Material Potentially Presenting an Explosive Hazard:

“Doing our homework”

Tim Alexander
Timothy.a.alexander@us.army.mil
US Army Environmental Center
Training Support Division
(410) 436-4322

Brian Helmlinger
Brian_helmlinger@urscorp.com
URS
Program Manager, Range Sustainment
(703) 418-3340
Agenda

- Define MPPEH
- DoD Policy Background
- Project Overview
  - Requirements Analysis
  - Web-based Survey
  - Forum
What is MPPEH?

Material Potentially Presenting an Explosive Hazard (MPPEH):

- Material potentially containing explosives or munitions (e.g., munitions containers and packaging material, munitions debris remaining after munitions use, demilitarization, or disposal; and range-related debris)

- Material potentially containing a high enough concentration of explosives such that the material presents an explosive hazard (e.g., equipment, drainage systems, holding tanks, piping, or ventilation ducts, that were associated with munitions production, demilitarization or disposal operations)

AKA – AEDA, Range Residue, Munitions Residue, Range Scrap…
Material potentially containing explosives or munitions (e.g., ...)

Munitions Containers and Packing Material

Munitions Debris Remaining after Munitions Use
Range Residue Processing Operation

Munitions Debris Remaining after Demilitarization
Disassembled Munitions Components - Projectiles

Range Related Debris
Material potentially containing a high enough concentration of explosives such that the material presents an explosive hazard (e.g., ...)

Equipment, ... Associated With Munitions Production, Demilitarization or Disposal Operations

Building Remediation/Demolition Cornhusker AAP

Building Remediation/Demolition Kansas AAP
What is NOT MPPEH?

• Military munitions within the DoD's established munitions management system.

• Other hazardous items that may present explosion hazards (e.g., gasoline cans, compressed gas cylinders) that are not munitions and are not intended for use as munitions.
DoD Policy Background

- **April 1997**: Scrap metal worker fatality in Fontana, CA. High explosive anti-tank round mistaken for scrap metal.


- **Late 90’s**: Several DoD groups/IPTs unsuccessfully attempt to address issues.

- **Oct 99 – Jan 00**: Joint Workgroup drafts DoD policy.

- **2000-2004**: DoD formal coordination, many hits & misses….

- **December 04**: Finally! *DoDI 4140.62, Management and Disposition of MPPEH*, issued but it requires development of DoD guidance containing MPPEH management procedures (DoD Manual).
Primary Source Documents for MPPEH Policy

- DoDI 4140.62, *Management and Disposition of MPPEH*
- DoD 6055.9-STD, *DoD Ammunition and Explosives Safety Standards*, Ch. 16 – MPPEH
- DoD 4160.21-M, *Defense Material Disposition Manual*
- DoD 4160.21-M-1, *Defense Demilitarization Manual*
- Army TB 700-4, *Decontamination of Facilities and Equipment*
- NAVSEA OP 5, Ch. 13, Paragraph 15, *Material Potentially Presenting and Explosive Hazard*

Most influence over MPPEH management methods. 
Nearly all requirements can be traced to these documents.
Current Policies Requirements Include…

- Multiple visual inspections*
- Signed certification/verification of “inert and/or free of explosives or related materials” *
- X, XXX, XXXXX, and zero(0) standards for “degrees of decontamination”
- Qualification of receivers
- Segregated and secured storage *
- Maintain chain of custody (…through final disposition) *
- Processes to provide “positive assurance” that explosives are not present
  - Thermal treatment? *
  - Closed circuit processes?
- Venting internal cavities
- Segregation of type “1a, 1b, and 2 range residues”
- Demilitarization requirements *
- Environmental requirements
- Transportation requirements, including hazard classification
- …etc.

Need: Clear corporate objectives and procedures for MPPEH management.
Processes to Meet Policy Requirements
Small Arms Brass (a “simple” case)

Step 1
Multiple Visual Inspections:
Removing Live Rounds at the ASP
# Processes to Meet Policy Requirements

## Small Arms Brass (a “simple” case)

### Step 2

Certification and Verification that material is “inert and/or free of explosives or related materials”
Processes to Meet Policy Requirements
Small Arms Brass (a “simple” case)

“Certified” Brass at the Qualified Recycling Program
Processes to Meet Policy Requirements
Small Arms Brass (a “simple” case)

Step 3
Security and Storage at QRP Yard
Processes to Meet Policy Requirements
Small Arms Brass (a “simple” case)

Step 4
APE 1408 Safety Certification System
For Small Arms Brass
Processes to Meet Policy Requirements
Small Arms Brass (a “simple” case)

Step 5  Mobile Deformer System For Small Arms Brass
Processes to Meet Policy Requirements
Small Arms Brass (a “simple” case)

Step 6
Chain of Custody…?
Internet sales of military small arms brass
Project Overview: What are we trying to accomplish?

Develop a DoD procedural manual for the management and disposition of MPPEH.

DoDI 4140.62

[Diagram showing the process of developing a manual involving a workgroup, component guidance, and joint implementing guidance.]
Project Overview: Doing our homework

- **Purpose:** Ensure the knowledge base necessary to develop DoD Guidance on MPPEH:
  - Understand/clarify our corporate objectives for MPPEH management
  - Understand the methods/processes employed in the field
  - Identify most efficient and cost effective ways to meet corporate objectives

- **Project Overview:**
  - Requirements Analysis
  - Field Survey
  - MPPEH Forum

  \[ \text{Business Process Analysis} \]

  \[ \text{Three Step Process} \]
Business Process Analysis
Step 1: MPPEH Requirements Analysis

• Identify (DoD) policy documents responsible for MPPEH management behavior;

• Describe management objectives, intent, roles and authorities of the proponent organizations for these documents;

• Analyzes key issues that require resolution and clarification in DoD MPPEH management guidance;

• Make recommendations to resolve and clarify key management issues in a way that meets the intent of the DoD policy documents and their proponent organizations.
Some Questions Going In…

- What **are** the current requirements?
  - What do they actually say?
  - What do they really mean (intent)?
  - How do they interface with one another (interoperability)?

- Do current policies generate corresponding levels of risk reduction?

- Do current policies **require** over-processing of MPPEH?

- Is the **confusion** over the current set of requirements driving over-processing?

Want the DoD guidance to promote safe and cost-effective MPPEH management.
Requirements Analysis
Key Issue 1: Terms and Definitions

- **Materials:**
  - AEDA, AEDA Residue, Live AEDA, Ordnance, Range Residue, Explosives Contaminated Material, Explosives Contaminated Property, Brass, Cartridge Casings, Small Arms Cartridge Casings, ETC.
  - All trigger specific requirements. Eliminate all that are unneeded and clearly define those that are needed.

- **Certification Standards:**
  - X, XXX, XXXXX, 0 (zero)
  - 1X, 3X, 5X, 0 (zero)
  - Inert and/or free of explosives or related materials
  - Contains no items of a dangerous or hazardous nature
  - Safe or Hazardous
  - Pick one and equate it to an acceptable level of risk and measurable/observable conditions.
Requirements Analysis
Key Issue 1: Terms and Definitions (Cont.)

What category does this stuff belong to?

- AEDA
- AEDA Residue (undefined)
- Ammunition Scrap
- Group 1a
- Group 1b
- Group 2
- Range Residue
- Small Arms Casings
- Ordinance Items (undefined)
- Explosives
- Live AEDA (undefined)
- Explosives Contaminated Material (undefined)
- Explosives Contaminated Property
Requirements Analysis
Key Issue 2: Standards/Methods for Determining/Mitigating Explosive Hazard

- **Standards:**
  - “free of explosives” – unnecessarily stringent
  - “X” standards – broadly misinterpreted/misapplied
  - “safe and hazardous” – OK but need more precision

- **Methods:**
  - Visual Inspection: Required? Sufficient? When?
  - Chemical/Thermal Treatment: Required? When? Safe? Visual inspection too?
  - Venting: When? Why?
  - No longer resembles munitions: When? Why? All?
  - Closed Circuit Process: When? How?
“Safe or Hazardous” is first hurdle

- What does “safe” mean? Safe for what?
  - Unrestricted use?
  - Recycling?
  - Processing by “qualified” MPPEH handlers?
- Most MPPEH is recycled as scrap metal:
  - Transported on public highways
  - Processed (exposed to heat, shock, or friction)
  - Smelted
  - Need a partnership with scrap metal recycling industry

- **Recommendation**: Safe (generally) = “safe for methods, processes and levels of care common to the scrap metal recycling industry”

- **Recommendation**: Use a standardized hazard assessment (e.g., RAC)

Risk is a function of both material conditions and management methods.
Requirements Analysis
Recommendation: Make Decisions Based on Risk Management Process

- **Combinations of Materials and Processes**
  - Identify Hazards

- **Hazard Assessment Method**
  - Assess Risks

- **Acceptable Level of Risk**
  - Make Risk Decisions

- **Risk Reduction/Management Controls**
  - Develop/Implement Controls

- **Continual Improvement/Lessons Learned**
  - Implement Command Review

Based on existing Operational Risk Management approach.
Recommendation:
Leveraging a Source of Corporate Knowledge

Center of Excellence

Corporate Process Knowledge

Material Specific Information

Lessons-learned
Continual Improvement

Installations: Material-Specific Management Decisions
Requirements Analysis
Recommendation: Processes and Controls for Managing Explosive Hazards

- Guidance must address **How** and **When** to Apply:
  - Visual Inspection
  - Treatment
  - Venting
  - Deforming
  - Receipt by Qualified Buyers
  - Chain of custody
  - Closed-circuit process

- Address intent, standards, and sequence
- Suggest viable process flows

Controls applied based on results of risk analysis/management process.
Requirements Analysis
Recommendations:
Process Flows/Sequencing

Collection/Consolidation

Internal cavities?

Destined for Qualified Receiver?

Yes

No

Or

Venting

Inspection & Certification/Re-inspection & Validation

Safe or Hazardous

Safe

Hazardous

Document, Segregate & Secure

Explosive Risk Evaluation

Process: -Demil -Package -Sort

Qualified Receiver?

Yes

No

Decontaminate or Treat

Transfer/Transport

Final Disposition (Smelt)

End-use Certificate

Chain of Custody
Requirements Analysis
Key Issue #3: Demilitarization and Trade Security

• Application of Demil Codes (particularly G) is poorly understood

• Munitions Demil method: “As economically as possible to ensure freedom from explosive (or other)...hazards”
  • Inert projectiles: remove rotator bands and expose filler
  • Target hulks: May require “key point” demilitarization
  • Some components of munitions and equipment require “total destruction”
Requirements Analysis
Key Issue #3: Demilitarization and Trade Security

Applicability of Item-specific demil requirements to used items.
Requirements Analysis
Key Issue #3: Demilitarization and Trade Security

- **IF** most MPPEH is recycled as scrap metal (smelted), chain of custody required, venting required, no explosive hazard...

  - Doesn’t this equate to demil?
  - Potential for administrative processes to resolve demil requirements?

Can we streamline or cut out process steps?
Current policies require assignment of hazard classifications prior to MPPEH shipment.

How are hazard classifications assigned to MPPEH?
- Testing
- Analogy
- Pre-1980
- Non-new item
- UXO? (Ship as 1.1, compatibility, blocking/bracing/packing)

**Recommendation:** Stress MPPEH certified “safe” does not require explosive hazard classification.

**Recommendation:** Capture/provide decision criteria for RCRA exclusions and exemptions for recyclable material.
Purpose: Ensure understanding of MPPEH processes currently used by the DoD

- Participants: Over 150 respondents
  - OSD (DDESB, I&E)
  - Army (IMA, ATEC, JMC, COE, DAC)
  - Navy
  - Marine Corps
  - Air Force
  - Scrap Metal Recycling Industry (ISRI liaison)
  - Ordnance Contractors (NAOC liaison)

- Format: Web-based survey (16 Jan – 16 Feb)
Welcome to the DoD MPPEH Survey and Forum Website. Your participation in filling out the survey and attending the forum will greatly assist DoD in developing policy and guidance to military bases across the country in how to safely and effectively manage MPPEH.

Survey ID
Password
Login to Survey

Request Survey ID and Password
Forgot Survey ID and/or Password

To register for the forum or to update a previous registration, enter your Email address and click on the Forum Registration button.

Email
Forum Registration
Overview: DoD MPPEH Web-based Survey

- Personal Information:
  - Who are you?
  - What do you do w/ MPPEH?
- What kinds of MPPEH do you manage?
  - How (processes and equipment) do you manage this material?
  - Why (requirement citation) do you manager this material in this way?
- Challenges?
- Successes and innovations?
- Most problematic/least understood requirements?
# Participant Activity

<table>
<thead>
<tr>
<th>Service</th>
<th>Password Sent</th>
<th>Started Survey</th>
<th>Finished Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Force</td>
<td>2</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Army</td>
<td>25</td>
<td>52</td>
<td>17</td>
</tr>
<tr>
<td>USMC</td>
<td>3</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Navy</td>
<td>5</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>Contractors</td>
<td>19</td>
<td>15</td>
<td>3</td>
</tr>
<tr>
<td>Other</td>
<td>12</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>66</strong></td>
<td><strong>93</strong></td>
<td><strong>38</strong></td>
</tr>
</tbody>
</table>

Total Active Participants (Started or Finished) = 131
MPPEH Processing Categories (contd)
What is the #1 Challenge????

**LACK of CLEAR, CONSISTENT GUIDANCE!!!**

Others:
- Lack of manpower/funding
- Equipment maintenance

Several requests for consolidated guidance and cross-referencing within existing guidance documents.
MPPEH Survey Results
Most confusing/problematic requirements???

- Costly/time consuming inspection and certification.
- Conflicting requirements for inspection and certification.
- Understanding demil requirements for specific items.
- Application of RCRA requirements.
- Proper storage space limitations.
- Chain of custody/security.

Evidence of terminology inconsistencies and cost constraints.
Business Process Analysis
Step 3 MPPEH Forum

- 7-9 March 06, Aberdeen Proving Ground, MD
- 90+ attendees from public and private sector
- Opportunity for MPPEH requirement “owners” and MPPEH managers to present and discuss:
  - the methods and rationale for specific MPPEH management practices (i.e., How we manage MPPEH? Why we manage MPPEH the way we do?);
  - the effectiveness of current DoD guidance; and
  - the challenges faced by installation personnel in the management of MPPEH.

Frank and open discussions about what works and what doesn’t.
Business Process Analysis: Project Timeline

QUESTIONS?

Brian Helmlinger
URS
703-18-3340
Brian_helmlinger@urscorp.com