• ARDEC Overview
• Army Fuze Safety Review Board Support
• ARDEC Fuzing Technology Initiatives
• ARDEC Fuzing In-House Capabilities
• Fuze Technology Integration
• OIF Experiences
• Summary
Vision:

Innovative Armaments Solutions for Today and Tomorrow

Mission:

To develop and maintain a world-class workforce to execute and manage integrated life-cycle engineering processes required for the research, development, production, field support and demilitarization of munitions, weapons, fire control and associated items

Advanced Weapons – line of sight/beyond line of sight fire; non line of sight fire; scalable effects; non-lethal; directed energy; autonomous weapons

Ammunition – small, medium, large caliber; propellants; explosives; pyrotechnics; warheads; insensitive munitions; logistics; packaging; fuzes; environmental technologies and explosive ordnance disposal

Fire Control – battlefield digitization; embedded system software; aero ballistics and telemetry

ARDEC Provides the Technology for Over 90% of the Army’s Lethality; Significant support to other Services Lethality
Team Picatinny

- Garrison Commander
- Assigned/Direct Support Coordination

Other Tenants
- PEO Soldier
- PM Soldier Weapons
- PM FCS BCT
- PM Lethality
- PEO GCS
- PM JLW155
- DCMA
- DCMA NE
- Navy
- CPAC

- Population 4,237
- 6,493 Acres
- 804 Buildings
- 64 Laboratories
• Established “Center of Mass” for Armament Systems and Munitions for Joint Services
• ARDEC is the largest tenant at Picatinny Arsenal
  • Over 800 Buildings/ 64 Laboratories
• Proven track-record supporting transition of technologies to the field;
  • 18 Materiel Releases in FY 07, 8 Materiel Releases in FY 08
  • 16 Urgent Materiel Releases FY 07, 12 Urgent Materiel Releases in FY08
• ARDEC Gov’t Personnel ~ 3348; **1145 new hires since FY99**
  • Picatinny Site = 2887
  • Benet (Watervliet Arsenal) = 242
  • Rock Island Arsenal = 153
  • Adelphi & APG = 66
• >$100M invested in “World Class” experimental R&D facilities since mid-90’s; Additional $75M planned
• Strong partnerships with Industry, Academia, and other Government agencies - Growth and Success through Cooperative Research and Development Agreements (CRADAs) = 121
• Intellectual Property (as of 4Q08):
  • Invention Disclosures - 58
  • Patent Applications - 164
  • Patents Issued - 11
  Patent License Agreements = 14 (as of 4Q08)
• In-house rapid prototyping initiatives demonstrating new desired capabilities, supporting production prove-out and initial fielding demands
• **$100M Tech Base portfolio addressing Joint needs** (Core Tech Base/ ManTech only; does not include SBIR or Congressional Plus-ups)
ARDEC’s Core Competencies

Advanced Weapons Systems
- Indirect Fire
- Direct Fire
- Scalable Effects
- Non-Lethal
- Ammunition
  - Small Caliber
  - Medium Caliber
  - Large Caliber
- Directed Energy
- Remote Weapons
- Insensitive Munitions
- Fuzes
- Telemetry
- Precision Armaments Components
  - Grenades
  - Maneuver Support Munitions
  - Demolitions

Advanced Energetics, Warheads & Ammunition
- Propellants
- Explosives
- Pyrotechnics
- Warheads
  - Kinetic Energy
  - EFPs
  - Fragmentation
- Chemical Energy

Fire Control
- Battlefield Digitization/SW Applications
- Embedded Systems SW
- Firing Tables
- Firing Tables: Ballistics
- Automated Test Systems

Logistics
- Ammunition Logistics RDTE
- Battlefield Tools and Equipment
Development

TALON- US Army’s First Functioning Lightweight Weaponized Robotic Platform

World’s First 81mm M816 IR Mortar Illuminating Cartridge

Key Product Transition To PEO XM395 Precision Guided Mortar Munition (PGMM)

Fielded for SOCOM

84mm High Explosive Dual Purpose & 84mm Area Denial Munitions For Multi-Role Anti-Armor Antipersonnel Weapon (MAAWS)

Future

Autonomous Projectiles

84mm High Explosive Dual Purpose & 84mm Area Denial Munitions For Multi-Role Anti-Armor Antipersonnel Weapon (MAAWS)

Enduring Freedom

URGENT Releases

HEDP 502 IM

ADM 401 Flechette

New Extra Large 7.5” EFP For M303 Special Operations Demo Kit

M107 .50 Cal Sniper Rifle

AD M898 Sense & Destroy Armor (SADARM)

Non-Lethal Capability Set

Fielded for Army, Marines

Hyperspectral Imaging Devices

World’s First 81mm M816 IR Mortar Illuminating Cartridge

TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.
Army Fuze Safety Review Board (AFSRB) Support

- 2008 & 2009 Fuze Safety Certification (TC and Materiel Release)
  - GMLRS, Unitary, XM31E1
  - P-SDF, XM1161 & XM1162
  - MI-RAMS, XM156
  - Non-Lethal Bursting Grenade, XM104
  - Electronic Time Fuze, M762/M767 (for use with 105mm IR Cartridge)
  - M762/M762A1 & M782 MOFA (for use with 105mm HE PFF Cartridge)
  - Grenade Rifle Entry Munition, M100
  - BTV-1 EL Diversionary Hand Grenade, MK13 Mod 0
  - Electronic S&A&Fire GMLRS Unitary, M31A1
  - e-SDF, 105mm, M234
  - M762/M767A1 (For Use With 105mm DPICM)
  - Multi-Role Anti-Armor Anti-Personell Weapon System (MAAWS)
  - M762 / M762A1 (For Use With 155 mm, XM1066 IR Illum Projo
  - Time Delay – Sympathetic Det (TD-SYDET) and Trainer, M153 & M316
  - Dual Safe Fuze for AT4CS-RS 84 mm HEAT
  - Magneto-Inductive Remote Activation Munition System (MI-RAMS)

- 2008 & 2009 UMR & Approval Letters
  - TOW Bunker Buster Missile System
  - M820 Hellfire AGM-114FA Missile
  - XM7 Spider (1st to use software for safety critical functions)
  - MK14, Anti-Structural Hand Grenade
  - XM282 Multi-Purpose Penetrator Rocket Warhead
  - XM 1066, 155 IR Illum

ARDEC FOCUS:
Deliver Safest & Most Capable Fuze Solutions To The Warfighter
ARDEC Fuzing Technology Initiatives

- Fuze and Power (FAP) ATO (2005-2008)
  - Multi-Point Initiation
  - Proximity Sensors
  - MEMS Technology
    - S&A’s & Environment Sensors
  - Power/Energy Sources
- Scalable Technology for Adaptive Response (STAR) ATO
  - 250 mm GMLRS, 105 mm Precision, 30 mm Airburst
- Kinetic Energy-Active Protection System Target Detection Device (KE-APS TDD) ATO
- Advanced Munitions Technologies ATO
- DoD Fuze Technology Initiative
ARDEC In-House Fuzing Capabilities
Fuze Development Center

Mission: To Accelerate New Technology To The

Capabilities for Rapid Prototyping:
- Custom Circuit Card Design and Fabrication
- Automated Surface Mount Assembly
- Real-Time X-Ray Inspection
- Environmental Test
- Optical Strain and Stress Measurement
- Stereo lithography
- High Speed Spin Stand
- Machine Shop

Current Projects Supported:
- M208 Smoke Pot Fuze
- SMADSNET
- Rattlesnake
- Artillery Training Kit
- M228 Support
- M762 Training Fuzes

TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.
• Technology Insertion To Current Munition Items
• Addresses Industrial Base Single Point Failure Issues
  • Risk Mitigation:
    • Battery Aging
    • M734A1 Digital Signal Processor (Alternative Design)
  • Block Upgrades:
    • Standardization of Hand Grenade Fuzes
    • 30mm Increased sensitivity M759 Fuze
    • Mortar S&A enhancements
• PEO Ammunition / User Payoff:
  • Insert Current Technology Into Today’s Munitions
  • Preclude Obsolescence By Incorporating Component Technology
  • Provide Safer, More Reliable and More Lethal Munitions
Summary

- Global Leader In Armaments Technology Solutions
- Provide Exceptional Customer Satisfaction
  - We work with soldiers:
    - develop new armaments systems,
    - improve fielded systems
    - quickly solve field problems
- State of the Art Fusing Capabilities
  - In-House Facilities
  - S&T Technical Expertise

Flexible, Agile, Innovative, and Responsive