DoD Fuze
Integrated Product Team

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20 May 2009

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Agenda

• DoD Fuze IPT - Membership / Strategic Plan

• Vision / Fuze Roadmaps
  – High Reliability
  – Tailorable Effects
  – Hard Target

• DoD Fuze Science & Technology Program
  – History
  – FATGs
  – Process / DOTC

• TATB
Secretary of Defense
Hon. Robert Gates

Deputy Secretary of Defense
Hon. William Lynn

Under Secretary of Defense for Acquisition, Technology & Logistics
Hon. Ashton Carter

Principal Deputy: Vacant

Secretary of the Army
Hon. Pete Geren

Secretary of the Navy
Actg. Hon. BJ Penn

Secretary of the Air Force
Hon. Michael Donley

DUSD(Acquisition & Technology)
Vacant

Director, Portfolio Systems
Acquisition
Mr. Dave Ahern

Land Warfare & Munitions
Mr. Tony Melita
DoD Fuze IPT Membership

• OSD
  – AT&L / Land Warfare & Munitions
  – AT&L / Defense Threat Reduction Agency
  – AT&L / Director of Defense Research & Engineering
  – AT&L / DCMA
  – Policy

• Military Services
  – Air Force
  – Army
  – Marines Corps
  – Navy

• Department of Energy
  – Lawrence Livermore National Laboratory
  – Los Alamos National Laboratory
  – Sandia National Laboratories
Strategic Plan

• Fuze Industrial Base Strategic Plan
  – Goal #1: Advance and maintain a healthy U.S. contractor base

  – Goal #2: Ensure that the Government develops and maintains the capability to execute its responsibility to assure the safety and suitability for service of fuze systems

• Fuze Technology Base Strategic Plan
  – Goal #1: Advance and maintain a healthy U.S. fuze technology base

  – Goal #2: Establish early and continued Government involvement in the development, application, and transition of fuze technology to munitions development
Fuze Roadmap
Background / Drivers

• Address priority capabilities identified in strategic guidance
  – Hard target / Agent defeat / Minimum collateral damage
• Address new DoD cluster munitions policy (<1% UXO) June 19, 2008
  – Precludes use of non-compliant cluster munitions; > 5 million in U.S. inventory
  – No waivers, no grandfather clause
• Increasing efficiency and effectiveness of the fuzing technology base & industrial base
  – Need to provide enabling fuze technologies to support future needs
  – Exploit enabling technologies to provide fuzing capabilities for miniaturization and high reliability
High Reliability Fuzing for (Cluster) Munitions Vision

Short term - Self-Destruct Fuzing (SDF)
  • Develop a submunition fuze that approach requirement of 1% UXO
  • Retrofit SDF on existing DPICM hardware

5-8 Years – High Reliability CM Fuzing
  Completely new submunition that:
  • Virtual elimination of UXO via fuze reliability using Tri-Modal Fuzing
  • Maintain effectiveness against traditional DPICM target sets
  • Relatively low cost to implement

Long Term – High Reliability
  • Universal fuze architecture that can achieve <1% UXO for all weapons

99% + Reliability Fuzing
Tailorable Effects Weapon Vision

SDB-FLM

MK-82-FLM

Low Collateral & MK-82

Practice Bombs

= Dial A Yield Weapon

Reducing Collateral Damage and Optimized Lethality by Matching Output to Target
Hard Target and High Speed Weapon Fuzing Vision

**Advanced Legacy Penetrators**
- BLU-109, BLU-122
- Survive 10+ ksi, 2000 fps
- 10+ ksi concrete, survivability, Initial CCM

**Boosted Penetrator**
- Survive 4000 fps
- 10+ ksi concrete; UHPC, Enhanced CCM

**CAV-like/ Hypersonic Weapon**
- Survive 4000+ fps
- UHPC,
- Geological structures (granite), Advance CCM
DoD Fuze S&T Program
Overview

• Established program in the POM10 process

• High Reliability and Survivability were drivers

• Funding approved for FY10-15: $79.8M
  – 6.2 and 6.3 funding sources

• $10.6M in FY10
JFTP History

Need for Joint Fuze Technology:
• Address priority capabilities identified in strategic guidance: Hard target / Agent defeat / Minimum collateral damage
• Address new DoD cluster munitions policy (<1% UXO) June 19, 2008
  • Precludes use of non-compliant cluster munitions
  • No waivers, no grandfather clause

2009; DoD Fuze Technology Program Established

Dec 2008: Joint Fuze Technology Program Office Established

Nov – Jan 2009: Program Leadership Structure Established

March – Aug 2009: Program reviews and FY10+ investment strategy developed

Aug 2009: First TAC Meeting

Oct 2010: First available funding to initial performers

First annual process is FY10 start
## FATG Leads

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<td>Howard White</td>
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<td>Chris Janow</td>
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Annual Cycle

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**Project Execution**

- Fall Tech. Mtg
  - Technical Review of Progress
- Spring Program Mtg
  - Review existing and proposed progress/plans
- TAC Mtg
  - Senior Review of Program Status and Plans

**Idea Submission**

- White Papers Due
  - Mtg + 1 mo
- Idea Selection
- Program Plan Revision/Build
- Select Projects
  - Prepare Budget
- FATG Roadmap Update
- FATG Roadmap Update

Today
FY11 JFTP Submission

➢ ALL DATES TENTATIVE

• Mid-November ‘09 Call for FY11 White Papers (DOTC)
• Mid-December ‘09 – Suspense for White Papers
• Early February ‘10 – Select New Ideas for Project Plan development
• Mid-March ‘10 – Project Plans due
• Early April ’10 – New Idea Project Plans briefed in closed session
• Mid-May ’10 - Final Project Plans due
• Late June ’10 - Budget Meeting – Projects selected for FY11 funding recommendation
• Early Aug ’10 - JIMTP TAC – Approval of FY11 budget
DoD Ordnance Technology Consortium (DOTC)

Government Laboratories

- OUSD (AT&L) LW&M
- Department of The Army
- Department of the Navy
- Department of the Air Force
- Department of Energy
- Special Operations Command
- Other Agencies and Departments

National Warheads & Energetics Consortium

- Defense Contractors
- Traditional & Non-Traditional
- Academic Institutions
- Not-for-Profits Organizations

DoD and NWEC… Partnering to Leverage Capabilities and Investment
DOTC Benefits

• The DOTC OTA (FY09-FY16, $700M) is established and available to obligate funding

• Better collaboration among Government labs
  – Engagement of more DoD/DOE labs
  – Leveraging established DoD IPT processes

• DOTC supports partnerships, use of non-traditional contractors and education outreach

• DOTC provides a focal point to rapidly transfer technology to the Warfighter

• Visit web site at www.nwec-dotc.org for additional information
Road Ahead

• The DoD Fuze S&T program is late to need – WILL CONTINUE TO JUSTIFY NEED

• Program is addressing critical warfighter capabilities
  – Reliability
  – Survivability

• Our Investments are in 6.2 Applied Research and 6.3 Advanced Technology Development Fuzing

• Want to leverage DOTC to encourage NWEC submission of New Ideas in FY10 and beyond

• Need to ensure collaboration between Government and Industry
TATB
UPDATE
Background

• Triaminotrinitrobenzene (TATB) is one of the least sensitive explosive materials known
  – TATB is a critical ingredient in the booster explosives PBXN-7 and PBXW-14 for DoD applications
  – TATB is used in PBX 9502 and LX-17 for DOE applications

• 1993 CONUS TATB production ceased

• 1999 DoD begins OCONUS TATB procurement

• 2001 MANTECH efforts initiated

• 2005 last qualified OCONUS source ceased production and closed in 2006
Background

- 2006 DoD qualified BAE/Holston as a supplier for PBXN-7 using DOE/Pantex TATB (surplus)

- 2006 MANTECH unsuccessful in developing a production source for TATB within Spec.

- 2007 TATB DoD/DOE Working Group formed

- 2008 TATB NNSA/DOE Study Group formed
Current Systems Using TATB

• TATB is used in Two Booster Explosive Formulations
  – PBXN-7 (60% TATB, 35% RDX, 5% Viton A)
    1. FMU-139 fuze for BLU-110/111/113/117/126 and MK82/83/84 – 0.31 lb.
    2. FMU-152 fuze for BLU-110/111/113/117/126 and MK82/83/84 – 0.34 lb.
    3. FMU-143 fuze for BLU-116 and BLU-109 – 0.31 lb.
    4. BBU-47/B fuze booster for Tactical Tomahawk – 0.27 lb.
    5. BBU-60/B fuze booster for SLAM ER – 0.44 lb.
    6. MK436 fuze for MK146 (M229) warhead for 2.75” Rocket – ~0.02 lb.
    7. JSOW fuze – 0.34 lb.
    8. Mk 75 Safe and Arming Device booster for Quickstrike Mine– 0.64 lb
  – PBXW-14 (50% HMX, 45% TATB, 5% Viton A)
    9. M734A1 fuze for the Army and USMC M934 120-mm mortar – 0.02 lb.

• TATB is used in PBX 9502 and LX-17 applications for DOE
Issues

• **NO QUALIFIED INDUSTRIAL BASE CAPABILITY TO PRODUCE TATB (CONUS OR OCONUS)**

• NO CONUS TCB Manufacture (RFI issued)
  – Environmental production challenges

• Time to establish path to a CONUS suppliers
Timeline

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Assumptions:

- TATB will be a "drop-in" replacement for existing TATB
- No system (fuze) level qualification required
- Contract award to two vendors for qualified TATB
- USG has oversight of projects
- US Army manages facilities contract
- OSD program oversite with DoD Fuze IPT TATB DoD/DOE Working Group
- BAE Holston manufactures PBXN-7
Way Ahead

• Reestablish Benziger TATB Route

• Leverage DOE TATB Strategic Stockpile

• Funding for reclaimed TATB
Bottomline

• DoD will be dependent on DoE stockpile for at least the next two to three years

• Earliest relief may come from reclamation effort

• TATB will ONLY be available for DoD components and FMS
Questions??