Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Navy										DATE: February 2011	
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 2010**	**FY 2011**	**FY 2012 Base**	**FY 2012 OCO**	**FY 2012 Total**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**Cost To Complete**	**Total Cost**
Total Program Element	7.780	5.735	5.922	-	5.922	4.141	4.295	4.447	4.424	Continuing	Continuing
2345: *Fleet METOC Equipment*	5.297	4.138	4.436	-	4.436	2.669	2.787	2.916	2.878	Continuing	Continuing
2346: *METOC Sensor Engineering*	2.483	1.597	1.486	-	1.486	1.472	1.508	1.531	1.546	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 in response to fleet demand signals for increased sensing capability and capacity to support battlespace collections and prediction on short to intermediate time scales. 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 Meteorological and Oceanographic Future Mission Capabilities (METOC FMC) project and the Littoral Battlespace Sensors - Unmanned Undersea Vehicle (LBS-UUV) comprised of ocean LBS Gliders (G) and LBS Autonomous Undersea Vehicles (AUV), the Environmental Satellite Receiver Processor comprised of AN/SMQ-11 (sea and shore configuration) and AN/FMQ-17 (shore configuration)) programs of record.

B. Program Change Summary ($ in Millions)	**FY 2010**	**FY 2011**	**FY 2012 Base**	**FY 2012 OCO**	**FY 2012 Total**
Previous President's Budget	7.454	5.735	5.993	-	5.993
Current President's Budget	7.780	5.735	5.922	-	5.922
Total Adjustments	0.326	-	-0.071	-	-0.071
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	0.494	-			
• SBIR/STTR Transfer	-0.123	-			
• Program Adjustments	-	-	-0.018	-	-0.018
• Section 219 Reprogramming	-0.045	-	-	-	-
• Rate/Misc Adjustments	-	-	-0.053	-	-0.053

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Navy	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604218N: *Air/Ocean Equipment Engineering*

Change Summary Explanation

Schedule: The schedule for the Meteorological and Oceanographic Future Mission Capabilities (METOC FMC) project has been updated to include the METOC Prediction and Decision Support Systems development efforts beginning in FY 2011.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy			DATE: February 2011
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 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
2345: *Fleet METOC Equipment*	5.297	4.138	4.436	-	4.436	2.669	2.787	2.916	2.878	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

Naval Integrated Tactical Environmental System Next Generation (NITES-Next) efforts realigned into PE 0603207N (Air/Ocean Tactical Applications), project 2343 (Tactical METOC Applications).

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 Chief of Naval Operation objectives for information dominance and decision superiority.

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

FY 2012 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, and continue the development to support infrastructure for advanced global and regional prediction systems.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Title: Meteorological and Oceanographic (METOC) Future Mission Capabilities (FMC)	1.069	2.890	3.423	-	3.423

Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy		DATE: February 2011
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 Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Articles:	0	0	0		0
FY 2010 Accomplishments: Continued advanced tools and techniques for meteorological and oceanographic (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. Continued development of an end-to-end methodology to collect, fuse, and integrate these data into Navy and DoD networks and command and control nodes. Continued development of Tactical Environmental Processor (TEP), and Littoral Battlespace Sensors - Unmanned Undersea Vehicle (LBS-UUV) data collection and fusion systems. ***FY 2011 Plans:*** Continue advanced tools and techniques development efforts 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. Continue development of an end-to-end methodology to collect, fuse, and integrate these data into Navy and DoD networks and command and control nodes. ***FY 2012 Base Plans:*** Continue advanced METOC tools and techniques development 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. Continue 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 support infrastructure for advanced global & regional prediction systems. Begin to develop Through-The-Sensor (TTS) Ocean Characterization Techniques. Begin development of support infrastructure for advanced global & regional prediction systems.					
Title: Littoral Battlespace Sensors - Unmanned Undersea Vehicle (LBS-UUV)	2.248	0.850	0.737	-	0.737
Articles:	0	0	0		0
FY 2010 Accomplishments: Completed the System Development and Demonstration (SDD) (or Engineering and Manufacturing Development (EMD)) phase of the Littoral Battlespace Sensing - Glider (LBS-G) system. Completed 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. Completed follow-on LBS-G Engineering Change Proposals (ECPs) (sensor upgrades, power plant upgrades, etc.) and conducted associated engineering studies,					

Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy		DATE: February 2011
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 Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
analyses of alternatives, and cost estimates for input into the POM 12 process. Began the SDD (EMD) phase of the LBS Autonomous Undersea Vehicle (AUV) portion of the LBS-UUV program. ***FY 2011 Plans:*** Update LBS-G Analysis of Alternatives, engineering studies, and cost estimates for the LBS-G Engineering Change Proposals (ECPs) as required. Upgrade LBS-G production systems via ECPs as appropriate. Continue the LBS-AUV EMD Phase, including all required testing and Technical Reviews. Begin development of the LBS-AUV Engineering Development Model (EDM). Begin to prepare for DT&E of the LBS-AUV system. ***FY 2012 Base Plans:*** Continue to upgrade LBS-G production systems via Engineering Change Proposals (ECPs) as appropriate. Deliver prototype LBS-AUV systems. Complete LBS-AUV Developmental Test and Evaluation (DT&E). Complete LBS-AUV EMD phase and obtain Milestone C.					
Title: USMC Meteorological Mobile Facility (Replacement) Next Generation (METMF (R) NEXGEN) ***Articles:*** ***FY 2010 Accomplishments:*** Conducted Joint Interoperability Testing, and Engineering Change Proposals (ECP's) as needed, of the METMF(R) NEXGEN prototype systems. Prepared acquisition documentation in preparation for Milestone C. ***FY 2011 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 Engineering Development Models (EDM).	1.505 0	0.100 0	-	-	-
Title: Naval Integrated Tactical Environmental System Next Generation (NITES-Next) ***Articles:*** ***FY 2010 Accomplishments:*** Continued software test and integration (developed in PE 0603207N, project 2343 Tactical meteorological and oceanographic (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	0.163 0	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy		DATE: February 2011
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 Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
integration and test efforts on infrastructure for development test and evaluation (DT&E) required in preparation for Milestone decision for NITES-Next.					
Title: Environmental Satellite Receiver Processor (ESRP)	0.312	0.298	0.276	-	0.276
Articles:	0	0	0		0
FY 2010 Accomplishments: Continued and completed software integration of new satellite sensors for Polar Orbiting Environmental Satellite (POES). Completed software development in support of National POES National Preparatory Project (NPP) for Environmental Satellite Receiver Processors (ESRP). 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 2011 Plans:*** Continue and complete software integration of new METOC Satellite Sensors for POES. This year will also include integration of ESRP systems in support of Joint Polar Orbiting Satellite System (JPSS) formerly National Polar Orbiting Satellite System (NPOESS) that is scheduled to replace and or augment the Defense Meteorology Satellite Program (DMSP). ***FY 2012 Base Plans:*** Continue and complete software and hardware integration of new METOC Satellite Sensors for POES. Commence Software and hardware development in support of Polar Orbiting Environmental Satellite (POES) for ESRP. Continue both Hardware and software integration of ESRP in support of JPSS.					
Accomplishments/Planned Programs Subtotals	5.297	4.138	4.436	-	4.436

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• OPN/4226: *METEOROLOGICAL EQUIPMENT*	14.513	25.581	22.003	10.800	32.803	18.450	20.417	21.305	21.559	Continuing	Continuing
• RDTEN/0603207N/2341: *METOC DATA ACQUISITION*	20.859	15.288	6.083	0.000	6.083	6.802	6.807	6.981	6.940	Continuing	Continuing
	18.685	15.311	10.636	0.000	10.636	11.321	10.026	10.022	9.995	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy		DATE: February 2011
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 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• RDTEN/0603207N/2342: *METOC DATA ASSIMILATION AND MOD*											
• RDTEN/0603207N/2343: *TACTICAL METOC APPLICATIONS*	15.624	13.736	9.562	0.000	9.562	8.271	0.000	0.000	0.000	Continuing	Continuing
• RDTEN/0604218N/2346: *METOC SENSOR ENGINEERING*	2.483	1.597	1.486	0.000	1.486	1.472	1.508	1.531	1.546	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 2012 Navy		DATE: February 2011
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)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
METOC Future Mission Capabilities	WR	Naval Research Laboratory:Washington, DC	13.487	2.588	Oct 2010	3.141	Oct 2011	-		3.141	Continuing	Continuing	Continuing
METOC Future Mission Capabilities	WR	SPAWAR System Centers:California, South Carolina	7.521	-		-		-		-	Continuing	Continuing	Continuing
METOC Future Mission Capabilities	C/CPFF	RAYTHEON:Massachusetts	2.559	-		-		-		-	Continuing	Continuing	Continuing
METOC Future Mission Capabilities	Various	Various:Various	18.899	-		-		-		-	Continuing	Continuing	Continuing
METOC Future Mission Capabilities	WR	University of WA:Washington	-	0.250	Nov 2010	0.250	Nov 2011	-		0.250	Continuing	Continuing	Continuing
Littoral Battlespace Sensing - Gliders	C/CPIF	Teledyne Brown Engineering:Alabama	-	0.200	Nov 2010	-		-		-	Continuing	Continuing	Continuing
METOC Future Mission Capabilities	C/FP	SAIC:Virgina	-	0.350	Dec 2010	0.350	Dec 2011	-		0.350	0.000	0.700	
Littoral Battlespace Sensing - Autonomous Undersea Vehicle	C/FP	Unknown:Unknown	-	-		0.395	Nov 2011	-		0.395	0.000	0.395	
		Subtotal	42.466	3.388		4.136		-		4.136			

Remarks

The FY 2012 Littoral Battlespace Sensing - Gliders contract action to Teledyne Brown Engineering, Inc. is the award of an option to an existing contract awarded in Q2 FY 2009, and previously funded out of PE 0603207N "Air/Ocean Tactical Applications".

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
METOC Future Mission Capabilities	C/CPFF	SSA/CSC:MISC	1.312	-		-		-		-	Continuing	Continuing	Continuing
	C/FP	SAIC:Virgina	-	0.350	Nov 2010	0.300	Nov 2011	-		0.300	0.000	0.650	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Navy		DATE: February 2011
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*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Littoral Battlespace Sensing - Autonomous Undersea Vehicle													
Littoral Battlespace Sensing - Autonomous Undersea Vehicle	C/FP	SPAWAR System Centers:San Diego, CA	-	0.150	Nov 2010	-		-		-	0.000	0.150	
		Subtotal	1.312	0.500		0.300		-		0.300			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test & Evaluation	WR	OPTEVFOR:Virginia	0.414	0.010	Oct 2010	-		-		-	Continuing	Continuing	Continuing
Littoral Battlespace Sensing - Unmanned Undersea Vehicle	WR	NSWC Carderock:Maryland	-	0.150	Nov 2010	-		-		-	0.000	0.150	
METMF R NEXGEN	C/FP	Smiths Detection:Rhode Island	-	0.090	Dec 2010	-		-		-	0.000	0.090	
		Subtotal	0.414	0.250		-		-		-			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Management Services	C/CPFF	SAIC:Virginia	0.400	-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	0.400	-		-		-		-			

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	44.592	4.138		4.436		-		4.436			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Navy		DATE: February 2011
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*

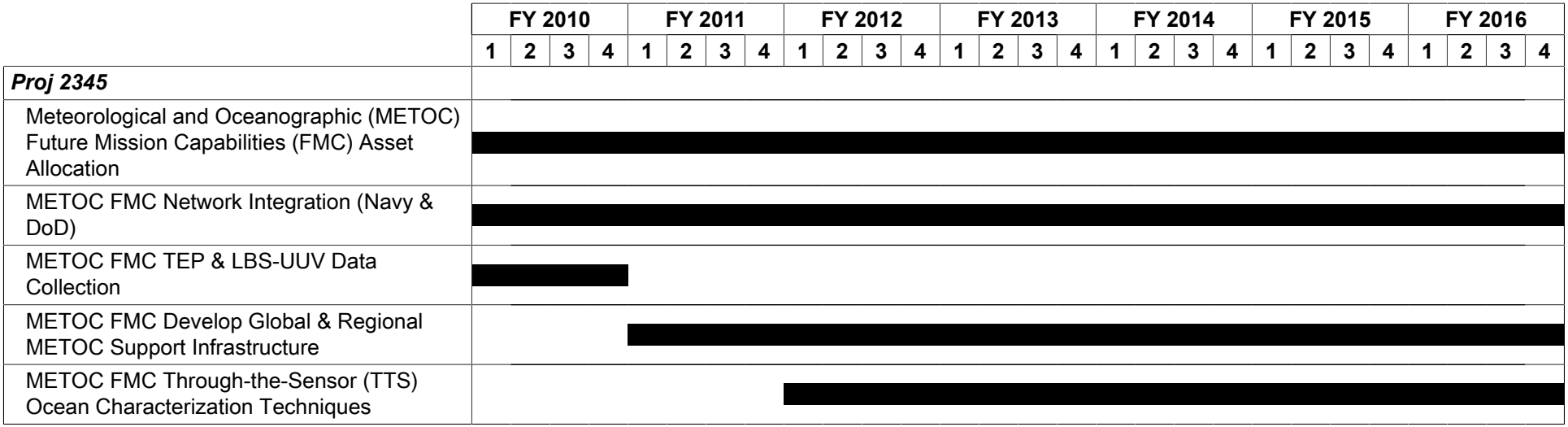

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Navy		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604218N: *Air/Ocean Equipment Engineering*	**PROJECT** 2345: *Fleet METOC Equipment*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2345				
Meteorological and Oceanographic (METOC) Future Mission Capabilities (FMC) Asset Allocation	1	2010	4	2016
METOC FMC Network Integration (Navy & DoD)	1	2010	4	2016
METOC FMC TEP & LBS-UUV Data Collection	1	2010	4	2010
METOC FMC Develop Global & Regional METOC Support Infrastructure	1	2011	4	2016
METOC FMC Through-the-Sensor (TTS) Ocean Characterization Techniques	1	2012	4	2016

Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy			DATE: February 2011
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 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
2346: *METOC Sensor Engineering*	2.483	1.597	1.486	-	1.486	1.472	1.508	1.531	1.546	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 (FMC) and Tactical Oceanographic Capabilities / Under Sea Warfare (TOC/USW) projects.

FY 2012 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 and assess the viability of sensors and subsystems on unmanned and manned aircraft systems and autonomous undersea platforms for collection of automated METOC data and information.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Title: Meteorological and Oceanographic (METOC) Future Mission Capabilities (FMC)	2.259	1.597	1.486	-	1.486
Articles:	0	0	0		0
FY 2010 Accomplishments: Continued system development and demonstration of METOC manned, unmanned and automated sensors (included integration of environmental sensors into a larger environmental sensing strategy). Continued the development of advanced sensor system support technologies and techniques for sensor deployment, data processing and performance metrics to optimize sensor performance.					
FY 2011 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,					

Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy		DATE: February 2011
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 Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
data processing and performance metrics to optimize sensor performance. Begin technique & deployment developmental efforts in support of the Unmanned Aerial Vehicle (UAV) automated METOC sensors project. ***FY 2012 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 analysis to include performance metrics to optimize sensor performance. Assess viability of sensors and subsystems on unmanned and manned aircraft systems and autonomous undersea platforms for collection of automated METOC data and information. Develop infrastructure to acquire, process and distribute METOC data and products.					
Title: Tactical Oceanographic Capabilities / Undersea Warfare (TOC/USW) ***Articles:*** ***FY 2010 Accomplishments:*** Continued development of Anti-Submarine Warfare performance assessment tools, which include the following efforts: acoustic uncertainty parameterization and evolving active and passive acoustic sensors.	0.224 0	-	-	-	-
Accomplishments/Planned Programs Subtotals	2.483	1.597	1.486	-	1.486

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• RDTEN/0603207N/2341: *METOC DATA ACQUISITION*	20.859	15.288	6.083	0.000	6.083	6.802	6.807	6.981	6.940	Continuing	Continuing
• RDTEN/0603207N/2342: *METOC DATA ASSIMILATION AND MOD*	18.685	15.311	10.636	0.000	10.636	11.321	10.026	10.022	9.995	Continuing	Continuing
• RDTEN/0604218N/2345: *FLEET METOC EQUIPMENT*	5.297	4.138	4.436	0.000	4.436	2.669	2.787	2.916	2.878	Continuing	Continuing

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.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy		DATE: February 2011
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*

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 2012 Navy		DATE: February 2011
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)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	WR	Naval Research Laboratory:Washington, DC	4.339	1.597	Oct 2010	1.486	Oct 2011	-		1.486	Continuing	Continuing	Continuing
Product Development	Various	MISC:MISC	11.750	-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	16.089	1.597		1.486		-		1.486			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Acquisition Workforce	C/CPFF	Not Specified:Not Specified	0.008	-		-		-		-	0.000	0.008	0.008
		Subtotal	0.008	-		-		-		-	0.000	0.008	0.008

	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	16.097	1.597		1.486		-		1.486			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Navy		DATE: February 2011
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*

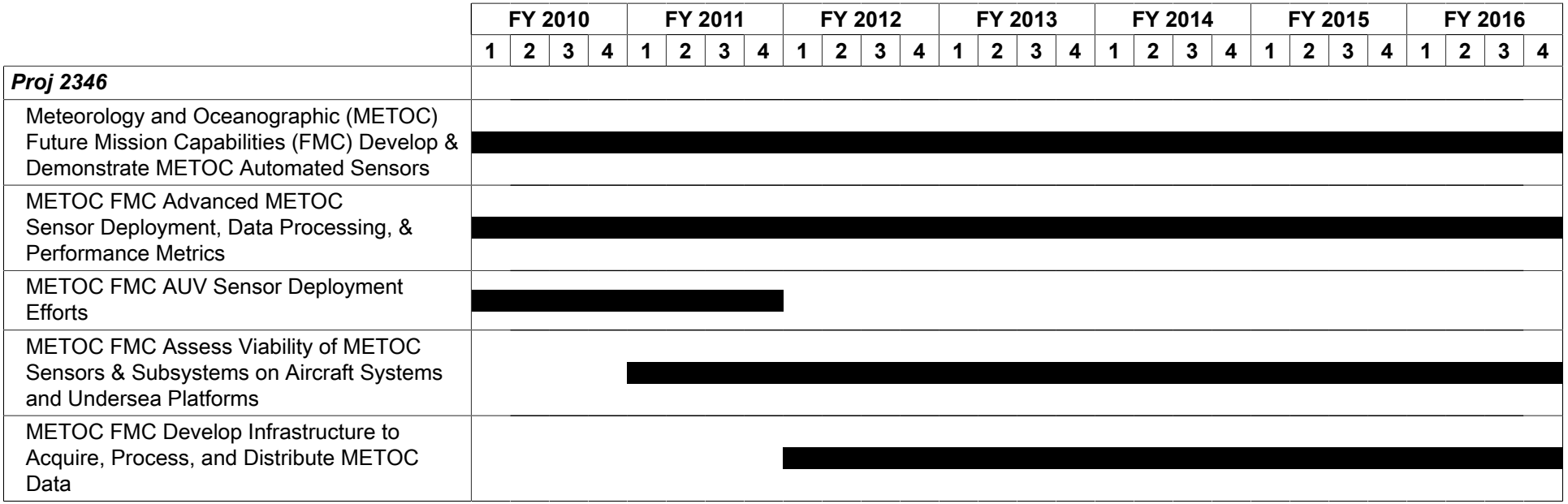

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Navy		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604218N: *Air/Ocean Equipment Engineering*	**PROJECT** 2346: *METOC Sensor Engineering*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2346				
Meteorology and Oceanographic (METOC) Future Mission Capabilities (FMC) Develop & Demonstrate METOC Automated Sensors	1	2010	4	2016
METOC FMC Advanced METOC Sensor Deployment, Data Processing, & Performance Metrics	1	2010	4	2016
METOC FMC AUV Sensor Deployment Efforts	1	2010	4	2011
METOC FMC Assess Viability of METOC Sensors & Subsystems on Aircraft Systems and Undersea Platforms	1	2011	4	2016
METOC FMC Develop Infrastructure to Acquire, Process, and Distribute METOC Data	1	2012	4	2016