Selected Acquisition Report (SAR)

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

SSN 774 Virginia Class Submarine (SSN 774)

As of FY 2020 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

Table of Contents

Sensitivity Originator

No originator information is available at this time.

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)
USD(A&S) - Under Secretary of Defense (Acquisition and Sustainment)

Program Information

Program Name
SSN 774 Virginia Class Submarine (SSN 774)

DoD Component
Navy

Responsible Office

CAPT Christopher Hanson
VIRGINIA Submarine Program Office
PEO Submarines
614 Sicard Street, SE
Washington Navy Yard, DC 20376-7022

christopher.j.hanson@navy.mil

Phone: 202-781-1294
Fax: 202-781-4678
DSN Phone: 326-1294
DSN Fax: 326-4678
Date Assigned: April 16, 2018

References

SAR Baseline (Production Estimate)

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated September 3, 2010

Approved APB

Component Acquisition Executive (CAE) Approved Acquisition Program Baseline (APB) dated February 13, 2017

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 satisfies any assigned role well into the Twenty-First Century. Replacing 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 torpedo and cruise missile vertical launch capability, the VIRGINIA Class Submarine maintains total undersea superiority at an affordable cost.

Executive Summary

Program Highlights Since Last Report

The VIRGINIA Class Submarine Program is at full rate production delivering two submarines per year at two shipyards. Build span has been reduced by two years. With the delivery to the Navy of SOUTH DAKOTA (SSN 790) on September 24, 2018, 17 VIRGINIAs are in service today and 11 are under construction.

A Request for Proposal for a Block V Multi-Year Procurement construction contract was released on August 25, 2017 for 10 ships (FY 2019 - FY 2023). Award is planned for FY 2019. The Block V Construction Contract will incorporate the Block IV design with Acoustic Superiority (AS) and VIRGINIA Payload Module (VPM).

The VPM design is progressing with design products completing near schedule. Payload Tube manufacturing and material procurement are in progress to support Block V construction start. The design is expected to be 75% complete at construction start as compared to the Block III Design for Affordability (DFA) redesign which was approximately 60% complete at construction start.

Acoustic Superiority (AS) supports the Chief of Naval Operation's undersea dominance mandate and represents the first significant investment in VIRGINIA acoustic capability since initial design. The SOUTH DAKOTA Insertion Program (SDIP) is a near-term AS concept demonstration on a VIRGINIA Class platform to be installed during SOUTH DAKOTA (SSN 790) Post Shakedown Availability (PSA).

The Tactical Submarine Evolution Plan (TSEP) is the Undersea Enterprises' holistic plan to maintain the right mix of SSN, SSGN, SSBN, and next SSN platforms to meet current and future requirements for Undersea Warfare. TSEP looks at a near-term (10 year) and a long-term window of at least 50 years to build, train, and equip the submarine force of the future to maintain undersea dominance.

Over the last decade, the Navy challenged the shipbuilders to continue to reduce submarine construction spans to 60 months by the end of Virginia Class Block IV while also ramping up and sustaining a two submarine per year build rate. Even while challenged to meet the aggressive construction spans due to the stressing of labor resources, material availability, and production area footprint across the industrial base, the shipbuilders continue to deliver ships with increasing quality while staying within budget.

Recent milestones in the construction and testing of VIRGINIA Class Submarines are highlighted by the completion of Block III Follow-on Operational Test and Evaluation (FOT&E) in the first quarter, FY 2018.

Other near term VIRGINIA Class program events include the projected delivery of DELAWARE (SSN 791) in summer 2019 and VERMONT (SSN 792) in fall 2019.

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

History of Significant Developments Since Program Initiation

History of Significant Developments Since Program Initiation	
Date	**Significant Development Description**
August 1992	Milestone 0 for Centurion Submarine, "the first submarine designed with affordability considerations paramount". Conceptualized as a lower cost alternative to SEAWOLF Class.
August 1994	Milestone I was approved for the New Attack Submarine (NSSN) following two years of extensive review of requirements and rigorous systems definition effort.
December 1994	Milestone I APB established.
June 1995	The New Attack Submarine Program successfully passed Milestone II with the signing of an ADM.
June 1995	A waiver from full-up, system-level live fire testing was approved jointly by USD (A&T&L) and the Director, Operational Test & Evaluation with notification letters sent to Congressional Defense Committees on June 29, 1995.
April 1996	Contract award for the New Attack Submarine Command, Control, Communications and Intelligence (C3I) System was executed to Lockheed Martin Federal Systems.
May 1996	The Integrated Process and Product Development (IPPD) 1996 Design/Build Contract with Electric Boat (EB) Corporation was definitized.
October 1997	The revised APB (Change 1 to the Development Baseline of June 30, 1995) was signed to reflect the co-construction teaming arrangement between EB and Newport News Shipbuilding (NNS) as mandated in the FY 1998 Authorization and Appropriations Acts.
September 1998	The IPPD 96 Design Build contract with EB was modified to include construction of the first four VIRGINIA Class Submarines.
January 2001	Systems testing and integration started on the first Command and Control Systems Module (CCSM) at the Off-hull Assembly and Test Site (COATS). The COATS facility is used to test VIRGINIA Class CCSM units prior to shipyard delivery.
August 2003	In pursuit of the lowest possible future program costs, the Navy awarded the Block II construction contract with clauses to transition to a multi-year contract in FY 2004.
January 2004	The transition to multi-year procurement for hulls six through ten was completed in January 2004 following approval by Congress in the FY 2004 Defense Appropriations and Authorization Acts.
October 2004	Lead Ship delivery (USS VIRGINIA SSN 774). Delivery occurred within the original baseline schedule threshold set ten years earlier, in 1994.
June 2006	USS TEXAS, which was essentially the second lead ship of the class, was the first submarine delivered at Northrop Grumman, Newport News in nearly ten years.
March 2007	The program achieved IOC although USS VIRGINIA first deployed operationally in the fall of 2005 in support of the Global War on Terror.
December 2008	The Navy awarded the Block III construction contract to General Dynamics Electric Boat and Northrop Grumman Newport News for the construction of eight VIRGINIA Class submarines from FY 2009 through FY 2013.
September 2010	The program achieved Milestone III. The ADM was signed by the USD (AT&L) and included a declaration of Full Operational Capability and authorization of Full Rate Production.
October 2010	The program accelerated to Full Rate Production of two ships per year.
January 2012	The initial Concept Design for the Virginia Payload Module (VPM) was completed.
April 2014	The Navy signed a Block IV Construction Contract to build ten VIRGINIA Class Submarines with General Dynamics Electric Boat and Huntington Ingalls Industries-Newport News. Under the five-year

	agreement, Electric Boat and Newport News Shipbuilding would jointly build two ships per year from FY 2014 - FY 2018.
February 2017	On February 13, 2017, an APB was signed by the acting Assistant Secretary of the Navy (Research, Development & Acquisition) reflecting an increase in the number of submarines from 30 to 48. The baseline update includes the VIRGINIA Payload Module (VPM) and Acoustic Superiority (AS) on Block V and follow ships.

Threshold Breaches

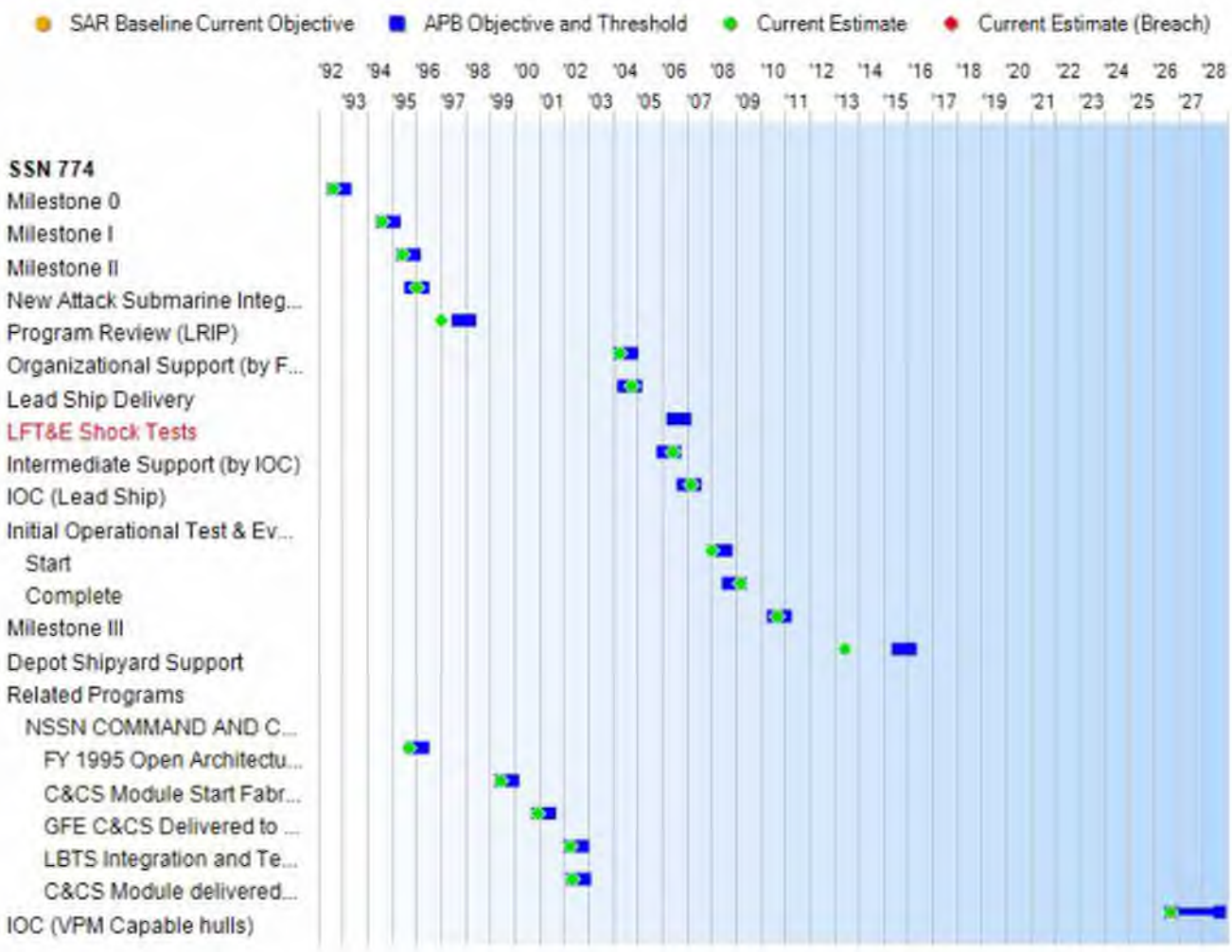
APB Breaches		
Schedule		☑
Performance		☐
Cost	RDT&E	☐
	Procurement	☐
	MILCON	☐
	Acq O&M	☐
O&S Cost		☐
Unit Cost	PAUC	☐
	APUC	☐

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

Explanation of Breach

Schedule -- This schedule breach was previously reported in the December 2006 SAR. On December 4, 2006, the USD(AT&L) notified Congress of the decision to eliminate the VIRGINIA Class Ship Shock Test from the Live Fire Test and Evaluation portion of the VIRGINIA Class Test and Evaluation Master Plan.

Schedule


SAR Baseline Current Objective
APB Objective and Threshold
Current Estimate
Current Estimate (Breach)
'92 '93 '94 '95 '96 '97 '98 '99 '00 '01 '02 '03 '04 '05 '06 '07 '08 '09 '10 '11 '12 '13 '14 '15 '16 '17 '18 '19 '20 '21 '22 '23 '24 '25 '26 '27 '28
SSN 774
Milestone 0
Milestone I
Milestone II
New Attack Submarine Integ...
Program Review (LRIP)
Organizational Support (by F...
Lead Ship Delivery
LFT&E Shock Tests
Intermediate Support (by IOC)
IOC (Lead Ship)
Initial Operational Test & Ev...
Start
Complete
Milestone III
Depot Shipyard Support
Related Programs
NSSN COMMAND AND C...
FY 1995 Open Architectu...
C&CS Module Start Fabr...
GFE C&CS Delivered to ...
LBTS Integration and Te...
C&CS Module delivered...
IOC (VPM Capable hulls)

Schedule Events				
Events	SAR Baseline Production Estimate	Current APB Production 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	Jun 2006	Jun 2006	Dec 2006	N/A[1]
Intermediate Support (by IOC)	Jan 2006	Jan 2006	Jul 2006	Jun 2006
IOC (Lead Ship)	Nov 2006	Nov 2006	May 2007	Mar 2007
Initial Operational Test & Evaluation				
Start	Feb 2008	Feb 2008	Aug 2008	Jan 2008
Complete	Sep 2008	Sep 2008	Mar 2009	Mar 2009
Milestone III	Jul 2010	Jul 2010	Jan 2011	Sep 2010
Depot Shipyard Support	Aug 2015	Aug 2015	Feb 2016	Jun 2013
Related Programs				
NSSN COMMAND AND CONTROL SYSTEM				
FY 1995 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
IOC (VPM Capable hulls)	N/A	Sep 2026	Sep 2028	Sep 2026

[1] *APB Breach*

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

Change Explanations

None

Notes

On December 4, 2006, the USD(AT&L) notified Congress of the decision to eliminate the VIRGINIA Class Ship Shock Test from the Live Fire Test and Evaluation portion of the VIRGINIA Class Test and Evaluation Master Plan.

Projected delivery and OWLD dates for ships under construction:

FY13-2 - SSN 791 – PCU DELAWARE – Delivery: Jun 2019, OWLD: May 2020

FY14-1 - SSN 792 – PCU VERMONT - Delivery: Oct 2019, OWLD: Sep 2020

FY14-2 - SSN 793 – PCU OREGON – Delivery: May 2020, OWLD: Apr 2021

FY15-1 - SSN 794 – PCU MONTANA – Delivery: Sep 2020, OWLD: Aug 2021

FY15-2 - SSN 795 – PCU HYMAN G. RICKOVER – Delivery: Apr 2021, OWLD: Mar 2022

FY16-1 - SSN 796 – PCU NEW JERSEY – Delivery: Aug 2021, OWLD: Jul 2022

FY16-2 - SSN 797 – PCU IOWA – Delivery: Jan 2022, OWLD: Dec 2022

FY17-1 - -SSN 798 – PCU MASSACHUSETTS – Delivery: Jun 2022, OWLD: May 2023

FY17-2 - SSN 799 – PCU IDAHO – Delivery: Dec 2022, OWLD: Nov 2023

FY18-1 - SSN 800 – PCU ARKANSAS – Delivery: Apr 2023, OWLD: Mar 2024

FY18-2 - SSN 801 – PCU UTAH– Delivery: Sep 2023, OWLD: Aug 2024

Acronyms and Abbreviations

C&CS - Command and Control System
GFE - Government Furnished Equipment
LBTS - Land Based Test Site
LFT&E - Live Fire Test and Evaluation
NSSN - New Attack Submarine

Performance

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

Track to Budget

RDT&E

Appn		BA	PE	
Navy	1319	03	0603561N	
	Project		**Name**	
	2177		NEW DESIGN SSN HM&E (NSSN UNIQUE)	(Sunk)
Navy	1319	03	0603564N	
	Project		**Name**	
	2200		Ship Preliminary Design	(Sunk)
Navy	1319	03	0603570N	
	Project		**Name**	
	2158		NUCLEAR PROPULSION	(Sunk)
Navy	1319	05	0604558N	
	Project		**Name**	
	1947		New Design SSN HM&E	
	1950		New Design SSN Combat Sys Dev	
	2429		NEW DESIGN SSN HM&E and Combat Systems	(Sunk)
	2430		NEW DESIGN SSN HM&E and Combat Systems	(Sunk)
	2644		NEW DESIGN SSN HM&E and Combat Systems	(Sunk)
	2645		NEW DESIGN SSN HM&E and Combat Systems	(Sunk)
	2887		NEW DESIGN SSN HM&E and Combat Systems	(Sunk)
	2888		NEW DESIGN SSN HM&E and Combat Systems	(Sunk)
	3062		NEW DESIGN SSN HM&E and (Shared) Combat Systems	(Sunk)
	4500		VIRGINIA Payload Module	(Sunk)
	Notes:		VIRGINIA Payload Module funding shifted to Program Element 0604580N beginning in FY 2014.	
	9231		NEW DESIGN SSN HM&E and Combat Systems	(Sunk)
	9232		NEW DESIGN SSN HM&E and Combat Systems	(Sunk)
	9386		NEW DESIGN SSN HM&E and Combat Systems	(Sunk)
	9387		NEW DESIGN SSN HM&E and Combat Systems	(Sunk)
	9999		Congressional Adds	(Sunk)
Navy	1319	04	0604567N	

	Project		Name		
	2199		Ship Contract Design	(Sunk)	
Navy	1319	05	0604580N		
	Project		**Name**		
	4500		VIRGINIA Payload Module		

Notes

FYDP funding includes the following projects from BA 05 PE 0604558: Project 1947 New Design Hull Mechanical & Electrical (HM&E) and Project 1950 New Design Combat Systems. PE 0604558, Project 3062, Multi-mission Team Trainer, is not included as part of the VIRGINIA Class baseline acquisition cost for RDT&E. Project 4500 VIRGINIA Payload Module shifted to PE 0604580 beginning in FY 2014.

Procurement

Appn		BA	PE		
Navy	1611	02	0204281N		
	Line Item		**Name**		
	2013		Virginia Class Submarine		
Navy	1611	05	0204281N		
	Line Item		**Name**		
	5110		Outfitting	(Shared)	
	5300		Completion of Prior Year Shipbuilding Programs	(Shared)	(Sunk)
Navy	1810	01	0204281N		
	Line Item		**Name**		
	0942		Virginia Class Support Equipment	(Shared)	
	9020		Spares and Repair Parts	(Shared)	(Sunk)

Notes

VIRGINIA Class program acquisition costs include a portion of the Other Procurement, Navy (OPN) budget Project Line Item 0942. Programs included in VIRGINIA Class acquisition costs are: VA Class Special Operations Forces Support, Test and Evaluation Measuring Equipment, Exterior Communication System Trainer, VIRGINIA Ship Control Operator Trainer and Major Shore Spares. The balance of the OPN budget is captured in program O&S Costs.

Cost and Funding

Cost Summary

Total Acquisition Cost							
Appropriation	BY 1995 $M			BY 1995 $M	TY $M		
	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Production Estimate	Current APB Production Objective	Current Estimate
RDT&E	5420.4	6498.8	7018.9	6714.2	6351.2	8192.7	8568.9
Procurement	58933.2	87455.7	97035.7	86163.5	86856.1	157493.5	152956.6
Flyaway	--	--	--	85255.4	--	--	151276.0
Recurring	--	--	--	83588.3	--	--	149343.7
Non Recurring	--	--	--	1667.1	--	--	1932.3
Support	--	--	--	908.1	--	--	1680.6
Other Support	--	--	--	0.0	--	--	0.0
Initial Spares	--	--	--	908.1	--	--	1680.6
MILCON	0.0	348.8	383.7	0.0	0.0	570.8	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	64353.6	94303.3	N/A	92877.7	93207.3	166257.0	161525.5

Current APB Cost Estimate Reference

SCP dated November 04, 2016

Cost Notes

If an Independent Cost Estimate, Component Cost Estimate, or Program Office Estimate has been completed for the program in the previous year, list any program risks identified in the estimates, the potential impacts of the risks on program cost, and approaches to mitigate the risks.

No cost estimate for the program has been completed in the previous year.

Total Quantity			
Quantity	SAR Baseline Production Estimate	Current APB Production	Current Estimate
RDT&E	0	0	0
Procurement	30	48	48
Total	30	48	48

Cost and Funding

Funding Summary

Appropriation Summary FY 2020 President's Budget / December 2018 SAR (TY$ M)									
Appropriation	Prior	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
RDT&E	6066.8	177.6	117.9	198.9	245.6	274.7	280.2	1207.2	8568.9
Procurement	78342.8	7268.4	10107.2	6300.4	6144.2	6262.3	7237.5	31293.8	152956.6
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 2020 Total	84409.6	7446.0	10225.1	6499.3	6389.8	6537.0	7517.7	32501.0	161525.5
PB 2019 Total	84241.7	7501.3	7590.7	7036.6	6551.3	6638.1	7676.1	36970.9	164206.7
Delta	167.9	-55.3	2634.4	-537.3	-161.5	-101.1	-158.4	-4469.9	-2681.2

Quantity Summary FY 2020 President's Budget / December 2018 SAR (TY$ M)										
Quantity	Undistributed	Prior	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Development	0	0	0	0	0	0	0	0	0	0
Production	0	28	2	3	2	2	2	2	7	48
PB 2020 Total	0	28	2	3	2	2	2	2	7	48
PB 2019 Total	0	28	2	2	2	2	2	2	8	48
Delta	0	0	0	1	0	0	0	0	-1	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	--	--	--	--	--	--	22.7
1993	--	--	--	--	--	--	66.3
1994	--	--	--	--	--	--	363.7
1995	--	--	--	--	--	--	453.4
1996	--	--	--	--	--	--	429.0
1997	--	--	--	--	--	--	452.3
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	--	--	--	--	--	--	180.5
2010	--	--	--	--	--	--	172.8
2011	--	--	--	--	--	--	161.5
2012	--	--	--	--	--	--	105.7
2013	--	--	--	--	--	--	78.7
2014	--	--	--	--	--	--	115.4
2015	--	--	--	--	--	--	189.6
2016	--	--	--	--	--	--	305.1
2017	--	--	--	--	--	--	220.3
2018	--	--	--	--	--	--	185.8
2019	--	--	--	--	--	--	177.6
2020	--	--	--	--	--	--	117.9
2021	--	--	--	--	--	--	198.9
2022	--	--	--	--	--	--	245.6
2023	--	--	--	--	--	--	274.7
2024	--	--	--	--	--	--	280.2
2025	--	--	--	--	--	--	163.7
2026	--	--	--	--	--	--	141.2

2027	--	--	--	--	--	--	126.5
2028	--	--	--	--	--	--	99.2
2029	--	--	--	--	--	--	118.1
2030	--	--	--	--	--	--	135.5
2031	--	--	--	--	--	--	134.9
2032	--	--	--	--	--	--	125.4
2033	--	--	--	--	--	--	112.2
2034	--	--	--	--	--	--	8.2
2035	--	--	--	--	--	--	8.5
2036	--	--	--	--	--	--	8.1
2037	--	--	--	--	--	--	8.3
2038	--	--	--	--	--	--	8.6
2039	--	--	--	--	--	--	8.8
Subtotal	--	--	--	--	--	--	8568.9

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	--	--	--	--	--	--	23.8
1993	--	--	--	--	--	--	68.0
1994	--	--	--	--	--	--	365.9
1995	--	--	--	--	--	--	447.5
1996	--	--	--	--	--	--	416.4
1997	--	--	--	--	--	--	433.7
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	--	--	--	--	--	--	140.0
2010	--	--	--	--	--	--	132.1
2011	--	--	--	--	--	--	120.6
2012	--	--	--	--	--	--	77.6
2013	--	--	--	--	--	--	57.2
2014	--	--	--	--	--	--	82.7
2015	--	--	--	--	--	--	134.2
2016	--	--	--	--	--	--	212.1
2017	--	--	--	--	--	--	150.4
2018	--	--	--	--	--	--	124.3
2019	--	--	--	--	--	--	116.5
2020	--	--	--	--	--	--	75.8
2021	--	--	--	--	--	--	125.4
2022	--	--	--	--	--	--	151.8
2023	--	--	--	--	--	--	166.4
2024	--	--	--	--	--	--	166.4
2025	--	--	--	--	--	--	95.3
2026	--	--	--	--	--	--	80.6
2027	--	--	--	--	--	--	70.8
2028	--	--	--	--	--	--	54.4
2029	--	--	--	--	--	--	63.5
2030	--	--	--	--	--	--	71.5
2031	--	--	--	--	--	--	69.8

2032	--	--	--	--	--	--	63.6
2033	--	--	--	--	--	--	55.8
2034	--	--	--	--	--	--	4.0
2035	--	--	--	--	--	--	4.1
2036	--	--	--	--	--	--	3.8
2037	--	--	--	--	--	--	3.8
2038	--	--	--	--	--	--	3.9
2039	--	--	--	--	--	--	3.9
Subtotal	--	--	--	--	--	--	6714.2

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	--	532.9	--	242.5	775.4	--	775.4
1998	1	1625.0	--	840.9	2465.9	--	2465.9
1999	1	1881.6	--	165.6	2047.2	--	2047.2
2000	--	743.7	--	--	743.7	--	743.7
2001	1	1589.8	--	90.8	1680.6	0.2	1680.8
2002	1	2407.5	--	60.8	2468.3	15.9	2484.2
2003	1	2402.0	--	14.3	2416.3	8.3	2424.6
2004	1	2715.2	--	6.9	2722.1	11.0	2733.1
2005	1	2601.5	--	--	2601.5	4.3	2605.8
2006	1	2563.9	--	--	2563.9	15.1	2579.0
2007	1	2580.8	--	--	2580.8	8.4	2589.2
2008	1	3157.6	--	--	3157.6	19.5	3177.1
2009	1	3652.5	--	--	3652.5	17.9	3670.4
2010	1	4034.3	--	--	4034.3	9.8	4044.1
2011	2	5164.0	--	--	5164.0	18.7	5182.7
2012	2	4735.8	--	--	4735.8	12.3	4748.1
2013	2	4686.1	--	--	4686.1	16.9	4703.0
2014	2	6523.4	--	--	6523.4	26.2	6549.6
2015	2	5912.9	--	--	5912.9	24.6	5937.5
2016	2	5388.3	--	--	5388.3	34.7	5423.0
2017	2	5058.6	--	93.7	5152.3	22.4	5174.7
2018	2	5415.2	--	90.5	5505.7	14.5	5520.2
2019	2	7109.1	--	107.0	7216.1	25.1	7241.2
2020	3	10035.7	--	--	10035.7	55.4	10091.1
2021	2	6229.6	--	--	6229.6	61.5	6291.1
2022	2	6090.8	--	--	6090.8	43.8	6134.6
2023	2	6207.8	--	--	6207.8	44.7	6252.5
2024	2	7182.0	--	--	7182.0	45.5	7227.5
2025	2	7300.3	--	--	7300.3	43.0	7343.3
2026	2	9205.6	--	--	9205.6	53.0	9258.6
2027	2	8950.1	--	--	8950.1	51.8	9001.9
2028	1	4124.4	--	--	4124.4	42.6	4167.0
2029	--	181.5	--	--	181.5	55.4	236.9
2030	--	182.4	--	--	182.4	93.0	275.4
2031	--	170.7	--	--	170.7	77.7	248.4
2032	--	151.8	--	--	151.8	87.2	239.0
2033	--	144.5	--	--	144.5	64.6	209.1
2034	--	133.8	--	--	133.8	57.3	191.1
Subtotal	48	149343.7	--	1932.3	151276.0	1182.3	152458.3

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	--	503.9	--	229.2	733.1	--	733.1
1998	1	1502.6	--	777.6	2280.2	--	2280.2
1999	1	1712.7	--	150.7	1863.4	--	1863.4
2000	--	660.2	--	--	660.2	--	660.2
2001	1	1364.3	--	77.9	1442.2	0.2	1442.4
2002	1	2054.3	--	51.8	2106.1	13.6	2119.7
2003	1	1937.5	--	11.5	1949.0	6.7	1955.7
2004	1	2113.5	--	5.4	2118.9	8.5	2127.4
2005	1	1939.0	--	--	1939.0	3.2	1942.2
2006	1	1845.9	--	--	1845.9	10.9	1856.8
2007	1	1776.4	--	--	1776.4	5.8	1782.2
2008	1	2101.9	--	--	2101.9	13.0	2114.9
2009	1	2359.1	--	--	2359.1	11.6	2370.7
2010	1	2518.3	--	--	2518.3	6.1	2524.4
2011	2	3121.2	--	--	3121.2	11.3	3132.5
2012	2	2798.8	--	--	2798.8	7.2	2806.0
2013	2	2714.3	--	--	2714.3	9.8	2724.1
2014	2	3707.3	--	--	3707.3	14.9	3722.2
2015	2	3291.8	--	--	3291.8	13.7	3305.5
2016	2	2938.7	--	--	2938.7	18.9	2957.6
2017	2	2703.0	--	50.0	2753.0	12.0	2765.0
2018	2	2836.5	--	47.4	2883.9	7.6	2891.5
2019	2	3650.7	--	55.0	3705.7	12.9	3718.6
2020	3	5052.6	--	--	5052.6	27.9	5080.5
2021	2	3074.9	--	--	3074.9	30.3	3105.2
2022	2	2947.4	--	--	2947.4	21.2	2968.6
2023	2	2945.1	--	--	2945.1	21.2	2966.3
2024	2	3340.5	--	--	3340.5	21.2	3361.7
2025	2	3328.9	--	--	3328.9	19.6	3348.5
2026	2	4115.4	--	--	4115.4	23.7	4139.1
2027	2	3922.8	--	--	3922.8	22.7	3945.5
2028	1	1772.2	--	--	1772.2	18.4	1790.6
2029	--	76.5	--	--	76.5	23.3	99.8
2030	--	75.3	--	--	75.3	38.4	113.7
2031	--	69.1	--	--	69.1	31.5	100.6
2032	--	60.3	--	--	60.3	34.6	94.9
2033	--	56.2	--	--	56.2	25.2	81.4
2034	--	51.1	--	--	51.1	21.8	72.9
Subtotal	48	83588.3	--	1667.1	85255.4	568.9	85824.3

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	2141.8
1999	1	2356.4
2000	--	--
2001	1	1910.7
2002	1	2021.3
2003	1	1824.4
2004	1	1813.2
2005	1	1745.2
2006	1	1771.4
2007	1	1836.1
2008	1	1781.3
2009	1	1899.4
2010	1	1773.6
2011	2	3355.3
2012	2	3155.5
2013	2	3077.0
2014	2	3165.8
2015	2	3010.6
2016	2	3018.1
2017	2	2982.0
2018	2	2994.2
2019	2	3421.6
2020	3	4768.8
2021	2	3127.5
2022	2	3236.3
2023	2	3248.1
2024	2	3478.9
2025	2	3372.7
2026	2	4405.1
2027	2	4270.1
2028	1	2625.9
2029	--	--
2030	--	--
2031	--	--
2032	--	--
2033	--	--
2034	--	--

Subtotal	48	83588.3

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	--	--	--	--	--	13.8	13.8
2011	--	--	--	--	--	21.7	21.7
2012	--	--	--	--	--	5.3	5.3
2013	--	--	--	--	--	1.8	1.8
2014	--	--	--	--	--	14.7	14.7
2015	--	--	--	--	--	9.3	9.3
2016	--	--	--	--	--	2.0	2.0
2017	--	--	--	--	--	9.0	9.0
2018	--	--	--	--	--	24.3	24.3
2019	--	--	--	--	--	27.2	27.2
2020	--	--	--	--	--	16.1	16.1
2021	--	--	--	--	--	9.3	9.3
2022	--	--	--	--	--	9.6	9.6
2023	--	--	--	--	--	9.8	9.8
2024	--	--	--	--	--	10.0	10.0
2025	--	--	--	--	--	10.2	10.2
2026	--	--	--	--	--	11.1	11.1
2027	--	--	--	--	--	11.4	11.4
2028	--	--	--	--	--	11.7	11.7
2029	--	--	--	--	--	12.1	12.1
2030	--	--	--	--	--	12.5	12.5
2031	--	--	--	--	--	12.8	12.8
2032	--	--	--	--	--	13.2	13.2
2033	--	--	--	--	--	13.6	13.6
2034	--	--	--	--	--	2.7	2.7
2035	--	--	--	--	--	2.8	2.8
2036	--	--	--	--	--	2.9	2.9
2037	--	--	--	--	--	3.0	3.0
2038	--	--	--	--	--	3.1	3.1
Subtotal	--	--	--	--	--	498.3	498.3

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	--	--	--	--	--	35.6	35.6
2007	--	--	--	--	--	37.2	37.2
2008	--	--	--	--	--	30.9	30.9
2009	--	--	--	--	--	36.9	36.9
2010	--	--	--	--	--	10.4	10.4
2011	--	--	--	--	--	16.1	16.1
2012	--	--	--	--	--	3.9	3.9
2013	--	--	--	--	--	1.3	1.3
2014	--	--	--	--	--	10.5	10.5
2015	--	--	--	--	--	6.5	6.5
2016	--	--	--	--	--	1.4	1.4
2017	--	--	--	--	--	6.1	6.1
2018	--	--	--	--	--	16.1	16.1
2019	--	--	--	--	--	17.7	17.7
2020	--	--	--	--	--	10.3	10.3
2021	--	--	--	--	--	5.8	5.8
2022	--	--	--	--	--	5.9	5.9
2023	--	--	--	--	--	5.9	5.9
2024	--	--	--	--	--	5.9	5.9
2025	--	--	--	--	--	5.9	5.9
2026	--	--	--	--	--	6.3	6.3
2027	--	--	--	--	--	6.3	6.3
2028	--	--	--	--	--	6.4	6.4
2029	--	--	--	--	--	6.4	6.4
2030	--	--	--	--	--	6.5	6.5
2031	--	--	--	--	--	6.6	6.6
2032	--	--	--	--	--	6.6	6.6
2033	--	--	--	--	--	6.7	6.7
2034	--	--	--	--	--	1.3	1.3
2035	--	--	--	--	--	1.3	1.3
2036	--	--	--	--	--	1.3	1.3
2037	--	--	--	--	--	1.4	1.4
2038	--	--	--	--	--	1.4	1.4
Subtotal	--	--	--	--	--	339.2	339.2

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

The Current Total LRIP Quantity is more than 10% of the total production quantity due to this being a shipbuilding program for which this is standard practice.

Foreign Military Sales

None

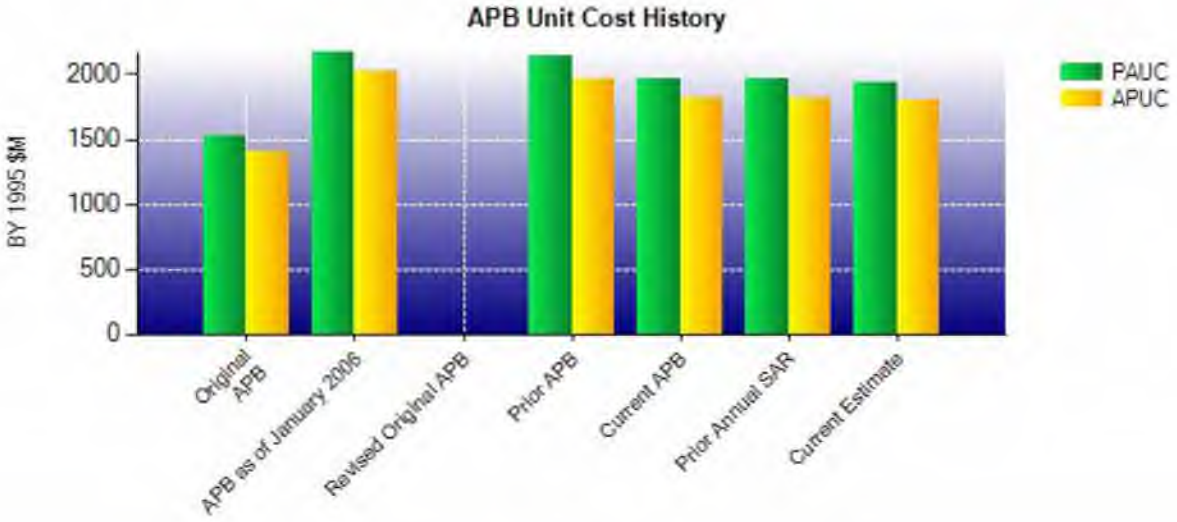
Nuclear Costs

These costs are for reactor propulsion plant equipment and are included in the Shipbuilding and Conversion, Navy costs in this report. Department of Energy costs are excluded from this report.

Unit Cost

Current UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 1995 $M Current UCR Baseline (Feb 2017 APB)	BY 1995 $M Current Estimate (Dec 2018 SAR)	% Change
Program Acquisition Unit Cost			
Cost	94303.3	92877.7	
Quantity	48	48	
Unit Cost	1964.652	1934.952	-1.51
Average Procurement Unit Cost			
Cost	87455.7	86163.5	
Quantity	48	48	
Unit Cost	1821.994	1795.073	-1.48

Original UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 1995 $M Original UCR Baseline (Jun 1995 APB)	BY 1995 $M Current Estimate (Dec 2018 SAR)	% Change
Program Acquisition Unit Cost			
Cost	45633.1	92877.7	
Quantity	30	48	
Unit Cost	1521.103	1934.952	+27.21
Average Procurement Unit Cost			
Cost	42228.1	86163.5	
Quantity	30	48	
Unit Cost	1407.603	1795.073	+27.53



APB 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	Sep 2010	2145.120	1964.440	3106.910	2895.203
Current APB	Feb 2017	1964.652	1821.994	3463.688	3281.115
Prior Annual SAR	Dec 2017	1963.715	1818.777	3420.973	3234.588
Current Estimate	Dec 2018	1934.952	1795.073	3365.115	3186.596

SAR Unit Cost History

Initial SAR Baseline to Current SAR Baseline (TY $M)									
Initial PAUC Development Estimate	Changes								PAUC Production Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
2369.360	-166.403	0.000	259.820	42.410	564.303	9.333	28.087	737.550	3106.910

Current SAR Baseline to Current Estimate (TY $M)									
PAUC Production Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
3106.910	133.379	373.042	-204.754	132.317	-189.685	0.000	13.906	258.205	3365.115

Initial SAR Baseline to Current SAR Baseline (TY $M)									
Initial APUC Development Estimate	Changes								APUC Production Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
2242.227	-160.064	0.000	259.820	36.360	479.440	9.333	28.087	652.976	2895.203

Current SAR Baseline to Current Estimate (TY $M)									
APUC Production Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
2895.203	133.248	452.433	-204.754	104.852	-208.292	0.000	13.906	291.393	3186.596

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone I	N/A	Aug 1994	Aug 1994	Aug 1994
Milestone II	N/A	Jun 1995	Jun 1995	Jun 1995
Milestone III	N/A	Oct 2007	Jul 2010	Sep 2010
IOC	N/A	Oct 2005	Nov 2006	Jun 2006
Total Cost (TY $M)	N/A	71080.8	93207.3	161525.5
Total Quantity	N/A	30	30	48
PAUC	N/A	2369.360	3106.910	3365.115

Cost Variance

Summary TY $M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	6351.2	86856.1	--	93207.3
Previous Changes				
Economic	-14.3	+4862.6	-4.9	+4843.4
Quantity	--	+73830.4	--	+73830.4
Schedule	--	-8486.2	--	-8486.2
Engineering	+1318.3	+5661.0	--	+6979.3
Estimating	+720.5	-8171.1	+575.7	-6874.9
Other	--	--	--	--
Support	--	+707.4	--	+707.4
Subtotal	+2024.5	+68404.1	+570.8	+70999.4
Current Changes				
Economic	+19.9	+1533.3	+5.6	+1558.8
Quantity	--	--	--	--
Schedule	--	-1342.0	--	-1342.0
Engineering	--	-628.1	--	-628.1
Estimating	+173.3	-1826.9	-576.4	-2230.0
Other	--	--	--	--
Support	--	-39.9	--	-39.9
Subtotal	+193.2	-2303.6	-570.8	-2681.2
Total Changes	+2217.7	+66100.5	--	+68318.2
CE - Cost Variance	8568.9	152956.6	--	161525.5
CE - Cost & Funding	8568.9	152956.6	--	161525.5

Summary BY 1995 $M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	5420.4	58933.2	--	64353.6
Previous Changes				
Economic	--	--	--	--
Quantity	--	+33418.9	--	+33418.9
Schedule	--	-3676.6	--	-3676.6
Engineering	+882.3	+2612.6	--	+3494.9
Estimating	+306.5	-4254.4	+347.8	-3600.1
Other	--	--	--	--
Support	--	+267.6	--	+267.6
Subtotal	+1188.8	+28368.1	+347.8	+29904.7
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	-313.0	--	-313.0
Estimating	+105.0	-811.1	-347.8	-1053.9
Other	--	--	--	--
Support	--	-13.7	--	-13.7
Subtotal	+105.0	-1137.8	-347.8	-1380.6
Total Changes	+1293.8	+27230.3	--	+28524.1
CE - Cost Variance	6714.2	86163.5	--	92877.7
CE - Cost & Funding	6714.2	86163.5	--	92877.7

Previous Estimate: December 2017

RDT&E	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	+19.9
Revised estimate for core Research & Development (Hull, Mechanical and Electrical (HM&E) and Non-propulsion Electronic Systems (NPES)) program. (Estimating)	+79.8	+135.3
Additional funding for SBIR Technology insertion in FY 2019. (Estimating)	+13.1	+20.0
Revised estimate to reflect the application of new outyear escalation indices. (Estimating)	-9.5	-16.5
Revised estimate to fund Test and Evaluation for South Dakota Insertion Program. (Estimating)	+10.3	+16.4
Congressional plus-up for New Design SSN. (Estimating)	+7.9	+12.0
Revised requirement for future technologies and design. (Estimating)	+7.2	+11.8
Adjustment for current and prior escalation. (Estimating)	-2.3	-3.4
Revised estimate for VIRGINIA Payload Module development. (Estimating)	-1.5	-2.3
RDT&E Subtotal	+105.0	+193.2

Procurement	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	+1533.3
Acceleration of procurement buy profile in accordance with the FY 2019 U.S. Navy 30-Year Shipbuilding Plan (Shipbuilding and Conversion, Navy (SCN). (Schedule)	0.0	-1342.0
Adjustment to descope one VIRGINIA Payload Module in both FY 2020 and FY 2021 (SCN). (Engineering)	-313.0	-628.1
Adjustment for current and prior escalation. (Estimating)	-233.1	-434.1
Revised estimate due to refinement of requirements. (Estimating)	-50.8	-254.3
Congressional plus-up for service investment in industrial base expansion in FY2018 (SCN). (Estimating)	+117.8	+225.0
Revised estimate due to DoD adjustment to Properly Price VIRGINIA Class Submarine (SCN). (Estimating)	-106.2	-215.2
Revised estimate for Post Delivery (SCN). (Estimating)	-18.9	-34.6
Revised estimate due to an adjustment for change orders and plans (SCN). (Estimating)	-16.7	-32.7
Revised estimate due to an adjustment for Navy Working Capital Fund Rates (SCN). (Estimating)	-10.0	-20.8
Revised estimate to reflect the application of new outyear escalation indices. (Estimating)	-493.2	-1060.2
Decrease in Initial Spares for Outfitting (SCN). (Support)	-9.9	-32.8
Decrease in Initial Spares estimate (Other Procurement, Navy). (Support)	-2.6	-4.8
Adjustment for current and prior escalation. (Support)	-1.2	-2.3
Procurement Subtotal	-1137.8	-2303.6

MILCON	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	+5.6
Adjustment for current and prior escalation. (Estimating)	-0.2	-0.3

Revised estimate. MILCON funding was added to the program's APB in February 2017 for the extension of the program to 48 ships. It is currently unfunded in the FYDP. (Estimating)	-347.6	-576.1
MILCON Subtotal	-347.8	-570.8

Contracts

General Notes

The Block IV (SSN 792-SSN 798 reported in this SAR) contract award and definitization date have been corrected to April 28, 2014.

Contract Identification

Appropriation: Procurement
Contract Name: SSN 791
Contractor: General Dynamics, EB Corporation
Contractor Location: 75 Eastern Point Road
Groton, CT 06340
Contract Number: N00024-09-C-2104/8
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: December 22, 2008
Definitization Date: December 22, 2008

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1657.1	1776.9	1	1754.0	1826.3	1	1722.6	1740.9

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to authorized contract change orders.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/31/2019)	+14.0	-83.5
Previous Cumulative Variances	+79.9	-92.5
Net Change	-65.9	+9.0

Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to shipbuilder performance attributed to final ship delivery issues.

The favorable net change in the schedule variance is due to completion of final assembly and testing activities leading up to ship delivery.

Notes

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

Contract Identification

Appropriation: Procurement
Contract Name: SSN 792
Contractor: General Dynamics, EB Corporation
Contractor Location: 75 Eastern Point Road
Groton, CT 06340
Contract Number: N00024-12-C-2115/1
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: April 28, 2014
Definitization Date: April 28, 2014

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1917.2	2068.9	1	1920.8	2076.7	1	1928.1	1951.3

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to authorized contract change orders.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/31/2019)	-55.9	-107.1
Previous Cumulative Variances	-43.1	-166.6
Net Change	-12.8	+59.5

Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to degradation from material availability and associated non-optimal work sequence, reductions in force and hiring freeze at the shipbuilder. A Navy-led assessment team was assembled in December 2018 to analyze performance and provide recommendations for improvement and mitigation of module delays impacting contract construction spans.

The favorable net change in the schedule variance is due to efficient production performance leading to delivery in fall 2019.

Contract Identification

Appropriation: Procurement
Contract Name: SSN 793
Contractor: General Dynamics, EB Corporation
Contractor Location: 75 Eastern Point Road
Groton, CT 06340
Contract Number: N00024-12-C-2115/2
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: April 28, 2014
Definitization Date: April 28, 2014

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1697.4	1833.0	1	1697.8	1840.3	1	1713.9	1716.3

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to authorized contract change orders.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/31/2019)	-33.4	-146.2
Previous Cumulative Variances	-5.5	-132.2
Net Change	-27.9	-14.0

Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to degradation from material availability and associated non-optimal work sequence, reductions in force, hiring freeze and assembly performance at the shipbuilder.

The unfavorable net change in the schedule variance is due to early material availability issues and associated non-optimal work sequence as well as issues described above. A Navy-led assessment team was assembled in December 2018 to analyze performance and provide recommendations for improvement and mitigation of module delays impacting contract construction spans.

Contract Identification

Appropriation: Procurement
Contract Name: SSN 794
Contractor: General Dynamics, EB Corporation
Contractor Location: 75 Eastern Point Road
Groton, CT 06340
Contract Number: N00024-12-C-2115/3
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: April 28, 2014
Definitization Date: April 28, 2014

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1731.7	1870.0	1	1732.7	1873.6	1	1733.8	1764.3

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to authorized contract change orders.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/31/2019)	-32.2	-129.5
Previous Cumulative Variances	-7.5	-107.8
Net Change	-24.7	-21.7

Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to degradation from material availability and associated non-optimal work sequence, reductions in force and hiring freeze at the shipbuilder.

The unfavorable net change in the schedule variance is due to early material availability issues and associated non-optimal work sequence as well as issues described above. A Navy-led assessment team was assembled in December 2018 to analyze performance and provide recommendations for improvement and mitigation of module delays impacting contract construction spans.

Contract Identification

Appropriation: Procurement
Contract Name: SSN 795
Contractor: General Dynamics, EB Corporation
Contractor Location: 75 Eastern Point Road
Groton, CT 06340
Contract Number: N00024-12-C-2115/4
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: April 28, 2014
Definitization Date: April 28, 2014

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1690.1	1825.4	1	1691.8	1835.7	1	1707.8	1721.0

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to due to authorized contract change orders.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/31/2019)	-46.2	-127.5
Previous Cumulative Variances	-30.3	-100.6
Net Change	-15.9	-26.9

Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to degradation from material availability and associated non-optimal work sequence, reductions in force and hiring freeze at the shipbuilder.

The unfavorable net change in the schedule variance is due to early material availability issues and associated non-optimal work sequence as well as issues described above. A Navy-led assessment team was assembled in December 2018 to analyze performance and provide recommendations for improvement and mitigation of module delays impacting contract construction spans.

Contract Identification

Appropriation: Procurement
Contract Name: SSN 796
Contractor: General Dynamics, EB Corporation
Contractor Location: 75 Eastern Point Road
Groton, CT 06340
Contract Number: N00024-12-C-2115/5
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: April 28, 2014
Definitization Date: April 28, 2014

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1755.9	1899.5	1	1751.7	1899.4	1	1747.2	1778.9

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to authorized contract change orders.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/31/2019)	-13.5	-179.3
Previous Cumulative Variances	+4.1	-116.3
Net Change	-17.6	-63.0

Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to degradation from material availability and associated non-optimal work sequence, reductions in force and hiring freeze at the shipbuilder.

The unfavorable net change in the schedule variance is due to early material availability issues and associated non-optimal work sequence as well as issues described above. A Navy-led assessment team was assembled in December 2018 to analyze performance and provide recommendations for improvement and mitigation of module delays impacting contract construction spans.

Contract Identification

Appropriation: Procurement
Contract Name: SSN 797
Contractor: General Dynamics, EB Corporation
Contractor Location: 75 Eastern Point Road
Groton, CT 06340
Contract Number: N00024-12-C-2115/6
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: April 28, 2014
Definitization Date: April 28, 2014

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1734.8	1874.4	1	1722.5	1878.7	1	1737.2	1748.8

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to authorized contract change orders.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/31/2019)	-21.5	-134.4
Previous Cumulative Variances	-0.8	-57.2
Net Change	-20.7	-77.2

Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to degradation from material availability and associated non-optimal work sequence, reductions in force and hiring freeze at the shipbuilder.

The unfavorable net change in the schedule variance is due to early material availability issues and associated non-optimal work sequence as well as issues described above. A Navy-led assessment team was assembled in December 2018 to analyze performance and provide recommendations for improvement and mitigation of module delays impacting contract construction spans.

Contract Identification

Appropriation: Procurement
Contract Name: SSN 798
Contractor: General Dynamics, EB Corporation
Contractor Location: 75 Eastern Point Road
Groton, CT 06340
Contract Number: N00024-12-C-2115/7
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: April 28, 2014
Definitization Date: April 28, 2014

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1783.0	1930.4	1	1779.6	1930.7	1	1769.4	1802.8

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 (1/31/2019)	-15.2	-107.8
Previous Cumulative Variances	--	--
Net Change	-15.2	-107.8

Cost and Schedule Variance Explanations

The unfavorable cumulative cost variance is due to degradation from material availability and associated non-optimal work sequence, reductions in force and hiring freeze at the shipbuilder.

The unfavorable cumulative schedule variance is due to early material availability issues and associated non-optimal work sequence as well as issues described above. A Navy-led assessment team was assembled in December 2018 to analyze performance and provide recommendations for improvement and mitigation of module delays impacting contract construction spans.

Notes

This is the first time this contract is being reported.

Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	0	0	0	--
Production	17	17	48	35.42%
Total Program Quantity Delivered	17	17	48	35.42%

Expended and Appropriated (TY $M)			
Total Acquisition Cost	161525.5	Years Appropriated	28
Expended to Date	69174.2	Percent Years Appropriated	58.33%
Percent Expended	42.83%	Appropriated to Date	91855.6
Total Funding Years	48	Percent Appropriated	56.87%

The above data is current as of March 11, 2019.

Notes

The 17th ship of the VIRGINIA Class, SOUTH DAKOTA (SSN 790), was delivered September 24, 2018.

Operating and Support Cost

Cost Estimate Details

Date of Estimate:	November 04, 2016
Source of Estimate:	SCP
Quantity to Sustain:	48
Unit of Measure:	Ship
Service Life per Unit:	33.00 Years
Fiscal Years in Service:	FY 2004 - FY 2065

The O&S cost position is still consistent with the effort for the VIRGINIA Class APB (signed out in January 2017). A cost estimate update is being undertaken to update Life Cycle Costs. The scope and schedule of the update are currently being formed.

Sustainment Strategy

The baseline sustainment strategy of 48 SSN 774 VIRGINIA Class submarine is structured to achieve 14 deployments during the 33 year design life for each of the total force.The first deployment occurs after a Post Shakedown Availability (PSA) conducted at the private industry construction yard. The deployment rate is achieved through maintaining material readiness using maintenance periods including three Extended Drydocking Selected Restricted Availabilities (EDSRAs) and one Depot Maintenance Period (DMP) scheduled and planned according to the required maintenance periods for major equipments and systems. The EDRSAs and DMP are expected to be performed at Navy depot maintenance facilities such as the Naval shipyards. Additional routine maintenance and repair are conducted throughout the submarine's life cycle at the homeport Navy intermediate maintenance facility.

Changes to the equipment and system design are considered and implemented on a case by case basis which may increase maintenance periodicities and support an increase to 15 deployments during the life cycle for later submarines of the class.

Antecedent Information

The antecedent system is the SSN 688 LOS ANGELES Class Submarine program. Assembly of an accurate compilation O&S cost estimate for the LOS ANGELES Class using actual cost data going back to 1976 when USS LOS ANGELES was commissioned and then projecting those costs out is problematic based on the availability and detail of the historic data. VIRGINIA Class O&S comparisons with the legacy class are hampered by changes in required attack submarine force size where the LOS ANGELES Class, at one time, had 62 submarines compared to the originally planned class size of 30 VIRGINIA Class submarines.

The source of antecedent data is the Naval Visibility and Management of Operating and Support Cost (VAMOSC) database for LOS ANGELES Class submarines for the years 1984-2008. This data must be adjusted due to significant differences between the two classes, to achieve a comparable estimate. The LOS ANGELES 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.

Annual O&S Costs BY1995 $M		
Cost Element	**SSN 774 Average Annual Cost Per Ship**	**LOS ANGELES CLASS (Antecedent) Average Annual Cost Per Ship**
Unit-Level Manpower	6.942	5.450
Unit Operations	0.849	0.700
Maintenance	20.921	15.030
Sustaining Support	0.491	0.990
Continuing System Improvements	7.352	4.240
Indirect Support	0.000	0.000
Other	0.000	0.000
Total	36.555	26.410

There are several factors contributing to an apparent anomaly between VIRGINIA CLASS and LOS ANGELES Class (SSN 688) per ship Unit Level Manpower costs. The costs for the LOS ANGELES Class are lower than the VIRGINIA Class despite a larger crew size for the LOS ANGELES Class due to the source and timing of the data. LOS ANGELES Class costs are extracted from VAMOSC using class average data 1984 - 2008. Manpower costs for the first several years of the data were approximately 65% of the most recent costs for the LOS ANGELES Class indicating real growth in pay and allowances (i.e., above inflation) over the period. The overall average, however, is significantly influenced by the lower initial costs. Further, LOS ANGELES Class VAMOSC data reflect the average annual cost of ships in the fleet. VIRGINIA estimates were built using a ramp up/ramp down methodology and reflect the total annual manpower costs for the program from assignment of the first pre-commissioning crew of the lead ship through decommissioning of the last ship.

The total O&S Cost referenced below for the LOS ANGELES Class was derived using the average annual cost per ship, 62 ships in the class and an expected service life of 33 years. The 33-year service life is used for comparative purposes with the VIRGINIA Class as LOS ANGELES Class ships were originally designed for a 30 year service life and subsequently increased to 33 years.

Item	Total O&S Cost $M			
	SSN 774			LOS ANGELES CLASS (Antecedent)
	Current Production APB Objective/Threshold		Current Estimate	
Base Year	60744.3	66818.7	57903.4	62443.9
Then Year	169852.5	N/A	160906.3	0.0

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

The BY O&S Current Production APB Objective/Threshold and Current Estimate exclude Indirect Support costs of $6,159.8M BY 1995, and Acoustic Superiority (AS) Backfit costs of $1,485.9M BY 1995. The TY O&S Current Production APB Objective/Threshold and Current Estimate include Indirect Support costs of $16,460.9M and TY AS Backfit costs of $2,877.6M TY.

Equation to Translate Annual Cost to Total Cost

The average annual cost per ship is derived by dividing total O&S costs by 48 ships and service life of 33 years. This is demonstrated by dividing $57,903.4 by 48 ships and by a 33 year service life for each ship.

O&S Cost Variance		
Category	**BY 1995 $M**	**Change Explanations**
Prior SAR Total O&S Estimates - Dec 2017 SAR	57903.4	
Programmatic/Planning Factors	0.0	
Cost Estimating Methodology	0.0	
Cost Data Update	0.0	
Labor Rate	0.0	
Energy Rate	0.0	
Technical Input	0.0	
Other	0.0	
Total Changes	0.0	
Current Estimate	57903.4	

Disposal Estimate Details

Date of Estimate: November 04, 2016
Source of Estimate: SCP
Disposal/Demilitarization Total Cost (BY 1995 $M): 2840.9

Total program disposal costs are estimated to be $8,946.0M TY.