

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

**February 2008**

BUDGET ACTIVITY		PE NUMBER AND TITLE					
<b>2 - Applied Research</b>		<b>0602622A - Chemical, Smoke and Equipment Defeating Technology</b>					
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	12665	8976	2295	2324	2362	2415	2468
552 SMOKE/NOVEL EFFECT MUN	2158	2220	2295	2324	2362	2415	2468
BA1 Protection Technologies (CA)	10507	6756					

**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. This 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 are designed to be effective, safe, and environmentally acceptable. Modeling and Simulation (M&S) tools are developed and used to analyze the ability of newly developed obscurant materials to increase survivability of Soldiers and platforms. 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. This PE contains no duplication with any effort within the Military Departments and is fully coordinated with PE 0603004, Project L97. This work is performed by the Army Research, Development, and Engineering Command, Edgewood Chemical Biological Center, Edgewood, MD.

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<b>2 - Applied Research</b>	<b>0602622A - Chemical, Smoke and Equipment Defeating Technology</b>		
<b><u>B. Program Change Summary</u></b>	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2008/2009)	12762	2235	2301
Current BES/President's Budget (FY 2009)	12665	8976	2295
Total Adjustments	-97	6741	-6
Congressional Program Reductions		-59	
Congressional Rescissions			
Congressional Increases		6800	
Reprogrammings	229		
SBIR/STTR Transfer	-326		
Adjustments to Budget Years			-6
<p>Four FY08 congressional adds totaling \$6800 were added to this PE.</p> <p>(\$1200) Rapid and Accurate Pathogen Identification/Detection (RAPID) Program                      (\$1600) Paint Shield for Protecting People from Microbial Threats                      (\$1600) Systems Biology Biomarker Molecular Toxicology initiative                      (\$2400) Enhanced Vapor Aeration Capabilities (EVAC)</p>			

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

**February 2008**

<b>BUDGET ACTIVITY</b> <b>2 - Applied Research</b>		<b>PE NUMBER AND TITLE</b> <b>0602622A - Chemical, Smoke and Equipment Defeating Technology</b>					<b>PROJECT</b> <b>552</b>	
COST (In Thousands)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	
552 SMOKE/NOVEL EFFECT MUN	2158	2220	2295	2324	2362	2415	2468	

**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 investigates 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, Modeling and Simulation (M&S), and vehicle protection technology through the use of obscurants and how it spreads 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 are investigated to predict performance and analyze strategic use of obscurants on the battlefield. 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. Work in this project is performed by the Army Research, Development, and Engineering Command, Edgewood Chemical Biological Center, Edgewood, MD.

<b><u>Accomplishments/Planned Program:</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Advanced Obscurants: In FY07, refined the loading techniques of IR materials into munitions and evaluated these techniques for their effect on smoke dissemination; evaluated performance of these materials in a laboratory environment. In FY08, perform Modeling and Simulation to determine the survivability increase achieved over current smoke systems; conduct a technology evaluation of selected prototype grenade. In FY09, will expand existing theory to cover entire spectrum of interest, examine alternate theoretical approaches, determine particle characteristics based upon theory, and solicit industry for technological solutions for new high performing, low toxicity visual obscurants. Will conduct studies of spectrally-selective obscurant concepts.	1195	1286	1400
Obscurant Enabling Technology for other smoke capabilities (non IR obscurants): In FY07 investigated novel non-thermal dissemination methods for visual smoke, assessed the impact of contrast reduction on the effectiveness of obscurant materials using modeling and simulation. In FY08, conduct studies to examine performance improvements in low toxicity visual obscurant and new bispectral obscurants. In FY09, will conduct studies of dissemination techniques for low toxicity bispectral obscurants and new bispectral obscurants.	963	900	895
Small Business Innovative Research/Small Business Technology Transfer Programs		34	
<b>Total</b>	<b>2158</b>	<b>2220</b>	<b>2295</b>