Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Army											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 2: *Applied Research*					R-1 ITEM NOMENCLATURE PE 0602622A: *Chemical, Smoke and Equipment Defeating Technology*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	-	4.753	4.465	4.490	-	4.490	3.968	3.889	3.945	4.016	Continuing	Continuing
552: *SMOKE/NOVEL EFFECT MUN*	-	4.753	4.465	4.490	-	4.490	3.968	3.889	3.945	4.016	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This program element (PE) investigates and evaluates obscurant technologies to increase personnel and platform survivability and develop and validate forensic analysis methods for military and homemade explosive devices, including their precursors and residue. Project 552 pursues research in materials science as well as dissemination methodologies, mechanisms, technologies, and techniques to enable forensic analysis of explosive signatures.

Work in this PE is related to, and fully coordinated with, PE 0603004A, project L97 (Smoke and Obscurants Advanced Technology) and PE 0603606A, project 608 (Countermine & Barrier Development).

The cited work is consistent with the Assistant Secretary of Defense for Research and Engineering science and technology priority focus areas and the Army Modernization Strategy.

This work is performed by the Army Research, Development, and Engineering Command (RDECOM), Edgewood Chemical Biological Center (ECBC), Edgewood, MD.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	4.869	4.465	4.490	-	4.490
Current President's Budget	4.753	4.465	4.490	-	4.490
Total Adjustments	-0.116	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.116	-			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Army			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602622A: *Chemical, Smoke and Equipment Defeating Technology*	PROJECT 552: *SMOKE/NOVEL EFFECT MUN*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
552: *SMOKE/NOVEL EFFECT MUN*	-	4.753	4.465	4.490	-	4.490	3.968	3.889	3.945	4.016	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This project investigates and evaluates obscurant technologies that degrade threat force surveillance sensors and defeat the enemy's target acquisition devices, missile guidance, and directed energy weapons. This project focuses on advanced infra-red (IR) and multi-spectral obscurant materials that provide effective, affordable, and efficient screening of deployed forces, while being safe and environmentally acceptable. Additionally, it researches and investigates forensic analysis technology in explosives and explosives-related chemical signatures, and develops and validates field sampling and forensics methods for use in a forward-deployed laboratory.

This project sustains Army science and technology efforts supporting the Ground portfolio.

Work in this PE is related to, and fully coordinated with, PE 0603004A/project L97 (Smoke and Obscurants Advanced Technology) and PE 0603606A/project 608 (Countermine & Barrier Development).

The cited work is consistent with the Assistant Secretary of Defense for Research and Engineering science and technology priority focus areas and the Army Modernization Strategy.

Work in this project is performed by the Army Research, Development, and Engineering Command (RDECOM), Edgewood Chemical Biological Center (ECBC), Edgewood, MD.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Title: Advanced Obscurants	1.367	1.411	1.451
Description: This effort investigates new materials and compounds to enable safe, effective screening of personnel and equipment.			
FY 2012 Accomplishments: Evaluated optimized bispectral materials and initiated analysis of spectrally selective obscurant concepts.			
FY 2013 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Army		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602622A: *Chemical, Smoke and Equipment Defeating Technology*	PROJECT 552: *SMOKE/NOVEL EFFECT MUN*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Begin small scale synthesis of spectrally selective materials and conduct characterization. ***FY 2014 Plans:*** Will investigate spectrally selective obscuration concepts to provide Warfighter with a new one-way smoke capability; investigate microwave obscurant formulations to defeat future electronic warfare (EW) threats.			
Title: Obscurant Enabling Technology ***Description:*** This effort investigates distribution technologies for various obscurants. ***FY 2012 Accomplishments:*** Refined and optimized new visual low hazard obscurants. ***FY 2013 Plans:*** Conduct dissemination studies of new low hazard visual obscurants. ***FY 2014 Plans:*** Will continue dissemination studies of new low hazard visual obscurants for grenade applications; conduct novel modeling analysis of new low hazard obscurants for mortar/artillery applicationsdissemination studies.	0.943	1.056	1.050
Title: Detection of Unknown Bulk Explosives ***Description:*** This effort develops an understanding of signatures required to provide improved point, proximity, and stand-off detection of explosives and precursor materials. Will transition technologies to PE (0603004A/Project L97 (Smoke and Obscurants Advanced Technology). ***FY 2012 Accomplishments:*** Investigated improved signature information and novel algorithms and experimentally evaluated performance for explosives and precursor materials in existing chemical point and stand-off detection sensor systems.	2.443	0.000	0.000
Title: Forensic Analysis of Explosives ***Description:*** This effort investigates forensics analytical methods for military explosives, homemade explosives (HME), HME precursors, and residue analysis for attribution. ***FY 2013 Plans:***	0.000	1.998	1.989

Exhibit R-2A, RDT&E Project Justification: PB 2014 Army		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602622A: *Chemical, Smoke and Equipment Defeating Technology*	PROJECT 552: *SMOKE/NOVEL EFFECT MUN*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Develop analytical and forensic protocols for homemade explosive threats in order to expand and enhance capabilities at Tier II theater analytical laboratories (mobile and semi permanent); demonstrate integrated biometric and chemical sensing for attribution using Raman chemical imaging. ***FY 2014 Plans:*** Will develop analytical methods for forensic analysis of explosives with the objective of assigning attribution to include collection, preparation, instrumental analysis and advanced statistical techniques; provide solutions for analytical problems encountered by expeditionary laboratories, particularly for the analysis of explosives (Toxic Industrial Compounds (TICs), and Materials(TIMs), agricultural chemicals and emerging needs and threats) in a variety of sample matrices.			
Accomplishments/Planned Programs Subtotals	4.753	4.465	4.490

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.