DoD Fuze Integrated Product Team

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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

DUSD(Acquisition & Technology)
Vacant

Secretary of the Army
Hon. Pete Geren

Secretary of the Navy
Actg. Hon. BJ Penn

Secretary of the Air Force
Hon. Michael Donley

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

99% + Reliability Fuzing

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

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),

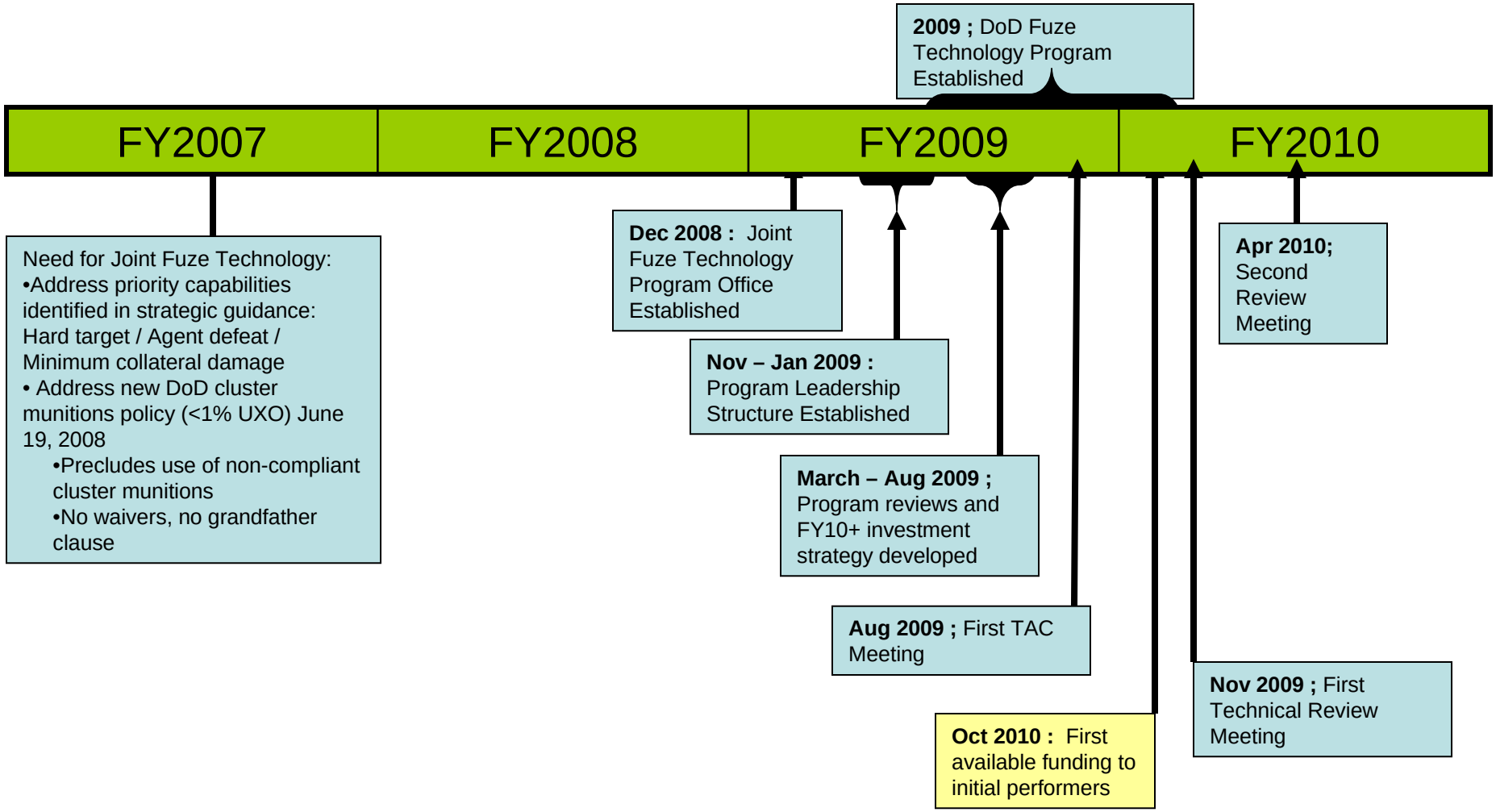
Advance CCM

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

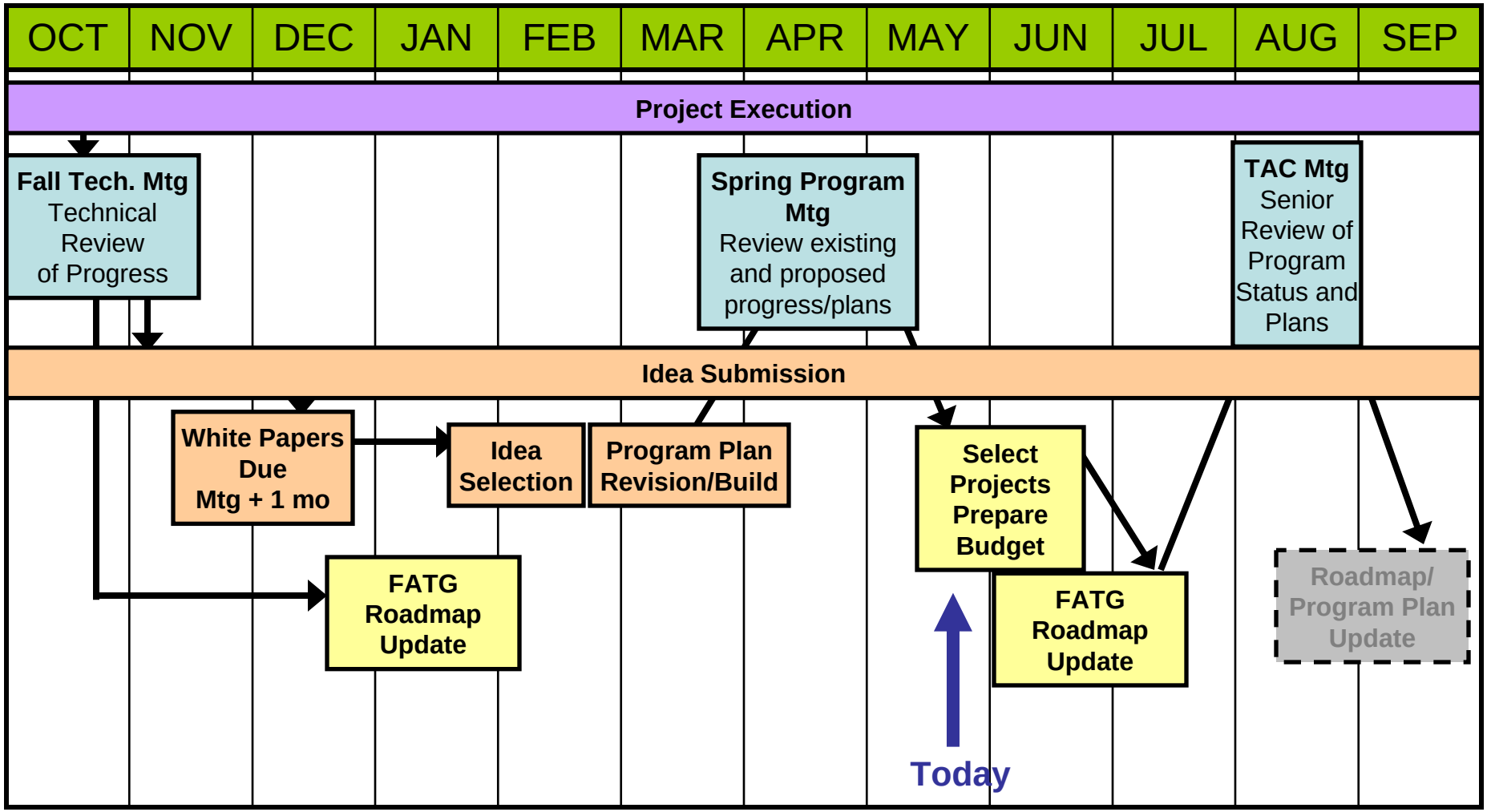


First annual process is FY10 start

FATG Leads

Lead	Co-Lead	Co-Lead	Co-Lead
FATG I – Hard Target Fuzing			
Howard White AFRL	John Kandell NAWCWD	Bill Konick ARDEC	Danny Hayles DTRA
FATG II – Tailorable Effect Fuzing			
Gene Henderson AMRDEC	David Olson NSWC IHDIV	Eric Welle AFRL	
FATG III – High Reliability Fuzing			
John Hendershot NSWC IHDIV	Tom Crowley ARDEC	Steve Smith AFRL	Danny Hayles DTRA
FATG IV – Enabling Fuze Technologies			
Chris Janow ARDEC	Matthew Bridge AFRL	Bruce Hornberger NAWCWD	

Annual Cycle



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

Rapid & Agile Acquisitions

Section 845
Other Transaction

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

18

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

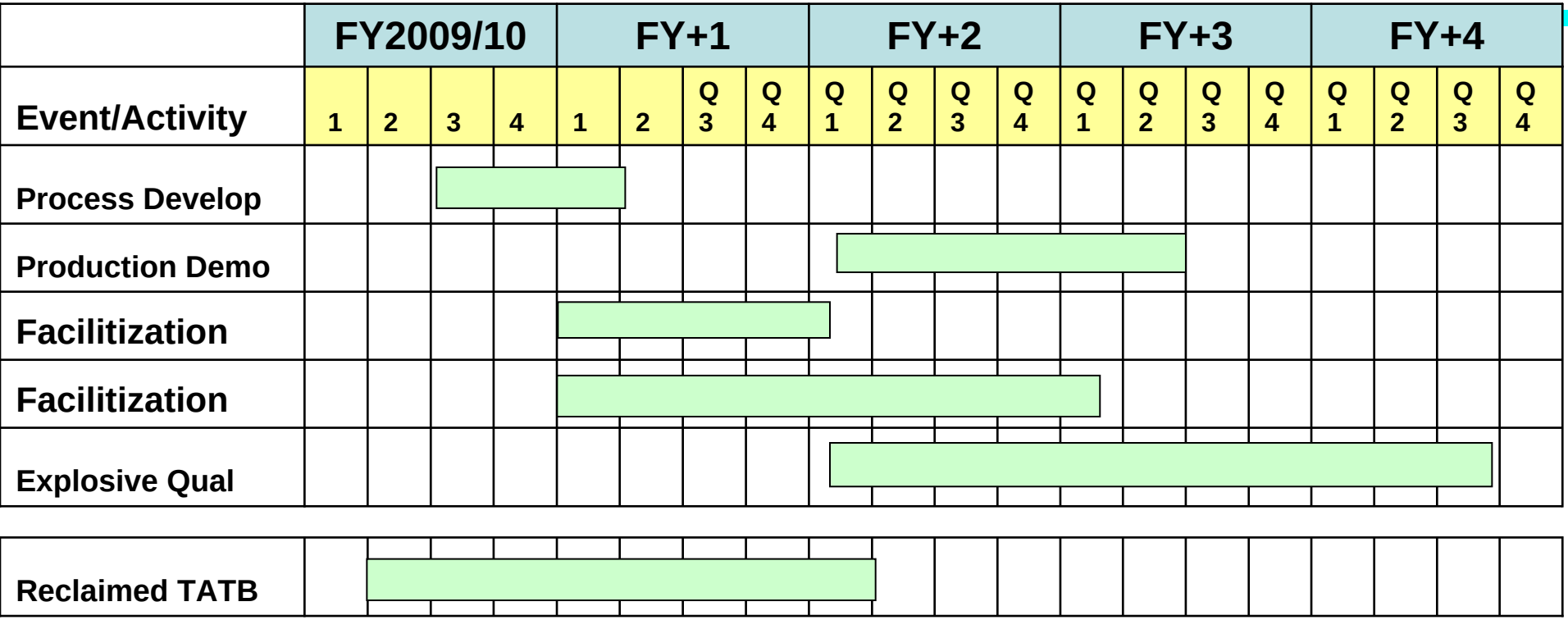
Issues

- **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



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??