

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

February 2007

BUDGET ACTIVITY		PE NUMBER AND TITLE						
<b>2 - Applied Research</b>		<b>0602622A - Chemical, Smoke and Equipment Defeating Technology</b>						
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	9856	12762	2235	2301	2328	2365	2417	2470
552 SMOKE/NOVEL EFFECT MUN	1997	2032	2235	2301	2328	2365	2417	2470
BA1 Protection Technologies (CA)	7859	10730						

**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 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. 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 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.

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

February 2007

BUDGET ACTIVITY	PE NUMBER AND TITLE			
<b>2 - Applied Research</b>	<b>0602622A - Chemical, Smoke and Equipment Defeating Technology</b>			

<u><b>B. Program Change Summary</b></u>	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	10567	2212	2252	2305
Current BES/President's Budget (FY 2008/2009)	9856	12762	2235	2301
Total Adjustments	-711	10550	-17	-4
Congressional Program Reductions		-206		
Congressional Rescissions				
Congressional Increases		10850		
Reprogrammings	-711	-94		
SBIR/STTR Transfer				
Adjustments to Budget Years			-17	-4

Seven FY07 congressional adds totaling \$10399 (after adjustment for Congressional Undistributed Reductions) were added to this PE.

- (\$1055) Systems for Sampling & Detecting Bioaerosols
- (\$958) Appl of CHP-105 to Class A Biowarfare Agents
- (\$2588) Bfld Prod of Modified Vaporous Hydrogen Peroxide
- (\$2300) Biomarker Molecular Toxicology Initiative
- (\$958) Nanocrystalline Solid Decontamination Technology
- (\$1246) Rapid & Accurate Pathogen ID/Detection (RAPID) Pro
- (\$1294) Thermal Ac Decon w/Mod Vaporous Hyd Peroxide

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

**February 2007**

<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 2006 Actual	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	1997	2032	2235	2301	2328	2365	2417	2470

**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 will be investigated to predict performance and analyze strategic use of obscurants on the battlefield. 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.

<b><u>Accomplishments/Planned Program:</u></b>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Advanced Obscurants: In FY06, determined viable methods for smoke dissemination and modified promising high performing materials to maximize dissemination behavior. In FY07, refine the loading techniques of IR materials into munitions and evaluate these techniques for their effect on smoke dissemination; evaluate performance of these materials in a laboratory environment. In FY08, will perform Modeling and Simulation to determine the survivability increase achieved over current smoke systems; will conduct a technology evaluation of selected prototype grenade. In FY09, will conduct review of existing theory, 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.	1036	1120	1335	1400
Obscurant Enabling Technology for other smoke capabilities (non IR obscurants): In FY06, performed a field demonstration whereby obscurants were deployed at a longer range and at a faster response time which led to improved vehicle and dismounted Soldier protection. In FY07, investigate novel non-thermal dissemination methods for visual smoke assess the impact of contrast reduction on the effectiveness of obscurant materials using modeling and simulation. In FY08, will conduct studies to examine performance improvements in low toxicity visual obscurant and new Millimeter Wave obscurants. In FY09, will conduct studies of dissemination techniques for low toxicity visual obscurants and new Millimeter Wave obscurants.	961	888	900	901
Small Business Innovative Research/Small Business Technology Transfer Programs		24		
<b>Total</b>	1997	2032	2235	2301