



Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-366



Excalibur Precision 155mm Projectiles (Excalibur)

As of FY 2016 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

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Common Acronyms and Abbreviations for MDAP Programs

Acq O&M - Acquisition-Related Operations and Maintenance
ACAT - Acquisition Category
ADM - Acquisition Decision Memorandum
APB - Acquisition Program Baseline
APPN - Appropriation
APUC - Average Procurement Unit Cost
\$B - Billions of Dollars
BA - Budget Authority/Budget Activity
Blk - Block
BY - Base Year
CAPE - Cost Assessment and Program Evaluation
CARD - Cost Analysis Requirements Description
CDD - Capability Development Document
CLIN - Contract Line Item Number
CPD - Capability Production Document
CY - Calendar Year
DAB - Defense Acquisition Board
DAE - Defense Acquisition Executive
DAMIR - Defense Acquisition Management Information Retrieval
DoD - Department of Defense
DSN - Defense Switched Network
EMD - Engineering and Manufacturing Development
EVM - Earned Value Management
FOC - Full Operational Capability
FMS - Foreign Military Sales
FRP - Full Rate Production
FY - Fiscal Year
FYDP - Future Years Defense Program
ICE - Independent Cost Estimate
IOC - Initial Operational Capability
Inc - Increment
JROC - Joint Requirements Oversight Council
\$K - Thousands of Dollars
KPP - Key Performance Parameter
LRIP - Low Rate Initial Production
\$M - Millions of Dollars
MDA - Milestone Decision Authority
MDAP - Major Defense Acquisition Program
MILCON - Military Construction
N/A - Not Applicable
O&M - Operations and Maintenance
ORD - Operational Requirements Document
OSD - Office of the Secretary of Defense
O&S - Operating and Support
PAUC - Program Acquisition Unit Cost

PB - President's Budget
PE - Program Element
PEO - Program Executive Officer
PM - Program Manager
POE - Program Office Estimate
RDT&E - Research, Development, Test, and Evaluation
SAR - Selected Acquisition Report
SCP - Service Cost Position
TBD - To Be Determined
TY - Then Year
UCR - Unit Cost Reporting
U.S. - United States
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

Program Information

Program Name

Excalibur Precision 155mm Projectiles (Excalibur)

DoD Component

Army

Responsible Office

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Date

Assigned: June 6, 2012

References

SAR Baseline (Production Estimate)

Army Acquisition Executive (AAE) Approved Acquisition Program Baseline (APB) dated March 14, 2011

Approved APB

Army Acquisition Executive (AAE) Approved Acquisition Program Baseline (APB) dated June 25, 2014

Mission and Description

Excalibur Precision 155mm Projectiles (Excalibur) provide Brigade Combat Teams an organic precision fires capability. Additionally, it provides improved fire support capability due to its increased range of 40.5-kilometers (km) and demonstrated accuracy of less than three-meters radial miss distances, which enables a first round effect on target reducing the number of rounds required and reducing collateral damage. Excalibur is compatible with the M777A2 Lightweight 155-mm Howitzer, the M109A6 Paladin Howitzer, the M109A7 Paladin Integrated Management Howitzer, and the Swedish Archer Howitzer. Excalibur provides a 35-percent range increase over current Rocket Assisted Projectiles with less than ten-meter circular error probable requirement at all ranges. Excalibur is also highly resistant to Global Positioning System jamming.

Excalibur Inc Ia-1 and Inc Ia-2 are currently fielded and in use by units throughout Afghanistan and deployed globally to support other military contingency operations. Excalibur is an International Cooperative Development Program, teamed with the Kingdom of Sweden which contributed resources towards development in accordance with an established Project Agreement. Excalibur Inc Ia-1 was initially fielded to units in Iraq and Afghanistan in response to urgent need requests in support of Operation Iraqi Freedom, Operation New Dawn, and Operation Enduring Freedom. Inc Ia-2 was fielded in early FY 2012 and greatly increased range from 25.2-km to 37.5-km. The Excalibur guided projectile program is using an incremental development approach to provide a combat capability to the soldier as quickly as possible while delivering advanced capabilities at lower costs. Excalibur Inc Ib provides further performance improvements while significantly lowering unit costs.

Executive Summary

Excalibur Incs Ia-1, Ia-2, and Ib are currently fielded and in use by units throughout Afghanistan and deployed globally to support Other Contingency Operations. Excalibur is an International Cooperative Development program teamed with the Kingdom of Sweden (KoS) which contributed resources towards the development in accordance with an established Project Agreement. Excalibur completed FMS to Canada, United Kingdom, Australia, Germany, and the KoS. The program is actively executing current FMS cases with Spain and The Netherlands. The program also received interest for future sales from numerous other countries. Excalibur Inc Ia-1 was initially fielded to units in Iraq and Afghanistan in response to urgent need requests in support of Operation Iraqi Freedom, Operation New Dawn, and Operation Enduring Freedom. Inc Ia-2 was fielded in early FY 2012 and greatly increases range from 25.2-kilometers (km) to 37.5-km. The Excalibur guided projectile program used an incremental development approach to provide a combat capability to the soldier as quickly as possible while delivering advanced capabilities at lower costs. Excalibur Inc Ib provides further performance improvements while significantly lowering unit costs.

Incs Ia-1 and Ia-2

The final Inc Ia-2 projectile was delivered to inventory in April 2014. In total, PM Excalibur procured and delivered 2,132 Inc Ia-1 (Department of the Army (DA) 39) and 4,316 Inc Ia-2 (DA45) projectiles to U.S. and foreign customers. The Army and United States Marine Corps fired a total of 762 projectiles since the first production deliveries were made available to troops in 2007 with a proven field reliability of 88 percent. Excalibur is highly successful and proves the value of precision munitions in dense urban environments by virtually eliminating collateral damage while providing effects on the intended target.

Inc Ib

Inc Ib is an integral part of the strategy to field Excalibur capability to the DoD and the KoS. It delivers a lower cost, higher reliability precision munition to the warfighter. As of December 31, 2014, PM Excalibur contracted for 2,894 Inc Ib projectiles for the Army; the KoS procured an additional 297 projectiles.

In February 2014, PM Excalibur successfully completed the Increment Ib Initial Operational Test and Evaluation with 31 of 32 projectiles guiding to the target successfully and functioning in the proper fuze mode.

In June 2014, the PEO for Ammunition signed Type Classification – Standard documentation and the Commanding General, Joint Munitions Command approved the Full Materiel Release of the Increment Ib projectile.

On June 25, 2014, the Army Systems Acquisition Review Council conducted the FRP Decision Review for Increment Ib and approved the program to proceed into FRP. Subsequently the Army Acquisition Executive signed the FRP ADM.

The Excalibur program continues to execute within all APB parameters. No current issues exist that impact cost, schedule, or performance.

On November 17, 2014, PM Excalibur briefed the Army Configuration Steering Board (CSB). The PM Excalibur informed the CSB that the war reserve inventory will be 566 projectiles short of the FY 2010 requirement and that the current projectile design is stable and is meeting or exceeding all KPPs. The quantity shortfall is driven by wartime usage as well as projectiles consumed in stockpile surveillance testing. PM Excalibur further re-iterated that the program is executing and funded to the approved plan. The program office will begin contract close out and program office shut down in FY 2016 without an increased requirement, additional resourcing, and authorization to procure the war reserve short fall. The CSB was in consensus that the program should procure the 566 projectiles to meet the war reserve inventory requirement, that the program should compete in the FY 2017 Program Objective Memorandum for future funding, and that the Excalibur ADM be adjusted to authorize procurement to future requirements.

There are no significant software-related issues with this program at this time.

Threshold Breaches

APB Breaches

Schedule		<input type="checkbox"/>
Performance		<input type="checkbox"/>
Cost	RDT&E	<input type="checkbox"/>
	Procurement	<input type="checkbox"/>
	MILCON	<input type="checkbox"/>
	Acq O&M	<input type="checkbox"/>
O&S Cost		<input type="checkbox"/>
Unit Cost	PAUC	<input type="checkbox"/>
	APUC	<input type="checkbox"/>

Nunn-McCurdy Breaches

Current UCR Baseline

PAUC	None
APUC	None

Original UCR Baseline

PAUC	None
APUC	None

Schedule



Schedule Events				
Events	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate
Milestone I/II	May 1997	May 1997	May 1997	May 1997
Milestone C (Block Ia-1)	May 2005	May 2005	May 2005	May 2005
Milestone C (Block Ia-2)	Sep 2007	Sep 2007	Sep 2007	Jul 2007
IOT&E				
IOT&E Start	Jan 2010	Jan 2010	Jan 2010	Jan 2010
IOT&E End	May 2010	May 2010	May 2010	Apr 2010
FRP IPR	Mar 2011	Mar 2011	Mar 2011	Mar 2011
IOC	Oct 2011	Dec 2011	Dec 2011	Dec 2011
Milestone C (Block Ib)	Jun 2012	Dec 2012	Dec 2012	Dec 2012
Increment Ib IOC	Mar 2014	Jul 2014	Jan 2015	Jun 2014
Increment Ib FRP	Mar 2014	Jul 2014	Jan 2015	Jun 2014

Change Explanations

None

Acronyms and Abbreviations

IOT&E - Initial Operational Test and Evaluation
IPR - In-Process Review

Performance

Performance Characteristics				
SAR Baseline Production Estimate	Current APB Production Objective/Threshold	Demonstrated Performance	Current Estimate	
Accuracy (CEP)(m) (Increment Ia)				
<= 10 CEP	<= 10 CEP	<= 20 CEP	<4-m CEP	<4-m CEP
Reliability (percent) (Increment Ia)				
>= 96	>= 96	>= 85	88	88
Effectiveness (Increment Ia)				
>=M107 HE	>=M107 HE	>=M107 HE	>=M107 HE	>=M107 HE
Net Ready (Increment Ia)				
ATO	ATO	IATO	ATO	ATO
Accuracy (CEP)(m) (Increment Ib)				
<= 10m CEP	<= 10m CEP	<= 10m CEP	2-m CEP	2-m CEP
Range (Increment Ib)				
>=40 km	>=40 km	>= 35 km	37.5-km	>=37.5-km
Effectiveness (Increment Ib)				
>=M107 HE	>=M107 HE	>=M107 HE	>=M107 HE	>=M107 HE
Reliability (percent)(Increment Ib)				
>=96%	>=96%	>=90%	93%	>=90%
Net Ready (Increment Ib)				
ATO	ATO	IATO	ATO	ATO

(Ch-1)

Requirements Reference

Capability Production Document (CPD) dated October 24, 2012

Change Explanations

(Ch-1) The Current Estimate for Increment Ib accuracy is updated from <=10-m CEP to 2-m CEP based on performance during acceptance testing.

Notes

The first four performance characteristics listed above (Accuracy, Reliability, Effectiveness, and Net Ready) pertain to Increment Ia projectiles.

The current assessment of the overall Increment Ia-2 reliability, based on combined results from both test results and in-theater firing, is approximately 88-percent. When considered independently, the point estimate for reliability in the production contract acceptance testing is currently at 93-percent.

Current Army Test and Evaluation Command assessment of Increment 1b reliability is 93-percent.

Acronyms and Abbreviations

ATO - Approval to Operate

CEP - Circular Error Probable

HE - High Explosives

IATO - Interim Authority to Operate

km - kilometer

m - meter

Track to Budget

RDT&E

Appn	BA	PE
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Army 2040 05 0604814A

Project	Name
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708 M982 Projectile (Shared) (Sunk)

Notes: Completed in FY 2014

Defense-Wide 9999 05 0604814A

Project	Name
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708 M982 Projectile (Shared) (Sunk)

Notes: Completed in FY 2012

Notes

The Excalibur RDT&E funding line supports the Excalibur Unitary variant. This funding line is shared with all Excalibur Incs and was shared in prior years with the Spin Stabilized Sensor Fuzed Munition and the Enhanced Portable Inductive Artillery Fuze Setter.

Excalibur is an international program, with a Memorandum of Agreement for the cooperative development with the Kingdom of Sweden which contributed \$69M to the development program (\$57M contributed to Inc Ia and \$12M to Inc Ib). These funds are included in this SAR as Non-Treasury RDT&E (9999).

Procurement

Appn	BA	PE
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Army 2034 01 0210600A

Line Item	Name
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E80103 Excalibur Unitary

Defense-Wide 0300 01 0210600A

Line Item	Name
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E80103 Excalibur (Sunk)

Notes: Completed in FY 2009.

Notes

The parent Line Item for Excalibur is E80100.

Excalibur procured additional projectiles in FY 2007 - FY 2009 as FMS Buy Back rounds. The funds are included in this SAR as Other Procurement, Defense Agency (0300).

Cost and Funding

Cost Summary

Total Acquisition Cost							
Appropriation	BY 2007 \$M			BY 2007 \$M	TY \$M		
	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Production Estimate	Current APB Production Objective	Current Estimate
RDT&E	993.4	1002.6	1102.9	1004.0	972.7	984.0	985.5
Procurement	661.2	688.2	757.0	695.0	706.3	746.3	752.5
Flyaway	--	--	--	692.2	--	--	749.5
Recurring	--	--	--	671.0	--	--	726.9
Non Recurring	--	--	--	21.2	--	--	22.6
Support	--	--	--	2.8	--	--	3.0
Other Support	--	--	--	2.8	--	--	3.0
Initial Spares	--	--	--	0.0	--	--	0.0
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1654.6	1690.8	N/A	1699.0	1679.0	1730.3	1738.0

Current APB Cost Estimate Reference

Army Cost Position (ACP) dated May 22, 2014

Confidence Level

Confidence Level of cost estimate for current APB: 50%

The Excalibur ACP approved by the Assistant Secretary of the Army for Financial Management and Comptroller is based on a negotiated price that was definitized prior to the Full Rate Production decision. The independent cost estimate methodology used the most recent pricing data received from the prime contractor.

Total Quantity			
Quantity	SAR Baseline Production Estimate	Current APB Production	Current Estimate
RDT&E	544	544	544
Procurement	6930	6930	7039
Total	7474	7474	7583

Quantity Notes

Excalibur's total planned procurement quantity of 7,039 includes 6,373 projectiles to be delivered to inventory (109 projectiles are replacing expended or damaged projectiles) and 666 projectiles for contract acceptance and reliability growth testing. Excalibur's war stock requirement is 6,264 projectiles.

Cost and Funding

Funding Summary

Appropriation Summary									
FY 2016 President's Budget / December 2014 SAR (TY\$ M)									
Appropriation	Prior	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	To Complete	Total
RDT&E	985.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	985.5
Procurement	671.3	35.7	45.5	0.0	0.0	0.0	0.0	0.0	752.5
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2016 Total	1656.8	35.7	45.5	0.0	0.0	0.0	0.0	0.0	1738.0
PB 2015 Total	1653.1	35.7	45.5	0.0	0.0	0.0	0.0	0.0	1734.3
Delta	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.7

Quantity Summary										
FY 2016 President's Budget / December 2014 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	To Complete	Total
Development	544	0	0	0	0	0	0	0	0	544
Production	0	6141	422	476	0	0	0	0	0	7039
PB 2016 Total	544	6141	422	476	0	0	0	0	0	7583
PB 2015 Total	544	5988	416	472	0	0	0	0	0	7420
Delta	0	153	6	4	0	0	0	0	0	163

Cost and Funding

Annual Funding By Appropriation

Annual Funding							
2040 RDT&E Research, Development, Test, and Evaluation, Army							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1997	--	--	--	--	--	--	4.7
1998	--	--	--	--	--	--	8.9
1999	--	--	--	--	--	--	7.5
2000	--	--	--	--	--	--	9.8
2001	--	--	--	--	--	--	28.6
2002	--	--	--	--	--	--	59.3
2003	--	--	--	--	--	--	102.1
2004	--	--	--	--	--	--	112.5
2005	--	--	--	--	--	--	129.0
2006	--	--	--	--	--	--	102.0
2007	--	--	--	--	--	--	95.1
2008	--	--	--	--	--	--	60.9
2009	--	--	--	--	--	--	68.8
2010	--	--	--	--	--	--	41.0
2011	--	--	--	--	--	--	30.5
2012	--	--	--	--	--	--	45.8
2013	--	--	--	--	--	--	3.6
2014	--	--	--	--	--	--	6.4
Subtotal	544	--	--	--	--	--	916.5

Annual Funding 2040 RDT&E Research, Development, Test, and Evaluation, Army							
Fiscal Year	Quantity	BY 2007 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1997	--	--	--	--	--	--	5.5
1998	--	--	--	--	--	--	10.4
1999	--	--	--	--	--	--	8.7
2000	--	--	--	--	--	--	11.1
2001	--	--	--	--	--	--	32.1
2002	--	--	--	--	--	--	65.8
2003	--	--	--	--	--	--	111.2
2004	--	--	--	--	--	--	119.6
2005	--	--	--	--	--	--	133.3
2006	--	--	--	--	--	--	102.6
2007	--	--	--	--	--	--	93.4
2008	--	--	--	--	--	--	58.7
2009	--	--	--	--	--	--	65.5
2010	--	--	--	--	--	--	38.4
2011	--	--	--	--	--	--	28.0
2012	--	--	--	--	--	--	41.4
2013	--	--	--	--	--	--	3.2
2014	--	--	--	--	--	--	5.6
Subtotal	544	--	--	--	--	--	934.5

Annual Funding 9999 RDT&E Non Treasury Funds							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2003	--	--	--	--	--	--	9.5
2004	--	--	--	--	--	--	9.5
2005	--	--	--	--	--	--	9.5
2006	--	--	--	--	--	--	9.5
2007	--	--	--	--	--	--	9.5
2008	--	--	--	--	--	--	9.5
2009	--	--	--	--	--	--	3.0
2010	--	--	--	--	--	--	3.0
2011	--	--	--	--	--	--	4.0
2012	--	--	--	--	--	--	2.0
Subtotal	--	--	--	--	--	--	69.0

Annual Funding 9999 RDT&E Non Treasury Funds							
Fiscal Year	Quantity	BY 2007 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2003	--	--	--	--	--	--	10.3
2004	--	--	--	--	--	--	10.1
2005	--	--	--	--	--	--	9.8
2006	--	--	--	--	--	--	9.6
2007	--	--	--	--	--	--	9.3
2008	--	--	--	--	--	--	9.2
2009	--	--	--	--	--	--	2.9
2010	--	--	--	--	--	--	2.8
2011	--	--	--	--	--	--	3.7
2012	--	--	--	--	--	--	1.8
Subtotal	--	--	--	--	--	--	69.5

This appropriation accounts for \$69M provided by the Kingdom of Sweden for the Excalibur development program.

Annual Funding 2034 Procurement Procurement of Ammunition, Army							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2005	127	35.1	--	1.8	36.9	--	36.9
2006	321	48.3	--	1.0	49.3	--	49.3
2007	793	84.5	--	1.7	86.2	--	86.2
2008	400	47.5	--	--	47.5	--	47.5
2009	435	57.9	--	10.1	68.0	0.8	68.8
2010	900	103.2	--	--	103.2	2.2	105.4
2011	100	30.5	--	--	30.5	--	30.5
2012	744	56.1	--	2.0	58.1	--	58.1
2013	928	72.0	--	2.6	74.6	--	74.6
2014	994	75.8	--	1.5	77.3	--	77.3
2015	422	34.6	--	1.1	35.7	--	35.7
2016	476	44.7	--	0.8	45.5	--	45.5
Subtotal	6640	690.2	--	22.6	712.8	3.0	715.8

Annual Funding 2034 Procurement Procurement of Ammunition, Army							
Fiscal Year	Quantity	BY 2007 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2005	127	35.9	--	1.9	37.8	--	37.8
2006	321	48.0	--	1.0	49.0	--	49.0
2007	793	82.0	--	1.7	83.7	--	83.7
2008	400	45.4	--	--	45.4	--	45.4
2009	435	54.8	--	9.5	64.3	0.8	65.1
2010	900	95.9	--	--	95.9	2.0	97.9
2011	100	27.8	--	--	27.8	--	27.8
2012	744	50.4	--	1.8	52.2	--	52.2
2013	928	63.1	--	2.3	65.4	--	65.4
2014	994	65.5	--	1.3	66.8	--	66.8
2015	422	29.4	--	1.0	30.4	--	30.4
2016	476	37.3	--	0.7	38.0	--	38.0
Subtotal	6640	635.5	--	21.2	656.7	2.8	659.5

Annual Funding 0300 Procurement Procurement, Defense-Wide							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2007	295	25.1	--	--	25.1	--	25.1
2008	75	6.2	--	--	6.2	--	6.2
2009	29	5.4	--	--	5.4	--	5.4
Subtotal	399	36.7	--	--	36.7	--	36.7

Annual Funding 0300 Procurement Procurement, Defense-Wide							
Fiscal Year	Quantity	BY 2007 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2007	295	24.5	--	--	24.5	--	24.5
2008	75	5.9	--	--	5.9	--	5.9
2009	29	5.1	--	--	5.1	--	5.1
Subtotal	399	35.5	--	--	35.5	--	35.5

This appropriation captures the procurement of FMS Buy Back projectiles.

Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	5/23/2005	12/13/2012
Approved Quantity	500	1800
Reference	AAE ADM for Inc Ia Milestone C	AAE ADM for Inc Ib Milestone C
Start Year	2005	2012
End Year	2006	2014

The Current Total LRIP Quantity is more than 10% of the total production quantity due to the significant decrease in Army Procurement Objective from 30,000 projectiles to 6,264.

The program received an Army Acquisition Executive (AAE) ADM on May 23, 2005 to authorize entry into LRIP and procurement of up to 500 Inc Ia-1 projectiles in FY 2005 - FY 2006.

The AAE provided a revised ADM on March 26, 2007 to increase the authorized LRIP procurement quantity up to 1,500 Inc Ia-1 projectiles.

A revised ADM dated July 31, 2007 authorized entry into Inc Ia-2 LRIP with procurement authorization of up to 2,500 Inc Ia projectiles in FY 2005 - FY 2009.

An ADM dated December 13, 2012 authorized entry into Inc Ib LRIP with procurement authorization of up to 1,800 Inc Ib projectiles in FY 2013 - FY 2014.

Foreign Military Sales

Country	Date of Sale	Quantity	Total Cost \$M	Description
Germany	5/2/2013	8	1.8	Letter of Authorization and Acceptance (LOA) and Project Agreement with Germany was signed on May 2, 2013 for eight Inc Ia-2 projectiles for compatibility testing with their gun system.
Sweden	4/25/2013	297	21.7	297 Inc Ib projectiles were procured by the Kingdom of Sweden (KoS) under the Excalibur Production Project Agreement.
Canada	1/10/2011	75	8.8	LOA with Canada signed on January 10, 2011 to procure 75 M982 Inc Ia-2 projectiles.
Sweden	9/23/2009	114	12.0	114 Inc Ia-2 projectiles sold to the KoS under the Excalibur Production Project Agreement.
United Kingdom	3/6/2009	6	1.1	The United Kingdom purchased six projectiles.
Australia	5/8/2008	250	26.9	Australia purchased 250 Excalibur Inc Ia-1 projectiles.
Sweden	10/15/2007	18	2.3	KoS LOA FMS case signed October 15, 2007.
Canada	10/7/2007	30	4.1	Canadian Defense Forces FMS contract for FY 2007 projectiles.

Notes

Nuclear Costs

None

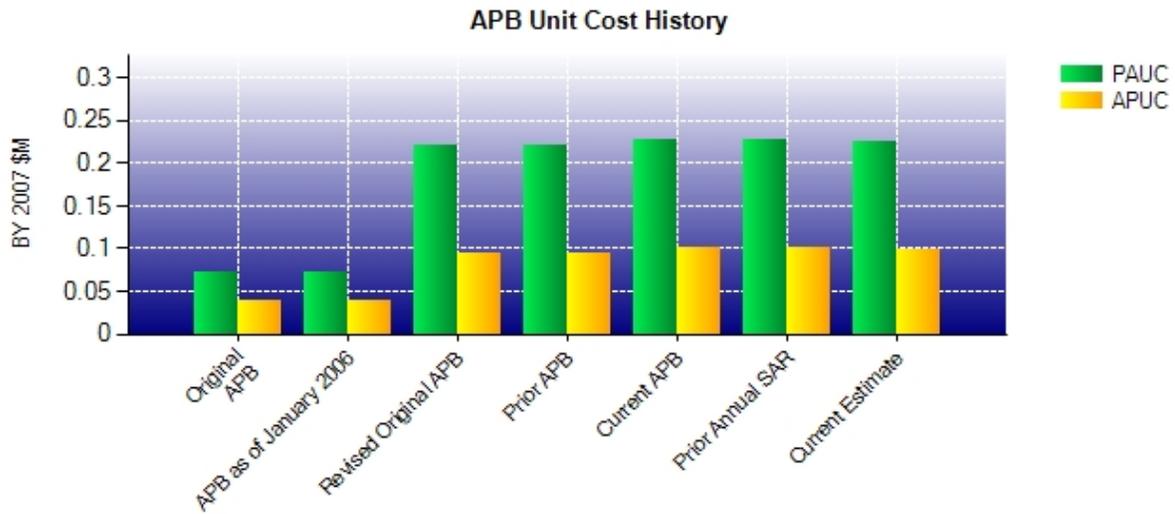
Unit Cost

Unit Cost Report

Item	BY 2007 \$M	BY 2007 \$M	% Change
	Current UCR Baseline (Jun 2014 APB)	Current Estimate (Dec 2014 SAR)	
Program Acquisition Unit Cost			
Cost	1690.8	1699.0	
Quantity	7474	7583	
Item	0.226	0.224	-0.88
Average Procurement Unit Cost			
Cost	688.2	695.0	
Quantity	6930	7039	
Unit Cost	0.099	0.099	0.00

Item	BY 2007 \$M	BY 2007 \$M	% Change
	Revised Original UCR Baseline (Mar 2011 APB)	Current Estimate (Dec 2014 SAR)	
Program Acquisition Unit Cost			
Cost	1654.6	1699.0	
Quantity	7474	7583	
Unit Cost	0.221	0.224	+1.36
Average Procurement Unit Cost			
Cost	661.2	695.0	
Quantity	6930	7039	
Unit Cost	0.095	0.099	+4.21

Unit Cost History



Item	Date	BY 2007 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	Oct 2004	0.072	0.039	0.076	0.045
APB as of January 2006	Oct 2004	0.072	0.039	0.076	0.045
Revised Original APB	Mar 2011	0.221	0.095	0.225	0.102
Prior APB	Mar 2011	0.221	0.095	0.225	0.102
Current APB	Dec 2012	0.228	0.101	0.233	0.109
Prior Annual SAR	Dec 2013	0.228	0.100	0.234	0.109
Current Estimate	Dec 2014	0.224	0.099	0.229	0.107

SAR Unit Cost History

Initial SAR Baseline to Current SAR Baseline (TY \$M)									
Initial PAUC Development Estimate	Changes								PAUC Production Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
0.063	-0.005	0.142	0.011	0.006	0.006	0.000	0.000	0.160	0.225

Current SAR Baseline to Current Estimate (TY \$M)									
PAUC Production Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
0.225	0.001	0.001	0.000	0.002	0.000	0.000	0.000	0.004	0.229

Initial SAR Baseline to Current SAR Baseline (TY \$M)									
Initial APUC Development Estimate	Changes								APUC Production Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
0.054	-0.005	0.040	0.010	0.000	0.003	0.000	0.000	0.048	0.102

Current SAR Baseline to Current Estimate (TY \$M)									
APUC Production Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
0.102	0.001	0.003	0.000	0.002	-0.001	0.000	0.000	0.005	0.107

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone I	N/A	May 1997	N/A	N/A
Milestone II	N/A	May 1997	May 1997	May 1997
Milestone C	N/A	Jun 2006	May 2005	May 2005
IOC	N/A	Sep 2008	Oct 2011	Dec 2011
Total Cost (TY \$M)	N/A	4798.7	1679.0	1738.0
Total Quantity	N/A	76677	7474	7583
PAUC	N/A	0.063	0.225	0.229

Cost Variance

Summary TY \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	972.7	706.3	--	1679.0
Previous Changes				
Economic	+1.0	+5.5	--	+6.5
Quantity	--	+25.3	--	+25.3
Schedule	--	+3.6	--	+3.6
Engineering	--	+12.7	--	+12.7
Estimating	+14.2	-5.0	--	+9.2
Other	--	--	--	--
Support	--	-2.0	--	-2.0
Subtotal	+15.2	+40.1	--	+55.3
Current Changes				
Economic	--	-1.4	--	-1.4
Quantity	--	+12.0	--	+12.0
Schedule	--	-1.1	--	-1.1
Engineering	--	--	--	--
Estimating	-2.4	-3.4	--	-5.8
Other	--	--	--	--
Support	--	--	--	--
Subtotal	-2.4	+6.1	--	+3.7
Total Changes	+12.8	+46.2	--	+59.0
CE - Cost Variance	985.5	752.5	--	1738.0
CE - Cost & Funding	985.5	752.5	--	1738.0

Summary BY 2007 \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	993.4	661.2	--	1654.6
Previous Changes				
Economic	--	--	--	--
Quantity	--	+26.6	--	+26.6
Schedule	--	-3.3	--	-3.3
Engineering	--	+11.0	--	+11.0
Estimating	+12.6	-5.1	--	+7.5
Other	--	--	--	--
Support	--	-1.9	--	-1.9
Subtotal	+12.6	+27.3	--	+39.9
Current Changes				
Economic	--	--	--	--
Quantity	--	+10.0	--	+10.0
Schedule	--	-0.5	--	-0.5
Engineering	--	--	--	--
Estimating	-2.0	-3.0	--	-5.0
Other	--	--	--	--
Support	--	--	--	--
Subtotal	-2.0	+6.5	--	+4.5
Total Changes	+10.6	+33.8	--	+44.4
CE - Cost Variance	1004.0	695.0	--	1699.0
CE - Cost & Funding	1004.0	695.0	--	1699.0

Previous Estimate: December 2013

RDT&E	\$M	
Current Change Explanations	Base Year	Then Year
Revised estimate resulting from a Better Buying Power initiative to improve the efficiency of operational testing. (Estimating)	-2.0	-2.4
RDT&E Subtotal	-2.0	-2.4

Procurement	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-1.4
Quantity variance resulting from an increase of 163 projectiles from 6,477 to 6,640 (Army). (Quantity)	+10.0	+12.0
Acceleration of procurement buy profile due to below threshold reprogramming of FY 2014 funds (Army). (Schedule)	-0.5	-1.1
Adjustment for current and prior escalation. (Estimating)	+0.9	+1.0
Revised estimate for Program Office support costs. (Estimating)	-3.9	-4.4
Procurement Subtotal	+6.5	+6.1

Contracts

Contract Identification

Appropriation: Procurement
Contract Name: XM982 ER Projectile-Incr Ib Production
Contractor: Raytheon Missile Systems
Contractor Location: 1151 E Hermans Rd.
 Tucson, AZ 85706
Contract Number: W15QKN-08-C-0530/3
Contract Type: Firm Fixed Price (FFP)
Award Date: December 21, 2012
Definitization Date: December 21, 2012

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
56.6	N/A	819	129.3	N/A	1800	129.3	129.3

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to subsequent awards of contract options for additional projectiles.

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this (FFP) contract.

Notes

This is the contract for Production of the Excalibur Inc Ib projectile.
 The total price includes:
 An initial award of \$58.9M for 819 projectiles.
 An option award of \$54.1M for 765 projectiles.
 An option award of \$16.3M for 216 projectiles.

Contract Identification

Appropriation: Procurement
Contract Name: XM982 ER Projectile-Incr Ia Prod FY2010, FY2011
Contractor: Raytheon Missile Systems
Contractor Location: 1151 E Hermans Rd.
 Tucson, AZ 85437
Contract Number: W15QKN-07-C-0100/4
Contract Type: Firm Fixed Price (FFP)
Award Date: March 30, 2011
Definitization Date: March 30, 2011

Contract Price								
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)		
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager	
79.1	N/A	1000	79.1	N/A	1000	79.1	79.1	

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this (FFP) contract.

Notes

This contract modification was a single combined FY 2010 - FY 2011 FRP award for Excalibur Inc Ia-2 projectiles. It procures 1,000 projectiles for the Army as well as 2,163 projectiles for the United States Marine Corps.

The final 334 projectiles on this contract were delivered in April 2014.

This contract is more than 90% complete; therefore, this is the final report for this contract.

Contract Identification

Appropriation: Procurement
Contract Name: Excalibur Ib Production
Contractor: Raytheon Missile Systems
Contractor Location: 1151 E Hermans Road
 Tucson, AZ 85706
Contract Number: W15QKN-08-C-0530/4
Contract Type: Firm Fixed Price (FFP)
Award Date: December 21, 2012
Definitization Date: July 27, 2014

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
52.5	N/A	744	61.3	N/A	883	62.4	62.4

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to contract modifications awarded for additional quantities.

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this (FFP) contract.

Notes

This is the first time this contract is being reported.

This contract modification is for Excalibur Inc Ib FRP awarded July 27, 2014 and includes additional modifications for additional quantities. The current target price reflects only the Army portion of the contract: \$61.3M for 866 projectiles.

Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	544	544	544	100.00%
Production	6141	4318	7039	61.34%
Total Program Quantity Delivered	6685	4862	7583	64.12%

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	1738.0	Years Appropriated	19
Expended to Date	1491.2	Percent Years Appropriated	95.00%
Percent Expended	85.80%	Appropriated to Date	1692.5
Total Funding Years	20	Percent Appropriated	97.38%

The above data is current as of January 31, 2015.

Planned and actual projectile quantities refer to projectiles delivered to the Army. FMS and United States Marine Corps sales are not included.

Production deliveries include 3,475 Inc Ia projectiles and 843 Inc Ib projectiles.

Operating and Support Cost

Cost Estimate Details

Date of Estimate:	June 25, 2014
Source of Estimate:	SCP
Quantity to Sustain:	6264
Unit of Measure:	Total Quantity
Service Life per Unit:	20.00 Years
Fiscal Years in Service:	FY 2007 - FY 2031

A total of 7,039 projectiles will be procured, 6,373 will be delivered to inventory (109 replace expended or damaged projectiles) and 666 will be consumed in testing. The 544 RDT&E-funded missiles were consumed in test.

Sustainment Strategy

Excalibur is a one shot use item. There is no scheduled maintenance over the 20-year shelf life. There is a defined stockpile surveillance program which will be used to calculate stockpile reliability and detect/measure adverse trends of critical parameters. To date, tracking reliability from continuous theater usage allowed the program to delay initiation of stockpile surveillance, however a formal surveillance program begins in FY 2015.

Antecedent Information

No Antecedent

Cost Element	Annual O&S Costs BY2007 \$K	
	EXCALIBUR Average Annual Cost Per Total Quantity	No Antecedent Program (Antecedent)
Unit-Level Manpower	0.000	--
Unit Operations	0.000	--
Maintenance	142.700	--
Sustaining Support	262.100	--
Continuing System Improvements	0.000	--
Indirect Support	0.000	--
Other	0.000	--
Total	404.800	--

These costs are calculated as the average annual cost for all projectiles for each category over the 31-years Excalibur is planned to be in the field (FY 2007 - FY 2037).

Maintenance costs include stockpile surveillance, laboratory teardown testing, and Depot Inventory Management.

Sustaining Support includes the storage cost of projectiles and Systems Engineering/Program Management.

Item	Total O&S Cost \$M			
	EXCALIBUR		No Antecedent Program (Antecedent)	
	Current Production APB Objective/Threshold	Current Estimate		
Base Year	20.8	22.9	12.5	N/A
Then Year	31.6	N/A	17.9	N/A

Disposal Cost is included in the Operating and Support Cost of the current APB objective and threshold for this program.

Equation to Translate Annual Cost to Total Cost

Total Cost = average annual cost per all fielded Excalibur projectiles * planned life = \$404.8K * 31 years = \$12.5M

O&S Cost Variance		
Category	BY 2007 \$M	Change Explanations
Prior SAR Total O&S Estimates - Dec 2013 SAR	33.6	
Programmatic/Planning Factors	-2.9	Revised stockpile surveillance estimate from annual testing to every four years.
Cost Estimating Methodology	0.0	
Cost Data Update	0.0	
Labor Rate	0.0	
Energy Rate	0.0	
Technical Input	-18.2	Removal of Software Support costs from O&S estimate due to maintenance concept.
Other	0.0	
Total Changes	-21.1	
Current Estimate	12.5	

Software Support costs were previously included in the O&S estimate as a contingency should software problems arise in the future requiring corrective action. Since the program Life Cycle Sustainment Plan does not include maintenance or updates to system software those costs are no longer included.

Disposal Estimate Details

Date of Estimate: June 25, 2014
Source of Estimate: SCP
Disposal/Demilitarization Total Cost (BY 2007 \$M): Total costs for disposal of all Total Quantity are 8.4

Demilitarization/Disposal costs of \$8.4M (BY 2007) are included in the Inc Ib FRP Army Cost Position. This is a \$6.5M increase from the December 2013 estimate due to availability of new cost data.