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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Army **Date:** March 2014

Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 2: Applied Research	R-1 Program Element (Number/Name) PE 0602622A / Chemical, Smoke and Equipment Defeating Technology
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COST (\$ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
Total Program Element	-	4.010	4.487	3.971	-	3.971	3.894	3.946	4.016	4.043	-	-
552: Smoke/Novel Effect Mun	-	4.010	4.487	3.971	-	3.971	3.894	3.946	4.016	4.043	-	-

The FY 2015 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 (Countermines & 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 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	4.465	4.490	3.968	-	3.968
Current President's Budget	4.010	4.487	3.971	-	3.971
Total Adjustments	-0.455	-0.003	0.003	-	0.003
• Congressional General Reductions	-0.007	-0.003			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.094	-			
• Adjustments to Budget Years	-	-	0.003	-	0.003
• Sequestration	-0.354	-	-	-	-

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Appropriation/Budget Activity 2040 / 2					R-1 Program Element (Number/Name) PE 0602622A / Chemical, Smoke and Equipment Defeating Technology				Project (Number/Name) 552 / Smoke/Novel Effect Mun			
COST (\$ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
552: Smoke/Novel Effect Mun	-	4.010	4.487	3.971	-	3.971	3.894	3.946	4.016	4.043	-	-
# The FY 2015 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 (Countermines & 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 2013	FY 2014	FY 2015	
Title: Advanced Obscurants									1.159	1.451	1.453	
Description: This effort investigates new materials and compounds to enable safe, effective screening of personnel and equipment.												
FY 2013 Accomplishments: Began small scale synthesis of spectrally selective materials and conduct characterization.												
FY 2014 Plans: 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.												
FY 2015 Plans:												

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2013	FY 2014	FY 2015
Will continue to investigate spectrally selective materials and new microwave obscurant materials.				
Title: Obscurant Enabling Technology Description: This effort investigates distribution technologies for various obscurants. FY 2013 Accomplishments: Conducted dissemination studies of new low hazard visual obscurants. FY 2014 Plans: Continue dissemination studies of new low hazard visual obscurants for grenade applications; conduct novel modeling analysis of new low hazard obscurants for mortar/artillery applications dissemination studies. FY 2015 Plans: Will continue to study dissemination of new low hazard visual obscurants for grenade applications. Will initiate explosive dissemination technology studies. Will initiate efforts to investigate vulnerability of various technologies to obscurant/target defeat effects. Will identify technologies of interest; conduct initial analysis with the intent of evaluating/assessing effects.		1.056	1.050	1.052
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 Accomplishments: Developed 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); demonstrated integrated biometric and chemical sensing for attribution using Raman chemical imaging. FY 2014 Plans: 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. FY 2015 Plans: Will investigate linkages of spectroscopic signatures developed in FY12 with compositional analysis of explosives using analytical protocols developed in FY13-14 in order to improve the attribution power of optical systems.		1.795	1.986	1.466
Accomplishments/Planned Programs Subtotals		4.010	4.487	3.971

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C. Other Program Funding Summary (\$ in Millions) N/A		
Remarks		
D. Acquisition Strategy N/A		
E. Performance Metrics N/A		