

2013 Precision Strike Annual Review

OSD Land Warfare & Munitions Perspective

Jose M. Gonzalez

OUSD (Acquisition, Technology & Logistics)

Director, Land Warfare & Munitions





Discussion Topics

Munitions Interest Areas

- Joint DoD/DOE Munitions Program
- Joint Fuze Technology Program
- Joint Insensitive Munitions Technology Program
- Critical Energetics Materials Initiative
- Cluster Munitions
- DoD Ordnance Technology Consortium (DOTC)



Joint DoD/DOE Munitions Program (JMP)

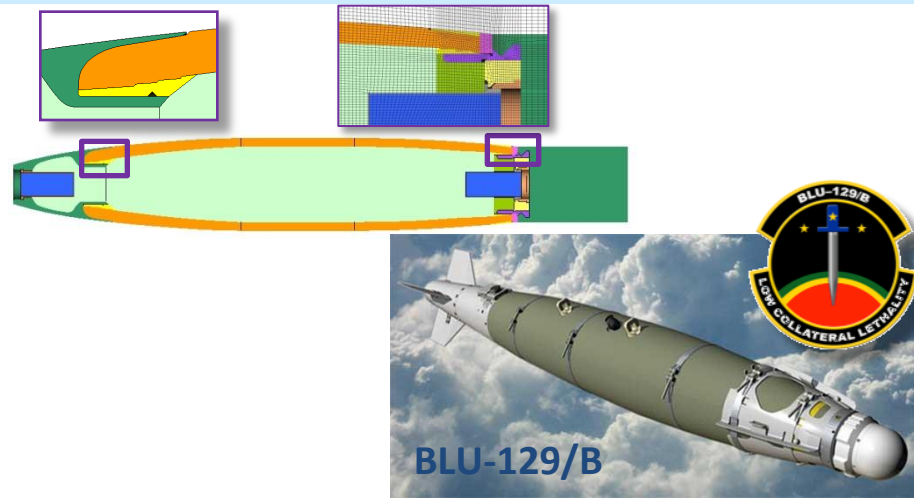
27 Years of Interagency Cooperation to Develop Advanced Munitions Technology



OBJECTIVES

- Effect major improvements in munitions performance, safety, and affordability by using and adapting specialized DOE/NNSA skills, facilities, and tools
- All work is performed at the three NNSA Laboratories
 - Lawrence Livermore National Laboratory
 - Los Alamos National Laboratory
 - Sandia National Laboratories

PICTURE



TECHNICAL THRUSTS

- Modeling & Simulation (M&S)
- Energetic Materials (EM)
- Initiation, Fuzing & Sensors (IFS)
- Warheads & Penetrators (W&P)
- Munitions Lifecycle (ML)

FYDP FUNDING

FY12	FY13	FY14	FY15	FY16
19.651	20.032	19.965	20.971	20.631
Funding in Millions				



Joint Fuze Technology Program (JFTP)

OBJECTIVES

- Develop and further fuzing technologies that will address strategic priorities of the DoD
- Advance and maintain a healthy US Government and Industry fuze technology base
- Collaborative effort involving:
 - DoD Labs
 - DOE Labs
 - Industry

PICTURE



Fuze Expelled from Fuzewell in High G Characterization Tests

TECHNICAL THRUSTS

- Hard Target Survivable Fuzing
- Tailorable Effects Weapon Fuzing
- High Reliability Fuzing
- Enabling Technologies and Common Architecture

FYDP FUNDING

TYPE	FY12	FY13	FY14	FY15	FY16
6.2	5.8	6.4	6.4	7.1	7.2
6.3	1.1	4.8	6.5	8.0	8.2
Total	6.9	11.2	12.9	15.1	15.4
Funding in Millions					

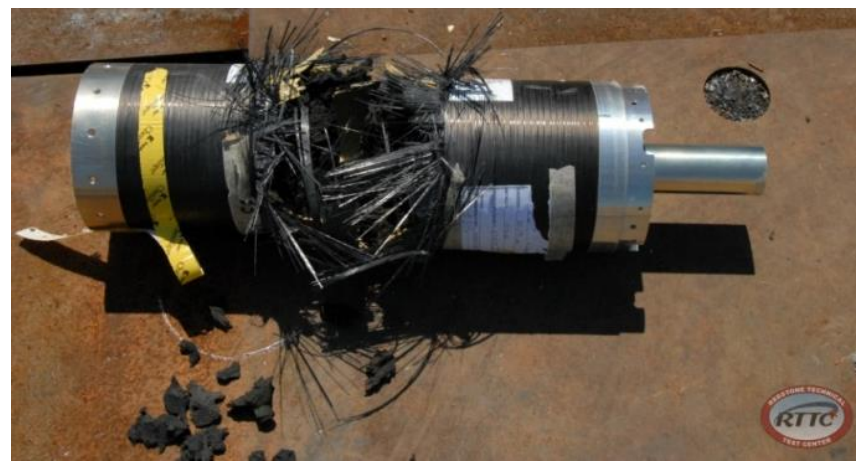


Joint Insensitive Munitions Technology Program (JIMTP)

OBJECTIVES

- DoD 6.2/6.3 program that develops and demonstrates technologies for improving munition response to combat and accident hazards, e.g.,
 - Insensitive High Performance Reduced Smoke Propellant for AMRAAM
 - New reactive liner shock mitigation sleeve and IM explosive for Tomahawk
 - PBXC-135 Main Fill Explosive for Hellfire/Javelin

PICTURE



Composite Case Fragment Impact Result

TECHNICAL THRUSTS

- High Performance Rocket Propulsion
- Minimum Signature Rocket Propulsion
- Blast and Fragmentation Warheads
- Anti-Armor Warheads
- Gun Propulsion

FYDP FUNDING

TYPE	FY12	FY13	FY14	FY15	FY16
6.2	14.5	14.2	14.4	14.9	15.3
6.3	14.5	20.8	20.8	22.5	23.1
Total	29.0	35.0	35.2	37.3	38.4

Funding in Millions



Critical Energetic Materials Initiative

- Tiger Team chartered by USD (AT&L) 17 Feb 2012
- Initiative is to identify and quantify enterprise issues concerning critical energetic (explosives, propellants, pyrotechnics, and their ingredients) material availability within the DoD
- Status
 - Tiger Team kickoff meeting held 22 April 2012
 - The Tiger Team includes participation from OUSD (AT&L), Army, Navy, Air Force, Marine Corps, SOCOM, MDA, DARPA, DTRA, DCMA, DLA, DOE, NASA, and industry through the National Warheads and Energetics Consortium
- Tiger Team Goals
 - Identify energetic materials with a high likelihood of becoming unavailable to the Department in both the short term (0-3 years) and long term (3-10) years
 - Quantify the likelihood and impact risk for the identified materials of concern
 - Develop risk matrix identifying the “critical” energetic materials

Threats:

- Obsolescence
- Environmental restrictions
- Market forces
- US supply vs. foreign
- New requirements

Move away from who we know to what we know and must do to ensure our warfighters needs are met



Critical Energetic Materials Initiative

➤ Tiger Team Findings

- A large number of materials are at risk of becoming unavailable to the Department over the next couple of years.
 - The Tiger Team identified 181 “at-risk” materials.
 - Four identified as “critically at-risk”.
- The most commonly identified “likelihood” risk factors were single source producers or OCONUS production.
 - 131 of the 181 at-risk materials identified single source producers or OCONUS production as a factor.
- The impact from an at-risk material becoming unavailable would typically be felt across all Services and in all energetic sub-categories (i.e., explosives, gun propellants, rocket propellants, and pyrotechnics)
- The supply network is very fragile and will continue to be so for the foreseeable future (single sources, lower demand, shrinking supply market, etc.).
- The warfighter impact of material unavailability has historically been mitigated with cost and schedule penalties; this approach impracticable in today’s fiscal environment



Critical Energetic Materials Initiative

➤ Tiger Team Findings (cont.)

- It is very difficult to predict where the next issue may arise because of the large number of potential single point failures

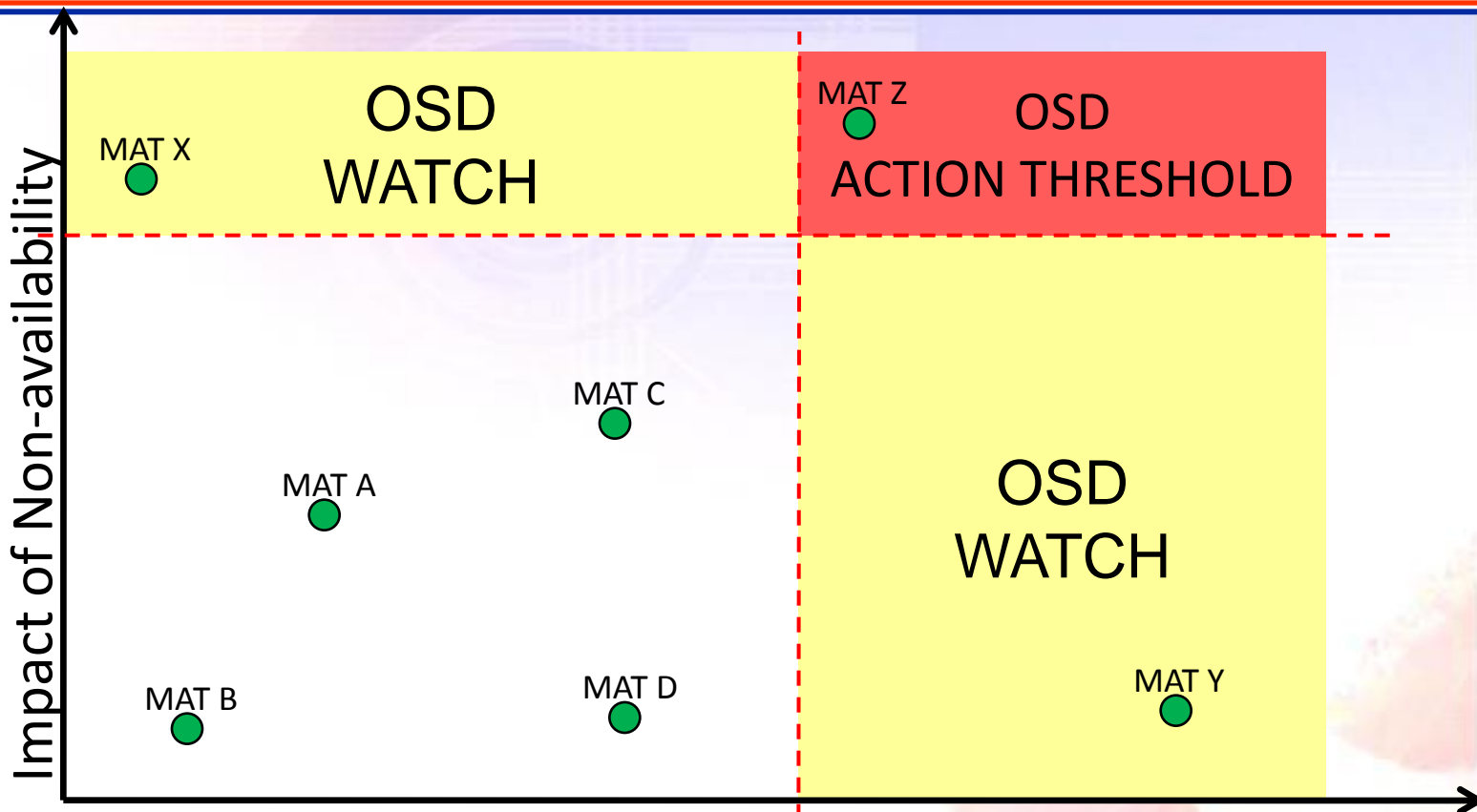
➤ Tiger Team Recommendations

- A DoD-wide solution which includes industry participation is needed
- A more extensive analysis would provide the additional detail needed to prioritize and develop mitigation plans for the most “critically at-risk” materials
- The analysis should leverage existing systems (e.g., industrial base assessment tool, emerging contaminant list, and single point failure tool)
- The solution recently applied to the TATB issue serves as a model to address many of the recognized problems



CEM Notional Product Matrix

- Impact Factors**
- # of Systems
 - Qty NEW
 - Cost
 - Schedule
 - Multi-Service
 - Inter-Agency
 - Alternative Materials



- Likelihood Factors**
- | | | |
|------------------------|------------------|-------------|
| • # of Manufacturers | DoD Market Share | |
| • Environmental Issues | Stockpile Levels | Legislation |
| • Safety | Market Forces | Regulation |



Triaminotrinitrobenzene (TATB) Status

A Good News Story

- Joint DOD/DOE & Industry Collaborative Program
- Feb – Oct 12, Facilitizing Holston AAP for TATB Production utilizing the Benziger Synthesis Route
 - BAE Ordnance Systems will Complete Production Prove-out by 2QFY13 and DOD will have qualified PBXN-7 & PBXW-14 by 3QFY13
- April 12, BAE Ordnance Systems at Holston AAP will also reclaim TATB from 17,200 lbs DOE supplied PBX-9502 and LX-17 explosive machine cuttings
 - Reclaimed TATB will be formulated into PBXN-7 and PBXW-14 for evaluation
 - Expect Formal DOD explosive qualification complete by 4QFY13
 - Developed an economically attractive alternative process and lower cost product (33-50%) available for consideration by PM's and end item managers



DoD Policy on Cluster Munitions (June 2008)

- Submunition UXO: 1% or less (no waivers)
 - Applies to all intended operational environments
- Transition period
 - After 2018, all cluster munitions must comply with new policy
 - Retain ability to use non-compliant inventory until the end of 2018 with COCOM approval
- Remove and destroy non-compliant inventory
 - Initiate removal of inventory that exceeds operational planning requirements
 - No demil deadline



DoD Policy on Cluster Munitions

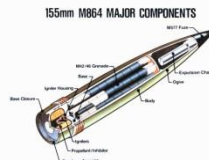
➤ Compliant Capability

- Sensor Fuzed Weapon (SFW) P31
- Guided Multiple Launch Rocket System-Alternative Warhead (GMLRS-AW)



➤ 2018 Non-compliant Capability

- Air Force Combined Effects Munition (CEM)
- Army/USMC Dual-Purpose Improved Conventional Munitions (DPICM) 155 Artillery and GMLRS
- Army ATACMS Anti-personnel/Anti-materiel (APAM)
- Navy JSOW A



➤ Way Ahead

- Joint Fuze Technology Program (FATG III – Reliability)
- USMC “Canon Cluster Munition Capability Gap & Requirements Analysis Study” **(On Going)**
- Army “Loss of 155mm DPICM Assessment” **(On Hold)**



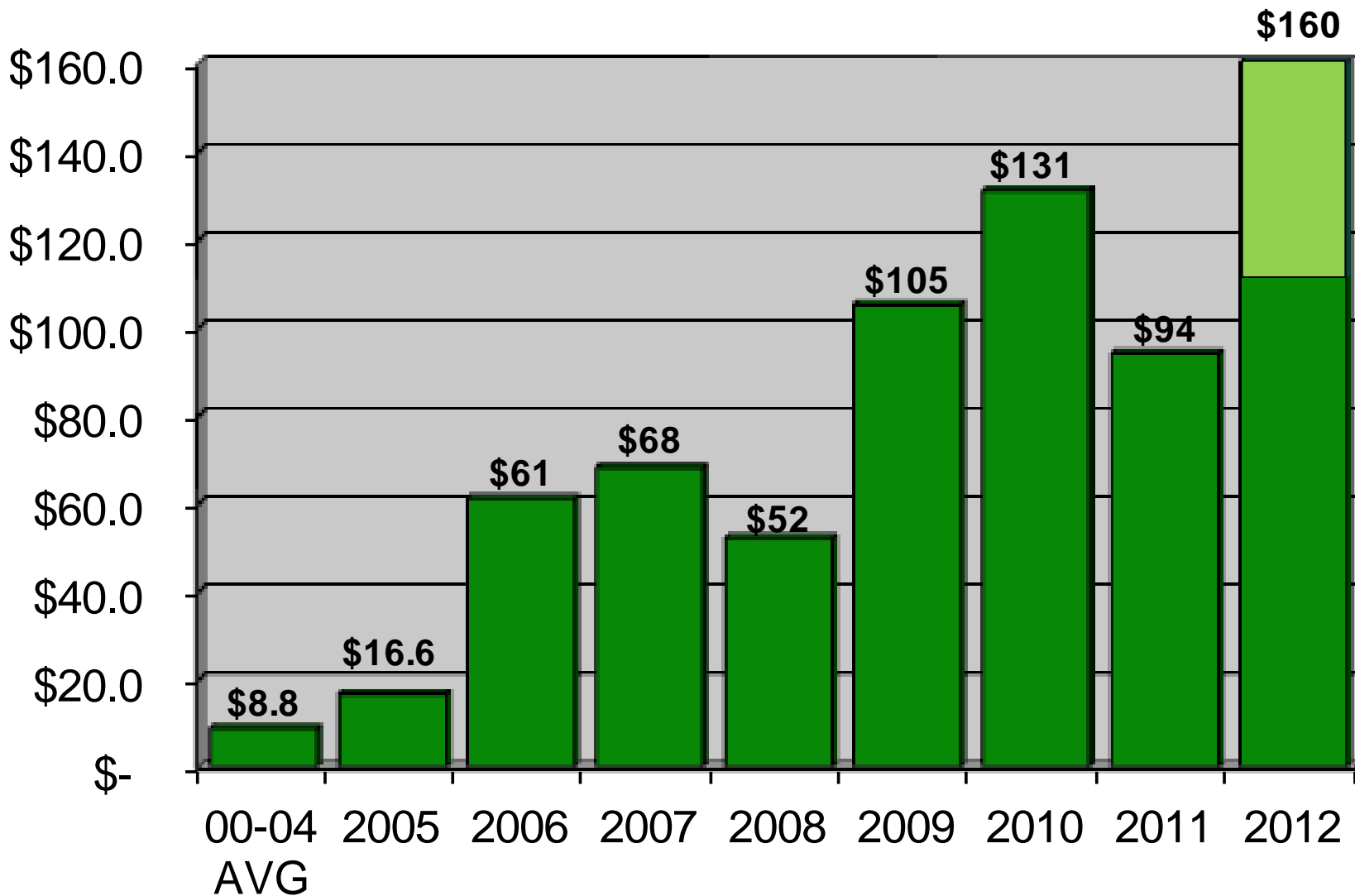
OTA Between DoD and NWEAC

A Premier Government, Industry & Academic Partnership

FEATURES	BENEFITS
Streamlined Acquisition	Existing contract and annual business processes reduce duplicative FAR-based upfront contract processes, thus reducing overall development and fielding time for prototype materiel solutions.
Collaborative and Competitive Environment	Enables Government and Consortium members to collaborate in an upfront technology planning process. Consortium members (or teams of members) then compete in response to government Request for Ordnance Technology Initiatives in anticipation of technology development funding against the tech development plan. The Government solicits, evaluates, selects and awards.
Targeted Research Investment	Provides Consortium members early insight into technology requirements which in turn allows them to focus their Independent Research and Development (IRAD) resources on items that matter to the Government.
Small Business and Non-traditional Participation	Encourages participation by small and non-traditional defense contractors that can bring innovative technologies and solutions to both the Government and the Consortium member organizations.
Resource Leveraging	Allows Government and Consortium members to leverage their financial resources and employ each others' facilities, technology and human capital investments to achieve critical mass.
No Protests Allowed	Prohibits formal protests against the government's project selections and awards.
DoD / Industry, Academia Partnering	Minimizes ordnance technology development duplication across Services, Agencies and Industrial/Academic enterprise components.



Total Funding (\$M/FY)





Questions?