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Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Army DATE: April 2013

APPROPRIATION/BUDGET ACTIVITY					R-1 ITEM NOMENCLATURE							
2040: Research, Development, Test & Evaluation, Army BA 4: Advanced Component Development & Prototypes (ACD&P)					PE 0603639A: Tank and Medium Caliber Ammunition							
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	-	40.314	30.560	30.612	-	30.612	7.083	0.000	0.000	0.000	Continuing	Continuing
652: M829E4 120mm Cartridge	-	40.305	30.560	19.812	-	19.812	0.000	0.000	0.000	0.000	Continuing	Continuing
656: FCS Mounted Combat System (MCS) Ammunition	-	0.009	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
694: Medium Caliber Ammunition	-	0.000	0.000	10.800	-	10.800	7.083	0.000	0.000	0.000	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

Note

FY 2014: \$10.800M increase in Project 694 is for the Medium Caliber Target Practice Day/Night/Thermal (TP D/N/T) cartridge program.

A. Mission Description and Budget Item Justification

The Direct Fire Advanced Technology (DFAT) Program Element (PE) encompasses a comprehensive program to develop, rapidly transition to production, and field advanced tank, medium and small caliber munitions. These programs will ensure continued battlefield overmatch and lethality of U.S. maneuver forces despite worldwide development and proliferation of enhanced armored vehicle protection technologies. To achieve this, DFAT will identify and develop promising technologies through competitive development and streamlined acquisition procedures. All ammunition development funds within this PE are managed to facilitate transitions between phases, avoid administrative delays, and focus resources on the most promising areas.

The M829E4 cartridge is an unguided, direct fire, Abrams delivered Line of Sight (LOS) munition that will provide fast response lethality to rapidly destroy threat targets with Explosive Reactive Armor (ERA) and Active Protection Systems (APS) in the close fight from 0-2km (T) and to 0-4km (O). The M829E4 will be compatible with the 120mm Current Force Abrams Main Battle Tank. FY 2011 M829E4 Cartridge funding supported the completion of Engineering and Manufacturing Development (EMD) Phase I and the initiation of Phase II. FY 2012 funding supported design finalization, design verification, testing and fabrication of Design, Test and Evaluation hardware and beginning of testing. FY 2013 features building of test hardware for final qualification testing. FY 2014 supports hardware and performance test, conducting mandated Live Fire Testing & Evaluation (LFT&E) and staffing of Milestone C.

In FY 2014 the Target Practice Day/ Night/ Thermal (TP D/N/T) cartridge is a 40mm grenade training cartridge. The Low Velocity variant is for training with the M203/ M320 grenade launchers and the High Velocity variant is for training with the Mk19 grenade machine gun. Both of these cartridges will provide the War Fighter with a non dud producing, environmentally friendly training cartridge which replicates the impact signature of respective tactical ammunition and can be seen day or night, by the unaided eye or through night vision and thermal weapon sights.

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APPROPRIATION/BUDGET ACTIVITY		R-1 ITEM NOMENCLATURE			
2040: Research, Development, Test & Evaluation, Army		PE 0603639A: Tank and Medium Caliber Ammunition			
BA 4: Advanced Component Development & Prototypes (ACD&P)					
B. Program Change Summary (\$ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	40.314	30.560	19.812	-	19.812
Current President's Budget	40.314	30.560	30.612	-	30.612
Total Adjustments	0.000	0.000	10.800	-	10.800
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	10.800	-	10.800

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Exhibit R-2A, RDT&E Project Justification: PB 2014 Army									DATE: April 2013			
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 4: Advanced Component Development & Prototypes (ACD&P)					R-1 ITEM NOMENCLATURE PE 0603639A: Tank and Medium Caliber Ammunition				PROJECT 652: M829E4 120mm Cartridge			
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
652: M829E4 120mm Cartridge	-	40.305	30.560	19.812	-	19.812	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles												
# 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												
The M829E4 cartridge is an Abrams delivered Line of Sight (LOS) munition that will provide capability for the current force Armored Brigade Combat Team's (ABCT) commander to conduct decisive operations and destroy current and future enemy Main Battle Tanks (MBTs) equipped with Explosive Reactive Armor (ERA) and Active Protective System (APS) at ranges from 0-2km (T) and 0-4km (O). The M829E4 equips ABCT commanders with a unique capability which will increase the ABCT's lethality and ability to seize the initiative during unified land operations. After a Engineering and Manufacturing Development (EMD) Phase I competitive shoot off in FY 2011 ATK was awarded the option to continue with Phase II until its conclusion in FY 2014. FY 2012 supported the continuation of Phase II of the M829E4 cartridge. FY 2013 funding supports design finalization, design verification, fabrication and testing of Developmental Test and Evaluation (DT&E) hardware. The full performance of the M829E4 is obtained with an Abrams equipped Ammunition Data Link breech modification. FY 2014 supports conducting hardware and performance testing, mandated Live Fire Test & Evaluation (LFT&E) and completion of Milestone C.												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)									FY 2012	FY 2013	FY 2014	
Title: Phase II EMD									28.726	20.500	9.900	
									Articles: 0	0		
Description: Funding is provided for the following effort:												
FY 2012 Accomplishments:												
Continued Phase II of EMD in which the design was optimized and a preliminary Technical Data Package was (TDP) established. The design was further tested, and refined. Process maps and TDP documentation were initiate. Some components for a Design Evaluation Test (DET) were fabricated and DT&E test hardware/ components was procured.												
FY 2013 Plans:												
Continuing Phase II of EMD, the design will be finalized, tested and evaluated to insure all requirements are met/ exceeded. Cartridges will be fabricated for DT&E testing, operational tests and live fire testing. A Technical Data Package (TDP) will be revised and a detailed specification shall be assembled. Production manufacturing fixtures and subsystem test equipment will be established and qualified												
FY 2014 Plans:												

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Exhibit R-2A, RDT&E Project Justification: PB 2014 Army		DATE: April 2013			
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 4: Advanced Component Development & Prototypes (ACD&P)		R-1 ITEM NOMENCLATURE PE 0603639A: Tank and Medium Caliber Ammunition	PROJECT 652: M829E4 120mm Cartridge		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2012	FY 2013	FY 2014	
Continue and complete DT&E coordination and oversight, culminating at Milestone C. This includes completing the delivery of DT&E hardware and performance test, preparing Milestone C & TC-STD documentation, conducting performance analysis modeling and simulation, TDP review and staffing. Staff Milestone C documentation and build cartridges with alternate sabot material. Generate fire control solution for Abrams M1A2 SEP V2 integration, transfer and demil any residual R&D hardware on the program. Final R&D Depleted Uranium (DU) waste removal and disposal will take place.					
Title: Design Evaluation Test Description: Funding is provided for the following effort: FY 2012 Accomplishments: Design Evaluation Test (DET) is an interim test of the finalized design prior to the build of the DT&E cartridges. This includes the test and analysis activities leading to DT&E. Analysis includes complete systems analysis with the use of modeling and simulation tools. DET is a risk reduction test to quantify performance of the design prior to finalizing the design at a Critical Design review (CDR) and to procure long lead items to support DET.		Articles: 4.175 0	0.000	0.000	
Title: Developmental Test & Evaluation (DT&E) Description: Funding is provided for the following effort: FY 2012 Accomplishments: The DT&E covers the build and test at the conclusion of EMD. The capability is demonstrated and performance against the performance specification. The data and evaluation of this test support Milestone C and Type Classified - Standard (TC-STD) decisions. Documentation for these milestones will be generated and compiled. Tests consist of a battery of safety and performance tests to assure Army requirements are met/ exceeded. During FY 2012 the planning and manufacturing of special test fixtures & equipment was fabricated/ procured for testing and subsequent qualification. FY 2013 Plans: The Development Test & Evaluation (DT&E) is the testing and analysis at the conclusion of EMD. A single design will undergo a battery of tests in which the capability is proven/ demonstrated, performance quantified. This covers the Test and Evaluation, the analysis of the results and the documentation that supports Milestone C and the TC-STD . Testing includes safety, survivability, armor testing, insensitive munitions, ballistic testing, noise, toxic fumes, and terminal impact dispersion/ accuracy tests. This effort also includes the live fire tests, user excursion tests and Stationary Ammunition accuracy testing. FY 2014 Plans:		Articles: 6.130 0	10.060 0	9.912	

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Exhibit R-2A, RDT&E Project Justification: PB 2014 Army								DATE: April 2013			
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>					R-1 ITEM NOMENCLATURE PE 0603639A: <i>Tank and Medium Caliber Ammunition</i>			PROJECT 652: <i>M829E4 120mm Cartridge</i>			
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2012	FY 2013	FY 2014	
Continue and complete DT&E integrated testing with Abrams. Conduct single shot ammunition accuracy test and conduct the mandated Live Fire Testing & Evaluation (LFT&E). At the culmination of integrated testing, staff Milestone C request and assemble TC-STD documentation.											
Title: FY12 SBIR/STTR and FFRDC reductions Description: FY12 SBIR/STTR and FFRDC reductions FY 2012 Accomplishments: FY12 SBIR/STTR and FFRDC reductions								Articles: 1.274 0	0.000	0.000	
Accomplishments/Planned Programs Subtotals								40.305	30.560	19.812	
C. Other Program Funding Summary (\$ in Millions)											
Line Item	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
• M829E4: <i>M829E4</i>			30.503		30.503	37.200	37.834	38.478	33.040	Continuing	Continuing
Remarks											
D. Acquisition Strategy											
<p>The M829E4 cartridge is at Technology Readiness Level 6 (TRL6). The Milestone B Decision was obtained in 4Q FY 2009, and the program entered Engineering and Manufacturing Development (EMD) in FY 2010. EMD consists of two phases; the Phase I contract was awarded in 2Q FY 2010 and the Phase II contract was awarded in 3Q FY 2011. During Phase I (15 months), the Government awarded two separate Cost Plus Fixed Fee (CPFF) contracts culminating in a demonstration test and competitive source selection to down select to one contractor for the 31 month Cost Plus Incentive Fee (CPIF) Phase II. The down select was based on the demonstrated performance of the cartridge design, proposed systems engineering and management approach for Phase II, and the total program cost estimate for each contractor at the time of the demonstration test. ATK was awarded the option to continue EMD Phase II until its conclusion in FY 2014. Upon successful completion of Milestone C, a Low Rate Initial Production (LRIP) option will be awarded to ATK in 3Q FY 2014. The contract also contains options for two additional production years. All production options are Firm Fixed Price (FFP).</p>											
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.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Army												DATE: April 2013			
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>						R-1 ITEM NOMENCLATURE PE 0603639A: <i>Tank and Medium Caliber Ammunition</i>						PROJECT 652: <i>M829E4 120mm Cartridge</i>			
Management Services (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
FY12 SBIR/STTR and FFRDC reductions	FFRDC	Picatinny Arsenal:NJ	0.000	1.274		-		-		-		-	0.000	1.274	0.000
Subtotal			0.000	1.274		0.000		0.000		0.000		0.000	0.000	1.274	0.000
Product Development (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
ATK Phase II	C/CPIF	ATK:Minnesota	102.500	28.726		20.500		8.900		-		8.900	Continuing	Continuing	Continuing
PM-MAS	MIPR	PM-MAS Picatinny Arsenal:NJ	2.930	1.000		1.000		1.000		-		1.000	Continuing	Continuing	Continuing
GD-OTS Phase 1	C/CPFF	GD-OTS:St.Petersburg, FL	2.068	-		-		-		-		-	0.000	2.068	0.000
ATK Phase 1	C/CPFF	ATK:Minnesota	5.254	-		-		-		-		-	0.000	5.254	0.000
Subtotal			112.752	29.726		21.500		9.900		0.000		9.900			
Support (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
ARDEC	MIPR	Picatinny:New Jersey	8.432	2.400		2.200		2.400		-		2.400	Continuing	Continuing	Continuing
Subtotal			8.432	2.400		2.200		2.400		0.000		2.400			
Test and Evaluation (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Aberdeen Proving Ground	MIPR	APG:Aberdeen, MD	5.860	2.000		1.960		2.100		-		2.100	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Army												DATE: April 2013		
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>						R-1 ITEM NOMENCLATURE PE 0603639A: <i>Tank and Medium Caliber Ammunition</i>				PROJECT 652: <i>M829E4 120mm Cartridge</i>				

Test and Evaluation (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost		Cost To Complete	Total Cost	Target Value of Contract
YPG	MIPR	YUMA:YUMA, AZ	6.321	1.921		2.100		3.412		-		3.412	Continuing	Continuing	Continuing	
ATEC	MIPR	ATEC:Aberdeen, MD	0.300	0.100		0.200		0.100		-		0.100	Continuing	Continuing	Continuing	
Watervliet	MIPR	Watervliet:Troy, NY	0.534	0.334		0.100		-		-		-	0.000	0.968	0.000	
JMC	MIPR	JMC:Rock Island, IL	1.350	0.750		1.000		0.400		-		0.400	Continuing	Continuing	Continuing	
Army Research Lab	MIPR	ARL:Aberdeen, Maryland	7.014	1.800		1.500		1.500		-		1.500	Continuing	Continuing	Continuing	
Subtotal			21.379	6.905		6.860		7.512		0.000		7.512				

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	142.563	40.305		30.560		19.812		0.000		19.812			

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2014 Army												DATE: April 2013			
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 4: Advanced Component Development & Prototypes (ACD&P)								R-1 ITEM NOMENCLATURE PE 0603639A: Tank and Medium Caliber Ammunition				PROJECT 652: M829E4 120mm Cartridge			

	FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Design Evaluation Testing (DET) Preperation																												
Design Evaluation Testing (DET)																												
Developmental Test & Evaluation (DT&E) Preperation																												
Developmental Test & Evaluation (DT&E)																												
Milestone C																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2014 Army			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603639A: <i>Tank and Medium Caliber Ammunition</i>	PROJECT 652: <i>M829E4 120mm Cartridge</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Design Evaluation Testing (DET) Preperation	2	2012	2	2013
Design Evaluation Testing (DET)	3	2013	4	2013
Developmental Test & Evaluation (DT&E) Preperation	4	2012	3	2013
Developmental Test & Evaluation (DT&E)	4	2013	2	2014
Milestone C	3	2014	3	2014

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Exhibit R-2A, RDT&E Project Justification: PB 2014 Army										DATE: April 2013		
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>					R-1 ITEM NOMENCLATURE PE 0603639A: <i>Tank and Medium Caliber Ammunition</i>				PROJECT 656: <i>FCS Mounted Combat System (MCS) Ammunition</i>			
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
656: <i>FCS Mounted Combat System (MCS) Ammunition</i>	-	0.009	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles												
[#] 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												
<u>A. Mission Description and Budget Item Justification</u>												
The Advanced Multi Purpose (AMP) program is a direct fire line of sight 120mm large caliber munition to be developed for the Abrams Main Battle Tank. It has three modes of operation including point detonate, delay and airburst. AMP is the material solution for breaching reinforced concrete walls and defeating Anti Tank Guided Missile (ATGM) teams from 50m to 2000m (T) and 50m to 4500m (O), a validated gap that cannot currently be met with existing stockpiled ammunition. The funding in FY 2012 studied the integration implications with the Abrams Tank. Project no longer has funding.												
<u>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</u>										FY 2012	FY 2013	FY 2014
Title: PM-MAS Description: Funding is provided for the following effort. FY 2012 Accomplishments: The funding in FY12 will study the integration implications with the Abrams Tank.										0.009 0	0.000	0.000
Accomplishments/Planned Programs Subtotals										0.009	0.000	0.000
<u>C. Other Program Funding Summary (\$ in Millions)</u>												
N/A												
<u>Remarks</u>												
<u>D. Acquisition Strategy</u>												
The funding in FY12 will study the integration implications with the Abrams Tank.												
<u>E. Performance Metrics</u>												
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-3, RDT&E Project Cost Analysis: PB 2014 Army													DATE: April 2013		
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>							R-1 ITEM NOMENCLATURE PE 0603639A: <i>Tank and Medium Caliber Ammunition</i>				PROJECT 656: <i>FCS Mounted Combat System (MCS) Ammunition</i>				

Product Development (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
PM-MAS	MIPR	Picatinny: NJ	0.000	0.009		-		-		-		-	0.000	0.009	0.000
Subtotal			0.000	0.009		0.000		0.000		0.000		0.000	0.000	0.009	0.000

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.009		0.000		0.000		0.000		0.000	0.000	0.009	0.000

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2014 Army										DATE: April 2013		
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>					R-1 ITEM NOMENCLATURE PE 0603639A: <i>Tank and Medium Caliber Ammunition</i>				PROJECT 694: <i>Medium Caliber Ammunition</i>			
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
694: <i>Medium Caliber Ammunition</i>	-	0.000	0.000	10.800	-	10.800	7.083	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles												
[#] 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												
The Target Practice Day/ Night/ Thermal (TP D/N/T) cartridges are 40mm grenade training cartridges. The low velocity variant is for training with the M203/M320 grenade launchers and the high velocity variant is for training with the Mk19 grenade machine gun. Both of these cartridges will provide the War Fighter with a non dud producing, environmentally friendly training cartridge which replicates the impact signature of respective tactical ammunition and can be seen day or night, by the unaided eye or through night vision devices and thermal weapon sights. The program will carry competitive prototypes for each cartridge variant through the Engineering Manufacturing Development phase. In FY 2014 a competition will be held to select the EMD contractors. Afterwards a preliminary design review will be held. Advanced prototypes will be built and tested.												
B. Accomplishments/Planned Programs (\$ in Millions)										FY 2012	FY 2013	FY 2014
Title: Target Practice Day/ Night/ Thermal cartridges.										0.000	0.000	10.800
Description: The Target Practice Day/ Night/ Thermal (TP-D/N/T) cartridges are 40mm grenade training cartridges.												
FY 2014 Plans: FY 2014 work will include a competitive down select. Afterwards a preliminary design review will be held. Signature materials will be matured to balance performance and competing requirements. Modeling and Simulation (M&S) of candidate airframe designs will feed airframe development, propulsion design, and ballistic integration testing of integrated signature material module. Integrated design will be evaluated at first Cartridge Integration Test (CIT) to verify and validate technical maturity progression.												
Accomplishments/Planned Programs Subtotals										0.000	0.000	10.800
C. Other Program Funding Summary (\$ in Millions)												
Line Item	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	
• Target Practice Day/ Night/ Thermal: <i>Target Practice Day/ Night/ Thermal cartridges</i>			40.466		40.466	57.221	57.726	60.833	51.761	0.000	268.007	

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Exhibit R-2A, RDT&E Project Justification: PB 2014 Army										DATE: April 2013	
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C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u> <u>Base</u>	<u>FY 2014</u> <u>OCO</u>	<u>FY 2014</u> <u>Total</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
Remarks											
D. Acquisition Strategy The Target Practice Day/ Night/ Thermal cartridges will be developed through a competitive Engineering and Manufacturing Development (EMD) program. The program will develop both High Velocity (HV) and Low Velocity (LV) variants concurrently to reduce overall acquisition costs. Both variants utilize the same critical technologies, making concurrent acquisitions a logical alternative. As part of the EMD source selection, a shoot-off will be conducted to evaluate potential designs. Within funding constraints multiple contractor designs for the HV cartridge and for the LV cartridge will be awarded EMD contracts in the 2QTR FY 2014 with Milestone C scheduled for 1QTR FY 2016. The contracts will contain options for LRIP and production. The strategy is flexible and prepared to award production options early if the contractor(s) complete the development early. The Army will attempt to negotiate for the data rights so long term production can be produced to a single design for the HV and LV variants.											
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.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Army												DATE: April 2013			
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 4: Advanced Component Development & Prototypes (ACD&P)						R-1 ITEM NOMENCLATURE PE 0603639A: Tank and Medium Caliber Ammunition						PROJECT 694: Medium Caliber Ammunition			
Product Development (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor 1 Low Velocity	C/FFP	TBD:TBD	0.000	-		-		1.898		-		1.898	0.000	1.898	0.000
Contractor 2 Low Velocity	C/FFP	TBD:TBD	0.000	-		-		1.898		-		1.898	0.000	1.898	0.000
Contractor 1 High Velocity	C/FFP	TBD:TBD	0.000	-		-		1.898		-		1.898	0.000	1.898	0.000
Contractor 2 High Velocity	C/FFP	TBD:TBD	0.000	-		-		1.898		-		1.898	0.000	1.898	0.000
PM-MAS	MIPR	Picatinny Arsenal:NJ	0.000	-		-		0.561		-		0.561	0.000	0.561	0.000
Subtotal			0.000	0.000		0.000		8.153		0.000		8.153	0.000	8.153	0.000
Support (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
ARDEC	MIPR	Picatinny Arsenal:NJ	0.000	-		-		1.006		-		1.006	0.000	1.006	0.000
Subtotal			0.000	0.000		0.000		1.006		0.000		1.006	0.000	1.006	0.000
Test and Evaluation (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
APG	MIPR	APG:Aberdeen, MD	0.000	-		-		1.514		-		1.514	0.000	1.514	0.000
ATEC	MIPR	ATEC:Aberdeen, MD	0.000	-		-		0.127		-		0.127	0.000	0.127	0.000
Subtotal			0.000	0.000		0.000		1.641		0.000		1.641	0.000	1.641	0.000
Project Cost Totals			0.000	0.000		0.000		10.800		0.000		10.800	0.000	10.800	0.000
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2014 Army												DATE: April 2013			
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 4: Advanced Component Development & Prototypes (ACD&P)								R-1 ITEM NOMENCLATURE PE 0603639A: Tank and Medium Caliber Ammunition				PROJECT 694: Medium Caliber Ammunition			

	FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Bid Sample Testing																												
EMD Contract Award																												
Engineering Manufacturing Development																												
Preliminary Design Review																												
Cartridge Integration Test Phase 1																												
Cartridge Integration Test Phase 2																												
Critical Design Review																												
Developmental Test & Evaluation																												
MS-C																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2014 Army			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0603639A: <i>Tank and Medium Caliber Ammunition</i>	PROJECT 694: <i>Medium Caliber Ammunition</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Bid Sample Testing	1	2014	1	2014
EMD Contract Award	2	2014	2	2014
Engineering Manufacturing Development	1	2014	1	2016
Preliminary Design Review	3	2014	3	2014
Cartridge Integration Test Phase 1	4	2014	1	2015
Cartridge Integration Test Phase 2	3	2015	3	2015
Critical Design Review	3	2015	3	2015
Developmental Test & Evaluation	3	2015	1	2016
MS-C	1	2016	1	2016