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Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Army	DATE: April 2013
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APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 5: <i>System Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604802A: <i>Weapons and Munitions - Eng Dev</i>
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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	-	13.384	14.581	15.721	-	15.721	15.971	1.289	0.000	0.000	Continuing	Continuing
S36: <i>Precision Guidance Kit</i>	-	13.384	14.581	15.721	-	15.721	15.971	1.289	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

A. Mission Description and Budget Item Justification

This program element funds engineering development of precision guidance systems applicable to Indirect Fire artillery weapon systems. The Precision Guidance Kit (PGK) is a Global Positioning Guidance Kit with fuzing functions. PGK provides near precision accuracy and effectiveness for 155mm HE projectiles. PGK will improve the accuracy of existing artillery ammunition by correcting the trajectory of projectiles to their designated target location. Precision guidance systems will effectively reduce target delivery error, reducing the number of rounds required to conduct a fire mission.

<u>B. Program Change Summary (\$ in Millions)</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014 Base</u>	<u>FY 2014 OCO</u>	<u>FY 2014 Total</u>
Previous President's Budget	13.815	14.581	18.943	-	18.943
Current President's Budget	13.384	14.581	15.721	-	15.721
Total Adjustments	-0.431	0.000	-3.222	-	-3.222
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.431	-			
• Adjustments to Budget Years	-	-	-3.222	-	-3.222

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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 5: <i>System Development & Demonstration (SDD)</i>					R-1 ITEM NOMENCLATURE PE 0604802A: <i>Weapons and Munitions - Eng Dev</i>				PROJECT S36: <i>Precision Guidance Kit</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
S36: <i>Precision Guidance Kit</i>	-	13.384	14.581	15.721	-	15.721	15.971	1.289	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 This program funds engineering development of precision guidance systems applicable to Indirect Fire artillery weapon systems. The Precision Guidance Kit (PGK) is a Global Positioning System Guidance Kit with fuzing functions. PGK provides near precision accuracy and effectiveness for all 155mm HE projectiles. PGK will improve the accuracy of existing artillery ammunition by correcting the trajectory of projectiles to their designated target location. Precision guidance systems will effectively reduce target delivery error reducing the number of rounds required to conduct a fire mission.												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)										FY 2012	FY 2013	FY 2014
Title: Contractor Engineering and Manufacturing Development Articles: Description: Contractor Engineering and Manufacturing Development FY 2012 Accomplishments: Contractor Engineering and Manufacturing Development FY 2013 Plans: Engineering and Manufacturing Development FY 2014 Plans: Insensitive Munitions and GPS Anti-Jam Development										7.393 0	5.415 0	11.128
Title: Government and Engineering Support Articles: Description: Continue Engineering Support FY 2012 Accomplishments: Continue Engineering Support FY 2013 Plans:										3.612 0	4.526 0	2.953

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)							FY 2012	FY 2013	FY 2014		
Continue Engineering Support											
FY 2014 Plans: Continue Engineering Support											
Title: Continue Development/Operational Testing							2.379	4.640	1.640		
Articles:							0	0			
Description: Continue Development/Operational Test											
FY 2012 Accomplishments: Continue Development/Operational Test											
FY 2013 Plans: Continue Development/Operational Test											
FY 2014 Plans: Continue Development/Operational Test for Insensitive Munitions and GPS Anti-Jam											
Accomplishments/Planned Programs Subtotals							13.384	14.581	15.721		
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
• E99250: <i>Procurement of Ammunition Army: Precision Guidance Kit (PGK)</i>		37.952	62.234		62.234	69.176	70.080	70.563	71.093	Continuing	Continuing
Remarks											
D. Acquisition Strategy											
The Precision Guidance Kit (PGK) is a Global Positioning System (GPS) guidance kit with fuzing functions for 155mm High Explosive (HE) artillery projectiles. PGK provides near precision accuracy and effectiveness for 155mm high explosive (HE) projectiles. Using an integrated GPS receiver, the PGK corrects the inherent errors associated with ballistic firing solutions and will reduce the number of artillery projectiles required to execute the mission. The current PGK Increment will qualify the PGK with the M795 and M549A1 HE projectiles. The Acquisition Strategy/Acquisition Plan for the PGK program was approved by the Milestone Decision Authority (MDA) on 20 October 2005, subsequently revised and approved on 14 December 2012. Alliant Techsystems (ATK) was competitively awarded the Engineering and Manufacturing Development (EMD) phase in May 2007 following a Technology Development Demonstration. Approval to initiate the procurement of First Article/ Production Verification Test (FAT/PVT) hardware occurred at Milestone C In-Process Review (IPR) 3Q FY 2009. The FAT/PVT hardware was procured in 3Q FY 2010.											

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However, Milestone C/Type Classification Limited Procurement was delayed due to reliability growth challenges that required failure and root cause analysis that led to the restructure of the PGK Engineering and Manufacturing Development program and subsequent implementation of a reliability design improvement corrective action plan. As a result, Milestone C is planned for 2Q FY 2013 and Initial Operational Capability (IOC) is scheduled for 4Q FY 2014. Following Milestone C, a follow-on development effort is planned to address additional requirements to include compatibility with new high explosive insensitive munitions fill and GPS anti-jamming.

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 5: <i>System Development & Demonstration (SDD)</i>						R-1 ITEM NOMENCLATURE PE 0604802A: <i>Weapons and Munitions - Eng Dev</i>						PROJECT S36: <i>Precision Guidance Kit</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
Management Support	MIPR	Camber: Mt Arlington, NJ	1.713	0.075	Feb 2012	0.061	Feb 2013	0.060	Feb 2014	-		0.060	0.000	1.964	1.964
Miscellaneous Support Contract	MIPR	MITRE Corporation: Fort Monmouth, NJ	0.600	-		-		-		-		-	0.000	0.600	0.600
PGK Parallel Studies and Analysis Support -	MIPR	Command and Control Directorate: Ft Monmouth, NJ	0.300	-		-		-		-		-	0.000	0.300	0.300
Subtotal			2.613	0.075		0.061		0.060		0.000		0.060	0.000	2.864	2.864
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
PGK TD Contract	C/CPAF	Alliant Techsystems (ATK): Plymouth, MN	5.279	-		-		-		-		-	0.000	5.279	5.279
PGK TD Contract	C/CPAF	BAE: Minneapolis, MN	3.103	-		-		-		-		-	0.000	3.103	3.103
Soft Recovery Modules	MIPR	SubSystems Technology: Rosslyn, VA	0.116	-		-		-		-		-	0.000	0.116	0.116
M107 Metal Parts	MIPR	US ARMY Field Support Command: Rock Island, IL	0.079	-		-		-		-		-	0.000	0.079	0.079
PGK EMD & Phase 1-2 (Reliability Failure/Root Cause Analysis)	C/CPAF	Alliant Techsystems (ATK): Plymouth, MN	53.947	-		-		-		-		-	0.000	53.947	53.947
PGK EMD - Phase 3a to 5	C/FFP	Alliant Techsystems (ATK): Plymouth, MN	16.921	6.393	Feb 2012	1.160	Jun 2012	-		-		-	0.000	24.474	24.474
DOTC - PGK Insensitive Munitions & GPS Anti-Jam	C/CPFF	TBD: TBD	0.000	-		4.255	Apr 2013	11.128	Mar 2014	-		11.128	5.441	20.824	20.824

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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
DOTC - GDOTS - Engineering & Technology Assessment. Low Cost Roll Control Solutions	C/CPFF	General Dynamics Ordnance & Tactical Systems:Bothell, WA	0.000	0.500	Jul 2012	-		-		-		-	0.000	0.500	0.500
DOTC - BAE Systems - Engineering & Technology Assessment. Low Cost Course Correction solutions.	C/CPFF	BAE/ Rokar:Minneapolis, MN	0.000	0.500	Sep 2012	-		-		-		-	0.000	0.500	0.500
Subtotal			79.445	7.393		5.415		11.128		0.000		11.128	5.441	108.822	108.822
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
PM Office	PO	PM CAS:Picatinny, NJ	7.835	0.966	Dec 2011	0.735	Nov 2012	0.958	Nov 2013	-		0.958	1.000	11.494	11.494
Government Engineering Support	MIPR	ARDEC:Picatinny, NJ	21.740	2.571	Dec 2011	3.730	Dec 2012	1.935	Dec 2013	-		1.935	2.160	32.136	32.136
Subtotal			29.575	3.537		4.465		2.893		0.000		2.893	3.160	43.630	43.630
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
Component Air Gun/ Railgun Testing	MIPR	ARDEC:Picatinny, NJ	0.317	-		-		-		-		-	0.000	0.317	0.317
Other Development Testing	MIPR	Various:Various	1.359	0.366	Jun 2012	-		-		-		-	0.000	1.725	1.725
System Development Testing Increment 1	MIPR	Yuma Proving Ground:Yuma, AZ	7.784	2.013	May 2012	0.690	Dec 2012	-		-		-	0.000	10.487	10.487

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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
Initial Operational Test & Evaluation - Increment 1	MIPR	Yuma Proving Ground:Yuma, AZ	0.000	-		3.500	Aug 2013	-		-		-	3.500	7.000	7.000
Qualification Testing for Insensitive Munitions & GPS Anti-Jam	MIPR	Yuma Proving Ground:Yuma, AZ	0.000	-		-		1.440	Aug 2014	-		1.440	1.920	3.360	3.360
Cold Region Testing - Increment 1	MIPR	Cold Region Test Center:Ft Greely, AK	0.000	-		0.450	Sep 2013	-		-		-	0.450	0.900	0.900
E3 and Anti-Jam Testing	MIPR	WSMR:NM	0.000	-		-		0.200	Jul 2014	-		0.200	1.500	1.700	1.700
Subtotal			9.460	2.379		4.640		1.640		0.000		1.640	7.370	25.489	25.489
			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			121.093	13.384		14.581		15.721		0.000		15.721	15.971	180.805	180.805
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 5: System Development & Demonstration (SDD)					R-1 ITEM NOMENCLATURE PE 0604802A: Weapons and Munitions - Eng Dev					PROJECT S36: Precision Guidance Kit									

	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
Insensitive Munitions & GPS Anti-Jam Development																												
Milestone C - Type Classification Limited Procurement																												
First Article Test (FAT)																												
Initial Operational Test and Evaluation (IOT&E)																												
Type Classification Standard / Full Materiel Release																												
IOC																												

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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 5: <i>System Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604802A: <i>Weapons and Munitions - Eng Dev</i>	PROJECT S36: <i>Precision Guidance Kit</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Insensitive Munitions & GPS Anti-Jam Development	3	2013	4	2015
Milestone C - Type Classification Limited Procurement	2	2013	2	2013
First Article Test (FAT)	3	2013	1	2014
Initial Operational Test and Evaluation (IOT&E)	4	2013	2	2014
Type Classification Standard / Full Materiel Release	3	2014	3	2014
IOC	4	2014	4	2014