ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2004

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

COST (In Thousands)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
Total Program Element (PE) Cost		15480	21722	3476	3633	3661	3716	3798
552	SMOKE/NOVEL EFFECT MUN	3238	3424	3476	3633	3661	3716	3798
BA1	PROTECTION TECHNOLOGIES (CA)	0	18298	0	0	0	0	0
BA3	ADVANCED SENSORS AND OBSCURANTS	1905	0	0	0	0	0	0
BA4	METALLIC PARTICLES IN DEFENSE APPLICATIONS (MPDA)	1430	0	0	0	0	0	0
BA5	SYSTEMS FOR SAMPLING AND DETECTING BIOAEROSOLS	4333	0	0	0	0	0	0
BA6	VAPOROUS HYDROGEN PEROXIDE TECHNOLOGY	4574	0	0	0	0	0	0

A. Mission Description and Budget Item Justification: This applied research Program Element (PE) investigates and develops smoke and obscurant technologies to increase personnel and platform survivability for use in the Future Force, and where feasible, exploits opportunities to enhance Current Force capabilities. The PE funds applied research in materials science and dissemination technologies to counter enemy weapon target acquisition systems and to provide the ability to degrade enemy surveillance capability. The material and dissemination systems will be designed to be safe and environmentally acceptable. Work in this PE is consistent with Strategic Planning Guidance, the Army Science and Technology Master Plan, the Army Modernization Plan, and the Defense Technology Area Plan. This PE contains no duplication with any effort within the Military Departments. This work is performed by the U.S. Army Edgewood Chemical Biological Center, Aberdeen Proving Ground, MD.

B. Program Change Summary	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	15643	3540	3553
Current Budget (FY 2005 PB)	15480	21722	3476
Total Adjustments	-163	18182	-77
Congressional program reductions		-194	
Congressional rescissions			
Congressional increases		18900	
Reprogrammings	-163	-524	
SBIR/STTR Transfer			
Adjustments to Budget Years			-77

Significant Change Explanation:
FY04 - Six FY04 Congressional Adds totaling $18900 were added to this PE.

FY04 Congressional Adds with no R-2As:
($3758), Systems for Sampling and Detecting Bioaerosols, Project BA1: The purpose of this one year Congressional add is to develop new types of bioaerosol detection systems using advancements in air sampling, biological and chemical speciation, and optics. No additional funding is required to complete this project.

($2818), Metallic Particles in Defense Applications, Project BA1: The purpose of this one year Congressional add is to research metallic materials for obscurant applications. No additional funding is needed to complete this project.

($1973), Asymmetric Threat Countermeasure Solutions Suite, Project BA1: The purpose of this one year Congressional add is to examine unconventional countermeasures for asymmetric threats. No additional funding is required to complete this project.

($4697), Vaporous Hydrogen Peroxide Technology, Project BA1: The purpose of this one year Congressional add is to research and evaluate vaporous hydrogen peroxide technology for decontamination applications. No additional funding is required to complete this project.

($1220), US Army Biotechnology Center, Project BA1: The purpose of this one year Congressional add is to develop educational courses for military, government, and industry personnel in biotechnology disciplines related to US Army applications. No additional funding is required to complete this project.

($3288), Deep Digger, Project BA1: Funding for this Congressional add will be executed by the Armaments Research Development and Engineering Center, Picatinny Arsenal, NJ. The purpose of this one year Congressional add is to research advanced technology with potential to destroy underground targets. No additional funding is required to complete this project.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2004

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

COST (In Thousands)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
552	SMOKE/NOVEL EFFECT MUN	3238	3424	3476	3633	3661	3716	3798

A. Mission Description and Budget Item Justification: Project 552 researches and investigates smoke and obscurant technologies to increase personnel/platform survivability and to provide the ability to degrade enemy surveillance sensor capability. Improved multi-spectral smokes/obscurants are explored to enhance survivability by providing effective, affordable, and efficient screening of deployed forces from threat force surveillance sensors and effective defeat of target acquisition devices, missile guidance, and directed energy weapons. These systems will be designed to be safe and environmentally acceptable. Modeling and Simulation (M&S) tools will be investigated to predict performance and analyze strategic use of obscurants on the battlefield. A major effort, Advanced Infrared (IR) Obscurants, is focused on increasing current IR obscurant performance by 4X (reducing logistics by >50%), for use in IR smoke pots, grenades and projected munitions. Other efforts within this project investigate obscurant enabling technology for Smoke Pot and other obscurant capabilities. These efforts advance dissemination, delivery, M&S and vehicle protection technology to expand survivability options through increased standoff and threat protection. The cited work is consistent with Strategic Planning Guidance, the Army Science and Technology Master Plan, the Army Modernization Plan, and the Defense Technology Area Plan. Work in this project is performed by the U.S. Army Edgewood Chemical Biological Center, Aberdeen Proving Ground, MD.

Accomplishments/Planned Program	FY 2003	FY 2004	FY 2005
Advanced IR Obscurants In FY03, produced test quantities of several candidate materials. Evaluated promising candidates in a laboratory environment. Established an emissive IR theory/modeling effort and a survivability study. Established laboratory method for evaluating obscurant performance as an aerosol. In FY04, test and assess new IR obscurant screening materials using laboratory evaluation methods; perform simulations to investigate potential applications of this advanced obscurant material and estimate the increase of survivability for the soldier. In FY05, will identify dissemination techniques for new IR materials; will develop concepts for prototype systems for use in grenades, artillery rounds, and other smoke generating systems; will conduct trade-off analyses of prototype concepts.	2248	2437	2350

Accomplishments/Planned Program (continued)	FY 2003	FY 2004	FY 2005
Obscurant Enabling Technology for Smoke Pot and other obscurant capabilities In FY03, assessed performance of promising smoke pot and grenade dissemination technologies. Upgraded Modeling and Simulation tools for vehicle protection. Conducted studies of quick response vehicle protection concepts. In FY04, conduct Modeling and Simulation case studies to predict and analyze performance of Smoke Pot and other obscurant applications. Evaluate concepts for small through medium area (e.g., urban terrain) screening obscuration capabilities. In FY05, will perform field experiments on obscuration/dissemination technologies to optimize vehicle protection in selected environments.	990	920	1126
Small Business Innovative Research/Small Business Technology Transfer Programs	0	67	0
Totals	3238	3424	3476