Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy

APPROPRIATION/BUDGET ACTIVITY

R-1 ITEM NOMENCLATURE

1319: Research, Development, Test & Evaluation, Navy

PE 0604755N: Ship Self Def (Detect & Cntrl)

DATE: February 2010

BA 5: Development & Demonstration (SDD)

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	43.772	44.374	45.930	0.000	45.930	41.409	36.070	34.809	35.527	Continuing	Continuing
0166: SPS Improvement Program	1.654	5.474	4.739	0.000	4.739	4.744	1.431	0.000	0.000	0.000	55.215
2178: QRCC	29.533	25.557	36.594	0.000	36.594	33.300	32.226	32.329	32.995	Continuing	Continuing
3172: Joint Non-Lethal Weapons	3.609	4.280	4.597	0.000	4.597	3.365	2.413	2.480	2.532	Continuing	Continuing
9999: Congressional Adds	8.976	9.063	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	48.787

A. Mission Description and Budget Item Justification

This program element consolidates currently ongoing and planned programmatic efforts related to Detect & Control aspects of Ship Self Defense (SSD) to facilitate effective planning and management of these efforts and to exploit the synergistic relationship inherent in each. Analysis and demonstration have established that surface SSD based on single-sensor detection point-to-point control architecture performs marginally against current and projected Anti-Ship Cruise Missile (ASCM) threats. The supersonic seaskimming ASCM reduces the effective battle space to the horizon and the available reaction time-line to less than 30 seconds from first opportunity to detect until the ASCM impacts its target ship. Against such a threat, multi-sensor integration is required for effective detection, and parallel processing is essential to reduce reaction time to acceptable levels and to provide vital coordination/integration of hardkill and softkill assets. These SSD projects address and coordinate the detect and control functions necessary to meet the rigorous SSD requirements within a development structure dedicated to systems engineering.

DETECTION: Improvements in coordinated sensor performance to increase the probability of detecting low altitude, low observable targets is to be achieved through the synergism gained from the integration of dissimilar sensor sources. Multi-sensor integration is being addressed through the efforts of Quick Reaction Combat Capability (QRCC) (2178), while sensor improvements are addressed through the SPS Improvements (0166). These provide improvements to both active and passive detection.

CONTROL: Multi-sensor integration, parallel processing and the coordination of hardkill/softkill capabilities in an automated response to the ASCM threat are the cornerstones of Ship Self Defense System (SSDS) being developed through QRCC (2178) efforts. In addition, that project provides for the central system engineering management of SSD developments, including efforts required to integrate SSDS with the Advanced Combat Direction System (CDS) for those ships having a CDS.

Shipboard Protection System (SPS) develops an integrated shipboard, suite of systems designed to detect, identify, and engage asymmetric surface threats.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

BA 5: Development & Demonstration (SDD)

R-1 ITEM NOMENCLATURE

1319: Research, Development, Test & Evaluation, Navy

PE 0604755N: Ship Self Def (Detect & Cntrl)

Integrated Swimmer Defense (ISD) scope is to provide the Navy Expeditionary security forces with capabilities of a portable marine integrated swimmer defense system (ISDS) to engage combat swimmers/divers or unknown individuals underwater once they have been detected.

FY09 Congressional Adds: 9C23A - Expeditionary Swimmer Defense, 9C22A - Autonomous Unmanned Surface Vessel, 9D91A - Cyber Security, and 9D90A - Persistent Surveillance Wave Power-Buoy System.

FY10 Congressional Adds: 9C23A - Expeditionary Swimmer Defense, 9C22A - Autonomous Unmanned Surface Vessel, and 9D90A - Persistent Surveillance Wave Power-Buoy System.

B. Program Change Summary (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	44.854	35.459	0.000	0.000	0.000
Current President's Budget	43.772	44.374	45.930	0.000	45.930
Total Adjustments	-1.082	8.915	45.930	0.000	45.930
 Congressional General Reductions 		-0.185			
 Congressional Directed Reductions 		0.000			
 Congressional Rescissions 	0.000	0.000			
 Congressional Adds 		9.100			
 Congressional Directed Transfers 		0.000			
 Reprogrammings 	-0.134	0.000			
 SBIR/STTR Transfer 	-0.948	0.000			
 Program Adjustments 	0.000	0.000	45.930	0.000	45.930
Rate/Misc Adjustments	0.000	0.000	0.000	0.000	0.000

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 9999: Congressional Adds

Congressional Add: AUTONOMOUS UNMANNED SURFACE VESSEL (AUSV)(XFER FRO

Congressional Add: EXPEDITIONARY SWIMMER DEFENSE SYSTEM
Congressional Add: Persistent Surveillance Wave Power-Buoy System

Congressional Add: Cyber Security

FY 2010
2.689
3.187
3.187
0.000
9.063

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DA	TE: February 2010)
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 5: Development & Demonstration (SDD)	R-1 ITEM NOMENCLATURE PE 0604755N: Ship Self Def (Detect & Cntrl)		
Congressional Add Details (\$ in Millions, and Includes	General Reductions)	FY 2009	FY 2010
	Congressional Add Subtotals for Project: 99	99	
	Congressional Add Totals for all Project	ets 8.976	9.06
<u>Change Summary Explanation</u> FY11 from previous President's Budget is shown as zero be	pecause no FY11-15 data was presented in President's Budget 2010.		

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy

APPROPRIATION/BUDGET ACTIVITY

R-1 ITEM NOMENCLATURE

PROJECT

PROJECT

1319: Research, Development, Test & Evaluation, Navy

BA 5: Development & Demonstration (SDD)

PE 0604755N: Ship Self Def (Detect & Cntrl) 0166: SPS Improvement 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
0166: SPS Improvement Program	1.654	5.474	4.739	0.000	4.739	4.744	1.431	0.000	0.000	0.000	55.215
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Shipboard Protection System (SPS) develops an integrated shipboard, suite of systems designed to detect, identify, and engage asymmetric surface threats. Capabilities include: Surface Surveillance System, MK 49 stabilized gun mounts and Non-Lethal weapons/devices. The surface surveillance system integrates EO/IR sensors, and radar into a common tactical surveillance system. Stabilized guns: provide integrated lethal engagement capability against asymmetric threats. Non-lethal weapons: NLW assist in determining intent and target discrimination. SPS is to be fielded in blocks through evolutionary acquisition. The block approach facilitates the early delivery of enhanced situational awareness capability. Future blocks will introduce lethal and non-lethal effectors with total detect to engage capability integration. The SPS 'End State System' will provide Navy vessels with the ability, in foreign and domestic ports, to protect themselves from attacks by asymmetric surface threats. This ability requires that information necessary to seamlessly execute the detect-to-engage sequence be collected, processed, communicated, and acted upon before threats reach their objectives.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
SPS Improvement Program	1.646	5.474	4.739	0.000	4.739
FY 2009 Accomplishments: Shipboard Protection System - System design, development, integrate, analyze and evaluate the SPS system.					
FY 2010 Plans: Shipboard Protection System - System design for other ship classes, integration with MK38 Mod 2 system.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy

APPROPRIATION/BUDGET ACTIVITY

R-1 ITEM NOMENCLATURE

PROJECT

1319: Research, Development, Test & Evaluation, Navy BA 5: Development & Demonstration (SDD)

PE 0604755N: Ship Self Def (Detect & Cntrl)

0166: SPS Improvement Program

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: Shipboard Protection System - System design for other ship classes, integration with MK38 Mod 2 system.					
Defense Acquisition Workforce Fund (DAWF)	0.008	0.000	0.000	0.000	0.000
Defense Acquisition Workforce Fund (DAWF)					
FY 2009 Accomplishments: Funded DAWF					
Accomplishments/Planned Programs Subtotals	1.654	5.474	4.739	0.000	4.739

C. Other Program Funding Summary (\$ in Millions)

			FY 2011	FY 2011	FY 2011					Cost To	
<u>Line Item</u>	FY 2009	FY 2010	Base	<u>000</u>	<u>Total</u>	FY 2012	FY 2013	FY 2014	FY 2015	Complete	Total Cost
OPN/8128: SPS Program	17.531	19.198	32.472	0.000	32.472	52.593	53.195	53.639	54.304	0.000	282.932

D. Acquisition Strategy

Revised acquisition strategy is to provide capability to the fleet in blocks. (Block 1 - Enhanced Situational Awareness and Block 3 - Total System Integration including Lethal and Non-Lethal Engagement). All work is being led and performed by the Warfare Centers.

E. Performance Metrics

Successfully achieved Milestone C. Successfully conduct SPS Block 3 Critical Design Review (CDR).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

R-1 ITEM NOMENCLATURE

PROJECT

1319: Research, Development, Test & Evaluation, Navy BA 5: Development & Demonstration (SDD)

PE 0604755N: Ship Self Def (Detect & Cntrl)

0166: SPS Improvement Program

Product Development (\$ in Millions)

				FY 2	FY 2010		2011 se	FY 20 OC		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
Hardware/Software Development (Crane)	WR	NSWC Crane Crane IN	1.377	1.000	Nov 2009	1.000	Nov 2010	0.000		1.000	Continuing	Continuing	Continuing
Hardware/Software Development (Dahlgren)	WR	NSWC Dahlgren Dahlgren VA	3.443	1.000	Nov 2009	1.000	Nov 2010	0.000		1.000	Continuing	Continuing	Continuing
Hardware/Software Development (NG)	Various/ FFP	NORTHROP GRUMMAN Not Specified	0.236	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Hardware/Software Development (NAVAIR)	WR	NAVAIR/KDH Pax River MD	0.200	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
		Subtotal	5.256	2.000		2.000		0.000		2.000			

Remarks

Support (\$ in Millions)

				FY 2010		FY 2 Ba		FY 2		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
Engineering Services (CRANE)	WR	NSWC CRANE Crane IN	0.807	1.000	Nov 2009	0.519	Nov 2010	0.000		0.519	Continuing	Continuing	Continuing
Engineering Services (DAHLGREN)	WR	NSWC DAHLGREN Dahlgren VA	0.401	1.000	Nov 2009	0.720	Nov 2010	0.000		0.720	Continuing	Continuing	Continuing
	C/FPI		4.193	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

R-1 ITEM NOMENCLATURE

PROJECT

1319: Research, Development, Test & Evaluation, Navy BA 5: Development & Demonstration (SDD)

PE 0604755N: Ship Self Def (Detect & Cntrl)

0166: SPS Improvement Program

Support (\$ in Millions)

				FY 2	2010	FY 2 Ba	2011 ise	FY 20 OC		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
Engineering Services (IWS)		IWS PERISCOPE DETECT Not Specified											
ILS FUNCTIONS	WR	NSWC DAHLGREN Dahlgren VA	0.680	1.000	Nov 2009	1.000	Nov 2010	0.000		1.000	Continuing	Continuing	Continuing
		Subtotal	6.081	3.000		2.239		0.000		2.239			

Remarks

Test and Evaluation (\$ in Millions)

				FY 2010		FY 2 Ba	-	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
T&E FUNCTIONS (COTF)	WR	COMOPTEVFOR Norfolk VA	0.618	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
T&E FUNCTIONS (Dahlgren)	WR	NSWC DAHLGREN Dahlgren VA	0.998	0.250	Nov 2009	0.250	Nov 2010	0.000		0.250	Continuing	Continuing	Continuing
T&E FUNCTIONS (Crane)	WR	NSWC CRANE Crane IN	0.440	0.224	Nov 2009	0.250	Nov 2010	0.000		0.250	Continuing	Continuing	Continuing
	•	Subtotal	2.056	0.474		0.500		0.000		0.500			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

R-1 ITEM NOMENCLATURE

PROJECT

1319: Research, Development, Test & Evaluation, Navy BA 5: Development & Demonstration (SDD)

PE 0604755N: Ship Self Def (Detect & Cntrl)

0166: SPS Improvement Program

Test and Evaluation (\$ in Millions)

				FY 2	2010		2011 ise		2011 CO	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

Remarks

Management Services (\$ in Millions)

				FY 20	010	FY 2 Ba	2011 ise	FY 2	2011 CO	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
MANAGEMENT SUPPORT	Various/ Various	VARIOUS VARIOUS	0.299	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
TRAVEL	Various/ Various	Not Specified Not Specified	0.168	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
DAWDF	Various/ Various	Not Specified Not Specified	0.008	0.000		0.000		0.000		0.000	0.000	0.008	Continuing
	_	Subtotal	0.475	0.000		0.000		0.000		0.000			

Remarks

	Total Prior Years Cost	FY 2	2010	FY 2 Ba	2011 se	FY 2	2011 CO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	13.868	5.474		4.739		0.000		4.739			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy DATE: February 2010 APPROPRIATION/BUDGET ACTIVITY **R-1 ITEM NOMENCLATURE PROJECT** PE 0604755N: Ship Self Def (Detect & Cntrl) 1319: Research, Development, Test & Evaluation, Navy 0166: SPS Improvement Program BA 5: Development & Demonstration (SDD) 2009 2010 2011 2012 2013 2014 2015 Fiscal Year 2 2 3 2 2 2 2 3 3 4 2 3 3 MSC IOC **Acquisition Milestones** SD&D FRE Program Phases LDEV CG/"L" Class Development CVN Development CVN DEV CG DEV Block 0 Acoustic Hailing Devices Block 1 EOIR Sensors INITIAL INSTALL Block 3 Software Integration INITIAL INSTALL (CVV TEST SHIP) INITIAL INSTALL (LPD/LSD TEST SHIP) INITIAL INSTALL INITIAL INSTALL (DDG TEST SHIP) (CG TEST \$HIP) Test & Evaluation Milestones DT-B3/B4 (L Class) Development Test DT-B3/B4 (DDG) OT (DDG) OT (L Operational Test Class) PCA PCA **Production Milestones** 5 Systems FY09 Systems (5) (Procurement) FY10 Systems (5) 5 Systems (Procurement) FY11-FY15 Systems continue

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY

PROJECT R-1 ITEM NOMENCLATURE 1319: Research, Development, Test & Evaluation, Navy

BA 5: Development & Demonstration (SDD)

PE 0604755N: Ship Self Def (Detect & Cntrl) 0166: SPS Improvement Program

Schedule Details

	St	art	Er	nd
Event	Quarter	Year	Quarter	Year
PCA	2	2014	2	2015
SD&D	1	2009	1	2009
MILESTONE C	4	2009	4	2009
L PLATFROM DEV	1	2010	4	2010
CG PLATFORM DEV	1	2012	4	2012
CVN PLATFORM DEV	1	2011	4	2011
FRP	4	2014	4	2014
IOC	4	2014	4	2014
DT-B3/B4 (DDG)	2	2013	3	2013
DT-B3/B4 (L)	3	2014	4	2014
OT (DDG)	2	2014	3	2014

PROJECT

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy

APPROPRIATION/BUDGET ACTIVITY R-1 ITEM NOMENCLATURE

1319: Research, Development, Test & Evaluation, Navy PE 0604755N: Ship Self Def (Detect & Cntrl) 2178: QRCC

BA 5: Development & Demonstration (SDD)

DA 3. Development & Demonstratio	11 (300)										
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
2178: QRCC	29.533	25.557	36.594	0.000	36.594	33.300	32.226	32.329	32.995	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Quick Reaction Combat Capability (QRCC) project implements an evolutionary acquisition of improved ship self defense capabilities against Anti-Ship Cruise Missiles (ASCMs) for selected ships. The Ship Self Defense System (SSDS) is the integrating element of QRCC. The design integrates several existing stand-alone Anti-Air Warfare (AAW) systems that do not individually provide the complete detection, control, and engagement capabilities needed against low flying, high speed ASCMs with low radar cross sections. The SSDS integration concept fulfills the need for an automated detection, quick reaction and multi-target engagement capability emphasizing performance in the littoral environment. SSDS replaces manual control of several self-defense systems with a single integrated capability under the computer-aided control of ship operators. System design emphasizes use of non-developmental items, commercial standards, commercial processors, computer program reuse and open system architecture. SSDS is a physically distributed, open system architecture computer network consisting of commercially available or previously developed hardware. It includes the Navy's AN/UYQ-70 standard display and command table for human-system interface, commercially available local area network access units and circuit cards, and commercially available fiber optic cabling.

SSDS MK1 integrates the SPS-49A(V)1 radar, SPS-67(V)1 radar, AN/SLQ-32A/B electronic countermeasures system, Combat Identification, Friend or Foe-Self Defense (CIFF-SD), Rolling Airframe Missile and Phalanx Close-In Weapon System and is installed on LSD41/49 class ships. SSDS MK1 successfully completed Operational Evaluation in June 1997. SSDS received Milestone III Approval for Full Rate Production (Mar 98) and authority to integrate with ACDS and Cooperative Engagement Capability (CEC) on CV(N), LPD-17, LHD and LHA ship classes.

SSDS MK2 facilitates the incremental evolution and implementation of follow-on modifications. Development of SSDS MK2 leveraged critical experiments and reuse of technology and software from SSDS MK1. SSDS MK2 is in development and integrates other ship self defense elements, such as AN/SPQ-9B radar, NATO Sea-sparrow system, CEC and Tactical Data Links for joint interoperability. SSDS MK2 provides enhanced capabilities for Self Defense against air, and surface threats using both ownship and remote data to address AAW Capstone requirements. SSDS MK2 becomes the integrated, coherent real time Command and Control System for Aircraft Carriers and Amphibious ships. It will increase operational capabilities; improve combat readiness and Strike Group/Expeditionary Strike Group Interoperability; and promote standardization. It also introduces new shipboard tactical displays and support equipment, and integrates advanced systems such as Evolved NATO Sea-sparrow missile system and SLQ-32 SEWIP.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy

APPROPRIATION/BUDGET ACTIVITY

R-1 ITEM NOMENCLATURE

PROJECT

1319: Research, Development, Test & Evaluation, Navy BA 5: Development & Demonstration (SDD)

PE 0604755N: Ship Self Def (Detect & Cntrl)

2178: QRCC

In order to meet the Navy's warfighting capabilities and modernization concepts described in SEA POWER 21, Navy Open Architecture (NOA) is being introduced in conjunction with SSDS P3I COTS Tech Refresh. This is the first step in unifying a set of warfighting functions into a single architecture shared among many ship classes. This principle of commonality is a major mechanism for cost control and avoidances in the Navy's future warfighting systems. SSDS MK 2 would rehost existing tactical computer program applications to the Open Architecture Computing Environment (OACE) specifications/ equipment suite concurrent with P3I Commercial off the Shelf (COTS) Tech Refresh cycles, prior to full migration and integration with other OA applications for implementation on future classes of ships. Tech Refresh cycles are driven by COTS obsolescence.

Follow on Operational Test and Evaluation of SSDS Mk 2 has been conducted on the CVN Class on the LPD Class SSDS Combat Systems in FY07/08. Follow on Operational Test and Evaluation of the ESSM Integration with SSDS Mk 2 has been conducted on the CVN Class in FY08. Live Fire, Combat System end-to-end testing has been conducted on the Self Defense Test Ship in FY07/08. The SSDS MK 2 Self Defense Combat System is being tested on the Self Defense Test Ship against Anti Ship Cruise Missile threats in the LPD 17 and CVN/LHD Class configurations to support this effort. These tests will serve as a transition phase to the Ship Self Defense Capstone Air Warfare T&E Enterprise. Additional Self Defense Test Ship Live Fire tests against Anti Ship Cruise Missile threats are planned in FY10/11/12 in the CVN/ESSM and LHA 6 configurations, per the Ship Self Defense Capstone Air Warfare T&E Enterprise and DOT&E direction. Follow on Operational Test and Evaluation of SSDS Mk 2 will also be conducted on the CVN Class (P3I) COTS Tech Refresh in FY09, LHD 7/8 in FY10, and LHA 6 Class in 13. These tests will provide T&E data for the evaluation of the P3I COTS Tech Refresh Open Architecture Migration and Probability of Raid Annihilation (Pra) calculations.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
SSDS MK2 Integration/Test & Evaluation	11.983	12.943	13.161	0.000	13.161
FY 2009 Accomplishments: Prepare and conducte comprehensive Land Based combat system tests on SSDS MK 2 and SSDS MK 1 & SSDS MK2 P3I COTs Tech Refresh OACE (Open Architecture Computing Environment) configurations at Wallops Island for CVN, LPD 17, LHD 7/8, LHA 6, and LSD ship classes, including test preparation, integration, engineering and development tests, data collection and analysis, correction and verification of deficiencies in FY09 through FY15 in support of SSDS Combat System Certification, SSDS TEMP and Ship Self Defense Air Warfare Capstone Enterprise TEMP at-sea test events. Prepare, conduct and analyze At-Sea combat system tests for SSDS MK2 in LPD 17 and live fire testing on the Self Defense Test Ship in FY09. Prepare, conduct and analyze At-Sea combat					

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy **DATE:** February 2010 **PROJECT** APPROPRIATION/BUDGET ACTIVITY R-1 ITEM NOMENCLATURE 1319: Research, Development, Test & Evaluation, Navy

BA 5: Development & Demonstration (SDD)

PE 0604755N: Ship Self Def (Detect & Cntrl)

2178: QRCC

FY 2010

FY 2009

17.550

12.614

23.433

0.000

23.433

FY 2011

Base

FY 2011

OCO

FY 2011

Total

B. Accomplishments/Planned Program (\$ in Millions)

system tests in support of the Ship Self Defense Air Warfare Capstone Enterprise for the ESSM integration in FY09 and SSDS MK 2 P3I COTs Tech Refresh OACE integration in FY09/10.

FY 2010 Plans:

Prepare and conduct comprehensive Land Based combat system tests on SSDS MK 2 and SSDS MK 1 & SSDS MK2 P3I COTs Tech Refresh OACE (Open Architecture Computing Environment) configurations at Wallops Island for CVN, LPD 17, LHD 7/8, LHA 6, and LSD ship classes, including test preparation, integration, engineering and development tests, data collection and analysis, correction and verification of deficiencies in FY09 through FY15 in support of SSDS Combat System Certification, SSDS TEMP and Ship Self Defense Air Warfare Capstone Enterprise TEMP at-sea test events. Prepare, conduct and analyze At-Sea combat system tests in support of the Ship Self Defense Air Warfare Capstone Enterprise for SSDS MK 2 P3I COTs Tech Refresh OACE integration in FY09/10 and SSDS MK2 LHD 7/8 configuration in FY10.

FY 2011 Base Plans:

SSDS MK2 COTS Tech Insertion/OACE Migration

Prepare and conducte comprehensive Land Based combat system tests on SSDS MK 2 and SSDS MK 1 & SSDS MK2 P3I COTs Tech Refresh OACE (Open Architecture Computing Environment) configurations at Wallops Island for CVN, LPD 17, LHD 7/8, LHA 6, and LSD ship classes, including test preparation, integration, engineering and development tests, data collection and analysis, correction and verification of deficiencies in FY09 through FY15 in support of SSDS Combat System Certification, SSDS TEMP and Ship Self Defense Air Warfare Capstone Enterprise TEMP at-sea test events. Prepare, conduct and analyze At-Sea combat system tests in support of the Ship Self Defense Air Warfare Capstone Enterprise for LHA 6 configuration in FY13 and LHA 6 live fire testing on the Self Defense Test Ship in FY12, CVN 78 life fire testing on Self Defense Test Ship FY15, Design Agent test, analyze, and fix for the computer software program in support of testing and Operation of the Ship Self Defense Facility Wallops Island will also be accomplish to support the test events.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy **DATE:** February 2010 **PROJECT** APPROPRIATION/BUDGET ACTIVITY R-1 ITEM NOMENCLATURE 1319: Research, Development, Test & Evaluation, Navy

BA 5: Development & Demonstration (SDD)

PE 0604755N: Ship Self Def (Detect & Cntrl)

2178: QRCC

FY 2010

FY 2009

FY 2011

Base

FY 2011

OCO

FY 2011

Total

B. Accomplishments/Planned Program (\$ in Millions)

FY 2009 Accomplishments: Conduct System Engineering, Design, Development, Software Rehost, Hardware/Software integration and Factory and Environmental Qualification testing of P3I COTs Tech Refresh for SSDS MK 1 and SSDS MK2 Tech Refresh cycles. The FY09 through FY11 Tech Refresh cycle for SSDS MK 1 and SSDS MK 2 upgrades to MOD 1C/2C/3C/5C configurations includes the OACE and the first major refresh of SSDS MK 1 (designated as MOD 5C) migration to OACE. After FQT/EQT completion, system will be delivered for Test and Evaluation.

FY 2010 Plans:

Conduct System Engineering, Design, Development, Software Rehost, Hardware/Software integration and Factory and Environmental Qualification testing of P3I COTs Tech Refresh for SSDS MK 1 and SSDS MK2 Tech Refresh cycles. The FY09 through FY11 Tech Refresh cycle for SSDS MK 1 and SSDS MK 2 upgrades to MOD 1C/2C/3C/5C configurations includes the OACE and the first major refresh of SSDS MK 1 (designated as MOD 5C) migration to OACE. After FQT/EQT completion, system will be delivered for Test and Evaluation. FY10-FY13 includes systems engineering, software development and testing for the implementation of new interfaces with SSDS MK2 as part of Combat System Upgrades for CVN/Amphibious Class ships, including Anti-Submarine Tactical Air Control (ASTAC) capability for the MH-60R Helicopter interface.

FY 2011 Base Plans:

Conduct System Engineering, Design, Development, Software Rehost, Hardware/Software integration and Factory and Environmental Qualification testing of P3I COTs Tech Refresh for SSDS MK 1 and SSDS MK2 Tech Refresh cycles. The FY09 through FY11 Tech Refresh cycle for SSDS MK 1 and SSDS MK 2 upgrades to MOD 1C/2C/3C/5C configurations includes the OACE and the first major refresh of SSDS MK 1 (designated as MOD 5C) migration to OACE. After FQT/EQT completion, system will be delivered for Test and Evaluation. FY10-FY13 includes systems engineering, software development and testing for the implementation of new interfaces with SSDS MK2 as part of Combat

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R-1 Line Item #120 Page 14 of 36

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

R-1 ITEM NOMENCLATURE

PROJECT

1319: Research, Development, Test & Evaluation, Navy

PE 0604755N: Ship Self Def (Detect & Cntrl)

2178: QRCC

BA 5: Development & Demonstration (SDD)

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
System Upgrades for CVN/Amphibious Class ships, including Anti-Submarine Tactical Air Control (ASTAC) capability for the MH-60R Helicopter interface.					
Accomplishments/Planned Programs Subtotals	29.533	25.557	36.594	0.000	36.594

C. Other Program Funding Summary (\$ in Millions)

			FY 2011	FY 2011	FY 2011					Cost To	
<u>Line Item</u>	FY 2009	FY 2010	<u>Base</u>	OCO	<u>Total</u>	FY 2012	FY 2013	FY 2014	FY 2015	Complete	Total Cost
• OPN/5239: <i>SSDS</i>	46.173	33.975	54.290	0.000	54.290	54.646	54.111	54.649	55.638	0.000	353.482
 RDTEN/0603382N: Advanced 	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Combat System Technology											
RDTEN/0603658N: Cooperative	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Engagement											
RDTEN/0604307N: Surface	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Combatant Cmbt Sys Eng											
 RDTEN/0603582N: Combat 	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
System Integration											

D. Acquisition Strategy

The first SSDS MK 2 system procurements took place under a Cost Plus Award Fee contract in FY99 for the CVN 76, LPD 17, LPD 18 and CVN 69. Follow-on equipment procurements for additional ships of the CVN, LPD and LHD classes are awarded on FFP contracts with the exception of those ships that will be receiving P3I COTS tech Refresh hardware suites, where the initial system Tech Refresh Development will occur under a CPFF type contract with ship COTS conversion equipment/kits procured on FFP contracts.

A new platform system engineering agent and Life Cycle Maintenance CPFF (with incentives) contract was awarded in FY05 and a follow-on contract was awarded on 30 Sept 2008, to support future SSDS MK 2 system/software maintenance and system upgrades including the P3I COTS Tech Refresh cycles.

E. Performance Metrics

Requirement Documents

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy

APPROPRIATION/BUDGET ACTIVITY

1319: Research, Development, Test & Evaluation, Navy

BA 5: Development & Demonstration (SDD)

ARCHITEM NOMENCLATURE
PE 0604755N: Ship Self Def (Detect & Cntrl)

2178: QRCC

- Ship Self Defense System (SSDS) Operational Requirement Document (ORD) approved April 1995 and validated in 1997.
- SSDS MK2 KPPs were promulgated in OPNAV N76 letter SER N766/1S649367 of 18 Dec 01.
- * Subject: Ship Self Defense System (SSDS) Requirement Clarification of Key Performance Parameters (KPP) and Measures of Suitability.
- * Included the Interoperability KPP for CVN/LPD/LHD
- SSDS MK2 KPPs were clarified in OPNAV N86 letter SER N86F/7U178266 of 13 Nov 07.
- * Subject: Ship Self Defense System (SSDS) Requirement Clarification of Key Performance Parameters (KPPs) and Measures of Suitability and Effectiveness
- * Included Force Protection and Survivability KPPs

Background

- SSDS MK1 OPEVAL was successfully completed June 1997 with a Milestone III approval in March 1998
- SSDS MK2 MOD 1 FOT&E was conducted on CVN 76 in 2005. All KPP thresholds were met. However, the system was assessed as not suitable and not effective by COMOPTEVFOR based on the identification of SSDS MK2 and Combat Systems deficiencies (24major, 37 minor deficiencies).

Status

- 12 of 24 major deficiencies and 21 of 37 minor deficiencies have been verified as corrected by COMOPTEVFOR during FOTE test events. The status of the remaining 12 major deficiencies are as follows:
- 1 is ready for OPTEVFOR verification during FY10 FOT&E test events
- 5 involve training and will be addressed with a pending Navy Training System Plan (NTSP) update and training course improvements
- 4 have been identified as future efforts
- 2 are radar design limitations that cannot be resolved.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

R-1 ITEM NOMENCLATURE

PROJECT

1319: Research, Development, Test & Evaluation, Navy

PE 0604755N: Ship Self Def (Detect & Cntrl)

t & Cntrl) 2178: QRCC

BA 5: Development & Demonstration (SDD)

Product Development (\$ in Millions)

•	• •	,											
				FY 2	2010	FY 2 Ba		FY 2 OC		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
Systems Engineering (Dahlgren)	WR	NSWC DD Dalhgren, VA	45.299	0.900	Oct 2009	1.727	Oct 2010	0.000		1.727	Continuing	Continuing	Continuing
Systems Engineering (JHU)	SS/FP	JHU/APL Laurel, MD	41.993	1.683	Oct 2009	2.954	Oct 2010	0.000		2.954	Continuing	Continuing	Continuing
Systems Engineering (PHD)	WR	NSWC PHD Pt Hueneme, CA	19.336	0.280	Oct 2009	0.300	Oct 2010	0.000		0.300	Continuing	Continuing	Continuing
Systems Engineering (CDSA)	WR	CDSA DN Dam Neck, VA	12.315	1.285	Oct 2009	1.625	Oct 2010	0.000		1.625	Continuing	Continuing	Continuing
Systems Engineering (IH)	WR	NSWC IH Indian Head, MD	3.056	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Display Development Kits	SS/FP	Lockheed Martin St Paul, MN	3.958	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Systems Eng/Dev/ Integrate (5110)	SS/CPFF	RSC (5110) San Diego, CA	27.420	6.765	Oct 2009	14.915	Oct 2010	0.000		14.915	Continuing	Continuing	Continuing
Systems Eng/Dev/ Integrate (TBD)	SS/CPFF	RSC (TBD) San Diego, CA	0.000	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Systems Eng/Dev/ Integrate (5132)	SS/CPAF	RSC (5132) San Diego, CA	20.576	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Award Fees (5132)	SS/CPAF	RSC (5132) San Diego, CA	3.603	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Systems Eng/Dev/ Integrate (5108)	SS/CPAF	RSC (5108) San Diego, CA	98.130	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Systems Eng/Dev/ Integrate (5466)	SS/CPAF	RSC (5466) San Diego, CA	20.353	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
	SS/CPFF	RSC (5104)	23.685	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

1319: Research, Development, Test & Evaluation, Navy

BA 5: Development & Demonstration (SDD)

R-1 ITEM NOMENCLATURE

PE 0604755N: Ship Self Def (Detect & Cntrl)

PROJECT 2178: QRCC

Product Development (\$ in Millions)

			Г]		
				FY 2	2010	FY 20 Bas		FY 2		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
Systems Eng/Dev/ Integrate (5104)		San Diego, CA											
Award Fees (5108)	SS/CPAF	RSC (5108) San Diego, CA	11.208	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Award Fees (5466)	SS/CPAF	RSC (5466) San Diego, CA	2.163	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
RisK Reduction/EMD	Various/ Various	Various Various	76.366	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Misc.	Various/ Various	Various Various	3.756	0.757	Oct 2009	1.000	Oct 2010	0.000		1.000	Continuing	Continuing	Continuing
Systems Engineering (NWAS)	WR	NWAS Corona Corona, CA	0.269	0.175	Oct 2009	0.200	Oct 2010	0.000		0.200	Continuing	Continuing	Continuing
		Subtotal	413.486	11.845		22.721		0.000		22.721			

Remarks

Support (\$ in Millions)

				FY 2	010	FY 2 Bas		FY 2		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
QA/RMA	WR	NWAS Corona Corona, CA	9.954	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

R-1 ITEM NOMENCLATURE

PROJECT

1319: Research, Development, Test & Evaluation, Navy

PE 0604755N: Ship Self Def (Detect & Cntrl)

2178: QRCC

BA 5: Development & Demonstration (SDD)

Support (\$ in Millions)

				FY 20	010	FY 2 Ba		FY 2		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
		Subtotal	9.954	0.000		0.000		0.000		0.000			

Remarks

Test and Evaluation (\$ in Millions)

	Contract Performin			FY 2	010	FY 2 Ba	-	FY 2		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
Development Test & Evaluation (PHD)	WR	NSWC PHD Port Hueneme, CA	64.516	4.903	Oct 2009	5.005	Oct 2010	0.000		5.005	Continuing	Continuing	Continuing
Development Test & Evaluation (DD)	WR	NSWC DD Dahlgren, VA	5.363	0.195	Oct 2009	0.202	Oct 2010	0.000		0.202	Continuing	Continuing	Continuing
Development Test & Evaluation (DD-WI)	WR	NSWC DD Wallops Is, VA	33.222	3.245	Oct 2009	3.305	Oct 2010	0.000		3.305	Continuing	Continuing	Continuing
Development Test & Evaluation (JHU)	SS/FP	JHU/APL Laurel, MD	12.052	1.568	Oct 2009	1.502	Oct 2010	0.000		1.502	Continuing	Continuing	Continuing
Development Test & Evaluation (Corona)	WR	NSWC Corona Corona, CA	2.528	0.620	Oct 2009	0.650	Oct 2010	0.000		0.650	Continuing	Continuing	Continuing
Development Test & Evaluation (COTF)	WR	OPTEVFOR Norfolk, VA	2.456	0.389	Oct 2009	0.405	Oct 2010	0.000		0.405	Continuing	Continuing	Continuing
Development Test & Evaluation (5110)	SS/CPFF	RSC(5110) San Diego, CA	8.593	1.059	Oct 2009	1.102	Oct 2010	0.000		1.102	Continuing	Continuing	Continuing

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R-1 Line Item #120 Page 19 of 36

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

1319: Research, Development, Test & Evaluation, Navy

BA 5: Development & Demonstration (SDD)

R-1 ITEM NOMENCLATURE

PE 0604755N: Ship Self Def (Detect & Cntrl)

PROJECT 2178: QRCC

Test and Evaluation (\$ in Millions)

				FY 2	010	FY 2 Ba		FY 2		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
Development Test & Evaluation (5466)	SS/CPFF	RSC(5466) Tucson, AZ	2.180	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
Development Test & Evaluation (CDSA)	WR	CDSA DN Dam Neck, VA	1.064	0.195	Oct 2009	0.202	Oct 2010	0.000		0.202	Continuing	Continuing	Continuing
Miscellaneous	Various/ Various	Various Not Specified	5.546	0.000		0.000		0.000		0.000	Continuing	Continuing	Continuing
	Subtotal 137.52					12.373		0.000		12.373			

Remarks

Management Services (\$ in Millions)

					010	FY 2 Ba	2011 se	FY 2		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
Program Management Support	Various/ Various	Not Specified Not Specified	16.818	1.538	Oct 2009	1.500	Oct 2010	0.000		1.500	Continuing	Continuing	Continuing
		Subtotal	16.818	1.538		1.500		0.000		1.500			

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

1319: Research, Development, Test & Evaluation, Navy

BA 5: Development & Demonstration (SDD)

R-1 ITEM NOMENCLATURE

PE 0604755N: Ship Self Def (Detect & Cntrl)

PROJECT

2178: QRCC

	Total Prior Years Cost	FY 2010		2011 ase	FY 2	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	577.778	25.557	36.594		0.000	36.594			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

1319: Research, Development, Test & Evaluation, Navy

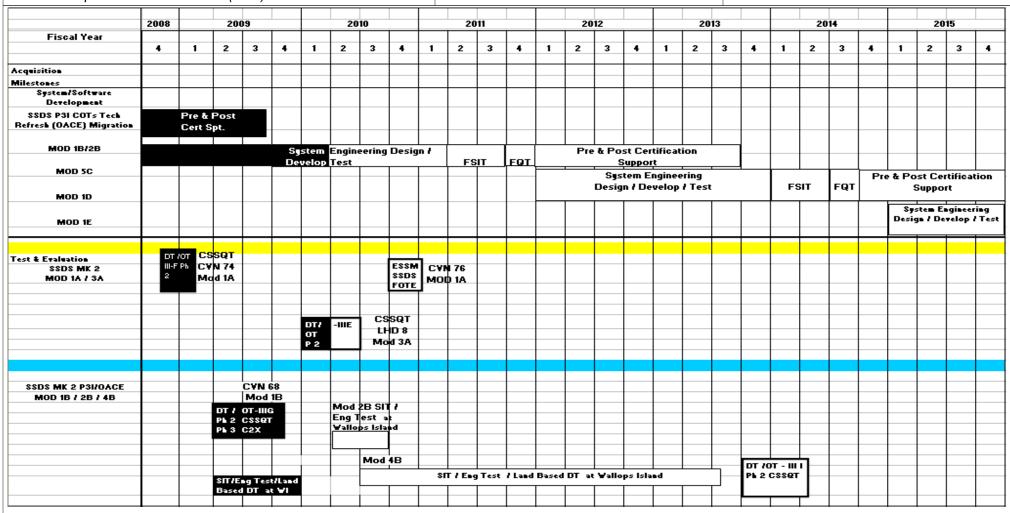
BA 5: Development & Demonstration (SDD)

R-1 ITEM NOMENCLATURE

PE 0604755N: Ship Self Def (Detect & Cntrl)

PROJECT

2178: QRCC



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R-1 Line Item #120 Page 22 of 36

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

1319: Research, Development, Test & Evaluation, Navy

BA 5: Development & Demonstration (SDD)

R-1 ITEM NOMENCLATURE

PE 0604755N: Ship Self Def (Detect & Cntrl)

PROJECT

2178: QRCC

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy

APPROPRIATION/BUDGET ACTIVITY

1319: Research, Development, Test & Evaluation, Navy

BA 5: Development & Demonstration (SDD)

R-1 ITEM NOMENCLATURE

PE 0604755N: Ship Self Def (Detect & Cntrl)

PROJECT

2178: QRCC

Schedule Details

	Sta	art	En	d
Event	Quarter	Year	Quarter	Year
SSDS MK 2 MOD 1A/3A CVN74 - CSSQT / DT / OT	1	2009	1	2009
SSDS MK 2 MOD 1A / 3A - LHD8 CSSQT / DT / OT	1	2010	2	2010
SSDS MK 2 MOD 1A / 3A - CVN 76 DT / OT	4	2010	1	2011
SSDS MK 2 MOD 1B/2B/4B P3I OACE - CVN 68 PRE POST CERT SPT	1	2009	3	2009
SSDS MK 2 MOD 1B/2B/4B P3I OACE - CVN68 SIT/ ENG TESTING	2	2009	4	2009
SSDS MK 2 MOD 1B/2B/4B P3I OACE - LPD24 SIT/ ENG TESTING	2	2010	3	2010
SSDS MK 2 MOD 1B/2B/4B P3I OACE - LHA6 SIT/ ENG TEST/Land Based DT	3	2010	3	2013
SSDS MK 2 MOD 1B/2B/4B P3I OACE - CVN 68 CSSQT / DT / OT	2	2009	4	2009
SSDS MK 2 MOD 1B/2B/4B P3I OACE - LHA 6 CSSQT / DT / OT	4	2013	1	2014
SDTS - MOD 2 DT/OT IIID Phase 1	1	2009	1	2009
SDTS - MOD 1A - SEA BASED DT / OT	4	2010	1	2011
SDTS - MOD 2A - LAND BASED DT - Prep for SDTS	4	2009	1	2010
SDTS - CVN78 - LAND BASED DT - Prep for SDTS	2	2013	4	2014
SDTS - CVN78 - SEA BASED DT / OT	1	2015	4	2015
SDTS - LHA6 - SEA BASED DT / OT	1	2012	4	2012
SSDS MK 1 (MK2 MOD 5C) P3I OACE - Sys Engr / DESIGN / DEV / TEST	1	2009	1	2011
SSDS MK 1(MK2 MOD 5C) P3I OACE - SRR	4	2009	4	2009
SSDS MK 1(MK2 MOD 5C) P3I OACE - PDR	2	2010	2	2010

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy

SSDS MK1/MK2 MOD 1E/2E/3E/4E/5E P3I OACE - SRR

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

R-1 ITEM NOMENCLATURE

PROJECT

1319: Research, Development, Test & Evaluation, Navy BA 5: Development & Demonstration (SDD)

PE 0604755N: Ship Self Def (Detect & Cntrl)

2178: QRCC

	St	tart	E	nd
Event	Quarter	Year	Quarter	Year
SSDS MK 1(MK2 MOD 5C) P3I OACE - CRITICAL DESIGN REVIEW	4	2010	4	2010
SSDS MK 1(MK2 MOD 5C) P3I OACE - FACTORY SYSTEM INTEGRATION TEST	2	2011	3	2011
SSDS MK 1(MK2 MOD 5C) P3I OACE - FACTORY QUALIFICATION TEST	4	2011	4	2011
SSDS MK 1(MK2 MOD 5C) P3I OACE - PRE POST CERTIFICATION SUPPORT	1	2012	3	2013
SSDS MK 1(MK2 MOD 5C) P3I OACE 1 - SYSTEM INTEGRATION/ENG TESTING	4	2012	4	2012
SSDS MK 1(MK2 MOD 5C) P3I OACE 2 - SYS INTEGRATION/ENG TESTING	2	2013	4	2013
SSDS MK 1(MK2 MOD 5C) P3I OACE 3 - SYS INTEGRATION/ENG TESTING	3	2014	3	2014
SSDS MK 1(MK2 MOD 5C) P3I OACE 4 - SYS INTEGRATION/ENG TESTING	4	2015	4	2015
SSDS MK 1(MK2 MOD 5C) P3I OACE - CSSQT 1	3	2013	4	2013
SSDS MK 1(MK2 MOD 5C) P3I OACE - CSSQT 2	3	2014	4	2014
SSDS MK 1(MK2 MOD 5C) P3I OACE - CSSQT 3	2	2015	2	2015
SSDS MK2 MOD 1D P3I OACE - SYSTEM ENGINEERING DESIGN/DEV/TEST	1	2012	4	2013
SSDS MK2 MOD 1D P3I OACE - SRR	3	2012	3	2012
SSDS MK2 MOD 1D P3I OACE - PDR	1	2013	1	2013
SSDS MK2 MOD 1D P3I OACE - CRITICAL DESIGN REVIEW	4	2013	4	2013
SSDS MK2 MOD 1D P3I OACE - FACTORY SYSTEM INTEGRATION TEST	1	2014	2	2014
SSDS MK2 MOD 1D P3I OACE - FACTORY QUALIFICATION TEST	3	2014	3	2014
SSDS MK2 MOD 1D P3I OACE - PRE POST CERTIFICATION SUPPORT	4	2014	4	2015
SSDS MK1/MK2 MOD 1E/2E/3E/4E/5E P3I OACE - SYS ENGR DESIGN/DEV/TEST	1	2015	4	2015

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3

2015

3

2015

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy

APPROPRIATION/BUDGET ACTIVITY

1319: Research, Development, Test & Evaluation, Navy

R-1 ITEM NOMENCLATURE
PE 0604755N: Ship Self Def (Detect & Cntrl)

3172: Joint Non-Lethal Weapons

BA 5: Development & Demonstration (SDD)

BA 3. Development & Demonstration	1 (000)										
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
3172: Joint Non-Lethal Weapons	3.609	4.280	4.597	0.000	4.597	3.365	2.413	2.480	2.532	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The scope of this project is to provide the fleet Expeditionary (specifically the Maritime Expeditionary Security Force) units with the capability of a portable maritime Integrated Swimmer Defense (ISD) system to engage combat swimmers/divers or unknown individuals underwater once they have been detected. The ISD program combines the detection and engagement operations in order to complete the swimmer defense picture for the fleet. The objective of the integrated swimmer defense system (ISD) is the development and deployment of an integrated system capable of being deployed by the expeditionary harbor security units (primarily the Maritime Expeditionary Security Force). ISD will be designed to detect, track, classify, warn, deter and neutralize divers and swimmers threats. ISD is important to protecting high value assets within harbors from the increasing threat of waterborne terrorist or combatants' attacks.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
ISD Development	2.591	1.282	1.066	0.000	1.066
FY 2009 Accomplishments: Resources support the design, development, analysis, and evaluation of an expeditionary integrated swimmer defense capability. Utilizes an User Operational Evaluation System approach to refine requirements for transition to the ISD program of record.					
FY 2010 Plans: Supports incorporation of evaluation feedback into the supporting DODAF architecture of the ISD CPD. Supports preparation for the ISD Milestone C decision. These funds also initiate the transition development work from several Future Naval Capabilities (FNC) projects geared toward increment II of ISD.					

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy **DATE:** February 2010 **PROJECT** APPROPRIATION/BUDGET ACTIVITY **R-1 ITEM NOMENCLATURE** 1319: Research, Development, Test & Evaluation, Navy PE 0604755N: Ship Self Def (Detect & Cntrl) 3172: Joint Non-Lethal Weapons BA 5: Development & Demonstration (SDD) B. Accomplishments/Planned Program (\$ in Millions) FY 2011 FY 2011 FY 2011 **FY 2009 FY 2010** Base OCO Total FY 2011 Base Plans: Support completion of Increment I CPD, Increment I MS C and FRP development. ISD Testing 1.000 3.531 0.000 3.531 2.998 FY 2009 Accomplishments: Supports the testing of swimmer detection and engagement technologies. These resources integrate the detection and engagement systems into a comprehensive capability, and sustainment of the two UOES prototype systems. FY 2010 Plans: Resources facilitate the program management and acquisition support effort needed for the ISD capability to achieve Milestone C and its production decision. Start initial testing/certification of the full ISD system. FY 2011 Base Plans: Complete update of UOES2 system to the first Increment I, build test article and accomplish Development Testing (DT), facilities testing, and Operational Testing (OT) efforts. The OCO UONS support unambiguous warning devices for Mobile Expeditionary Security Forces (MESF).

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Accomplishments/Planned Programs Subtotals

0.000

4.280

0.018

3.609

0.000

4.597

0.000

4.597

0.000

0.000

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Defense Acquisition Workforce Fund (DAWF)

FY 2009 Accomplishments:

Funded DAWF

Defense Acquisition Workforce Fund (DAWF)

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy

APPROPRIATION/BUDGET ACTIVITY

BA 5: Development & Demonstration (SDD)

R-1 ITEM NOMENCLATURE PROJECT

1319: Research, Development, Test & Evaluation, Navy

PE 0604755N: Ship Self Def (Detect & Cntrl)

3172: Joint Non-Lethal Weapons

C. Other Program Funding Summary (\$ in Millions)

			FY 2011	FY 2011	FY 2011					Cost To	
<u>Line Item</u>	FY 2009	FY 2010	<u>Base</u>	OCO	<u>Total</u>	FY 2012	FY 2013	FY 2014	FY 2015	Complete	Total Cost
OPN/8128: NCW Forces Active	0.000	0.000	0.000	0.000	0.000	2.426	6.756	6.925	9.446	0.000	25.553

D. Acquisition Strategy

The acquisition strategy includes the integration of swimmer/diver detection sensors and using software to fuse the sensor track data thereby creating an end to end combat system capability for swimmer/diver defense. A Navy technical team will complete the concept refinement and technology development phase through the release of User Operational Evaluation Systems (UOES) and they will partner with industry for each UOES. In order to further refine the ISD requirements for a validated ISD Capability Production Document, two ISD UOES will be developed and evaluated. A mature near production ready UOES 2 will be delivered in September 2009. The ISD program of record system configuration will be produced through an Acquisition Category (ACAT) program commencing in FY10 to procure component systems needed to bring the performance of the UOES prototypes up to the full production requirements.

E. Performance Metrics

Successfully conduct Full Rate Production Design Review (FRP DR).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

R-1 ITEM NOMENCLATURE

PROJECT

1319: Research, Development, Test & Evaluation, Navy BA 5: Development & Demonstration (SDD)

PE 0604755N: Ship Self Def (Detect & Cntrl)

3172: Joint Non-Lethal Weapons

Product Development (\$ in Millions)

				FY 2	:010	FY 2 Ba		FY 2		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
Hardware/Software Development - ISD	WR	NUWC Newport Newport, RI	3.956	0.500	Feb 2010	0.500	Feb 2011	0.000		0.500	Continuing	Continuing	Continuing
Hardware/Software Development - FNC Low Cost Swimmer Detection	WR	NUWC Newport Newport, RI	0.000	0.100	Feb 2010	0.300	Feb 2011	0.000		0.300	Continuing	Continuing	Continuing
Hardware/Software Development - FNC Terminal Swimmer Detection and Targeting	WR	NUWC Newport Newport, RI	0.000	0.150	Feb 2010	0.250	Feb 2011	0.000		0.250	Continuing	Continuing	Continuing
		Subtotal	3.956	0.750		1.050		0.000		1.050			

Remarks

Support (\$ in Millions)

				FY 2	2010	FY 2 Ba	-	FY 2 OC		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
Engineering Services (NUWC)	WR	NUWC Newport Newport, RI	1.635	0.580	Feb 2010	0.642	Feb 2011	0.000		0.642	Continuing	Continuing	Continuing
Engineering Services (NSWC)	WR	NSWC Panama City Panama City, FL	1.200	0.000		0.000		0.000		0.000	0.000	1.200	Continuing
		Subtotal	2.835	0.580		0.642		0.000		0.642			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

R-1 ITEM NOMENCLATURE

PROJECT

1319: Research, Development, Test & Evaluation, Navy BA 5: Development & Demonstration (SDD)

PE 0604755N: Ship Self Def (Detect & Cntrl)

3172: Joint Non-Lethal Weapons

Support (\$ in Millions)

	,			FY 2	2010		2011 ase		2011 CO	FY 2011 Total			
Cost Category	Contract Method Item & 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

Remarks

Test and Evaluation (\$ in Millions)

				FY 2	010	FY 2 Ba		FY 2		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
Test and Evaluation (NUWC)	WR	NUWC Newport Newport, RI	0.425	1.450	Feb 2010	1.450	Feb 2011	0.000		1.450	Continuing	Continuing	Continuing
		Subtotal	0.425	1.450		1.450		0.000		1.450			

Remarks

Management Services (\$ in Millions)

		FY 2	2010		-			FY 2011 Total				
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
WR	NUWC Newport Newport, RI	0.400	1.500	Feb 2010	1.455	Feb 2011	0.000		1.455	Continuing	Continuing	Continuing
WR	CECOM Not Specified	0.172	0.000		0.000		0.000		0.000	0.000	0.172	Continuing
	Method & Type WR	Method & Type Location WR NUWC Newport Newport, RI CECOM	Method & Type Activity & Location Total Prior Years Cost WR NUWC Newport Newport, RI 0.400 WR CECOM 0.173	Contract Method & Type Performing Activity & Location Total Prior Years Cost Cost WR NUWC Newport Newport, RI 0.400 1.500 WR CECOM 0.172 0.000	Method & Type Activity & Location Total Prior Years Cost Cost Award Date WR NUWC Newport Newport, RI 0.400 1.500 Feb 2010	FY 2010 Bar	Contract Method & Total Prior Years Cost Cost Date Cost Date WR NUWC Newport Newport, RI 0.400 1.500 Feb 2010 1.455 Feb 2011 WR CECOM 0.172 0.000 0.000	Contract Performing Activity & Total Prior Years Cost Cost Date Cost Date Cost	Contract Method & Type Performing Activity & Location Total Prior Years Cost Cost Date Award Date Award Date Award Date Cost Date Cost Date Cost Date O.000 O.000 WR NUWC Newport Newport, RI 0.400 1.500 Feb 2010 1.455 Feb 2011 0.000 WR CECOM 0.172 0.000 0.000 0.000 0.000	Contract Method & Type Performing Activity & Location Total Prior Years Cost Award Date Cost Award Date Award Date Cost Award Date Cost Date Date	Contract Method & Total Prior Years Cost Cost Date Cost	Contract Method & Total Prior Years Cost Cost Date Date Cost Date

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

1319: Research, Development, Test & Evaluation, Navy

BA 5: Development & Demonstration (SDD)

R-1 ITEM NOMENCLATURE

PE 0604755N: Ship Self Def (Detect & Cntrl)

PROJECT

3172: Joint Non-Lethal Weapons

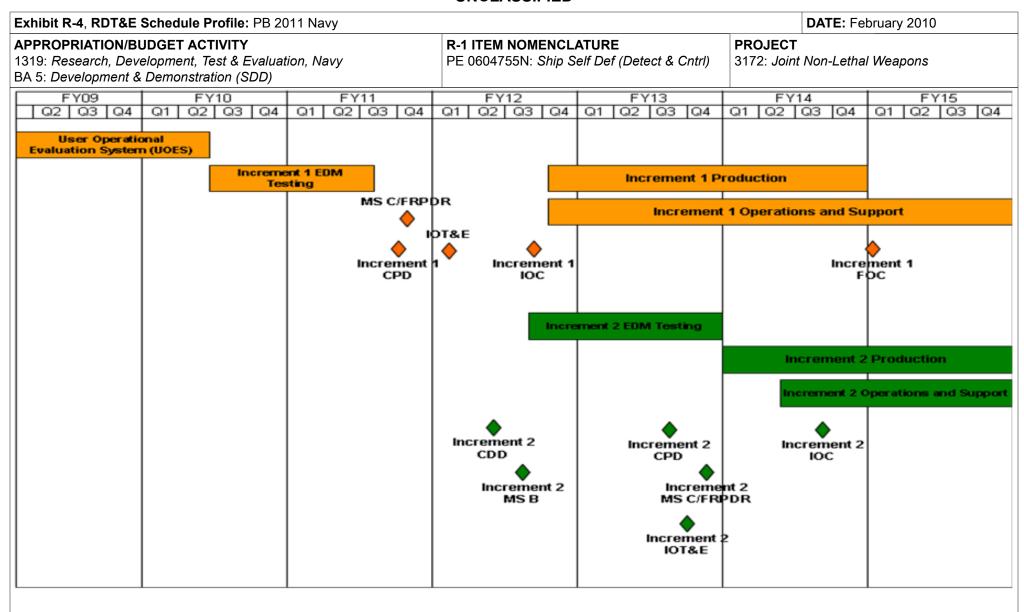
Management Services (\$ in Millions)

			FY 2	010	FY 2 Ba	-	FY 2		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
DAWDF	Various/ Various	Not Specified Not Specified	0.018	0.000		0.000		0.000		0.000	0.000	0.018	Continuing
		Subtotal	0.590	1.500		1.455		0.000		1.455			

Remarks

	Total Prior Years Cost	FY 2010		2011 ise	FY 2	-	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	7.806	4.280	4.597		0.000		4.597			

Remarks



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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy

APPROPRIATION/BUDGET ACTIVITY

R-1 ITEM NOMENCLATURE PROJECT

1319: Research, Development, Test & Evaluation, Navy

PE 0604755N: Ship Self Def (Detect & Cntrl) 3172: Joint Non-Lethal Weapons

BA 5: Development & Demonstration (SDD)

Schedule Details

	Sta	art	End		
Event	Quarter	Year	Quarter	Year	
Increment I CR/TD Phase User Operational Eval Systems (UOES)	1	2009	2	2010	
INCREMENT I EDM Testing	3	2010	3	2011	
INCREMENT I - CPD	3	2011	3	2011	
INCREMENT I - MS C/FRPDR	4	2011	4	2011	
INCREMENT I IOT&E	1	2012	1	2012	
INCREMENT I IOC	3	2012	3	2012	
INCREMENT I FOC	1	2015	1	2015	
INCREMENT II CDD	2	2012	2	2012	
INCREMENT II MS B	3	2012	3	2012	
INCREMENT II EDM TESTING	3	2012	4	2013	
INCREMENT II CPD	3	2013	3	2013	
INCREMENT II IOT&E	3	2013	3	2013	
INCREMENT II MS C/FRPDR	4	2013	4	2013	
INCREMENT II IOC	3	2014	3	2014	

DATE: February 2010

0.000

0

0.000

48.787

				R-1 ITEM NOMENCLATURE PE 0604755N: Ship Self Def (Detect & Cntrl)				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

0.000

0

0.000

0

0.000

0

0.000

0

0.000

0

A. Mission Description and Budget Item Justification

8.976

0

9.063

0

0.000

0

9999: Congressional Adds

Quantity of RDT&E Articles

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy

9C22A: Autonomous Unmanned Surface Vessel (AUSV) supports the U.S. Navy's Anti-Terrorism Force Protection (ATFP) as well as Homeland Defense missions. The AUSV can protect commercial harbors, coastal facilities such as commercial and military airports and nuclear power plants, inland waterways and large lakes. The vessel will utilize a variety of advanced sensing and perimeter monitoring equipment for surveillance and detection of Targets of Interest (TI).

9C23A/0166: Expeditionary Swimmer Defense Systems consists of an instrumented physical barrier that deters swimmers and divers from attempting to prohibited areas, and detects and localizes attempted intrusions.

9D91A/2178: Cyber Security is for development, procurement, and certification of Information Assurance systems as part of ACDS/SSDS upgrade kits to replace and/ or augment the obsolescent equipment in CVN and Amphib ACDS/SSDS ships.

9D90A/0166: Persistent Surveillance Wave Power-Buoy System is to create a buoy platform that generates sustainable power sufficient to energize a variety of sensors and communications elements to enhance the littoral security mission (Littoral Power Buoy - LPB).

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010
Congressional Add: AUTONOMOUS UNMANNED SURFACE VESSEL (AUSV)(XFER FRO	1.197	2.689
FY 2009 Accomplishments: N/A		
FY 2010 Plans: N/A		

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy	DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	PROJECT	
1319: Research, Development, Test & Evaluation, Navy	PE 0604755N: Ship Self Def (Detect & Cntrl)	9999: Cong	ressional Adds
BA 5: Development & Demonstration (SDD)			

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010
O	2.393	3.187
Congressional Add: EXPEDITIONARY SWIMMER DEFENSE SYSTEM		
FY 2009 Accomplishments: N/A		
FY 2010 Plans: N/A		
Congressional Add: Persistent Surveillance Wave Power-Buoy System	2.993	3.187
FY 2009 Accomplishments: N/A		
FY 2010 Plans: N/A		
Congressional Add: Cyber Security	2.393	0.000
FY 2009 Accomplishments: N/A		
Congressional Adds Subtotals	8.976	9.063

C. Other Program Funding Summary (\$ in Millions)

N/A

D. Acquisition Strategy

N/A

1319: Research, Development, Test & Evaluation, Navy BA 5: Development & Demonstration (SDD) PE 0604755N: Ship Self Def (Detect & Cntrl) 9999: Congressional Adds	Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy	DATE: February 2010		
	APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 5: Development & Demonstration (SDD)			
Congressional Adds	E. Performance Metrics			
	Congressional Adds			