



Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-516



SSN 774 Virginia Class Submarine (SSN 774)

As of FY 2011 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

VIRGINIA CLASS SUBMARINE (SSN 774) (VIRGINIA CLASS SUB)

DoD Component

Navy

Responsible Office

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References

SAR Baseline (Development Estimate)

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated June 30, 1995

Approved APB

DAE Approved Acquisition Program Baseline (APB) dated May 31, 2005

Mission and Description

The VIRGINIA Class (SSN 774) Submarine Program is bringing forward a critical national security asset designed to flexibly address the unique multi-mission requirements of the post-Cold War era. Capable of performing traditional submarine missions, dominating the littoral battle space and adapting to future requirements, the VIRGINIA Class Submarine will satisfy any assigned role well into the Twenty-First Century. Intended to replace the fleet of SSN 688 Class submarines, the VIRGINIA Class Submarine is characterized by state-of-the-art stealth, enhanced features for special operations forces, and cost effective Command, Control, Communication and Intelligence capability. With an array of armament including the MK48 Advanced Capability (ADCAP) torpedo and cruise missile vertical launch capability, the VIRGINIA Class Submarine maintains total undersea superiority at an affordable cost.

Executive Summary

As of December 2009, the first six ships of the class have been delivered to the Navy and USS VIRGINIA (SSN 774) is underway on the first full length deployment for the class. The program completed the remaining events of Initial Operational Test and Evaluation (IOT&E) in March 2009. Subsequently, Commander, Operational Test and Evaluation Force released the Initial Operational Test and Evaluation Report in June 2009 which found the VIRGINIA Class operationally effective and operationally suitable, and recommended Fleet introduction. Director, Operational Test and Evaluation (DOT&E) released the Beyond Low Rate Initial Production Report in November 2009.

Since the last report, the fifth ship of the class, USS NEW HAMPSHIRE (SSN 778) delivered to the Navy in August 2008 with a construction span almost one year shorter than the previous VIRGINIA Class ship, USS NORTH CAROLINA (SSN 777). NEW HAMPSHIRE was the first VIRGINIA Class ship to be built in four sections, a significant improvement from the ten sections required for the lead ship. This achievement reflects advances in the shipbuilders' module-handling capabilities, which can now move sections weighing 1,800 tons, up from the previous maximum of just under 1,600 tons. Most recently, NEW MEXICO (SSN 779) was delivered to the Navy at Newport News, VA on December 29, 2009, four months early to her contract delivery date. These, and the remaining ships under construction are demonstrating improved cost and schedule efficiency resulting from construction performance initiatives incorporated over the last several years. Significant improvement in production processes continues to drive near-term cost reduction progress and acceleration of delivery schedules. To further illustrate the impact of shipbuilder learning and improved production processes, MISSOURI (SSN 780) achieved float off on November 20, at 57 months after start of construction. This was the earliest yet achieved by the VIRGINIA program bettering the previous fastest float-off of 59 months for NEW MEXICO (SSN 779). MISSOURI is projected to deliver well ahead of the contract delivery date.

On December 22, 2008 the Navy awarded a contract to General Dynamics-Electric Boat (and Northrop Grumman Newport News through the teaming agreement) for the construction of eight VIRGINIA Class Submarines from FY 2009 through FY 2013. The Block III Construction Contract meets the cost reduction goals resulting from Design for Affordability initiatives. These initiatives were the cornerstone of the program's commitment to lowering the price of VIRGINIA Class ships to \$2B (FY 2005 \$) by FY 2012.

The Program kicked-off efforts to reduce total ownership costs, a key component of planning for the Block IV procurement beginning in FY2014. The VIRGINIA Class Program is one of four Navy pilot programs directly addressing Reduction of Total Ownership Cost (RTOC) initiatives, which include efforts to maximize operational availability (Ao) and minimize operation and sustainment (O&S) costs. The Block IV RTOC effort is organized around five Integrated Product Teams (IPT): Acquisition, Support, Manning, Maintenance, and Lifecycle. The Acquisition IPT is essentially a continuation of Block III Design for Affordability (DFA) initiatives, with increased emphasis on reduced lifecycle costs.

Capping a notable 2008, the program received the 2008 David Packard Excellence in Acquisition Award. The award recognized the VIRGINIA Class Program for reducing life-cycle costs, making the acquisition system more efficient, responsive, and timely, integrating defense with the commercial base, and promoting continuous improvement of the acquisition process. The VIRGINIA Class Program Office was also recognized in 2008 with the DoD Value Engineering Navy Team Award for 2007, an acknowledgment of the program's achievements in cost reduction, quality improvement and mission capability.

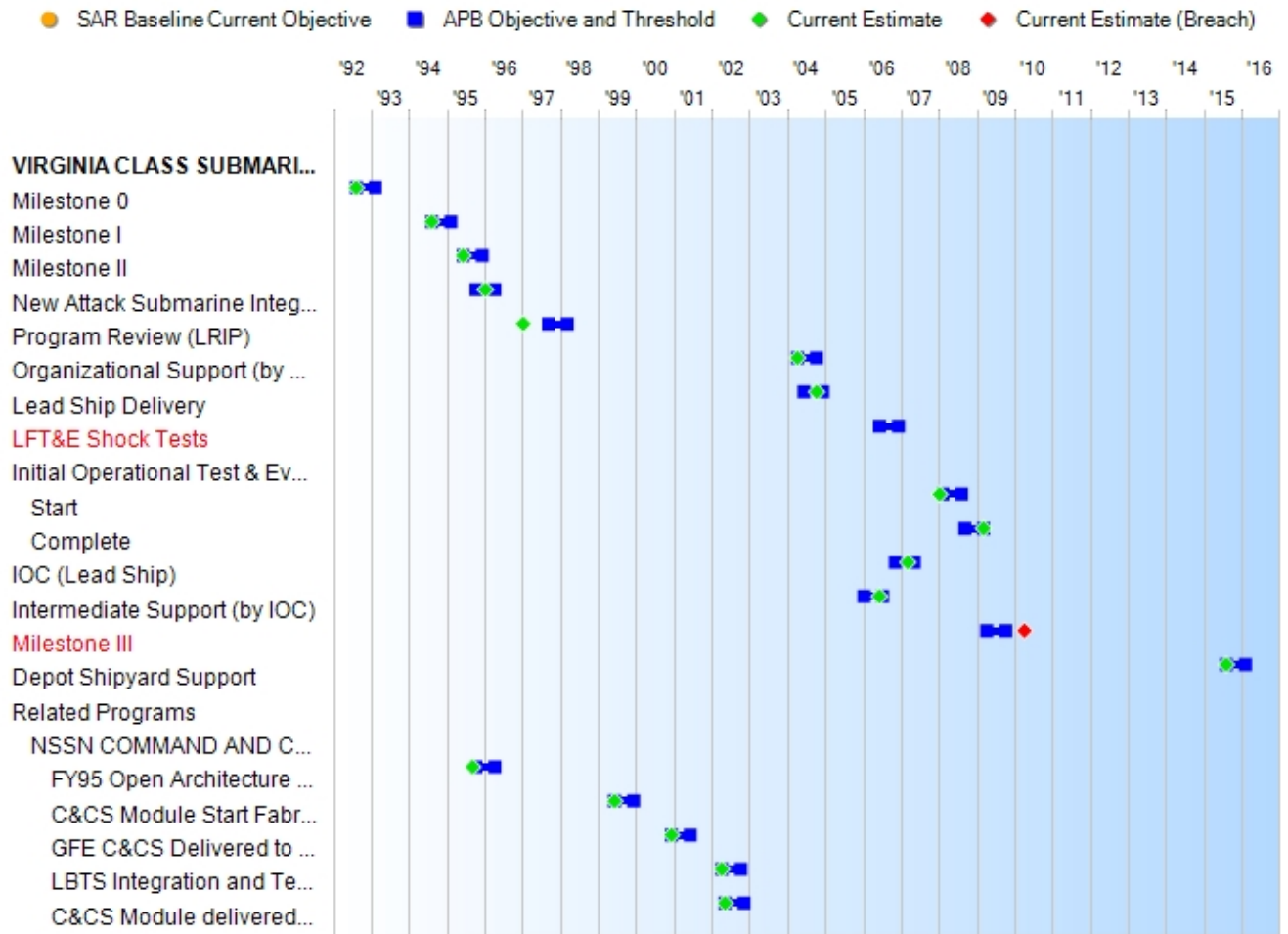
Key events for 2010 include delivery to the Navy of the aforementioned MISSOURI (SSN 780) by mid-year with Commissioning on July 31, Commissioning of NEW MEXICO (SSN 779) on March 27 and float off of CALIFORNIA (SSN 781) in November. There are no significant software-related issues on this program at this time.

Threshold Breaches

APB Breaches		Explanation of Breach	
Schedule	<input checked="" type="checkbox"/>	Milestone III shifted from April 2009 to April 2010 to ensure the Navy's Service Cost Position for the program would reflect the new 30 Year Shipbuilding Plan. An Acquisition Program Baseline (APB) and Program Deviation Report will be submitted to reflect this change in Spring 2010.	
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"/>	This program reflects a significant Nunn-McCurdy breach to the original baseline that was first reported in the December 2005 SAR. The supporting breach information and explanations can be found in the Unit Cost Report section of that SAR.	
Unit Cost	PAUC		<input type="checkbox"/>
	APUC		<input type="checkbox"/>

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

Schedule



Schedule Events				
Events	SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Current Estimate
Milestone 0	Aug 1992	Aug 1992	Feb 1993	Aug 1992
Milestone I	Aug 1994	Aug 1994	Feb 1995	Aug 1994
Milestone II	Jun 1995	Jun 1995	Dec 1995	Jun 1995
New Attack Submarine Integrated Product and Process Development Contract Award	Oct 1995	Oct 1995	Apr 1996	Jan 1996
Program Review (LRIP)	Sep 1997	Sep 1997	Mar 1998	Jan 1997
Organizational Support (by Fast Cruise)	Apr 2004	Apr 2004	Oct 2004	Apr 2004
Lead Ship Delivery	Jun 2004	Jun 2004	Dec 2004	Oct 2004
LFT&E Shock Tests	Oct 2004	Jun 2006	Dec 2006	N/A ¹
Initial Operational Test & Evaluation				
Start	Jul 2004	Feb 2008	Aug 2008	Jan 2008
Complete	Oct 2004	Sep 2008	Mar 2009	Mar 2009
IOC (Lead Ship)	Oct 2005	Nov 2006	May 2007	Mar 2007
Intermediate Support (by IOC)	Oct 2005	Jan 2006	Jul 2006	Jun 2006
Milestone III	Oct 2007	Apr 2009	Oct 2009	Apr 2010 ¹
Depot Shipyard Support	Aug 2015	Aug 2015	Feb 2016	Aug 2015
Related Programs				
NSSN COMMAND AND CONTROL SYSTEM				
FY95 Open Architecture Demo Complete	Oct 1995	Oct 1995	Apr 1996	Sep 1995
C&CS Module Start Fabrication	Jun 1999	Jun 1999	Dec 1999	Jun 1999
GFE C&CS Delivered to Shipyard	Dec 2000	Dec 2000	Jun 2001	Dec 2000
LBTS Integration and Test Complete	Apr 2002	Apr 2002	Oct 2002	Apr 2002
C&CS Module delivered to ship	May 2002	May 2002	Nov 2002	May 2002

¹ APB Breach

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

Change Explanations

(Ch-1) Initial Operational Test and Evaluation (IOT&E) Complete shifted from October 2008 to March 2009 to reflect actual date IOT&E completed.

(Ch-2) Milestone III shifted from April 2009 to April 2010 to ensure the Navy's Service Cost Position for the program would reflect the new 30 Year Shipbuilding Plan.

Acronyms and Abbreviations

C&CS - Command and Control System
GFE - Government Furnished Equipment
IOC - Initial Operational Capability
LBTS - Land Based Test Site
LFT&E - Live Fire Test and Evaluation
LRIP - Low Rate Initial Production
NSSN - New Attack Submarine

Performance

Performance Characteristics				
SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Demonstrated Performance	Current Estimate
Radiated Noise				
Interoperability				
N/A	100% of top level IERs.	100% of top level IERs designated critical	TBD	100% of top level IERs.

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

Change Explanations

None

Track to Budget

RDT&E			
Appn	BA	PE	
Navy	1319	03	0603561N
	Project	Name	
	F2177	NEW DESIGN SSN HM&E (NSSN UNIQUE) (Sunk)	
Navy	1319	03	0603564N
	Project	Name	
	F2200	Ship Preliminary Design (Sunk)	
Navy	1319	03	0603570N
	Project	Name	
	S2158	NUCLEAR PROPULSION (Sunk)	
Navy	1319	04	0604558N
	Project	Name	
	F1947	NEW DESIGN SSN HM&E and Combat Systems	
	F1950	NEW DESIGN SSN HM&E and Combat Systems	
	F2429	NEW DESIGN SSN HM&E and Combat Systems (Sunk)	
	F2430	NEW DESIGN SSN HM&E and Combat Systems (Sunk)	
	F2644	NEW DESIGN SSN HM&E and Combat Systems (Sunk)	
	F2645	NEW DESIGN SSN HM&E and Combat Systems (Sunk)	
	F2887	NEW DESIGN SSN HM&E and Combat Systems (Sunk)	
	F2888	NEW DESIGN SSN HM&E and Combat Systems (Sunk)	
	F9231	NEW DESIGN SSN HM&E and Combat Systems (Sunk)	
	F9232	NEW DESIGN SSN HM&E and Combat Systems (Sunk)	
	F9386	NEW DESIGN SSN HM&E and Combat Systems (Sunk)	
	F9387	NEW DESIGN SSN HM&E and Combat Systems (Sunk)	
	F9999	NEW DESIGN SSN HM&E and Combat Systems	
Navy	1319	04	0604567N
	Project	Name	
	F2199	Ship Contract Design (Sunk)	

Procurement

Appn	BA	PE	
Navy	1810	01	0204281N
	Line Item	Name	
	0942	VA Class Support Equipment	
Navy	1611	02	0204281N
	Line Item	Name	
	2013	New SSN (NSSN-1)	
Navy	1611	05	0204281N
	Line Item	Name	
	5110	Outfitting and Post Delivery	(Shared)
	5300	Completion of PY Shipbuilding Programs	(Shared)

Cost and Funding

Cost Summary

Total Acquisition Cost							
Appropriation	BY 1995 \$M			BY 1995 \$M	TY \$M		
	SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Current Estimate	SAR Baseline Development Estimate	Current APB Development Objective	Current Estimate
RDT&E	3405.0	4605.4	5065.9	4861.4	3814.0	5106.3	5461.6
Procurement	42228.1	60642.9	66707.2	58123.0	67266.8	77365.5	85932.3
Flyaway	--	--	--	57475.5	--	--	84972.3
Recurring	--	--	--	55960.5	--	--	83331.1
Non Recurring	--	--	--	1515.0	--	--	1641.2
Support	--	--	--	647.5	--	--	960.0
Other Support	--	--	--	0.0	--	--	0.0
Initial Spares	--	--	--	647.5	--	--	960.0
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	45633.1	65248.3	N/A	62984.4	71080.8	82471.8	91393.9

Total Quantity			
Quantity	SAR Baseline Development Estimate	Current APB Development	Current Estimate
RDT&E		0	0
Procurement		30	30
Total		30	30

Cost and Funding

Funding Summary

Appropriation Summary									
FY 2011 President's Budget / December 2009 SAR (TY\$ M)									
Appropriation	Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	To Complete	Total
RDT&E	4538.6	179.9	150.0	148.4	141.7	144.3	158.7	0.0	5461.6
Procurement	31149.1	4047.4	5219.4	4833.1	4928.7	6214.0	6402.7	23137.9	85932.3
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 2011 Total	35687.7	4227.3	5369.4	4981.5	5070.4	6358.3	6561.4	23137.9	91393.9
PB 2009 Total	35658.9	4319.2	5593.2	5071.6	5281.5	6586.4	6565.1	22889.3	91965.2
Delta	28.8	-91.9	-223.8	-90.1	-211.1	-228.1	-3.7	248.6	-571.3

Quantity Summary										
FY 2011 President's Budget / December 2009 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	To Complete	Total
Development	0	0	0	0	0	0	0	0	0	0
Production	0	11	1	2	2	2	2	2	8	30
PB 2011 Total	0	11	1	2	2	2	2	2	8	30
PB 2009 Total	0	11	1	2	2	2	2	2	8	30
Delta	0	0	0	0	0	0	0	0	0	0

Cost and Funding

Annual Funding By Appropriation

Annual Funding							
1319 RDT&E Research, Development, Test, and Evaluation, Navy							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1992	--	--	--	--	--	--	22.8
1993	--	--	--	--	--	--	66.3
1994	--	--	--	--	--	--	365.3
1995	--	--	--	--	--	--	455.7
1996	--	--	--	--	--	--	429.0
1997	--	--	--	--	--	--	454.2
1998	--	--	--	--	--	--	382.4
1999	--	--	--	--	--	--	308.4
2000	--	--	--	--	--	--	275.4
2001	--	--	--	--	--	--	237.3
2002	--	--	--	--	--	--	218.8
2003	--	--	--	--	--	--	242.2
2004	--	--	--	--	--	--	155.4
2005	--	--	--	--	--	--	153.1
2006	--	--	--	--	--	--	166.3
2007	--	--	--	--	--	--	191.2
2008	--	--	--	--	--	--	233.5
2009	--	--	--	--	--	--	181.3
2010	--	--	--	--	--	--	179.9
2011	--	--	--	--	--	--	150.0
2012	--	--	--	--	--	--	148.4
2013	--	--	--	--	--	--	141.7
2014	--	--	--	--	--	--	144.3
2015	--	--	--	--	--	--	158.7
Subtotal	--	--	--	--	--	--	5461.6

Annual Funding 1319 RDT&E Research, Development, Test, and Evaluation, Navy							
Fiscal Year	Quantity	BY 1995 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1992	--	--	--	--	--	--	23.9
1993	--	--	--	--	--	--	68.0
1994	--	--	--	--	--	--	367.5
1995	--	--	--	--	--	--	449.8
1996	--	--	--	--	--	--	416.4
1997	--	--	--	--	--	--	435.5
1998	--	--	--	--	--	--	363.7
1999	--	--	--	--	--	--	289.9
2000	--	--	--	--	--	--	255.1
2001	--	--	--	--	--	--	216.9
2002	--	--	--	--	--	--	198.0
2003	--	--	--	--	--	--	216.0
2004	--	--	--	--	--	--	134.8
2005	--	--	--	--	--	--	129.4
2006	--	--	--	--	--	--	136.3
2007	--	--	--	--	--	--	153.0
2008	--	--	--	--	--	--	183.5
2009	--	--	--	--	--	--	140.8
2010	--	--	--	--	--	--	138.2
2011	--	--	--	--	--	--	113.7
2012	--	--	--	--	--	--	110.6
2013	--	--	--	--	--	--	103.9
2014	--	--	--	--	--	--	104.0
2015	--	--	--	--	--	--	112.5
Subtotal	--	--	--	--	--	--	4861.4

Current Future Years Defense Plan (FYDP) funding includes these projects from BA 04 PE 0604558:
Project F1947 New Design Hull Mechanical & Electrical (HM&E)
Project F1950 New Design Combat Systems
Project F9999 Congressional Adds

Annual Funding 1611 Procurement Shipbuilding and Conversion, Navy							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1996	--	571.0	--	219.3	790.3	--	790.3
1997	--	533.1	--	242.6	775.7	--	775.7
1998	1	1628.7	--	840.9	2469.6	--	2469.6
1999	1	1882.0	--	165.6	2047.6	--	2047.6
2000	--	744.5	--	--	744.5	--	744.5
2001	1	1598.6	--	90.8	1689.4	--	1689.4
2002	1	2422.7	--	60.8	2483.5	6.0	2489.5
2003	1	2407.9	--	14.3	2422.2	8.4	2430.6
2004	1	2715.1	--	6.9	2722.0	2.0	2724.0
2005	1	2602.2	--	--	2602.2	19.4	2621.6
2006	1	2586.2	--	--	2586.2	15.2	2601.4
2007	1	2627.8	--	--	2627.8	0.1	2627.9
2008	1	3238.6	--	--	3238.6	32.2	3270.8
2009	1	3652.7	--	--	3652.7	22.2	3674.9
2010	1	4018.2	--	--	4018.2	14.7	4032.9
2011	2	5182.7	--	--	5182.7	13.0	5195.7
2012	2	4780.0	--	--	4780.0	17.6	4797.6
2013	2	4823.5	--	--	4823.5	26.7	4850.2
2014	2	6180.7	--	--	6180.7	26.8	6207.5
2015	2	6356.2	--	--	6356.2	35.6	6391.8
2016	2	6112.0	--	--	6112.0	26.4	6138.4
2017	2	5841.3	--	--	5841.3	33.5	5874.8
2018	2	4892.4	--	--	4892.4	31.9	4924.3
2019	2	4953.5	--	--	4953.5	31.9	4985.4
2020	--	201.1	--	--	201.1	31.9	233.0
2021	--	92.3	--	--	92.3	31.9	124.2
2022	--	137.3	--	--	137.3	31.7	169.0
2023	--	149.6	--	--	149.6	25.1	174.7
2024	--	152.6	--	--	152.6	16.4	169.0
2025	--	147.8	--	--	147.8	14.3	162.1
2026	--	98.8	--	--	98.8	0.3	99.1
Subtotal	30	83331.1	--	1641.2	84972.3	515.2	85487.5

Annual Funding 1611 Procurement Shipbuilding and Conversion, Navy							
Fiscal Year	Quantity	BY 1995 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1996	--	548.1	--	210.6	758.7	--	758.7
1997	--	504.1	--	229.3	733.4	--	733.4
1998	1	1506.1	--	777.5	2283.6	--	2283.6
1999	1	1713.0	--	150.8	1863.8	--	1863.8
2000	--	660.9	--	--	660.9	--	660.9
2001	1	1371.8	--	78.0	1449.8	--	1449.8
2002	1	2067.3	--	51.9	2119.2	5.1	2124.3
2003	1	1942.3	--	11.5	1953.8	6.8	1960.6
2004	1	2115.0	--	5.4	2120.4	1.6	2122.0
2005	1	1946.0	--	--	1946.0	14.5	1960.5
2006	1	1874.1	--	--	1874.1	11.0	1885.1
2007	1	1837.6	--	--	1837.6	0.1	1837.7
2008	1	2213.8	--	--	2213.8	22.0	2235.8
2009	1	2457.7	--	--	2457.7	15.0	2472.7
2010	1	2666.3	--	--	2666.3	9.7	2676.0
2011	2	3385.5	--	--	3385.5	8.4	3393.9
2012	2	3070.7	--	--	3070.7	11.3	3082.0
2013	2	3046.8	--	--	3046.8	16.9	3063.7
2014	2	3838.9	--	--	3838.9	16.6	3855.5
2015	2	3881.9	--	--	3881.9	21.7	3903.6
2016	2	3670.3	--	--	3670.3	15.9	3686.2
2017	2	3449.1	--	--	3449.1	19.8	3468.9
2018	2	2840.6	--	--	2840.6	18.5	2859.1
2019	2	2828.0	--	--	2828.0	18.2	2846.2
2020	--	112.9	--	--	112.9	17.9	130.8
2021	--	50.9	--	--	50.9	17.7	68.6
2022	--	74.5	--	--	74.5	17.2	91.7
2023	--	79.8	--	--	79.8	13.4	93.2
2024	--	80.1	--	--	80.1	8.6	88.7
2025	--	76.3	--	--	76.3	7.3	83.6
2026	--	50.1	--	--	50.1	0.2	50.3
Subtotal	30	55960.5	--	1515.0	57475.5	315.4	57790.9

Cost Quantity Information 1611 Procurement Shipbuilding and Conversion, Navy		
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 1995 \$M
1996	--	--
1997	--	--
1998	1	2147.4
1999	1	2367.4
2000	--	--
2001	1	1920.2
2002	1	2028.2
2003	1	1823.9
2004	1	1816.3
2005	1	1754.5
2006	1	1792.3
2007	1	1913.3
2008	1	1882.0
2009	1	1974.6
2010	1	1878.4
2011	2	3607.4
2012	2	3446.7
2013	2	3428.8
2014	2	3499.9
2015	2	3505.8
2016	2	3697.4
2017	2	3771.3
2018	2	3843.8
2019	2	3860.9
2020	--	--
2021	--	--
2022	--	--
2023	--	--
2024	--	--
2025	--	--
2026	--	--
Subtotal	30	55960.5

Annual Funding 1810 Procurement Other Procurement, Navy							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2005	--	--	--	--	--	12.5	12.5
2006	--	--	--	--	--	44.1	44.1
2007	--	--	--	--	--	47.0	47.0
2008	--	--	--	--	--	39.7	39.7
2009	--	--	--	--	--	48.0	48.0
2010	--	--	--	--	--	14.5	14.5
2011	--	--	--	--	--	23.7	23.7
2012	--	--	--	--	--	35.5	35.5
2013	--	--	--	--	--	78.5	78.5
2014	--	--	--	--	--	6.5	6.5
2015	--	--	--	--	--	10.9	10.9
2016	--	--	--	--	--	29.3	29.3
2017	--	--	--	--	--	26.1	26.1
2018	--	--	--	--	--	25.7	25.7
2019	--	--	--	--	--	2.8	2.8
Subtotal	--	--	--	--	--	444.8	444.8

Annual Funding									
1810 Procurement Other Procurement, Navy									
Fiscal Year	Quantity	BY 1995 \$M							
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program		
2005	--	--	--	--	--	--	--	10.4	10.4
2006	--	--	--	--	--	--	--	35.7	35.7
2007	--	--	--	--	--	--	--	37.2	37.2
2008	--	--	--	--	--	--	--	30.9	30.9
2009	--	--	--	--	--	--	--	37.0	37.0
2010	--	--	--	--	--	--	--	11.0	11.0
2011	--	--	--	--	--	--	--	17.8	17.8
2012	--	--	--	--	--	--	--	26.2	26.2
2013	--	--	--	--	--	--	--	56.9	56.9
2014	--	--	--	--	--	--	--	4.6	4.6
2015	--	--	--	--	--	--	--	7.6	7.6
2016	--	--	--	--	--	--	--	20.2	20.2
2017	--	--	--	--	--	--	--	17.7	17.7
2018	--	--	--	--	--	--	--	17.1	17.1
2019	--	--	--	--	--	--	--	1.8	1.8
Subtotal	--	--	--	--	--	--	--	332.1	332.1

VIRGINIA Class program acquisition costs include a portion of OPN budget ICN 0942. Programs included in VIRGINIA Class acquisition costs are: VA Class Special Operations Forces Support, Test and Evaluation Measuring Equipment, Exterior Communication System (ECS) Trainer, Virginia Ship Control OperatorTrainer (VSCOT) and Major Shore Spares.

Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	6/30/1995	6/30/1995
Approved Quantity	14	14
Reference	MS II ADM	MS II ADM
Start Year	1998	1998
End Year	2007	2011

Low Rate Initial Production (LRIP) quantity of 14 exceeds 10%, which is standard for shipbuilding programs. The LRIP quantity was approved June 30, 1995, by the then USD (Acquisition & Technology).

Foreign Military Sales

None

Nuclear Costs

\$14,031.2M (TY\$). These costs are included in this report.

Unit Cost

Unit Cost Report

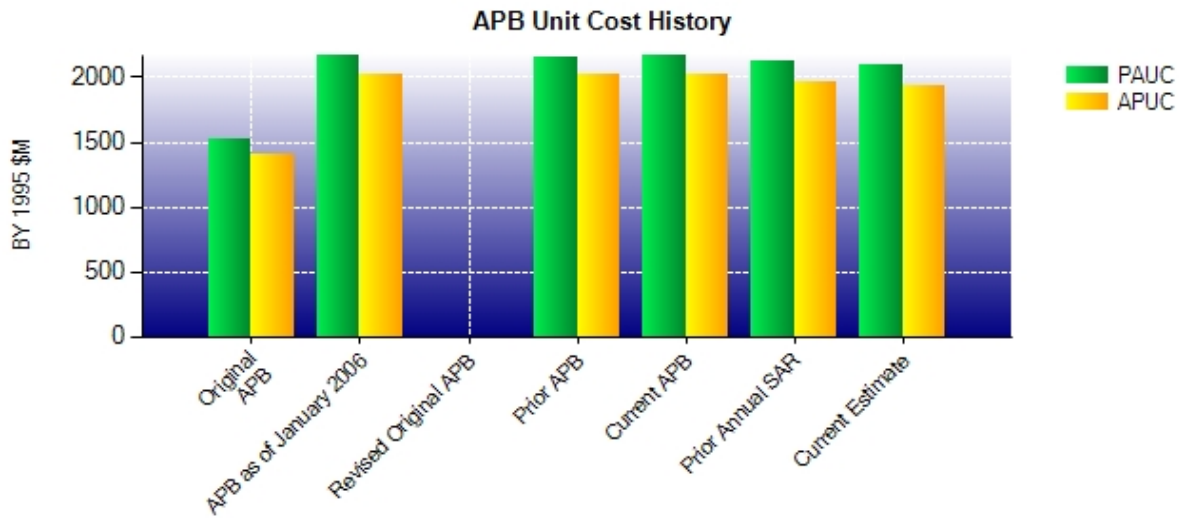
Item	BY 1995 \$M	BY 1995 \$M	% Change
	Current UCR Baseline (May 2005 APB)	Current Estimate (Dec 2009 SAR)	
Program Acquisition Unit Cost			
Cost	65248.3	62984.4	
Quantity	30	30	
Unit Cost	2174.943	2099.480	-3.47
Average Procurement Unit Cost			
Cost	60642.9	58123.0	
Quantity	30	30	
Unit Cost	2021.430	1937.433	-4.16

Item	BY 1995 \$M	BY 1995 \$M	% Change
	Original UCR Baseline (Jun 1995 APB)	Current Estimate (Dec 2009 SAR)	
Program Acquisition Unit Cost			
Cost	45633.1	62984.4	
Quantity	30	30	
Unit Cost	1521.103	2099.480	+38.02¹
Average Procurement Unit Cost			
Cost	42228.1	58123.0	
Quantity	30	30	
Unit Cost	1407.603	1937.433	+37.64¹

¹ Nunn-McCurdy Breach

This program reflects a significant Nunn-McCurdy breach to the original baseline that was first reported in the December 2005 SAR. The supporting breach information and explanations can be found in the Unit Cost Report section of that SAR.

Unit Cost History



Item	Date	BY 1995 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	Jun 1995	1521.103	1407.603	2369.360	2242.227
APB as of January 2006	May 2005	2174.943	2021.430	2749.060	2578.850
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	Apr 2003	2158.250	2021.430	2726.407	2578.850
Current APB	May 2005	2174.943	2021.430	2749.060	2578.850
Prior Annual SAR	Dec 2007	2125.060	1962.400	3065.507	2882.137
Current Estimate	Dec 2009	2099.480	1937.433	3046.463	2864.410

SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY \$M)									
Initial PAUC Development Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
2369.360	-150.183	0.000	256.320	42.410	491.343	9.333	27.880	677.103	3046.463

Current SAR Baseline to Current Estimate (TY \$M)									
Initial APUC Development Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
2242.227	-143.307	0.000	256.320	36.360	435.597	9.333	27.880	622.183	2864.410

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone I	N/A	Aug 1994	N/A	Aug 1994
Milestone II	N/A	Jun 1995	N/A	Jun 1995
Milestone III	N/A	Oct 2007	N/A	Apr 2010
IOC	N/A	Oct 2005	N/A	Mar 2007
Total Cost (TY \$M)	N/A	71080.8	N/A	91393.9
Total Quantity	N/A	30	N/A	30
PAUC	N/A	2369.360	N/A	3046.463

Cost Variance

Summary TY \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Development Estimate)	3814.0	67266.8	--	71080.8
Previous Changes				
Economic	-182.5	-4881.3	--	-5063.8
Quantity	--	--	--	--
Schedule	--	+7689.6	--	+7689.6
Engineering	+181.5	+1090.8	--	+1272.3
Estimating	+1688.1	+14262.9	--	+15951.0
Other	--	+280.0	--	+280.0
Support	--	+755.3	--	+755.3
Subtotal	+1687.1	+19197.3	--	+20884.4
Current Changes				
Economic	-23.8	+582.1	--	+558.3
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	-15.7	-1195.0	--	-1210.7
Other	--	--	--	--
Support	--	+81.1	--	+81.1
Subtotal	-39.5	-531.8	--	-571.3
Total Changes	+1647.6	+18665.5	--	+20313.1
Current Estimate	5461.6	85932.3	--	91393.9

Summary BY 1995 \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Development Estimate)	3405.0	42228.1	--	45633.1
Previous Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	+1708.0	--	+1708.0
Engineering	+158.1	+797.9	--	+956.0
Estimating	+1316.7	+13420.7	--	+14737.4
Other	--	+216.3	--	+216.3
Support	--	+501.0	--	+501.0
Subtotal	+1474.8	+16643.9	--	+18118.7
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	-18.4	-798.3	--	-816.7
Other	--	--	--	--
Support	--	+49.3	--	+49.3
Subtotal	-18.4	-749.0	--	-767.4
Total Changes	+1456.4	+15894.9	--	+17351.3
Current Estimate	4861.4	58123.0	--	62984.4

Previous Estimate: December 2007

RDT&E	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-23.8
Adjustment for current and prior escalation. (Estimating)	+2.1	+3.0
Remove Submarine Multi-Mission Team Trainer funding which is not a part of the VIRGINIA Class Acquisition Program. (Estimating)	-49.3	-60.3
Revised estimate due to refinement of requirements (Hull, Mechanical and Electrical and Combat Systems Development) (Estimating)	-11.7	-10.9
Congressional Plus-ups to non-core Research & Development program (FY09-FY10). (Estimating)	+40.5	+52.5
RDT&E Subtotal	-18.4	-39.5

Procurement	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	+582.1
Adjustment for current and prior escalation. (Estimating)	-305.3	-438.6
Revised estimate due to service reprioritization. (Estimating)	-265.0	-415.9
Revised estimate for labor and material. Pricing of construction material and labor is at 4.2% and 4.5% respectively. Savings due to increase in OMB/OSD inflation indices between FY09 and FY11 narrowing the gap between OMB/OSD and VIRGINIA Class pricing. (Estimating)	-227.1	-339.3
Increase in Initial Spares (Navy). (Support)	+30.2	+49.8
Increase in Initial Spares (Navy). (Support)	+18.1	+30.4
Correction to align support and flyaway. (Support)	+0.1	-0.3
Correction to align support and flyaway. (Subtotal)	0.0	0.0
(Estimating)	(-0.9)	(-1.2)
(Support)	(+0.9)	(+1.2)
Procurement Subtotal	-749.0	-531.8

Contracts

General Notes

Contracts N00024-96-C-2100/3 and N00024-96-C-2100/4 were over 90% complete and were removed after the December 2007 SAR.

Contract Identification

Appropriation: Procurement
Contract Name: SSN 778
Contractor: Gen Dyn, EB Corp
Contractor Location: Groton, CT 06340
Contract Number: N00024-03-C-2101/1
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: August 14, 2003
Definitization Date: August 14, 2003

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1359.8	1540.7	1	1399.1	1580.3	1	1361.6	1362.1

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (10/3/2009)	+80.6	-17.2
Previous Cumulative Variances	--	--
Net Change	+80.6	-17.2

Cost and Schedule Variance Explanations**General Contract Variance Explanation**

The favorable +\$80M net change in cost variance was due primarily to improved labor performance resulting in reduced manhours and labor dollars driven by continued learning, improved manufacturing processes, improved manufacturing facilities and schedule reduction. These improvements affect the entire VIRGINIA Class.

In addition, a savings in material dollars was realized from the Block II contract change from a Block Buy to a Multi-year contract allowing the shipbuilder to purchase material in multiple shipsets taking advantage of Economic Order Quantity.

The favorable net change in schedule variance of \$24.0M was due primarily to a reduced production schedule.

Notes

The difference between the initial and current contract price is the current contract price increases as contract changes are authorized.

This contract is over 90% complete. This will be the last time this contract is reported in the SAR.

Contract Identification

Appropriation: Procurement
Contract Name: SSN 779
Contractor: Gen Dyn, EB Corp
Contractor Location: Groton, CT 06340
Contract Number: N00024-03-C-2101/2
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: August 14, 2003
Definitization Date: August 14, 2003

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1403.0	1547.1	1	1430.7	1574.1	1	1448.1	1451.3

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (10/3/2009)	-62.4	-12.3
Previous Cumulative Variances	-28.8	-21.6
Net Change	-33.6	+9.3

Cost and Schedule Variance Explanations**General Contract Variance Explanation**

The unfavorable -\$33.6M net change in cost variance was due primarily to unfavorable labor performance resulting from quality control problems, corresponding rework, and increased supervision.

The favorable net change in schedule variance of \$9.3M was due primarily to a reduced production schedule.

Notes

The difference between the initial and current contract price is the Current Contract Price increases as contract changes are authorized.

This contract is over 90% complete. This will be the last time this contract is reported in the SAR.

Contract Identification

Appropriation: Procurement
Contract Name: SSN 780
Contractor: Gen Dyn, EB Corp
Contractor Location: Groton, CT 06340
Contract Number: N00024-03-C-2101/3
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: August 14, 2003
Definitization Date: August 14, 2003

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1452.9	1601.1	N/A	1476.2	1624.9	N/A	1445.9	1445.6

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (10/3/2009)	+32.3	-16.1
Previous Cumulative Variances	-12.4	-19.0
Net Change	+44.7	+2.9

Cost and Schedule Variance Explanations**General Contract Variance Explanation**

The favorable net change in cost variance of \$44.7M was due primarily to improvements in learning, manufacturing processes, manufacturing facilities and supervision. Additionally, lessons learned from previous boats continue to favorably impact performance on follow ships. Schedule reduction also contributes to favorable labor cost impacts.

The favorable net change in schedule variance of \$2.9M was due primarily to a reduced production schedule.

Notes

The difference between the initial and current contract price is the current contract price increases as contract changes are authorized.

Contract Identification

Appropriation: Procurement
Contract Name: SSN 781
Contractor: Gen Dyn, EB Corp
Contractor Location: Groton, CT 06340
Contract Number: N00024-03-C-2101/4
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: August 14, 2003
Definitization Date: August 14, 2003

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1465.0	1615.6	N/A	1497.5	1651.6	N/A	1484.9	1566.3

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (10/3/2009)	-16.2	-28.5
Previous Cumulative Variances	-18.7	-41.9
Net Change	+2.5	+13.4

Cost and Schedule Variance Explanations**General Contract Variance Explanation**

The favorable net change in cost variance of \$2.5M was due primarily to improvements in learning, manufacturing processes, manufacturing facilities and supervision. Additionally, lessons learned from previous boats continue to favorably impact performance on follow boats. Schedule reduction also contributes to favorable labor cost impacts.

The favorable net change in schedule variance of \$13.4M was due primarily to a reduced production schedule.

Notes

Current Contract Price increases as contract changes are authorized.

Contract Identification

Appropriation: Procurement
Contract Name: SSN 782
Contractor: Gen Dyn, EB Corp
Contractor Location: Groton, CT 06340
Contract Number: N00024-03-C-2101/5
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: August 14, 2003
Definitization Date: August 14, 2003

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1368.3	1552.4	1	1513.7	1668.8	1	1502.2	1505.3

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (10/3/2009)	+23.3	+19.6
Previous Cumulative Variances	--	--
Net Change	+23.3	+19.6

Cost and Schedule Variance Explanations**General Contract Variance Explanation**

The favorable net change in cost variance of \$23.3M was due primarily to improvements in learning, manufacturing processes, manufacturing facilities and supervision. Additionally, lessons learned from previous boats continue to favorably impact performance on follow boats. Schedule reduction also contributes to favorable labor cost impacts.

The favorable net change in schedule variance of \$19.6M was due primarily to a reduced production schedule.

Notes

The difference between initial and current contract price is the current contract price increases as contract changes are authorized.

This is the first time this contract is being reported in the SAR.

Contract Identification

Appropriation: Procurement
Contract Name: SSN 783
Contractor: Gen Dyn, EB Corp
Contractor Location: Groton, CT 06340
Contract Number: N00024-03-C-2101/6
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: August 14, 2003
Definitization Date: August 14, 2003

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1349.9	1532.6	1	1499.4	1651.9	1	1511.1	1543.6

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (10/3/2009)	-55.8	+35.5
Previous Cumulative Variances	--	--
Net Change	-55.8	+35.5

Cost and Schedule Variance Explanations**General Contract Variance Explanation**

The unfavorable net change in cost variance of -\$55.8M was due primarily to material comprised of critical components with long lead times. The material was purchased as insurance in the case of a failure of a critical long lead time component on Block II SSTG and MPU production to prevent schedule impacts. If such a failure of a critical long lead time component occurs and Northrop Grumman Marine Systems utilizes this material, they will purchase it and costs will be credited to the Block II contract. MPU/SSTG Risk Mitigation and \$21.0M in MPU/SSTG Insurance Spares are the major causes in cost variance. With the full funding received on SSN 784, MPU/SSTG Risk Mitigation and Insurance Spares were transferred to the N00024-09-C-2104 contract in the 3rd quarter 2009.

Favorable labor and material cost impacts are expected on this contract based on experience with previous Block II ships.

The favorable net change in schedule variance of \$35.5M was due primarily to a reduced production schedule.

Notes

The difference between the initial and current contract price is the current contract price increases as contract changes are authorized.

This is the first time this contract is being reported in the SAR.

Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	0	0	0	--
Production	5	6	30	20.00%
Total Program Quantity Delivered	5	6	30	20.00%

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	91393.9	Years Appropriated	19
Expended to Date	27999.3	Percent Years Appropriated	54.29%
Percent Expended	30.64%	Appropriated to Date	39915.0
Total Funding Years	35	Percent Appropriated	43.67%

The sixth ship, NEW MEXICO (SSN 779), was delivered in December 2009 four months ahead of contract delivery.

Expenditure data as of January 15, 2010.

Operating and Support Cost

Assumptions and Ground Rules

As of date: February 11, 2002. Operating and Support (O&S) costs are developed at the ship level, on an annual cost per ship basis by cost category and appropriation, with total and annual average cost over the submarine's expected service life. Costs are estimated for all categories listed in the Cost Analysis Improvement Group O&S Cost Estimating Guide using historical data from operating submarine classes. Maintenance and Personnel costs are the major contributors to the total O&S Program. The source of this cost estimate is the VIRGINIA Class Total Ownership Cost Baseline. Total O&S costs are derived by multiplying the planned quantity of ships (30 ships) by a 34-year service life and average annual cost per ship. The source of antecedent data is the Visibility and Management of Operation and Support Cost (VAMOSOC) data for LOS ANGELES Class (SSN688) submarines. VAMOSOC data is not directly comparable to VIRGINIA Program data. The LOS ANGELES Class SAR did not document O&S costs. The Class was comprised of 62 ships with major design changes in blocks of ships that had an original planned life of 30 years. Some of these 62 ships were retired at mid-life and, therefore, did not incur normal life of ship maintenance and operating costs.

Total VIRGINIA Then Year (TY) costs for O&S have not been calculated due to the continuing profile change and extension of the program to further out-years.

Cost Estimate Reference:

None

Sustainment Strategy:

None

Antecedent Information:

None

Cost Element	Unitized O&S Costs BY1995 \$M	
	VIRGINIA CLASS SUBMARINE Average Annual Cost Per Ship	LOS ANGELES CLASS (Antecedent) Average Annual Cost Per Ship
Mission Pay & Allowance	6.300	7.200
Unit Level Consumption	3.400	2.000
Intermediate Maintenance	2.100	0.400
Depot Maintenance	12.200	14.800
Contractor Support	0.100	0.000
Sustaining Support	5.300	0.800
Indirect	0.000	0.900
Other	5.400	0.000
Total	34.800	26.100

Unitized Cost Comments:

None

Item	Total O&S Cost \$M				
	VIRGINIA CLASS SUBMARINE			LOS ANGELES CLASS (Antecedent)	
	Current Development APB Objective/Threshold		Current Estimate		
Base Year	N/A	N/A	35496.0		N/A
Then Year	N/A	N/A	N/A		N/A

Total O&S Cost Comment

None

Disposal Estimate Details

Date of Estimate:

Source of Estimate:

Disposal/Demilitarization Total Cost (BY 1995 \$M):