CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION						DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**			R-1 ITEM NOMENCLATURE **0604558N/NEW DESIGN SSN**				
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	197.539	244.135	167.357	157.789	177.457	206.282	196.172
1947 / NEW DESIGN SSN HM&E	114.672	166.928	124.042	120.442	132.699	163.147	152.525
1950 / New Design SSN Combat Sys Dev	46.435	45.975	40.529	32.880	39.027	39.819	40.626
3062 / Submarine Multi-Mission Team Trainer	6.370	6.291	2.786	4.467	5.731	3.316	3.021
9999 / CONGRESSIONAL ADDS	30.062	24.941	0.000	0.000	0.000	0.000	0.000

A. MISSION DESCRIPTION:

A. (U) Mission Description and Budget Item Justification: The U.S. Navy must maintain a submarine fleet that is of sufficient capability and numbers to defend American interests. The VIRGINIA Class Submarine, formerly the New Attack Submarine (New SSN), is being designed to fulfill this need. It will counter the potential threats of the next century in a multi- mission capable submarine that has the ability to provide covert, sustained combat presence in denied waters. The primary goal of the program is to develop an affordable yet capable submarine by evaluating a broad range of system and technology alternatives, and pursuing cost reduction, producibility improvement, and technical risk management. This Program Element (PE) provides the technology, prototype components, and systems engineering needed to design and construct the VIRGINIA Class Submarine and build and its Command, Control, Communications, and Intelligence (C3I) System. This PE directly supports the following VIRGINIA Class Submarine missions: (1) covert strike warfare; (2) anti-submarine warfare; (3) covert intelligence collection/surveillance, indication and warning, and electronic warfare; (4) anti-surface ship warfare; (5) special warfare; (6) mine warfare; and (7) battle group support.

(U) Project 3062: The Submarine Multi-Mission Team Trainer (SMMTT) program replaces the proprietary mainframe computer system by re-hosting functions on industry standard Local Area Network (LAN) workstations. The mainframes can no longer be upgraded due to service life. The SMMTT modification applies to both the Combat Control System (CCS) trainers and the Acoustic trainers and will occur in three distinct phases. SMMTT Legacy was funded in OPN BLI 5661 to complete the trainer-unique software offload and enables further enhancements. The current SMMTT was formerly referred to as SMMTT "Phase 3" to distinguish it from the earlier Legacy versions, but is now simply SMMTT. The SMMTT funded in this RDT&E line will provide the architectural foundation to replace all MIL Standard hardware with commercial emulation hardware, and rehost existing proprietary based software into COTS software systems, therefore enabling platform independence and wide area network capability. The use of open architecture trainer systems allows for the continuous growth of functional flexibility, ultimately leading to employment training conducted for any submarine combat system.

(U) Project 9999: FY07 Congressional Plus-Ups consists of Advanced Submarine Research, Flex Payload Interface Module, Large Scale Demo Item - VIRGINIA Class Bow Dome, Multilevel Secure Wireless Network, Submarine Low Power Computing Advanced technology, and Submarine Modernization and Technology Insertion, and Submarine Automated Simulation. FY08Congressional Plus-Ups include; Small Business Technology Insertion, Oxygen Generator, Combat Control for Distributed Netted Systems, and Submarine Electronic Chart Updates

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	R-1 ITEM NOMENCLATURE **0604558N/NEW DESIGN SSN**	

B. PROGRAM CHANGE SUMMARY:

Funding:	FY 2007	FY 2008	FY 2009
Previous President's Budget: (FY08 Pres Controls)	201.364	223.958	168.441
Current President's Budget: (FY09 Pres Controls)	197.539	244.135	167.357
Total Adjustments	3.825	20.177	1.084
Summary of Adjustments:			
Congressional Undistributed Reductions			
Economic Assumptions	-0.005	-1.183	
Reprogrammings			
Program Adjustment	-0.120	-3.740	
Pricing Adjustment			1.084
Congressional Plus Ups	1.350	25.100	
Cancelled Accounts Liability	-0.204		
SBIR Transfer	-5.086		

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604558N/NEW DESIGN SSN**				PROJECT NUMBER AND NAME **1947/NEW DESIGN SSN HM&E**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	114.672	166.928	124.042	120.442	132.699	163.147	152.525
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

A (U) Mission Description and Budget Item Justification: (U) This project encompasses all the ship system development efforts for the VIRGINIA Class Submarine and the Technology Insertion Program for reducing cost and upgrading performance of future hulls by virtue of improvements in ship and combat systems. Technology developments, training, and logistics for developmental items, and VIRGINIA Class test & evaluation are included. This project is essential to achieve balanced platform capability, affordability, and flexibility in a low rate production environment. The thrust of these efforts will be to develop and apply multiple advanced system technologies which are integrated into the design of the VIRGINIA Class Submarine. New technologies are being transitioned from industry and government research and development programs where doing so offers substantial performance improvement and/or affordability payoffs. Transition opportunities include those from the Defense Advanced Research Projects Agency (DARPA) Sensors & Payloads program. In the future, products from the DARPA TANGO/BRAVO Submarine technology program may transition to prototyping and/or applicability on VIRGINIA hulls.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604558N/NEW DESIGN SSN**	PROJECT NUMBER AND NAME **1947/NEW DESIGN SSN HM&E**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
HM&E Development	74.990	123.075	103.021
RDT&E Articles Quantity	0	0	0

HM&E DEVELOPMENT

FY07 Plan: Continue design, manufacturing, qualification testing, and logistics documentation of prototype technologies and components such as impressed current cathodic protection. Continue system verification studies, tests, and analyses in support of ship design including for example signature, hydrodynamics, materials, and survivability analyses and tests. Provided Integrated Product and Process Development (IPPD) Design/Build team support at shipyards, Navy laboratories and in-house. Continue to support ship design and construction efforts with engineering evaluations and ship integration assessments for emergent ship design and systems development issues. Complete evaluation of the acceptability of reducing damping in ballast tanks. Evaluate sea trial acoustic results and develop a responsive program plan. Initiate development of software for advanced electromagnetic signature reduction. Continue design integration of improved main seawater components. Complete Block 2 software upgrade for ship control system. Update ship control simulator. Continue shock qualification of torpedo tube system, VRLA batteries, and high efficiency inlet and rotary shutter doors. Completed design of improved rudder/anchor light and install TEMPALT. Continue shock qualification testing of air induction diesel exhaust (AIDE) valve, large penetrations, lock out trunk (LOT). Continue development of technology insertions including risk reduction technologies for Conformal Acoustic Velocity Sensor (CAVES) and validation of computational tools to be used in developing advanced electromagnetic signature control systems. Initiate design of CAVES Wide Aperture Array (WAA). Initiate broad program to introduce components and technology to reduce VIRGINIA construction and support costs including for example electrification of weapon handling module, simplified propulsion lube oil system, vendor supplied reverse osmosis system, fusion slicing of fiber optic cables, and reduced cost propulsion components. Initiate additional cost reduction efforts as required.

FY08 Plan: Continue design, manufacturing, qualification testing, and logistics documentation of prototype technologies and components such as impressed current cathodic protection. Continue system verification studies, tests, and analyses in support of ship design including for example signature, hydrodynamics, materials, and survivability analyses and tests. Provide Integrated Product and Process Development (IPPD) Design/Build team support at shipyards, Navy laboratories and in-house. Continue to support ship design and construction efforts with engineering evaluations and ship integration assessments for emergent ship design and systems development issues. Initiate developments responding to SSN774 OPEVAL and TECHEVAL findings. Continue ship control station software upgrades. Continue detailed design of CAVES array. Continue software development for advanced electromagnetic signature reduction. Complete shock qualification of all components including air induction diesel exhaust (AIDE) valve, large penetrations, lock out trunk (LOT), torpedo tube system, high efficiency inlet, rotary shutter doors, and radar. Manufacture implodable volumes test chamber. Continue broad program to introduce components and technology to reduce VIRGINIA construction and support costs including for example electrification of weapon handling module, simplified propulsion lube oil system, vendor supplied reverse osmosis system and reduced cost propulsion components. Continue cost reduction efforts as required. Install prototype main sea water components for at-sea testing. Initiate projects addressing sea trial acoustic results.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604558N/NEW DESIGN SSN**	PROJECT NUMBER AND NAME **1947/NEW DESIGN SSN HM&E**

FY09 Plan: Continue design, manufacturing, qualification testing, and logistics documentation of prototype technologies and components such as impressed current cathodic protection. Continue system verification studies, tests, and analyses in support of ship design including for example signature, hydrodynamics, materials, and survivability analyses and tests. Provide Integrated Product and Process Development (IPPD) Design/Build team support at shipyards, Navy laboratories and in-house. Continue to support ship design and construction efforts with engineering evaluations and ship integration assessments for emergent ship design and systems development issues. Continue design of CAVES array. Continue program addressing sea trial acoustics results. Continue software development for reduced electromagnetic signature reduction. Continue ship control station software upgrades. Continue developments responding to SSN774 OPEVAL and TECHEVAL findings. Continue broad program to introduce components and technology to reduce VIRGINIA construction and support costs. Continue cost reduction efforts as required.

	FY 2007	FY 2008	FY 2009
Administrative/Environmental	1.360	1.341	0.920
RDT&E Articles Quantity	0	0	0

ADMINISTRATIVE/ENVIRONMENTAL

FY07 - FY09 Plans: Continue analyses and evaluations relating to force effectiveness assessment and component performance tradeoffs. Maintain cost based approach to VIRGINIA Class submarine construction through use of IPPD's concurrent engineering processes. Continue coordination of VIRGINIA Class submarine specification at the shipbuilder. Continue cost estimating and validation of cost reduction ideas for VIRGINIA Class submarine overall design development.

	FY 2007	FY 2008	FY 2009
Test and Evaluation	38.322	42.512	20.101
RDT&E Articles Quantity	0	0	0

TEST AND EVALUATION

FY07 Plan: Conduct SSN 774 Post PSA testing including EM Silencing, Acoustic Trials, Target Strength Verification, and Hydrodynamic trials. Conduct remaining Total Ship Survivability Test drills on SSN 775. Plan for and perform Lock-out Trunk (LOT) DT/OT on SSN 776. Begin conduct of TECHEVAL/OPEVAL. Obtain final concurrence on Test and Evaluation Master Plan (TEMP) Rev E. Continue LFT&E modeling and analysis. Continue development of the Vulnerability Analysis Report (VAR) . Begin planning for DDS and ASDS Performance Trials. Begin development of FOT&E requirements..

FY08 Plan: Evaluate SSN 774 Post PSA testing including EM Silencing, Acoustic Trials, Target Strength Verification, and Hydrodynamic trials. Complete TECHEVAL/OPEVAL. Continue LFT&E modeling and analysis. Continue development of the Vulnerability Analysis Report (VAR). Continue planning for DDS and ASDS Performance Trials. Continue development of FOT&E requirements..

FY09 Plan: Evaluate TECHEVAL/OPEVAL data. Obtain final concurrence on the Vulnerability Analysis Report (VAR). Continue planning for DDS and ASDS Performance Trials. Continue development of FOT&E requirements.

CLASSIFICATION:	UNCLASSIFIED		
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)			DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604558N/NEW DESIGN SSN**	PROJECT NUMBER AND NAME **1947/NEW DESIGN SSN HM&E**	

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. and Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
SCN Line 201300 PE: 0204281N	2,552.702	3,174.291	3,423.588	3,952.090	5,294.140	4,753.06480	4,956.7206	34,791.000	82,947.900
SCN Line 201310 PE: 0204281N	0.000	0.000	0.000	0.000	0.000	0.000		0.000	589.200
O&M, N BA-2 1B2B PE: 0204283N	26.725	44.425	58.011	57.900	61.710	63.006	64.329	cont.	cont.
OPN BA-8 Line Item 094200	155.586	145.365	199.904	187.805	253.592	199.935	202.524	cont.	cont.
(U) Related RDT&E									
Development									
(U) PE 0603570N (Advanced Nuclear Power Systems)									
(U) PE 0602121N (Surface Ship Technology)									

D. ACQUISITION STRATEGY:

The VIRGINIA Class Submarine Program has implemented Integrated Product and Process Development (IPPD). The traditional distinct phasing of the design process has been replaced with the continuous concurrent engineering IPPD process. The IPPD approach has facilitated a smoother transition from design to manufacturing and has reduced the number of changes typically encountered during construction of the lead and early follow-on ships. In September 1997, Congress passed a law allowing Electric Boat (EB) and Northrop Grumman Newport News (NGNN) to team for production of the first four VIRGINIA Class Submarines. Under the teaming agreement, EB remained the design yard for the VIRGINIA Class Submarine and NGNN became a part of the IPPD process. The Program Office awarded a multi-year contract for the FY04-08 ships. Future focus will be planning for the FY09-13 multiyear contract and efforts to reduce costs for the FY12 and beyond VIRGINIA Class submarines to $2B (FY05$) when procurement rate increases to 2 per year.

E. MAJOR PERFORMERS:

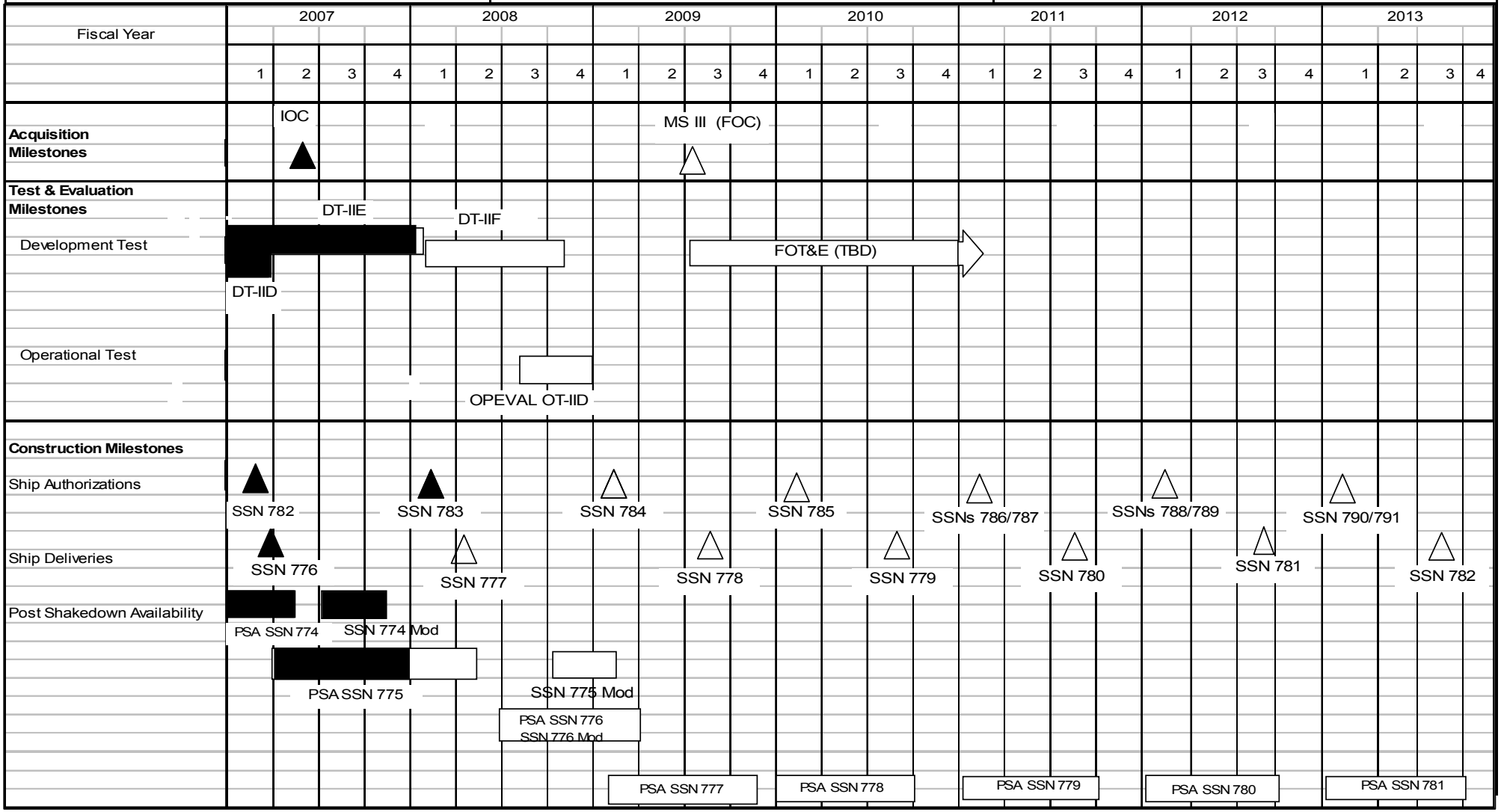
1. Electric Boat Corporation, Groton CT - Virginia Class Lead Shipbuilder

2. Naval Surface Warfare Center, Carderock Division, Bethesda, MD - Research, Development, Test & Evaluation Laboratory
3. Naval Undersea Warfare Center, Newport, RI - Research, Development, Test & Evaluation Laboratory

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**		PROGRAM ELEMENT NUMBER AND NAME **0604558N/NEW DESIGN SSN**					PROJECT NUMBER AND NAME **1947/NEW DESIGN SSN HM&E**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Test and Evaluation	Contract	EB-2112 Groton, CT	5.616	0.000		0.000		0.000		0.000	5.616	0.000
Test and Evaluation	Contract	EB-2103 Groton, CT	0.315	0.496	NOV-06	0.045	NOV-07	0.000	NOV-08	0.000	0.856	0.000
Test and Evaluation	WR	NSWC Carderock MD	62.984	18.482	NOV-06	3.359		6.283	NOV-08	26.896	118.004	0.000
Test and Evaluation	WR	NUWC Newport	40.768	15.922	NOV-06	15.278		7.601	NOV-08	8.737	88.306	0.000
Test and Evaluation	C/CPAF	EG&G C6411 Rockville, MD	7.469	0.000		0.000		0.000		0.000	7.469	0.000
Test and Evaluation	C/CPAF	SEAPORT D7019 Rockville MD	15.237	1.299	NOV-06	1.165		1.075		0.000	18.776	0.000
Test and Evaluation	Contract	Progeny 00C6226	2.273	0.000		0.000		0.000		0.000	2.273	0.000
Test and Evaluation	Contract	Progeny 06C6256	0.538	0.668	OCT-06	0.702	OCT-07	0.713	NOV-08	3.812	6.433	0.000
Test and Evaluation	PD	COMOPTEVFOR	5.608	0.380	OCT-06	21.400	OCT-07	4.150	NOV-08	6.600	38.138	0.000
Test and Evaluation	Various	Miscellaneous	9.005	0.970	NOV-06	0.493	NOV-07	0.210	NOV-08	2.842	13.520	0.000
Test and Evaluation	WR	NSWC Dahlgren, VA	0.000	0.105	NOV-06	0.070		0.070			0.245	0.000
Subtotal Test and Evaluation			**149.813**	**38.322**		**42.512**		**20.102**		**48.887**	**299.636**	**0.000**
Remarks:												
Contractor Engineering Support	C/CPAF	SEAPORT D7019 Rockville MD	13.459	1.058	NOV-06	1.131	NOV-07	0.699	NOV-08	2.386	18.733	0.000
Program Management Support	C/CPAF	EG&G C6411 Rockville MD	21.537	0.000		0.000		0.000		0.000	21.537	0.000
Program Management Support	Various	Miscellaneous	19.856	0.000		0.000		0.000		0.000	19.856	0.000
Travel			1.517	0.302		0.210		0.220		0.000	2.249	0.000
Subtotal Management			**56.369**	**1.360**		**1.341**		**0.919**		**2.386**	**62.375**	**0.000**
Remarks:												
Component Development	Contract	EB-2112 Groton, CT	492.909	0.000		0.000		0.000		0.000	492.909	0.000
Component Development	Contract	EB-2103 Groton, CT	46.911	7.818	NOV-06	84.530	NOV-07	81.338	NOV-08	485.941	706.538	0.000
Component Development	SS/CPFF	EB-4030 Groton, CT	236.311	0.000		0.000		0.000		0.000	236.311	0.000
Component Development	PD	SOS/Groton	16.360	6.681		9.663		0.000		0.000	32.704	0.000
Component Development	SS/CPFF	LM-6226	18.661	0.000		0.000		0.000		0.000	18.661	0.000
Component Development	WR	NSWC Carderock MD	495.951	26.605	NOV-06	18.513	NOV-07	13.688	NOV-08	76.086	630.843	0.000
Component Development	WR	NSWC Crane IA	4.085	0.000		0.000		0.000		0.000	4.085	0.000
Component Development	WR	NUWC Newport RI	86.174	3.370	NOV-06	5.250	NOV-07	5.326	NOV-08	29.805	129.925	0.000

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS									DATE February 2008			
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**		PROGRAM ELEMENT NUMBER AND NAME **0604558N/NEW DESIGN SSN**					PROJECT NUMBER AND NAME **1947/NEW DESIGN SSN HM&E**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Component Development	WR	NFPC, Phila PA	6.256	0.000		0.000		0.000		0.000	6.256	0.000
Component Development	Various	Various	212.691	5.457	VAR	3.150	NOV-07	0.549		0.000	221.847	0.000
Miscellaneous	Various	Various	34.418	1.152	VAR	1.969	NOV-07	2.120	TBD	43.053	82.712	0.000
Component Development	Contract	EB 04-C-2100	0.000	22.407		0.000		0.000		0.000	22.407	0.000
Component Development	SS/CPFF	Raytheon 05-C-6116	0.000	1.500	MAY-07	0.000		0.000		0.000	1.500	0.000
Subtotal Product Development			**1,650.727**	**74.990**		**123.075**		**103.021**		**634.885**	**2,586.698**	**0.000**
Remarks:												
Integrated Logistics Support	WR	NSWC Carderock MD	0.942	0.000		0.000		0.000		0.000	0.942	0.000
Integrated Logistics Support	WR	NAWC Orlando FL	26.715	0.000		0.000		0.000		0.000	26.715	0.000
Integrated Logistics Support	WR	NUWC Newport RI	2.711	0.000		0.000		0.000		0.000	2.711	0.000
Integrated Logistics Support	C/CPAF	SEAPORT D7019 Rockville MD	3.406	0.000		0.000		0.000		0.000	3.406	0.000
Integrated Logistics Support	SS/CPAF	EB-2100 Groton CT	0.090	0.000		0.000		0.000		0.000	0.090	0.000
Integrated Logistics Support	SS/CPAF	EB-2112 Groton CT	0.015	0.000		0.000		0.000		0.000	0.015	0.000
Subtotal Support			**33.879**	**0.000**		**0.000**		**0.000**		**0.000**	**33.879**	**0.000**
Remarks:												
Total Cost			**1,890.788**	**114.672**		**166.928**		**124.042**		**686.158**	**2,982.588**	**0.000**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604558N/NEW DESIGN SSN**	PROJECT NUMBER AND NAME **1947/NEW DESIGN SSN HM&E**



CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604558N/NEW DESIGN SSN**			PROJECT NUMBER AND NAME **1947/NEW DESIGN SSN HM&E**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Operational Test (OT-IIC)							
Ship Authorization (SSN 779)							
Ship Delivery (SSN 774)							
Developmental Test (DT-IIC)							
Ship Authorization (SSN 780)							
Post Shakedown Availability (PSA SSN 774)	1Q-2Q						
Ship Delivery (SSN 775)							
Ship Authorization (SSN781)							
Post PSA Modernization (SSN 774)	3Q-4Q						
Developmental Test (DT-IID)	1Q-2Q						
Initial Operating Capability (IOC)	2Q						
Post Shakedown Availability (PSA SSN 775)	2Q-4Q	1Q-2Q					
Developmental Test (DT-IIE)	1Q-4Q	1Q					
Developmental Test (DT-IIF)		1Q-4Q					
Ship Authorization (SSN 782)	1Q						
Ship Delivery (SSN 776)	1Q						
Operational Evaluation (OT-IID) (OPEVAL)		2Q-4Q					
Post PSA Modernization (SSN 775)		4Q	1Q				
Post Shakedown Availability (PSA SSN 776)		3Q-4Q	1Q-2Q				
Milestone III (MSIII)			3Q				
Full Operational Capability (FOC)			3Q				
Ship Authorization (SSN 783)		1Q					
Ship Delivery (SSN 777)		2Q					
Post Shakedown Availability (PSA SSN 777)			1Q-4Q				
Ship Authorization (SSN 784)			1Q				
Post PSA Modernization (SSN 776)		3Q-4Q	1Q-2Q				
FOT&E (OT-III & DT-III)			TBD	TBD	TBD		
Ship Delivery (SSN 778)			3Q				
Ship Authorization (SSN 785)				1Q			
Post Shakedown Availability (PSA SSN 778)				1Q-3Q			

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL (CONTINUATION)					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604558N/NEW DESIGN SSN**			PROJECT NUMBER AND NAME **1947/NEW DESIGN SSN HM&E**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Ship Delivery (SSN 779)				3Q			
Ship Authorization (SSN 786/787)					1Q		
Post Shakedown Availability (SSN 779)					1Q-3Q		
Ship Delivery (SSN 780)					3Q		
Ship Authorization (SSNs 788/789)						1Q	
Post Shakedown Availability (PSA SSN 780)						1Q-3Q	
Ship Delivery (SSN 781)						3Q	
Ship Authorization (SSNs 790/791)							1Q
Post Shakedown Availability (PSA SSN 781)							1Q-3Q
Ship Delivery (SSN 782)							3Q

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604558N/NEW DESIGN SSN**				PROJECT NUMBER AND NAME **1950/New Design SSN Combat Sys Dev**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	46.435	45.975	40.529	32.880	39.027	39.819	40.626
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

A. (U) Mission Description and Budget Item Justification: (U) This project encompasses the top level systems development, test and integration into the ship of the VIRGINIA Class Submarine C3I System (formerly referred to as Combat Systems), which includes multiple subsystems. The scope of the system is expanded from Sonar and Combat Control subsystems to include AN/BLQ-10 Electronic Support (ES) Measures, Exterior Communications, Submarine Regional Warfare System, Navigation, Total Ship Monitoring, Imaging, Tactical Acoustic Communications, Radar, Interior Communications, Tactical Support Devices, Fiber Optic Cable Subsystem, and Special Purpose Subsystems, such as Battle Force Team Trainer and others. VIRGINIA Class Submarine specific development efforts include requirements definition, software, hardware development, software/hardware test, prototype production, and electronic integration as well as physical integration into the platform.

(U) The VIRGINIA Class Submarine implementation approach is based on Open System, Commercial-off-the-Shelf (COTS) Non-Developmental Items or subsystems. The program leverages on-going subsystems developments or developing new subsystems where needed to satisfy VIRGINIA Class requirements. The recurring cost of VIRGINIA Class Submarine C3I Systems is being reduced to meet the program's affordability goals. Modifications to many subsystems must be developed to: (1) reduce the shipbuilding and construction recurring costs through the use of COTS components; (2) use proven computer technologies to evolve to an Open System design; (3) enhance capabilities to support expanded operational requirements, reduced manning, and reduced shipboard component footprint.

(U) To meet the collective future threat, the submarine force must operate as effectively in littoral regions as it traditionally has in open ocean. Close coordination with surface battle groups and airborne units is essential to mission accomplishment. To meet the VIRGINIA Class Submarine mission, the following capabilities are provided by the VIRGINIA Class Submarine C3I System: (1) Passive and Active detection of multiple contacts, including early warning threat determination through processing and analysis of sensor data; (2) classification of sensor data for the purpose of identifying contacts; (3) localization (tracking) of contacts through target motion analysis; (4) preset, launch, and control of weapons and countermeasures; (5) improved communication and connectivity with other battle group elements, airborne units, and special operations forces; (6) incorporation of vertical launch system to enhance strike warfare; and (7) more effective covert surveillance through video imaging with onboard digital enhancement capabilities, and improved electronic warfare analysis capabilities.

(U) The FY04/05 budget submit expanded the original definition of the F1950 project mission to include an ongoing post VIRGINIA Class TECH/OPEVAL RDT&E effort to continue the development of VIRGINIA Unique Combat System Improvements. The VIRGINIA Class C3I will continue to leverage backfit communities efforts, but even with □common□ systems that the Navy has developed there will continue to be VIRGINIA Unique capability improvements required. The FY08 and out funding identified is for those efforts.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604558N/NEW DESIGN SSN**	PROJECT NUMBER AND NAME **1950/New Design SSN Combat Sys Dev**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
C3I Systems Engineering	32.424	34.600	28.820
RDT&E Articles Quantity	0	0	0

ACCOMPLISHMENTS:

1. (U) FY 2007 PLAN:

" (U) ($32.424M) Continue development of high priority ship safety/self-protect deficiencies identified during integration and lead ship sea test efforts. Conduct C3I System/subsystems testing as part of VIRGINIA Class TECH/OPEVAL. Complete the Voyage Management System implementation. Continue the information assurance implementation for NPES system/subsystems.

2. (U) FY 2008 PLAN:

" (U) ($34.600M) Continue development of high priority ship safety/self-protect and mission specific deficiencies identified during integration and lead ship sea test efforts including DT and OT events. Complete C3I System/subsystems testing as part of VIRGINIA Class TECH/OPEVAL. Begin the development of System Level and other subsystem Improvements to maintain VIRGINIA Class Commonality to backfit fleet.

3. (U) FY 2009 PLAN:

" (U) ($28.820M) Complete development of high priority ship safety/self-protect and mission specific deficiencies identified during integration and lead ship sea test efforts including DT and OT events. Continue the development of System Level and other subsystem Improvements to maintain VIRGINIA Class Commonality to backfit fleet.

	FY 2007	FY 2008	FY 2009
Sonar Combat Control and Architecture Subsystems	14.011	11.375	11.709
RDT&E Articles Quantity	0	0	0

FY 2007 PLAN:

1.(U) ($14.011M) Continue development of high priority S/CC/A ship safety/self-protect deficiencies identified during integration and lead ship sea test efforts. Conduct S/CC/A subsystems testing as part of VIRGINIA Class TECH/OPEVAL. Continue the development of S/CC/A System Improvements to maintain VIRGINIA Class Commonality to backfit fleet.

CLASSIFICATION:	UNCLASSIFIED		
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)			DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604558N/NEW DESIGN SSN**	PROJECT NUMBER AND NAME **1950/New Design SSN Combat Sys Dev**	

2. (U) FY 2008 PLAN:

(U) ($11.375M) Continue development of high priority S/CC/A ship safety/self protect and mission specific deficiencies identified during integration and lead ship test efforts including DT and OT events. Continue the development of S/CC/A System Improvements to maintain VIRGINIA Class Commonality to backfit fleet.

3. (U) FY 2009 PLAN:

(U) ($11.709M) Continue development of high priority S/CC/A ship safety/self protect and mission specific deficiencies identified during integration and lead ship test efforts including DT and OT events. Continue the development of S/CC/A System Improvements to maintain VIRGINIA Class Commonality to backfit fleet.

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. and Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
SCN Line 201300 PE: 0204281N	2,552.702	3,174.291	3,423.588	3,952.090	5,294.140	4,753.064	4,956.720	34,791.000	82,947.900
SCN Line 201310 PE: 0204281N	0.000	0.000	0.000	0.000	0.000	0.000		0.000	589.200
O&M,N BA-2 1B2B PE: 0204283N	26.725	44.425	58.011	57.900	61.710	63.006	64.329	cont.	cont.
OPN BA-8 Line Item 094200	155.586	145.365	199.904	187.805	253.592	199.935	202.524	cont.	cont.
(U) Related RDT&E									
Development)									
Development)									
(U) PE 0603562N (Submarine Tactical Warfare System)									
(U) PE 0603570N (Advanced Nuclear Power Systems)									
Development)									
(U) PE 0604574N (Navy Tactical Computer Resources)									
(U) PE 0604777N (Navigation/ID Systems)									
Development)									
(U) PE 0604562N (Submarine Tactical Warfare System)									
(U) PE 0604524N (Submarine Combat Systems)									

D. ACQUISITION STRATEGY:

The VIRGINIA Class Submarine Program has implemented Integrated Product and Process Development (IPPD). The traditional distinct phasing of the design process has been replaced with the continuous concurrent engineering IPPD process. The IPPD approach has facilitated a smoother transition from design to manufacturing and has reduced the

number of changes typically encountered during construction of the lead and early follow-on ships. In September 1997, Congress passed a law allowing Electric Boat (EB) and Northrop Grumman Newport News (NGNN) to team for production of the first four VIRGINIA Class Submarines. Under the teaming agreement, EB remained the design yard for the VIRGINIA Class Submarine and NGNN became a part of the IPPD process. The Program Office awarded a multi-year contract for the FY04-08 ships. Future focus will be planning for the FY09-13 multiyear contract and efforts to reduce costs for the FY12 and beyond VIRGINIA Class submarines to $2B (FY05$) when procurement rate increases to 2 per year.

E. MAJOR PERFORMERS:

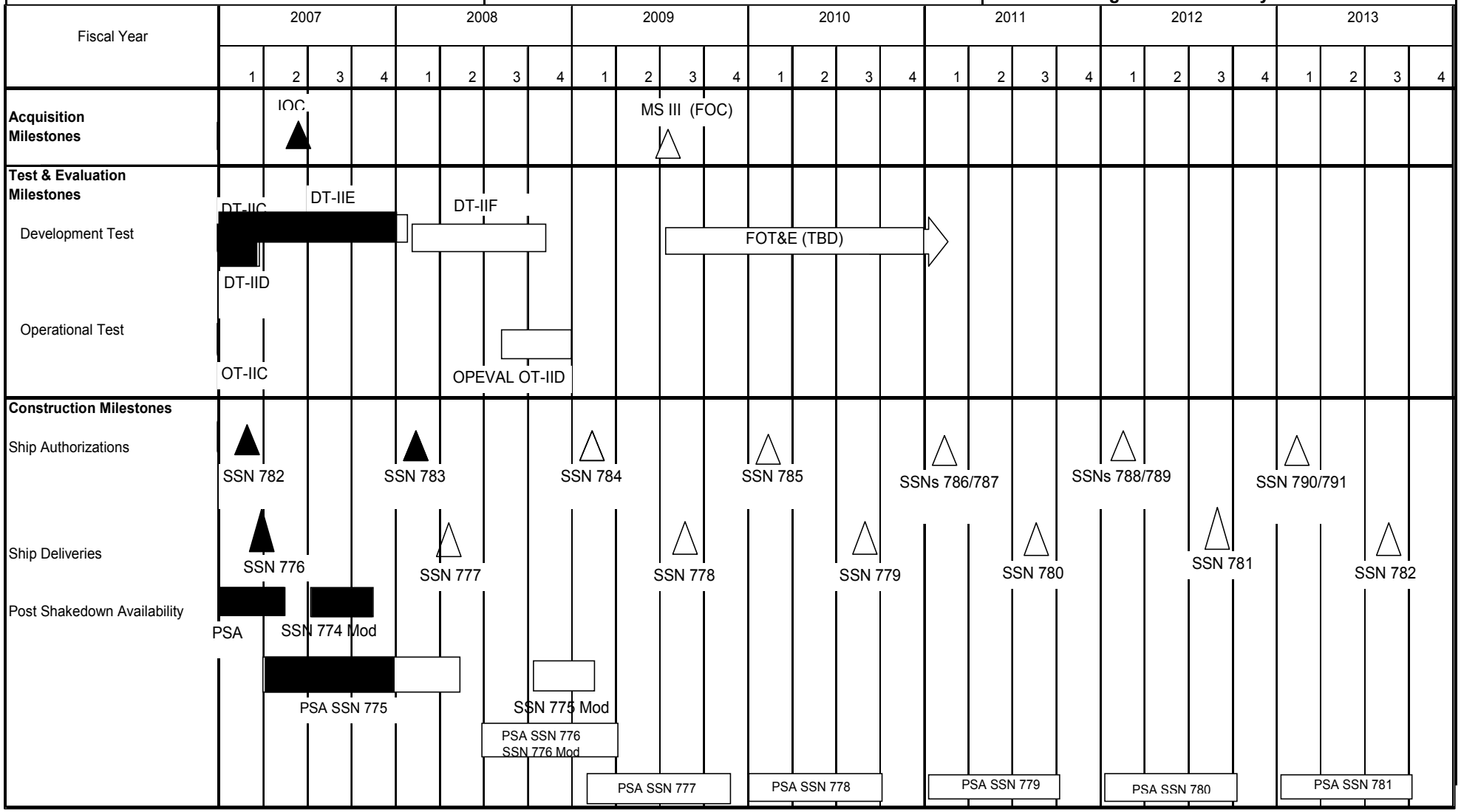
Lockheed Martin, Manassas, Virginia. C3I Prime Contractor, Development and Limited Production of the S/CC/A Subsystems

Naval Undersea Warfare Center, Newport, Rhode, Island, Technical Direction Agent for all Virginia Class Electronics.

CLASSIFICATION:		UNCLASSIFIED										
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**		PROGRAM ELEMENT NUMBER AND NAME **0604558N/NEW DESIGN SSN**					PROJECT NUMBER AND NAME **1950/New Design SSN Combat Sys Dev**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
C3I Prime Contract E&MD Total	C/CPAF	Lockheed Manassas, VA	258.854	0.000		0.000		0.000		0.000	258.854	0.000
C3I Prime Contract E&MD Award Fee	C/CPAF	Lockheed Manassas, VA	7.891	0.000		0.000		0.000		0.000	7.891	0.000
Systems Engineering	N/A	SSC Charleston, SC	3.501	0.500	NOV-06	0.515	NOV-07	0.530	NOV-08	3.300	8.346	0.000
Systems Engineering	N/A	SSC San Diego, CA	2.545	0.000		0.000		0.000		0.000	2.545	0.000
Systems Engineering	N/A	NUWC Keyport, WA	9.521	0.172	NOV-06	0.184	NOV-07	0.188	NOV-08	7.800	17.865	0.000
Miscellaneous	Various	Various	101.523	4.350	TBD	6.150	TBD	6.513	TBD	41.322	159.858	0.000
C3I Prime Contract Post Delivery	C/FFP	Lockheed Manassas, VA	22.372	0.000		0.000		0.000		0.000	22.372	0.000
ARCI Prime Contract	SS/CPAF	Lockheed Manassas, VA	8.666	3.222	FEB-07	0.000		0.000		0.000	11.888	0.000
PTR Corrections	Various	Various/TBD	6.100	8.564	TBD	12.898	TBD	12.648	TBD		40.210	0.000
Weapons Control Contract	C/CPIF	Raytheon, Portsmouth, RI	3.115	2.111	DEC-06	0.000		0.000		0.000	5.226	0.000
Unique Virginia Class Improvements	TBD	Various/TBD	0.000	0.000		4.737	NOV-07	6.538	NOV-08	80.519	91.794	0.000
Advanced Display Sys (AN/UYQ-70)	SS/CPIF	Lockheed St. Paul, MN	27.921	0.956	NOV-06	0.728	NOV-07	0.749	NOV-08	6.410	36.764	0.000
Multi-Purpose Processor	SS/CPIF	Digital Sys Fairfax, VA	41.449	0.000		0.000		0.000		0.000	41.449	0.000
Multi-Purpose Processor	SS/CPIF	Lockheed Manassas, VA	1.755	0.000		0.000		0.000		0.000	1.755	0.000
Photonics	C/CPIF	Kollmorgen Northhampton, MA	35.956	1.824	TBD	0.763	TBD	1.145	TBD	6.410	46.098	0.000
Non-Penetrating Periscope	C/CPIF	Kollmorgen Northhampton, MA	4.060	0.000		0.000		0.000		0.000	4.060	0.000
Electronic Support Measures	C/FFP	Lockheed Syracuse, NY	38.067	0.000		0.000		0.000		6.410	44.477	0.000
Platform Integration	SS/CPFF	EB Corp Groton, CT	37.276	4.000	TBD	1.000	NOV-07	1.000	NOV-08	12.823	56.099	0.000
Platform Integration	SS/CPFF	NNews Shipbuilding NNews, VA	3.065	0.000		0.000		0.000		0.000	3.065	0.000
Integrated Electronics Mast	SS/CPFF	Goleta Portsmouth, RI	8.897	0.000		0.000		0.000		0.000	8.897	0.000
Tactical Simulator	SS/CPFF	Goleta Portsmouth, RI	2.750	0.000		0.000		0.000		0.000	2.750	0.000
High Frequency Sail Array	SS/CPFF	Applied Research Austin, TX	3.273	0.000		0.000		0.000		0.000	3.273	0.000
Navigation/Radar	SS/CPFF	Sperry Corp. Charlottesville, VA	7.626	0.000		0.000		0.000		0.000	7.626	0.000
Technology Refreshment	Various	Various/TBD	10.765	0.000		7.922	NOV-07	1.668	NOV-08	0.000	20.355	0.000
Open Systems Module	SS/CPFF	UNISYS Corp St. Paul, MN	2.500	0.000		0.000		0.000		0.000	2.500	0.000
Technical Direction Agent	N/A	NUWC Newport, RI	223.759	10.438	TBD	6.000	TBD	6.000	TBD	38.466	284.663	0.000
Technology Refreshment/Info. Assurance	C/CPFF	Progeny Systems, Manassas, VA	24.989	1.997	NOV-06	1.000	NOV-07	1.000	NOV-08	6.410	35.396	0.000
NTDPS Network Centric Architecture	SS/CPFF	GD-AIS, Fairfax, VA	9.349	0.350	DEC-06	0.000		0.000		0.000	9.699	0.000
Systems Engineering	N/A	NSWC Carderock, MD	5.983	0.610	NOV-06	0.340	NOV-07	0.350	NOV-08	2.160	9.443	0.000

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS										DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**		PROGRAM ELEMENT NUMBER AND NAME **0604558N/NEW DESIGN SSN**					PROJECT NUMBER AND NAME **1950/New Design SSN Combat Sys Dev**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Systems Engineering	N/A	NSWC Crane, IN	3.742	0.000		0.000		0.000		0.000	3.742	0.000
Subtotal Product Development			**917.270**	**39.094**		**42.237**		**38.329**		**212.030**	**1,248.960**	**0.000**
Remarks:												
Subtotal Support Costs			**0.000**	**0.000**		**0.000**		**0.000**		**0.000**	**0.000**	**0.000**
Remarks:												
Test and Evaluation	Various	Various	0.000	4.712	TBD	1.500	TBD	0.000		0.000	6.212	0.000
Subtotal Test and Evaluation			**0.000**	**4.712**		**1.500**		**0.000**		**0.000**	**6.212**	**0.000**
Remarks:												
Contractor Support Services/ETS	C/CPAF	EG&G Rockville, MD	9.806	2.629	TBD	2.238	TBD	2.200	TBD	19.233	36.106	0.000
Contractor Support Services/ETS	C/CPAF	EG&G Rockville, MD	14.406	0.000		0.000		0.000		0.000	14.406	0.000
CSS/ETS Award Fee	C/CPFF	EG&G Rockville, MD	1.195	0.000		0.000		0.000		0.000	1.195	0.000
Contractor Support Services/ETS	C/CPFF	EG&G Rockville, MD	8.857	0.000		0.000		0.000		0.000	8.857	0.000
Contractor Support Services/ETS	C/CPFF	SWL Inc., Vienna, VA	5.705	0.000		0.000		0.000		0.000	5.705	0.000
Miscellaneous	Various	Various	4.765	0.000		0.000		0.000		0.000	4.765	0.000
Contractor Support Services/ETS	C/CPFF	American Sys, Chantilly, VA	2.099	0.000		0.000		0.000		0.000	2.099	0.000
Subtotal Management Services			**46.833**	**2.629**		**2.238**		**2.200**		**19.233**	**73.133**	**0.000**
Remarks:												
Total Cost			**964.103**	**46.435**		**45.975**		**40.529**		**231.263**	**1,328.305**	**0.000**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604558N/NEW DESIGN SSN**	PROJECT NUMBER AND NAME **1950/New Design SSN Combat Sys Dev**



CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604558N/NEW DESIGN SSN**			PROJECT NUMBER AND NAME **1950/New Design SSN Combat Sys Dev**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Operational Test (OT-IIC)							
Ship Authorization (SSN 779)							
Ship Delivery (SSN 774)							
Developmental Test (DT-IIC)							
Ship Authorization							
Post Shakedown Availability (PSA SSN 774)	2Q						
Ship Delivery (SSN 775)							
Ship Authorization (SSN 781)							
Post PSA Modernization (SSN774)	3Q-4Q						
Developmental Test (DT-IID)	1Q-2Q						
Initial Operating Capability (IOC)	2Q						
Post Shakedown Availability (PSA SSN 775)	2Q-4Q	2Q					
Developmental Test (DT-IIE)	1Q						
Developmental Test (DT-IIF)	1Q-4Q	1Q-3Q					
Ship Authorization (SSN 782)	1Q						
Ship Delivery (SSN 776)	1Q						
Operational Evaluation (OT-IID) OPEVAL		2Q-4Q					
Post PSA Modernization (SSN 775)		4Q	1Q				
Post Shakedown Availability (PSA SSN 776)		3Q-4Q	2Q				
Milestone III (MSIII)			3Q				
Full Operational Capability (FOC)			3Q				
Ship Authorization (SSN 783)		1Q					
Ship Delivery (SSN 777)		2Q					
Post Shakedown Availability (PSA SSN 777)			1Q-4Q				
Ship Authorization (SSN 784)			1Q				
Post PSA Modernization (SSN 776)			3Q-4Q				
FOT&E (OT-III & DT-III)			TBD	TBD	TBD		
Ship Delivery (SSN 778)			3Q				
Ship Authorization (SSN 785)				1Q			
Post Shakedown Availability (PSA SSN 778)				1Q-3Q			

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL (CONTINUATION)					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604558N/NEW DESIGN SSN**			PROJECT NUMBER AND NAME **1950/New Design SSN Combat Sys Dev**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Ship Delivery (SSN 779)				3Q			
Ship Authorization (SSN 786/787)					1Q		
Post Shakedown Availability (SSN 779)					1Q-3Q		
Ship Delivery (SSN 780)					3Q		
Ship Authorization (SSNs 788/789)						1Q	
Post Shakedown Availability (PSA SSN 780)						1Q-3Q	
Ship Delivery (SSN 781)						3Q	
Ship Authorization (SSNs 790/791)							1Q
Post Shakedown Availability PSA SSN 781)							1Q-3Q
Ship Delivery (SSN 782)							3Q

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604558N/NEW DESIGN SSN**				PROJECT NUMBER AND NAME **3062/Submarine Multi-Mission Team Trainer**		
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	6.370	6.291	2.786	4.467	5.731	3.316	3.021
RDT&E Articles Qty	0	0	0	0	0	0	0

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

To achieve desired submarine force readiness levels, it is necessary to construct highly sophisticated shorebased Combat System Team Trainers capable of training personnel in all aspects of submarine approach, attack and surveillance operations in a controlled, simulated environment.

The Combat Control System (CCS) MK1 and CCS MK2are installed on SSN and SSGN Class submarines, and there are currently plans to further upgrade these systems with the next hardware and software revisions which provide enhanced warfighter capabilities. The Tactical Acoustic Rapid COTS (commercial-off-the-shelf) Insertion (ARCI) Phased upgrades are also being installed with the next revision which provides enhanced warfighter capabilities. These CCS (AN/BYG-1) and ARCI (AN/BQQ-10) upgrades directly impact shore based Team Trainers. In addition, the Advanced Processing Builds (APB) and new TI-0x sensors, which feed technology insertion into the CCS/Acoustic development, also impact the trainers.

The Submarine Multi-Mission Team Trainer (SMMTT) supports operator, employment, strike, and Battle Group training for enlisted and officer pipelines. The SMMTT provides operators and combat teams the opportunity to train ashore, prior to, and between deployments. The shore based training provides a means of maintaining team proficiency in stand alone or in combined team mode prior to ship deployment.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604558N/NEW DESIGN SSN**	PROJECT NUMBER AND NAME **3062/Submarine Multi-Mission Team Trainer**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	6.370	6.291	2.786
RDT&E Articles Quantity	0	0	0

FY07 Develop implementation of latest Advanced Processor Build (APB), Technical Insertion (TI) and associated training displays. Develop standalone functionality of SMMTT SEAWOLF Sonar and Combat Control.

FY08 Develop implementation of latest Advanced Processor Build (APB), Technical Insertion (TI) and associated training displays. Develop standalone functionality of SMMTT SEAWOLF Sonar and Combat Control.

FY09 Develop implementation of latest Advanced Processor Build (APB), Technical Insertion (TI) and associated training displays.

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. and Name	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Complete	Total Cost
566100, Submarine Training Device	17.100	25.500	26.900	16.800	26.100	30.300	16.200	0.000	183.700
Modification (TD009 Cost Code)									

D. ACQUISITION STRATEGY:

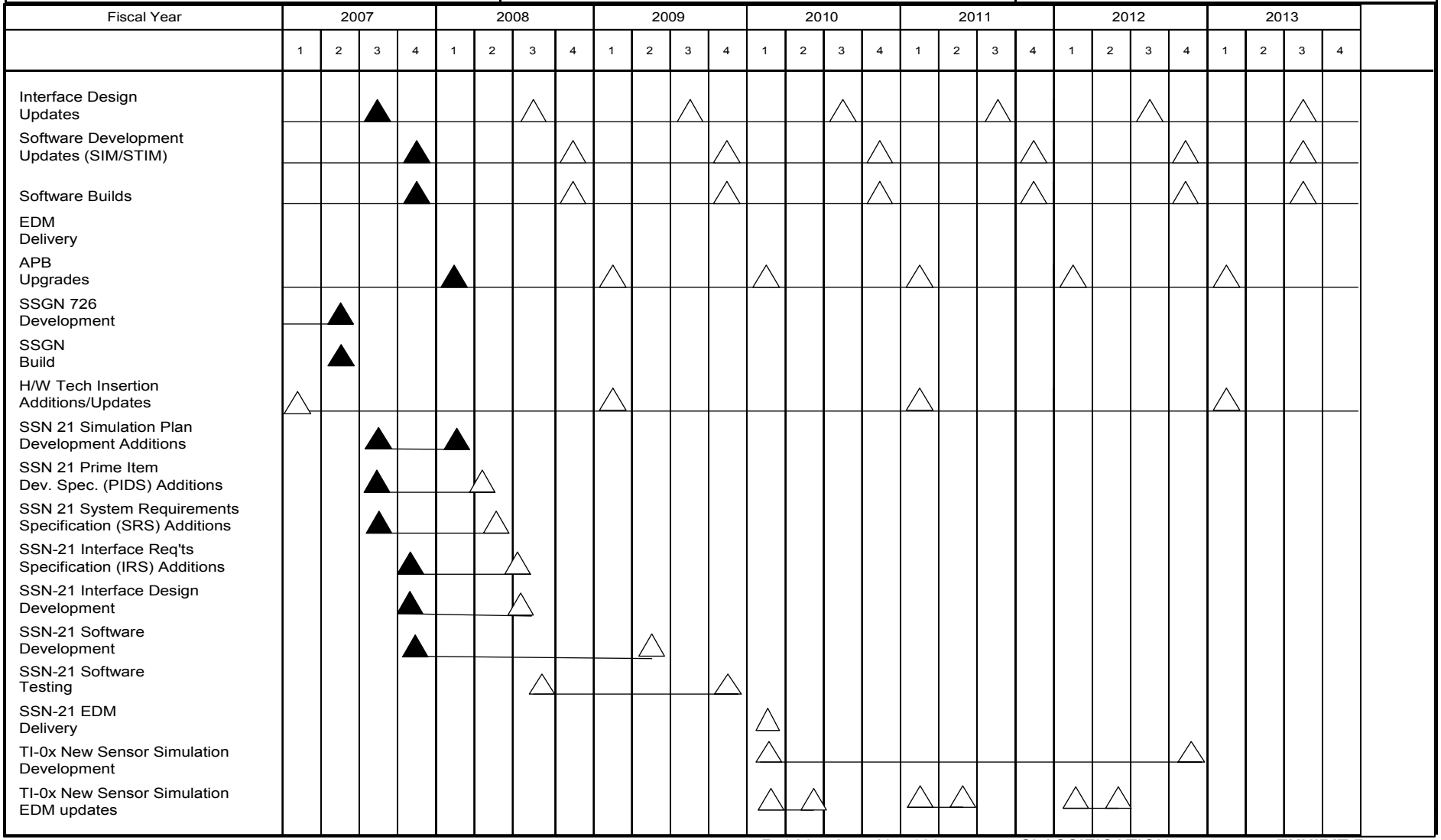
The SMMTT program software development is accounted for in this RDT&E line. All production kits are procured in OPN PE 0804731N BLI 566100.

E. MAJOR PERFORMERS:

NSWCCD

CLASSIFICATION:	UNCLASSIFIED											
EXHIBIT R-3, RDT&E PROJECT COST ANALYSIS									DATE February 2008			
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**		PROGRAM ELEMENT NUMBER AND NAME **0604558N/NEW DESIGN SSN**					PROJECT NUMBER AND NAME **3062/Submarine Multi-Mission Team Trainer**					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Component Development	REQN	NSWCCD, Bethesda, MD	2.312	6.145	OCT-06	5.826	JAN-08	2.386	TBD	14.935	31.604	0.000
Component Development	C\CPFF	UT Austin ARL	0.265	0.225	MAR-07	0.465	MAR-08	0.400	TBD	1.600	2.955	0.000
Subtotal Product Development			**2.577**	**6.370**		**6.291**		**2.786**		**16.535**	**34.559**	**0.000**
Remarks:												
Total Cost			**2.577**	**6.370**		**6.291**		**2.786**		**16.535**	**34.559**	**0.000**

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-4, SCHEDULE PROFILE		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604558N/NEW DESIGN SSN**	PROJECT NUMBER AND NAME **3062/Submarine Multi-Mission Team Trainer**



CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-4a, SCHEDULE DETAIL					DATE February 2008		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604558N/NEW DESIGN SSN**			PROJECT NUMBER AND NAME **3062/Submarine Multi-Mission Team Trainer**			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Interface Design Updates	3Q	3Q	3Q	3Q	3Q	3Q	3Q
Software Development Updates (SIM/STIM)	4Q	4Q	4Q	4Q	4Q	4Q	4Q
Software Builds	4Q	4Q	4Q	4Q	4Q	4Q	4Q
Engineering Development Model (EDM) delivery							
Advanced Processing Build (APB) Upgrades	1Q	1Q	1Q	1Q	1Q	1Q	1Q
SSGN 726 Development	2Q						
SSGN Build	2Q						
Hard Ware Tech Insertion Updates	1Q		1Q		1Q		1Q
SSN 21 Simulation Plan Development Additions	3Q-4Q	1Q					
SSN 21 Prime Item Dev Spec. (PIDS) Additions	3Q-4Q	1Q-2Q					
SSN 21 System Requirements Spec (SRS) Additions	3Q-4Q	1Q-2Q					
SSN 21 Interface Reqt's Spec (IRS) Additions	4Q	1Q-3Q					
SSN 21 Interface Design Development	4Q	1Q-3Q					
SSN 21 Software Development	4Q	1Q-4Q	1Q-2Q				
SSN 21 Software Testing		3Q-4Q	1Q-4Q				
SSN 21 EDM Delivery				1Q			
TI-0x New Sensor Simulation Development				1Q-4Q	1Q-4Q	1Q-4Q	
TI-0x New Sensor Simulation EDM Updates				1Q-2Q	1Q-2Q	1Q-2Q	

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604558N/NEW DESIGN SSN**	PROJECT NUMBER AND NAME **9999/CONGRESSIONAL ADDS**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.000	1.590	0.000
RDT&E Articles Quantity	0	0	0

70806 Combat Control for Distributed Netted Systems

Conduct research, design, develop and prototype an advanced submarine war fighter command and control supporting Distributed Netted System directed toward implementation in the 3rd flight or later of the VIRGINIA Class submarine program with applicability across the submarine fleet. Specific problems to be addressed in the FY08 timeframe include net-centric warfighter control and information assurance of planned and conceptual payload systems for the VIRGINIA Class payload tubes. The methodology for this development includes a detailed requirements analysis, a detailed design phase and followed by a spiral development approach which evolves the Concept of Operations (CONOPS) and technological development in parallel.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.000	2.683	0.000
RDT&E Articles Quantity	0	0	0

70807 Submarine Electronic Chart Updates

Research, design and develop updates to the common Navy solution for the Submarine digital nautical charts. These updates will enhance the current Voyage Management System/Enhanced Control Display Unit capabilities on the VIRGINIA Class and backfit submarines. Establish an interim chart update repository ashore to support the Navy until formal transition to NGA production. Develop and evaluate potential bandwidth reduction options for vector data products, and establish related certification requirements and procedures. Demonstrate navigation task reduction through automated chart updates by data consumers, such as certified ECDIS-N systems. Complete operational testing of developed services and web clients for release to Fleet

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.000	0.795	0.000
RDT&E Articles Quantity	0	0	0

70804 Oxygen Generator

'Develop and extend existing commercial efficiencies in electrolyzer design to result in a improved Low Pressure Electrolyzer (LPE) electrolysis cell that 50% cheaper than current, resulting in a potential savings of $150M over 15 years. Existing patented low-cost cellstack construction technology will be rugged-ized for submarine use. The improved LPE electrolysis cell has potential application in the VIRGINIA Class Integrated Low Pressure Electrolyzer (ILPE) as well the LPE being implemented in OHIO and SEAWOLF Class submarines

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost 9A48N	0.971	0.000	0.000

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EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)			DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604558N/NEW DESIGN SSN**	PROJECT NUMBER AND NAME **9999/CONGRESSIONAL ADDS**	
RDT&E Articles Quantity	0	0	0
Research Total Ownership Cost reduction technology insertion opportunities with Submarine Command and Control System electronics. Conduct research in engineering design alternatives and identify specific viable candidates to reduce the production and life cycle cost of the low power advanced technology electronics.			
	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost 9A49N	4.174	0.000	0.000
RDT&E Articles Quantity	0	0	0
Research Total Ownership Cost reduction technology insertion opportunities with Virginia Class electronics. Conduct research in engineering design alternatives and identify specific viable candidates to reduce the production and life cycle cost of the active sonar transmit electronics.			
	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost	0.000	19.873	0.000
RDT&E Articles Quantity	0	0	0
70805 Small Business Technology Insertion Research and development efforts for fresh, creative, and innovative solutions to the Navy's requirements for high risk/high reward components of submarine combat system development. Variours combat system component technology insertions/upgrades (torpedo, photonics, navigation data distribution, etc.) to reduce the cost of ship acquisition.			
	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost 9A45N	6.564	0.000	0.000
RDT&E Articles Quantity	0	0	0
This project will pursue detail design of a bow redesign for the VIRGINIA Class that includes a Payload Interface Module (PIM) and a compatible Flexible Payload Module (FPM). The new bow design reconfigures the bow of the submarine by removal of the present vertical launch system design and inserting a PIM. The FPM will be inserted into the PIM. The initial concept for a FPM is one that reconstitutes the 12 vertical launch tubes so that no VIRGINIA capability is lost. The design is predicated upon inclusion of the Large Aperture Bow (LAB) Array in the same bow redesign.			
	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost 9A46N	4.863	0.000	0.000
RDT&E Articles Quantity	0	0	0
This project will qualify an alternative vendor, Seamann Composites, Gulfport, MS, for submarine bow domes promising a significant cost reduction.			
	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost 9A47N	1.261	0.000	0.000
RDT&E Articles Quantity	0	0	0
Develop a Multilevel Secure Wireless Network for deployment on the Virginia Class submarine with a full backfit capability across in service platforms. The use of a wireless network within the submarine will allow personnel and their workstations to be relocated dynamically within the available space in a highly mission-context specific manner. The employment of advanced MLS technology will function in synergy with the wireless network to enable all personnel to run any application appropriate to his/her clearance			

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604558N/NEW DESIGN SSN**	PROJECT NUMBER AND NAME **9999/CONGRESSIONAL ADDS**

level regardless of the workstation at which he/she is working. This mobile deployment of personnel within the submarine will greatly increase the flexibility of the submarine platform and it□s Concept of Operation.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost 1947C	5.871	0.000	0.000
RDT&E Articles Quantity	0	0	0

Large Aperture Bow (LAB) Array:

This project will pursue detail design of a bow redesign for the VIRGINIA Class that includes a Payload Interface Module (PIM) and a compatible Flexible Payload Module (FPM). The new bow design reconfigures the bow of the submarine by removal of the present vertical launch system design and inserting a PIM. The FPM will be inserted into the PIM. The initial concept for a FPM is one that reconstitutes the 12 vertical launch tubes so that no VIRGINIA capability is lost. The design is predicated upon inclusion of the Large Aperture Bow (LAB) Array in the same bow redesign. Design concept for the PIM, as originally conceived as a large removable box-like structure, was developed and traded-off against the alternative of inserting 2 large diameter payload tubes. The latter had certain advantages over the original PIM concept, including lower development and construction costs. As a result, the payload enhancement concept transitioned to the Virginia Payload Tube (VPT) concept presently being implemented in the VIRGINIA class beginning in FY09.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost 9989N	1.310	0.000	0.000
RDT&E Articles Quantity	0	0	0

Testing, insertion and integration of simulation automation technology developed under a SBIR project into the AN/BQQ-10 Onboard Team Trainer (OBTT) for Los Angeles 688 class SSN. SubAutoSim will enhance the complexity and proficiency of onboard training tactical training through the use of advanced computer-assisted simulator control tools thus significantly reducing the current over-reliance on manpower intensive training techniques.

	FY 2007	FY 2008	FY 2009
Accomplishments/Effort/Subtotal Cost 9A44N	5.048	0.000	0.000
RDT&E Articles Quantity	0	0	0

Funds will be used to evaluate and migrate unique military standard weapons systems, sensors, electronics, and software system components to common COTS based architectures and technologies. Specifically, the funds would be utilized to develop an integrated weapon and countermeasure launch & control system. This small business □Common Open Architecture□ technology insertion effort will focus on high risk/high reward components of the submarine combat system weapon□s control, launch, sonar, and communications systems. It will identify opportunities for commonality across submarine and surface ship electronic subsystems to provide significant life cycle cost reductions