoc Group		TBD	Kevin		B
	EPA Division Directors Meeting		TBD	Kevin		A, B
	EPA Risk Assessment Superfund Technology(RATS) teleconference		10-Nov-04	Kevin	Completed	A,B
	Meeting of the Tribal Operations Committee		TBD	Syed		A,B
	National Tribal Environmental Council		April-05	Syed		A,B
	ITRC meeting		TBD	Kevin/Doug		A, B
			TBD			
Specific mailings requesting input			Draft Framework			A, B, C
			Final Framework			A, B, C
			Draft Guidance			B
			Final Guidance			B
	Direct Mailing	Tribal Community	TBD	Syed		B
			Others as appropriate			A,B, or C
MEC HA Fact Sheets	Fact Sheet #1	Public	January-05		Draft to Kevin for approval	A, B, C
Articles in other organizations' newsletters	Federal Facilities Journal					B
	Inside EPA					B
	Defense Environmental Alert					B

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MEC HA Outreach Plan Matrix

Mechanism	Venue/Location (if applicable)	Actual Audience/ Attendees	Schedule	TWG HA Lead	Status	Target Audience Code
Presentations at conferences	ICMA 2005 Annual Conference, Minneapolis		September 25-28, 2005	Versar		B
	EPA NARPM Conference, location TBD		TBD	Kevin		B
	UXO Forum		Fall 2005			B
	DOD IRP Conferences		TBD	Vic	Need to identify specific conferences	B
	JSEM, Tampa		April 11-14, 2005	Vic		B
	ASTSWMO, Charleston, SC	State regulators	November-04	Doug	Completed	B
	National Association of Installation Developers (NAID) Annual Conference, Denver, CO		June-05	Dick		B
	TASWER Annual Conference, Connecticut		October/ November 2005	Syed		B
TWG HA Sponsored Workshops/Meetings	Stakeholder Meeting, Denver Colorado, EPA Region 8 Office, Tundra Room	Representative RAB members and stakeholders from: + Former Lowry Bombing & Gunnery Range + Aberdeen Proving Ground + Aleutian/Pribilof Island Association + Fort McClellan, AL + Massachusetts Military Reservation + Fort Ord, Calif. + Center for Public Environmental Oversight	February 24, 2005	Versar Staff, Kevin Oates, Bill Veith	planning stages	C
			June 2005			A, B, C
			October 2005			

Target Audiences and codes:

A = Organizations with specific high-level interest in the MEC HA

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Total Exposure Hours

MEC HA TWG Meeting
11-12 January 2005

Purpose

- Present exposure hour calculations for example scenarios
- “Normalize” the calculations to people per hour per year
- Present recommended categories for the Total Exposure Hours input factor

Example Facilities

- Canyonlands National Park – Needles Campground
- Manassas National Battleground Park – any exhibit
- Grand Teton National Park – Colter Bay Campground
- Kaho`olawe Island Reserve – PKO Access

Additional Scenarios

- Residential
- Agricultural
- Construction

Facility Assumptions

- Canyonlands – 26 campsites, 10 people/campsite, 21 weeks/year, 7 days/week
- Manassas – assume 30 minutes for any 1 site, 755817 visits/year
- Grand Tetons – 350 campsites, 5 people/campsite, 17 weeks/year, 7 days/week
- Kaho`olawe – 12 accesses/year, 65 people/access, 3 days/access

Scenario Assumptions

- Residential 1 – 3 people, 365 days/year
- Residential 2 – 3 people/house, 365 days/year, 30 houses
- Agricultural
  - Planting – 2 people, 7 days/year
  - Cultivating – 10 people, 2 days/week, 15 weeks/year
  - Harvest – 80 people, 7 days/week, 3 weeks/year
- Construction – 15 people, 5 days/week, 2 weeks/house, 30 houses

Activity Assumptions

- Campground camping – 17 hours – 8 hours sleep = 9 hours activity
- Historic site visit – 30 minutes
- Residential outdoor activities – 2 hours/resident
- Agricultural – 10 hours/day
- Construction – 9 hours/day

(Show default activity assumptions from spreadsheet)

Example Calculations

Scenario	Exposure Hours	People/yr equivalent
Canyonlands	343980	39.0
Manassas	377909	43.0
Grand Tetons	1874250	214.0
Kaho`olawe	21060	2.5
Residential 1	2190	0.25
Residential 2	65700	7.5
Agricultural	19940	2.3
Construction	40500	4.6

Recommended Scoring

Exposure Hour Range	People/yr Equivalent	MEC HA Score
<10,000	1.1	15
10,000 to 99,999	1.1 - 11.4	60
100,000 to 999,999	11.4 - 114	100
>=1,000,000	>114	140

Outdoor Activites and Durations

Category	Activity	Duration--Hours Per Day	Note #
Residential			
	Outdoor activities for Adults	1.5	
	Outdoor activities for Children (includes playground, and other outdoor child play)	6	
	transit from transportation to building	0.25	
	Grounds Maintenance (residential gardening)	1.69	
	Construction Activity	7.62	*1*
	Facility Maintenance	0.5	*4*
Industrial/Commercial			
	transit from transportation to building	0.25	
	time on facility grounds (i.e. eating lunch outdoors, etc)	1.25	
	agricultural activity	8.1	*1*
	Construction Activity	7.62	*1*
	Natural Resourcs and Mining	8.72	*1*
	Grounds Maintenance	2	*2*
	Facility Maintenance	1	*4*
Recreational			
	Day use of National Park near major metropolitan areas	6	
	Day use of National Park away from major metropolitan areas	6	
	Day Use of a Day Use Park (generic)	5	
	Campground Camping	17	
	Wilderness camping	22.1	
	RV Camping	12	
	Trail Related Activities	5.6	
	Hunting	7.8	
	Fishing	7.8	
	Back Packing	5.6	
	attending outdoor sporting events	4	*3*
	participating in outdoor sporting events	4	*3*
	Rock climbing	6	
	Playground (includes all outdoor activities for children)	6	
	Residential outdoor activity	1.5	
	picknicking	2	
	Specialized Sporting Activities	6.21	
	Construction Activity	7.62	*1*
	Grounds Maintenance	2	*2*
	Outdoor Entertainment Venue	4	*3*
	Facility Maintenance	1	*4*
Open Space			
	Trail Related Activities	5.6	
	Hunting	7.8	
	Fishing	7.8	
	Back Packing	5.6	
	attending outdoor sporting events	4	*3*
	participating in outdoor sporting events	4	*3*
	Specialized Sporting Activities	6.21	
	Wilderness camping	22.1	

Notes:

1: Original data was hours/week. I have divided these by 5 (for the work week) to come up with the daily figures.

2: I assumed a slightly higher amount of time for grounds maintenance for commercial, industrial and recreational facilities than residential

3: Based on the assumption of a 2-3 hour event, with additional time for transit on and off the site.

4: The numbers for "Facility Maintenance" are purely from my own logic--I don't think that people spend more than .5 hrs/day doing outdoor maintenance on their homes, on average, and I thought it should be higher than that for commercial, industrial and recreational facilities, just by the nature of the facilities.