Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-178

TRIDENT II MISSILE

As of December 31, 2011

Defense Acquisition Management
Information Retrieval
(DAMIR)

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Program Information

Designation And Nomenclature (Popular Name)

Trident II (D-5) Missile UGM 133A (TRIDENT II MISSILE)

DoD Component

Navy

Responsible Office

Responsible Office

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Date Assigned May 7, 2010

References

SAR Baseline (Production Estimate)

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated July 15, 1987

Approved APB

Navy Acquisition Executive (NAE) Approved Acquisition Program Baseline (APB) dated September 10, 2011

Mission and Description

The TRIDENT II (D-5) Strategic Weapons System (SWS) program developed an improved Submarine Launched Ballistic Missile (SLBM) with greater accuracy and payload capability at equivalent ranges as compared to the TRIDENT I (C-4) system. TRIDENT II enhances U.S. strategic deterrence by providing a survivable sea-based system capable of engaging the full spectrum of potential targets. It enhances the U.S. position in strategic arms negotiation by providing a weapon system with performance and payload flexibility that accommodates various treaty initiatives. TRIDENT II's increased payload allows the deterrent mission to be achieved with fewer submarines.

Executive Summary

The Program Manager continues to ensure that reliability maintenance and surveillance efforts will allow the missile life to match that of the submarine.

Procurement funding for TRIDENT II missile includes program and production support costs (including flight test instrumentation and additional reentry system hardware) and the D-5 Life Extension (LE) program. Strategic Systems Programs (SSP) is executing in accordance with the production continuity procurement strategy approved by Congress and the DoD.

TRIDENT II Missile submitted a revised acquisition program baseline (APB) that was approved and signed by the Assistant Secretary of the Navy (ASN) (Research, Development & Acquisition (RD&A)) on September 10, 2011. The significant changes reflected in this revised baseline included a revised D5 LE funding profile, the addition of the Explosive Handling Wharf (EHW) #2 Military Construction project, and Joint Fuze sustainment efforts. In addition, a supplemental APB specifically discussing D5 LE costs and schedule was submitted. D5 LE previously experienced an overrun in the redesign of three of the four missile electronic packages that comprise the D5 LE Strategic Programs Alteration (SPALT). The D5 LE system completed its system Critical Design Review (CDR) in January 2011.

In the area of rocket motors and post boost control system gas generators (PBCS GGs), the TRIDENT II Missile program experienced an increase in rocket motor unit costs which was reflected in the FY 2012 President's Budget submission. The Navy's TRIDENT II (D5) rocket motor production, which accounts for less than one-fifth of the solid rocket motor (SRM) business base is now responsible for a larger portion of the industrial base fixed costs. This increase is due to a decline in customer demands (National Aeronautics and Space Administration (NASA) and the completion of the Air Force Minuteman III program) for SRM and PBCS GGs. The decreasing demand is expected to continue and will accelerate downward as both NASA and the Air Force reduce their procurements over the next several years, increasing the risk of future unit cost increases to the Navy. Current assumptions include contributions from both NASA and the Air Force. Should these assumptions change, unit costs may continue to increase. The current budget maintains buying 12 rocket motor sets per year in order to address age out concerns. Due to the high rate of D5 production in the early years of the program, a significant portion of the inventory will age out at the same time which will require the Navy to increase procurement quantities above the 12 motor sets per year.

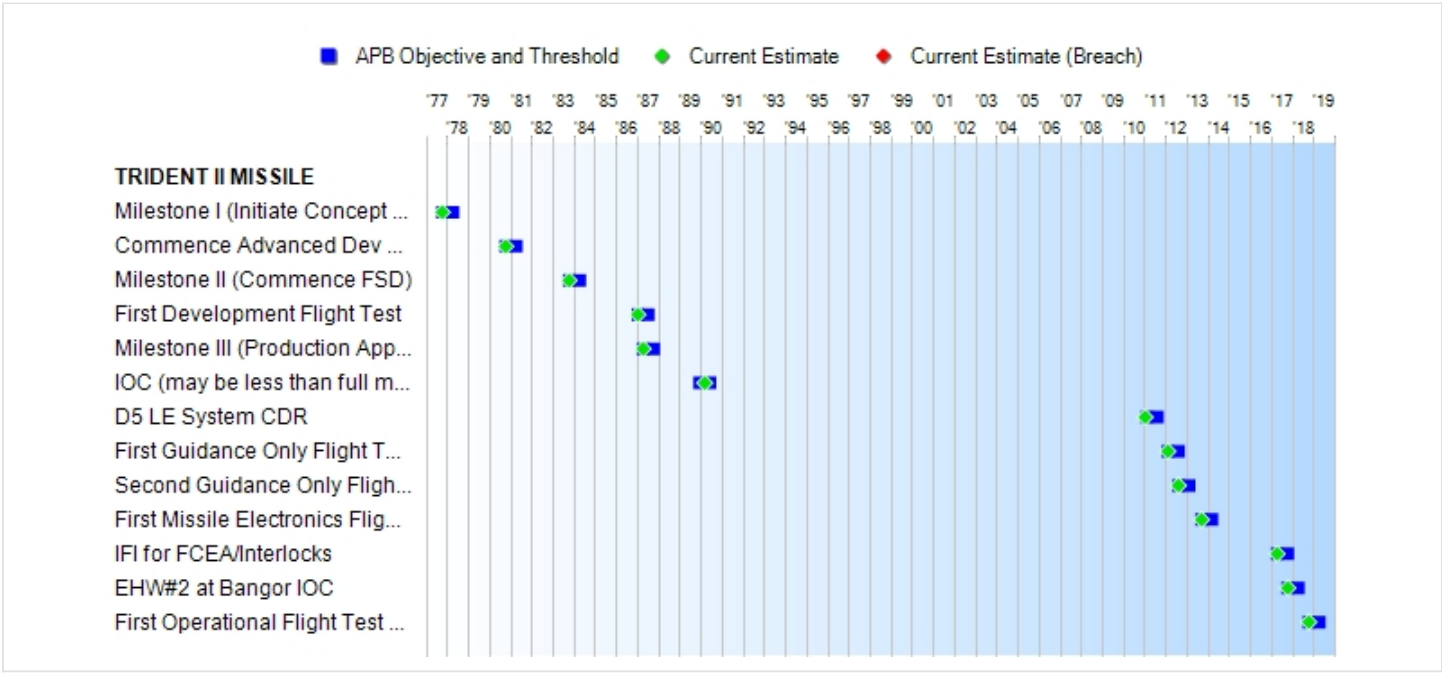
There are no software-related issues with this program at this time.

Threshold Breaches

APB Breaches		
Schedule		☐
Performance		☐
Cost	RDT&E	☐
	Procurement	☐
	MILCON	☐
	Acq O&M	☐
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 I (Initiate Concept Definition)	OCT 1977	OCT 1977	APR 1978	OCT 1977	
Commence Advanced Dev Phase	OCT 1980	OCT 1980	APR 1981	OCT 1980	
Milestone II (Commence FSD)	OCT 1983	OCT 1983	APR 1984	OCT 1983	
First Development Flight Test	JAN 1987	JAN 1987	JUL 1987	JAN 1987	
Milestone III (Production Approval)/ Award Initial Missile Production	APR 1987	APR 1987	OCT 1987	APR 1987	
IOC (may be less than full msl outload)	DEC 1989	DEC 1989	JUN 1990	MAR 1990	
D5 LE System CDR	N/A	FEB 2011	AUG 2011	JAN 2011	(Ch-1)
First Guidance Only Flight Test (DASO-23)	N/A	FEB 2012	AUG 2012	FEB 2012	(Ch-1)
Second Guidance Only Flight Test (DASO-24)	N/A	AUG 2012	FEB 2013	AUG 2012	(Ch-1)
First Missile Electronics Flight Test (PTM-1/DASO-25)	N/A	SEP 2013	MAR 2014	SEP 2013	(Ch-1)
IFI for FCEA/Interlocks	N/A	APR 2017	OCT 2017	APR 2017	(Ch-1)
EHW#2 at Bangor IOC	N/A	OCT 2017	APR 2018	OCT 2017	(Ch-1)
First Operational Flight Test (CET)	N/A	OCT 2018	APR 2019	OCT 2018	(Ch-1)

Acronyms And Abbreviations

CDR - Critical Design Review

CET - Commander Evaluation Test
D5 LE - D5 Life Extension
DASO - Demonstration and Shakedown Operation
Dev - Development
EHW - Explosive Handling Wharf
FCEA - Flight Control Electronics Assembly
FSD - Full Scale Development
IFI - Initial Fleet Introduction
IOC - Initial Operational Capability
msl - missile
N/A - Not Applicable
PTM - Proofing Test Missile

Change Explanations

(Ch-1) Milestones for D5 LE were added as part of a revised Acquisition Program Baseline (APB) which was approved and signed on September 10, 2011.

Performance

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

Track To Budget

RDT&E				
APPN 1319	BA 07	PE 0101221N	(Navy)	
	Project 0951	JOINT WARHEAD FUZE SUSTAINMENT PROGRAM		
APPN 1319	BA 04	PE 0603371N	(Navy)	
	Project 0951	TRIDENT II/TRIDENT II		(Sunk)
APPN 1319	BA 04	PE 0604327N	(Navy)	
	Project 9611	HARD AND DEEPLY BURIED TARGET DEFEAT SYSTEM/Advanced Conventional Strike Capability Demonstration		(Sunk)
APPN 1319	BA 04	PE 0604363N	(Navy)	
	Project 0951	TRIDENT II/TRIDENT II		(Sunk)

Procurement				
APPN 1507	BA 01	PE 0101228N	(Navy)	
	ICN 1150	TRIDENT II (D-5) Missile		(Sunk)
	ICN 1250	TRIDENT MODS	(Shared)	

The funding profile for Procurement (Weapons Procurement, Navy (WPN)) does not match that found in the FY 2013 President's Budget controls for WPN after FY 2011. Beginning in FY 2012, WPN funding is shared between Acquisition and Operating and Support (O&S) costs in the SAR and, hence, the Operating and Support (O&S) costs are not reflected in the TRIDENT II missile acquisition.

MILCON				
APPN 1205	BA 01	PE 0101221N	(Navy)	
		Fleet Ballistic Missile (Projects 618, 903, 913, and 990)	(Shared)	
APPN 1205	BA 01	PE 0202576N	(Navy)	

		Facilities Restoration and MOD-Grounds	(Shared)	(Sunk)
APPN 1205	BA 01	PE 0203176N	(Navy)	
		Facilities Restoration and MOD-Fleet Ops	(Shared)	(Sunk)
APPN 1205	BA 01	PE 0212576N	(Navy)	
		Facilities New Footprint	(Shared)	(Sunk)
APPN 1205	BA 01	PE 0703676N	(Navy)	
		Facility Restoration and MOD - Maint and Prod	(Shared)	(Sunk)
APPN 1205	BA 01	PE 0805976N	(Navy)	
		Facility Restoration and MOD - Training	(Shared)	(Sunk)

The funding for Military Construction (MILCON) in the SAR does not match that reflected in the FY 2013 President's Budget. TRIDENT II missile does not directly hold the funding for MILCON as that is managed by the Commander, Navy Installation Command (CNIC) and the Naval Facilities Engineering Command (NAVFAC). The projects reflected here are those that directly impact TRIDENT II missile acquisition.

Cost and Funding

Cost Summary

Total Acquisition Cost and Quantity

	BY1983 $M			BY1983 $M	TY $M		
Appropriation	SAR Baseline Prod Est	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Prod Est	Current APB Production Objective	Current Estimate
RDT&E	8434.9	8783.9	9662.3	8772.7	9453.2	10126.0	10111.7
Procurement	17588.5	18406.7	20247.4	17779.0	25396.9	30643.5	29363.7
Flyaway	14471.2	--	--	13599.1	19017.9	--	22520.9
Recurring	14471.2	--	--	13599.1	19017.9	--	22520.9
Non Recurring	0.0	--	--	0.0	0.0	--	0.0
Support	3117.3	--	--	4179.9	6379.0	--	6842.8
Other Support	3082.9	--	--	4156.3	6331.6	--	6807.4
Initial Spares	34.4	--	--	23.6	47.4	--	35.4
MILCON	532.9	757.6	833.4	700.5	668.4	1220.3	1119.9
Acq O&M	0.0	0.0	--	0.0	0.0	0.0	0.0
Total	26556.3	27948.2	N/A	27252.2	35518.5	41989.8	40595.3

Confidence Level For the Current APB Cost - TRIDENT II D-5 is currently in the process of reconciling the program office estimate with our Internal Independent Cost Estimate (IICE). Costs are being compared at the point estimate which is approximately 17 to 18% and are making a comparison at the 50% estimate. The plan is to have this reconciliation completed in the near future.

Quantity	SAR Baseline Prod Est	Current APB Production	Current Estimate
RDT&E	30	28	28
Procurement	815	533	533
Total	845	561	561

Cost and Funding

Funding Summary

Appropriation and Quantity Summary
FY2013 President's Budget / December 2011 SAR (TY$ M)

Appropriation	Prior	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	To Complete	Total
RDT&E	9466.4	42.2	61.6	95.5	106.5	104.4	106.2	128.9	10111.7
Procurement	23521.0	929.1	838.8	804.9	814.4	571.6	547.9	1336.0	29363.7
MILCON	470.3	78.0	280.2	207.6	74.2	0.0	9.6	0.0	1119.9
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2013 Total	33457.7	1049.3	1180.6	1108.0	995.1	676.0	663.7	1464.9	40595.3
PB 2012 Total	33475.4	1074.3	1231.3	1019.7	1013.7	703.1	639.6	1476.2	40633.3
Delta	-17.7	-25.0	-50.7	88.3	-18.6	-27.1	24.1	-11.3	-38.0

Quantity	Undistributed	Prior	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	To Complete	Total
Development	28	0	0	0	0	0	0	0	0	28
Production	0	509	24	0	0	0	0	0	0	533
PB 2013 Total	28	509	24	0	0	0	0	0	0	561
PB 2012 Total	28	509	24	0	0	0	0	0	0	561
Delta	0	0	0	0	0	0	0	0	0	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
1978	--	--	--	--	--	--	5.0
1979	--	--	--	--	--	--	5.0
1980	--	--	--	--	--	--	25.6
1981	--	--	--	--	--	--	96.7
1982	--	--	--	--	--	--	198.4
1983	--	--	--	--	--	--	351.0
1984	--	--	--	--	--	--	1447.3
1985	--	--	--	--	--	--	1982.6
1986	--	--	--	--	--	--	1942.3
1987	--	--	--	--	--	--	1565.3
1988	--	--	--	--	--	--	1029.7
1989	--	--	--	--	--	--	546.5
1990	--	--	--	--	--	--	169.5
1991	--	--	--	--	--	--	43.0
1992	--	--	--	--	--	--	2.2
1993	--	--	--	--	--	--	0.4
1994	--	--	--	--	--	--	--
1995	--	--	--	--	--	--	0.5
1996	--	--	--	--	--	--	0.3
1997	--	--	--	--	--	--	--
1998	--	--	--	--	--	--	--
1999	--	--	--	--	--	--	--
2000	--	--	--	--	--	--	--
2001	--	--	--	--	--	--	--
2002	--	--	--	--	--	--	--
2003	--	--	--	--	--	--	--
2004	--	--	--	--	--	--	--
2005	--	--	--	--	--	--	--
2006	--	--	--	--	--	--	--
2007	--	--	--	--	--	--	19.4
2008	--	--	--	--	--	--	--
2009	--	--	--	--	--	--	--
2010	--	--	--	--	--	--	14.0
2011	--	--	--	--	--	--	21.7
2012	--	--	--	--	--	--	42.2
2013	--	--	--	--	--	--	61.6

2014	--	--	--	--	--	--	95.5
2015	--	--	--	--	--	--	106.5
2016	--	--	--	--	--	--	104.4
2017	--	--	--	--	--	--	106.2
2018	--	--	--	--	--	--	64.4
2019	--	--	--	--	--	--	32.0
2020	--	--	--	--	--	--	32.5
Subtotal	**28**	**--**	**--**	**--**	**--**	**--**	**10111.7**

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

Fiscal Year	Quantity	End Item Recurring Flyaway BY 1983 $M	Non End Item Recurring Flyaway BY 1983 $M	Non Recurring Flyaway BY 1983 $M	Total Flyaway BY 1983 $M	Total Support BY 1983 $M	Total Program BY 1983 $M
1978	--	--	--	--	--	--	7.2
1979	--	--	--	--	--	--	6.5
1980	--	--	--	--	--	--	30.1
1981	--	--	--	--	--	--	104.2
1982	--	--	--	--	--	--	203.1
1983	--	--	--	--	--	--	343.9
1984	--	--	--	--	--	--	1368.5
1985	--	--	--	--	--	--	1818.1
1986	--	--	--	--	--	--	1731.2
1987	--	--	--	--	--	--	1355.1
1988	--	--	--	--	--	--	862.6
1989	--	--	--	--	--	--	439.3
1990	--	--	--	--	--	--	130.9
1991	--	--	--	--	--	--	32.1
1992	--	--	--	--	--	--	1.6
1993	--	--	--	--	--	--	0.3
1994	--	--	--	--	--	--	--
1995	--	--	--	--	--	--	0.3
1996	--	--	--	--	--	--	0.2
1997	--	--	--	--	--	--	--
1998	--	--	--	--	--	--	--
1999	--	--	--	--	--	--	--
2000	--	--	--	--	--	--	--
2001	--	--	--	--	--	--	--
2002	--	--	--	--	--	--	--
2003	--	--	--	--	--	--	--
2004	--	--	--	--	--	--	--
2005	--	--	--	--	--	--	--
2006	--	--	--	--	--	--	--
2007	--	--	--	--	--	--	10.7
2008	--	--	--	--	--	--	--
2009	--	--	--	--	--	--	--
2010	--	--	--	--	--	--	7.4
2011	--	--	--	--	--	--	11.2
2012	--	--	--	--	--	--	21.5
2013	--	--	--	--	--	--	30.8
2014	--	--	--	--	--	--	47.0
2015	--	--	--	--	--	--	51.5
2016	--	--	--	--	--	--	49.6
2017	--	--	--	--	--	--	49.5
2018	--	--	--	--	--	--	29.5

2019	--	--	--	--	--	--	14.4
2020	--	--	--	--	--	--	14.4
Subtotal	**28**	**--**	**--**	**--**	**--**	**--**	**8772.7**

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
1985	--	--	--	--	--	160.8	160.8
1986	--	--	--	--	--	508.4	508.4
1987	21	1051.6	--	--	1051.6	295.3	1346.9
1988	66	1710.0	--	--	1710.0	323.5	2033.5
1989	66	1586.8	--	--	1586.8	252.2	1839.0
1990	41	1114.2	--	--	1114.2	286.4	1400.6
1991	52	1242.9	--	--	1242.9	269.5	1512.4
1992	28	817.6	--	--	817.6	279.3	1096.9
1993	21	719.6	--	--	719.6	258.5	978.1
1994	24	989.2	--	--	989.2	111.5	1100.7
1995	18	606.5	--	--	606.5	58.9	665.4
1996	6	186.5	--	--	186.5	324.2	510.7
1997	7	209.1	--	--	209.1	108.1	317.2
1998	5	150.8	--	--	150.8	117.7	268.5
1999	5	189.3	--	--	189.3	126.4	315.7
2000	12	362.7	--	--	362.7	122.7	485.4
2001	12	355.2	--	--	355.2	81.9	437.1
2002	12	378.8	--	--	378.8	154.0	532.8
2003	12	553.5	--	--	553.5	19.5	573.0
2004	12	640.0	--	--	640.0	0.9	640.9
2005	5	612.9	--	--	612.9	102.4	715.3
2006	--	708.9	--	--	708.9	196.3	905.2
2007	--	766.7	--	--	766.7	147.4	914.1
2008	12	862.7	--	--	862.7	179.1	1041.8
2009	24	889.2	--	--	889.2	178.9	1068.1
2010	24	867.7	--	--	867.7	184.4	1052.1
2011	24	922.9	--	--	922.9	177.5	1100.4
2012	24	679.9	--	--	679.9	249.2	929.1
2013	--	551.2	--	--	551.2	287.6	838.8
2014	--	516.1	--	--	516.1	288.8	804.9
2015	--	544.2	--	--	544.2	270.2	814.4
2016	--	363.8	--	--	363.8	207.8	571.6
2017	--	357.2	--	--	357.2	190.7	547.9
2018	--	217.6	--	--	217.6	171.4	389.0
2019	--	201.2	--	--	201.2	25.4	226.6
2020	--	201.5	--	--	201.5	20.7	222.2
2021	--	181.3	--	--	181.3	34.0	215.3
2022	--	167.5	--	--	167.5	9.5	177.0
2023	--	44.1	--	--	44.1	61.8	105.9
Subtotal	**533**	**22520.9**	**--**	**--**	**22520.9**	**6842.8**	**29363.7**

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

Fiscal Year	Quantity	End Item Recurring Flyaway BY 1983 $M	Non End Item Recurring Flyaway BY 1983 $M	Non Recurring Flyaway BY 1983 $M	Total Flyaway BY 1983 $M	Total Support BY 1983 $M	Total Program BY 1983 $M
1985	--	--	--	--	--	137.7	137.7
1986	--	--	--	--	--	420.7	420.7
1987	21	839.8	--	--	839.8	235.8	1075.6
1988	66	1314.1	--	--	1314.1	248.6	1562.7
1989	66	1173.3	--	--	1173.3	186.5	1359.8
1990	41	796.4	--	--	796.4	204.7	1001.1
1991	52	866.5	--	--	866.5	187.8	1054.3
1992	28	555.9	--	--	555.9	189.9	745.8
1993	21	480.5	--	--	480.5	172.6	653.1
1994	24	647.8	--	--	647.8	73.0	720.8
1995	18	390.9	--	--	390.9	38.0	428.9
1996	6	118.7	--	--	118.7	206.5	325.2
1997	7	131.8	--	--	131.8	68.2	200.0
1998	5	94.0	--	--	94.0	73.3	167.3
1999	5	116.5	--	--	116.5	77.8	194.3
2000	12	220.2	--	--	220.2	74.6	294.8
2001	12	213.0	--	--	213.0	49.1	262.1
2002	12	224.7	--	--	224.7	91.4	316.1
2003	12	321.8	--	--	321.8	11.3	333.1
2004	12	361.3	--	--	361.3	0.5	361.8
2005	5	336.7	--	--	336.7	56.3	393.0
2006	--	379.9	--	--	379.9	105.2	485.1
2007	--	402.1	--	--	402.1	77.3	479.4
2008	12	445.4	--	--	445.4	92.5	537.9
2009	24	452.4	--	--	452.4	91.1	543.5
2010	24	434.2	--	--	434.2	92.3	526.5
2011	24	453.6	--	--	453.6	87.2	540.8
2012	24	328.5	--	--	328.5	120.4	448.9
2013	--	261.8	--	--	261.8	136.6	398.4
2014	--	240.9	--	--	240.9	134.8	375.7
2015	--	249.5	--	--	249.5	123.9	373.4
2016	--	163.9	--	--	163.9	93.5	257.4
2017	--	158.0	--	--	158.0	84.4	242.4
2018	--	94.6	--	--	94.6	74.5	169.1
2019	--	85.9	--	--	85.9	10.8	96.7
2020	--	84.5	--	--	84.5	8.7	93.2
2021	--	74.7	--	--	74.7	14.0	88.7
2022	--	67.8	--	--	67.8	3.8	71.6
2023	--	17.5	--	--	17.5	24.6	42.1
Subtotal	**533**	**13599.1**	**--**	**--**	**13599.1**	**4179.9**	**17779.0**

Cost Quantity Information
1507 | Procurement | Weapons Procurement, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned with Quantity) BY 1983 $M
1985	--	--
1986	--	--
1987	21	737.5
1988	66	1068.2
1989	66	927.3
1990	41	796.4
1991	52	901.9
1992	28	541.8
1993	21	480.5
1994	24	647.8
1995	18	390.9
1996	6	118.7
1997	7	131.9
1998	5	94.0
1999	5	116.5
2000	12	220.4
2001	12	213.1
2002	12	224.7
2003	12	321.8
2004	12	779.6
2005	5	827.3
2006	--	--
2007	--	--
2008	12	629.0
2009	24	1015.2
2010	24	1040.4
2011	24	839.5
2012	24	534.7
2013	--	--
2014	--	--
2015	--	--
2016	--	--
2017	--	--
2018	--	--
2019	--	--
2020	--	--
2021	--	--
2022	--	--

2023	--	--
Subtotal	**533**	**13599.1**

Annual Funding TY$
1205 | MILCON | Military Construction, Navy and Marine Corps

Fiscal Year	Total Program TY $M
1984	79.3
1985	82.4
1986	126.3
1987	21.0
1988	18.1
1989	15.4
1990	7.6
1991	70.5
1992	--
1993	--
1994	--
1995	--
1996	--
1997	--
1998	--
1999	--
2000	5.7
2001	1.1
2002	4.2
2003	7.2
2004	--
2005	--
2006	2.8
2007	--
2008	28.7
2009	--
2010	--
2011	--
2012	78.0
2013	280.2
2014	207.6
2015	74.2
2016	--
2017	9.6
Subtotal	**1119.9**

Annual Funding BY$
1205 | MILCON | Military Construction, Navy and Marine Corps

Fiscal Year	Total Program BY 1983 $M
1984	72.8
1985	73.4
1986	109.3
1987	17.6
1988	14.6
1989	12.0
1990	5.7
1991	51.3
1992	--
1993	--
1994	--
1995	--
1996	--
1997	--
1998	--
1999	--
2000	3.6
2001	0.7
2002	2.6
2003	4.3
2004	--
2005	--
2006	1.6
2007	--
2008	15.4
2009	--
2010	--
2011	--
2012	38.9
2013	137.3
2014	99.9
2015	35.1
2016	--
2017	4.4
Subtotal	**700.5**

Low Rate Initial Production

	Initial LRIP Decision	Current Total LRIP
Approval Date	10/30/1983	10/30/1983
Approved Quantity	21	21
Reference	Milestone II, ADM	Milestone II, ADM
Start Year	1983	1983
End Year	1987	1987

Foreign Military Sales

None

Nuclear Cost

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

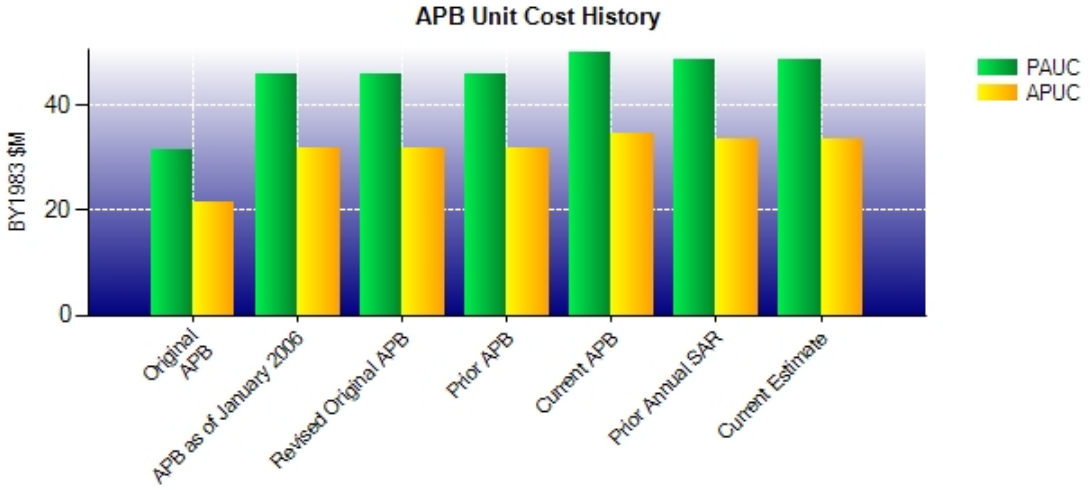
Unit Cost

Unit Cost Report

Unit Cost	BY1983 $M Current UCR Baseline (SEP 2011 APB)	BY1983 $M Current Estimate (DEC 2011 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	27948.2	27252.2	
Quantity	561	561	
Unit Cost	49.819	48.578	-2.49
Average Procurement Unit Cost (APUC)			
Cost	18406.7	17779.0	
Quantity	533	533	
Unit Cost	34.534	33.356	-3.41

Unit Cost	BY1983 $M Revised Original UCR Baseline (JUN 2002 APB)	BY1983 $M Current Estimate (DEC 2011 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	25943.7	27252.2	
Quantity	568	561	
Unit Cost	45.676	48.578	+6.35
Average Procurement Unit Cost (APUC)			
Cost	17155.2	17779.0	
Quantity	540	533	
Unit Cost	31.769	33.356	+5.00

Unit Cost History



		BY1983 $M		TY $M	
	Date	PAUC	APUC	PAUC	APUC
Original APB	JUL 1987	31.428	21.581	42.034	31.162
APB as of January 2006	JUN 2002	45.676	31.769	66.098	51.266
Revised Original APB	JUN 2002	45.676	31.769	66.098	51.266
Prior APB	JUN 2002	45.676	31.769	66.098	51.266
Current APB	SEP 2011	49.819	34.534	74.848	57.492
Prior Annual SAR	DEC 2010	48.729	33.445	72.430	55.064
Current Estimate	DEC 2011	48.578	33.356	72.362	55.091

SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY $M)

Initial PAUC Prod Est	Changes								PAUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
42.034	-0.629	9.302	3.232	0.180	13.765	0.000	4.478	30.328	72.362

Current SAR Baseline to Current Estimate (TY $M)

Initial APUC Prod Est	Changes								APUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
31.162	-0.605	3.969	3.359	0.175	12.317	0.000	4.714	23.929	55.091

SAR Baseline History

Item/Event	SAR Planning Estimate (PE)	SAR Development Estimate (DE)	SAR Production Estimate (PdE)	Current Estimate
Milestone I	N/A	OCT 1977	OCT 1977	OCT 1977
Milestone II	N/A	OCT 1983	OCT 1983	OCT 1983
Milestone III	N/A	MAR 1987	APR 1987	APR 1987
IOC	N/A	DEC 1989	DEC 1989	MAR 1990
Total Cost (TY $M)	N/A	37645.1	35518.5	40595.3
Total Quantity	N/A	740	845	561
Prog. Acq. Unit Cost (PAUC)	N/A	50.872	42.034	72.362

Cost Variance

Cost Variance Summary

Summary Then Year $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Prod Est)	9453.2	25396.9	668.4	35518.5
Previous Changes				
Economic	-39.9	-439.4	-13.7	-493.0
Quantity	-48.0	-6671.1	--	-6719.1
Schedule	--	+1790.1	+23.1	+1813.2
Engineering	-0.8	+93.1	+8.5	+100.8
Estimating	+734.2	+6648.9	+499.0	+7882.1
Other	--	--	--	--
Support	--	+2530.8	--	+2530.8
Subtotal	+645.5	+3952.4	+516.9	+5114.8
Current Changes				
Economic	+9.2	+117.1	+14.1	+140.4
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+3.8	-84.2	-79.5	-159.9
Other	--	--	--	--
Support	--	-18.5	--	-18.5
Subtotal	+13.0	+14.4	-65.4	-38.0
Total Changes	+658.5	+3966.8	+451.5	+5076.8
CE - Cost Variance	10111.7	29363.7	1119.9	40595.3
CE - Cost & Funding	10111.7	29363.7	1119.9	40595.3

Summary Base Year 1983 $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Prod Est)	8434.9	17588.5	532.9	26556.3
Previous Changes				
Economic	--	--	--	--
Quantity	-40.0	-3930.8	--	-3970.8
Schedule	--	--	-1.7	-1.7
Engineering	+1.3	+50.4	+4.2	+55.9
Estimating	+375.2	+3047.6	+203.6	+3626.4
Other	--	--	--	--
Support	--	+1070.7	--	+1070.7
Subtotal	+336.5	+237.9	+206.1	+780.5
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+1.3	-39.3	-38.5	-76.5
Other	--	--	--	--
Support	--	-8.1	--	-8.1
Subtotal	+1.3	-47.4	-38.5	-84.6
Total Changes	+337.8	+190.5	+167.6	+695.9
CE - Cost Variance	8772.7	17779.0	700.5	27252.2
CE - Cost & Funding	8772.7	17779.0	700.5	27252.2

Previous Estimate: December 2010

RDT&E	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	+9.2
Adjustment for current and prior escalation. (Estimating)	-0.4	-0.7
Congressional reduction removing funding for the Global Strike Study in FY 2011. (Estimating)	-5.2	-10.0
Additional funding to support qualification testing for the Joint Fuze Warhead Life Extension program. (Estimating)	+11.7	+24.8
Funding decrease due to refinement of previous estimates for Joint Fuze Warhead Life Extension efforts. (Estimating)	-4.8	-10.3
RDT&E Subtotal	+1.3	+13.0

Procurement	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	+117.1
Adjustment for current and prior escalation. (Estimating)	-15.9	-31.7
Additional funding for the procurement of the Mk5 replacement Arming, Fuzing and Firing (AF&F) for the Joint Warhead Fuze Life Extension Program. (Estimating)	+108.7	+253.0
Realign funding to Operating and Support (O&S) costs for the replacement of rocket motors for the previously delivered 425 missiles. (Estimating)	-132.1	-305.5
Increase in Other Support to include: Funding required for D5 Life Extension (LE) Flight Test support (+$92.7); realignment of funding to Operating and Support (O&S) costs for the replacement of rocket motors for the previously delivered 425 missiles (-$100.1); and refinement of prior submission estimates (-$3.1). (Support)	-4.4	-10.5
Adjustment for current and prior escalation. (Support)	-3.7	-8.0
Procurement Subtotal	-47.4	+14.4

MILCON	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	+14.1
Adjustment for current and prior escalation. (Estimating)	-0.8	-1.7
Addition of three Missile Motor Magazines at the Strategic Weapons Facility Atlantic (SWFLANT). (Estimating)	+4.4	+9.6
Revised project estimates for the Explosive Handling Wharf #2 project at the Strategic Weapons Facility, Pacific (SWFPAC). (Estimating)	-42.1	-87.4
MILCON Subtotal	-38.5	-65.4

Contracts

Appropriation: Procurement

Contract Name	**FY 2008 Production and Deployed System Support (P&DSS)**
Contractor	Lockheed Martin Space Systems
Contractor Location	Sunnyvale, CA 94088
Contract Number, Type	N00030-07-C-0100, CPIF
Award Date	October 01, 2007
Definitization Date	November 30, 2007

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
849.3	N/A	12	1108.3	N/A	12	1295.9	1295.9

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date	-22.5	-9.5
Previous Cumulative Variances	+0.8	-17.1
Net Change	-23.3	+7.6

Cost And Schedule Variance Explanations

The unfavorable net change in the cost variance is due to FY 2008 Life Extension (LE) Development - Application Specific Integrated Circuit (ASIC) respin labor requirements to recover and maintain package Critical Design Review (CDR) and acceptance test requirements changes driving Special Test Equipment (STE) development.

The favorable net change in the schedule variance is due to the following reasons: 1) Schedule recovery for the third stage Gas Hydraulic Assemblies (GHAs), the High Voltage Detonators (HVDs) and, 2) Partial schedule recovery for the Test Missile Kit (TMK) Destruct Interlock/Destruct Acceleration Switch (DI/DAS) manufacturing builds.

Contract Comments

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

The difference between the initial contract price target and the current contract price target is due to contract modifications for the following efforts: Linatron Storage; Test Missile Kit (TMK) procurement; FY 2009 D5 Life Extension (LE) development; LE Strategic Program Alteration (SPALT) kits; Igniter Redesign; partial termination of D5 LE Enhanced Ground Test efforts; and a reduction in SPALT kit production quantities.

The Estimated Price at Completion (EPAC) increase of $28.5M is due to D5 Life Extension (LE) cost growth related to the following activities: ASIC respin efforts; STE design changes; efforts to support pre-production unit failures at Goodrich; and Interlocks Acceptance Test requirements.

The Contractor's Estimated Price at Completion is more than the current Contract Price by $187.6M due to the LE reprogramming reported to the Assistant Secretary of the Navy (ASN) (Research, Development & Acquisition (RD&A)) and the inclusion of performance incentive fees.

Appropriation: Procurement

Contract Name	**FY 2009 Production and Deployed System Support (P&DSS)**
Contractor	Lockheed Martin Space Systems
Contractor Location	Sunnyvale, CA 94088
Contract Number, Type	N00030-08-C-0100, CPIF/CPFF
Award Date	October 01, 2008
Definitization Date	December 01, 2008

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
739.4	N/A	0	752.7	N/A	0	765.1	765.1

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date	+7.7	-6.5
Previous Cumulative Variances	+7.3	-4.5
Net Change	+0.4	-2.0

Cost And Schedule Variance Explanations

The favorable net change in the cost variance is due to cross utilization of resources across multiple contracts for the Linear Ordnance System (LOS) production.

The unfavorable net change in the schedule variance is due to the following: 1) Strategic Weapons Facility, Pacific (SWFPAC) hardware delayed due to prototype testing discrepancies on the Temperature Control Unit; 2) Hardware delivery delay for the mechanical and electrical acquisition; and 3) Umbilical supplier quality issues caused by production delays at Lockheed Martin.

Contract Comments

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

The difference between the initial contract price target and the current contract price target is due to definitization efforts for the Alternate Release Assembly (ARA); specification changes incorporated for the Extended Navy Test Bed (ENTB) and partial terminations for enhanced telemetry efforts and new builds.

The Estimated Price at Completion (EPAC) decrease of $6.9M is due to a contract modification terminating new build missiles and efficiencies realized through cross-utilization of resources for the Linear Ordnance System (LOS) production.

The Contractor's Estimated Price at Completion was more than the current Contract Price by $12.4M due to the inclusion of performance incentives fees offset by the Estimated Price at Completion reduction above.

Appropriation: Procurement

Contract Name	**FY 2009 TRIDENT II Guidance**
Contractor	Charles Stark Draper Laboratory
Contractor Location	Cambridge, MA 02139
Contract Number, Type	N00030-09-C-0011, CPIF
Award Date	January 31, 2009
Definitization Date	January 31, 2009

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
146.2	N/A	N/A	146.2	N/A	N/A	146.2	146.2

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date	+0.7	-4.1
Previous Cumulative Variances	-0.9	+0.6
Net Change	+1.6	-4.7

Cost And Schedule Variance Explanations

The favorable net change in the cost variance is due to costs tracking to plan.

The unfavorable net change in the schedule variance is due to the additional rework required on various components, on the Input Axis Bearing tests, and a slow down in production to implement a titanium shaft coating. Sufficient float exists to ensure minimal impact to production needs though planned schedule deliveries were minimally impacted.

Contract Comments

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

Appropriation: Procurement

Contract Name	**FY 2010 TRIDENT II Guidance**
Contractor	Charles Stark Draper Laboratory
Contractor Location	Boston, MA 02139
Contract Number, Type	N00030-10-C-0015, CPIF
Award Date	February 04, 2010
Definitization Date	February 04, 2010

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
131.1	N/A	N/A	131.1	N/A	N/A	131.1	131.1

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date	+1.2	-6.2
Previous Cumulative Variances	+2.1	-5.4
Net Change	-0.9	-0.8

Cost And Schedule Variance Explanations

The unfavorable net change in the cost variance is due to less than planned engineering and production support due to manufacturing delays.

The unfavorable net change in the schedule variance is due to late Circuit Card Assembly (CCA) material receipts and the delay of Long Lead Material (LLM) CCA build schedule. The material deliveries were planned in advance of the requirement date of May 2011. Materials were expedited and received by May 2011. The CCA build schedule was replanned to align with current program requirements so no schedule impact is expected for the Mk6 Life Extension (LE) Strategic Program Alteration (SPALT).

Appropriation: Procurement

Contract Name	**FY 2010 Production and Deployed System Support (P&DSS)**
Contractor	Lockheed Martin Space Systems
Contractor Location	Sunnyvale, CA 94088
Contract Number, Type	N00030-10-C-0100, CPIF/CPFF
Award Date	October 01, 2009
Definitization Date	June 04, 2010

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
867.4	N/A	0	857.9	N/A	0	881.6	881.6

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date	+19.7	+0.5
Previous Cumulative Variances	+14.0	-1.7
Net Change	+5.7	+2.2

Cost And Schedule Variance Explanations

The favorable net change in the cost variance is due to the following efforts: 1) delayed production start for the Test Missile Kit (TMK) Destruct Interlocks/Destruct Acceleration Switch (DI/DAS) due to a reprioritization of efforts concentrated on the FY 2009 Production and Deployed System Support (P&DSS) Equipment Section contract; 2) Strategic Weapons Facility, Atlantic (SWFLANT) cable shop manufacturing efficiencies realized as the result of implementing recommendations from Continuous Improvement (CI) projects; and 3) reduced support for Alternate Release Assembly (ARA) efforts required for the Navigation Guidance and Control (NG&C) Flight Sciences due to less problems encountered in flight tests.

The favorable net change in the schedule variance is due to schedule recovery as a result of completing the ARA development Missile Design Compliance Reports (MDCRs) and the early start at SWFLANT for the FY 2010 Test Missile Kit (TMK) and D5 cable fabrication efforts.

Contract Comments

The difference between the initial contract price target and the current contract price target is due to receipt of contract modifications which changed contract type from Level of Effort (LOE) to completion tasks which provided additional equivalent units as a result of LOE target cost/fee adjustments.

The Estimated Price at Completion decrease of $11.2M is due to the following:
1. Less Strategic Weapons Facility, Pacific (SWFPAC) missile processing support due to less rework/repair required;
2. Less ARA development required for NG&C Flight Sciences due to less problems encountered during flight tests;
3. SWFLANT cable shop manufacturing efficiencies;
4. Factory Management Team (FMT) Production Support reprioritization to other contracts;
5. Santa Cruz facility production support service skill mix and cross utilization efficiencies across multiple fiscal year contracts, and;
6. Less ARA Production Quality Engineering efforts due to less high level technical issues to resolve.

The Contractor's Estimated Price at Completion is more than the current contract price by $23.6M due to inclusion of performance incentive fees.

Appropriation: Procurement

Contract Name	**FY 2011 TRIDENT II Guidance**
Contractor	Charles Stark Draper Laboratory
Contractor Location	Cambridge, MA 02139
Contract Number, Type	N00030-11-C-0005, CPIF
Award Date	December 28, 2010
Definitization Date	December 28, 2010

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
142.9	N/A	N/A	413.7	N/A	N/A	413.7	413.7

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date	+1.2	-1.0
Previous Cumulative Variances	--	--
Net Change	+1.2	-1.0

Cost And Schedule Variance Explanations

The favorable cumulative cost variance is due to underruns on the Guidance System Development control accounts.

The unfavorable cumulative schedule variance is due to late receipt of material for internal spares and will have no impact to software integration nor system certification.

Contract Comments

The difference between the initial contract price target and the current contract price target is due to the exercising of contract modifications which added the FY 2012 option Contract Line Item Numbers (CLINs).

This is the first time this contract is being reported.

Appropriation: Procurement

Contract Name	**FY 2011 TRIDENT II Guidance Repair**
Contractor	Charles Stark Draper Laboratory
Contractor Location	Cambridge, MA 02139
Contract Number, Type	N00030-11-C-0014, FPIF/FFP
Award Date	February 10, 2011
Definitization Date	June 22, 2011

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
178.5	181.9	N/A	178.5	181.9	N/A	178.5	178.5

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date	+0.5	0.0
Previous Cumulative Variances	--	--
Net Change	+0.5	+0.0

Cost And Schedule Variance Explanations

The favorable cumulative cost variance is due to the contract being planned to be completed within budget.

Contract Comments

This is the first time this contract is being reported.

Current Contract Ceiling Price contains both the Fixed Price Incentive Firm (FPIF) and Firm Fixed Price (FFP) efforts. FFP efforts are not included in the variance data reported above.

Appropriation: Procurement

Contract Name	**FY 2011 Production and Deployed System Support (P&DSS)**
Contractor	Lockheed Martin Space Systems
Contractor Location	Sunnyvale, CA 94088
Contract Number, Type	N00030-11-C-0100, CPIF/CPFF
Award Date	October 01, 2010
Definitization Date	August 16, 2011

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
924.5	N/A	N/A	944.8	N/A	N/A	934.6	934.6

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date	+12.3	-1.4
Previous Cumulative Variances	--	--
Net Change	+12.3	-1.4

Cost And Schedule Variance Explanations

The favorable cumulative cost variance is due to the following reasons: 1) Missile Processing efforts at the Strategic Weapons Facility, Pacific (SWFPAC) experienced fewer repair issues than normally experienced; 2) Favorable labor rates for the Factory Management Team (FMT); 3) Lower support level for the Test Missile Kit (TMK) services due to the completion of prior year contracts efforts; 4) Reduced production support for TMK due to a delay in hardware deliveries; 5) Less than anticipated Simulated Flight Test Equipment (SFTE) integration issues with D5 Life Extension (LE) development; 6) Fewer resources available to support the D5 LE Development Technical Management and Subsystem Integration efforts as resources were diverted to support Demonstration and Shakedown Operation (DASO) efforts in FY 2012 and 7) D5 LE development labor efficiencies realized during the completion of the Missile Test DASO and Proofing Test Missile (PTM) development test procedures.

The unfavorable cumulative schedule variance is due to D5 LE Development delays for the following efforts: 1) SFTE Missile Test System preparation tasks due to late receipt of Interlocks Application-Specific Integrated Circuit (ASIC) Field Programmable Gate Array (FPGA) designs; and 2) a delay in Flight Controls Software Production Evaluation Package (PEP) integration testing with the Test Software Console (TSC) as the necessary PEP was not available.

Contract Comments

The difference between the initial contract price target and the current contract price target is due to receipt of contract modifications and the exercise of Contract Line Item Number (CLIN) options.

This is the first time this contract is being reported.

Deliveries and Expenditures

Deliveries To Date	Plan To Date	Actual To Date	Total Quantity	Percent Delivered
Development	28	28	28	100.00%
Production	425	425	533	79.74%
Total Program Quantities Delivered	453	453	561	80.75%

Expenditures and Appropriations (TY $M)			
Total Acquisition Cost	40595.3	Years Appropriated	35
Expenditures To Date	31813.9	Percent Years Appropriated	76.09%
Percent Expended	78.37%	Appropriated to Date	34507.0
Total Funding Years	46	Percent Appropriated	85.00%

This reflects actual Deliveries and Expenditures through January 24, 2012.

Operating and Support Cost

Assumptions And Ground Rules

The Cost Elements are those included for Milestone II providing the Strategic Weapon System (SWS) subsystems' (launcher, fire control, navigation, test instrumentation, missile checkout, missile and guidance) average annual support costs from FY 2000 through FY 2042 for the OHIO Class (for a total of 43 years of Operating and Support life). The source of the costs displayed is the Program Manager's estimate as reflected in the FY 2013 President's Budget through FY 2017 and extended through FY 2042. The intermediate maintenance costs are for operating the Strategic Weapons Facilities. Depot maintenance costs are for repair of SWS equipments at contractors' facilities. Sustaining support costs are for sustaining engineering and acquisition of replacement support equipment, modification kits and spare parts for shipboard systems and post production flight hardware. Indirect costs are for base operating support (BOS). Responsibility for BOS was transferred to Commander, Navy Installations Command (CNIC) beginning in FY 2004 and therefore is no longer included in FY 2004 and subsequent years.

Operating and Support Costs for TRIDENT II include 1st, 2nd and 3rd stage rocket motor disposal. At this time, these are the only disposal/demilitarization costs anticipated for TRIDENT II. Any further disposal/demilitarization costs will be determined once final decisions have been made in regards to the OHIO Replacement Program (ORP).

Operating and Support costs and assumptions for the antecedent system TRIDENT I (C-4) are not available.

Costs BY1983 $M		
Cost Element	**TRIDENT II MISSILE Average Annual Cost for all Missiles**	**TRIDENT I (C-4)**
Unit-Level Manpower	--	--
Unit Operations	--	--
Maintenance	138.0	--
Sustaining Support	447.0	--
Continuing System Improvements	--	--
Indirect Support	1.9	--
Other	--	--
Total Unitized Cost (Base Year 1983 $)	586.9	--

Total O&S Costs $M	TRIDENT II MISSILE	TRIDENT I (C-4)
Base Year	25387.0	--
Then Year	58755.0	--