

Material Potentially Presenting an Explosive Hazard

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- MPPEH: What is it?
- The Problem
- DoD Policy and Guidance Development
 - Background
 - Risks and Key Requirements
- OEESCM Initiative
 - Objective
 - MPPEH Business Process Analysis
 - The Way Forward
- Outstanding Issue: Documenting Explosives Safety Status

What is MPPEH?

Material potentially containing an explosive fill or munitions



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 explosive residues such that the material presents an explosive hazard

May include equipment or facilities - Associated With Munitions Production, Demilitarization or Disposal Operations



**Building Remediation or Demolition
Cornhusker Army Ammunition Plant (AAP)**



**Building Remediation or Demolition
Kansas AAP**

- **Live-Fire Operations at Test and Training Ranges**
- **Munitions Response Program Activities at:**
 - **BRAC Properties**
 - **FUDS**
 - **Active Installations**
- **Range Clearance Activities**
- **Military Munitions Operating Facilities**
 - **Active**
 - **Excessed or Dismantled**

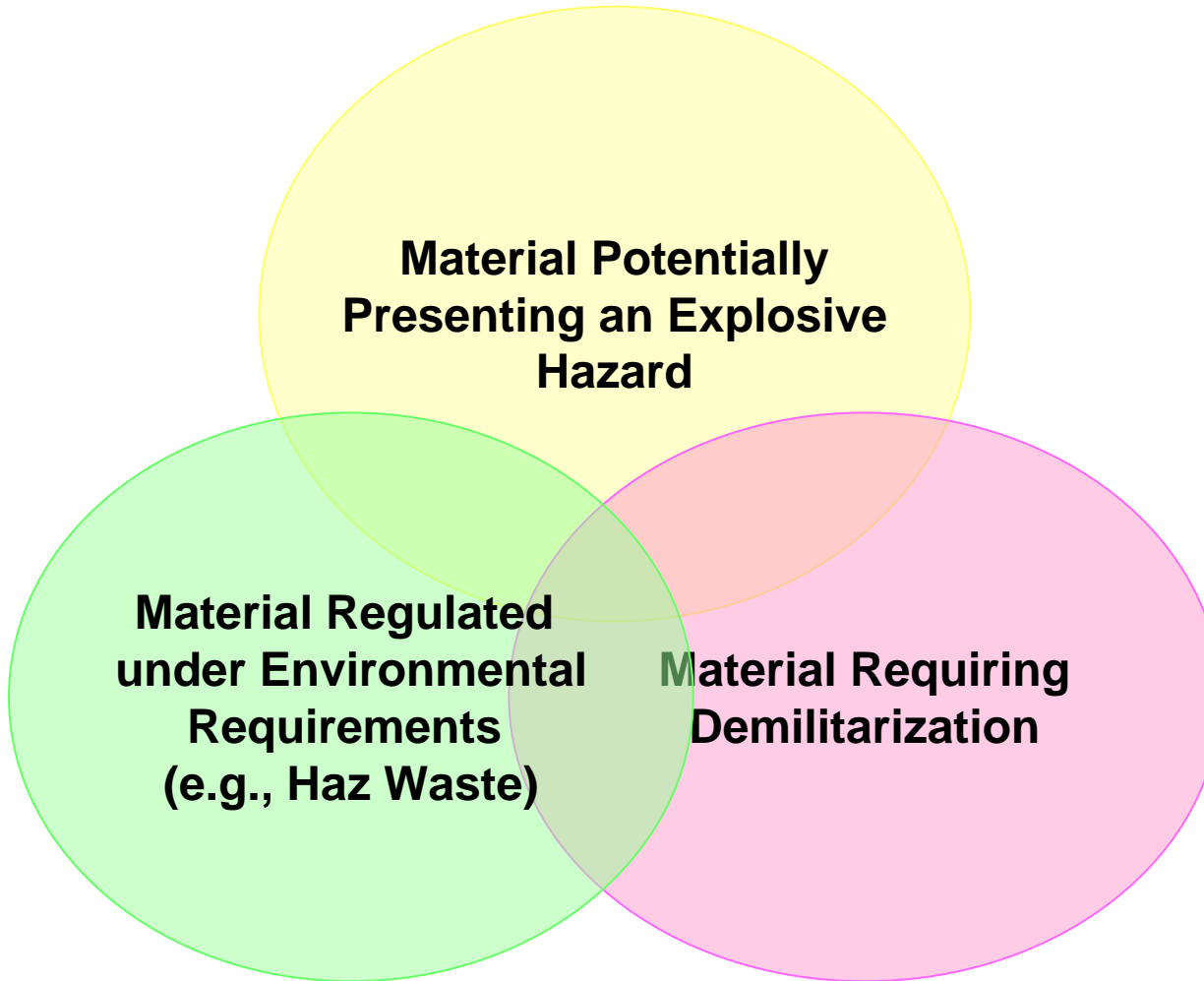
The Problem – “*Just the Facts*”

- **1942 – Alabama:** two killed when accumulation of nitrocellulose detonated in scrap metal bailing machine
- **1943 – Pennsylvania:** two killed when live round placed in furnace with scrap steel
- **1946 – Tennessee:** **three** killed/four injured when scrap (piping) from munitions plant detonates
- **1950 – Colorado:** furnace detonates when munition “cook off” (five more munitions found in scrap)
- **1960 – Arizona:** rocket motor (sold as “inert”) ignites, travels five blocks and goes through a house (five more rockets found in scrap) in AZ
- **1975 – Texas:** one killed when “ordinary piece of metal” explodes
- **1980 – Washington:** salvage equipment damaged when 66MM HE rocket explodes
- **1997 – California:** one killed when HEAT round (sold as scrap) detonates when being cut with a torch
- **1997 – Montana:** detonation in smelting furnace
- **2002 – Maryland:** **two** injured when 90MM projectile certified as inert detonates in scrap yard in MD

Los Angeles Times, Section A, Tuesday, November 25, 1997
Safety Expert Held in Fatal Shell Explosion

- **Mid-Late 90's: DoD IG reports mishandling of range-generated 'scrap' (April '97 Fontana fatality)**
- **Late 90's: Several DoD groups/IPTs unsuccessfully attempt to address issues**
- **October 99: OEESCM formed 'AEDA' Workgroup to develop DoD policy**
- **Early 2000's: DoD formal coordination, many hits and misses**
- **December 04: DoD issues DoDI 4140.62, Management and Disposition of MPPEH - requires DoD guidance**
- **OEESCM Work Group Convenes late 2005 to "develop DoD guidance"**
 - **Workgroup Chair J. C. King ASA(I&E)**
 - **All Services engaged**

Risk and Liabilities



- **DoDI 4140.62, Management and Disposition of MPPEH**
- **DoD 6055.9-STD, DoD Ammunition and Explosives Safety Standards, Chapter 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**

- **DoD 6055.9-STD, Chapter 16**
- **Joint TB 700-2, DoD Ammunition and Explosives Hazard Classification Procedures**

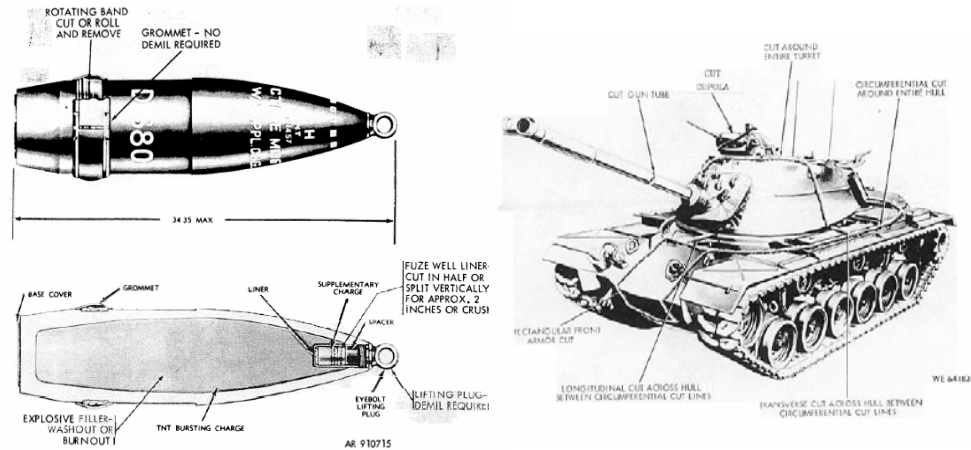


Criteria intended to protect personnel and property from unintentional exposure to potential explosive hazards associated with material being transferred within or released from DoD control.

- Document as “safe” (free from explosive hazard) or “hazardous” via:
 - Inspecting - multiple visual inspections
 - Processing through DDESB-approved means
- Segregate, mark, and secure
- Vent all internal cavities
- Deform or mutilate to eliminate munition characteristics
- Explosives Safety Siting for MPPEH processing locations
- Hazard classifications for transporting over public roads
- Maintain chain of custody – goal attain closed circuit process through “final disposition” (metal ingot), when possible
- Qualifications (training and experience) for MPPEH handlers (DoD and Receivers)



- DoDD 2030.8, Trade Security Controls – DoD Excess & Surplus Personal Property
- DoD 4160.21-M, Defense Materiel Disposition Manual
- DoD 4160.21-M-1, DoD Demilitarization Manual



Demil is the act of destroying the offensive or defensive advantages inherent in certain types of military equipment

Prior to 1997 trade security was the objective, with explosive safety a characteristic in need of redress

Munitions List Item (MLI)

- **The State Department Office of Defense Trade Controls regulates Defense Articles (Weapons Systems)**
- **22 USC 2778 – Arms Export Control Act**
- **22 CFR 120-130 – International Traffic in Arms Regulation**



Commerce Control List Item (CCLI)

- **Commerce Department regulates export of Commodities and technical data (software)**
- **U.S. Export Administration Regulations**



- **Military Munitions Rule applicability**
- **Scrap metal “exemption” and *process scrap metal* “exclusion” under RCRA**
- **Potential permitting implications of thermal treatment (e.g. RCRA, CAA, etc.)**
- **State-specific requirements may be more stringent than federal**
- **Due diligence associated with transfer of material to recyclers**



- DoDD 6055.9-STD
- DoDI 4140.62
- DLA 4160.21-M (-1)
- TB 700-4

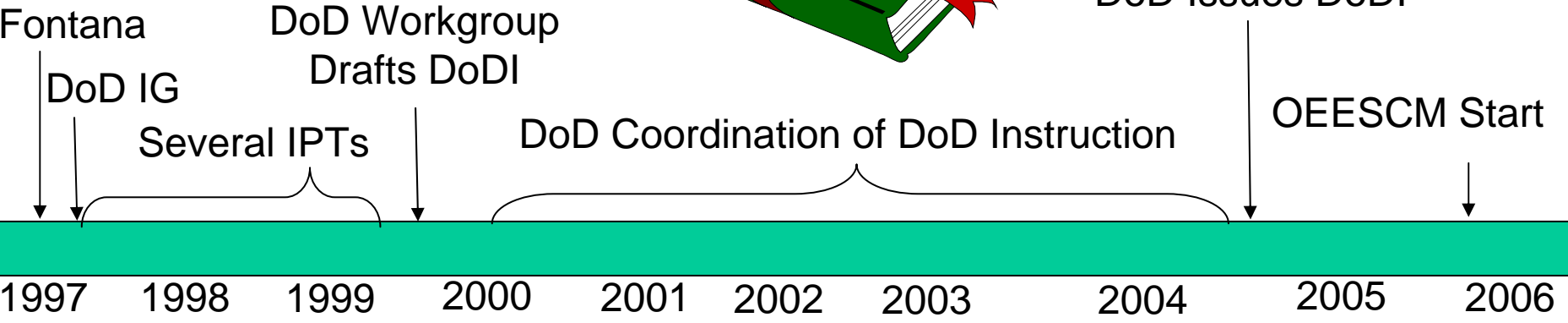
MPPEH Business Process Analysis

Revise 4160.21-M

Joint-Service MPPEH Implementing Guidance

DDESB Ch. 16

DoD Issues DoDI



➤ **Purpose: Ensure the knowledge base necessary to develop DoD Guidance on MPPEH**

- Understand/clarify our corporate objectives for MPPEH management and review supporting documentation
- 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

Business Process Analysis

Three Step Process

- **Business Process Analysis - Completed December 2006**
- **4160.21- M DLA Disposition Manual**
 - Initial draft July 2006
 - Received (2) rounds WG comments
 - Meet with DLA and Forward Final from OEESCM Chair to DLA
- **MPPEH Manual**
 - Outline forwarded to and comments received from WG
 - Developing 1st draft

Major Issue Being Worked:

**Explosives Safety Standards for
Management of MPPEH**

- **Determination of explosives safety status of MPPEH**
- **Process for obtaining DDESB approval of MPPEH processing procedures or technology**

- **Safe**: does not present an explosive hazard, and is safe for “unrestricted transfer or release”
- **Hazardous**: poses a known or suspected explosive hazard, releasable only to a “qualified receiver”

“Safe” currently = safe under all possible conditions and uses. If this standard is not attained, the material must be released as “hazardous.”

Basis for Explosives Safety Documentation

- **Visual Inspection**
 - Currently, MPPEH is visually inspected
 - A large amount is physically processed to facilitate inspections:
 - Cavities opened
 - Surfaces exposed
- **DDESB-Approved Procedures**
 - Some MPPEH is physically processed in hopes of removing explosive properties (e.g., hammer mills, ordnance deformers/crushers)
 - A small amount is thermally or chemically processed in hopes of removing explosive properties (e.g., flashing/popping furnaces, hot gas decon, base hydrolysis)
 - There are currently NO formally recognized DDESB-approved processing procedures for attaining “safe” standard

How much of the MPPEH released from DoD is suitable for release to the “general public” for unrestricted use?

Disposition of MPPEH: Where Does DoD MPPEH Go?

- **The majority of MPPEH is (eventually):**
 - **Recycled as:**
 - Scrap metal
 - Other materials (e.g., wood chips, reclaimed concrete road bed); or
 - **Placed in a land fill**
- **A small amount of MPPEH determined safe may be directly reused in its current condition without further processing (e.g., ammunitions cans)**

Is it prudent risk management to release the majority of this material to the “general public” for unrestricted use?

- **Safe**: Some material documented as safe:
 - May be directly reused in its current form by the general public - released for unrestricted use
 - Is best suited for recycling or disposal - released for recycling or disposal, and processed under conditions and management typical of the recycling or waste disposal industries
- **Hazardous**: poses a known or suspected explosive hazard and releasable only to “qualified receivers”

Documentation of explosives safety status will include the purpose for which the material is being released.

Material Documented as Safe

“The material listed on this form has been inspected or processed by DDESB-approved means, as required by DoD policy, and to the best of my knowledge and belief does not pose an explosive hazard. This material is approved for release for:

Unrestricted Use: _____ (sign)

Recycling: _____ (sign)

Permanent Disposal: _____ (sign)

(Note: This documentation only remains valid if the material listed on this form remains properly segregated and secured, and the chain of custody is maintained until its release from DoD control.)”

MPPEH documented as Hazardous

"The MPPEH listed on this form has been inspected or processed by DDESB-approved means, per DoD policy, and to the best of my knowledge and belief presents the known or suspected explosive hazards listed."

This documentation will provide specific information about the explosive hazard presented and should be augmented, when appropriate, with additional available information. Some examples of information that should be provided are:

- **Type of explosive hazard (e.g., military munitions up to 105 mm HE, estimated 5 pounds net explosive weight (NEW) of TNT);**
- **Presence and description of any unvented internal cavities; or**
- **Estimated maximum credible given the NEW present.**

- **Methods for determining the explosives safety status should be based on risk management, be appropriate for the material, and consider the intended receiver and use**
- **Procedures for documenting the status as “safe” must ensure material is safe from an explosives safety perspective when:**
 - **Exposed to heat, shock, and friction**
 - **Transported over public traffic routes**
 - **Cut or shredded with heavy equipment and torches**
 - **Melt in all common metal reclamation facility types (e.g., electric arc)**
 - **Disposed of in a landfill**
 - **Other**

Consideration of a material’s condition and ability to be used in its current form may allow DoD activities to be more comfortable with documenting material as “safe”

- **DDESB-approval of procedures or technology for ensuring material is “safe” is based on a hazard assessment that considers:**
 - Explosives safety
 - The material
 - Management procedures and processing
 - QA/QC procedures
 - Material’s condition at transfer
 - The conditions and forces to which material will be exposed upon transfer or release
 - Test data

DDESB-approval focus on the protectiveness of the technology or procedures to be used to process the material to be transferred or released

- **Modify DDESB STD 6055.9, Chapter 16 to clarify the “safe” explosive safety determination.**
- **Evaluate and document scrap metal industry material management procedures and processes to assess hazards associated with the management of DoD range and munitions debris.**
- **Evaluate and document the amounts, types, and configurations of military munitions “safe” for recycling and disposal.**
 - **Collection and analysis of empirical data**
 - **Qualitative hazard assessment by ammunition industry experts**
- **Develop DDESB procedures for approving technology and procedures that:**
 - **Standardize the contents of submission**
 - **Define the approval process**

QUESTIONS?

