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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 0204311N: Integrated Surveillance System							
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	28.677	26.225	23.464	0.000	23.464	23.938	24.318	24.864	25.373	Continuing	Continuing
0766: IUSS Detect/Classif System	20.499	24.632	23.464	0.000	23.464	23.938	24.318	24.864	25.373	Continuing	Continuing
9999: Congressional Adds	8.178	1.593	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	20.082
A. Mission Description and Budget Item Justification											
This Program Element (PE) comprises two projects - 0766 and 9999. Project 0766 provides for Integrated Undersea Surveillance Systems (IUSS) Research and Development Projects under the Maritime Surveillance Systems (MSS) Program Office (PEO LMW PMS 485). IUSS provides the Navy with its primary means of submarine detection both nuclear and diesel. A portion of project 0766 (FSS) is classified, with details available at a higher classification level. Project 9999 consists of three Congressional Adds: Autonomous Anti-Submarine Vertical Beam Array (FY09 and FY10), Distributed Maritime Surveillance System (FY09), and Low-Cost, Expendable, Fiber Optic Sensor Array (FY09).											
U) JUSTIFICATION FOR BUDGET ACTIVITY:											
The IUSS Research and Development project (0766) funds SURTASS Passive and SURTASS Low Frequency Active (LFA) developments. SURTASS provides the mobile, tactical arm of the Integrated Undersea Surveillance System, providing long range detection and cueing for tactical weapons platforms against both diesel and nuclear powered submarines. SURTASS LFA provides an active adjunct capability for IUSS passive and tactical sensors to assist in countering the quieter diesel and nuclear threats of the 1990s and beyond. The LFA tasks are directed at detection of slow quiet threats in harsh littoral waters.											
(U) In order to continue with reductions in life cycle costs and continue with system-wide consolidation, a short-term goal is to develop a common IUSS processor based on NAVSEA's Acoustic Rapid COTS Insertion (ARCI) program. The IUSS Integrated Common Processor (ICP) will have the capability to process and display data from all fixed and mobile underwater systems. The IUSS ICP will be used for all new system installations and replace the legacy systems as they reach end of life and require upgrading. Additionally, SURTASS has consolidated on the TB-29A Twin-line array, a variant of the Submarine TB-29A Long line array. This reduced the number of array variants employed by SURTASS from 3 to 1, and will enable development and logistics cost savings by leveraging off the submarine TB-29A program.											

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<b>B. Program Change Summary (\$ in Millions)</b>					
	<b><u>FY 2009</u></b>	<b><u>FY 2010</u></b>	<b><u>FY 2011 Base</u></b>	<b><u>FY 2011 OCO</u></b>	<b><u>FY 2011 Total</u></b>
Previous President's Budget	28.677	24.835	0.000	0.000	0.000
Current President's Budget	28.677	26.225	23.464	0.000	23.464
Total Adjustments	0.000	1.390	23.464	0.000	23.464
• Congressional General Reductions		-0.110			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	-0.100			
• Congressional Adds		1.600			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Program Adjustments	0.000	0.000	23.464	0.000	23.464
<b><u>Congressional Add Details (\$ in Millions, and Includes General Reductions)</u></b>					
<b>Project: 9999: Congressional Adds</b>					
Congressional Add: AUTONOMOUS ANTI-SUB VERTICAL BEAN ARRAY					
Congressional Add: DISTRIBUTED MARITIME SURVEILLANCE SYSTEM					
Congressional Add: Low Cost, Expendable, Fiber Optic Sensor Array					
Congressional Add Subtotals for Project: 9999					
Congressional Add Totals for all Projects					
<b><u>Change Summary Explanation</u></b>					
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.					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2011 Navy								<b>DATE:</b> February 2010			
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 7: <i>Operational Systems Development</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0204311N: <i>Integrated Surveillance System</i>				<b>PROJECT</b> 0766: <i>IUSS Detect/Classif System</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2009 Actual</b>	<b>FY 2010 Estimate</b>	<b>FY 2011 Base Estimate</b>	<b>FY 2011 OCO Estimate</b>	<b>FY 2011 Total Estimate</b>	<b>FY 2012 Estimate</b>	<b>FY 2013 Estimate</b>	<b>FY 2014 Estimate</b>	<b>FY 2015 Estimate</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
0766: <i>IUSS Detect/Classif System</i>	20.499	24.632	23.464	0.000	23.464	23.938	24.318	24.864	25.373	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		
<b>A. Mission Description and Budget Item Justification</b> <p>(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:  A. (U) This project includes efforts for both FSS* and SURTASS. The SURTASS project comprises the mobile, tactical arm of the Integrated Undersea Surveillance System, providing long range detection and cueing for tactical weapons platforms against both diesel and nuclear powered submarines. SURTASS also provides the undersea surveillance necessary to support regional conflicts and sea-lane protection. SURTASS has experienced recent passive and active success against diesel submarines operating in shallow water. SURTASS is leveraging existing developments and reducing costs by using Non-Developmental Items and commercial hardware; supporting common Navy Undersea Warfare processing and towed array developments; and increasing operator efficiency through computer aided detection and classification processing. SURTASS development efforts include: LFA improvements, common IUSS processing, twin-line array development and processing, improved detection and classification/passive automation to counter quieter threats; additional signal processing and bi-static active capability; integrated active and passive operations; improved Battle Group support; and improved information processing.</p> <p>(U) LFA provides an active adjunct capability for IUSS passive and tactical sensors to counter the quieter diesel and nuclear threats of the 1990s and beyond. The LFA tasks are directed at detection of slow quiet threats in harsh littoral waters. Improvements include TL-29A/LFA integration enhancements; advanced waveforms for littoral/shallow water operations including Doppler sensitive waveforms; and processing algorithms to reduce clutter and reverberation false alarms in shallow water. The LFA task includes development and testing of a compact LFA transmit source array for SWATH-P ships, and upgrade of LFA processing capability into the IUSS Integrated Common Processing architecture. The Integrated Common Processor (ICP) is a derivative of the NAVSEA Submarine Acoustic Rapid COTS Insertion (ARCI) program, and is being augmented for IUSS requirements. Together, the LFA improvements, TL-29A, and the ICP support the SURTASS Active Improvement Program.</p> <p>(U) Functional improvements are delivered to the Fleet in software "Builds", while hardware improvements are delivered through the "Tech Insertion" (TI) process. Software builds are based upon the Advanced Processor Build (APB) process begun by the NAVSEA Submarine USW program. Each APB will introduce new capabilities into SURTASS systems including improved automation, normalizer techniques, adaptive beam forming, and display enhancements. SURTASS participates in the process by contributing algorithms for consideration, supplying peer group members for review of candidate algorithms, participating in test evolutions, and incorporating improved algorithms into operational systems. The "Tech Insertion" process, modelled after the NAVSEA Submarine USW hardware improvement program, delivers processing technology improvements to platforms on roughly a 4-year cycle. Hardware upgrades for active and passive arrays and communications systems will also be provided during "TI" upgrades, but not on a regular planned development cycle as for the processing upgrades.</p>											

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<p>B. (U) PEO LMW is involved with the development and maintenance of various IUSS systems. These systems include FDS, FDS-C, SDS and SURTASS. The near-term goal is development of ICP, which will result in a a single IUSS processor baseline, with minor maintenance efforts continuing on fielded systems. The existing system architecture, signal processing, contact management, and reporting requirements will be evaluated as well as the requirements for future systems. The development of the ICP will take advantage of automation advancement, array technology improvements, and IUSS, submarine, and surface USW system commonality. Additionally, a long term goal is to activate all IUSS sensors as part of a coordinated Active Improvement Program.</p> <p>*A portion of project 0766 (FSS) is classified, with details available at a higher classification level.</p>					
<b>B. Accomplishments/Planned Program (\$ in Millions)</b>					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Classified Effort  A protion of project 0766 (FSS) is classified with details available at a higher classification level.  <i>FY 2009 Accomplishments:</i> A protion of project 0766 (FSS) is classified with details available at a higher classification level.  <i>FY 2010 Plans:</i> A protion of project 0766 (FSS) is classified with details available at a higher classification level.  <i>FY 2011 Base Plans:</i> A protion of project 0766 (FSS) is classified with details available at a higher classification level.	6.575	5.955	5.580	0.000	5.580
ASW Study  <i>FY 2009 Accomplishments:</i> FY 09: ASW Study continued conducting trade-off and mission studies to explore networked ASW system concepts, investment alternatives and development of a community-wide strategy for common performance models.	0.700	0.681	0.659	0.000	0.659

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: FY 10: ASW Study continue conducting trade-off and mission studies to explore networked ASW system concepts, investment alternatives and development of a community-wide strategy for common performance models.					
FY 2011 Base Plans: FY 11: ASW Study continue conducting trade-off and mission studies to explore networked ASW system concepts, investment alternatives and development of a community-wide strategy for common performance models.					
Compact Low Frequency Active  FY 2009 Accomplishments: FY 09: Completed incorporation and at-sea test of final design changes in support of CLFA production program. Continued DT for Active Improvement Program (CLFA/TL-29A/IUSS Common Processor).  FY 2010 Plans: FY 10: Continue DT and conduct OT for CLFA/TL-29A/IUSS Common Processor. Development of product improvements and corrections recommended or required from DT/OT. Conduct FOT&E for LFA/TL-29A/IUSS Common Processor.  FY 2011 Base Plans: FY 11: Continue OT of CLFA/TL-29A/ICP. Continue development of product improvements and corrections associated with CLFA DT/OT and LFA FOT&E. Conduct at-sea testing of product improvements.	6.595	2.285	1.890	0.000	1.890
TB-29A/Twin-Line	2.000	1.948	1.889	0.000	1.889

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: FY 09: Continued development of connectionless array technologies and true fiber-optic arrays. Continued efforts to explore Twin-line variants of new submarine Long-line arrays for future application to SURTASS. Continued development and test of fishing (line and net) mitigation approaches.						
FY 2010 Plans: FY 10: Continue development of connectionless array technologies and true fiber-optic arrays. Investigate Twin-line variants of new submarine Long-line arrays for future application to SURTASS. Continue development and test of additional fishing net mitigation approaches.						
FY 2011 Base Plans: FY 11: Continue development of connectionless array technologies and true fiber-optic arrays. Continue efforts to explore Twin-line variants of new submarine Long-line arrays for future application to SURTASS. Continue development of fishing net mitigation approaches.						
Integrated Common Processor (ICP)		4.629	13.763	13.446	0.000	13.446
FY 2009 Accomplishments: FY 09: Continued development of new automation algorithms and techniques for addressing multi-array, high beam count requirements. Continued development of Littoral LFA and bi-static receive improvements.						
FY 2010 Plans: FY 10: Begin tech refresh development in coordination with the Submarine Acoustic Rapid COTS Insertion (ARCI) Program Advanced Processing Build (APB) tech refresh. Continue development of new automation algorithms and techniques for addressing multi-array, high beam count requirements. Continue development of Littoral LFA and bi-static receive improvements.						

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B. Accomplishments/Planned Program (\$ in Millions)											
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total			
FY 2011 Base Plans: FY 11: Continue development of new automation algorithms and techniques for addressing multi-array high beam count requirements. Continue development of Littoral LFA and bi-static receive improvements. Continue tech refresh development in coordination with the Submarine Acoustic Rapid COTS Insertion (ARCI) Program Advanced Processing Build (APB) tech refresh.											
Accomplishments/Planned Programs Subtotals				20.499	24.632	23.464	0.000	23.464			
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 2237: Surveillance Towed Array Sensor System	26.596	24.034	8.468	0.000	8.468	11.204	2.292	2.029	2.541	0.000	120.064
D. Acquisition Strategy											
FY 2009: Engineering Milestones: ICP LFA Variant (9/09); T&E Milesones: CLFA/TL-29A/ICP DT; Contract Milestones: CLFA Production											
FY 2010: Engineering Milestones: ICP Bi-Static Variant (9/10); T&E Milestones: CLFA/TL-29A/ICP DT and CLFA/TL-29A/ICP OT&E; LFA/TL-29A/ICP FOT&E											
FY 2011: Engineering Milestones: ICP Tech Refresh; T&E Milestones: Bi-static FOT&E											
E. Performance Metrics											
Successfully achieve CLFA Initial Operational Capability. Successfully complete CLFA Operation Test Readiness Review. Successfully complete CLFA Developmental Test / Operational Test. Successful demonstration of Bi-static active capability. Successful transition of Submarine Advanced Processing Build (APB) functionality into IUSS products. Successful transition of net mitigation technologies into Towed Array baseline.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy										DATE: February 2010	
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## 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
IUSS COMMON ARCHITECTURE	C/CPFF	LM / APL Not Specified	53.176	9.637	Nov 2009	9.327	Nov 2010	0.000		9.327	Continuing	Continuing	Continuing
ACTIVE IMPROVEMENT/CLFA/ LFA	C/CPFF	APL / BAE / SSC/VARIOUS Not Specified	115.276	0.930	Nov 2009	0.782	Nov 2010	0.000		0.782	Continuing	Continuing	Continuing
N74 ASW STUDY	WR	SSC PAC / APL Not Specified	6.654	0.681	Nov 2009	0.659	Nov 2010	0.000		0.659	Continuing	Continuing	Continuing
ARRAY IMPROVEMENTS	C/CPFF	APL / VARIOUS Not Specified	5.854	1.770	Nov 2009	1.697	Nov 2010	0.000		1.697	Continuing	Continuing	Continuing
Classified	Various/ TBD	TBD Not Specified	0.000	5.955	Nov 2009	5.580	Nov 2010	0.000		5.580	Continuing	Continuing	Continuing
<b>Subtotal</b>			180.960	18.973		18.045		0.000		18.045			

### Remarks

A portion of project 0766 (FSS) is classified with details available at a higher classification level.

## Support (\$ 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
IUSS COMMON ARCHITECTURE	WR	VARIOUS Not Specified	2.300	0.970	Nov 2009	0.991	Nov 2010	0.000		0.991	Continuing	Continuing	Continuing
	C/CPFF	NGC/VARIOUS	6.920	0.197	Nov 2009	0.127	Nov 2010	0.000		0.127	Continuing	Continuing	Continuing

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				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total																																																																																								
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IUSS COMMON ARCHITECTURE	WR	VARIOUS Not Specified	3.337	2.364	Nov 2009	2.370	Nov 2010	0.000		2.370	Continuing	Continuing	Continuing																																																																																					
ACTIVE IMPROVEMENTS/ CLFA/LFA	WR	VARIOUS Not Specified	19.578	0.960	Nov 2009	0.791	Nov 2010	0.000		0.791	Continuing	Continuing	Continuing																																																																																					
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<b>Management Services (\$ in Millions)</b>														
				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	
IUSS COMMON ARCHITECTURE	WR	VARIOUS Not Specified	2.837	0.792	Nov 2009	0.758	Nov 2010	0.000		0.758	Continuing	Continuing	Continuing	
ACTIVE IMPROVEMENTS/ CLFA/LFA	WR	VARIOUS Not Specified	15.119	0.198	Nov 2009	0.190	Nov 2010	0.000		0.190	Continuing	Continuing	Continuing	
<b>Subtotal</b>			17.956	0.990		0.948		0.000		0.948				
<b>Remarks</b> A portion of project 0766 (FSS) is classified with details available at a higher classification level.														
			Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract	
<b>Project Cost Totals</b>			233.441	24.632		23.464		0.000		23.464				
<b>Remarks</b> The R3 and the R4 / R4A reflect the UNCLASSIFIED portion of the PE.														

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

**DATE:** February 2010

**APPROPRIATION/BUDGET ACTIVITY**

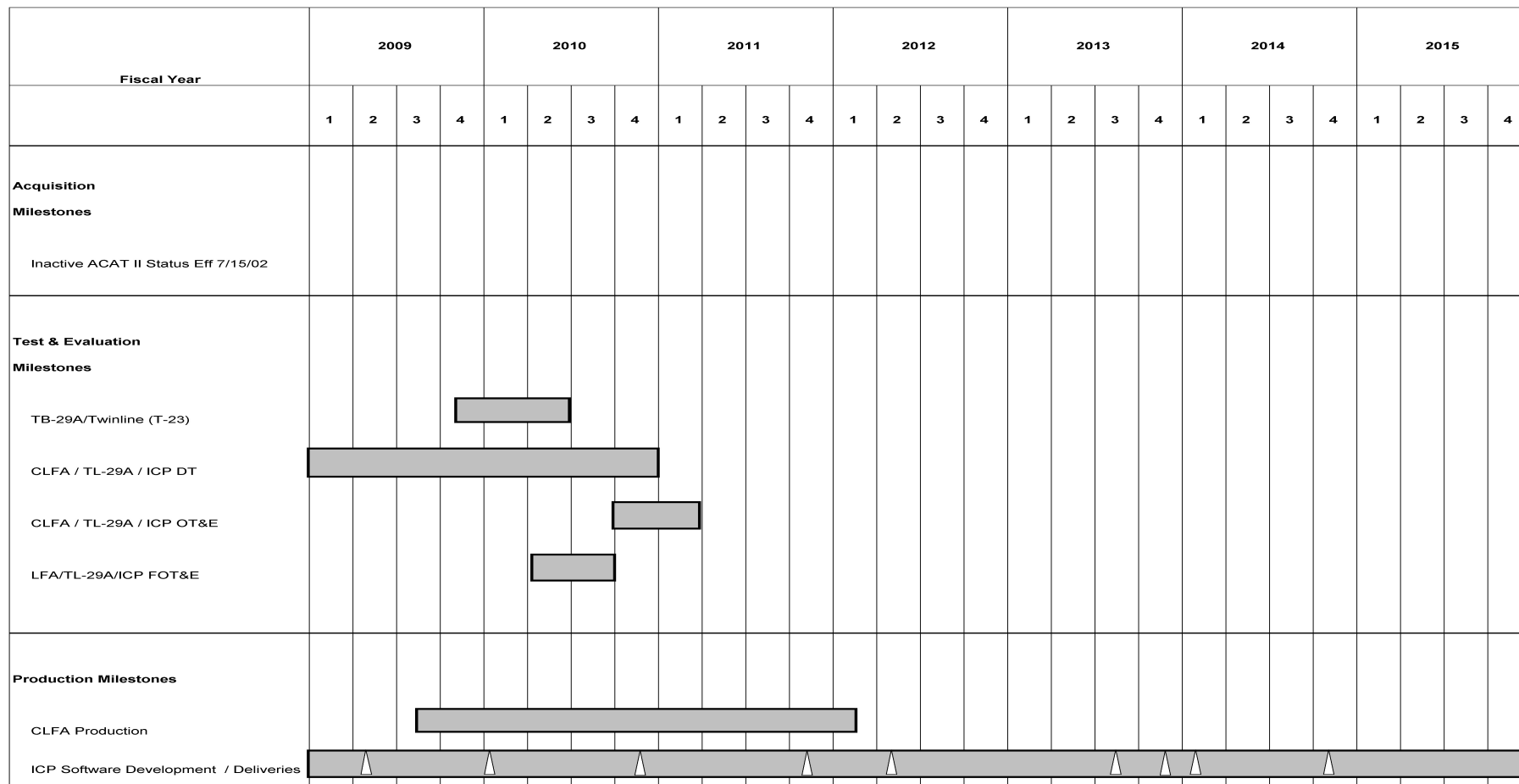
1319: *Research, Development, Test & Evaluation, Navy*  
BA 7: *Operational Systems Development*

**R-1 ITEM NOMENCLATURE**

PE 0204311N: *Integrated Surveillance System*

**PROJECT**

0766: *IUSS Detect/Classif System*



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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2011 Navy			<b>DATE:</b> February 2010
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 7: <i>Operational Systems Development</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0204311N: <i>Integrated Surveillance System</i>	<b>PROJECT</b> 0766: <i>IUSS Detect/Classif System</i>	

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
TB-29A TL SYSTEM INSTALLATION / TEST (T-23)	4	2009	2	2010
CLFA / TL-29A/ ICP DT	1	2009	4	2010
CLFA / TL-29A/ ICP OT & E	4	2010	1	2011
LFA / TL-29A/ ICP FOT & E	2	2010	3	2010
CLFA PRODUCTION SYSTEMS	3	2009	1	2012
ICP SOFTWARE DEVELOPMENT/DELIVERIES	1	2009	4	2015

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2011 Navy								<b>DATE:</b> February 2010			
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 7: <i>Operational Systems Development</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0204311N: <i>Integrated Surveillance System</i>				<b>PROJECT</b> 9999: <i>Congressional Adds</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2009 Actual</b>	<b>FY 2010 Estimate</b>	<b>FY 2011 Base Estimate</b>	<b>FY 2011 OCO Estimate</b>	<b>FY 2011 Total Estimate</b>	<b>FY 2012 Estimate</b>	<b>FY 2013 Estimate</b>	<b>FY 2014 Estimate</b>	<b>FY 2015 Estimate</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
9999: <i>Congressional Adds</i>	8.178	1.593	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	20.082
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		
<b>A. Mission Description and Budget Item Justification</b> Congressional Add.											
<b>B. Accomplishments/Planned Program (\$ in Millions)</b>											
							<b>FY 2009</b>	<b>FY 2010</b>			
Congressional Add: AUTONOMOUS ANTI-SUB VERTICAL BEAN ARRAY  <i>FY 2009 Accomplishments:</i> Funds will be used to investigate incorporation of vertical beam arrays into existing fixed surveillance system hardware designs to provide a ready volumetric array capability for increased detection and system performance.  <i>FY 2010 Plans:</i> Funding for continued investigation into the incorporation of vertical beam arrays into existing fixed surveillance system hardware designs to provide a ready volumetric array capability for increased detection and system performance.							1.596	1.593			
Congressional Add: DISTRIBUTED MARITIME SURVEILLANCE SYSTEM  <i>FY 2009 Accomplishments:</i> Funding for an anchored buoy-based underwater acoustic system.							1.596	0.000			
							4.986	0.000			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2011 Navy		<b>DATE:</b> February 2010	
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 7: <i>Operational Systems Development</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0204311N: <i>Integrated Surveillance System</i>	<b>PROJECT</b> 9999: <i>Congressional Adds</i>	
<b>B. Accomplishments/Planned Program (\$ in Millions)</b>			
		<b>FY 2009</b>	<b>FY 2010</b>
Congressional Add: Low Cost, Expendable, Fiber Optic Sensor Array  <i>FY 2009 Accomplishments:</i> Funding for continued development of a low-cost, expendable, ultra-thin fiber-optic array with applications to littoral, high fishing density OPAREAs.			
Congressional Adds Subtotals		8.178	1.593
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A			
<b>D. Acquisition Strategy</b> N/A			
<b>E. Performance Metrics</b> Congressional add.			

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