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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Army									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 6: RDT&E Management Support				R-1 ITEM NOMENCLATURE PE 0605805A: Munitions Standardization, Effectiveness and Safety							
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	44.326	72.851	53.338	0.000	53.338	46.509	46.102	45.114	45.679	Continuing	Continuing
296: Close Combat Technology	1.105	7.715	7.330	0.000	7.330	3.875	4.279	4.472	4.432	Continuing	Continuing
297: Mun Survivability & Log	5.674	8.675	8.281	0.000	8.281	8.986	8.896	8.681	8.797	Continuing	Continuing
857: DOD EXPLOSIVES SAFETY STANDARDS	1.596	1.655	1.736	0.000	1.736	2.314	2.298	2.253	2.288	Continuing	Continuing
858: ARMY EXPLOSIVES SAFETY MANAGEMENT PROGRAM	0.449	0.467	0.619	0.000	0.619	0.714	0.597	0.689	0.681	Continuing	Continuing
859: LIFE CYCLE PILOT PROCESS	27.750	32.731	4.546	0.000	4.546	5.118	5.052	4.849	4.903	Continuing	Continuing
862: Indirect Fire and Fuze Technology	2.111	3.080	12.350	0.000	12.350	3.725	4.128	3.726	3.790	Continuing	Continuing
F21: Direct Fire Technology and NATO Ammo Evaluation	0.989	3.026	3.489	0.000	3.489	3.874	3.033	2.976	3.050	Continuing	Continuing
F24: CONVENTIONAL MUNITIONS DEMIL	4.652	15.502	14.987	0.000	14.987	17.903	17.819	17.468	17.738	Continuing	Continuing
A. Mission Description and Budget Item Justification											
This Program Element supports continuing technology investigations. It provides a coordinated tri-service mechanism for the collection and free exchange of technical data on the performance and effectiveness of all non-nuclear conventional munitions and weapons systems in a realistic operational environment. It provides for NATO interchangeability testing (F21); Joint munition effectiveness manuals used by all services; development of standardization agreements (STANAGS) and associated Manuals of Proof and Inspection (MOPI); operation of the North American Regional Test Center (NARTC); evaluation of demilitarization methods for existing conventional ammunition (F24); evaluation of useful shelf life, safety, reliability and producibility of pyrotechnic munitions; and improvement of explosives safety criteria for DOD munitions via the DOD Explosives Safety Board (857). Pyrotechnic Reliability and Safety (296) supports pyrotechnic research, development and testing to identify, characterize and resolve reliability, safety, storage and manufacturing issues that impact production availability and field use of pyrotechnics. Project 296 will result in the development and demonstration of new, safe, reliable and environmentally acceptable munitions. Munitions Survivability and Logistics (297) will make Army units more survivable by applying technologies to reduce the sensitivity of munitions to unplanned stimuli (e.g. bullet impacts, fragment impacts, fast cook off, slow cook off, sympathetic detonation, shaped charge jets) and by testing and demonstrating munitions logistics system solutions that prevent or minimize catastrophic explosive events and accelerate ammunition resupply. Project 297 also supports the Army Insensitive Munitions (IM) Board's reviews.											

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Army				DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY		R-1 ITEM NOMENCLATURE			
2040: Research, Development, Test & Evaluation, Army		PE 0605805A: Munitions Standardization, Effectiveness and Safety			
BA 6: RDT&E Management Support					
The Army Explosives Safety Management Program (858) was established in FY01. The U.S. Army Technical Center for Explosives Safety uses the funds in this project to evaluate current explosives safety standards and develop new, scientific and risk-based standards to meet U. S. Army explosives requirements. The Life Cycle Pilot Program (LCPP) (859) will assess production base capabilities and needs over the acquisition life cycle of various munitions and will address the producibility of ammunition including the transition to type classification and production, and the ability of the production base to cost effectively produce quality products on schedule. The Fuze Technology Integration program (862) will improve performance and lower the costs of existing proximity fuzes and enable new applications in submunitions and medium caliber fuzes, addressing advanced proximity fuze sensor technology, Micro-electromechanical Systems (MEMS), Safety and Arming (S&A) technology, and Electronic S&A (ESA) technology for smart munitions.					
B. Program Change Summary (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	47.898	45.053	41.901	0.000	41.901
Current President's Budget	44.326	72.851	53.338	0.000	53.338
Total Adjustments	-3.572	27.798	11.437	0.000	11.437
• Congressional General Reductions		-0.382			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		28.180			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-2.230	0.000			
• SBIR/STTR Transfer	-1.342	0.000			
• Adjustments to Budget Years	0.000	0.000	11.437	0.000	11.437
Change Summary Explanation					
Change Summary Explanation:FY 2010: Funds increased by \$28.180 million in 12 seperate Congressional adds to support various technology investigations. FY 2011: Funds increased (\$11.4 million) to support various technology investigations.					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2011 Army								<b>DATE:</b> February 2010			
<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 6: <i>RDT&amp;E Management Support</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0605805A: <i>Munitions Standardization, Effectiveness and Safety</i>				<b>PROJECT</b> 296: <i>Close Combat Technology</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2009 Actual</b>	<b>FY 2010 Estimate</b>	<b>FY 2011 Base Estimate</b>	<b>FY 2011 OCO Estimate</b>	<b>FY 2011 Total Estimate</b>	<b>FY 2012 Estimate</b>	<b>FY 2013 Estimate</b>	<b>FY 2014 Estimate</b>	<b>FY 2015 Estimate</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
296: <i>Close Combat Technology</i>	1.105	7.715	7.330	0.000	7.330	3.875	4.279	4.472	4.432	Continuing	Continuing
Quantity of RDT&E Articles											
<b>A. Mission Description and Budget Item Justification</b> This project will support research, development and testing to identify, characterize and resolve reliability, safety, storage and manufacturing issues that impact production availability and field use of demolitions, grenades, shoulder launched munitions, mines and mine clearing charges, pyrotechnics, including training realism. Project will result in the development and demonstration of new, safe, reliable and environmentally acceptable munitions.											
<b>B. Accomplishments/Planned Program (\$ in Millions)</b>											
							<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011 Base</b>	<b>FY 2011 OCO</b>	<b>FY 2011 Total</b>
Program #1							0.000	0.000	0.800	0.000	0.800
Demolition Shape Charge Improvement											
<i>FY 2009 Accomplishments:</i>											
FY 2009											
<i>FY 2010 Plans:</i>											
FY 2010											
<i>FY 2011 Base Plans:</i>											
FY 2011 Base											
<i>FY 2011 OCO Plans:</i>											
FY 2011 OCO											
Program #2							0.000	0.972	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 6: RDT&E Management Support		R-1 ITEM NOMENCLATURE PE 0605805A: Munitions Standardization, Effectiveness and Safety		PROJECT 296: Close Combat Technology		
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Mitigation of Naphthalene  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO						
Program #3  Heavy Metal in Green Illuninants  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO		0.175	0.209	0.143	0.000	0.143

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army				DATE: February 2010		
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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Program #4		0.000	0.486	0.000	0.000	0.000
Yellow Dye alternatives						
FY 2009 Accomplishments:						
FY 2009						
FY 2010 Plans:						
FY 2010						
FY 2011 Base Plans:						
FY 2011 Base						
FY 2011 OCO Plans:						
FY 2011 OCO						
Program #5		0.380	0.729	0.500	0.000	0.500
Nanoparticles for Pyro Items						
FY 2009 Accomplishments:						
FY 2009						
FY 2010 Plans:						
FY 2010						
FY 2011 Base Plans:						
FY 2011 Base						
FY 2011 OCO Plans:						
FY 2011 OCO						

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Program #6		0.280	0.729	0.000	0.000	0.000
Safer, More stable hand held signals and simulators						
FY 2009 Accomplishments:						
FY 2009						
FY 2010 Plans:						
FY 2010						
FY 2011 Base Plans:						
FY 2011 Base						
FY 2011 OCO Plans:						
FY 2011 OCO						
Program #7		0.270	0.000	0.000	0.000	0.000
Multifunction Pyro Simulators						
FY 2009 Accomplishments:						
FY 2009						
FY 2010 Plans:						
FY 2010						
FY 2011 Base Plans:						
FY 2011 Base						
FY 2011 OCO Plans:						
FY 2011 OCO						

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Program #8		0.000	0.972	0.000	0.000	0.000
M796 Impulse Cartridge variability and tolerance reduction						
FY 2009 Accomplishments:						
FY 2009						
FY 2010 Plans:						
FY 2010						
FY 2011 Base Plans:						
FY 2011 Base						
FY 2011 OCO Plans:						
FY 2011 OCO						
Program #9		0.000	1.458	0.000	0.000	0.000
M206 Infrared Countermeasure Flare trajectory improvement						
FY 2009 Accomplishments:						
FY 2009						
FY 2010 Plans:						
FY 2010						
FY 2011 Base Plans:						
FY 2011 Base						
FY 2011 OCO Plans:						
FY 2011 OCO						

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Program #10		0.000	1.458	0.000	0.000	0.000
M211 Infrared Countermeasure Flare material dispersion improvement						
FY 2009 Accomplishments:						
FY 2009						
FY 2010 Plans:						
FY 2010						
FY 2011 Base Plans:						
FY 2011 Base						
FY 2011 OCO Plans:						
FY 2011 OCO						
Program #11		0.000	0.486	0.000	0.000	0.000
Aircraft Countermeasure Flare reliability modeling for Apache and Chinook						
FY 2009 Accomplishments:						
FY 2009						
FY 2010 Plans:						
FY 2010						
FY 2011 Base Plans:						
FY 2011 Base						
FY 2011 OCO Plans:						
FY 2011 OCO						

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Program #12		0.000	0.000	0.875	0.000	0.875
Demolition Initiator Packaging						
FY 2009 Accomplishments:						
FY 2009						
FY 2010 Plans:						
FY 2010						
FY 2011 Base Plans:						
FY 2011 Base						
FY 2011 OCO Plans:						
FY 2011 OCO						
Program #13		0.000	0.000	0.900	0.000	0.900
M10 Universal Destructor Capability Enhancement						
FY 2009 Accomplishments:						
FY 2009						
FY 2010 Plans:						
FY 2010						
FY 2011 Base Plans:						
FY 2011 Base						
FY 2011 OCO Plans:						
FY 2011 OCO						

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Program #14		0.000	0.000	0.975	0.000	0.975
Advanced Incendary Grenade						
FY 2009 Accomplishments:						
FY 2009						
FY 2010 Plans:						
FY 2010						
FY 2011 Base Plans:						
FY 2011 Base						
FY 2011 OCO Plans:						
FY 2011 OCO						
Program #15		0.000	0.000	3.137	0.000	3.137
Fixed wing countermeasure flare enhancement						
FY 2009 Accomplishments:						
FY 2009						
FY 2010 Plans:						
FY 2010						
FY 2011 Base Plans:						
FY 2011 Base						
FY 2011 OCO Plans:						
FY 2011 OCO						

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2011 Army				<b>DATE:</b> February 2010		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 6: <i>RDT&amp;E Management Support</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0605805A: <i>Munitions Standardization, Effectiveness and Safety</i>		<b>PROJECT</b> 296: <i>Close Combat Technology</i>		
<b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>						
		<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011 Base</b>	<b>FY 2011 OCO</b>	<b>FY 2011 Total</b>
Program #16		0.000	0.216	0.000	0.000	0.000
Small Business Innovative Research/Small Business Technology Transfer Programs						
<i>FY 2009 Accomplishments:</i>						
FY 2009						
<i>FY 2010 Plans:</i>						
FY 2010						
<i>FY 2011 Base Plans:</i>						
FY 2011 Base						
<i>FY 2011 OCO Plans:</i>						
FY 2011 OCO						
Accomplishments/Planned Programs Subtotals		1.105	7.715	7.330	0.000	7.330
<b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>						
N/A						
<b><u>D. Acquisition Strategy</u></b>						
N/A						
<b><u>E. Performance Metrics</u></b>						
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.						

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 6: RDT&E Management Support				R-1 ITEM NOMENCLATURE PE 0605805A: Munitions Standardization, Effectiveness and Safety				PROJECT 297: Mun Survivability & Log			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
297: Mun Survivability & Log	5.674	8.675	8.281	0.000	8.281	8.986	8.896	8.681	8.797	Continuing	Continuing
Quantity of RDT&E Articles											
A. Mission Description and Budget Item Justification											
This project supports the Army Transformation by making Army units more survivable through the investigation, testing and demonstration of munitions logistics system improvements that prevent or minimize catastrophic explosive events and accelerate ammunition resupply. Key thrusts are munitions storage area survivability, Insensitive Munitions (IM) technology integration and compliance, weapon system rearm, munitions configured load enablers and advanced packaging and distribution system enhancements. Within each thrust, a broad array of solutions will be identified, tested, and evaluated against developed system measures of effectiveness. Optimum, cost effective solutions that enable the rapid projection of lethal and survivable forces will be demonstrated. The early stages of force deployment are especially critical. Theater ammunition storage areas are vulnerable and present the enemy with lucrative targets. These areas and distribution nodes contain the only available munitions stocks in theater. Loss of these munitions could cripple the force, jeopardize the mission, and result in high loss of life. This project mitigates vulnerabilities and ensures a survivable fighting force.											
B. Accomplishments/Planned Program (\$ in Millions)											
							FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Program #1							0.000	0.116	0.031	0.000	0.031
Investigate and evaluate the use of inkjet printing for improving the quality and readability of marking ammo containers.											
FY 2009 Accomplishments: FY 2009											
FY 2010 Plans: FY 2010											
FY 2011 Base Plans: FY 2011 Base											

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 OCO Plans: FY 2011 OCO						
Program #2  Demonstrate a device that when added to an ammo container will identify whether the container is empty or full improving soldier safety and reducing ammunition lost on the battlefield.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO		0.000	0.120	0.040	0.000	0.040
Program #3  Develop an alloy from commercially available metals that when applied to munitions containers utilizing techniques such as brazing/soldering/welding will maintain container structural integrity, but will also yield when exposed to a predetermined temperature thus allowing the container to vent when subjected to unplanned thermal stimuli.  FY 2009 Accomplishments: FY 2009		0.270	0.285	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: FY 2010						
FY 2011 Base Plans: FY 2011 Base						
FY 2011 OCO Plans: FY 2011 OCO						
Program #4  Demonstrate plastic seals for rectangular ammunition containers that are less expensive and corrosion-free, and that provide improved security compared to currently fielded containers.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO		0.000	0.000	0.096	0.000	0.096
Program #5		0.000	0.000	0.190	0.000	0.190

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Demonstrate a low cost, extruded, High Density Polyethylene (HDPE) ammunition container that is lighter in weight, requires no painting, is corrosion-free, and has built in shock absorbing features to reduce internal dunnage.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO						
Program #6  Demonstrate innovative stacking mechanisms for current metal ammunition containers that will reduce the cost and improve the stability of unitized load configurations.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base		0.000	0.000	0.075	0.000	0.075

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 OCO Plans: FY 2011 OCO						
Program #7  Conduct testing and analysis to develop a standard specification for pressure sensitive adhesive labels used for ammunition packaging to ensure production quality and vendor availability.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO		0.000	0.000	0.068	0.000	0.068
Program #8  Demonstrate IM technology solutions integrated into legacy ammunition items to reduce the reaction of these munitions to unplanned stimuli.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010		1.802	2.880	2.487	0.000	2.487

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: FY 2011 Base						
FY 2011 OCO Plans: FY 2011 OCO						
Program #9  Manage technology integration efforts to meet IM requirements, develop improved IM test capability, update and maintain IM compliance status and IM technology databases, and support the updating of the PEO Ammunition IM Strategic Plan. Conduct reviews of munitions in development and production to determine if they meet a DoD 5000.1 requirement to withstand unplanned stimuli.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO		0.332	0.655	0.675	0.000	0.675
Program #10  Conduct analysis to determine standardized characteristics for next generation ammunition packaging (sizes, common interface features, unitization) and assess the life-cycle logistics impact of this concept.		0.200	0.381	0.150	0.000	0.150

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO					
Program #11  Demonstrate lower cost ammunition container closing mechanisms for current and next generation packaging that are easy to operate and re-use and that can be handled, opened, and closed with automated handling equipment.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO	0.000	0.067	0.045	0.000	0.045
Program #12	0.000	0.675	0.310	0.000	0.310

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 6: RDT&E Management Support		R-1 ITEM NOMENCLATURE PE 0605805A: Munitions Standardization, Effectiveness and Safety		PROJECT 297: Mun Survivability & Log		
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Demonstrate a standardized interlocking mechanism that will be integrated into next generation ammunition containers to permit the securing of these containers to others surrounding them in a palletized configuration. This will reduce or eliminate the additional layers of packaging and banding material required for current palletized ammunition and reduce the time currently required to palletize and secure ammunition containers for transport.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO						
Program #13  Demonstrate Joint Modular Intermodal Container compatible unitization technology for next generation ammunition packaging that facilitates the rapid configuration, reconfiguration, and transport of ammunition.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010		0.000	0.000	0.080	0.000	0.080

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army				DATE: February 2010		
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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: FY 2011 Base						
FY 2011 OCO Plans: FY 2011 OCO						
Program #14  Demonstrate prototype standard sized next generation cylindrical and rectangular ammunition packaging that includes integrated interlocking mechanisms and automation friendly closing mechanisms. This next generation packaging will permit easy reconfiguration and re-use while being nestable, unit friendly, and survivable.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO		0.000	0.000	0.508	0.000	0.508
Program #15  Demonstrate temperature responsive materials that can be used to indicate highest and lowest temperature exposures and passive (battery free) visibly interpreted shock indicators that when applied to ammunition and/or packaging will provide end users and ammunition management personnel a low cost means of determining if ordnance has become unsafe or degraded due to environmental conditions or rough handling.		0.094	0.265	0.215	0.000	0.215

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army			DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 6: RDT&E Management Support	R-1 ITEM NOMENCLATURE PE 0605805A: Munitions Standardization, Effectiveness and Safety	PROJECT 297: Mun Survivability & Log				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: FY 2009						
FY 2010 Plans: FY 2010						
FY 2011 Base Plans: FY 2011 Base						
FY 2011 OCO Plans: FY 2011 OCO						
Program #16  Demonstrate a sensor system, integrated with an ammunition item, that will monitor environmental exposure and predict failure of electronic components based on developed predictive mathematical failure models.		0.149	0.293	0.235	0.000	0.235
FY 2009 Accomplishments: FY 2009						
FY 2010 Plans: FY 2010						
FY 2011 Base Plans: FY 2011 Base						
FY 2011 OCO Plans: FY 2011 OCO						
Program #17		0.000	0.280	0.227	0.000	0.227

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 6: RDT&E Management Support		R-1 ITEM NOMENCLATURE PE 0605805A: Munitions Standardization, Effectiveness and Safety		PROJECT 297: Mun Survivability & Log		
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Determine a degradation pattern/rate for small caliber ammunition after exposure to different environmental conditions in order to develop a condition indicator to predict the reliability of small caliber tracer and incendiary ammunition. The ability to predict ammunition reliability will improve stockpile readiness and warfighter operational effectiveness.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO						
Program #18  Demonstrate a low cost go/no-go, sensor that indicates if a munition containing White Phosphorous (WP) has seen an environment that could cause the WP to melt and resettle in the round. This sensor has the potential to increase the safety of mortar units while also reducing inspection costs.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010		0.000	0.168	0.075	0.000	0.075

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: FY 2011 Base						
FY 2011 OCO Plans: FY 2011 OCO						
Program #19  Develop a plan supported by a Business Case Analysis (BCA) to implement a Condition Based Management (CBM) approach to the ammunition stockpile. The BCA will provide a complete understanding of the potential benefits of a relevant CBM ammo plan to include the cost of implementation, annual costs of monitoring ammo condition and the cost saving in having this information available for stockpile management decisions.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO		0.000	0.316	0.200	0.000	0.200
Program #20  Analyze fielded ammunition and determine components that are most likely to fail due to exposure to environmental conditions and what causes them to fail (such as exposure to environmental extremes and shock)		0.000	0.368	0.205	0.000	0.205

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: FY 2009						
FY 2010 Plans: FY 2010						
FY 2011 Base Plans: FY 2011 Base						
FY 2011 OCO Plans: FY 2011 OCO						
Program #21  Identify and demonstrate sensors that detect conditions that cause ammunition failures and integrate these sensors with specific fielded ammunition items		0.000	0.000	0.483	0.000	0.483
FY 2009 Accomplishments: FY 2009						
FY 2010 Plans: FY 2010						
FY 2011 Base Plans: FY 2011 Base						
FY 2011 OCO Plans: FY 2011 OCO						
Program #22		0.060	0.091	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Demonstrate standard sized inter-modal shipping modules for ammunition. The modules will automatically interlock with each other, top to bottom, and cargo platforms to form a stable, palletized, mixed-supply class configured load. They are automation friendly and rapidly re-configurable to meet changing user needs.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO								
Program #23  Demonstrate an ammunition storage planning tool that would be used to optimize storage at depots and provide recommendations based on the trade-offs between re-warehousing, or simply adding more igloos. Use of this tool will lead to more efficient storage density in igloos resulting in better management and manpower savings.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010				0.000	0.480	0.500	0.000	0.500

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: FY 2011 Base						
FY 2011 OCO Plans: FY 2011 OCO						
Program #24  Demonstrate a software tool to plan Forward Operating Bases (FOB) and adjust Ammunition Storage Area footprint as stockage levels change for improved soldier safety and FOB survivability.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO		0.669	0.782	0.600	0.000	0.600
Program #25  Demonstrate a Forward Ammunition Resupply System, including robotic handling and/or soldier lifting enhancements and related ammunition tool kit upgrades, designed to improve soldier productivity and safety while unpacking and handling current ammunition.		1.842	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: FY 2009								
FY 2010 Plans: FY 2010								
FY 2011 Base Plans: FY 2011 Base								
FY 2011 OCO Plans: FY 2011 OCO								
Program #26  Determine whether surface acoustic wave (SAW) enabled passive RFID tags mounted at the ammunition item or pallet level can be effectively utilized with ordnance for inventory, tracking, locating, or security purposes.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO				0.036	0.000	0.000	0.000	0.000
Program #27				0.000	0.170	0.305	0.000	0.305

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Demonstrate automated data collection software that will collect prognostic/diagnostic data from ammunition health monitoring sensors and port it to the Munitions History Program database for analysis and reference. Assess the feasibility of integrating information from existing ammunition databases with the goal of developing a comprehensive strategic view of asset status that facilitates condition based maintenance for ammunition.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO					
Program #28  Develop concepts for an International Standards Organization-container based capability to retrograde ammo returned from deployed combat units. The system will include the capability to inspect, reconfigure and recertify ammunition in ready to fire configuration at the weapon systems.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010	0.189	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: FY 2011 Base						
FY 2011 OCO Plans: FY 2011 OCO						
Program #29  Conduct an analysis to determine the costs and potential benefits of implementing Item Unique Identification (IUID) for ammunition. Tagging/marketing technology, implementation costs, operational resource (personnel and equipment) requirements, operational costs and accrued supply chain benefits data will be assessed and incorporated into a dynamic interactive model.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO		0.000	0.040	0.000	0.000	0.000
Program #30  Demonstrate the feasibility of incorporating solar reflective coatings into the powder coating used to protect ammunition packaging. Solar reflective coatings have the potential to reduce heat generation inside ammunition containers thereby protecting the ammunition and extending its life.		0.000	0.000	0.175	0.000	0.175

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army				DATE: February 2010		
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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: FY 2009						
FY 2010 Plans: FY 2010						
FY 2011 Base Plans: FY 2011 Base						
FY 2011 OCO Plans: FY 2011 OCO						
Program #31  Investigate and demonstrate tool-less tie-down equipment and rapidly emplaced packaging solutions to improve ammunition retrograde operations		0.000	0.000	0.306	0.000	0.306
FY 2009 Accomplishments: FY 2009						
FY 2010 Plans: FY 2010						
FY 2011 Base Plans: FY 2011 Base						
FY 2011 OCO Plans: FY 2011 OCO						
Program #32		0.031	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Demonstrate hazard classification certified packaging configurations for ammunition retrograde that use materials organic to the OCONUS facilities charged with the retrograde in order to provide a way to avoid the high costs for specialized transportation, detention and storage, or OCONUS demilitarization.						
FY 2009 Accomplishments: FY 2009						
FY 2010 Plans: FY 2010						
FY 2011 Base Plans: FY 2011 Base						
FY 2011 OCO Plans: FY 2011 OCO						
Program #33  Small Business Innovative Research/Small Business Technology Transfer Programs		0.000	0.243	0.000	0.000	0.000
FY 2009 Accomplishments: FY 2009						
FY 2010 Plans: FY 2010						
FY 2011 Base Plans: FY 2011 Base						

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2011 Army				<b>DATE:</b> February 2010				
<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 6: <i>RDT&amp;E Management Support</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0605805A: <i>Munitions Standardization, Effectiveness and Safety</i>	<b>PROJECT</b> 297: <i>Mun Survivability &amp; Log</i>						
<b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>								
				<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011 Base</b>	<b>FY 2011 OCO</b>	<b>FY 2011 Total</b>
<i>FY 2011 OCO Plans:</i> FY 2011 OCO								
Accomplishments/Planned Programs Subtotals				5.674	8.675	8.281	0.000	8.281
<b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>								
N/A								
<b><u>D. Acquisition Strategy</u></b>								
N/A								
<b><u>E. Performance Metrics</u></b>								
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.								

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 6: RDT&E Management Support				R-1 ITEM NOMENCLATURE PE 0605805A: Munitions Standardization, Effectiveness and Safety				PROJECT 857: DOD EXPLOSIVES SAFETY STANDARDS			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
857: DOD EXPLOSIVES SAFETY STANDARDS	1.596	1.655	1.736	0.000	1.736	2.314	2.298	2.253	2.288	Continuing	Continuing
Quantity of RDT&E Articles											
A. Mission Description and Budget Item Justification This program supports the Research, Development, Test, and Evaluation efforts of the DoD Explosive Safety Standards Board. It supports explosive safety effects research and testing to quantify hazards and to develop techniques to mitigate those hazards in all DoD manufacturing, testing, transportation, maintenance, storage, disposal of ammunition and explosives operations, and also to develop risk based explosives safety standards. Results are essential to the development and improvement of quantity-distance standards, hazard classification procedures, cost effective explosion-resistant facility design procedures, and personnel hazard/protection criteria.											
B. Accomplishments/Planned Program (\$ in Millions)											
							FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Program #1  Develop improved tri-service design procedures and improved computer codes for explosion-resistant structures. Initiate preparation of revised tri-service manual TM-51300.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base							0.305	0.306	0.340	0.000	0.340

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army			DATE: February 2010			
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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 OCO Plans: FY 2011 OCO						
Program #2  Collect and analyze airblast/fragment/thermal data for revising DoD, NATO hazard classification.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO		0.238	0.240	0.266	0.000	0.266
Program #3  Develop improved explosives and munitions tests and characterization data. Specifically, develop improved gap tests for rocket motors.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010		0.320	0.322	0.344	0.000	0.344

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: FY 2011 Base						
FY 2011 OCO Plans: FY 2011 OCO						
Program #4  Develop improved DoD and NATO explosives safety guidelines for munitions storage, explosives and field operation facilities. Prepared revised Dod 6055.9-STD and 4145.26M.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO		0.215	0.218	0.230	0.000	0.230
Program #5  Conduct other hazards analyses and expand/automate explosives safety databases. Develop improved Explosives Safety Mishap Analysis Module with links to accident reports.  FY 2009 Accomplishments: FY 2009		0.253	0.255	0.270	0.000	0.270

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO					
Program #6  Develop and improve risk based analysis tools for explosives safety. Develop sequence of operations prototype.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO	0.265	0.268	0.286	0.000	0.286
Program #7  Small Business Innovative Research/Small Business Technology Transfer Programs	0.000	0.046	0.000	0.000	0.000

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<b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>						
		<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011 Base</b>	<b>FY 2011 OCO</b>	<b>FY 2011 Total</b>
<i>FY 2009 Accomplishments:</i> FY 2009  <i>FY 2010 Plans:</i> FY 2010  <i>FY 2011 Base Plans:</i> FY 2011 Base  <i>FY 2011 OCO Plans:</i> FY 2011 OCO						
Accomplishments/Planned Programs Subtotals		1.596	1.655	1.736	0.000	1.736
<b><u>C. Other Program Funding Summary (\$ in Millions)</u></b> N/A						
<b><u>D. Acquisition Strategy</u></b> N/A						
<b><u>E. Performance Metrics</u></b> 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.						

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2011 Army								<b>DATE:</b> February 2010			
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<b>COST (\$ in Millions)</b>	<b>FY 2009 Actual</b>	<b>FY 2010 Estimate</b>	<b>FY 2011 Base Estimate</b>	<b>FY 2011 OCO Estimate</b>	<b>FY 2011 Total Estimate</b>	<b>FY 2012 Estimate</b>	<b>FY 2013 Estimate</b>	<b>FY 2014 Estimate</b>	<b>FY 2015 Estimate</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
858: <i>ARMY EXPLOSIVES SAFETY MANAGEMENT PROGRAM</i>	0.449	0.467	0.619	0.000	0.619	0.714	0.597	0.689	0.681	Continuing	Continuing
Quantity of RDT&E Articles											
<b>A. Mission Description and Budget Item Justification</b> This projects purpose is to establish, validate or modify explosives safety requirements. This project promotes RDT&E of new and innovative explosives safety technologies that improve the survivability of Army personnel, facilities, and equipment as well as improve the health, safety, and welfare of the general public. It is an Army requirement as defined in AR 385-64.											
<b>B. Accomplishments/Planned Program (\$ in Millions)</b>											
							<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011 Base</b>	<b>FY 2011 OCO</b>	<b>FY 2011 Total</b>
Program #1  Development of risk based explosives safety criteria that will aid commanders and safety personnel in the transition from regulation to risk management.  <i>FY 2009 Accomplishments:</i> FY 2009  <i>FY 2010 Plans:</i> FY 2010  <i>FY 2011 Base Plans:</i> FY 2011 Base  <i>FY 2011 OCO Plans:</i> FY 2011 OCO							0.105	0.123	0.143	0.000	0.143

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army			DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 6: RDT&E Management Support	R-1 ITEM NOMENCLATURE PE 0605805A: Munitions Standardization, Effectiveness and Safety	PROJECT 858: ARMY EXPLOSIVES SAFETY MANAGEMENT PROGRAM				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Program #2  Develop enhanced protective structure designs that improve the survivability of Army personnel, facilities, and equipment.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO		0.164	0.150	0.223	0.000	0.223
Program #3  Develop explosive safety tools for use by Army personnel. Explosive safety tools allow commanders and safety personnel to make explosive safety decisions using risk management rather than regulations.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base		0.180	0.181	0.253	0.000	0.253

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2011 Army				<b>DATE:</b> February 2010	
<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 6: <i>RDT&amp;E Management Support</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0605805A: <i>Munitions Standardization, Effectiveness and Safety</i>		<b>PROJECT</b> 858: <i>ARMY EXPLOSIVES SAFETY MANAGEMENT PROGRAM</i>	
<b>B. Accomplishments/Planned Program (\$ in Millions)</b>					
	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011 Base</b>	<b>FY 2011 OCO</b>	<b>FY 2011 Total</b>
<i>FY 2011 OCO Plans:</i> FY 2011 OCO					
Program #4 Small Business Innovative Research/Small Business Technology Transfer Programs  <i>FY 2009 Accomplishments:</i> FY 2009  <i>FY 2010 Plans:</i> FY 2010  <i>FY 2011 Base Plans:</i> FY 2011 Base  <i>FY 2011 OCO Plans:</i> FY 2011 OCO	0.000	0.013	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	0.449	0.467	0.619	0.000	0.619
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A					
<b>D. Acquisition Strategy</b> N/A					
<b>E. Performance Metrics</b> 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.					

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 6: RDT&E Management Support				R-1 ITEM NOMENCLATURE PE 0605805A: Munitions Standardization, Effectiveness and Safety				PROJECT 859: LIFE CYCLE PILOT PROCESS			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
859: LIFE CYCLE PILOT PROCESS	27.750	32.731	4.546	0.000	4.546	5.118	5.052	4.849	4.903	Continuing	Continuing
Quantity of RDT&E Articles											
A. Mission Description and Budget Item Justification											
This project supports the implementation of the Single Manager for Conventional Ammunition (SMCA) Industrial Base Strategic Plan through technology investigations, model based process controls, pilot prototyping, and industrial assessments. It will assess life cycle production capabilities required for all ammunition families, address design for manufacturability to facilitate economical production, identify industrial and technology requirements, and address the ability of the production base to rapidly and cost effectively produce quality products. Cost Reduction is an important part of the Life Cycle Pilot Process (LCPP). LCPP provides the resources to prototype critical technologies and develop the knowledge base to establish cost effective, environmentally safe and modern production processes in support of the Munitions Industrial Base transformation.											
B. Accomplishments/Planned Program (\$ in Millions)											
							FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Program #1							0.600	0.658	0.675	0.000	0.675
Developed concept designs and plans to transfer life cycle pilot process technology into the supplier base. Review and analyze legacy manufacturing processing for opportunities to integrate new manufacturing technology and lean manufacturing processes to reduce costs.											
FY 2009 Accomplishments: FY 2009											
FY 2010 Plans: FY 2010											
FY 2011 Base Plans: FY 2011 Base											

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army			DATE: February 2010			
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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 OCO Plans: FY 2011 OCO						
Program #2  Developed potential manufacturing solutions for several Single Point Failures (SPF). Initiated projects to resolve several more SPFs. Initiated transition of manufacturing process for RD 1333 lead azide to industry. Continue development of manufacturing technology and processes for SPFs.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO		2.441	3.107	3.196	0.000	3.196
Program #3  Investigated potential technologies to transform key manufacturing processes in the NTIB. Continue investigations, develop and document manufacturing technology for transition to the NTIB.  FY 2009 Accomplishments: FY 2009		0.600	0.658	0.675	0.000	0.675

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army			DATE: February 2010		
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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: FY 2010					
FY 2011 Base Plans: FY 2011 Base					
FY 2011 OCO Plans: FY 2011 OCO					
Program #4  Developed advanced coating technology and began transfer of process technology to the explosive manufacturing Industrial Base. Continue development of processes to eliminate safety concerns and achieve net-shape manufacturing of advanced cluster energetic materials by developing novel coating and handling processes to support Insensitive Munitions (IM) explosive fill and transfer those processes to the supplier base.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO	3.188	1.600	0.000	0.000	0.000
Program #5	2.590	3.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army			DATE: February 2010					
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B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Established framework for integrated data environment for sharing of manufacturing science. Establish commercial partnership with ARDEC's Center for Manufacturing Science for the prototyping process and capturing of production knowledge in the arena of forged and drawn metal parts.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO								
Program #6  Establish a focal point with the Defense Materials Technology Center to investigate innovative technology to support the needs of the munitions industrial base in metals manufacturing.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base				2.989	2.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army			DATE: February 2010			
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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 OCO Plans: FY 2011 OCO						
Program #7  Completed facility design for production of atomized magnesium within the National Technology and Industrial Base (NTIB). Build a pilot scale reactor.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO		0.797	1.600	0.000	0.000	0.000
Program #8  Gathered imaging data of depleted uranium munitions from Army ranges. Tested initial hardware prototype designs. Developed initial software for data analysis. Refine hardware designs and integrate with software for the Army Range Technology Program.  FY 2009 Accomplishments: FY 2009		3.985	4.880	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army			DATE: February 2010			
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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: FY 2010						
FY 2011 Base Plans: FY 2011 Base						
FY 2011 OCO Plans: FY 2011 OCO						
Program #9  Develop streamline business processes and foster integration across the Joint Munitions and Lethality Ammunition Enterprise to more efficiently and effectively support warfighter needs.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO		1.594	1.600	0.000	0.000	0.000
Program #10  Established capability to incorporate new technology solutions for rapid spiral development of select Joint Munitions and Lethality Program Management (PM) programs to support warfighter needs. Utilized strategy		2.391	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
of leveraging program requirements and resources with non traditional supplier technologies. Provided small non-traditional businesses collaboration opportunities with the PM's on their technologies effectiveness and performance.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO						
Program #11  Develop and transition an information center for advanced manufacturing process knowledge and technology. It will support cost effective production of components at small to medium sized sub-tier suppliers.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base		0.996	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 OCO Plans: FY 2011 OCO						
Program #12  Developed, proved-out, and fielded several new prototype protective armor solutions that utilize various lightweight ballistic materials. The configured hybrid solution is optimal for weight reduction, high performance and affordability. Continue to improve existing solutions and develop new armor solutions.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO		3.985	5.000	0.000	0.000	0.000
Program #13  Establish capability to produce nanodiamonds within National Technology and Industrial Base (NTIB). Assess the effectiveness of incorporating nanodiamonds in prototype parts.  FY 2009 Accomplishments: FY 2009		1.594	1.600	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: FY 2010						
FY 2011 Base Plans: FY 2011 Base						
FY 2011 OCO Plans: FY 2011 OCO						
Program #14  Investigate the feasibility of adapting conventional battery manufacturing processing and technology to thermal batteries used in guided munitions.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO		0.000	2.400	0.000	0.000	0.000
Program #15  Evaluate and demonstrate fiber composite technologies for sensor applications and munitions health monitoring. Design energy harvesting solution for wireless sensors. Develop and prove concept prototype.		0.000	1.500	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
FY 2011 Base Plans: FY 2011 Base					
FY 2011 OCO Plans: FY 2011 OCO					
Program #16  Develop and evaluate novel self-healing pretreatments and polymer coatings to achieve enhanced corrosion resistance. Nanotechnology-enabled products adhesion to magnesium and titanium alloys will be researched.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO	0.000	1.400	0.000	0.000	0.000
Program #17	0.000	1.600	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
3-D woven technology for adaptation to improve the strength and reduce the weight of sabots. Manufacture prototype components for testing and to verify mechanical properties.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO						
Program #18  Small Business Innovative Research / Small Business Technology Transfer Programs  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO		0.000	0.128	0.000	0.000	0.000

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2011 Army				<b>DATE:</b> February 2010				
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<b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>								
				<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011 Base</b>	<b>FY 2011 OCO</b>	<b>FY 2011 Total</b>
Accomplishments/Planned Programs Subtotals				27.750	32.731	4.546	0.000	4.546
<b><u>C. Other Program Funding Summary (\$ in Millions)</u></b> N/A								
<b><u>D. Acquisition Strategy</u></b> N/A								
<b><u>E. Performance Metrics</u></b> 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.								

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2011 Army								<b>DATE:</b> February 2010			
<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 6: <i>RDT&amp;E Management Support</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0605805A: <i>Munitions Standardization, Effectiveness and Safety</i>				<b>PROJECT</b> 862: <i>Indirect Fire and Fuze Technology</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2009 Actual</b>	<b>FY 2010 Estimate</b>	<b>FY 2011 Base Estimate</b>	<b>FY 2011 OCO Estimate</b>	<b>FY 2011 Total Estimate</b>	<b>FY 2012 Estimate</b>	<b>FY 2013 Estimate</b>	<b>FY 2014 Estimate</b>	<b>FY 2015 Estimate</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
862: <i>Indirect Fire and Fuze Technology</i>	2.111	3.080	12.350	0.000	12.350	3.725	4.128	3.726	3.790	Continuing	Continuing
Quantity of RDT&E Articles											
<b>A. Mission Description and Budget Item Justification</b> <p>This program investigates maturing technologies and seeks potential candidates for integration on current fuzing and safe and arm devices. This program will implement these technologies into fuzing systems to preclude obsolescence and enhance performance of existing munitions. The program addresses two major areas: (1) risk mitigation and (2) block upgrades. Risk mitigation efforts will evaluate and demonstrate second sources for fuzing systems that may reduce cost by providing competition, and maintain production when sources or parts are no longer available. It will also allow for the performance enhancement of current ammunition items by conducting studies of major fuze components to detect and identify latent defects. The second major area is block upgrades, which will evaluate and perform studies on improvements to fuzes; increase commonality of fuze components and requirements across all hand grenade programs; determine feasibility of common training fuze for 60, 81, and 120mm mortar rounds; determine feasibility of common mortar safe and arm device components for M734A1, M783 Fuzes; improve M759 fuze sensitivity of 30 mm munition. Block upgrades will enable the introduction of the latest technologies into fuzing, keep the fuzing design current to avoid obsolescence issues, and add capabilities. Replacement of DPA Stabilizer in Ball Powder Propellants significantly reduces stabilizer depletion rate and increases propellant shelf-life with replacement of Diphenylamine (DPA) which is incompatible with Nitroglycerin (NG). Proposed replacement Akardite-2 is compatible with NG and is the least toxic of all stabilizers. IMX104 as Comp B Replacement for 81mm HE reduces risk of accidental/fratricidal incidents to the Warfighter in theater through incorporation of insensitive munitions. It also improves transport and stockpile survivability. The XM1128, 155mm Extended Range addresses structural survivability and igniter reliability to achieve extended range on a modified profile projectile using the current weapon platform and existing propulsion systems.</p>											
<b>B. Accomplishments/Planned Program (\$ in Millions)</b>											
						<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011 Base</b>	<b>FY 2011 OCO</b>	<b>FY 2011 Total</b>	
Program #1						2.111	2.117	2.083	0.000	2.083	
Block Upgrades: Successfully demonstrated Zig-Zag safety design for Common Mortar training fuze for 60, 81, and 120mm mortars, and forwarded the design to PM CAS to qualify the design. Investigate drop in proximity upgrades for current airburst fuzing for mortar, artillery and other munitions. Evaluate proximity sensor upgrades for M734A1. Prototyping a mortar common Safe and arm device for M734A1 and M783 rounds. Performing											

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
a study on commonality of fuze components and requirements across all hand grenades (M67, M84, and M18. Tested several iterations of the Turbine Alternator (T/A) on the M734A1/M783 mortar fuze to survive high _g_ gun launch environments, and selected a final design to transition to PM CAS for final qualification testing. Risk Mitigation: Evaluating improvements to stockpiled training and war reserve fuzes to enhance capabilities and/or address deficiencies. Evaluating second source for Digital Signal Processor for the M734A1 fuze, evaluate new battery and electronics sources for current inventory fuzes. Evaluating storage reliability of current artillery batteries/determine possible solutions to battery electrolyte storage instabilities.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO					
Program #2  Indirect Fire: Initiate formulations design, propellants manufacturing, producibility assessments, propellants manufacturing and Stability Study. Initiate the procurement of parts/materials, load mortar and improve ARDEC pilot controls, explosive train design and IM Testing. Finite element analyses, computational fluid dynamics modeling, strength of design testing. Ballistic testing including firing tables, safety, reliability and performance testing will be conducted.	0.000	0.877	0.971	0.000	0.971

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: FY 2009						
FY 2010 Plans: FY 2010						
FY 2011 Base Plans: FY 2011 Base						
FY 2011 OCO Plans: FY 2011 OCO						
Program #3  Indirect Fire: Develop the 155mm HE projectile, XM1128 with a base burner to reduce drag and provide capability of a fully zone-able projectile with a maximum range of 30km when fired from a 39 caliber cannon. Activities include the study and fabrication of a reliable igniter and base bleed grain, producibility study of metal parts and pre-production prototyping with initial tooling. Initiate hazard classification and lethality analysis, verification of structural integrity of one piece body. Additional actions include the definition of projectile aerodynamics across entire launch Mach spectrum, characterization of the base burn performance, definition of muzzle velocity and range overlap at all MACS charges and complete qualification testing.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010		0.000	0.000	9.296	0.000	9.296

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<b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>					
		<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011 Base</b>	<b>FY 2011 OCO</b>
<i>FY 2011 Base Plans:</i> FY 2011 Base  <i>FY 2011 OCO Plans:</i> FY 2011 OCO					
Program #4 Small Business Innovative Research/Small Business Technology Transfer Program  <i>FY 2009 Accomplishments:</i> FY 2009  <i>FY 2010 Plans:</i> FY 2010  <i>FY 2011 Base Plans:</i> FY 2011 Base  <i>FY 2011 OCO Plans:</i> FY 2011 OCO		0.000	0.086	0.000	0.000
Accomplishments/Planned Programs Subtotals		2.111	3.080	12.350	0.000
<b><u>C. Other Program Funding Summary (\$ in Millions)</u></b> N/A					
<b><u>D. Acquisition Strategy</u></b> N/A					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2011 Army		<b>DATE:</b> February 2010
<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 6: <i>RDT&amp;E Management Support</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0605805A: <i>Munitions Standardization, Effectiveness and Safety</i>	<b>PROJECT</b> 862: <i>Indirect Fire and Fuze Technology</i>
<b>E. Performance Metrics</b> 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.		

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2011 Army								<b>DATE:</b> February 2010			
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<b>COST (\$ in Millions)</b>	<b>FY 2009 Actual</b>	<b>FY 2010 Estimate</b>	<b>FY 2011 Base Estimate</b>	<b>FY 2011 OCO Estimate</b>	<b>FY 2011 Total Estimate</b>	<b>FY 2012 Estimate</b>	<b>FY 2013 Estimate</b>	<b>FY 2014 Estimate</b>	<b>FY 2015 Estimate</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
F21: <i>Direct Fire Technology and NATO Ammo Evaluation</i>	0.989	3.026	3.489	0.000	3.489	3.874	3.033	2.976	3.050	Continuing	Continuing
Quantity of RDT&E Articles											
<b>A. Mission Description and Budget Item Justification</b> This program assures complete interchangeability of small caliber and automated cannon-caliber ammunition and weapons among all NATO countries with all of the associated logistic, strategic and tactical advantages. Project involves development and testing compliance of NATO standardization agreements (STANAGS) and staffing of the NATO North American Regional Test Center (NARTC). The program also includes warhead improvements and capability insertions to enhance lethality and effectiveness of existing cartridges.FY 2010 funds will continue to maintain the NARTC and support NATO standardization of small and medium caliber ammunition for battlefield interchangeability. Additionally, this funding will be used to support small caliber rifle, 40mm grenade and medium caliber cannon ammunition effectiveness, accuracy and general improvements. Improvements in target practice technology such as spotter technology will be incorporated into training ammunition.											
<b>B. Accomplishments/Planned Program (\$ in Millions)</b>											
							<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011 Base</b>	<b>FY 2011 OCO</b>	<b>FY 2011 Total</b>
Program #1							0.011	0.000	0.000	0.000	0.000
40mm High/Low Velocity Standardization											
<i>FY 2009 Accomplishments:</i>											
FY 2009											
<i>FY 2010 Plans:</i>											
FY 2010											
<i>FY 2011 Base Plans:</i>											
FY 2011 Base											

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 OCO Plans: FY 2011 OCO						
Program #2  30mm Assessment Team  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO		0.025	0.000	0.000	0.000	0.000
Program #3  Maintain standardization of qualified designs  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010		0.000	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: FY 2011 Base						
FY 2011 OCO Plans: FY 2011 OCO						
Program #4  New Ammo design qualification & NATO Nominated Weapon Evaluation		0.000	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: FY 2009						
FY 2010 Plans: FY 2010						
FY 2011 Base Plans: FY 2011 Base						
FY 2011 OCO Plans: FY 2011 OCO						
Program #5  NARTC Equipment Purchases		0.017	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: FY 2009						

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: FY 2010						
FY 2011 Base Plans: FY 2011 Base						
FY 2011 OCO Plans: FY 2011 OCO						
Program #6  Staff, Equip, Maintain NARTC		0.440	0.150	0.150	0.000	0.150
FY 2009 Accomplishments: FY 2009						
FY 2010 Plans: FY 2010						
FY 2011 Base Plans: FY 2011 Base						
FY 2011 OCO Plans: FY 2011 OCO						
Program #7  Improve Hard Target Performance		0.325	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: FY 2009						
FY 2010 Plans: FY 2010						
FY 2011 Base Plans: FY 2011 Base						
FY 2011 OCO Plans: FY 2011 OCO						
Program #8 40 mm Low Velocity Testing		0.054	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: FY 2009						
FY 2010 Plans: FY 2010						
FY 2011 Base Plans: FY 2011 Base						
FY 2011 OCO Plans: FY 2011 OCO						
Program #9		0.000	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Optimize Manufacturing Process  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO						
Program #10  Small Caliber Ammunition Standardization Efforts  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO		0.117	0.606	0.329	0.000	0.329

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Program #11		0.000	0.670	1.010	0.000	1.010
40mm Non-dud Producing Training Cartridge						
FY 2009 Accomplishments:						
FY 2009						
FY 2010 Plans:						
FY 2010						
FY 2011 Base Plans:						
FY 2011 Base						
FY 2011 OCO Plans:						
FY 2011 OCO						
Program #12		0.000	0.315	0.750	0.000	0.750
M433 Warhead Improvement						
FY 2009 Accomplishments:						
FY 2009						
FY 2010 Plans:						
FY 2010						
FY 2011 Base Plans:						
FY 2011 Base						
FY 2011 OCO Plans:						
FY 2011 OCO						

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Program #13		0.000	0.500	0.500	0.000	0.500
Target Practice Spotter Technology Insertion						
FY 2009 Accomplishments:						
FY 2009						
FY 2010 Plans:						
FY 2010						
FY 2011 Base Plans:						
FY 2011 Base						
FY 2011 OCO Plans:						
FY 2011 OCO						
Program #14		0.000	0.700	0.750	0.000	0.750
Improved M789 Lethality						
FY 2009 Accomplishments:						
FY 2009						
FY 2010 Plans:						
FY 2010						
FY 2011 Base Plans:						
FY 2011 Base						
FY 2011 OCO Plans:						
FY 2011 OCO						

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2011 Army				<b>DATE:</b> February 2010	
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<b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>					
	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011 Base</b>	<b>FY 2011 OCO</b>	<b>FY 2011 Total</b>
Program #15	0.000	0.085	0.000	0.000	0.000
Small Business Innovative Research/Small Business Technology Transfer Programs					
<i>FY 2009 Accomplishments:</i>					
FY 2009					
<i>FY 2010 Plans:</i>					
FY 2010					
<i>FY 2011 Base Plans:</i>					
FY 2011 Base					
<i>FY 2011 OCO Plans:</i>					
FY 2011 OCO					
Accomplishments/Planned Programs Subtotals		0.989	3.026	3.489	0.000
<b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>					
N/A					
<b><u>D. Acquisition Strategy</u></b>					
N/A					
<b><u>E. Performance Metrics</u></b>					
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.					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2011 Army								<b>DATE:</b> February 2010			
<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 6: <i>RDT&amp;E Management Support</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0605805A: <i>Munitions Standardization, Effectiveness and Safety</i>				<b>PROJECT</b> F24: <i>CONVENTIONAL MUNITIONS DEMIL</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2009 Actual</b>	<b>FY 2010 Estimate</b>	<b>FY 2011 Base Estimate</b>	<b>FY 2011 OCO Estimate</b>	<b>FY 2011 Total Estimate</b>	<b>FY 2012 Estimate</b>	<b>FY 2013 Estimate</b>	<b>FY 2014 Estimate</b>	<b>FY 2015 Estimate</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
F24: <i>CONVENTIONAL MUNITIONS DEMIL</i>	4.652	15.502	14.987	0.000	14.987	17.903	17.819	17.468	17.738	Continuing	Continuing
Quantity of RDT&E Articles											
<b>A. Mission Description and Budget Item Justification</b> <p>Under the leadership and oversight of the Product Manager for Demilitarization, this project supports a continuing technology evaluation of demilitarization methods for all types of conventional ammunition in development, production, and storage. Project F24 will complete the development, demonstration, and integration of new, safe, and environmentally acceptable alternatives to open burning/open detonation (OB/OD), including recovery/recycle/recycling (R3) equipment, and processes to reduce the extremely large demil stockpile. Beginning in FY10, the Conventional Munitions Demil Project and F24 will incorporate the Explosive Demilitarization Technology Program, a cooperative inter-service, interagency effort dedicated to the maturation of safe, efficient, and environmentally acceptable processes for the closed disposal of conventional munitions including explosives, missiles, missile components, and large rocket motors. The effort employs the highly matured technology base in the DoD Service Laboratories and Technical Centers, the Department of Energy (DOE) national laboratories, industry, and academia. The program is integrated through the leadership of the Product Manager for Demilitarization and the Joint Ordnance Commanders Group Munitions Demilitarization/Disposal Subgroup leveraging support from the Department's Environmental Security Technology Certification Program (ESTCP), the Strategic Environmental Research and Development Program (SERDP) and the Joint DOD/DOE Munitions Technology Program. The program supports an annual global demilitarization symposium for technical review and data evaluation from ongoing projects and advanced demonstrations. The PM Demilitarization R&amp;D Integrated Process Team utilizes a systematic approach for project prioritization.</p>											
<b>B. Accomplishments/Planned Program (\$ in Millions)</b>											
						<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011 Base</b>	<b>FY 2011 OCO</b>	<b>FY 2011 Total</b>	
Program #1						1.620	6.487	8.514	0.000	8.514	
Advanced Destruction: This effort focuses on destruction of munitions. In FY09, Plasma Ordnance Demilitarization System (PODS) prove-out testing was completed. Mobile Plasma Treatment System (MPTS) technical support continued. CryoPlasma Demil System (CPDS) equipment procurement was completed, along with sub-system testing. In FY10, PODS Pollution Abatement System upgrade will be fabricated and installed. MPTS technical supervision and support will be completed. CPDS fabrication will continue. Initiate fabrication											

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army				DATE: February 2010		
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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
of demil design for White Phosphorous Felt Wedges. Continue support of the Ammonium Pechlorate (AP) Destruction project's design phase. In FY11, initiate development of a process for Bull Pup Liquid Fuel Motors. Initiate the design of the Acid Hydrolysis Processing Plant.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO						
Program #2  Resource Recovery and Recycling (R3): This effort focuses on enhancing existing methods of munitions R3. In FY09, Magnesium Recovery equipment was installed and prove-out testing began on the large-scale pilot plant. In FY10, prove-out testing will be completed. Magnesium Recovery demonstration and validation will be conducted. Munitions Residue Inspection System (MRIS) will transition machine vision for 105MM and will be initiated. In FY10, initiate the design of a high pressure water washout system. The Nitro-Guanidine (NQ) recovery pilot process design will be initiated and fabrication will be completed. In FY11, NQ installation and prove-out will be conducted.  FY 2009 Accomplishments: FY 2009		2.681	5.100	4.100	0.000	4.100

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B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: FY 2010								
FY 2011 Base Plans: FY 2011 Base								
FY 2011 OCO Plans: FY 2011 OCO								
Program #3  Advanced Removal: This effort develops technology to remove propellant and energetics. In FY09 Ultrasonic Removal pilot plant operations were completed and design of a prototype facility initiated. Investigated available Insensitive Munitions (IM) demil technology. The autoclave process was optimized via computer modeling and simulation. In FY10, initiate the development and fabrication of a technique for the milling of multiple missiles, Flexible Milling of Rocket Motors. In FY11, will demonstrate propellant removal technology on missiles utilizing auguring techniques.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO				0.351	1.554	1.001	0.000	1.001

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Program #4  Advanced Waste Stream Treatment: This effort focuses on handling waste streams from munitions items. In FY10, this effort will demonstrate thermal treatment oven liner technology. Initiate the feasibility of utilizing emissions monitoring technology during open detonation. In FY11, down select and validate emissions monitoring technology.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010  FY 2011 Base Plans: FY 2011 Base  FY 2011 OCO Plans: FY 2011 OCO		0.000	1.059	1.372	0.000	1.372
Program #5  Advanced Munitions Disassembly: In FY10, Cryofracture final prove-out and demonstration/validation testing was conducted. In FY11, initiate the demil concept design of Cryofracture adaptation to Demil of Rockeye Munitions.  FY 2009 Accomplishments: FY 2009  FY 2010 Plans: FY 2010		0.000	0.867	0.000	0.000	0.000

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2011 Army				<b>DATE:</b> February 2010		
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<b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>						
		<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011 Base</b>	<b>FY 2011 OCO</b>	<b>FY 2011 Total</b>
<i>FY 2011 Base Plans:</i> FY 2011 Base  <i>FY 2011 OCO Plans:</i> FY 2011 OCO						
Program #6 Small Business Innovative Research / Small Business Technology Transfer Programs  <i>FY 2009 Accomplishments:</i> FY 2009  <i>FY 2010 Plans:</i> FY 2010  <i>FY 2011 Base Plans:</i> FY 2011 Base  <i>FY 2011 OCO Plans:</i> FY 2011 OCO		0.000	0.435	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals		4.652	15.502	14.987	0.000	14.987
<b><u>C. Other Program Funding Summary (\$ in Millions)</u></b> N/A						
<b><u>D. Acquisition Strategy</u></b> N/A						

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<b>E. Performance Metrics</b> 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.		

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