Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-289

Tactical Tomahawk RGM-109E/UGM 109E Missile (Tactical Tomahawk)

As of December 31, 2012

Defense Acquisition Management
Information Retrieval
(DAMIR)

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Program Information

Program Name

Tactical Tomahawk RGM-109E/UGM 109E Missile (Tactical Tomahawk)

DoD Component

Navy

Responsible Office

Responsible Office

CAPT Joe Mauser
Program Executive Office
Unmanned Aviation and Strike Weapons
47123 Buse Rd., Bldg. 2272, Rm. 247
Patuxent River, MD 20670-1547
joe.mauser@navy.mil

Phone 301-757-6408
Fax 301-757-6412
DSN Phone 757-6408
DSN Fax --

Date Assigned July 29, 2011

References

SAR Baseline (Production Estimate)

Navy Acquisition Executive (NAE) Approved Acquisition Program Baseline (APB) dated August 3, 2004

Approved APB

Navy Acquisition Executive (NAE) Approved Acquisition Program Baseline (APB) dated April 11, 2011

Mission and Description

The Tomahawk Missile counters threats against United States Forces by destroying fixed and mobile targets, which include command, control and logistic systems, industrial and other high value targets, and fixed and mobile defense systems. The Tomahawk Weapons System (TWS) consists of the Block IV Tactical Tomahawk All-Up-Round (AUR) missile, the Tomahawk Command and Control System (TC2S), and the Tactical Tomahawk Weapons Control System (TTWCS). The AUR is an Acquisition Category (ACAT) IC program, TC2S is an ACAT II program, and TTWCS is an ACAT III program. Block IV Tactical Tomahawk provides major modernization to the existing Tomahawk technology by increasing responsiveness and flexibility at a more affordable production unit cost.

Key elements of the Block IV Tactical Tomahawk AUR design are an improved navigation and guidance computer, improved anti-jam Global Positioning System (GPS) capability, improved responsiveness and flexibility through two-way satellite communications for in-flight re-targeting, a loiter capability, and the ability to send a single-frame Battle Damage Indication Image (BDII) of over-flown areas prior to impact. Modern manufacturing techniques and Commercial Off-the-Shelf/Government Off-the-Shelf (COTS/GOTS) hardware provide this improved capability. Additionally, the life cycle costs are significantly reduced by extending the re-certification interval from eight years for the currently fielded Block III to 15 years for the Block IV Tactical Tomahawk AUR. The Block IV Tactical Tomahawk AUR will maximize the use of existing TWS program and logistic support. There is no change to the system's overall support concept.

Executive Summary

An FY 2012 production contract for the procurement of 361 Block IV Tactical Tomahawk AUR Missiles was signed on June 7, 2012. The FY 2012 contract utilized additional FY 2011 funding received through an OMNIBUS reprogramming action (DOD Serial Number FY 11-21-R PA signed September 13, 2011) to replenish the 221 Tomahawk missile expenditures incurred during Libyan Operations. The FY 2013 contract option was exercised on December 17, 2012 for an additional 252 Block IV Tactical Tomahawk AUR Missiles. As of April 30, 2013, a total of 2947 Block IV Tactical Tomahawk AUR missiles have been delivered, which includes 65 FMS missiles for the United Kingdom. To address rising unit costs, the program successfully implemented Cost Reduction Initiatives (CRIs) that resulted in $15M of cost avoidance benefits applicable to the FY 2009 - FY 2011 missile procurements. Additional cost savings were achieved during FY 2012 - FY 2013 contract negotiations, which was driven by lowering cost of key suppliers, significant reductions in RMS fixed labor costs, and rate-related savings associated with the procurement of higher quantities of missiles.

As of April 30, 2013, RMS has achieved 46 consecutive months of meeting or exceeding the contracted Block IV Tactical Tomahawk AUR missile delivery requirements. The current combined Block III and IV fleet inventory is sufficient to satisfy projected 2013 USN operational load-outs.

The FY 2009 - FY 2011 follow-on production contract for Block IV Tactical Tomahawk AUR with RMS was fully delivered in April 2013, four months ahead of schedule.

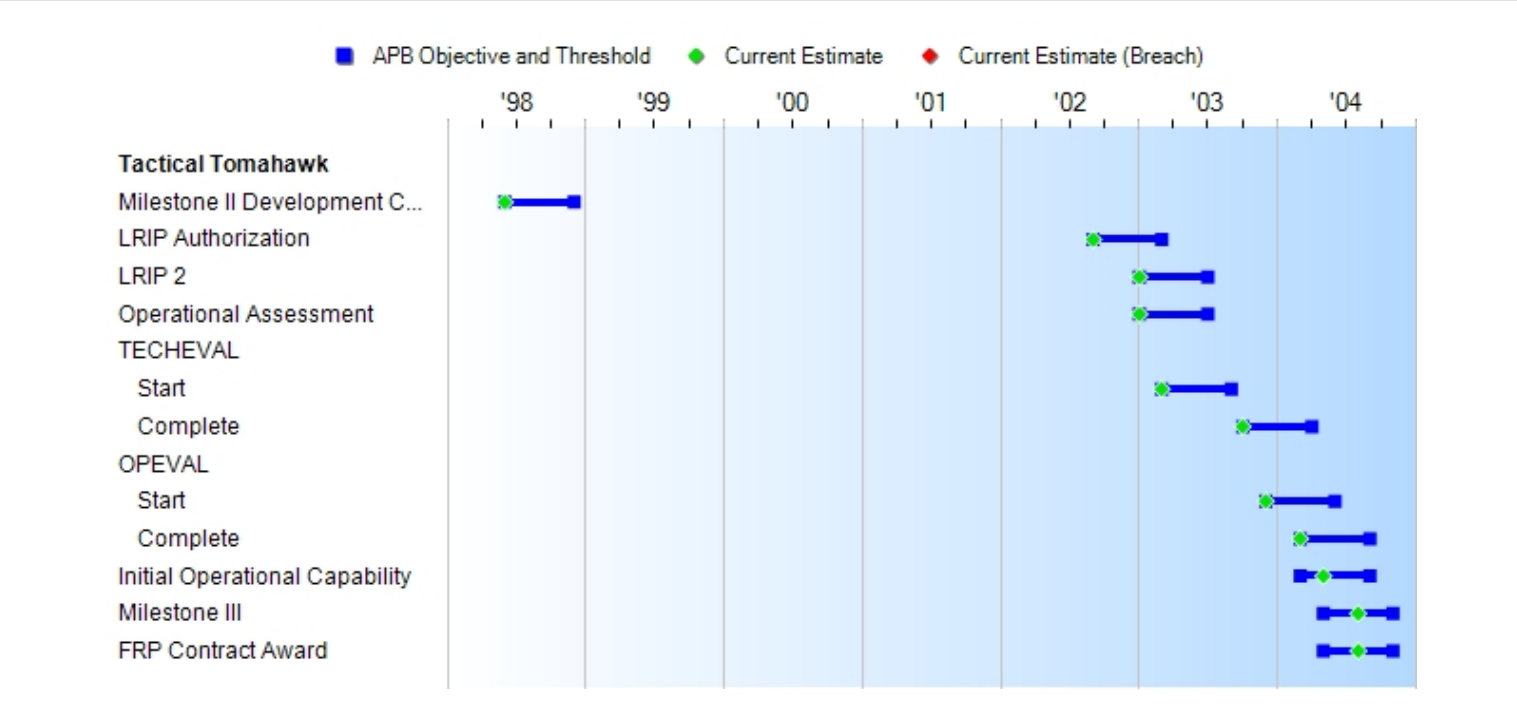
There are no significant software-related issues with this program at this time.

Threshold Breaches

APB Breaches		
Schedule		☐
Performance		☐
Cost	RDT&E	☐
	Procurement	☐
	MILCON	☐
	Acq O&M	☐
O&S Cost		☐
Unit Cost	PAUC	☐
	APUC	☐

Nunn-McCurdy Breaches		
Current UCR Baseline		
	PAUC	None
	APUC	None
Original UCR Baseline		
	PAUC	None
	APUC	None

Schedule



Milestones	SAR Baseline Prod Est	Current APB Production Objective/Threshold		Current Estimate
Milestone II Development Contract Award	JUN 1998	JUN 1998	DEC 1998	JUN 1998
LRIP Authorization	SEP 2002	SEP 2002	MAR 2003	SEP 2002
LRIP 2	JAN 2003	JAN 2003	JUL 2003	JAN 2003
Operational Assessment	JAN 2003	JAN 2003	JUL 2003	JAN 2003
TECHEVAL				
Start	MAR 2003	MAR 2003	SEP 2003	MAR 2003
Complete	OCT 2003	OCT 2003	APR 2004	OCT 2003
OPEVAL				
Start	DEC 2003	DEC 2003	JUN 2004	DEC 2003
Complete	MAR 2004	MAR 2004	SEP 2004	MAR 2004
Initial Operational Capability	MAR 2004	MAR 2004	SEP 2004	MAY 2004
Milestone III	MAY 2004	MAY 2004	NOV 2004	AUG 2004
FRP Contract Award	MAY 2004	MAY 2004	NOV 2004	AUG 2004

Acronyms And Abbreviations

FRP - Full Rate Production
LRIP - Low Rate Initial Production
OPEVAL - Operational Evaluation
TECHEVAL - Technical Evaluation

Change Explanations

None

Performance

Characteristics	SAR Baseline Prod Est	Current APB Production Objective/Threshold		Demonstrated Performance	Current Estimate	
MR (%)	.90	.90	.86	.93	.93	(Ch-1)
CR (%)	.96	.96	.94	1.0	1.0	

Requirements Source: Operational Requirements Document (ORD) #641-76-04 dated August 11, 2004

Acronyms And Abbreviations

CR - Cruise Reliability
MR - Mission Reliability

Change Explanations

(Ch-1) MR (%) Current estimate decreased from 0.96 to 0.93 upon integration of Operation Odyssey Dawn reliability performance data. Reliability performance continues to exceed threshold requirements.

Classified Performance information is provided in the classified annex to this submission.

Memo

The data set for CR and MR includes Operational Test Launches (OTLs), combat expenditures, and accounting for corrective actions in the missile inventory. Test events include Operational Evaluation (OPEVAL), Technical Evaluation (TECHEVAL), Tactical Tomahawk Penetrating Vehicle flights, contractor flights, ground tests, and combat expenditures. Corrected failures that meet all of the following criteria have been removed from the data set: root cause of a failure is known, the failure mode is eliminated by hardware or software modification, the modification has been appropriately verified by test, and the modification has been implemented throughout the entire missile population.

Track To Budget

RDT&E				
APPN 1319	BA 07	PE 0204229N	(Navy)	
	Project A0545	TACTICAL TOMAHAWK/TACTICAL TOMAHAWK	(Shared)	(Sunk)
	Project A2658	TACTICAL TOMAHAWK/TACTICAL TOMAHAWK		(Sunk)
	Project A2659	TACTICAL TOMAHAWK/TACTICAL TOMAHAWK		(Sunk)

Procurement				
APPN 1507	BA 02	PE 0204229N	(Navy)	
	ICN 210100	TACTICAL TOMAHAWK		

Cost and Funding

Cost Summary

Total Acquisition Cost and Quantity

Appropriation	BY1999 $M			BY1999 $M	TY $M		
	SAR Baseline Prod Est	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Prod Est	Current APB Production Objective	Current Estimate
RDT&E	564.9	564.9	621.4	565.1	581.0	581.9	581.9
Procurement	2412.4	4962.6	5458.8	5071.4	2709.3	6303.5	6527.1
Flyaway	2378.8	--	--	4978.2	2671.3	--	6407.5
Recurring	2342.9	--	--	4942.9	2633.2	--	6369.8
Non Recurring	35.9	--	--	35.3	38.1	--	37.7
Support	33.6	--	--	93.2	38.0	--	119.6
Other Support	33.6	--	--	93.2	38.0	--	119.6
Initial Spares	0.0	--	--	0.0	0.0	--	0.0
MILCON	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
Total	2977.3	5527.5	N/A	5636.5	3290.3	6885.4	7109.0

Confidence Level for Current APB Cost 51% - The estimate to support this program, like most cost estimates, is built upon a product-oriented work breakdown structure based on historical actual cost information to the maximum extent possible, and, most importantly, based on conservative assumptions that are consistent with actual demonstrated contractor and government performance for a series of acquisition programs in which we have been successful.

Quantity	SAR Baseline Prod Est	Current APB Production	Current Estimate
RDT&E	10	10	10
Procurement	2780	4730	4951
Total	2790	4740	4961

Cost and Funding

Funding Summary

Appropriation and Quantity Summary
FY2014 President's Budget / December 2012 SAR (TY$ M)

Appropriation	Prior	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	To Complete	Total
RDT&E	581.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	581.9
Procurement	3792.1	309.0	312.4	322.8	330.2	336.2	342.2	782.2	6527.1
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 2014 Total	4374.0	309.0	312.4	322.8	330.2	336.2	342.2	782.2	7109.0
PB 2013 Total	4374.0	309.0	323.0	329.2	336.6	342.6	384.5	786.0	7184.9
Delta	0.0	0.0	-10.6	-6.4	-6.4	-6.4	-42.3	-3.8	-75.9

Program funding and production quantities listed in this SAR are consistent with the FY 2014 President's Budget (PB). The FY 2014 PB did not reflect the enacted DoD appropriation for FY 2013, nor sequestration; it reflected the President's requested amounts for FY 2013.

Quantity	Undistributed	Prior	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	To Complete	Total
Development	10	0	0	0	0	0	0	0	0	10
Production	0	3298	196	196	196	196	196	196	477	4951
PB 2014 Total	10	3298	196	196	196	196	196	196	477	4961
PB 2013 Total	10	3298	196	196	196	196	196	225	448	4961
Delta	0	0	0	0	0	0	0	-29	29	0

Cost and Funding

Annual Funding By Appropriation

Annual Funding TY$
1319 | RDT&E | Research, Development, Test, and Evaluation, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway TY $M	Non End Item Recurring Flyaway TY $M	Non Recurring Flyaway TY $M	Total Flyaway TY $M	Total Support TY $M	Total Program TY $M
1998	--	--	--	--	--	--	49.8
1999	--	--	--	--	--	--	122.4
2000	--	--	--	--	--	--	164.2
2001	--	--	--	--	--	--	105.4
2002	--	--	--	--	--	--	63.0
2003	--	--	--	--	--	--	57.3
2004	--	--	--	--	--	--	19.8
Subtotal	**10**	**--**	**--**	**--**	**--**	**--**	**581.9**

Annual Funding BY$
1319 | RDT&E | Research, Development, Test, and Evaluation, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway BY 1999 $M	Non End Item Recurring Flyaway BY 1999 $M	Non Recurring Flyaway BY 1999 $M	Total Flyaway BY 1999 $M	Total Support BY 1999 $M	Total Program BY 1999 $M
1998	--	--	--	--	--	--	49.9
1999	--	--	--	--	--	--	121.3
2000	--	--	--	--	--	--	160.3
2001	--	--	--	--	--	--	101.5
2002	--	--	--	--	--	--	60.1
2003	--	--	--	--	--	--	53.9
2004	--	--	--	--	--	--	18.1
Subtotal	**10**	**--**	**--**	**--**	**--**	**--**	**565.1**

Annual Funding TY$
1507 | Procurement | Weapons Procurement, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway TY $M	Non End Item Recurring Flyaway TY $M	Non Recurring Flyaway TY $M	Total Flyaway TY $M	Total Support TY $M	Total Program TY $M
2002	25	46.2	--	24.0	70.2	2.4	72.6
2003	377	420.9	--	13.7	434.6	2.9	437.5
2004	322	344.6	--	--	344.6	7.4	352.0
2005	298	268.5	--	--	268.5	8.7	277.2
2006	409	363.1	--	--	363.1	9.9	373.0
2007	355	345.3	--	--	345.3	7.7	353.0
2008	496	470.8	--	--	470.8	5.0	475.8
2009	207	275.2	--	--	275.2	5.0	280.2
2010	196	270.2	--	--	270.2	6.3	276.5
2011	417	587.7	--	--	587.7	9.0	596.7
2012	196	292.0	--	--	292.0	5.6	297.6
2013	196	303.2	--	--	303.2	5.8	309.0
2014	196	306.5	--	--	306.5	5.9	312.4
2015	196	316.8	--	--	316.8	6.0	322.8
2016	196	324.0	--	--	324.0	6.2	330.2
2017	196	329.9	--	--	329.9	6.3	336.2
2018	196	335.8	--	--	335.8	6.4	342.2
2019	239	381.9	--	--	381.9	6.5	388.4
2020	238	387.2	--	--	387.2	6.6	393.8
Subtotal	**4951**	**6369.8**	**--**	**37.7**	**6407.5**	**119.6**	**6527.1**

Annual Funding BY$
1507 | Procurement | Weapons Procurement, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway BY 1999 $M	Non End Item Recurring Flyaway BY 1999 $M	Non Recurring Flyaway BY 1999 $M	Total Flyaway BY 1999 $M	Total Support BY 1999 $M	Total Program BY 1999 $M
2002	25	43.5	--	22.6	66.1	2.3	68.4
2003	377	388.4	--	12.7	401.1	2.7	403.8
2004	322	308.8	--	--	308.8	6.7	315.5
2005	298	234.2	--	--	234.2	7.6	241.8
2006	409	308.9	--	--	308.9	8.4	317.3
2007	355	287.5	--	--	287.5	6.4	293.9
2008	496	385.8	--	--	385.8	4.1	389.9
2009	207	222.2	--	--	222.2	4.1	226.3
2010	196	214.3	--	--	214.3	5.0	219.3
2011	417	455.8	--	--	455.8	7.0	462.8
2012	196	222.1	--	--	222.1	4.3	226.4
2013	196	226.3	--	--	226.3	4.3	230.6
2014	196	224.5	--	--	224.5	4.3	228.8
2015	196	227.7	--	--	227.7	4.3	232.0
2016	196	228.5	--	--	228.5	4.4	232.9
2017	196	228.4	--	--	228.4	4.3	232.7
2018	196	228.1	--	--	228.1	4.4	232.5
2019	239	254.6	--	--	254.6	4.3	258.9
2020	238	253.3	--	--	253.3	4.3	257.6
Subtotal	**4951**	**4942.9**	**--**	**35.3**	**4978.2**	**93.2**	**5071.4**

Low Rate Initial Production

	Initial LRIP Decision	Current Total LRIP
Approval Date	4/12/2001	8/26/2003
Approved Quantity	25	402
Reference	LRIP ADM	LRIP III ASR/AP
Start Year	2002	2002
End Year	2007	2007

Low Rate Initial Production (LRIP-1) was 25 missiles, LRIP-2 was 167 missiles, and LRIP-3 was 210 missiles, which brings the total Block IV Tactical Tomahawk All-Up-Round LRIP quantity to 402 missiles.

Foreign Military Sales

Country	Date of Sale	Quantity	Total Cost $M	Memo
United Kingdom	3/11/2013	4	5.7	Torpedo Tube Launch (TTL) Block IV missiles were purchased in FY 2013; cost includes missiles and ancillary equipment.
United Kingdom	2/10/2006	65	64.0	TTL Block IV missiles were purchased in FY 2006; cost includes missiles and ancillary equipment. All United Kingdom missiles on contract have been delivered.

Nuclear Cost

None

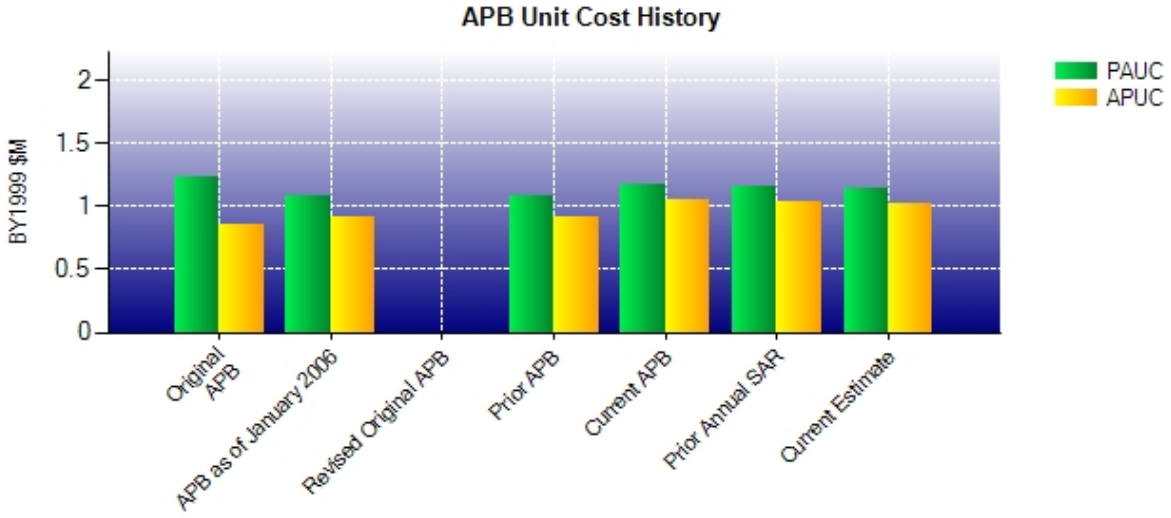
Unit Cost

Unit Cost Report

Unit Cost	BY1999 $M Current UCR Baseline (APR 2011 APB)	BY1999 $M Current Estimate (DEC 2012 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	5527.5	5636.5	
Quantity	4740	4961	
Unit Cost	1.166	1.136	-2.57
Average Procurement Unit Cost (APUC)			
Cost	4962.6	5071.4	
Quantity	4730	4951	
Unit Cost	1.049	1.024	-2.38

Unit Cost	BY1999 $M Original UCR Baseline (SEP 1999 APB)	BY1999 $M Current Estimate (DEC 2012 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	1683.7	5636.5	
Quantity	1365	4961	
Unit Cost	1.233	1.136	-7.87
Average Procurement Unit Cost (APUC)			
Cost	1158.4	5071.4	
Quantity	1353	4951	
Unit Cost	0.856	1.024	+19.63

Unit Cost History



		BY1999 $M		TY $M	
	Date	PAUC	APUC	PAUC	APUC
Original APB	SEP 1999	1.233	0.856	1.365	0.984
APB as of January 2006	APR 2005	1.076	0.913	1.237	1.069
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	APR 2005	1.076	0.913	1.237	1.069
Current APB	APR 2011	1.166	1.049	1.453	1.333
Prior Annual SAR	DEC 2011	1.153	1.042	1.448	1.334
Current Estimate	DEC 2012	1.136	1.024	1.433	1.318

SAR Unit Cost History

Initial SAR Baseline to Current SAR Baseline (TY $M)

Initial PAUC Dev Est	Changes								PAUC Prod Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
1.365	-0.015	0.324	0.117	0.000	-0.716	0.000	0.104	-0.186	1.179

Current SAR Baseline to Current Estimate (TY $M)

PAUC Prod Est	Changes								PAUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
1.179	0.030	-0.128	0.071	0.025	0.241	0.000	0.015	0.254	1.433

Initial SAR Baseline to Current SAR Baseline (TY $M)

Initial APUC Dev Est	Changes								APUC Prod Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
0.984	-0.015	0.325	0.097	0.000	-0.520	0.000	0.104	-0.009	0.975

Current SAR Baseline to Current Estimate (TY $M)

APUC Prod Est	Changes								APUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
0.975	0.030	-0.041	0.072	0.025	0.242	0.000	0.015	0.343	1.318

SAR Baseline History

Item/Event	SAR Planning Estimate (PE)	SAR Development Estimate (DE)	SAR Production Estimate (PdE)	Current Estimate
Milestone I	N/A	N/A	N/A	N/A
Milestone II	N/A	JUN 1998	JUN 1998	JUN 1998
Milestone III	N/A	JUN 2003	MAY 2004	AUG 2004
IOC	N/A	APR 2003	MAR 2004	MAY 2004
Total Cost (TY $M)	N/A	1863.4	3290.3	7109.0
Total Quantity	N/A	1365	2790	4961
Prog. Acq. Unit Cost (PAUC)	N/A	1.365	1.179	1.433

Cost Variance

Summary Then Year $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Prod Est)	581.0	2709.3	--	3290.3
Previous Changes				
Economic	+0.9	+100.0	--	+100.9
Quantity	--	+1920.9	--	+1920.9
Schedule	--	+352.8	--	+352.8
Engineering	--	+43.0	--	+43.0
Estimating	--	+1403.4	--	+1403.4
Other	--	--	--	--
Support	--	+73.6	--	+73.6
Subtotal	+0.9	+3893.7	--	+3894.6
Current Changes				
Economic	--	+46.7	--	+46.7
Quantity	--	--	--	--
Schedule	--	+1.2	--	+1.2
Engineering	--	+80.7	--	+80.7
Estimating	--	-207.2	--	-207.2
Other	--	--	--	--
Support	--	+2.7	--	+2.7
Subtotal	--	-75.9	--	-75.9
Total Changes	+0.9	+3817.8	--	+3818.7
CE - Cost Variance	581.9	6527.1	--	7109.0
CE - Cost & Funding	581.9	6527.1	--	7109.0

Summary Base Year 1999 $M				
	RDT&E	**Proc**	**MILCON**	**Total**
SAR Baseline (Prod Est)	564.9	2412.4	--	2977.3
Previous Changes				
Economic	--	--	--	--
Quantity	--	+1357.4	--	+1357.4
Schedule	--	+274.3	--	+274.3
Engineering	--	+32.6	--	+32.6
Estimating	+0.2	+1022.9	--	+1023.1
Other	--	--	--	--
Support	--	+57.4	--	+57.4
Subtotal	+0.2	+2744.6	--	+2744.8
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	+56.5	--	+56.5
Estimating	--	-144.3	--	-144.3
Other	--	--	--	--
Support	--	+2.2	--	+2.2
Subtotal	--	-85.6	--	-85.6
Total Changes	+0.2	+2659.0	--	+2659.2
CE - Cost Variance	565.1	5071.4	--	5636.5
CE - Cost & Funding	565.1	5071.4	--	5636.5

Previous Estimate: December 2011

Procurement	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	+46.7
Stretched out the procurement buy profile in FY 2018-2020 to remain within budget controls. (Schedule)	0.0	+1.2
Increased costs required to resolve missile component obsolescence. (Engineering)	+56.5	+80.7
Adjustment for current and prior escalation. (Estimating)	-7.5	-9.6
Decrease in hardware estimates based on contract negotiations. (Estimating)	-136.8	-197.6
Adjustment for current and prior escalation. (Support)	0.0	-0.2
Increase in Other Support due to stretch out of procurement profile. (Support)	+2.2	+2.9
Procurement Subtotal	-85.6	-75.9

Contracts

Appropriation: Procurement

Contract Name	**BLK IV TACTOM FRP FY09-11**
Contractor	Raytheon Missile Systems
Contractor Location	Tucson, AZ 85747
Contract Number, Type	N00019-09-C-0007, FFP
Award Date	March 31, 2009
Definitization Date	March 31, 2009

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
207.3	N/A	207	710.2	N/A	599	710.2	710.2

Cost And Schedule Variance Explanations

Cost and Schedule variance reporting is not required on this FFP contract.

Contract Comments

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to each of the two procurement options being exercised for 196 missiles, resulting in 392 additional missiles.

The FY 2009 base year contract was awarded in March 2009 for the procurement of 207 missiles at a contract price of $207.3M. Both the FY 2010 and FY 2011 missile and capsule options have been exercised, increasing the total contract procurement quantity to 599 missiles and the total contract price to $710.2M (as of April 30, 2013).

Full Rate Production (FY 2009 - FY 2011) includes a base year plus two option years. Contract was signed on March 31, 2009 to procure up to 1050 Block IV Tactical Tomahawk All-Up-Round (AUR) missiles.

Current contract price includes United States Navy missiles, subsurface variant capsules, production support and ancillary equipment.

Deliveries complete as of April 30, 2013. December 2012 SAR will be the final report for this contract.

Appropriation: Procurement

Contract Name	**BLK IV TACTOM FRP FY12-13**
Contractor	Raytheon Missile Systems
Contractor Location	Tucson, AZ 85747
Contract Number, Type	N00019-12-C-2000, FFP
Award Date	June 07, 2012
Definitization Date	June 07, 2012

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
377.8	N/A	361	690.7	N/A	613	690.7	690.7

Cost And Schedule Variance Explanations

Cost and Schedule variance reporting is not required on this FFP contract.

Contract Comments

This is the first time this contract is being reported.

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the FY 2013 procurement option being exercised for an additional 252 missiles.

The FY 2012 base year contract was awarded in June 2012 for the procurement of 361 missiles at a price of $377.8M. The FY 2013 contract option for United States Navy (USN) missiles was exercised in December 2012. An additional option was also exercised in March 2013 to procure four (4) Foreign Military Sales (FMS) missiles resulting in an increase of the total contract procurement quantity to 617 missiles (USN and FMS) and the total contract price to $690.7M (as of April 30, 2013).

Full Rate Production (FY 2012 - FY 2013) includes a base year plus one option year. Contract was signed on June 7, 2012 to procure up to 740 Block IV Tactical Tomahawk All-Up-Round (AUR) missiles.

Current contract price includes USN missiles, subsurface variant capsules, production support and ancillary equipment, in addition to $5.7M Foreign Military Sales (FMS) Torpedo Tube Launch (TTL) procurement dollars.

Additional FY 2011 funding was received through OMNIBUS reprogramming action to replenish the 221 Tomahawk missile expenditures during Libyan Operations.

Libyan Operations replenishment missiles were procured utilizing the FY 2012 procurement contract.

Deliveries and Expenditures

Deliveries To Date	Plan To Date	Actual To Date	Total Quantity	Percent Delivered
Development	10	10	10	100.00%
Production	2840	2882	4951	58.21%
Total Program Quantities Delivered	2850	2892	4961	58.29%

Expenditures and Appropriations (TY $M)			
Total Acquisition Cost	7109.0	Years Appropriated	16
Expenditures To Date	3766.0	Percent Years Appropriated	69.57%
Percent Expended	52.98%	Appropriated to Date	4683.0
Total Funding Years	23	Percent Appropriated	65.87%

The above data is current as of 4/30/2013.

Operating and Support Cost

Tactical Tomahawk

Assumptions and Ground Rules

Cost Estimate Reference:

The Block IV Tactical Tomahawk All-Up-Round (AUR) estimate is from the Life Cycle Cost Estimate prepared for the MS III decision in May of 2004. This original estimate was revalidated in February 2013.

Sustainment Strategy:

The Operating and Support costs include: maintenance, recertification, and demilitarization and disposal costs of the AUR; an Operational flight test program to track Tomahawk Weapons System performance; and sustainment of Tactical Tomahawk Command and Control/Weapons Control Systems.

The Block IV Tactical Tomahawk AUR Sustainment Strategy is based on the original Tomahawk Program “Wooden Round" concept which relies upon a fifteen (15) year missile warranty, and features limited maintenance outside of the Original Equipment Manufacturer (OEM). The OEM serves as the depot activity and is responsible for conducting the majority of the maintenance for the Block IV missile, and their efforts are largely covered by the 15 year warranty. The Block IV Tactical Tomahawk depot maintenance is expected to be less than the Block III Tomahawk due to a 15 year recertification interval, for a total inventory of 4,730 missiles. Recertifications are anticipated to begin in FY 2019. The total life of a Block IV Tactical Tomahawk is anticipated to be thirty (30) years.

Organizational level maintenance is limited to visual inspections, nitrogen checks (Torpedo Tube Launch (TTL) variant only), missile inventory checks (surface only), Mode 7 alignment confidence checks (submarine only) and minor unscheduled maintenance (corrosion control, etc.). Intermediate level maintenance is limited to missile ID checks, receipt inspections, and nitrogen checks.

Antecedent Information:

The Block III Tomahawk AUR is the antecedent system of the Block IV Tactical Tomahawk AUR.

Unitized O&S Costs BY1999 $M		
Cost Element	**Tactical Tomahawk Average Annual Cost of Block IV Missile Inventory**	**Tomahawk Block III (Antecedent) Average Annual Cost of Block III Missile Inventory**
Unit-Level Manpower	0.0	0.0
Unit Operations	0.0	0.0
Maintenance	0.0	0.0
Sustaining Support	35.2	36.6
Continuing System Improvements	0.0	0.0
Indirect Support	0.0	0.0
Other	21.5	65.4
Total	56.7	102.0

Unitized Cost Comments:

The unit represented is the average annual cost (FY 2004 - FY 2049) of the Block IV Tactical Tomahawk missile inventory in BY 1999 dollars.

As a result of the February 2013 revalidation, the average annual cost was reduced. Realized costs were utilized through FY 2012, and revised budget projections through FY 2049 to derive the average annual costs reported in the December 2012 SAR.

Depot recertification activities at the Original Equipment Manufacturer (OEM) facility will begin in FY 2019 and are captured in the 'Other' cost section.

	Total O&S Cost $M			
	Current Production APB Objective/Threshold		Current Estimate	
	Tactical Tomahawk		Tactical Tomahawk	Tomahawk Block III (Antecedent)
Base Year	0.0	0.0	2549.0	3058.4
Then Year	0.0	N/A	3855.5	N/A

Total O&S Costs Comments:

The Block IV Tactical Tomahawk O&S Costs from the May 2004 Life Cycle Cost Estimate have been reviewed and revalidated as of February 2013.

The revalidated O&S estimate is based on actual and projected expenditures from program inception in FY 2004 through end of service life in FY 2049. The unitized costs shown above are the total Base Year O&S total shown below, divided by the expected 45 year service life (FY 2004 - FY 2049). Missile recertification costs (shown as "other" in the unitized cost summary above) is an estimate for recertifying the entire APB quantity (4,730 missiles), divided by 45 years. The recertification program, however, is only scheduled to last for approximately 15 years, so the unitized recertification cost should not be used for annual budging purposes. The current estimated cost of recertifying a Block IV missile is based on a Block III recertification cost, plus inflation. Additionally, the actual number of recertifications expected per year was based on delivery date plus an initial 15 year service life. After 15 years, missiles should be returned for recertification. Historically, budget constraints have caused schedule variances between anticipated recertification dates and actual recertification dates. As a result, while the duration of the Block IV Tactical Tomahawk missile recertification program is estimated to last 15 years, the actual program is likely to extend beyond 15 years. Demilitarization and disposal costs were removed from the O&S total as part of the revalidation.

Disposal Costs

Disposal costs for the Block IV Tactical Tomahawk AUR were estimated to be $48.2M in FY 1999 dollars.