Ammunition Demilitarization Research Development Technology and Engineering Program Update

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Agenda

- Program Purpose/Goals
- Program Refinement
  - Project Selection
  - Project Planning and Execution
  - Transition
- Focus Areas
- Consideration
- Opportunities
- Summary
PM Demil manages a 6.6 funded RDT&E Technology Program which supports the execution of Conventional Ammunition Demil (CAD) and Missile Demil

Demil Enterprise is committed to reducing the Demil Stockpile

Demil Enterprise is targeting analytically supported investments to expand and improve demil capabilities

Collaborating with Demil Strategic Execution Planning (DSEP) team to focus efforts on the Top 400 stockpile items

RDTE investments will support Enterprise Strategic Planning initiatives
Demil Technology Program

Purpose

- Under DoD 5160.68, Program Executive Officer, Ammunition, as the Single Item Manager, delegated PM-Demil to “Demilitarize and dispose of all conventional ammunition, including non-SMCA-managed items, for which capability, technology, and facilities exist to complete demilitarization and disposal."

- In support of the delegated responsibility, the Demil enterprise shall “Plan, program, budget and fund a joint-Service research and development program for developing the capacity where capability, technology and facilities do not exist”.

RDTE Program to support demil and disposal of conventional ammo and missiles
Demil Technology Program

Goals

- Develop, plan and execute technology projects in support of CAD and Missile Demil execution

- Transition mature technology projects to production capabilities supporting Enterprise execution goals

- Continuously improve the efficiency and effectiveness of capabilities in the Demil Enterprise

Develop and improve production capabilities and capacity for CAD and Missile Demil
Program Refinement
Solution Analysis and Project Selection

➢ DSEP Requirement verified
  • Utilize Stockpile Analysis (Top 400 items)
  • Complete Analysis of Alternatives
    – Organic vs. Commercial Industrial Base
    – New vs. Improvements to existing hardware or processes
    – Development of omnivorous capabilities are encouraged
  • “Make/Buy” Decision

➢ Individual technologies are required to be adequately mature (prior to capability integration)
  • Projects are required to have production merit – no applied research or “science projects”
  • Technology Readiness Level (TRL) – 6 and above
  • Manufacturing Readiness Level (MRL) – 4 and above

Projects must be requirement driven and adequately mature
Program Refinement
Project Planning and Execution

- Stakeholder requirements defined up front and subsequent project plan developed
  - Demil Project Baseline Agreement
- Project Plans must be comprehensive – cradle to grave
  - 3 – 5 year Transition target
  - Acquisition Strategy
  - Affordability
  - Integrated Master Schedule
  - Systems Engineering
  - Life Cycle Logistics
  - Transition
  - Operations and Sustainment
- Systems Engineering Processes to consider
  - Requirements Management
  - Risk Management
  - Configuration Management
- Systems Engineering Activities to consider
  - Preliminary and Critical Design Reviews
  - Test Readiness Reviews
  - Integrated Test and Evaluation
  - System Verification Review
  - Demonstration Validation (Initial Operational Testing)
  - Operational Demonstration (Operational Test & Evaluation)

Align mature RDTE projects with Defense Acquisition Management System
Program Refinement
Project Transition

- Transition is defined as the point at which a RDTE technology project is complete and the capability is in place
  - Design is stable
  - System meets requirements and demonstrated via operational test
  - Technical Data Package and Operation and Sustainment processes in place
- Transition planning should be addressed as part of the project plan
- Transition activities should be conducted throughout the life of the project
- Capability Transition should be coordinated with the Execution Team across the Enterprise
- Several projects are to be transitioned in the near term
  - McAlester Cryo-Fracture Destruction Facility (MCDF)
  - LEMC AP Rocket Motor Propellant Destruction
  - CBU-87 Demil Capability

Transition activities need to be initiated earlier in the project life cycle
## Demilitarization RDTE Projects

<table>
<thead>
<tr>
<th>PROJECT</th>
<th>LOCATION</th>
<th>PURPOSE</th>
<th>END ITEM IMPACTED</th>
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<tbody>
<tr>
<td>Ammonium Perchlorate (AP) Motor Thermal Processing</td>
<td>LEMC</td>
<td>Closed Disposal, thermal destruction of AP-Based Rocket Motors</td>
<td>Cluster Munitions &amp; Rocket Motors</td>
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<tr>
<td>Munitions Cryofracture Demilitarization Facility (MCDF)</td>
<td>MCAAP</td>
<td>Download, Cryogenic Freezing of Mines, Size Reduction, Thermal Treatment and waste disposal</td>
<td>Non-Persistent, AP Landmines</td>
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<tr>
<td>Demil by Induction Heating Meltout System (DIHMES)</td>
<td>HWAD</td>
<td>Closed Disposal Capability via Inductive Heating</td>
<td>60mm Mortars</td>
</tr>
<tr>
<td>CBU-87 Download and Disposal</td>
<td>HWAD</td>
<td>Provide complete capability to demil CBU-87 munitions and BLU-97 submunitions</td>
<td>Cluster Munitions</td>
</tr>
<tr>
<td>Red Phosphorous (RP) Closed Disposal Capability</td>
<td>CAAA</td>
<td>Capability to remove grenade RP fill and process in Phosphoric Acid Recovery Plant (APE 1400)</td>
<td>Red Phosphorous Munitions</td>
</tr>
</tbody>
</table>
Demil Technology Activity

- **Focus:** Destructive / Disassembly / R3 / Removal / Waste Stream processes

<table>
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<tr>
<th>Prior Year</th>
<th>Now – FY17</th>
<th>On the Horizon</th>
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<tr>
<td>M42/M46/M77 ICM R3 (HWAD)</td>
<td>Munitions Cryofracture Demilitarization Facility (MCDF) (MCAAP)</td>
<td>AP Motor Destruction Facility (LEMC)</td>
</tr>
<tr>
<td>Flexible Munitions Residue Inspection System (FMRIS) (HWAD)</td>
<td>Demil by Induction Heating Meltout (HWAD)</td>
<td>MLRS Missile Recycling Center (ANMC)</td>
</tr>
<tr>
<td>Projectile Download Work Cell (PDWC) (MCAAP)</td>
<td>CBU-87 Download &amp; OD (HWAD)</td>
<td>NAVY 16” Projectile Washout Capability (CAAA)</td>
</tr>
<tr>
<td>High Pressure Water Washout (HPWWO) (HWAD)</td>
<td>Bullpup Closed Disposal (ANMC)</td>
<td>Rockeye Download/Demil Capability (CAAA)</td>
</tr>
<tr>
<td>Rotary Kiln Incinerator Productivity Improvement (RKPI) (Non Site)</td>
<td>RP Closed Disposal (CAAA)</td>
<td>Reactive Armor Tile Demil (MCAAP)</td>
</tr>
<tr>
<td>IMX 101 Autoclave Improvements (Non Site)</td>
<td>Static Detonation Chamber Testing (ANMC)</td>
<td>Engine Starter Cartridge Stands (MCAAP)</td>
</tr>
</tbody>
</table>

- DIHMES
- HPWWO
- PDWC
- Castalia
Opportunities
Process and Efficiency Improvements

➢ Cluster Munitions Demil
  • DPICM
  • CBU
  • MLRS

➢ FASCAM Munitions
  • ADAM
  • Gator
  • RAAM

➢ Partnering Necessary to Implement

Reduce Demil Costs

Requirements will be developed in cooperation with DSEP Team – Focused on Top 400 stockpile reduction!
Summary

Focus
- More mature projects
- Comprehensive projects
- RDTE ends when transition is successfully completed
- Quick transition

The Enterprise is Committed to reducing the Demil Stockpile
- Adding capability and increasing execution efficiencies are our supporting goals
- Commercial technologies funded in initial production