

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY 3 - Advanced technology development	PE NUMBER AND TITLE 0603103A - Explosive Demilitarization Technology							
COST (In Thousands)	FY 2006 Actual	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	20459	25640	10349	10632	11049	11270	11518	11771
D51 Explosives Demil Tech	20459	10262	10349	10632	11049	11270	11518	11771
D91 EXPLOSIVE DEMIL DEMONSTRATIONS		15378						

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 400,000 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 2006-2010. 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 Demil's technical and programmatic support staff in this effort. The program supports the 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 IPT 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 Strategic Planning Guidance, the Army Science and Technology Master Plan (ASTMP), and the Defense Technology Area Plan (DTAP). Project D91 funds congressional interest items.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY	PE NUMBER AND TITLE			
3 - Advanced technology development	0603103A - Explosive Demilitarization Technology			

<u>B. Program Change Summary</u>	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	21041	10376	10429	10651
Current BES/President's Budget (FY 2008/2009)	20459	25640	10349	10632
Total Adjustments	-582	15264	-80	-19
Congressional Program Reductions		-98		
Congressional Recissions				
Congressional Increases		15550		
Reprogrammings	-582	-188		
SBIR/STTR Transfer				
Adjustments to Budget Years			-80	-19

Change Summary Explanation: Funding:

Nine FY 2007 congressional adds totaling \$14905 (after adjustment for Congressional undistributed reductions) were added to this PE.

- (\$1,868K) - Combined Bomb Unit Decasing
- (\$959K) - Contained Static Rocket Motor
- (\$3,834K) - Demilitarization of Hazardous Munitions
- (\$2,109K) - Demilitarization of Obsolete Munitions
- (\$1,246K) - HMX Requalification Program
- (\$1,917K) - MRC-Ammonium Perchlorate Recycling and Reuse
- (\$959K) - MRC-Letterkenny Munitions Center
- (\$1,054K) - Sierra Army Depot-Cryofracture/Plasma Arc System
- (\$959K) - Small Rocket Motor Disposal

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY 3 - Advanced technology development	PE NUMBER AND TITLE 0603103A - Explosive Demilitarization Technology					PROJECT D51		
COST (In Thousands)	FY 2006 Actual	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	20459	10262	10349	10632	11049	11270	11518	11771

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 400,000 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 2006-2010. 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 Demil's technical and programmatic support staff in this effort. The program supports the 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 IPT 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 Strategic Planning Guidance, the Army Science and Technology Master Plan (ASTMP), and the Defense Technology Area Plan (DTAP).

<u>Accomplishments/Planned Program:</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Resource Recovery and Reuse (R3): In FY06, continued development of calibration curves for the Near Infrared (NIR) propellant scanner; completed demonstration/validation of NIR explosives detection unit; continued conversion of gun propellant to small arms ammunition (SAA) propellant for military applications; transitioned Explosive D conversion process; completed validation of the propellant conversion technology for optimal throughput. In FY 07, transition NIR explosive detection unit and begin testing/integration for detection of 105MM projectiles; initiate optimization of propellant conversion technology, and continue Joint Program integration. In FY08, will research additional energetics and propellants for the NIR scanners and complete machine vision integration; will demonstrate optimized propellant conversion to fertilizer technology; will initiate the integration of abrasive waterjet and induction heating for 60MM mortars (DIHME: Demilitarization by Inductive Heating Meltout), and will continue Joint Program integration. In FY09, will initiate development of machine vision for other projectiles; will initiate transition of propellant conversion to fertilizer technology; will complete integration and perform preliminary testing of 60MM mortar DIHME project; will continue research and development alternatives for ammonium perchlorate; and will continue Joint Program integration.	4986	5859	4295	4621
Advanced Destruction: In FY06, demonstrated/validated enhanced stationary contained detonation technology (CDT); continued permitting of transportable CDT. In FY 07, transition stationary CDT; initiate demonstration of transportable CDT; perform hydrolysis test for Cartridge Actuated Device/Propellant Actuated Device (CAD/PAD). In FY08, will continue demonstration of transportable contained detonation technology; will continue development of characterization data for CAD/PAD technology; will initiate integration of	2171	1248	1800	1910

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2007

BUDGET ACTIVITY	PE NUMBER AND TITLE			PROJECT
3 - Advanced technology development	0603103A - Explosive Demilitarization Technology			D51
Particle Aerosol Mass Spectrometry (PAMS) into OB/OD operations. In FY09, will complete transition of transportable contained detonation technology; will continue testing and development of CAD/PAD technology; will perform testing of PAMS.				
Waste Stream Treatment: In FY06, validated SCWO technology; completed MSO validation and continued advanced development of MSO for explosives. In FY07, conduct extended demonstration and initiate transition of MSO. In FY08, will transition MSO technology for demil execution; will optimize throughput of MSO for explosives; will initiate development of waste water treatment for ammonium perchlorate. In FY09, will complete design of waste water treatment for ammonium perchlorate.	530	968	1766	900
Advanced Munitions Disassembly: In FY06, completed demonstration/ validation of robotic disassembly for ADAM projectile; designed and fabricated waterjet prototype for medium caliber projectiles. In FY07, initiate transition of robotic disassembly of ADAM projectile; explore recycling/disposal methods for spent abrasive in the abrasive waterjet technology and optimize nozzle performance. In FY08, will finalize transition of robotic disassembly of ADAM projectile; will transition waterjet technology to the DIHME project for 60MM mortars; will explore development of a disassembly system for the Stinger missile. In FY09, will initiate design and fabrication of disassembly system for Stinger missile.	1260	1898	1822	1150
Advanced Removal: In FY06, designed and fabricated induction heating prototype for medium caliber projectiles and transitioned to the DIHME project for FY08. In FY08 will initiate development of a washout system for MLRS motors. In FY09, will complete design and initiate fabrication of washout technology for MLRS motors; will explore washout of insensitive explosives.	1174		666	2051
This one-year congressional add is to support an integrated Cryofracture/Plasma Arc capability. Design parameters are being tested with this funding. No additional funds are required to complete this project.	2460			
This one-year congressional add for the HMX Requalification Program will refine explosives recovery process and test the recovered explosives for reuse. No additional funds are required to complete this project.	1359			
This is a one-year congressional add for NAVAIR Systems Command Data Conversion. No additional funds are required to complete this project.	1260			
This one-year congressional add for the Western Area Demilitarization Facility is furthering development of closed disposal technologies, specifically for advanced incineration, size reduction and recycling of energetics. No additional funds are required to complete this project.	5259			
Small Business Innovative Research / Small Business Technology Transfer Programs		289		
Total	20459	10262	10349	10632