

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2008

BUDGET ACTIVITY		PE NUMBER AND TITLE					
3 - Advanced technology development		0603103A - Explosives Demilitarization Technology					
COST (In Thousands)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
Total Program Element (PE) Cost	25004	21511	10564	10971	11190	11440	11697
D51 Explosives Demil Tech	9945	10283	10564	10971	11190	11440	11697
D91 EXPLOSIVE DEMIL DEMONSTRATIONS	15059	11228					

A. Mission Description and Budget Item Justification: This program element supports the Explosive Demilitarization Technology Program. Project D51 provides a cooperative interservice, interagency effort dedicated to the maturation of safe, efficient, and environmentally acceptable processes for the closed disposal of conventional munitions including explosives, missiles, missile components, and large rocket motors. Efforts in this program emphasize environmentally compliant technologies to enhance existing methods for munitions resource recovery and recycling (R3) and treatment, and seek alternatives to open burning/open detonation (OB/OD). There are currently nearly 500,000 tons of conventional munitions requiring disposition with a forecast of 475,000 tons and over 275,000 missiles and missile components to flow through the stockpile between FY 2008-2013. The effort employs the highly matured technology base in the DoD Service Laboratories and Technical Centers, the Department of Energy (DOE) National Laboratories, industry, and academia. The program is integrated through the leadership of the Product Manager for Demilitarization and the Joint Ordnance Commanders Group Munitions Demilitarization/Disposal Subgroup leveraging support from the Department's Environmental Security Technology Certification Program (ESTCP), the Strategic Environmental Research and Development Program (SERDP), the Joint DOD/DOE Munitions Technology Program, and complementary Service science and technology programs. The Technology Directorate, Defense Ammunition Center, serves as the program manager (PM) DDemilitarization's technical and programmatic support staff in this effort. The program supports the Research and Development (R&D) Technology goals of the PM Demilitarization Strategic Plan which focuses on technology transfer opportunities. The program supports an annual Global Demilitarization Symposium for the technical review and data evaluation from ongoing projects and advanced demonstrations. The PM Demilitarization R&D Integrated Planning Team utilizes a systematic approach for project prioritization. Project D91 funds congressional interest items. The cited work is consistent with the Director, Defense Research and Engineering Strategic Plan, the Army Modernization Strategy, and the Army Science and Technology Master Plan.

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<u>B. Program Change Summary</u>	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2008/2009)	25640	10349	10632
Current BES/President's Budget (FY 2009)	25004	21511	10564
Total Adjustments	-636	11162	-68
Congressional Program Reductions		-138	
Congressional Recissions			
Congressional Increases		11300	
Reprogrammings	85		
SBIR/STTR Transfer	-721		
Adjustments to Budget Years			-68

Three FY08 Congressional Adds totaling \$11.3M were added to this PE.

- (\$2.4M) Cryofracture/Plasma Arc Demilitarization Program
- (\$2.4M) Sierra Army Depot Cryofracture/Plasma Arc Transportable System
- (\$6.5M) Missile Recycling Capability--Letterkenny Munitions Center

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February 2008

BUDGET ACTIVITY 3 - Advanced technology development		PE NUMBER AND TITLE 0603103A - Explosives Demilitarization Technology					PROJECT D51	
COST (In Thousands)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	
D51 Explosives Demil Tech	9945	10283	10564	10971	11190	11440	11697	

A. Mission Description and Budget Item Justification: The Explosive Demilitarization Technology Program is a cooperative interservice, interagency effort dedicated to the maturation of safe, efficient, and environmentally acceptable processes for the closed disposal of conventional munitions including explosives, missiles, missile components, and large rocket motors. Efforts in this program emphasize environmentally compliant technologies to enhance existing methods for munitions resource recovery and recycling (R3) and treatment, and seek alternatives to open burning/open detonation (OB/OD). There are currently nearly 500,000 tons of conventional munitions requiring disposition with a forecast of 475,000 tons and over 275,000 missiles and missile components to flow through the stockpile between FY 2008-2013. The effort employs the highly matured technology base in the DoD Service Laboratories and Technical Centers, the Department of Energy (DOE) national laboratories, industry, and academia. The program is integrated through the leadership of the Product Manager for Demilitarization and the Joint Ordnance Commanders Group Munitions Demilitarization/Disposal Subgroup leveraging support from the Department's Environmental Security Technology Certification Program (ESTCP), the Strategic Environmental Research and Development Program (SERDP), the Joint DOD/DOE Munitions Technology Program, and complementary Service Science and Technology Programs. The Technology Directorate, Defense Ammunition Center, serves as the PM Demilitarization's technical and programmatic support staff in this effort. The program supports the Research and Development (R&D) Technology goals of the Program Manager Demilitarization Strategic Plan which focuses on technology transfer opportunities. The program supports an annual global demilitarization symposium for the technical review and data evaluation from ongoing projects and advanced demonstrations. The PM Demilitarization R&D Integrated Planning Team utilizes a systematic approach for project prioritization. The program element contains no duplication with any effort within the Military Departments. The cited work is consistent with the Department of Defense Research and Engineering Strategic Plan, the Army Science and Technology Master Plan, the Army Modernization Strategy, and the Army Posture Statement.

<u>Accomplishments/Planned Program:</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Resource Recovery and Reuse (R3): In FY07, began transitioning of near infrared (NIR) explosive detection unit and completed testing for detection of residual explosives in autoclaved 105MM projectiles; continued testing of the propellant conversion technology; and continued Joint Program integration. In FY08, research additional modeling using cluster model technology for the NIR scanners and complete machine vision integration for 155MM projectiles; demonstrate optimized propellant conversion to fertilizer technology; initiate accelerated design and fabrication of the Demilitarization by Inductive Heating Meltout (DIHME) project for 60MM mortars and improve the design in an effort to accommodate an additional demil requirement for 81mm and 120mm mortars; continue Joint Program integration. In FY09, will mature and demonstrate DIHME project for 60MM, 81mm, and 120mm mortars; will initiate development of machine vision for other projectiles; will initiate transition of propellant conversion to fertilizer technology; will continue research and development alternatives for ammonium perchlorate; will demonstrate HMX Requalification technology; and will continue Joint Program integration.	5063	7129	6720
Advanced Destruction: In FY07, transitioned transportable Contained Detonation Technology (CDT); completed demonstration of stationary CDT and initiated transition; performed hydrolysis test for aluminum Cartridge Actuated Device/Propellant Actuated Device (CAD/PAD). In FY08, complete transition of stationary CDT; initiate development of characterization data for Acid Hydrolysis steel CAD/PADs; demonstrate Mobile Plasma Treatment System (MPTS). In FY09, will initiate testing and development of Acid Hydrolysis	570	1208	1703

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technology; will initiate design to demil M433- HEDP Cartridges.			
Molten Salt Oxidation (MSO) Waste Stream Treatment: In FY07, matured and successfully demonstrated the MSO technology application to different demilitarization process waterstreams.	402		
Supercritical Water Oxidation (SCWO): In FY09, will mature and demonstrate SCWO technology to treat liquid effluent from a supercritical water oxidation reactor.			589
Advanced Munitions Disassembly: In FY07, completed operational demonstration of robotic disassembly of Area Denial Anti-personnel Mine (ADAM) projectile; explored recycling/disposal methods for spent abrasive in the abrasive waterjet technology and optimized nozzle performance; explored development of a disassembly system for the Stinger Missile; initiated development of segmenting rocket motors. In FY08, initiate transition of robotic disassembly of ADAM projectile; transition waterjet technology to the Demil by Induction Heating Meltout (DIHME) project for 60MM mortars; design and fabricate a disassembly system for the Stinger Missile; demonstrate rocket motor segmenting technique. In FY09, will complete operational demonstration and will initiate transition of rocket motor segmenting technique.	2886	1658	785
Advanced Removal: In FY07, initiated development of propellant removal system using Augering techniques; initiated development of a flexible multi-missile milling system. In FY09, will initiate design and fabrication of a propellant removal system using Augering techniques; will initiate design and fabricate a flexible multi-missile milling system.	1024		767
Small Business Innovative Research / Small Business Technology Transfer Programs		288	
Total	9945	10283	10564