Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	95.017	69.385	81.184	0.000	81.184	83.089	76.127	77.413	53.547	Continuing	Continuing
0004: *TRIDENT Submarine System Improvement*	0.347	0.384	0.431	0.000	0.431	0.438	0.443	0.453	0.463	Continuing	Continuing
0951: *Joint Warhead Fuze Sustainment Program*	0.000	14.008	33.100	0.000	33.100	33.300	23.600	23.800	24.000	Continuing	Continuing
2228: *Technical Applications Programs*	42.099	45.448	43.015	0.000	43.015	44.708	47.450	48.516	24.435	Continuing	Continuing
3158: *Integrated Nuclear Weapons Security Sys Dev*	20.904	5.801	4.638	0.000	4.638	4.643	4.634	4.644	4.649	Continuing	Continuing
3198: *Underwater Launch Missile System (ULMS)*	9.726	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.726
9999: *Congressional Adds*	21.941	3.744	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	34.648

A. Mission Description and Budget Item Justification

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The TRIDENT operational systems development program results in improvements to the baseline TRIDENT Combat System. Current TRIDENT Combat Systems were first developed in the early 1970s and are becoming increasingly difficult to maintain and offer comparatively less performance than more recently designed systems. Previous efforts to upgrade portions of the TRIDENT Combat System include improvements via sonar and combat control hardware and software (e.g., QE2 programs), feasibility of increased countermeasure capability and a concept evaluation of an Submarine Fleet Mission Program Library (SFMPL) interface. Due to the sensitivity of TRIDENT programs it is assessed that international technology will not have a major impact or be a recipient of the benefits derived from this effort. Development strategies will significantly enhance the sustainability and operability of the sonar, communications and Combat Control Systems on TRIDENTs by evaluating both Obsolete Equipment Replacement (OER) possibilities and potential improvements.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0101221N: *Strategic Sub & Wpns Sys Supt*

The TRIDENT Submarine System Improvement Program develops and integrates command and control improvements needed to maintain TRIDENT Submarine operational capability through the life cycle of this vital strategic asset. The program conducts efforts needed to maintain strategic connectivity, ensure platform invulnerability, and reduce lifecycle costs through Obsolete Equipment Replacement (OER) and commonality.

The Advanced Technologies for Arming, Fuzing, and Firing (AF&F)/Joint Warhead Fuze Sustainment program supports efforts to develop, proof, and demonstrate advanced technologies that will be leveraged and incorporated into future AF&Fs. The focus is on technologies that have multi-service (Navy and Air Force) and Multi-Nation (US and UK) applicability. $10M of 2009 funding was appropriated as a Congressional add to support advance technologies for the Mk5 Arming, Fuzing, and Firing (AF&F). The Joint Warhead Fuze Sustainment Program will commence in FY2010 as a development and studies program which integrates modern technologies into the Arming, Fuzing, and Firing (AF&F) development and modernization to improve reliability, safety and security, and develop common fuze components adaptable to current and future warheads.

A study will be conducted to determine what surety, safety, and ambiguity issues may exist if SSBNs were outloaded with both conventional and nuclear payloads.

The Technology Applications Program supports the TRIDENT II (D5) Submarine Launched Ballistic Missile (SLBM) that provides the U.S. a weapon system with greater accuracy and payload capability as compared to the TRIDENT I (C4) system. TRIDENT II enhances U.S. strategic deterrence providing a survivable sea-based system capable of engaging the full spectrum of potential targets with fewer submarines. This Program Element supports investigations into new technologies which would help mitigate the program impact due to component obsolescence and a rapidly decreasing manufacturing support base. These efforts include Reentry System Applications and Guidance System Applications.

The Integrated Nuclear Weapons Security System (INWSS) efforts support the Nuclear Weapons Security program and SSBN Escort mission. The policies and requirements regarding the safeguard of nuclear weapons within the Department of Defense is established by DoD S5210.41M. Within the Department of the Navy, nuclear weapons are limited to TRIDENT Fleet Ballistic Missiles (FBM), either deployed aboard TRIDENT submarines or located landside at Naval Submarine Base, Kings Bay, or Naval Submarine Base, Bangor where missiles are first assembled as well as repaired. The Chief of Naval Operations (CNO) has assigned the Strategic Systems Programs, the FBM program manager, with mission responsibility for the safeguard of FBM nuclear technologies. This budget supports efforts directed at improving the current technological baseline through a series of studies focusing on land and waterside requirements, including both surface and underwater. Collectively, these efforts will improve countermeasure technologies addressing detection, delay and denial. INWSS efforts include the development of the the Palletized Protection System (PPS), a self contained, autonomous, readily transportable, limited area defense anti-missile system designed to protect high value critical assets from threat missiles by either disrupting their guidance and control systems, or physically intercepting and destroying them in flight. PPS development efforts funded in FY2007 and FY2008 were delayed due to technical and developmental issues. An above threshold reprogramming action was processed to fund additional

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*

FY2009 efforts required to complete test and evaluation efforts. Subsequent to the reprogramming, the PPS contract was terminated and all PPS development efforts have been cancelled. A portion of the FY09 funidng is required to address contract termination costs.

The Underwater Launch Missile System (ULMS) effort develops capabilities definitions and assessments, science & technology development strategies, and conceptual work to prepare for R&D and future prototyping.

The Advanced LINAC Facility Program seeks to develop and complete the design for an advanced Linear Accelerator Facility to perform radiation simulation of transient dose rate events. This facility will perform with advanced capabilities to overcome limitations of existing facilities, allowing for greater efficiency in testing and reducing costs.

The Adelos National Security Sensor System effort develops an advanced fiber optic sensor system for counterterrorism and antiterrorism operations to meet rigorous performance metrics necessary for nuclear facility, material, and weapons protection. The Adelos component will evaluate the use of advanced classification algorithms for reduction of false positive detections of objects in proximity to fiber optic sensing elements. Adelos program also seeks to expand the application of a unique fiber optic sensor system designed to provide covert surveillance and intelligence gathering of potential threats to our nation's nuclear activity.

The Enhanced Special Weapons/Nuclear Weapons Security effort supports the development of the Adelos fiber optic sensor system for the advanced detection, tracking, and classification of potential threat targets by employing advanced digital acoustic watermarking algorithms within a secure network for steganographic techniques to convey the classification and location information within the digital audio signal produced by the Adelos application software.

The Covert Robust Location Aware Wireless Network (CROWN) program develops a key foundation technology enabler to provide communication between multiple assets for a covert network capability that could be used on the submarine as a wireless network, and as a method to improve relative terminal accuracy that cannot be met today, especially in jammed or spoofed battlefields. The CROWN program provides the military precision relative location determination, tracking in a jammed environment, and high data rate communications with a low probability of being detected or intercepted by adversaries.

The Maritime Security- Surface and Sub-Surface Surveillance effort supports the development of the Quad-S Seaport Security System. The Quad-S Program develops a tactical surveillance and reconnaissance system in support of real-time monitoring of the complete spectrum of the maritime domain underwater, surface, air,

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0101221N: *Strategic Sub & Wpns Sys Supt*

associated landside environments and individuals within those environments. This funding will also develop a needed year-round test bed, to evaluate and test emerging maritime technologies against the operational capabilities needed by the U.S. Navy.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	78.537	74.939	0.000	0.000	0.000
Current President's Budget	95.017	69.385	81.184	0.000	81.184
Total Adjustments	16.480	-5.554	81.184	0.000	81.184
• Congressional General Reductions		-0.289			
• Congressional Directed Reductions		-9.000			
• Congressional Rescissions	0.000	-0.025			
• Congressional Adds		3.760			
• Congressional Directed Transfers		0.000			
• Reprogrammings	18.240	0.000			
• SBIR/STTR Transfer	-1.760	0.000			
• Program Adjustments	0.000	0.000	81.184	0.000	81.184

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *ADVANCED LINEAR ACCELERATOR (LINAC) FACILITY*	3.191	0.956
Congressional Add: *Adelos National Security Sensor System*	1.995	2.788
Congressional Add: *Enhanced Special Weapons/Nuclear Weapons Security*	1.596	0.000
Congressional Add: *Advanced Technology for Mk5 AF&F*	9.973	0.000
Congressional Add: *Covert Robust Location Aware Wireless Network*	1.596	0.000
Congressional Add: *Maritime Security-Surface and Sub-surface Surveill*	3.590	0.000
Congressional Add Subtotals for Project: 9999	21.941	3.744
Congressional Add Totals for all Projects	21.941	3.744

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0101221N: *Strategic Sub & Wpns Sys Supt*

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 0004: *TRIDENT Submarine System Improvement*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
0004: *TRIDENT Submarine System Improvement*	0.347	0.384	0.431	0.000	0.431	0.438	0.443	0.453	0.463	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The TRIDENT operational systems development program results in improvements to the baseline TRIDENT Combat System. Current TRIDENT Combat Systems were first developed in the early 1970s and are becoming increasingly difficult to maintain and offer comparatively less performance than more recently designed systems. Previous efforts to upgrade portions of the TRIDENT Combat System include improvements via sonar and combat control hardware and software (e.g., QE2 programs), feasibility of increased countermeasure capability and a concept evaluation of an Submarine Fleet Mission Program Library (SFMPL) interface. Due to the sensitivity of TRIDENT programs it is assessed that international technology will not have a major impact or be a recipient of the benefits derived from this effort. Development strategies will significantly enhance the sustainability and operability of the sonar, communications and Combat Control Systems on TRIDENTs by evaluating both Obsolete Equipment Replacement (OER) possibilities and potential improvements.

The TRIDENT Submarine System Improvement Program develops and integrates command and control improvements needed to maintain TRIDENT Submarine operational capability through the life cycle of this vital strategic asset. The program conducts efforts needed to maintain strategic connectivity, ensure platform invulnerability, and reduce lifecycle costs through Obsolete Equipment Replacement (OER) and commonality.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
TRIDENT Submarine System Improvement	0.347	0.384	0.431	0.000	0.431
FY 2009 Accomplishments: (U) Conducted Commercial Off The Shelf (COTS)/emergent technology and Command Control System (CCS) performance requirements evaluations supporting Trident modernization program/ plans. Researched and evaluated effectiveness of proposed new technology over the ships' life					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 0004: *TRIDENT Submarine System Improvement*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
cycle. Analyzed impacts on platform performance with proposed new technology changes using architecture models and tests. Studied and identified options in selecting and installing new technology improvements. Evaluated Navigation data interface requirements to meet Electronic Chart Display and Information System Navy (ECDIS-N) compliance on Trident hulls. Completed Communication Command and Control (CCC) Concept of Operations (CONOPS) study to accommodate Revision 7.3 (MK2 ECP4) installation. Provided arrangement layouts Government Furnished Information (GFI) to Electric Boat (EB) Ship Design Agent (SDA). *FY 2010 Plans:* (U) Conduct Commercial Off The Shelf (COTS)/emergent technology and Command Control System (CCS) performance requirements evaluations supporting Trident modernization program/plans. Research and evaluate effectiveness of proposed new technology over the ships' life cycle. Analyze impacts on platform performance with proposed new technology changes using architecture models and tests. Study and identify options in selecting and installing new technology improvements. Evaluate Navigation data interface requirements to meet Electronic Chart Display and Information System Navy (ECDIS-N) compliance on Trident hulls. Provide arrangement layouts Government Furnished Information (GFI) to Electric Boat (EB) Ship Design Agent (SDA). *FY 2011 Base Plans:* (U) Conduct Commercial Off The Shelf (COTS)/emergent technology and Command Control System (CCS) performance requirements evaluations supporting Trident modernization program/plans. Research and evaluate effectiveness of proposed new technology over the ships' life cycle. Analyze impacts on platform performance with proposed new technology changes using architecture models and tests. Study and identify options in selecting and installing new technology improvements. Evaluate Navigation data interface requirements to meet Electronic Chart Display and Information System Navy (ECDIS-N) compliance on Trident hulls. Provide arrangement layouts Government Furnished Information (GFI) to Electric Boat (EB) Ship Design Agent (SDA).					
Accomplishments/Planned Programs Subtotals	0.347	0.384	0.431	0.000	0.431

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 0004: *TRIDENT Submarine System Improvement*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Efforts conducted by U.S. Navy laboratories.

E. Performance Metrics

Not applicable

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 0951: *Joint Warhead Fuze Sustainment Program*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
0951: *Joint Warhead Fuze Sustainment Program*	0.000	14.008	33.100	0.000	33.100	33.300	23.600	23.800	24.000	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Joint Warhead Fuze Sustainment Program is a development and studies program which integrates modern technologies into the Arming, Fuzing, and Firing (AF&F) development and modernization to improve reliability, safety and security, and develop common fuze components adaptable to current and future warheads. The Joint Warhead Fuze Sustainment Program will focus on technologies that have multi-service (Navy and Air Force) and Multi-Nation (US and UK) applicability. Examples of the technologies to be investigated are advance safety systems architectures, improved radar performance, multi-chip radar integration, radiation hardened electronics, radiation hardened non-volatile memory, advance power systems, identification of component qualification techniques, and preliminary testing of alternative components (primarily circuit elements.)

A study will be conducted to determine what surety, safety, and ambiguity issues may exist if SSBNs were outloaded with both conventional and nuclear payloads.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
TRIDENT II	0.000	14.008	33.100	0.000	33.100
Identify, prioritize, develop, proof, and demonstrate advanced technologies that will be leveraged and incorporated into future AF&Fs. *FY 2010 Plans:* (U) FY 2010 PLAN (U) ($14.008) Joint Warhead Fuze Sustianment Program (U) Support USN, USAF, and UK engineer working group. (U) Perform component level testing of potential arming/fuzing devices and technologies.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 0951: *Joint Warhead Fuze Sustainment Program*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
(U) Develop approach to address radiation hardening issues in electronic AF&F components. *FY 2011 Base Plans:* (U) FY 2011 PLAN (U) ($23.100) Joint Warhead Fuze Sustianment Program (U) Develop, proof, and demonstrate identified advanced technologies for future AF&Fs (U) Support USN, USAF, and UK engineer working group. (U) Perform component level testing of potential arming/fuzing devices and technologies. (U) Develop safety architecture solution. (U) ($10.0M) Global Strike (U) Conduct a study to determine what surety, safety, and ambiguity issues may exist if SSBNs were outloaded with both conventional and nuclear payloads.					
Accomplishments/Planned Programs Subtotals	0.000	14.008	33.100	0.000	33.100

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Contracts will continue to be awarded to those sources who were engaged in the Mk4LE Reentry Body development program and are currently engaged in the production and/or operational support of the deployed Mk4LE Reentry Body on the basis of Other Than Full and Open Competition pursuant to the authority of 10 U.S.C. 2304 (c) (1) and (3) implemented by FAR 6.302.-1, 3, 4

E. Performance Metrics

Not applicable

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 0951: *Joint Warhead Fuze Sustainment Program*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Joint Warhead Fuze Sustainment DOE	MIPR	DOE NM	0.000	12.541	Jan 2010	20.600	Oct 2010	0.000		20.600	Continuing	Continuing	Continuing
Joint Warhead Fuze Sustainment ITT	SS/CPFF	ITT VA	0.000	0.610	Jan 2010	1.000	Oct 2010	0.000		1.000	Continuing	Continuing	Continuing
Joint Warhead Fuze Sustainment LMMS	SS/CPFF	LMMS CA	0.000	0.857	Jan 2010	1.500	Oct 2010	0.000		1.500	Continuing	Continuing	Continuing
Global Strike Study	MIPR	DOE NM	0.000	0.000		3.000	Oct 2010	0.000		3.000	3.000	6.000	6.000
Global Strike Study	SS/CPFF	LMMS CA	0.000	0.000		7.000	Oct 2010	0.000		7.000	7.000	14.000	14.000
		Subtotal	0.000	14.008		33.100		0.000		33.100			

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	14.008		33.100		0.000		33.100			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 0951: *Joint Warhead Fuze Sustainment Program*	

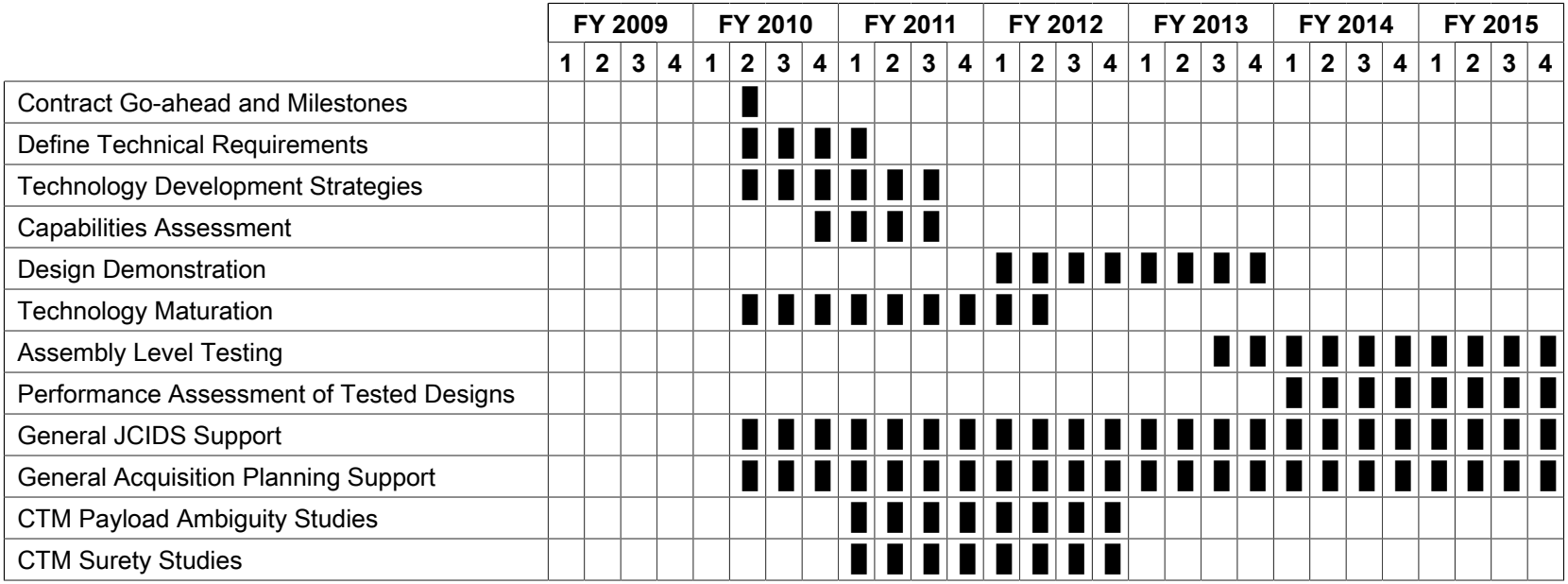

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0101221N: *Strategic Sub & Wpns Sys Supt*	**PROJECT** 0951: *Joint Warhead Fuze Sustainment Program*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Contract Go-ahead and Milestones	2	2010	2	2010
Define Technical Requirements	2	2010	1	2011
Technology Development Strategies	2	2010	3	2011
Capabilities Assessment	4	2010	3	2011
Design Demonstration	1	2012	4	2013
Technology Maturation	2	2010	2	2012
Assembly Level Testing	3	2013	4	2015
Performance Assessment of Tested Designs	1	2014	4	2015
General JCIDS Support	2	2010	4	2015
General Acquisition Planning Support	2	2010	4	2015
CTM Payload Ambiguity Studies	1	2011	4	2012
CTM Surety Studies	1	2011	4	2012

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 2228: *Technical Applications Programs*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
2228: *Technical Applications Programs*	42.099	45.448	43.015	0.000	43.015	44.708	47.450	48.516	24.435	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

This project supports implementation of a coordinated Navy/Air Force Reentry System Applications Program (RSAP), and a coordinated Navy/Air Force Strategic Guidance Applications Program (GAP). Reentry vehicle and guidance technology had been rapidly eroding beyond the point of being capable to respond to increasing aging phenomena and future requirements. The December 2001 DOD Nuclear Posture Review determined that infrastructure is a critical part of the new triad and these efforts form part of the infrastructure that supports the nuclear force structure.

The RSAP program, through sustainment of the reentry vehicle technology base, will maintain confidence in the dependability and reliability of strategic SLBM and ICBM weapon systems over the long term when no new systems will be in development. Critical and unique attributes necessary for the design, development and in-service support of current and modernized SLBM reentry systems have been defined and will be maintained to ensure a functioning readiness application technical capability in reentry is preserved. Working closely with the Air Force, Navy and Air Force requirements have been integrated into a comprehensive program. The program maintains close coordination with the DOD Science and Technology (S&T) community in order to: leverage S&T programs, ensure system driven technology base requirements are considered in contract awards, eliminate duplication of effort and provide an opportunity to demonstrate appropriate emerging technologies through a reentry flight test evaluation process.

The GAP program provides a minimum strategic guidance core technology development capability consistent with the Strategic Advisory Group (SAG) recommendations to COMSTRATCOM. The SAG recommended that SSP establish a program which preserves this critical design and development core. It is a basic bridge program which develops critical guidance technology applicable to any of the existing Air Force/Navy strategic missiles. The objective is to transition from current capability to a long term readiness status required to support deployed systems. Air Force and Navy guidance technology requirements are integrated and needs prioritized. Efforts are focused on alternatives to technologies identified as system "weak links." Currently system accuracy and functionality depends upon key technologies which provide radiation hardened velocity, attitude and stellar sensing capabilities. As the underlying technologies that currently provide these capabilities age and are no longer technically supportable, modern alternatives must be made available in order to allow for orderly replacement. There is no commercial market for these technologies and their viability depends on the strategic community.

B. Accomplishments/Planned Program ($ in Millions)

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 2228: *Technical Applications Programs*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Reentry Vehicle Sustainment Tech	42.099	45.448	43.015	0.000	43.015

FY 2009 Accomplishments:

(U) ($.199) Acquisition Workforce Fund-2009
FY 2009 efforts included:
(U) Acquisition Workforce Fund-2009

(U) ($24.727) Continued Reentry System Applications Program.
FY 2009 efforts included:
(U) Maintained the current capability and supported the planned service life extension of Navy reentry systems.
(U) Continued development and ground testing of reentry vehicle candidate heat shield and nose tip materials including those available from Science & Technology (S&T)
(U) Conducted flight tests on alternative low-cost heat shield and replacement nose tip material.
(U) Conducted flight tests on operationally aged heat shields to support aging trends and replacement materials assessments.
(U) Completed development and flight tested advanced reentry instrumentation such as inertial sensor avionics computer, encapsulated on the updated engineering instrumentation package.
(U) Maintained RSAP technical program plan, conducted system assessments and continued Vulnerability & Hardening certification process development in absence of Nuclear Under Ground Testing (UGT) facilities.
(U) Continued Reentry Body material development and advanced flight test instrumentation activities.
(U) Continued development of advanced GPS receiver.
(U) Conducted ground test on advanced reentry material systems and advanced instrumentation components.
(U) Developed test instrumentation to demonstrate D5LE missile reentry body interface compatibility.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 2228: *Technical Applications Programs*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
(U) ($17.173) Continued Strategic Guidance Applications Programs (GAP). FY 2009 efforts included: (U) Developed new architectures using telecom-based optical components for high-precision strategic gyro. (U) Continued to evaluate emergent alternate sensor technologies, (accelerometer, gyro, and stellar) with an emphasis on providing existing performance in a significantly reduced form factor. (U) Assessed feasibility of advanced stellar sensor technologies for use in strategic applications; specifically, active pixel and camera-on-a-chip architectures were evaluated. (U) Utilized the capabilities of the Virtual System Simulation (VSSim) to conduct system trade studies that support precision guidance application for boost phase and boost-thru-reentry scenarios. (U) Conducted investigations to improve circumvention and recovery performance. (U) Continued design, build, evaluate and demonstrate SOA as a strategic grade accelerometer. *FY 2010 Plans:* (U) ($23.953) Continue Reentry System Applications Program. FY 2010 efforts include: (U) Maintain the current capability and support the planned service life extension of Navy reentry systems. (U) Continue development and ground testing of reentry vehicle candidate heat shield and nose tip materials including those available from Science & Technology (S&T) (U) Flight test alternative low-cost heat shield and replacement nose tip material. (U) Flight test operationally aged heat shields to support aging trends and replacement materials assessments.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 2228: *Technical Applications Programs*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
(U) Maintain RSAP technical program plan, conduct system assessments and continue Vulnerability & Hardening certification process development in absence of Nuclear Under Ground Testing (UGT) facilities. (U) Continue Reentry Body material development and advanced flight test instrumentation activities. (U) Continue development of advanced GPS receiver. (U) Ground test advanced reentry material systems and advanced instrumentation components. (U) Develop test instrumentation to demonstrate D5LE missile reentry body interface compatibility.					
(U) ($21.495) Continue Strategic Guidance Applications Programs (GAP). FY 2010 efforts include: (U) Develop new architectures using telecom-based optical components for high-precision strategic gyro. (U) Continue to evaluate emergent alternate sensor technologies, (accelerometer, gyro, and stellar) with an emphasis on providing existing performance in a significantly reduced form factor. (U) Assess feasibility of advanced stellar sensor technologies for use in strategic applications; specifically, active pixel and camera-on-a-chip architectures will be evaluated. (U) Utilize the capabilities of the Virtual System Simulation (VSSim) to conduct system trade studies that support precision guidance application for boost phase and boost-thru-reentry scenarios. (U) Conduct investigations to improve circumvention and recovery performance. (U) Continue design, build, evaluate and demonstrate SOA as a strategic grade accelerometer.					
FY 2011 Base Plans: (U) ($22.574) Continue Reentry System Applications Program. FY 2011 efforts include:					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 2228: *Technical Applications Programs*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
(U) Maintain the current capability and support the planned service life extension of Navy reentry systems. (U) Continue development and ground testing of reentry vehicle candidate heat shield and nose tip materials including those available from Science & Technology (S&T) (U) Flight test alternative low-cost heat shield and replacement nose tip material. (U) Analyze advanced aging material to determine its effectiveness. (U) Flight test operationally aged heat shields to support aging trends and replacement materials assessments. (U) Maintain RSAP technical program plan, conduct system assessments and continue Vulnerability & Hardening certification process development in absence of Nuclear Under Ground Testing (UGT) facilities. (U) Continue Reentry Body material development and advanced flight test instrumentation activities. (U) Flight Test the advanced radiation tolerant GPS receiver (U) Ground test advanced reentry material systems and advanced instrumentation components.					
(U) ($20.441) Continue Strategic Guidance Applications Programs (GAP). FY 2011 efforts include: (U) Continue to develop new architectures using telecom-based optical components for high-precision strategic gyro. (U) Continue to evaluate emergent alternate sensor technologies, (accelerometer, gyro, and stellar) with an emphasis on providing existing performance in a significantly reduced form factor. (U) Assess feasibility of advanced stellar sensor technologies for use in strategic applications; specifically, active pixel and camera-on-a-chip architectures will be evaluated. (U) Utilize the capabilities of the Virtual System Simulation (VSSim) to conduct system trade studies that support precision guidance application for boost phase and boost-thru-reentry scenarios. (U) Investigate concepts for enhanced system test and analysis (U) Conduct investigations to improve circumvention and recovery performance.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 2228: *Technical Applications Programs*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Accomplishments/Planned Programs Subtotals	42.099	45.448	43.015	0.000	43.015

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Contracts will continue to be awarded to those sources who were engaged in the TRIDENT II (D5) development program and are currently engaged in the production and/or operational support of the deployed D5 Strategic Weapons Systems on the basis of Other Than Full and Open Competition pursuant to the authority of 10 U.S.C. 2304 (c) (1) and (3) implemented by FAR 6.302.-1, 3, 4

E. Performance Metrics

Not applicable

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 2228: *Technical Applications Programs*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Technology Applications LMSS	SS/CPFF	LMSS CA	129.883	10.471	Jan 2010	11.340	Oct 2010	0.000		11.340	Continuing	Continuing	Continuing
Technology Applications NSWC	C/FP	NSWC VA	73.843	5.216	Jan 2010	3.780	Oct 2010	0.000		3.780	Continuing	Continuing	Continuing
Technology Applications DOE	C/FP	DOE NM	27.518	1.573	Jan 2010	0.945	Oct 2010	0.000		0.945	Continuing	Continuing	Continuing
Technology Applications ITT	C/FP	ITT CO	7.700	1.488	Jan 2010	0.945	Oct 2010	0.000		0.945	Continuing	Continuing	Continuing
Technology Applications CSDL	C/FP	CSDL MA	231.807	25.189	Jan 2010	24.569	Oct 2010	0.000		24.569	Continuing	Continuing	Continuing
Technology Applications VAR	Various/ Various	VARIOUS VARIOUS	16.713	1.511	Jan 2010	1.436	Oct 2010	0.000		1.436	Continuing	Continuing	Continuing
		Subtotal	487.464	45.448		43.015		0.000		43.015			

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	487.464	45.448		43.015		0.000		43.015			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 2228: *Technical Applications Programs*

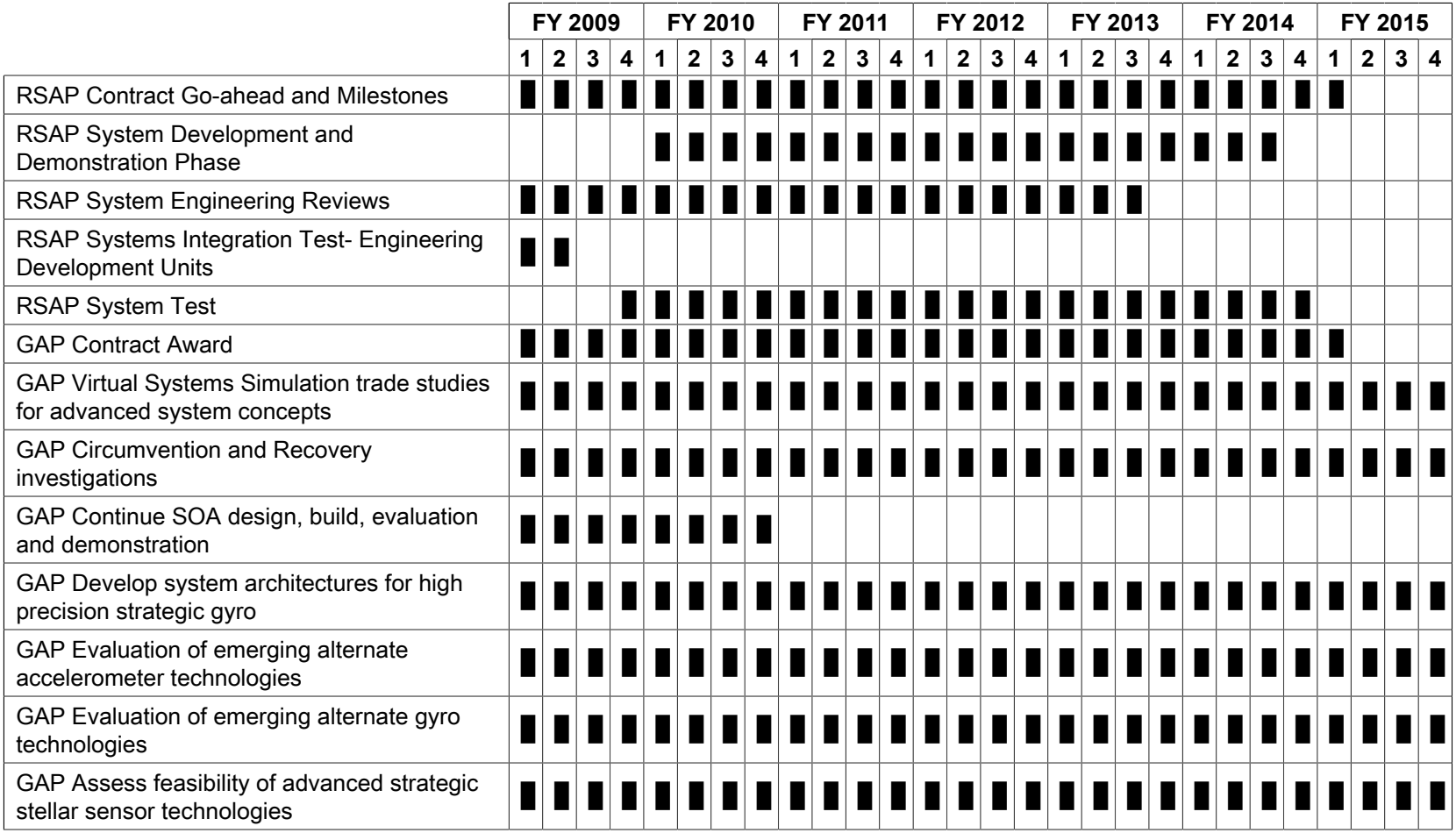

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0101221N: *Strategic Sub & Wpns Sys Supt*	**PROJECT** 2228: *Technical Applications Programs*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
RSAP Contract Go-ahead and Milestones	1	2009	1	2015
RSAP System Development and Demonstration Phase	1	2010	3	2014
RSAP System Engineering Reviews	1	2009	3	2013
RSAP Systems Integration Test- Engineering Development Units	1	2009	2	2009
RSAP System Test	4	2009	4	2014
GAP Contract Award	1	2009	1	2015
GAP Virtual Systems Simulation trade studies for advanced system concepts	1	2009	4	2015
GAP Circumvention and Recovery investigations	1	2009	4	2015
GAP Continue SOA design, build, evaluation and demonstration	1	2009	4	2010
GAP Develop system architectures for high precision strategic gyro	1	2009	4	2015
GAP Evaluation of emerging alternate accelerometer technologies	1	2009	4	2015
GAP Evaluation of emerging alternate gyro technologies	1	2009	4	2015
GAP Assess feasibility of advanced strategic stellar sensor technologies	1	2009	4	2015

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 3158: *Integrated Nuclear Weapons Security Sys Dev*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
3158: *Integrated Nuclear Weapons Security Sys Dev*	20.904	5.801	4.638	0.000	4.638	4.643	4.634	4.644	4.649	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Enhanced Special Weapons effort supports the Nuclear Weapons Security program and SSBN Escort mission. The policies and requirements regarding the safeguard of nuclear weapons within the Department of Defense is established by DoD S5210.41M. Within the Department of the Navy, nuclear weapons are limited to TRIDENT Fleet Ballistic Missiles (FBM), either deployed aboard TRIDENT submarines or located landside at Naval Submarine Base, Kings Bay or Naval Submarine Base, Bangor where missiles are first assembled as well as repaired. The Chief of Naval Operations (CNO) has assigned the Strategic Systems Programs, the FBM program manager, with mission responsibility for the safeguard of FBM nuclear assets. More specifically, the mission includes landside and pier operations as well as transits to and from the dive point, each of which present challenges to personnel as well as existing technologies. This budget supports efforts directed at improving the current technological baseline through a series of studies focusing on land, waterside, and in transit requirements, including both surface and underwater. Collectively, these efforts will improve countermeasure technologies addressing detection, delay and denial.

The Palletized Protection System (PPS) is a self contained, autonomous, readily transportable, limited area defense anti-missile system designed to protect high value critical assets from threat missiles by either disrupting their guidance and control systems, or physically intercepting and destroying them in flight. PPS is designed to be emplaced on an escort vessel and two U.S. Coast Guard 87-foot Coastal Patrol Boats. PPS development efforts funded in FY2007 and FY2008 were delayed due to technical and developmental issues. An above threshold reprogramming action was processed to fund additional FY2009 efforts required to complete test and evaluation efforts. Subsequent to the reprogramming, the PPS contract was terminated and all PPS development efforts have been cancelled. A portion of the FY09 funding is required to address contract termination costs.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
NWSPE Development	20.904	5.801	4.638	0.000	4.638

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 3158: *Integrated Nuclear Weapons Security Sys Dev*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: (U) ($0.004) Acquisition Workforce Fund-2009 (U) ($20.900) Enhanced Special Weapons/Nuclear Weapons Security program. FY 2009 efforts included: (U) Underwater Close-in Defense: This effort focused on developing an advanced underwater vehicle and diver detection and deterrence system for the protection of high value maritime assets while they are in port. The conceptual system involved a physical net-like barrier that combines use of fiber-optic sensing and alerting technology to provide an extremely high positive detection rate and extremely low false alarm rate. The concept design also included increased alert time to improve positive identification of intruders and for activation of response systems. (U) Technology Reviews: This program investigated subsurface sensors in multi-sensor configurations, continued taut wire defeat barrier research and researched low frequency subsurface sensors. The underwater denial system design is ongoing and lethality testing has begun. (U) PPS development efforts funded in FY2007 and FY2008 were delayed due to technical and developmental issues. An above threshold reprogramming action was processed to fund additional FY2009 efforts required to complete test and evaluation efforts. Subsequent to the reprogramming, the PPS contract was terminated and all PPS development efforts have been cancelled. A portion of the FY09 funding is required to address contract termination costs. *FY 2010 Plans:* (U) FY 2010 PLAN (U) ($5.801) Enhanced Special Weapons/Nuclear Weapons Security program. FY 2010 efforts include: (U) Continue efforts focused on developing an advanced underwater vehicle and diver detection and deterrence system, and enhanced underwater and surface barriers.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 3158: *Integrated Nuclear Weapons Security Sys Dev*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
(U) Develop advanced technologies for Site-Wide Nuclear Weapons Security Systems including a secure wireless command network and enhanced automated security systems. (U) Develop advanced technologies for Limited Area/Convoy Route Nuclear Weapons Security Systems including extended perimeter detection, vehicle barrier systems at entry control points, and enhanced tracking capabilities. (U) Technology Reviews: The systems will undergo further testing prior to production decisions. *FY 2011 Base Plans:* (U) FY 2011 PLAN (U) ($4.638) Enhanced Special Weapons/Nuclear Weapons Security program. FY 2011 efforts include: (U) Continue efforts focused on developing an advanced underwater vehicle and diver detection and deterrence system, and enhanced underwater and surface barriers. (U) Continue development of advanced technologies for Site-Wide Nuclear Weapons Security Systems including a secure wireless command network and enhanced automated security systems. (U) Continue development of advanced technologies for Limited Area/Convoy Route Nuclear Weapons Security Systems including extended perimeter detection, vehicle barrier systems at entry control points, and enhanced tracking capabilities. (U) Technology Reviews: The systems will undergo further testing prior to production decisions.					
Accomplishments/Planned Programs Subtotals	20.904	5.801	4.638	0.000	4.638

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• MCN/Various-1: *MILCON (CNI) (Nuclear Weapons Security)*	56.830	154.711	19.116	0.000	19.116	0.000	0.000	0.000	0.000	Continuing	Continuing
	50.433	40.401	47.815	0.000	47.815	56.896	60.190	50.889	48.382	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 3158: *Integrated Nuclear Weapons Security Sys Dev*	

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• OPN/Various-2: *OPN (Nuclear Weapons Security)*											
• OMN/11D2D-3: *Fleet Ballistic Missile (Nuclear Weapons Security)*	77.424	75.046	76.097	0.000	76.097	77.831	81.229	86.745	90.305	Continuing	Continuing
• MCN/Various-4: *MILCON (CNI) (Transit/Escort)*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• OMN/11D2D-5: *Fleet Ballistic Missile (Transit/Escort)*	90.139	137.369	134.876	0.000	134.876	135.846	130.629	116.371	119.711	Continuing	Continuing
• WPN/44217-6: *Gun Mount Mods*	1.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• OPN/Various-7: *OPN (Transit/ Escort)*	2.012	11.972	2.011	0.000	2.011	69.355	2.081	70.529	71.760	Continuing	Continuing

D. Acquisition Strategy

Procurements are being executed through a combination of private contractors (large and small business), government Centers of Excellence (COEs), other government agencies and the Naval Submarine Bases, Kitsap and Kings Bay. Contract awards are based upon "best value" determinations, and where practical will be performance based or include incentive provisions.

E. Performance Metrics

Not applicable

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 3158: *Integrated Nuclear Weapons Security Sys Dev*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Nuclear Weapons Security Sys Dev	WR	NFESC CA	3.597	0.990	Nov 2009	0.800	Oct 2010	0.000		0.800	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	WR	CNWS CA	0.000	0.389	Jan 2010	0.300	Oct 2010	0.000		0.300	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	C/FP	JHU APL MD	0.000	0.944	Jan 2010	0.718	Oct 2010	0.000		0.718	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	WR	SNSW CA	0.000	1.827	Jan 2010	1.400	Oct 2010	0.000		1.400	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	WR	NSWC VA	0.000	0.677	Nov 2009	0.550	Oct 2010	0.000		0.550	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	C/FP	JRC VA	0.000	0.236	Jan 2010	0.250	Oct 2010	0.000		0.250	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	WR	NUWC RI	0.000	0.075	Jan 2010	0.075	Oct 2010	0.000		0.075	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	WR	NEDU FL	0.000	0.368	Jan 2010	0.250	Oct 2010	0.000		0.250	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	SS/FP	LMMS CA	0.000	0.295	Jan 2010	0.295	Oct 2010	0.000		0.295	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 3158: *Integrated Nuclear Weapons Security Sys Dev*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Nuclear Weapons Security Sys Dev	Various/ Various	Various Various	0.000	0.000	Jan 2010	0.000	Oct 2010	0.000		0.000	Continuing	Continuing	Continuing
		Subtotal	3.597	5.801		4.638		0.000		4.638			

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	3.597	5.801		4.638		0.000		4.638			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 3158: *Integrated Nuclear Weapons Security Sys Dev*	

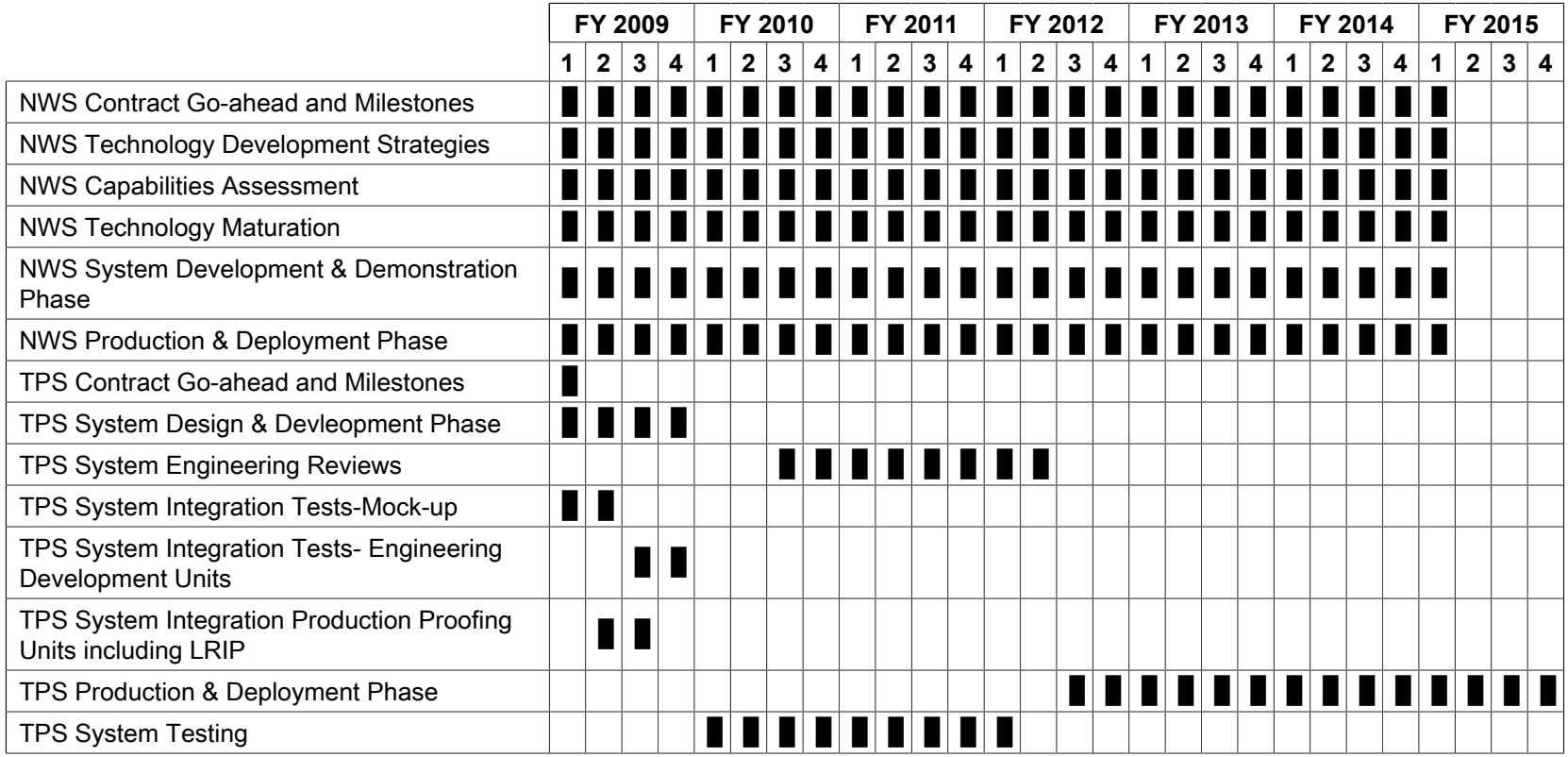

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0101221N: *Strategic Sub & Wpns Sys Supt*	**PROJECT** 3158: *Integrated Nuclear Weapons Security Sys Dev*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
NWS Contract Go-ahead and Milestones	1	2009	1	2015
NWS Technology Development Strategies	1	2009	1	2015
NWS Capabilities Assessment	1	2009	1	2015
NWS Technology Maturation	1	2009	1	2015
NWS System Development & Demonstration Phase	1	2009	1	2015
NWS Production & Deployment Phase	1	2009	1	2015
TPS Contract Go-ahead and Milestones	1	2009	1	2009
TPS System Design & Devleopment Phase	1	2009	4	2009
TPS System Engineering Reviews	3	2010	2	2012
TPS System Integration Tests-Mock-up	1	2009	2	2009
TPS System Integration Tests- Engineering Development Units	3	2009	4	2009
TPS System Integration Production Proofing Units including LRIP	2	2009	3	2009
TPS Production & Deployment Phase	3	2012	4	2015
TPS System Testing	1	2010	1	2012

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 3198: *Underwater Launch Missile System (ULMS)*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
3198: *Underwater Launch Missile System (ULMS)*	9.726	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.726
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Underwater Launch Missile System (ULMS) effort developed capabilities definitions and assessments, science & technology development strategies, and conceptual work to prepare for R&D and future prototyping.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Underwater Launch Missile System (ULMS)	9.726	0.000	0.000	0.000	0.000
The Underwater Launch Missile System (ULMS) effort developed capabilities definitions and assessments, science & technology development strategies, and conceptual work to prepare for R&D and future prototyping. *FY 2009 Accomplishments:* (U) ($0.048) Acquisition Workforce Fund-2009 FY 2009 efforts included: (U) Acquisition Workforce Fund-2009 (U) ($9.678) The Underwater Launch Missile System (ULMS)					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 3198: *Underwater Launch Missile System (ULMS)*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 efforts included: (U) Developed Joint Capabilities Integrated Development System (JCIDS) required Capabilities-based Assessments to achieve an approved Initial Capabilities Document (ICD). (U) Developed technology assessments and roadmap leading to approved Technology Development Strategy (TDS). (U) Developed concepts for top-level integration studies, to analyze performance and cost drivers, and to begin analysis of alternatives. (U) Developed, updated and exercised design and modeling tools including cost modeling methodology for total-ship integration.					
Accomplishments/Planned Programs Subtotals	9.726	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Contracts were awarded to a combination of private contractors (large and small business) and other government agencies. Contract awards are based upon "best value" determinations.

E. Performance Metrics

Not applicable

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 9999: *Congressional Adds*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
9999: *Congressional Adds*	21.941	3.744	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	34.648
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Congressional adds

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: ADVANCED LINEAR ACCELERATOR (LINAC) FACILITY *FY 2009 Accomplishments:* (U) Completed the design for an Advanced Linear Accelerator Facility to perform radiation simulation of transient dose rate events. *FY 2010 Plans:* (U) Complete all construction, testing and characterization activities necessary for a fully functional and operational dose rate test facility.	3.191	0.956
Congressional Add: Adelos National Security Sensor System *FY 2009 Accomplishments:* (U) Expanded the application of the BLUE ROSE fiber optic sensor system to meet nuclear weapons and facilities metrics. (U) Completed development and testing of algorithms designed to classify identified targets and reduce false positive readings.	1.995	2.788

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
FY 2010 Plans: (U) Extend the technology of Adelos to incorporate its application in a saltwater littoral environment and define appropriate signatures and signature correlation algorithms development for the Nuclear Weapons Security Program. (U) Determine response times to detect, classify and localize and capacity. This efforts includes conducting technology tests and demonstrations in the use environment and a report of results.		
Congressional Add: Enhanced Special Weapons/Nuclear Weapons Security *FY 2009 Accomplishments:* (U) Supported work in support of communication capabilities to convey classification and location information produced by the Adelos application. (U) Completed development and testing of algorithms designed to transit data within a secure network using steganographic techniques.	1.596	0.000
Congressional Add: Advanced Technology for Mk5 AF&F *FY 2009 Accomplishments:* (U) Continued work in support of advanced technologies. (U) Supported USN, USAF, and UK engineer working group. (U) Completed Light Initiated High Explosives proof of concept and generate test report. (U) Completed the down selection of new path length sensor technology. (U) Generated a Facilities Readiness Document. (U) Defined Reentry Body/Reentry Vehicle Safety and Systems Architecture and Investigate Safety Architecture Trades.	9.973	0.000
Congressional Add: Covert Robust Location Aware Wireless Network	1.596	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101221N: *Strategic Sub & Wpns Sys Supt*	PROJECT 9999: *Congressional Adds*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
FY 2009 Accomplishments: (U) Completed development of a key foundation technology enabler in support of the Covert Robust Location Aware Wireless Network.		
Congressional Add: Maritime Security-Surface and Sub-surface Surveill *FY 2009 Accomplishments:* (U) Completed development of a year round test bed to develop and test potential nuclear weapons security technologies.	3.590	0.000
Congressional Adds Subtotals	21.941	3.744

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Contracts were awarded to a combination of private contractors (large and small business) and other government agencies as required to complete the objectives of each congressional add.

E. Performance Metrics

Not applicable