

Exhibit R-2a, RDT&E Project Justification							Date: February 2003	
Appropriation/Budget Activity RDT&E Defense Wide BA 3				*PE 0603104D8Z - Explosives Demilitarization Technology				
Cost (\$ in millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
JDTP/P486	16.925	18.205	0	0	0	0	0	0
A. Mission Description and Budget Item Justification:								
<p>* Beginning in FY 2004, Explosive Demilitarization Technology program management and execution responsibilities will transfer to the Army PE-0603103A and will result in a more appropriate policy-level role for OSD.</p> <p>(U) The Explosive Demilitarization Technology Program is a cooperative interservice, interagency effort focused as the sole Department of Defense (DoD) program dedicated to the development of safe, efficient and environmentally acceptable processes for the resource recovery and recycling (R3) or disposition of strategic, tactical, and conventional munitions including explosives, and rocket motors. Efforts in this program emphasize environmentally compliant technologies to enhance existing methods for munitions R3 and treatment and seeks alternatives over that of open burning/open detonation (OB/OD). There are currently over 500,000 tons of these materials requiring disposition with a forecast of over 700,000 tons to flow through the stockpile by 2009. This is funded under Advanced Technology Development based upon its supports to the development and exploration of new munitions concepts and technology preceding system-engineering development.</p>								
B. Accomplishments/Planned Program								
Thrust Area: Disassembly and Removal	FY 2002	FY 2003	FY 2004	FY 2005				
Accomplishment/ Effort/Subtotal Cost	3.675	4.520	0	0				
RDT&E Articles Quantity *(as applicable)								
(U) FY 2002 Accomplishments: Thrust Area, Disassembly								
(U) Advanced water jet cutting technology for the flexible work cell was demonstrated on 40mm high explosive loaded projectiles with subsequent explosive removal by induction heating. Initiated work cell design and development for 155mm improved conventional munition (ICM) automated disassembly technology with dexterous manipulation involving force control integrated with vision technology. Joint program integration continued.								
(U) FY 2003 Plans: Thrust Area, Disassembly								
(U) Advanced water jet and laser cutting technology will continue through integration into the flexible work cell. Dexterous manipulation involving force control integration with vision technology will continue to be optimized for 155mm improved conventional munitions. Joint program integration will continue.								
Thrust Area: Recovery and Reuse	FY 2002	FY 2003	FY 2004	FY 2005				
Accomplishment/ Effort/Subtotal Cost	5.300	5.340	0	0				
RDT&E Articles Quantity *(as applicable)								
(U) FY 2002 Accomplishment: Thrust Area, Recovery and Reuse								
(U) Explosive D conversion to picric acid in a 500 pound per day pilot facility was completed and process demonstration initiated. System and process optimization for the 2,000 pound per batch transportable modular propellant conversion to fertilizer prototype to convert double and triple base propellant to fertilizer was completed and process demonstration initiated.								
(U) HMX recovery from LX 14 was successfully demonstrated in a subscale recovery plant. Initiated efforts to requalify recovered HMX for military applications. Initiated process changes to improve product.								
(U) Field demonstration of thin layer chromatography technology for propellant stabilizer completed. Continuing validation and applied for surveillance usage by the propellant stability board. Improved Near infrared propellant stabilizer analyzer and preformed field demonstration.								

(U) FY 2003 Plans: Thrust Area, Recovery and Reuse

(U) Explosive D conversion demonstration to picric acid in a 500 pound per day pilot facility will be completed and system transitioned.

(U) System and process demonstration for the 2,000 pound per batch transportable modular propellant to fertilizer unit to convert double and triple based propellant to fertilizer will be completed.

(U) Process development will begin on inductively coupled plasma conversion process.

(U) Continue reclaimed HMX requalification for military applications.

(U) Continue analytical tools development for optimizing recovered items and demilitarization process for munitions. These tools will focus on explosive and propellant recovery.

(U) Complete transition of thin layer chromatography to users. Complete validation and certification of near infra red analyzers for propellant and explosives and obtain certification.

Thrust Area: Destruction	FY 2002	FY 2003	FY 2004	FY 2005
Accomplishment/ Effort/Subtotal Cost	5.050	5.105	0	0
RDT&E Articles Quantity *(as applicable)				

(U) FY 2002 Accomplishment: Thrust Area, Destruction

(U) A stationary contained detonation chamber was designed, installed and demonstrated for up to 45 pounds net explosive weight. Initiated development of improved stationary contained detonation chamber with increased capacity. Designed and assembled transportable contained detonation chamber with capabilities of 30 pounds net explosive weight. Initiated testing of transportable contained detonation chamber.

(U) Open detonation events were analyzed and compared to data gathered from previous experiments.

(U) Initiated design and development for a rotary furnace to treat small munitions, components and energetic contaminated material from disassembly/demilitarization of conventional munitions strategic and tactical missiles.

(U) Initiated development of photocatalytic degradation of energetic materials using porphyrins through molecular interaction and chemical reaction modeling to determine intermediates and chemical rate constants.

(U) FY 2003 Plans: Thrust Area, Destruction

(U) The Test Site Demonstration Program will continue to focus on demonstrating improved field detonation operations. Open detonation demonstration events will be designed and implemented based on data gathered from previous experiments. Noise and emission mitigation techniques, stand off monitoring techniques and technologies will be investigated.

(U) Testing and modification for tactical missiles for the contained burn chamber will continue.

(U) Advanced molten salt oxidation technology will be demonstrated/validated.

(U) Complete design and development of improved stationary contained detonation chamber and initiate demonstration. Complete demonstration of transportable contained detonation chamber.

(U) Complete design, fabrication, procurement and initiate installation and demonstration of rotary furnace

(U) Continue development of photocatalytic degradation of energetic materials using porphyrins.

Thrust Area: Waste Stream Treatment	FY 2002	FY 2003	FY 2004	FY 2005
Accomplishment/ Effort/Subtotal Cost	2.900	3.240	0	0
RDT&E Articles Quantity *(as applicable)				

(U) FY 2002 Accomplishment: Thrust Area, Waste Stream Treatment

(U) Validated advanced molten salt oxidation technology system performance and completed extended operation on explosive contaminated charcoal. Improved/modified pollution control system by installing heating system for gas filters.

(U) Completed Hydrothermal Oxidation System acceptance testing by processing 3 separate explosive feed stocks. Examined alternate process fuels to optimize system performance and improve effluent quality, installed and demonstrated effluent pH adjustment process and multiple product improvements including automatic logging of component operation and process redesign to improve deionized water recycling.

(U) Completed design and procurement of thermal oxidizer system and car bottom chamber for hot gas decontamination prototype. Completed prototype design began site preparation and submitted explosive safety site plan.

(U) FY 2003 Plans: Thrust Area, Waste Stream Treatment

(U) Advanced molten salt oxidation technology will be demonstrated/validated.

(U) Complete demonstration/validation of prototype hydrothermal oxidation system. Initiate transition to operational location.

(U) Complete system development and assembly of hot gas decontamination prototype and begin demonstration/validation.

***Beginning in FY 2004, PE 0603104D8Z - Explosives Demilitarization Technology will be transferred to the Army under PE-0603103A**