ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2005

BUDGET ACTIVITY	PE NUMBER AND TITLE
2 - Applied Research	**0602622A - Chemical, Smoke and Equipment Defeating Technology**

COST (In Thousands)		FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
Total Program Element (PE) Cost		21847	7585	2519	2573	2690	2749	2793	2832
552	SMOKE/NOVEL EFFECT MUN	3440	3177	2519	2573	2690	2749	2793	2832
BA1	PROTECTION TECHNOLOGIES (CA)	18407	4408	0	0	0	0	0	0

A. Mission Description and Budget Item Justification: The goal of this Program Element (PE) is to research and investigate smoke and obscurant technologies to increase personnel and platform survivability. The PE funds applied research in materials science and dissemination methodologies and mechanisms to counter enemy weapon target acquisition systems and/or degrade enemy surveillance capability. The obscurant materials and dissemination systems will be designed to be effective, safe, and environmentally acceptable. Modeling and Simulation (M&S) tools will be developed and used to analyze the ability of newly developed obscurant materials to increase survivability of soldiers and platforms. In FY06 a portion of the funding in project 552 was realigned to PE 0603004 project L97 to mature promising technology for potential transition to System Development and Demonstration (SDD). Work in this PE is consistent with the Strategic Planning Guidance, the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and the Defense Technology Area Plan (DTAP). This PE contains no duplication with any effort within the Military Departments. This work is performed by the Army Research, Development and Engineering Command, Edgewood Chemical Biological Center, Edgewood, MD.

B. Program Change Summary	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005)	3476	3633	3661
Current Budget (FY 2006/2007 PB)	7585	2519	2573
Total Adjustments	4109	-1114	-1088
Net of Program/Database Changes			
Congressional Program Reductions	-308		
Congressional Rescissions			
Congressional Increases	4600		
Reprogrammings			
SBIR/STTR Transfer	-183		
Adjustments to Budget Years		-1114	-1088

Change Summary Explanation:
FY06 ($-1114)/FY07 ($-1088) Funds were reprogrammed to budget activity 3 for proper execution.

Three FY05 Congressional adds totaling $4600 were added to this PE.

FY05 Congressional adds with no R-2A:
($959) Biotechnology Education Initiative, Project BA1: This one year Congressional add is to complete development of courses in biotechnology. No additional funding is required to complete this project.

($3451) Rapid Response Deployable Vaporous Hydrogen Peroxide Bio-Chem, Project BA1: This one-year Congressional add is to complete development of vaporous hydrogen peroxide technology for decontamination of both chemical and biological agents. No additional funding is required to complete this project.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2005

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
2 - Applied Research	**0602622A - Chemical, Smoke and Equipment Defeating Technology**	**552**

COST (In Thousands)		FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
552	SMOKE/NOVEL EFFECT MUN	3440	3177	2519	2573	2690	2749	2793	2832

A. Mission Description and Budget Item Justification: Project 552 researches and investigates smoke and obscurant technologies with potential to enhance personnel/platform survivability by degrading threat force surveillance sensors and defeating the enemy's target acquisition devices, missile guidance, and directed energy weapons. It researches advanced infra-red (IR) and multi-spectral obscurant materials with potential to provide effective, affordable, and efficient screening of deployed forces, while being safe and environmentally acceptable. Other efforts within this project advance dissemination, delivery, M&S and vehicle protection technology to expand survivability options through increased standoff and threat protection. A major effort on dissemination of advanced infrared (IR) obscurants is making improvements to a high performance IR obscurant so the material can be effectively used in smoke pots and grenades. M&S tools will be investigated to predict performance and analyze strategic use of obscurants on the battlefield. In FY06 a portion of the funding in this project was realigned to PE 0603004 project L97 to mature promising technology for potential transition to SDD. The cited work is consistent with Strategic Planning Guidance, the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and the Defense Area Plan (DTAP). Work in this project is performed by the Army Research, Development and Engineering Command, Edgewood Chemical Biological Center, Edgewood, MD.

Accomplishments/Planned Program	FY 2004	FY 2005	FY 2006	FY 2007
Advanced IR Obscurants	2300	2350	1331	1322
In FY04, produced test quantities of several candidate materials; evaluated promising candidates in a laboratory environment including one candidate obscurant as a dilute liquid aerosol that exceeds performance goals; evaluated value of emissive obscurants compared to screening obscurants through the use of M&S tools. In FY05, test and assess new IR obscurant screening materials as dry powder aerosol using laboratory evaluation methods; perform simulations to estimate the increase of survivability for the soldier. In FY06, will begin to modify promising high performing materials to maximize dissemination behavior. In FY07, will continue to refine high performing materials, and evaluate performance of these materials in a laboratory environment.				

Accomplishments/Planned Program (continued)	FY 2004	FY 2005	FY 2006	FY 2007
Obscurant Enabling Technology for other smoke capabilities (non IR obscurants) In FY04, conducted M&S upgrades and case studies to predict and analyze performance of various obscurant applications; evaluated rapid/variable response vehicle protection concepts and small through medium area (e.g., urban terrain) screening obscuration capabilities. In FY05, perform field experiments on obscuration/dissemination technologies to optimize vehicle protection in selected environments. In FY06, will investigate in a laboratory environment alternative and novel dissemination technologies for existing obscurants to reduce hazards while maintaining yields. In FY07, will continue to investigate new dissemination technologies.	1140	827	1188	1251
Totals	3440	3177	2519	2573