Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 ITEM NOMENCLATURE PE 0603553N: *Surface ASW*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	143.458	38.943	6.704	2.349	-	2.349	1.094	1.141	1.163	1.183	Continuing	Continuing
1704.: *Undersea Warfare*	143.458	38.943	6.704	2.349	-	2.349	1.094	1.141	1.163	1.183	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The Anti-Submarine Warfare (ASW) Advanced Development project provides advanced development demonstration and validation of technology for potential surface sonar and combat system applications. Program Element (PE) 0603553N has been designated to support emerging multi-static technologies, and the Chief of Naval Operations' (CNO) ASW Initiative. For FY09 and prior, efforts focused on resolution of technical issues associated with providing capability against the FY09 and beyond threat, with emphasis on shallow water/littoral areas, deep water Undersea Warfare (USW), and demonstration and validation of USW concepts and technology. Key technology areas included active sonar transmissions; advanced signal and data processing; active sonar classification; towed and hull arrays; transducer technology; and periscope detection techniques. Starting in FY07, the CNO's ASW Initiative (formerly known as Task Force ASW) included the development of new and innovative technologies. Efforts associated with these technologies include design, development, integration, and testing of future undersea superiority systems. These systems include distributed sensor systems; Vertical Line Array (VLA); static active buoy fields; submarine countermeasures; compact rapid-effect weapons; longer-range radio systems; multi-static sonar; Continuous Active Sonar (CAS) and Variable Depth Sonar (VDS); and multi-sensor data fusion, including multi-platform data fusion and net-centric USW concepts. An Office of the Chief of Naval Operations (OPNAV) letter of direction limits the scope of this project, beginning in FY10, to the development of CAS/VDS and the continuation of studies in support of the ASW Initiative.

B. Program Change Summary ($ in Millions)	**FY 2012**	**FY 2013**	**FY 2014 Base**	**FY 2014 OCO**	**FY 2014 Total**
Previous President's Budget	29.787	6.704	5.696	-	5.696
Current President's Budget	38.943	6.704	2.349	-	2.349
Total Adjustments	9.156	0.000	-3.347	-	-3.347
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	9.896	0.000			
• SBIR/STTR Transfer	-0.740	0.000			
• Program Adjustments	0.000	0.000	-0.007	-	-0.007
• Rate/Misc Adjustments	0.000	0.000	-3.340	-	-3.340

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603553N: *Surface ASW*

Change Summary Explanation

FY12 includes $11.0M from the 2012 DoD Omnibus Above Threshold Reprogramming for 'ASW/ISR Capability' as well as a ($1.1M) Below Threshold Reprogramming to support early deployment of the Littoral Combat Ship.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603553N: *Surface ASW*	PROJECT 1704.: *Undersea Warfare*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
1704.: *Undersea Warfare*	143.458	38.943	6.704	2.349	-	2.349	1.094	1.141	1.163	1.183	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

The CNO's ASW initiative is a focused effort to identify the most promising ASW technologies through a process of discovery, assessment, experimentation, and analysis. The CNO's ASW initiative will coordinate the development of technologies which move beyond incremental or marginal improvements in ASW effectiveness. The CNO's vision of "fundamentally changing the way ASW is currently conducted to render the enemy submarine irrelevant against US and coalition forces" necessitates a change in the calculus of how the US Navy conducts ASW. Central to the CNO's ASW initiatives achieving the CNO's vision are several innovative approaches which include using the art-of-the-technologically-possible; minimizing force-on-force; reducing the ASW end-to-end time line; supporting rapid maneuver; developing off-board and distributed ASW detection systems; and finding innovative weapons solutions. To achieve these key approaches, it is essential to develop new ASW technologies and conduct at-sea experiments to prove/disprove technology concepts and collect corroborating data. An OPNAV letter of direction limits the scope of this project, beginning in FY10, to the development of CAS/VDS and the continuation of studies in support of the ASW Initiative.

The CAS/VDS sonar is intended, at a minimum, to support ASW escort missions for the Littoral Combat Ship (LCS). The system shall be developed as an effective and affordable LCS deep water, wide area, and active sonar search capability in the form of a VDS for inclusion as part of the ASW Mission Module. The program shall target LCS-2 as the test platform. Efforts shall include development of a Launch and Retrieval system designed to survive high tow speeds, provide a high sweep rate capability and large stand-off detection ranges and should outperform current systems under all conditions. Components should leverage existing systems such as the Multi-Function Towed Array (MFTA) to limit costs and reduce risk of early efforts. Efforts will also include the conduct of studies to validate performance goals and design options and should leverage the UK 2087 VDS test program to the maximum practical extent. The technology development timeline should be aligned to provide an introduction of the technology through the Advanced Capability Build (ACB) process.
The detection and identification of underwater mines based on structural acoustic features has been successfully demonstrated This structural acoustics (SA) approach offers significant increases in coverage rates together with higher probabilities of detection and lower false alarm rates against most of the threat mines the Navy is expected to encounter in the foreseeable future. Highly successful blind tests have been carried out demonstrating high performance detection and classification with low false alarm rates. This technology is now in transition to the fleet. The work proposed here, is to develop and demonstrate a long range/high coverage rate ASW systems concept based on the Low-Frequency Broadband (LFBB) technology using a fleet sonar AN/SQQ-89 on surface combatants.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: CNO ASW Initiatives (Including CAS/VDS)	27.943	4.209	1.109
Articles:	0	0	0
FY 2012 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603553N: *Surface ASW*	PROJECT 1704.: *Undersea Warfare*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Completed CAS/VDS Advanced Development Model (ADM) development, fabrication and land-based testing of towed source, receive array, handling system and in-board electronics, controls and displays. Initiated ship alteration data package preparation for installation of CAS/VDS on both LCS hull types. Installed CAS/VDS ADM on surrogate LCS platform (white ship) and conducted at-sea testing. Initiated efforts to mature ADM to Engineering Development Model (EDM) level and prepared for future production program. Commenced design of VDS handling system for use on LCS Independence Class hulls. Continued independent critical review and analysis of alternatives of selected and potential CNO ASW initiative technologies. ***FY 2013 Plans:*** Install CAS/VDS ADM on Littoral Combat Ship (LCS) platform and conduct at-sea testing of ADM. Continue efforts to mature ADM to EDM level. Continue independent critical review and analysis of alternatives of selected and potential CNO ASW initiative technologies. Collect systems and performance data during select Fleet exercises and at-sea testing events. Analyze and distribute collected data to support studies and analysis of alternatives in support of the CNO ASW initiative. Develop improvements to the MFTA Telemetry to take advantage of the LCS/VDS source frequencies and enhanced reliability and durability. ***FY 2014 Plans:*** Collect and analyze systems and performance data during select Fleet exercises and at-sea testing experiments. Continue to develop and test improvements to the MFTA Telemetry to take advantage of the LCS/VDS source frequencies and enhanced reliability and durability.			
Title: Littoral Remote Sensing (LRS) ***Articles:*** ***FY 2012 Accomplishments:*** - Implement advanced development and testing of remote sensing algorithms for detection and classification for maritime targets. - Develop and test simultaneous retrieval of environmental parameters from imagery for use in reducing false alarms and improving classification of maritime targets. - Develop and test fusion of multiple remote sensing retrievals to enhance target exploitation. - Prepare necessary transition paths to allow acceptance of algorithms for operational evaluation, user training, and minimal timelines for operational use. Note: LRS was part of the 2012 DoD Omnibus Reprogramming for ASW/ISR Capability. This FY12 funding is a continuation of the effort stood up via the 2011 DoD Omnibus Reprograming for ASW/ISR Capability.	11.000 0	0.000	0.000
Title: AN/SQS-53C Structural Acoustics Sensor Program ***Articles:***	0.000	2.495 0	1.240 0

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603553N: *Surface ASW*	PROJECT 1704.: *Undersea Warfare*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Description: The detection and identification of underwater mines based on structural acoustic features has been successfully demonstrated. This structural acoustics (SA) approach offers significant increases in coverage rates together with higher probabilities of detection and lower false alarm rates against most of the threat mines the Navy is expected to encounter in the foreseeable future. Highly successful blind tests have been carried out demonstrating high performance detection and classification with low false alarm rates. This technology is now in transition to the fleet. The Navy will develop and demonstrate a long range/high coverage rate ASW systems concept based on the LFBB technology using a fleet sonar AN/SQQ-89 on surface combatants. Specifically, using a standard AN/SQQ-53C as a source and the Multi-Function Towed Array (MFTA) as a receiver. In the Speed to Fleet effort, the Navy will build a special processor that will "roll on" the surface combatant and be integrable into the existing AN/SQQ-89 system. The processor will run codes already developed in the ONR programs, but now adapted to the ASW problem. Ultimately, the demonstration will involve testing and documenting the ability of the approach to distinguish and correctly identify low Doppler bottom, near bottom, submarines and false targets as a function of speed and range from target fields. ***FY 2013 Plans:*** -Continue processor build. -Continue Software Build. ***FY 2014 Plans:*** -Continue all efforts of FY2013, unless noted as completed. -Completed demonstration test planning. -Completed system install.			
Accomplishments/Planned Programs Subtotals	38.943	6.704	2.349

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Competitively awarded contracts from Broad Agency Announcement (BAA) solicitations.
N/A

E. Performance Metrics

Conduct CAS/VDS ADM Sea Tests 3Q12 (White Ship) and 1Q13 (LCS platform).
Conduct Demonstration Sea Tests 3Q14 (Gray Ship).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603553N: *Surface ASW*	PROJECT 1704.: *Undersea Warfare*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Technology Development	C/CPFF	AAC:NY	1.134	0.000		0.000		0.000		-		0.000	0.000	1.134	
Technology Development	C/CPFF	Adaptive Methods:VA	3.788	0.000		0.000		0.000		-		0.000	0.000	3.788	
Technology Development	C/CPFF	Alion Sciences:VA	7.000	1.000	Dec 2011	0.000		0.000		-		0.000	0.000	8.000	
Technology Development	C/CPAF	EG&G:VA	1.550	0.500	Jan 2012	0.000		0.000		-		0.000	0.000	2.050	
Technology Development	C/CPFF	In-Depth Engineering:VA	2.375	1.260	Dec 2011	0.000		0.000		-		0.000	0.000	3.635	
Technology Development	C/CPFF	JHU/APL:MD	25.333	0.000		0.000		0.000		-		0.000	0.000	25.333	
Technology Development	C/CPFF	L-3 Communications:VA	3.000	0.000		0.000		0.000		-		0.000	0.000	3.000	
Technology Development	C/CPFF	Lockheed Martin - ISS:NY	4.610	2.500	Dec 2011	0.000		0.000		-		0.000	0.000	7.110	
Technology Development	WR	NSWC/ Carderock:MD	2.701	0.500	Dec 2011	0.000		0.000		-		0.000	0.000	3.201	
Technology Development	WR	NUWC/Keyport:WA	0.790	0.000		0.000		0.000		-		0.000	0.000	0.790	
Technology Development	WR	NUWC/Newport:RI	26.466	6.794	Nov 2011	0.000		0.000		-		0.000	0.000	33.260	
Technology Development	C/CPFF	Northrop Grumman:VA	4.684	0.000		0.000		0.000		-		0.000	0.000	4.684	
Technology Development	C/CPFF	UT/ARL:TX	4.908	0.000		0.000		0.000		-		0.000	0.000	4.908	
Technology Development	C/CPFF	VAR:VAR*	4.694	0.000		0.000		0.000		-		0.000	0.000	4.694	
Technology Development	WR	NFESC/PH:CA	0.300	5.050	Dec 2011	0.000		0.000		-		0.000	0.000	5.350	
Technology Development	MIPR	SSGC:MS	0.153	3.100	Jan 2012	0.000		0.000		-		0.000	0.000	3.253	
Detection/Classification Algorithms (LRS)	WR	NAWC/Pax River:MD	1.400	1.000	Nov 2012	0.000		0.000		-		0.000	0.000	2.400	
Detection/Classification Algorithms (LRS)	C/CPFF	VAR:VAR*	6.200	2.400	Dec 2012	0.000		0.000		-		0.000	0.000	8.600	
Technology Development (LRS)	WR	NRL:DC	1.400	1.100	Jan 2013	0.000		0.000		-		0.000	0.000	2.500	
Technology Development (LRS)	C/CPFF	VAR:VAR*	8.450	6.500	Dec 2012	0.000		0.000		-		0.000	0.000	14.950	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603553N: *Surface ASW*	PROJECT 1704.: *Undersea Warfare*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Processor Build	WR	NRL:District of Columbia	0.750	0.000		1.000	Oct 2012	0.000		-		0.000	0.000	1.750	
Software Build	WR	NRL:District of Columbia	0.750	0.000		1.195	Oct 2012	0.000		-		0.000	0.000	1.945	
System Install	WR	NRL:District of Columbia	0.000	0.000		0.200	Oct 2012	0.700	Oct 2013	-		0.700	0.250	1.150	
Demonstration Planning and Design	WR	NRL:District of Columbia	0.000	0.000		0.100	Oct 2012	0.000		-		0.000	0.100	0.200	
Demonstration test	WR	NRL:District of Columbia	0.000	0.000		0.000		0.000		-		0.000	0.750	0.750	
Analysis and Documentation of Demonstration Tests	WR	NRL:District of Columbia	0.000	0.000		0.000		0.000		-		0.000	0.150	0.150	
		Subtotal	112.436	31.704		2.495		0.700		0.000		0.700	1.250	148.585	

Remarks

Note: Funds identified as LRS (Littoral Remote Sensing) are part of the 2011/2012 DoD Omnibus Reprogrammings for ASW/ISR Capability.
*Consists of multiple performing activities with funding for each not greater than $1M per year.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
At-Sea Test/Experiment	WR	ONR:VA	5.500	0.000		0.000		0.000		-		0.000	0.000	5.500	
Developmental Test & Evaluation	C/CPFF	AAC:NY	1.067	0.000		0.000		0.000		-		0.000	0.000	1.067	
Developmental Test & Evaluation	C/CPFF	JHU/APL:MD	0.000	1.000	Dec 2011	2.008	Jan 2013	0.650	Dec 2013	-		0.650	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NRL:DC	0.537	0.000		0.000		0.000		-		0.000	0.000	0.537	
Developmental Test & Evaluation	WR	NSMA:VA	0.907	0.000		0.000		0.000		-		0.000	0.000	0.907	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603553N: *Surface ASW*	PROJECT 1704.: *Undersea Warfare*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NSWC/ Carderock:MD	0.672	0.500	Dec 2011	0.000		0.000		-		0.000	0.000	1.172	
Developmental Test & Evaluation	WR	NUWC/Newport:RI	8.972	2.000	Nov 2011	1.200	Dec 2012	0.112	Nov 2013	-		0.112	Continuing	Continuing	Continuing
Developmental Test & Evaluation	C/CPFF	UT/ARL:TX	1.844	0.000		0.000		0.000		-		0.000	0.000	1.844	
Developmental Test & Evaluation	C/CPFF	VAR:VAR*	1.025	2.996	Jan 2012	0.801	Dec 2012	0.177	Dec 2013	-		0.177	Continuing	Continuing	Continuing
Enhanced Data Collection	C/CPFF	JHU/APL:MD	4.462	0.000		0.000		0.000		-		0.000	0.000	4.462	
Enhanced Data Collection	C/CPFF	UT/ARL:TX	2.000	0.000		0.000		0.000		-		0.000	0.000	2.000	
Demonstration Execution	Various	NRL:District of Columbia	0.000	0.000		0.000		0.220	Oct 2013	-		0.220	0.000	0.220	
Demonstration Performance Analysis	Various	NRL:District of Columbia	0.000	0.000		0.000		0.170	Oct 2013	-		0.170	0.000	0.170	
		Subtotal	26.986	6.496		4.009		1.329		0.000		1.329			

Remarks

*Consists of multiple performing activities with funding for each not greater than $1M per year.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPAF	BAE Systems:MD	3.736	0.693	Feb 2012	0.175	Dec 2012	0.150	Dec 2013	-		0.150	Continuing	Continuing	Continuing
Travel	Allot	NAVSEA PEO IWS 5:DC	0.250	0.050	Jan 2012	0.025	Oct 2012	0.020	Oct 2013	-		0.020	Continuing	Continuing	Continuing
Travel (LRS)	Allot	ONR:DC	0.050	0.000		0.000		0.000		-		0.000	0.000	0.050	
Demonstration Planning and Test Plan	Various	NRL:District of Columbia	0.000	0.000		0.000		0.150	Oct 2013	-		0.150	0.000	0.150	
		Subtotal	4.036	0.743		0.200		0.320		0.000		0.320			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603553N: *Surface ASW*	PROJECT 1704.: *Undersea Warfare*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Remarks															
Note: Funds identified as LRS (Littoral Remote Sensing) are part of the 2011/2012 DoD Omnibus Reprogrammings for ASW/ISR Capability.															

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	143.458	38.943		6.704		2.349		0.000		2.349			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603553N: *Surface ASW*	PROJECT 1704.: *Undersea Warfare*

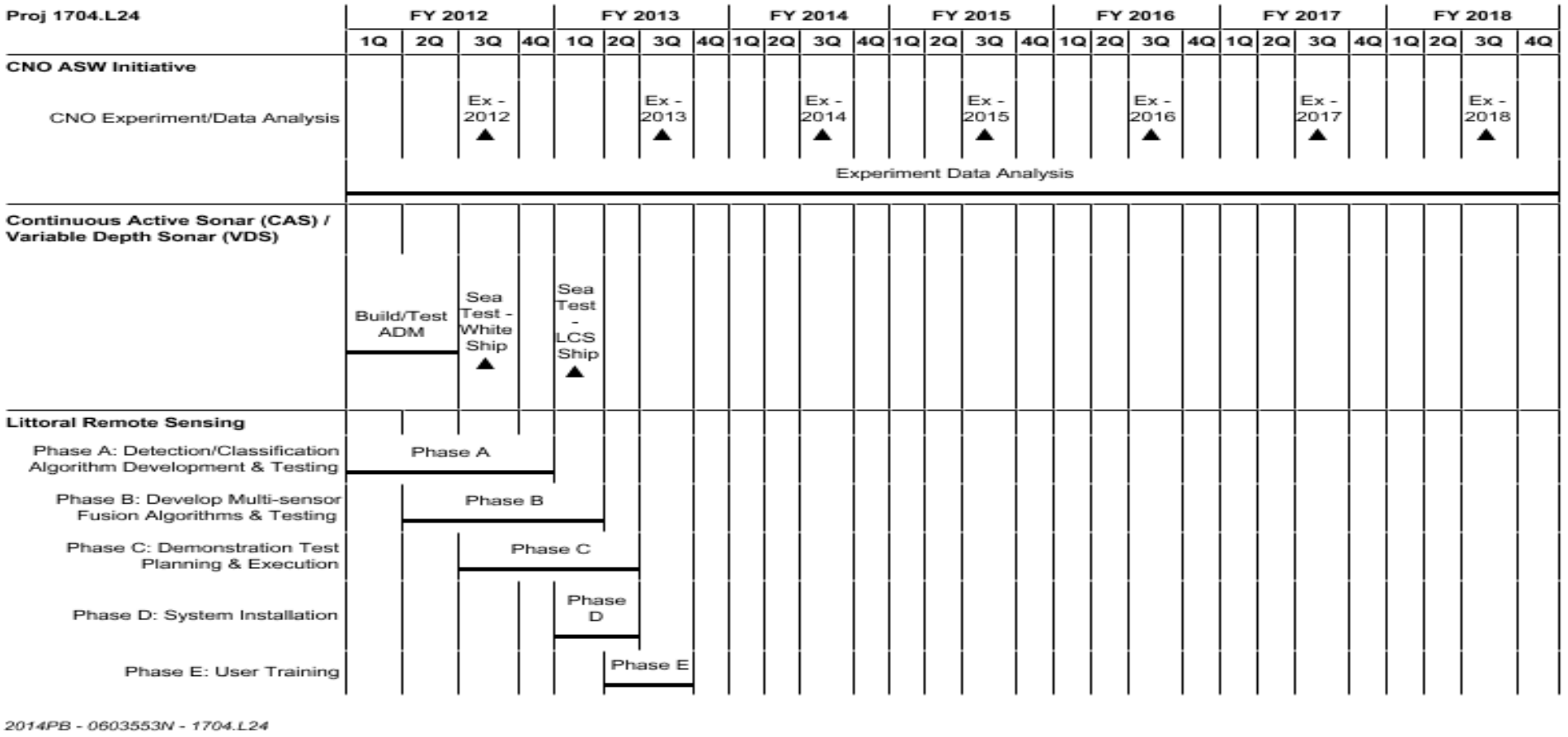

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Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603553N: *Surface ASW*	**PROJECT** 1704.: *Undersea Warfare*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 1704.L24				
CNO ASW Initiative: CNO Experiment/Data Analysis: Conduct At-Sea Experiment (2012)	3	2012	3	2012
CNO ASW Initiative: CNO Experiment/Data Analysis: Conduct At-Sea Experiment (2013)	3	2013	3	2013
CNO ASW Initiative: CNO Experiment/Data Analysis: Conduct At-Sea Experiment (2014)	3	2014	3	2014
CNO ASW Initiative: CNO Experiment/Data Analysis: Conduct At-Sea Experiment (2015)	3	2015	3	2015
CNO ASW Initiative: CNO Experiment/Data Analysis: Conduct At-Sea Experiment (2016)	3	2016	3	2016
CNO ASW Initiative: CNO Experiment/Data Analysis: Conduct At-Sea Experiment (2017)	3	2017	3	2017
CNO ASW Initiative: CNO Experiment/Data Analysis: Conduct At-Sea Experiment (2018)	3	2018	3	2018
CNO ASW Initiative: CNO Experiment/Data Analysis: Analyze Experimental Data/ Studies	1	2012	4	2018
Continuous Active Sonar (CAS) / Variable Depth Sonar (VDS): Build/Test VDS ADM	1	2012	2	2012
Continuous Active Sonar (CAS) / Variable Depth Sonar (VDS): CAS/VDS ADM Sea Test (White Ship)	3	2012	3	2012
Continuous Active Sonar (CAS) / Variable Depth Sonar (VDS): CAS/VDS ADM Sea Test (LCS Platform)	1	2013	1	2013
Littoral Remote Sensing: Phase A: Detection/Classification Algorithm Development & Testing: Phase A: Detection/Classification Algorithm Development & Testing	1	2012	4	2012

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603553N: *Surface ASW*	PROJECT 1704.: *Undersea Warfare*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Littoral Remote Sensing: Phase B: Develop Multi-sensor Fusion Algorithms & Testing: Phase B: Develop Multi-sensor Fusion Algorithms & Testing	2	2012	1	2013
Littoral Remote Sensing: Phase C: Demonstration Test Planning & Execution: Phase C: Demonstration Test Planning & Execution	3	2012	2	2013
Littoral Remote Sensing: Phase D: System Installation: Phase D: System Installation	1	2013	2	2013
Littoral Remote Sensing: Phase E: User Training: Phase E: User Training	2	2013	3	2013
AN/SQS-53C SAS pg. 1				
Phase A: Build: Processor Build	1	2013	4	2013
Phase A: Build: Software Build	1	2013	4	2013
Phase A: Build: Milestone B	4	2013	4	2013
Phase A: Build: System Install	1	2014	2	2014
Phase B: Demonstration: Demonstration Test Planning	2	2014	2	2014
Phase B: Demonstration: Demonstration Tests	3	2014	3	2014
Phase B: Demonstration: Analysis and Documentation of Demonstration Tests	4	2014	4	2014
Phase B: Demonstration: Milestone C	4	2014	4	2014