

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification								DATE: FEBRUARY 2003			
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-5						R-1 ITEM NOMENCLATURE Program Element (PE) No. and Name: 0604218N Air/Ocean Equipment Engineering					
COST (\$ in Millions)	Prior Years Cost	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Program
Total PE Cost	17.167	6.386	7.555	4.309	4.779	4.827	5.863	5.971	6.081	CONT	CONT
X2345 Fleet METOC Equipment	12.415	4.964	4.090	3.079	3.443	3.453	4.200	4.277	4.356	CONT	CONT
X2346 METOC Sensor Engineering	4.752	1.422	1.509	1.230	1.336	1.374	1.663	1.694	1.725	CONT	CONT
X9217 SPY-1 Radar Tactical Environmental Processor (TEP)		0.000	1.956	0.000	0.000	0.000	0.000	0.000	0.000		1.956
											0.000
											0.000
											0.000
Quantity of RDT&E Articles											0
<p>(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Air/Ocean Equipment Engineering (AOEE) Program Element provides for the engineering and manufacturing development of onboard and remote sensors, communication interfaces, and processing and display devices. This equipment is specifically designed to measure, ingest, store, process, distribute and display meteorological and oceanographic (METOC) parameters essential to the optimum employment of Naval warfare systems. AOEE also develops increased capabilities for shipboard and shore based tactical systems. In addition, AOEE provides for the engineering development of specialized equipment and measurement techniques to obtain METOC data in denied and remote areas.</p> <p>(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ENGINEERING &amp; MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision. A congressional plus up for SPY-1 Radar Tactical Environmental Processor (TEP) is provided for FY03.</p>											

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Exhibit R-2, RDTEN Budget Item Justification  
(Exhibit R-2, page 1 of 27)

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## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: FEBRUARY 2003			
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-5		PROGRAM ELEMENT NUMBER AND NAME 0604218N Air/Ocean Equipment Engineering				PROJECT NUMBER AND NAME X2345 Fleet METOC Equipment					
COST (\$ in Millions)	Prior Years Cost	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Program
Project Cost	12.415	4.964	4.090	3.079	3.443	3.453	4.200	4.277	4.356	Continuing	Continuing
RDT&E Articles Qty											0
<p><b>(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</b> This project provides for the engineering and manufacturing development of sensors, communication interfaces, and processing and display equipment. This equipment is designed to measure, ingest, store, process, distribute and display meteorological and oceanographic (METOC) parameters and derived products. Major emphasis areas include the Tactical Environmental Support System (TESS), and the associated Navy Integrated Tactical Environmental Subsystem (NITES), the Marine Corps Meteorological Mobile Facility (METMF), the AN/SMQ-11 satellite receiver/recorder, weather radars, and the development of new sensors such as active and passive atmospheric profilers for incorporation into the replacement system (MORIAH) for the Shipboard Meteorological and Oceanographic Observing System (SMOOS). This project also exploits new GOTS/COTS technologies and web enablement for the Navy's computer based tactical shipboard and shore capability used to predict and assess the impact of the operating environment on the performance of platforms, weapons and sensor systems.</p>											

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Exhibit R-2a, RDTE Project Justification  
(Exhibit R-2a, page 2 of 27)

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## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: <b>FEBRUARY 2003</b>																																														
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA 5</b>	PROGRAM ELEMENT NUMBER AND NAME 0604218N Air Ocean Equipment Engineering	PROJECT NUMBER AND NAME X2345 Fleet METOC Equipment																																															
<b>(U) B. Accomplishments/Planned Program</b>																																																	
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Object Oriented Data base Management</td> <td style="width: 15%;">FY 02</td> <td style="width: 15%;">FY 03</td> <td style="width: 15%;">FY 04</td> <td style="width: 15%;">FY 05</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>1.447</td> <td>1.166</td> <td>0.781</td> <td>0.918</td> </tr> <tr> <td>RDT&amp;E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <div style="border: 1px solid black; padding: 5px; margin-top: 5px;"> FY02: Continued engineering development of an object oriented database management system employing artificial intelligence technology.  FY03: Complete engineering development of an object oriented database management system employing artificial intelligence technology Transition to web-enabled high-speed battlegroup data server.  FY04: Continue transition to web-enabled high-speed battlegroup data server.  FY05: Complete transition to web-enabled high-speed battlegroup data server. Spiral development of Object Oriented Database Management engineering for next generation data server employing expert system techniques. </div> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <tr> <td style="width: 30%;">Fleet System Engineering</td> <td style="width: 15%;">FY 02</td> <td style="width: 15%;">FY 03</td> <td style="width: 15%;">FY 04</td> <td style="width: 15%;">FY 05</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>1.515</td> <td>1.216</td> <td>0.954</td> <td>1.015</td> </tr> <tr> <td>RDT&amp;E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> FY02: Continued engineering development of fleet systems.  FY03-FY05: Continue engineering development of fleet systems. </div> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <tr> <td style="width: 30%;">Lead Laboratory</td> <td style="width: 15%;">FY 02</td> <td style="width: 15%;">FY 03</td> <td style="width: 15%;">FY 04</td> <td style="width: 15%;">FY 05</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td>0.781</td> <td>0.631</td> <td>0.539</td> <td>0.627</td> </tr> <tr> <td>RDT&amp;E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> FY02: Continued Lead Laboratory tasks of software integration, assisted model developers and provided technical assistance to other activities.  FY03-05: Continue Lead Laboratory tasks of software integration, assisting model developers and provide technical assistance to other activities. </div>					Object Oriented Data base Management	FY 02	FY 03	FY 04	FY 05	Accomplishments/Effort/Subtotal Cost	1.447	1.166	0.781	0.918	RDT&E Articles Quantity					Fleet System Engineering	FY 02	FY 03	FY 04	FY 05	Accomplishments/Effort/Subtotal Cost	1.515	1.216	0.954	1.015	RDT&E Articles Quantity					Lead Laboratory	FY 02	FY 03	FY 04	FY 05	Accomplishments/Effort/Subtotal Cost	0.781	0.631	0.539	0.627	RDT&E Articles Quantity				
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Exhibit R-2a, RDTEN Project Justification  
(Exhibit R-2a, page 3 of 27)

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## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: <b>FEBRUARY 2003</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA 5</b>	PROGRAM ELEMENT NUMBER AND NAME 0604218N Air Ocean Equipment Engineering	PROJECT NUMBER AND NAME X2345 Fleet METOC Equipment		
<b>(U) B. Accomplishments/Planned Program</b>				
Off-the-Shelf Technology	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.221	1.077	0.805	0.883
RDT&E Articles Quantity				
FY02: Continued exploitation of off-the-shelf prototype hardware and other emerging technologies. FY03-FY05: Continue exploitation of off-the-shelf prototype hardware and other emerging technologies.				
	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.000
RDT&E Articles Quantity				
	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.000
RDT&E Articles Quantity				

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<p><b>(U) C. PROGRAM CHANGE SUMMARY:</b></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 40%;"></th> <th style="text-align: right; width: 10%;">FY 2002</th> <th style="text-align: right; width: 10%;">FY 2003</th> <th style="text-align: right; width: 10%;">FY 2004</th> <th style="text-align: right; width: 10%;">FY 2005</th> </tr> </thead> <tbody> <tr> <td>(U) Funding:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>President's Budget</td> <td style="text-align: right;">4.785</td> <td style="text-align: right;">4.182</td> <td style="text-align: right;">-</td> <td style="text-align: right;">-</td> </tr> <tr> <td>Current BES/President's Budget</td> <td style="text-align: right;">4.964</td> <td style="text-align: right;">4.090</td> <td style="text-align: right;">3.079</td> <td style="text-align: right;">3.443</td> </tr> <tr> <td>Total Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">0.179</td> <td style="text-align: right; border-top: 1px solid black;">(0.092)</td> <td></td> <td></td> </tr> <tr> <td colspan="5" style="padding-top: 10px;">Summary of Adjustments</td> </tr> <tr> <td>Sec 313 PL 107-206: Revised Economic Assumption</td> <td style="text-align: right;">(0.010)</td> <td style="text-align: right;">-</td> <td style="text-align: right;">-</td> <td style="text-align: right;">-</td> </tr> <tr> <td>Business Reform (SEC 8100)</td> <td style="text-align: right;">-</td> <td style="text-align: right;">(0.017)</td> <td style="text-align: right;">-</td> <td style="text-align: right;">-</td> </tr> <tr> <td>Economic Assumptions (SEC 313 PL 107-206)</td> <td style="text-align: right;">(0.013)</td> <td style="text-align: right;">-</td> <td style="text-align: right;">-</td> <td style="text-align: right;">-</td> </tr> <tr> <td>Economic Assumptions (SEC 8135)</td> <td style="text-align: right;">-</td> <td style="text-align: right;">(0.023)</td> <td style="text-align: right;">-</td> <td style="text-align: right;">-</td> </tr> <tr> <td>IT Cost Growth</td> <td style="text-align: right;">-</td> <td style="text-align: right;">(0.008)</td> <td style="text-align: right;">-</td> <td style="text-align: right;">-</td> </tr> <tr> <td>Miscellaneous Department Adjustments</td> <td style="text-align: right;">0.339</td> <td style="text-align: right;">(0.044)</td> <td style="text-align: right;">-</td> <td style="text-align: right;">-</td> </tr> <tr> <td>Sec 8123: Management Reform Initiative</td> <td style="text-align: right;">(0.042)</td> <td style="text-align: right;">-</td> <td style="text-align: right;">-</td> <td style="text-align: right;">-</td> </tr> <tr> <td>FY2002 SBIR</td> <td style="text-align: right;">(0.095)</td> <td style="text-align: right;">-</td> <td style="text-align: right;">-</td> <td style="text-align: right;">-</td> </tr> <tr> <td>Subtotal</td> <td style="text-align: right; border-top: 1px solid black;">0.179</td> <td style="text-align: right; border-top: 1px solid black;">(0.092)</td> <td style="text-align: right; border-top: 1px solid black;">0.000</td> <td style="text-align: right; border-top: 1px solid black;">0.000</td> </tr> </tbody> </table> <p style="margin-top: 20px;">(U) Schedule: Not Applicable</p> <p style="margin-top: 20px;">(U) Technical: Not Applicable</p>						FY 2002	FY 2003	FY 2004	FY 2005	(U) Funding:					President's Budget	4.785	4.182	-	-	Current BES/President's Budget	4.964	4.090	3.079	3.443	Total Adjustments	0.179	(0.092)			Summary of Adjustments					Sec 313 PL 107-206: Revised Economic Assumption	(0.010)	-	-	-	Business Reform (SEC 8100)	-	(0.017)	-	-	Economic Assumptions (SEC 313 PL 107-206)	(0.013)	-	-	-	Economic Assumptions (SEC 8135)	-	(0.023)	-	-	IT Cost Growth	-	(0.008)	-	-	Miscellaneous Department Adjustments	0.339	(0.044)	-	-	Sec 8123: Management Reform Initiative	(0.042)	-	-	-	FY2002 SBIR	(0.095)	-	-	-	Subtotal	0.179	(0.092)	0.000	0.000
	FY 2002	FY 2003	FY 2004	FY 2005																																																																											
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Exhibit R-2a, RD TEN Project Justification  
(Exhibit R-2a, page 5 of 27)

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## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: <b>FEBRUARY 2003</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-5</b>			PROGRAM ELEMENT NUMBER AND NAME 0604218N Air Ocean Equipment Engineering			PROJECT NUMBER AND NAME X2345 Fleet METOC Equipment			

**(U) D. OTHER PROGRAM FUNDING SUMMARY:**

<u>Line Item No. &amp; Name</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>To Complete</u>	<u>Total Cost</u>
OPN 4226 METEOROLOGICAL EQUIPMEN	28.405	26.515	25.658	20.258	25.922	22.714	27.385	30.661	CONT	CONT
Related RDT&E: PE 0603207N, Air/Ocean Tactical Applications.										

**(U) E. 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 SPAWAR.

**(U) F. MAJOR PERFORMERS:**

N/A

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)									DATE: <b>FEBRUARY 2003</b>			
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
<b>RDT&amp;E, N / BA-5</b>			0604218N Air Ocean Equipment Engineering			X2345 Fleet METOC Equipment						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Software Development	WX	NRL	5.172	1.215	NA	0.862	NA	1.110	NA	CONT	CONT	
	WX	SSCs	2.077	0.775	NA	0.439	NA	0.446	NA	CONT		
	CP	RAYTHEON	1.046	0.235	NA	0.221	NA	0.224	NA	CONT		
	NA	MISC	7.844	1.647	NA	1.339	NA	1.445	NA	CONT		
Subtotal Product Development			16.139	3.872		2.861		3.225		0.000	26.097	
Remarks:												
Development Support	CP	SSA	1.000	0.156	TBD	0.156	TBD	0.156	TBD	CONT	CONT	
Subtotal Support			1.000	0.156		0.156		0.156		0.000	1.468	
Remarks:												

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Exhibit R-3 Cost Analysis (page 2)									DATE: <b>FEBRUARY 2003</b>			
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
<b>RDTE, N / BA-5</b>			0604218N Air Ocean Equipment Engineering			X2345 Fleet METOC Equipment						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	PD	OPTEVFOR	0.240	0.062	N/A	0.062	N/A	0.062	N/A	CONT	CONT	
Subtotal T&E			0.240	0.062		0.062		0.062		0.000	0.426	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support											0.000	
Travel											0.000	
Transportation											0.000	
SBIR Assessment											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost			17.379	4.090		3.079		3.443		0.000	27.991	
Remarks:												

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EXHIBIT R4, Schedule Profile																								DATE:															
APPROPRIATION/BUDGET ACTIVITY								PROGRAM ELEMENT NUMBER AND NAME																PROJECT NUMBER AND NAME															
RDT&E, N / BA-5								0604218N Air Ocean Equipment Engineering																X2345 Fleet METOC Equipment															
Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009										
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4							
Obj Oriented DBMS (Database Management System)	Data Exchange Interface				Web Enabled Data Server												High Speed BG Server								Emerging DBMS Technologies														
Fleet Sys Engineering	Sys Engineering Upgrades																																						
Lead Laboratory	SW Engineering																																						
Off-the-Shelf Technology					LINUX Cluster								Huge Data Set Transfer								3/4-D Visual Accelerators								Emerging Technologies										

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\* Not required for Budget Activities 1, 2, 3, and 6

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[illegible]

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**Exhibit R-4a, Schedule Detail**  
(Exhibit R-4a, page 10 of 27)

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								FEBRUARY 2003				
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME				PROJECT NUMBER AND NAME						
RDT&E, N / BA-5		0604218N Air/Ocean Equipment Engineering				X2346 METOC Sensor Engineering						
COST (\$ in Millions)		Prior Years Cost	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Program
Project Cost		4.752	1.422	1.509	1.230	1.336	1.374	1.663	1.694	1.725	Continuing	Continuing
RDT&E Articles Qty												0
<p><b>(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</b> This project provides for the 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. The objectives are to ruggedize and package systems, sensors and instruments to survive the harsh littoral environment 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 employed for integration into existing or planned communications and displays. The end products are sensors and systems that will provide the tactical commander with near real-time, in-situ METOC data for operational use. In addition, this difficult to obtain data will provide important inputs for predictive models in areas of potential interest.</p>												

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Exhibit R-2a, RDTE Project Justification  
(Exhibit R-2a, page 11 of 27)

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APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA 5</b>	PROGRAM ELEMENT NUMBER AND NAME 0604218N Air Ocean Equipment Engineering	PROJECT NUMBER AND NAME X2346 METOC Sensor Engineering																	
<b>(U) B. Accomplishments/Planned Program</b>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Unmanned Aerial Vehicle METOC Sensors</td> <td style="padding: 2px; text-align: center;">FY 02</td> <td style="padding: 2px; text-align: center;">FY 03</td> <td style="padding: 2px; text-align: center;">FY 04</td> <td style="padding: 2px; text-align: center;">FY 05</td> </tr> <tr> <td style="padding: 2px;">Accomplishments/Effort/Subtotal Cost</td> <td style="padding: 2px; text-align: center;">0.416</td> <td style="padding: 2px; text-align: center;">0.406</td> <td style="padding: 2px; text-align: center;">0.345</td> <td style="padding: 2px; text-align: center;">0.352</td> </tr> <tr> <td style="padding: 2px;">RDT&amp;E Articles Quantity</td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> </tr> </table>					Unmanned Aerial Vehicle METOC Sensors	FY 02	FY 03	FY 04	FY 05	Accomplishments/Effort/Subtotal Cost	0.416	0.406	0.345	0.352	RDT&E Articles Quantity				
Unmanned Aerial Vehicle METOC Sensors	FY 02	FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost	0.416	0.406	0.345	0.352															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <p>FY02: Continued engineering development of METOC sensors for ultra-light Unmanned Airborne Vehicles.</p> <p>FY03: Continue engineering development of METOC sensors for ultra-light Unmanned Airborne Vehicles.</p> <p>FY04: Complete engineering development of METOC sensors for ultra-light Unmanned Airborne Vehicles. Begin engineering development of miniaturized sensor suite for mini/micro Unmanned Airborne Vehicles.</p> <p>FY05: Continue engineering development of miniaturized sensor suite for mini/micro Unmanned Airborne Vehicles.</p> </div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Clandestine Sensors</td> <td style="padding: 2px; text-align: center;">FY 02</td> <td style="padding: 2px; text-align: center;">FY 03</td> <td style="padding: 2px; text-align: center;">FY 04</td> <td style="padding: 2px; text-align: center;">FY 05</td> </tr> <tr> <td style="padding: 2px;">Accomplishments/Effort/Subtotal Cost</td> <td style="padding: 2px; text-align: center;">0.291</td> <td style="padding: 2px; text-align: center;">0.400</td> <td style="padding: 2px; text-align: center;">0.330</td> <td style="padding: 2px; text-align: center;">0.347</td> </tr> <tr> <td style="padding: 2px;">RDT&amp;E Articles Quantity</td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> </tr> </table>					Clandestine Sensors	FY 02	FY 03	FY 04	FY 05	Accomplishments/Effort/Subtotal Cost	0.291	0.400	0.330	0.347	RDT&E Articles Quantity				
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RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <p>FY02: Completed development of micro sensor based miniature weather stations/buoys based on Defense Advanced Research Projects Agency/Office of Naval Research developed Micro Electro Mechanical Systems (MEMS).</p> <p>FY03: Continue spiral development of micro sensor based miniature weather stations and engineering development to include autonomous clandestine sensors for measurements in denied areas.</p> <p>FY04: Continue spiral development of micro sensor based miniature weather stations and engineering development to include autonomous clandestine sensors for measurements in denied areas.</p> </div>																			
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RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <p>FY02: Continued development of Metoc Air, Surface, Undersea Reporting Equipment (MEASURE) which included sensors and processing/distribution devices that detect, characterize and distribute meteorological and oceanographic data from the battlespace.</p> <p>FY03-FY05: Continue development of MEASURE which includes sensors and processing/distribution devices that detect, characterize and distribute meteorological and oceanographic data from the battlespace.</p> </div>																			

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: <b>FEBRUARY 2003</b>																
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA 5</b>	PROGRAM ELEMENT NUMBER AND NAME 0604218N Air Ocean Equipment Engineering	PROJECT NUMBER AND NAME X2346 METOC Sensor Engineering																	
<b>(U) B. Accomplishments/Planned Program</b>																			
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Unmanned Underwater Vehicle Sensors	FY 02	FY 03	FY 04	FY 05															
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	FY 02	FY 03	FY 04	FY 05															
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	FY 02	FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.000															
RDT&E Articles Quantity																			

R-1 SHOPPING LIST - Item No.

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Exhibit R-2a, RDTEN Project Justification  
(Exhibit R-2a, page 13 of 27)

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: <b>FEBRUARY 2003</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-5</b>	PROGRAM ELEMENT NUMBER AND NAME 0604218N Air Ocean Equipment Engineering	PROJECT NUMBER AND NAME X2346 METOC Sensor Engineering		

**(U) C. PROGRAM CHANGE SUMMARY:**

	FY 2002	FY 2003	FY 2004	FY 2005
(U) Funding:				
President's Budget	1.561	1.543	-	-
Current BES/President's Budget	1.422	1.509	1.230	1.336
Total Adjustments	-0.139	-0.034		
Summary of Adjustments				
Sec 313 PL 107-206: Revised Economic Assumption	(0.003)	-	-	-
Business Reform (SEC 8100)	-	(0.006)	-	-
Economic Assumptions (SEC 8135)	(0.004)	(0.009)	-	-
Economic Assumptions (SEC 8135)	-	-	-	-
IT Cost Growth	-	(0.003)	-	-
Sec 8123: Management Reform Initiative	(0.014)	-	-	-
Miscellaneous Department Adjustments	(0.083)	(0.016)	-	-
FY2002 SBIR	(0.035)	-	-	-
Subtotal	-0.139	-0.034	0.000	0.000

(U) Schedule:  
Not Applicable

(U) Technical:  
Not Applicable

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Exhibit R-2a, RD TEN Project Justification  
(Exhibit R-2a, page 14 of 27)

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE:	<b>FEBRUARY 2003</b>
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
<b>RDT&amp;E, N / BA-5</b>	0604218N Air Ocean Equipment Engineering	X2346 METOC Sensor Engineering	
<p><b>(U) D. OTHER PROGRAM FUNDING SUMMARY:</b></p> <p>Related RDT&amp;E: PE 0603207N (Air/Ocean Tactical Applications), PE0602435N (Ocean and Atmospheric Technology)</p> <p><b>(U) E. ACQUISITION STRATEGY:</b></p> <p>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 NAVAIR and miscellaneous contractors, with management oversight by SPAWAR.</p> <p><b>(U) F. MAJOR PERFORMERS:</b></p> <p>N/A</p>			

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# UNCLASSIFIED

## CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: <b>FEBRUARY 2003</b>				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
<b>RDT&amp;E, N / BA-5</b>			0604218N Air Ocean Equipment Engineering			X2346 METOC Sensor Engineering						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Software Development	WX	NRL	1.261	0.053	NA	0.053	NA	0.053	NA	CONT	CONT	
	NA	MISC	4.913	1.456	NA	1.177	NA	1.283	NA		8.829	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Product Development			6.174	1.509		1.230		1.336		0.000	10.249	
Remarks:												
Development Support				0.000		0.000		0.000			0.000	
Software Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
Studies & Analyses											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												



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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)									DATE: <b>FEBRUARY 2003</b>			
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
<b>RDTE, N / BA-5</b>			0604218N Air Ocean Equipment Engineering			X2346 METOC Sensor Engineering						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation			0.000	0.000		0.000		0.000			0.000	
Operational Test & Evaluation											0.000	
Live Fire Test & Evaluation											0.000	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support											0.000	
Travel											0.000	
Transportation											0.000	
SBIR Assessment											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost			6.174	1.509		1.230		1.336		0.000	10.249	
Remarks:												

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# UNCLASSIFIED

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CLASSIFICATION:

EXHIBIT R4, Schedule Profile																								DATE:								
																								FEBRUARY 2003								
APPROPRIATION/BUDGET ACTIVITY										PROGRAM ELEMENT NUMBER AND NAME										PROJECT NUMBER AND NAME												
RDT&E, N / BA-5										0604218N Air Ocean Equipment Engineering										X2346 METOC Sensor Engineering												
Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
UAV METOC Sensors (Unmanned Aerial Vehicle)	Ultralight UAV Sensors												Global Hawk Aircraft Integration												Micro-sensor Package							
Clandestine Sensors	MEMS Engineering								Autonomous Sensor Engineering												Air Deployed Micro-sensors											
MEASURE	MEASURE Interface								Wave Buoy Upgrades												Tactical Acoustic Buoy											
UUV Sensors Unmanned Underwater Vehicle					ARIES AUV (Autonomous Unmanned Vehicle)								Micro AUV								Stealth AUV								Next Generation ROV			

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\* Not required for Budget Activities 1, 2, 3, and 6

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Exhibit R-4, Schedule Profile  
(Exhibit R-4, page 18 of 27)

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**CLASSIFICATION:**

[illegible]

R-1 SHOPPING LIST - Item No. 93

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**Exhibit R-4a, Schedule Detail**  
(Exhibit R-4a, page 19 of 27)

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: <b>FEBRUARY 2003</b>			
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-5</b>		PROGRAM ELEMENT NUMBER AND NAME 0604218N Air/Ocean Equipment Engineering				PROJECT NUMBER AND NAME X9217 SPY-1 Tactical Environmental Processor (TEP)					
COST (\$ in Millions)	Prior Years Cost	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Program
Project Cost	<b>0.000</b>	<b>0.000</b>	<b>1.956</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>1.956</b>
RDT&E Articles Qty											<b>0</b>
<p><b>(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</b> This project provides for the SPY-1 Tactical Environmental Processor (TEP) , an operational system which provides timely characterization of rapidly changing environment surrounding the battlegroup, to automatically optimize weapon and sensor performance and to supply the tactical decision maker with accurate assessment of the capability for the weapon system to complete its mission. The U.S. Navy in partnership has developed an advanced radar processor that extracts detailed environmental weather measurements ( currently considered radar clutter) from existing surveillance radars. Using normally scheduled radar dwells, TEP simultaneously generates both real spectral moment measurements of the environment surrounding the battlegroup to create high-resolution weather radar data comparable to that of NEXRAD, the National Weather Service's most advanced Doppler radar. It also generates real-time clutter characterization for use in optimizing weapons and sensors, and for identifying factors limiting their performance.</p>											

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Exhibit R-2a, RDTEEN Project Justification  
(Exhibit R-2a, page 20 of 27)

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: <b>FEBRUARY 2003</b>																
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA 5</b>	PROGRAM ELEMENT NUMBER AND NAME 0604218N Air Ocean Equipment Engineering	PROJECT NUMBER AND NAME X9217 SPY-1 Tactical Environmental Processor (TEP)																	
<b>(U) B. Accomplishments/Planned Program</b>																			
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SPY-1 Tactical Environmental Processor (TEP)	FY 02	FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost	0.000	1.956	0.000	0.000															
RDT&E Articles Quantity																			
FY03: Complete upgrade for prototype hardware and software to operational status to provide operational status for meteorological conditions.																			
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	FY 02	FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.000															
RDT&E Articles Quantity																			

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## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: <b>FEBRUARY 2003</b>																																																								
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R-1 SHOPPING LIST - Item No. 93

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## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE:	<b>FEBRUARY 2003</b>
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME	
<b>RDT&amp;E, N / BA-5</b>	0604218N Air Ocean Equipment Engineering	X9217 SPY-1 Tactical Environmental Processor (TEP)	
<p><b>(U) D. OTHER PROGRAM FUNDING SUMMARY:</b></p> <p>Related RDT&amp;E: PE 0603207N (Air/Ocean Tactical Applications), PE0602435N (Ocean and Atmospheric Technology)</p> <p><b>(U) E. ACQUISITION STRATEGY:</b></p> <p>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 NAVAIR and miscellaneous contractors, with management oversight by SPAWAR.</p> <p><b>(U) F. MAJOR PERFORMERS:</b></p> <p>N/A</p>			

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UNCLASSIFIED

# UNCLASSIFIED

## CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: <b>FEBRUARY 2003</b>				
APPROPRIATION/BUDGET ACTIVITY <b>RD&amp;E, N / BA-5</b>			PROGRAM ELEMENT 0604218N Air Ocean Equipment Engineering			PROJECT NUMBER AND NAME X9217 SPY-1 Tactical Environmental Processor (TEP)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Software Development	WX	SSC SD	0.000	0.200	NA	0.000	NA	0.000	NA		0.200	
Software Engineering	PD	NAVSEA/LOCKHEED MART	0.000	1.756	NA	0.000	NA	0.000	NA		1.756	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Product Development			0.000	1.956		0.000		0.000		0.000	1.956	
Remarks:												
Development Support				0.000		0.000		0.000			0.000	
Software Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
Studies & Analyses											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												



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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: <b>FEBRUARY 2003</b>				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
<b>RDTE&amp;E, N / BA-5</b>			0604218N Air Ocean Equipment Engineering			X9217 SPY-1 Tactical Environmental Processor (TEP)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation			0.000	0.000		0.000		0.000			0.000	
Operational Test & Evaluation											0.000	
Live Fire Test & Evaluation											0.000	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support											0.000	
Travel											0.000	
Transportation											0.000	
SBIR Assessment											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost			0.000	1.956		0.000		0.000		0.000	1.956	

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Exhibit R-3, Project Cost Analysis  
(Exhibit R-3, page 25 of 27)

CLASSIFICATION:

EXHIBIT R4, Schedule Profile																								DATE:											
APPROPRIATION/BUDGET ACTIVITY												PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME											
RDT&E, N / BA-5												0604218N Air Ocean Equipment Engineering												X9217 SPY-1 Tactical Environmental Processor (TEP)											
Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009						
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4			
Spy-1 Tactical Environmental Processor																																			

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\* Not required for Budget Activities 1, 2, 3, and 6

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**Exhibit R-4a, Schedule Detail**  
(Exhibit R-4a, page 27 of 27)