Exhibit R-2, RDT&E Budget Item Justification: 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 0604218N: *Air/Ocean Equipment Engineering*

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	5.362	7.454	5.735	0.000	5.735	5.993	5.615	5.737	5.852	Continuing	Continuing
2345: *Fleet METOC Equipment*	3.776	4.807	4.138	0.000	4.138	4.368	3.962	4.049	4.128	Continuing	Continuing
2346: *METOC Sensor Engineering*	1.586	2.647	1.597	0.000	1.597	1.625	1.653	1.688	1.724	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Air/Ocean Equipment Engineering (AOEE) Program Element provides future mission capabilities to support naval combat forces. This program engineers and developmentally tests organic and remote sensors, communication interfaces, and processing and display devices. These equipments are engineered to measure, ingest, store, process, distribute and display conditions of the physical environment that are essential to the optimum employment and performance of naval warfare systems. AOEE also engineers capabilities for shipboard and shore-based tactical systems. A major thrust area for the AOEE program is to provide the engineering development of specialized equipment and measurement capabilities that are intended to monitor specific conditions of the physical environment in hostile and remote areas. With such capabilities, the war fighters' situational awareness of the operational effects of the physical environment are made more certain.

Major emphasis areas include the Littoral Battlespace Sensors - Unmanned Undersea Vehicle (LBS-UUV) comprised of ocean LBS Gliders (G) and LBS Autonomous Undersea Vehicles (AUV), the Navy Integrated Tactical Environmental System Next Generation, the Marine Corps Meteorological Mobile Facility Replacement Next Generation, and the Environmental Satellite Receiver Processor comprised of AN/SMQ-11 (sea and shore configuration) and AN/FMQ-17 (shore configuration)) programs of record, and the Meteorological and Oceanographic Future Mission Capabilities and Tactical Oceanographic Capabilities / Under Sea Warfare projects.

Exhibit R-2, RDT&E Budget Item Justification: 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 0604218N: *Air/Ocean Equipment Engineering*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	5.731	7.485	0.000	0.000	0.000
Current President's Budget	5.362	7.454	5.735	0.000	5.735
Total Adjustments	-0.369	-0.031	5.735	0.000	5.735
• Congressional General Reductions		-0.031			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-0.234	0.000			
• SBIR/STTR Transfer	-0.136	0.000			
• Program Adjustments	0.000	0.000	5.735	0.000	5.735
• Rate/Misc Adjustments	0.001	0.000	0.000	0.000	0.000

Change Summary Explanation

Schedule: The schedule for the Littoral Battlespace Sensors - Unmanned Undersea Vehicle (LBS-UUV) program has been has been divided into 2 unique R-4 and R-4a exhibits in order to reflect both the unique ocean LBS Glider (G) and the LBS Autonomous Undersea Vehicles (AUV) efforts that comprise the program of record.

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

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604218N: *Air/Ocean Equipment Engineering*	PROJECT 2345: *Fleet METOC Equipment*	

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
2345: *Fleet METOC Equipment*	3.776	4.807	4.138	0.000	4.138	4.368	3.962	4.049	4.128	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

This project provides for the engineering and manufacturing development of sensors, communication interfaces, processing and display meteorological and oceanographic (METOC) equipment. This equipment is designed to provide future mission capabilities for war fighters to measure, ingest, store, process, distribute and display METOC parameters and derived products.

This project also exploits new government off-the-shelf /commercial off-the-shelf technologies, tactical sensors and web enablement for the Navy's computer-based tactical shipboard and shore capability used to predict and assess the operational effects of the physical environment on the performance of platforms, weapons and sensor systems. This project includes development of warfare specific mission planning modules to support unmanned systems with integration of data from environmental and tactical sensor systems, model forecast information and Geospatial Information & Services Databases. This project also supports development of autonomous environmental sensing systems for situational awareness and tactical decision aid/mission planner support, as well as iridium and advanced satellite communication integration in METOC sensor, vehicle control and mission planning systems that will be required to achieve full reach back capability.

Major emphasis areas include the Littoral Battlespace Sensors - Unmanned Undersea Vehicle (LBS-UUV) comprised of ocean LBS Gliders (G) and LBS Autonomous Undersea Vehicles (AUV), the Navy Integrated Tactical Environmental System Next Generation, the Marine Corps Meteorological Mobile Facility Replacement Next Generation, and the Environmental Satellite Receiver Processor (comprised of AN/SMQ-11 sea and shore configuration) and AN/FMQ-17 (shore configuration)) programs of record, and the Future Mission Capabilities (METOC FMC) project.

FY 2011 request provides for the continued development of advanced tools and techniques for METOC asset allocation, METOC decision support applications and interfaces to tactical and strategic decision aids along with component and prototype efforts associated with acquiring environmental data, and the development of an end-to-end methodology to collect, fuse, and integrate these data into Navy and DoD networks and command and control nodes.

B. Accomplishments/Planned Program ($ in Millions)

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604218N: *Air/Ocean Equipment Engineering*	PROJECT 2345: *Fleet METOC Equipment*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Acquisition Workforce Fund *FY 2009 Accomplishments:* Funded acquisition workforce fund.	0.019	0.000	0.000	0.000	0.000
Meteorological and Oceanographic (METOC) Future Mission Capabilities (FMC) *FY 2009 Accomplishments:* Conducted system development and demonstration for environmental equipment to include associated engineering and support efforts. Continued the development of advanced tools and techniques for METOC asset allocation, METOC decision support applications and interfaces to tactical and strategic decision aids. Developed the Hazardous Weather Detection and Display Capability, Tactical Environmental Processor (TEP), and Littoral Battlespace Sensors - Unmanned Undersea Vehicle (LBS-UUV) data collection and fusion systems. *FY 2010 Plans:* Continuation of FY09 efforts. Continue advanced tools and techniques for METOC asset allocation, METOC decision support applications and interfaces to tactical and strategic decision aids along with component and prototype efforts associated with acquiring environmental data. Development of an end-to-end methodology to collect, fuse, and integrate these data into Navy and DoD networks and command and control nodes. Continue development of TEP, and LBS-UUV data collection and fusion systems. *FY 2011 Base Plans:* Continuation of FY10 efforts. Continue advanced tools and techniques for METOC asset allocation, METOC decision support applications and interfaces to tactical and strategic decision aids along with component and prototype efforts associated with acquiring environmental data. Development of an end-to-end methodology to collect, fuse, and integrate these data into Navy and DoD networks and command and control nodes. Continue development of TEP, and LBS-UUV data collection and fusion systems. Development of support infrastructure for advanced global & regional prediction systems.	0.965	1.197	2.890	0.000	2.890

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)*	R-1 ITEM NOMENCLATURE PE 0604218N: *Air/Ocean Equipment Engineering*	PROJECT 2345: *Fleet METOC Equipment*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Littoral Battlespace Sensors - Unmanned Undersea Vehicle (LBS-UUV)	0.100	2.406	0.850	0.000	0.850

FY 2009 Accomplishments:

Completed sensor based atmospheric sensing Analysis of Alternatives for both stationary and expeditionary applications (including application of Unmanned Airborne Vehicle's and airborne sensors). Completed selection of potential solutions. Completed related testing. Began Program Life Cycle Cost Estimate. Developed system integration requirements, system performance specifications, and began Capabilities Development Document development. Began interoperability and system security studies and identify related requirements. Conducted studies as required. Began defining follow-on Littoral Battlespace Sensing - Glide (LBS-G) Engineering Change Proposals (ECPs) (sensor upgrades, power plant upgrades, etc.) and conducted associated engineering studies, analyses of alternatives, and cost estimates.

FY 2010 Plans:

Complete the System Development and Demonstration (SDD) phase of the LBS-G system. Complete at-sea and ashore Development Testing and Evaluation (DT&E) of the complete end-to-end glider system including command and control, mission planning, launch and recovery, mission profile characteristics and other Key Performance Parameters and Key System Parameters. Complete follow-on LBS-G ECPs (sensor upgrades, power plant upgrades, etc.) and conduct associated engineering studies, analyses of alternatives, and cost estimates for input into the POM 12 process. Funding increase reflects the beginning of the SDD phase of the LBS Autonomous Undersea Vehicle (AUV) portion of the LBS-UUV program.

FY 2011 Base Plans:

Update LBS-G Analysis of Alternatives, engineering studies, and cost estimates for the LBS-G ECPs as required. Continue the LBS-AUV SDD Phase, including the system Critical Design Review. Prepare for the delivery of the LBS-AUV Engineering Development Model. Begin DT&E of the LBS-AUV system.

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)*	R-1 ITEM NOMENCLATURE PE 0604218N: *Air/Ocean Equipment Engineering*	PROJECT 2345: *Fleet METOC Equipment*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
USMC Meteorological Mobile Facility (Replacement) Next Generation (METMF (R) NEXGEN) *FY 2009 Accomplishments:* Conducted Engineering Change Proposals (ECPs) to the METMF(R) NEXGEN prototype systems. *FY 2010 Plans:* Conduct Joint Interoperability Testing, and ECP's as needed, of the METMF(R) NEXGEN prototype systems. Prepare acquisition documentation in preparation for Milestone C. *FY 2011 Base Plans:* Conduct Joint Interoperability Testing, Development Testing (DT), Independent Operational Test & Evaluation, Follow-On Operational Test and Evaluation, Operational Test Readiness Review, technical evaluations, operational assessments and ECP's, as required, on the METMF(R) NEXGEN prototype systems.	1.500	0.700	0.100	0.000	0.100
Naval Integrated Tactical Environmental System Next Generation (NITES-Next) *FY 2009 Accomplishments:* Began software test and integration (developed in PE 0603207N, project 2343 Tactical METOC Applications) related to equipment and infrastructure in support of system engineering activities for Naval Integrated Tactical Environmental System Next Generation (NITES-Next). Efforts included extensive integration and test efforts on infrastructure for developmental test and evaluation (DT&E), and extensive architecture development, engineering, and design required in preparation for Milestone decision for the NITES-Next program. *FY 2010 Plans:* Continue software test and integration (developed in PE 0603207N, project 2343 Tactical METOC Applications) related to equipment and infrastructure in support of system engineering activities for Naval Integrated Tactical Environmental System Next Generation (NITES-Next). Efforts include	0.875	0.192	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604218N: *Air/Ocean Equipment Engineering*	PROJECT 2345: *Fleet METOC Equipment*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
integration and test efforts on infrastructure for DT&E required in preparation for Milestone decision for NITES-Next.					
Environmental Satellite Receiver Processor (ESRP) *FY 2009 Accomplishments:* Continued and completed software integration of new Satellite Sensors for Polar Orbiting Environmental Satellite (POES). Commenced Software development in support of Polar Orbiting. Commenced and completed engineering research to determine prospective candidate technologies and/or products to augment the capabilities of ESRP and provided technical support and analysis to determine impacts of future satellite telemetries on the ESRP systems. *FY 2010 Plans:* Continue and complete software integration of new Satellite Sensors for POES. Commence Software development in support of POES National Preparatory Project (NPP) for Environmental Satellite Receiver Processors (ESRP). Commence and complete engineering research to determine prospective candidate technologies and/or products to augment the capabilities of ESRP and provided technical support and analysis to determine impacts of future satellite telemetries on the ESRP systems. *FY 2011 Base Plans:* Continue and complete software integration of new Satellite Sensors for POES. Commence Software development in support of Polar Orbiting Environmental Satellite (POES) National Preparatory Project (NPP) for ESRP. This year will also include National Polar Orbiting Satellite System that is scheduled to replace the Defense Meteorology Satellite Program.	0.317	0.312	0.298	0.000	0.298
Accomplishments/Planned Programs Subtotals	3.776	4.807	4.138	0.000	4.138

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)*	R-1 ITEM NOMENCLATURE PE 0604218N: *Air/Ocean Equipment Engineering*	PROJECT 2345: *Fleet METOC Equipment*

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/4226: *METEOROLOGICAL EQUIPMENT*	21.169	14.514	25.581	0.592	26.173	24.430	22.430	24.575	25.765	Continuing	Continuing
• RDTEN/0603207N: *Air/Ocean Tactical Applications*	65.532	118.495	123.331	0.000	123.331	113.306	77.992	47.071	47.515	Continuing	Continuing

D. Acquisition Strategy

Acquisition, management and contracting strategies are to support engineering and manufacturing development by providing funds to Naval Research Laboratories and miscellaneous contractors, with management oversight by the Program Executive Officer for Command, Control, Communications, Computers and Intelligence.

E. Performance Metrics

Goal: Develop and engineer equipment to acquire meteorological and oceanographic (METOC) data in order to improve the accuracy of global and regional scale meteorological and oceanographic forecast models.

Metric: Tasks will address no less than 75% of applicable capability gaps and requirements, as identified by Resource and Requirements Sponsor(s). As tasks relate to exploitation of fleet sensors for METOC data ("Through-the-Sensor"), no less than 80% of approved initiatives will have a cost, schedule, performance and transition risk analysis completed within the past 12 months.

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 0604218N: *Air/Ocean Equipment Engineering*	PROJECT 2345: *Fleet METOC Equipment*

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
METOC Future Mission Capabilities	WR	NRL Washington, DC	11.885	1.602	Oct 2009	1.137	Oct 2010	0.000		1.137	0.000	14.624	Continuing
METOC Future Mission Capabilities	WR	SSCs California, SC	6.451	1.070	Oct 2009	1.108	Oct 2010	0.000		1.108	0.000	8.629	Continuing
METOC Future Mission Capabilities	C/CPFF	RAYTHEON MA	2.559	0.000		0.000		0.000		0.000	0.000	2.559	Continuing
METOC Future Mission Capabilities	C/Various	MISC MISC	16.974	1.925	Nov 2009	1.683	Nov 2010	0.000		1.683	0.000	20.582	Continuing
		Subtotal	37.869	4.597		3.928		0.000		3.928	0.000	46.394	

Remarks

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
METOC Future Mission Capabilities	C/CPFF	SSA/CSC MISC	1.312	0.000		0.000		0.000		0.000	0.000	1.312	Continuing
		Subtotal	1.312	0.000		0.000		0.000		0.000	0.000	1.312	

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 0604218N: *Air/Ocean Equipment Engineering*	PROJECT 2345: *Fleet METOC Equipment*

Test and Evaluation ($ 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
Test & Evaluation	WR	OPTEVFOR Virginia	0.404	0.010	Nov 2009	0.010	Nov 2010	0.000		0.010	0.000	0.424	Continuing
		Subtotal	0.404	0.010		0.010		0.000		0.010	0.000	0.424	

Remarks

Management Services ($ 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
Management Services	C/CPFF	MISC MISC	0.200	0.200	Nov 2009	0.200	Nov 2010	0.000		0.200	0.000	0.600	Continuing
		Subtotal	0.200	0.200		0.200		0.000		0.200	0.000	0.600	

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	39.785	4.807		4.138		0.000		4.138	0.000	48.730	

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 0604218N: *Air/Ocean Equipment Engineering*	**PROJECT** 2345: *Fleet METOC Equipment*

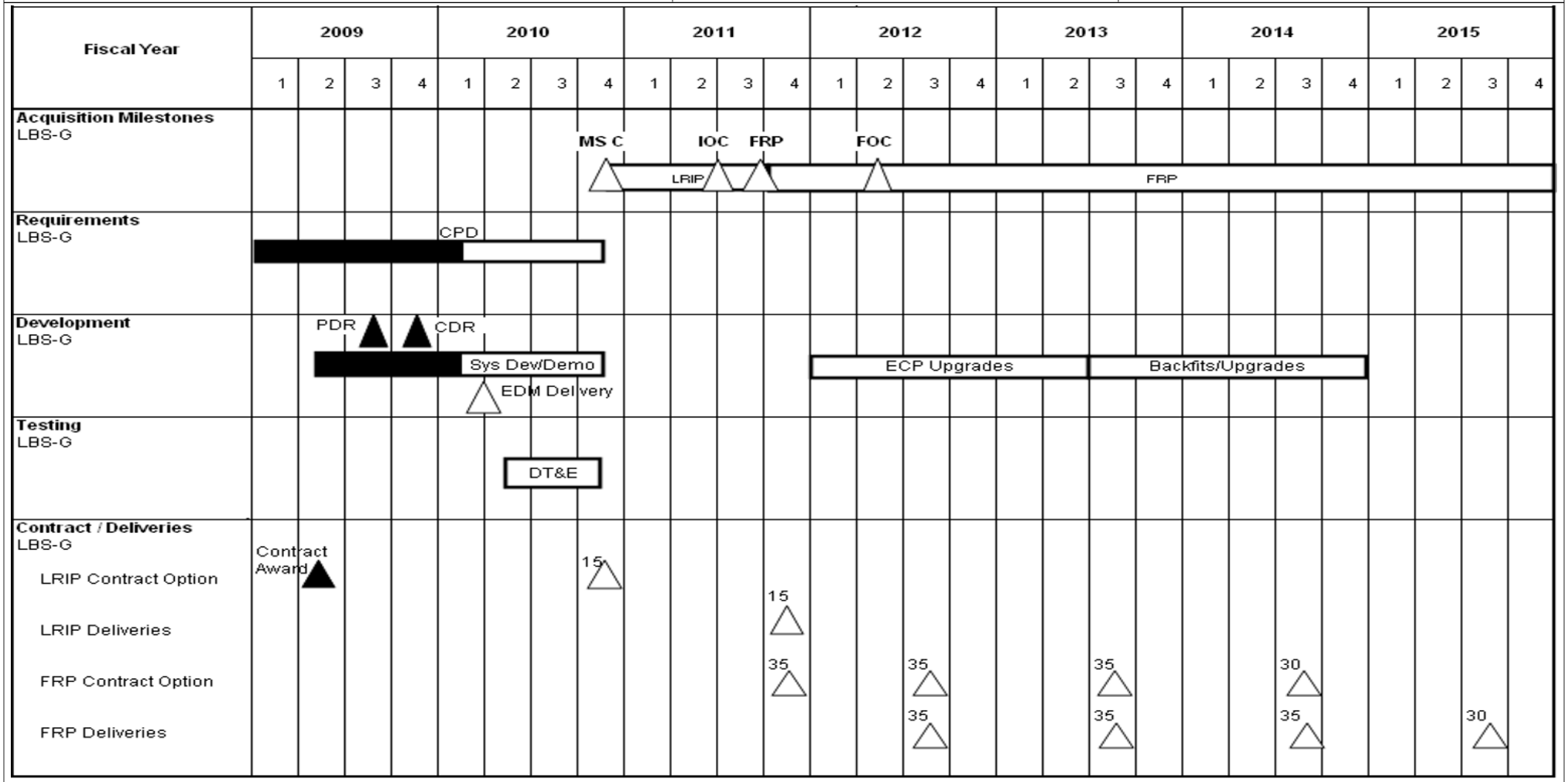

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604218N: *Air/Ocean Equipment Engineering*	PROJECT 2345: *Fleet METOC Equipment*

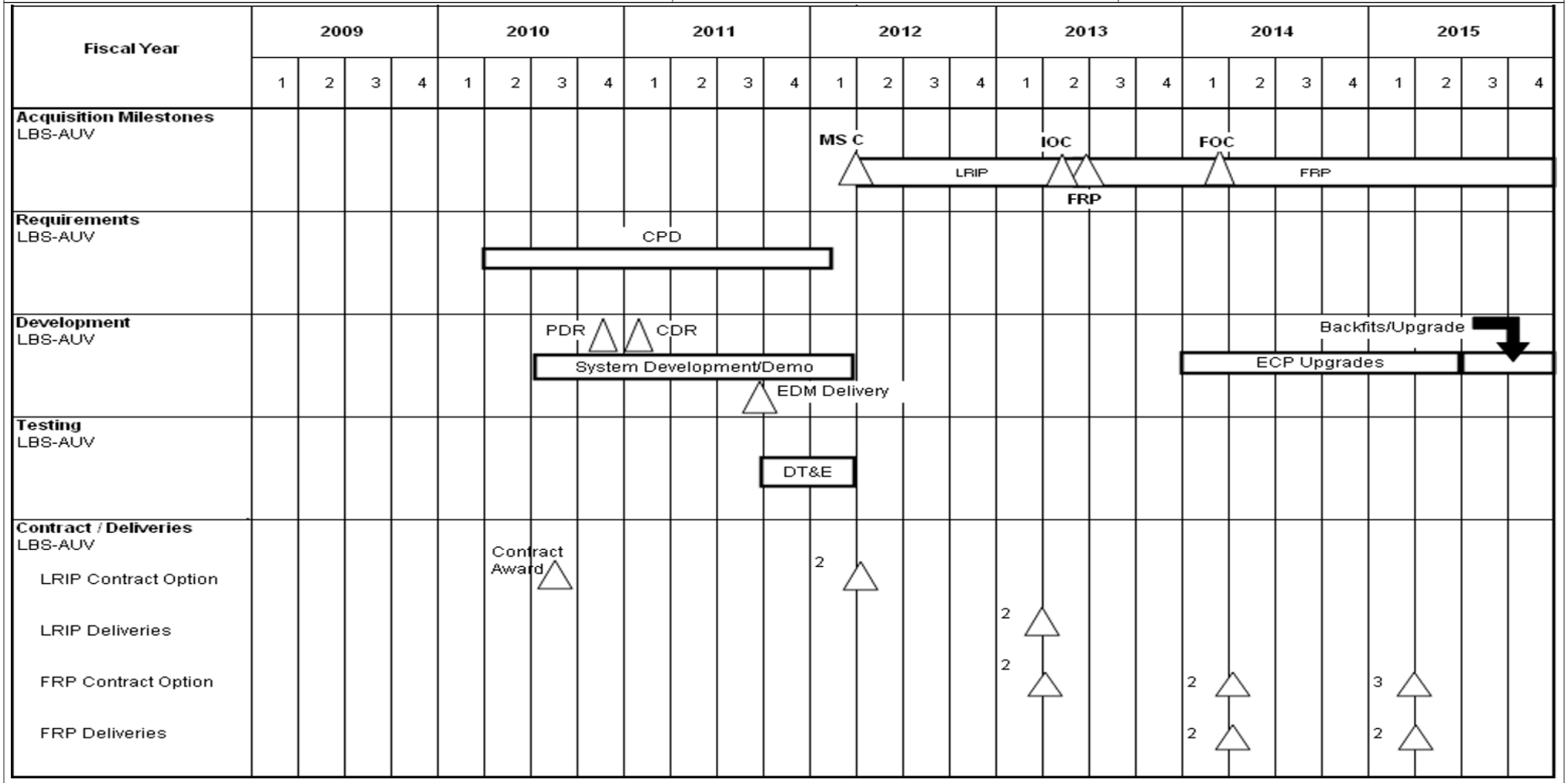

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604218N: *Air/Ocean Equipment Engineering*	**PROJECT** 2345: *Fleet METOC Equipment*

METOC Future Mission Capabilities

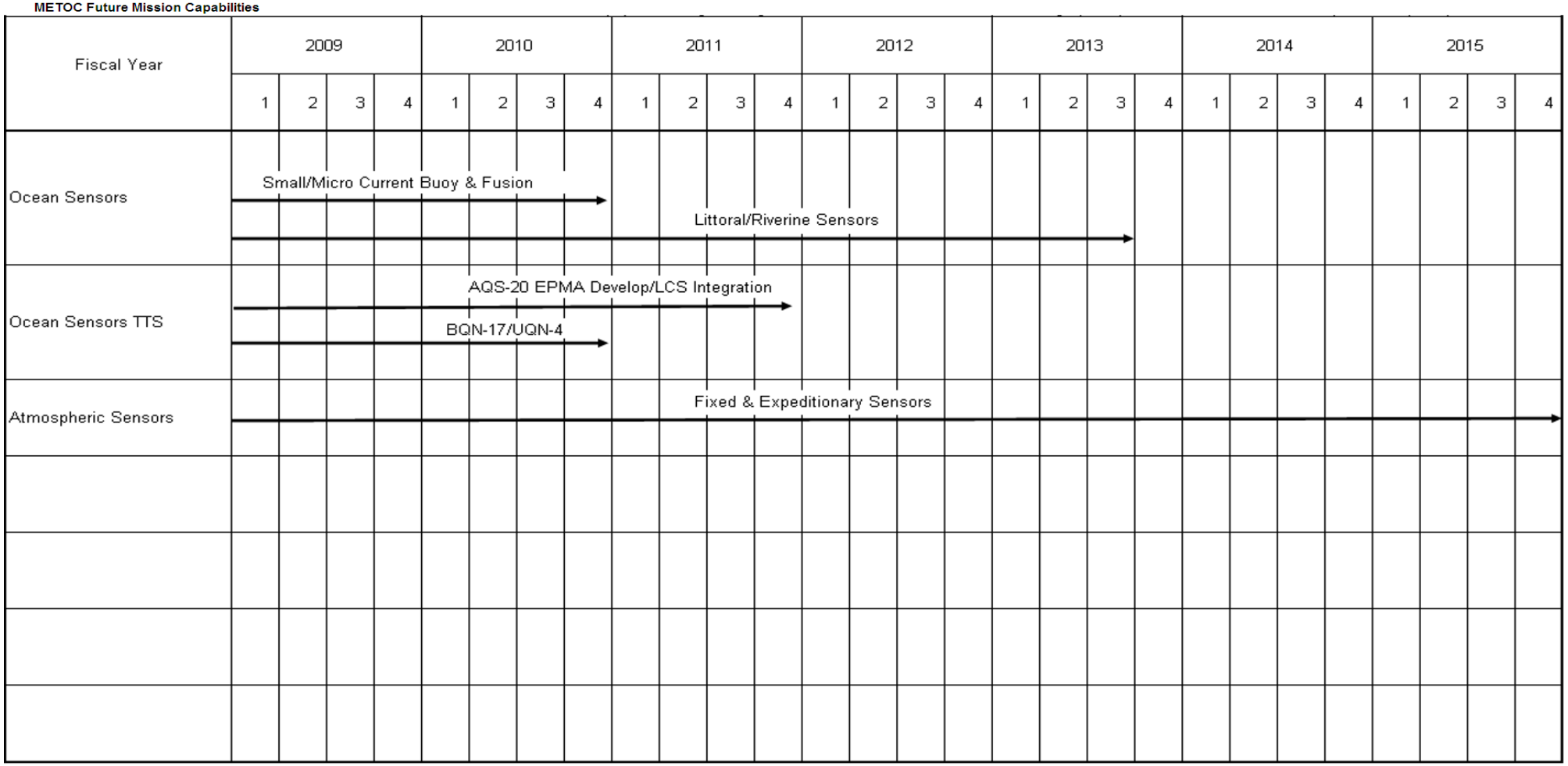

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604218N: *Air/Ocean Equipment Engineering*	PROJECT 2345: *Fleet METOC Equipment*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
METOC Future Mission Capabilities (FMC) Small/Micro Current Buoy / Fusion	1	2009	4	2010
METOC FMC Littoral/Riverine Sensors	1	2009	3	2013
METOC FMC AQS-20 EPMA Develop/Littoral Combat Ship (LCS) Integration	1	2009	4	2011
METOC FMC BQN-17 and UQN-4	1	2009	4	2010
METOC FMC Fixed and expeditionary Sensors	1	2009	4	2015
Littoral Battlespace Sensing Unmanned Undersea Vehicles (LBS-UUV) Gliders (LBS-G) Milestone C (MS-C)	4	2010	4	2010
LBS-G Low Rate Initial Productio (LRIP)	4	2010	3	2011
LBS-G Initial Operational Capability (IOC)	2	2011	3	2011
LBS-G Full Rate Production (FRP)	3	2011	4	2015
LBS-G Full Operational Capability (FOC)	2	2012	2	2012
LBS-G Capabilities Production Document (CPD)	1	2009	4	2010
LBS-G System Development / Demonstration	2	2009	4	2010
LBS-G Preliminary Design Review (PDR)	3	2009	3	2009
LBS-G Critical Design Review (CDR)	4	2009	4	2009
LBS-G Enterprise Data Model (EDM) Delivery	2	2010	2	2010
LBS-G Engineering Change Proposals (ECPs)	1	2012	2	2013
LBS-G Backfits / Upgrades	3	2013	4	2014
LBS-G Development, Test and Evaluate (DT&E)	2	2010	4	2010

Exhibit R-4A, RDT&E Schedule Details: 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 0604218N: *Air/Ocean Equipment Engineering*	PROJECT 2345: *Fleet METOC Equipment*

	Start		End	
Event	Quarter	Year	Quarter	Year
LBS-G LRIP Contract Award	2	2009	2	2009
LBS-G LRIP Contract Option (1):15	4	2010	4	2010
LBS-G LRIP Deliveries (1):15	4	2011	4	2011
LBS-G FRP Contract Option (1):35	4	2011	4	2011
LBS-G FRP Contract Option (2):35	3	2012	3	2012
LBS-G FRP Contract Option (3):35	3	2013	3	2013
LBS-G FRP Contract Option (4):30	3	2014	3	2014
LBS-G FRP Deliveries (1):35	3	2012	3	2012
LBS-G FRP Deliveries (2):35	3	2013	3	2013
LBS-G FRP Deliveries (3):35	3	2014	3	2014
LBS-G FRP Deliveries (4):30	3	2015	3	2015
LBS-UUV Autonomous Undersea Vehicles (LBS-AUV) Milestone C (MS-C)	1	2012	2	2012
LBS-AUV Low Rate Initial Production (LRIP)	1	2012	2	2013
LBS-AUV Initial Operational Capability (IOC)	2	2013	2	2013
LBS-AUV Full Rate Production (FRP)	2	2013	4	2015
LBS-AUV Full Operational Capability (FOC)	1	2014	1	2014
LBS-AUV Capabilities Production Document (CPD)	2	2010	1	2012
LBS-AUV System Development / Demonstration	3	2010	1	2012
LBS-AUV Preliminary Design Review (PDR)	4	2010	4	2010
LBS-AUV Critical Design Review (CDR)	1	2011	1	2011

Exhibit R-4A, RDT&E Schedule Details: 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 0604218N: *Air/Ocean Equipment Engineering*	**PROJECT** 2345: *Fleet METOC Equipment*

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
LBS-AUV Enterprise Data Model (EDM) Delivery	3	2011	4	2011
LBS-AUV Engineering Change Proposals (ECPs) Upgrades	1	2014	2	2015
LBS-AUV Backfits / Upgrades	3	2015	4	2015
LBS-AUV Development, Test and Evaluate (DT&E)	4	2011	1	2012
LBS-AUV LRIP Contract Award	3	2010	3	2010
LBS-AUV LRIP Contract Option (1):2	1	2012	2	2012
LBS-AUV LRIP Deliveries (1):2	1	2013	2	2013
LSB-AUV FRP Contract Option (1):2	1	2013	2	2013
LBS-AUV FRP Contract Option (2):2	1	2014	2	2014
LBS-AUV FRP Contract Option (3):3	1	2015	2	2015
LBS-AUV FRP Deliveries (1):2	1	2014	2	2014
LBS-AUV FRP Deliveries (2):2	1	2015	2	2015

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)*	R-1 ITEM NOMENCLATURE PE 0604218N: *Air/Ocean Equipment Engineering*	PROJECT 2346: *METOC Sensor Engineering*	

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
2346: *METOC Sensor Engineering*	1.586	2.647	1.597	0.000	1.597	1.625	1.653	1.688	1.724	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

This project provides for the engineering and manufacturing development of specialized, high resolution instrumentation systems and measurement capabilities for obtaining near real-time, in-situ meteorological and oceanographic (METOC) data in hostile, remote, and denied areas. The project's objectives are to engineer near-term future mission sensing capabilities that are intended to survive the harsh littoral and deep-strike environments and also to meet demanding requirements for timeliness and accuracy. Engineering is performed within this project to ensure that air and safety certification for deployment from fleet aircraft or ships is met and that the proper data formats are engineered for electronic communications transmissions, human interface displays, and inputs to predictive models.

Major emphasis areas include the METOC Future Mission Capabilities and Tactical Oceanographic Capabilities / Under Sea Warfare projects.

FY 2011 request provides for the continued development of advanced sensor system support technologies and techniques for sensor deployment, data processing and performance metrics to optimize sensor performance.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Acquisition Workforce Fund	0.008	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: Funded acquisition workforce fund.					
Meteorological and Oceanographic (METOC) Future Mission Capabilities (FMC)	1.347	2.423	1.597	0.000	1.597
FY 2009 Accomplishments: Continued system development and demonstration of METOC manned, unmanned and automated sensors (to include integration of environmental sensors into a larger environmental sensing strategy).					

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)*	R-1 ITEM NOMENCLATURE PE 0604218N: *Air/Ocean Equipment Engineering*	PROJECT 2346: *METOC Sensor Engineering*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Continued the development of advanced sensor system support technologies and techniques for sensor deployment, data processing and performance metrics to optimize sensor performance. *FY 2010 Plans:* Continue system development and demonstration of METOC manned, unmanned and automated sensors (to include integration of environmental sensors into a larger environmental sensing strategy) Continue the development of advanced sensor system support technologies and techniques for sensor deployment, data processing and performance metrics to optimize sensor performance. Funding increase reflects increased technique & deployment developmental efforts in support of the Unmanned Aerial Vehicle (UAV) automated METOC sensors project. *FY 2011 Base Plans:* Continue system development and demonstration of METOC manned, unmanned and automated sensors (to include integration of environmental sensors into a larger environmental sensing strategy). Continue the development of advanced sensor system support technologies and techniques for sensor deployment, data processing and performance metrics to optimize sensor performance. Continue developmental efforts in support of the UAV and Autonomous Undersea platforms with automated METOC sensors.					
Tactical Oceanographic Capabilities / Undersea Warfare (TOC/USW) *FY 2009 Accomplishments:* Continued modification of existing Naval Oceanographic Office acoustic and oceanographic data collection buoys to allow them to collect geo-acoustic seabed properties via covert, passive methods and geoacoustic inversion techniques to include Semi-Empirical Surface Scattering Strength and surface loss modules.	0.231	0.224	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604218N: *Air/Ocean Equipment Engineering*	PROJECT 2346: *METOC Sensor Engineering*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: Continuation of FY09 efforts. Continue development of Anti-Submarine Warfare performance assessment tools, which include the following efforts: acoustic uncertainty parameterization and evolving active and passive acoustic sensors.					
Accomplishments/Planned Programs Subtotals	1.586	2.647	1.597	0.000	1.597

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Acquisition and contracting strategies are to support engineering and manufacturing development of specialized, high resolution instrumentation systems and measurement techniques for obtaining near real-time in-situ meteorological and oceanographic (METOC) data in denied or remote areas by providing funds to miscellaneous performers.

E. Performance Metrics

Goal: Develop and engineer unique sensors to acquire METOC data in order to improve the accuracy of global and regional scale meteorological and oceanographic forecast models.

Metric: Tasks will address no less than 75% of applicable capability gaps and requirements, as identified by Resource Sponsor and Type Commander(s). No less than 75% of sensor engineering initiatives will be informed by an Analysis of Alternatives or market study to assess the state of the technology.

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 0604218N: *Air/Ocean Equipment Engineering*	PROJECT 2346: *METOC Sensor Engineering*	

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
Product Development	WR	NRL Washington, DC	2.761	1.578	Oct 2009	0.570	Oct 2010	0.000		0.570	0.000	4.909	Continuing
Product Development	C/Various	MISC MISC	10.681	1.069	Nov 2009	1.027	Nov 2010	0.000		1.027	0.000	12.777	Continuing
		Subtotal	13.442	2.647		1.597		0.000		1.597	0.000	17.686	

Remarks

Management Services ($ 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
Acquisition Workforce	C/CPFF	Not Specified Not Specified	0.008	0.000		0.000		0.000		0.000	0.000	0.008	Continuing
		Subtotal	0.008	0.000		0.000		0.000		0.000	0.000	0.008	

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	13.450	2.647		1.597		0.000		1.597	0.000	17.694	

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 0604218N: *Air/Ocean Equipment Engineering*	PROJECT 2346: *METOC Sensor Engineering*	

	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
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 0604218N: *Air/Ocean Equipment Engineering*	**PROJECT** 2346: *METOC Sensor Engineering*

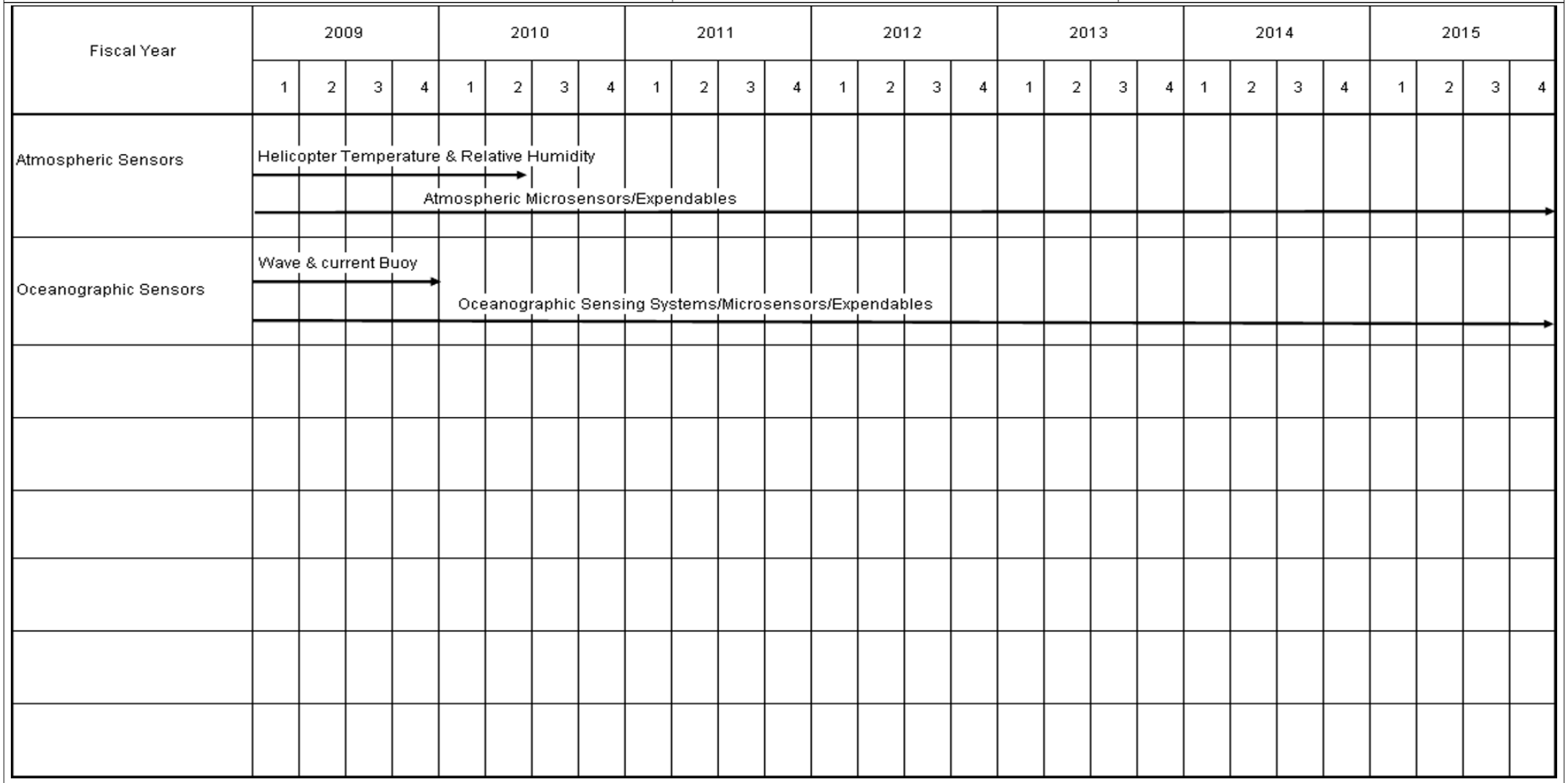

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604218N: *Air/Ocean Equipment Engineering*	PROJECT 2346: *METOC Sensor Engineering*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
METOC Future Mission Capabilities (FMC) Helicopter Temperature and Humidity	1	2009	2	2010
METOC FMC Atmospheric Microsensors	1	2009	4	2015
METOC FMC Wave Current and Buoy	1	2009	4	2009
METOC FMC Ocean Microsensors	1	2009	4	2015