

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: <b>February 2004</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RESEARCH DEVELOPMENT TEST &amp; EVALUATION, NAVY / BA-4</b>					R-1 ITEM NOMENCLATURE PE0603721N / Environmental Protection			
COST (\$ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost		43.048	31.855	24.641	20.571	20.881	21.641	22.154
Shipboard Waste Management / 0401		27.527	24.994	16.980	12.172	10.670	11.206	11.764
Environmental Compliance / 2210		2.742	0.758	0.776	0.811	1.027	1.070	0.833
Pollution Abatement / 0817		10.195	4.027	6.885	7.588	9.184	9.365	9.557
Marine Mammal Detection & Mitigation / 9204*		1.620	2.076	0.000	0.000	0.000	0.000	0.000
Field Demonstration of Containment Tech / 9203*		0.964	0.000	0.000	0.000	0.000	0.000	0.000
<b>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</b> (U) Many environmental laws, regulations, and policies impose restrictions on Navy vessels, aircraft, and facilities that interfere with operations and/or increase the cost of operations. The Navy must be able to conduct its national security mission in compliance with applicable environmental requirements in the U.S. and abroad without compromising performance, safety, or health, while simultaneously minimizing the cost of compliance. This program develops processes, prototype hardware, systems, and operational procedures that will allow the Navy to operate in U.S., foreign, and international waters, air, space, and land areas while complying with environmental U.S. statutes and international agreements. Projects support the Navy's compliance with: OPNAVINST 5090.1B CH-2 of 9 September 1999 and other Navy environmental-related policies; the Clean Water Act, Clean Air Act, Act to Prevent Pollution from Ships, National Environmental Policy Act, Marine Plastic Pollution Research and Control Act, Endangered Species Act, Marine Mammal Protection Act, Resource Conservation and Recovery Act, Toxic Substances Control Act, U.S. Public Vessel Medical Waste Anti-Dumping Act, and Federal Facility Compliance Act; and Executive Orders 12088, 12114, 12843, 13089, 13101, 13112, 13148, and 13158. Project 0401 supports RDT&E efforts that allow Navy ships and submarines to comply with existing laws, regulations, and policies in four major areas: ozone depleting substances, liquid wastes, solid wastes, and hazardous and other wastes. Project 2210 funds RDT&E requirements that allow Navy compliance with laws, regulations and policies impacting the basing, re-alignment, operation, repair and replacement of Naval aircraft in four major areas: engine emissions, air vehicle hazardous materials and wastes, ozone depleting substances, and aviation shipboard emissions. Project 0817 funds RDT&E requirements that allow Navy to develop and validate technologies to enable Navy facilities to comply with environmental laws, regulations, and policies in a cost-effective manner. * Projects 9203 and 9204 are Congressional adds.								

R-1 SHOPPING LIST - Line No. 62

UNCLASSIFIED

Exhibit R-2, RDTEN Budget Item Justification  
(Exhibit R-2, page 1 of 25)

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: <b>February 2004</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection				PROJECT NUMBER AND NAME 0401 / Shipboard Waste Management			
COST (\$ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		27.527	24.994	16.980	12.172	10.670	11.206	11.764
RDT&E Articles Qty								

### A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) Navy ships and submarines must routinely operate in U.S., international, and foreign waters, and visit numerous U.S. and foreign ports. No body of water is without environmental restrictions that impact the movements and operations of Navy vessels. Environmental requirements tend to be most restrictive in port and in coastal waters, where the Navy's increasing littoral presence places ships and submarines in discharge-restricted waters for longer periods of time. Growing international cooperation in addressing global environmental concerns is resulting in expanding areas of ocean designated as environmentally sensitive, where special prohibitions on ship discharges are imposed. Navy vessels must comply with applicable environmental legal requirements while ensuring continued access to all waters for operations, exercises, training, and port access. The large crews and limited onboard space of Navy ships and submarines severely constrain their ability to hold wastes for return to port for shoreside disposal. This project develops and evaluates shipboard waste processing equipment and systems to enable ships and submarines to manage their wastes in an environmentally-compliant, safe, and operationally-compatible manner. It also addresses afloat environmental issues other than shipboard wastes, e.g., protected marine animals and hull antifouling, that pose significant operational and port entry threats to the Navy Fleet.

R-1 SHOPPING LIST - Line No. 62

**Exhibit R-2a, RDTEN Project Justification**  
(Exhibit R-2a, page 2 of 25)

# UNCLASSIFIED

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: <b>February 2004</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection	PROJECT NUMBER AND NAME 0401 / Shipboard Waste Management		
<b>B. Accomplishments/Planned Program</b>				
		FY 03	FY 04	FY 05
Ozone Depleting Substances		3.591	1.000	1.000
RDT&E Articles Quantity				
<p><b>FY 03:</b> (U) Continued development of shipboard alternative (non-vapor-compression) cooling concepts. Completed evaluation of non-ozone depleting substance (non-ODS) fire protection concepts and systems for future surface ships.</p> <p><b>FY 04:</b> (U) Complete development of shipboard alternative (non-vapor-compression) cooling concepts. Initiate development of solutions for lubrication and engineering design problems in surface ship CFC-114 air-conditioning plant conversion designs.</p> <p><b>FY 05:</b> (U) Continue development of solutions for lubrication and engineering design problems in surface ship CFC-114 air-conditioning plant conversion designs.</p>				

R-1 SHOPPING LIST - Line No. 62

UNCLASSIFIED

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: <b>February 2004</b>																
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection	PROJECT NUMBER AND NAME 0401 / Shipboard Waste Management																	
<b>B. Accomplishments/Planned Program</b> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <tr> <th style="width: 30%;"></th> <th style="width: 10%;"></th> <th style="width: 15%;">FY 03</th> <th style="width: 15%;">FY 04</th> <th style="width: 15%;">FY 05</th> </tr> <tr> <td>Integrated Liquid Wastes</td> <td></td> <td style="text-align: center;">9.136</td> <td style="text-align: center;">5.211</td> <td style="text-align: center;">5.600</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: 10px; margin-top: 10px;"> <p><b>FY 03:</b> (U) Continued support of rulemaking process with Environmental Protection Agency (EPA) in development of Uniform National Discharge Standards (UNDS) for liquid waste discharges from Navy vessels: continued discharge analyses and setting of Marine Pollution Control Device (MPCD) performance standards. Continued development of integrated liquid waste treatment system: completed 10-gpm Oil/Waste Separator (OWS-10) Polisher ILS documentation, completed 50-gpm Oil/Water Separator (OWS-50) Polisher ILS documentation, and completed 5-gpm Oil/Water Separator (OWS-5) Polisher ILS documentation; continued development of Engineering Development Model (EDM) non-oily wastewater treatment system.</p> <p><b>FY 04:</b> (U) Continue support of rulemaking process with Environmental Protection Agency (EPA) in development of Uniform National Discharge Standards (UNDS) for liquid waste discharges from Navy vessels: continue discharge analyses and setting of Marine Pollution Control Device (MPCD) performance standards. Continue development of integrated liquid waste treatment system: complete development of Engineering Development Model (EDM) non-oily wastewater treatment system; initiate development of MPCD treatment systems; initiate development of shipboard Oil Pollution Abatement System improvements; initiate evaluation of commercial non-oily wastewater treatment systems.</p> <p><b>FY 05:</b> (U) Continue support of rulemaking process with Environmental Protection Agency (EPA) in development of Uniform National Discharge Standards (UNDS) for liquid waste discharges from Navy vessels: continue discharge analyses and setting of Marine Pollution Control Device (MPCD) performance standards. Continue development of Integrated liquid waste treatment system: continue development of MPCD treatment systems; continue development of shipboard Oil Pollution Abatement Systems improvements; continue evaluation of commercial non-oily wastewater treatment systems.</p> </div>							FY 03	FY 04	FY 05	Integrated Liquid Wastes		9.136	5.211	5.600	RDT&E Articles Quantity				
		FY 03	FY 04	FY 05															
Integrated Liquid Wastes		9.136	5.211	5.600															
RDT&E Articles Quantity																			

R-1 SHOPPING LIST - Line No. 62

UNCLASSIFIED

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: <b>February 2004</b>																
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection	PROJECT NUMBER AND NAME 0401 / Shipboard Waste Management																	
<b>B. Accomplishments/Planned Program (Cont.)</b>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 30%;"></td> <td style="width: 20%; text-align: center;">FY 03</td> <td style="width: 20%; text-align: center;">FY 04</td> <td style="width: 20%; text-align: center;">FY 05</td> </tr> <tr> <td>Solid Wastes</td> <td></td> <td style="text-align: center;">6.500</td> <td style="text-align: center;">6.968</td> <td style="text-align: center;">0.500</td> </tr> <tr> <td>RDT&amp;E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>							FY 03	FY 04	FY 05	Solid Wastes		6.500	6.968	0.500	RDT&E Articles Quantity				
		FY 03	FY 04	FY 05															
Solid Wastes		6.500	6.968	0.500															
RDT&E Articles Quantity																			
<p><b>FY 03:</b> (U) Completed development of management processes and systems for plastics for submarine application: completed transition of SSN-21 Class and SSN-774 Class submarine design solutions. Continued development of advanced thermal destruction system for processing shipboard solid wastes.</p> <p><b>FY 04:</b> (U) Complete development of advanced thermal destruction system for processing shipboard solid wastes. Initiate evaluation of commercial thermal destruction systems for shipboard solid wastes.</p> <p><b>FY 05:</b> (U) Continue evaluation of commercial thermal destruction systems for shipboard solid wastes.</p>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 30%;"></td> <td style="width: 20%; text-align: center;">FY 03</td> <td style="width: 20%; text-align: center;">FY 04</td> <td style="width: 20%; text-align: center;">FY 05</td> </tr> <tr> <td>Hazardous and Other Major Ship Wastes</td> <td></td> <td style="text-align: center;">8.300</td> <td style="text-align: center;">11.815</td> <td style="text-align: center;">9.880</td> </tr> <tr> <td>RDT&amp;E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>							FY 03	FY 04	FY 05	Hazardous and Other Major Ship Wastes		8.300	11.815	9.880	RDT&E Articles Quantity				
		FY 03	FY 04	FY 05															
Hazardous and Other Major Ship Wastes		8.300	11.815	9.880															
RDT&E Articles Quantity																			
<p><b>FY 03:</b> (U) Continued shipboard hazardous materials substitution and elimination process and continued test and evaluation of pollution-prevention equipment aboard surface ships. Completed quality assurance testing on reformulated commercial paints. Continued development of marine mammals ship database tracking system: Continued development and testing of new low/no-copper underwater hull antifouling coatings. Continued development of underwater hull cleaning system. Initiated development of Environmental Information Management System (EIMS).</p> <p><b>FY 04:</b> (U) Continue shipboard hazardous materials substitution and elimination process and continue test and evaluation of pollution-prevention equipment aboard surface ships and submarines. Continue development of marine mammals ship database tracking system: continue demonstration of acoustic modelling. Continue development and testing of new low/no-copper underwater hull antifouling coatings. Continue development of underwater hull cleaning system. Continue development of Environmental Information Management System (EIMS).</p> <p><b>FY 05:</b> (U) Continue shipboard hazardous materials substitution and elimination process and continue test and evaluation of pollution-prevention equipment aboard surface ships and submarines. Continue development of marine mammals ship database tracking system: continue demonstration of acoustic modelling. Continue development and testing of new low/no-copper underwater hull antifouling coatings. Continue development of underwater hull cleaning system. Continue development of Environmental Information Management System (EIMS).</p>																			

R-1 SHOPPING LIST - Line No. 62

UNCLASSIFIED

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: <b>February 2004</b>																																																	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection	PROJECT NUMBER AND NAME 0401 / Shipboard Waste Management																																																		
<p><b>C. PROGRAM CHANGE SUMMARY:</b></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 40%;">Funding:</th> <th style="text-align: right; width: 15%;">FY 2003</th> <th style="text-align: right; width: 15%;">FY 2004</th> <th style="text-align: right; width: 15%;">FY 2005</th> </tr> </thead> <tbody> <tr> <td>Previous President's Budget: (FY 04 Pres Controls)</td> <td style="text-align: right;">28.163</td> <td style="text-align: right;">25.283</td> <td style="text-align: right;">24.171</td> </tr> <tr> <td>Current BES/President's Budget:</td> <td style="text-align: right;">27.527</td> <td style="text-align: right;">24.994</td> <td style="text-align: right;">16.980</td> </tr> <tr> <td>Total Adjustments</td> <td style="text-align: right; border-top: 1px solid black;">-0.636</td> <td style="text-align: right; border-top: 1px solid black;">-0.289</td> <td style="text-align: right; border-top: 1px solid black;">-7.191</td> </tr> <tr> <td colspan="4" style="padding-top: 10px;">Summary of Adjustments</td> </tr> <tr> <td>Oil Spill Recovery Equipment</td> <td></td> <td></td> <td style="text-align: right;">6.200</td> </tr> <tr> <td>Technical Realignment</td> <td></td> <td></td> <td style="text-align: right;">0.800</td> </tr> <tr> <td>NWCF Rates</td> <td></td> <td></td> <td style="text-align: right;">0.186</td> </tr> <tr> <td>Misc. Adjustment</td> <td style="text-align: right;">0.093</td> <td style="text-align: right;">0.289</td> <td style="text-align: right;">0.005</td> </tr> <tr> <td>SBIR</td> <td style="text-align: right;">0.264</td> <td></td> <td></td> </tr> <tr> <td>FY03 BTR</td> <td style="text-align: right;">0.279</td> <td></td> <td></td> </tr> <tr> <td>Subtotal</td> <td style="text-align: right; border-top: 1px solid black;">0.636</td> <td style="text-align: right; border-top: 1px solid black;">0.289</td> <td style="text-align: right; border-top: 1px solid black;">7.191</td> </tr> </tbody> </table> <p style="margin-top: 20px;">Schedule: Not applicable.</p> <p style="margin-top: 40px;">Technical: Not applicable.</p>					Funding:	FY 2003	FY 2004	FY 2005	Previous President's Budget: (FY 04 Pres Controls)	28.163	25.283	24.171	Current BES/President's Budget:	27.527	24.994	16.980	Total Adjustments	-0.636	-0.289	-7.191	Summary of Adjustments				Oil Spill Recovery Equipment			6.200	Technical Realignment			0.800	NWCF Rates			0.186	Misc. Adjustment	0.093	0.289	0.005	SBIR	0.264			FY03 BTR	0.279			Subtotal	0.636	0.289	7.191
Funding:	FY 2003	FY 2004	FY 2005																																																	
Previous President's Budget: (FY 04 Pres Controls)	28.163	25.283	24.171																																																	
Current BES/President's Budget:	27.527	24.994	16.980																																																	
Total Adjustments	-0.636	-0.289	-7.191																																																	
Summary of Adjustments																																																				
Oil Spill Recovery Equipment			6.200																																																	
Technical Realignment			0.800																																																	
NWCF Rates			0.186																																																	
Misc. Adjustment	0.093	0.289	0.005																																																	
SBIR	0.264																																																			
FY03 BTR	0.279																																																			
Subtotal	0.636	0.289	7.191																																																	

R-1 SHOPPING LIST - Line No. 62

UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: <b>February 2004</b>			
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>		PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection		PROJECT NUMBER AND NAME 0401 / Shipboard Waste Management					
<b>D. OTHER PROGRAM FUNDING SUMMARY:</b>									
<u>Line Item No. &amp; Name</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>
(U) Demonstrated and validated technologies are transitioned to various SCN, OPN, and O&MN budget accounts for implementation as part of a Fleet modernization program or new ship construction.									
(U) Related RDT&E: (U) Defense Research Sciences/Shipboard Processes (PE 61153N / 3162)									
(U) Readiness, Training, and Environmental Quality/Logistics and Environmental Quality (PE 62233N)									
(U) Environmental Quality and Logistics Advanced Technology/Environmental Requirements Advanced Technology (PE 63712N / 2206)									
<b>E. ACQUISITION STRATEGY:</b>									
(U) RDT&E Contracts are Competitive Procurements.									
<b>F. MAJOR PERFORMERS:</b>									
(U) NSWCCD, Bethesda, MD: Test and evaluates prototype, preproduction, and commercial shipboard environmental systems and equipment in the laboratory and onboard ship.									
(U) York International Corp, York, PA: Design and build prototype and preproduction shipboard air-conditioning and refrigeration systems that operate with new, environmentally-acceptable refrigerants.									
(U) Geo-Centers, Inc., Boston, MA: Design and fabricate prototype shipboard waste treatment systems and equipment for test and evaluation.									

R-1 SHOPPING LIST - Line No. 62

UNCLASSIFIED

UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: February 2004				
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
RDT&E, N / BA-4			PE0603721N / Environmental Protection			0401 / Shipboard Waste Management						
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
Primary Hardware Development	C/CPFF	WMTD, Pitts, PA	14.580								14.580	14.580
Primary Hardware Development	C/CPFF	Geo-Centers, Inc,Bos.,MA	23.250	2.000	01/03	1.500	01/04	0.500		Cont	Cont	N/A
Primary Hardware Development	SS/CPFF	York Internat'l Corp,York,PA	2.700							N/A	2.700	2.700
Primary Hardware Development	SS/CPFF	York Internat'l Corp,York,PA	11.850							10.150	25.000	25.000
Primary Hardware Development	SS/CPFF	N. Res & Eng Corp,Wab.,MA	1.200							N/A	1.200	1.200
Primary Hardware Development	C/CPFF	M. Rosenblatt & Son, NY,NY	10.363	1.000	01/03	0.000		0.000		Cont	Cont	N/A
Ancillary Hardware Development	Various	Misc. Contracts	16.884	0.536	Var	1.500		0.500		N/A	N/A	N/A
Component Development											0.000	
Ship Integration											0.000	
Ship Suitability											0.000	
Systems Engineering	C/CPFF	John J. McMullen & Son	4.487	0.600	03/03	0.000		0.000		Cont	Cont	N/A
Training Development											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			85.314	4.136		3.000		1.000		Cont	Cont	N/A
Remarks: (1) Hardware Development and Systems Engineering Tasks use CPFF Delivery Contracts for Continuing Development of Pollution Abatement Hardware and Ship Systems Engineering Analysis.												
Development Support											0.000	
Software Development	WR	SPAWARS, Charleston, SC	0.000	0.000		2.100		3.000		0.000	5.100	0.000
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		2.100		3.000		0.000	5.100	
Remarks:												

R-1 SHOPPING LIST - Line No. 62

UNCLASSIFIED

Exhibit R-3, Project Cost Analysis  
(Exhibit R-3, page 8 of 25)



# UNCLASSIFIED

**CLASSIFICATION:**

Exhibit R-3 Cost Analysis (page 2)								DATE: <b>February 2004</b>				
APPROPRIATION/BUDGET ACTIVITY <b>RD&amp;E, N / BA-4</b>			PROGRAM ELEMENT PE0603721N / Environmental Protection			PROJECT NUMBER AND NAME 0401 / Shipboard Waste Management						
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	WR	NSWCCD, Bethesda, MD	122.524	12.250		11.000		6.500		Cont	Cont	N/A
Developmental Test & Evaluation	WR	NRL, Wash, DC	25.082	2.200		2.000		1.000		Cont	Cont	N/A
Developmental Test & Evaluation	WR	SPAWARSSYSCEN, SD, CA	7.810	2.000		1.500		0.500		Cont	Cont	N/A
Process Control Engineering	C/CPFF	GSA/BAH, Arlington, VA	5.322	4.000		3.000		3.000		Cont	Cont	N/A
Developmental Test & Evaluation	WR	Misc. Govt Labs	22.232	1.250		0.500		0.500		Cont	Cont	N/A
Developmental Test & Evaluation	C/CPFF	Geo-Centers, Inc, Bos., MA	12.151	1.000	01/03	1.000	01/04	1.000	01/05	Cont	Cont	N/A
Developmental Test & Evaluation	C/CPFF	York Internat'l Corp, York, PA	12.000							0.000	12.000	12.000
Developmental Test & Evaluation	C/CPFF	Misc. Contracts	10.791	0.641	Var	0.874	Var	0.460	Var	Cont	Cont	N/A
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	N/A
Subtotal T&E			217.912	23.341		19.874		12.960		0.000	Cont	N/A
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support											0.000	
Travel			0.150	0.050		0.020		0.020			Cont	
Labor (Research Personnel)											0.000	
SBIR Assessment											0.000	
Subtotal Management			0.150	0.050		0.020		0.020		0.000	Cont	
Remarks:												
Total Cost			303.376	27.527		24.994		16.980		Cont	Cont	Cont
Remarks:												

R-1 SHOPPING LIST - Line No. 62

# UNCLASSIFIED

**Exhibit R-3, Project Cost Analysis**  
(Exhibit R-3, page 9 of 25)

CLASSIFICATION:

UNCLASSIFIED

EXHIBIT R4, Schedule Profile																				DATE:				February 2004							
APPROPRIATION/BUDGET ACTIVITY					PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME														
RDT&E, N / BA-4					PE0603721N / Environmental Protection												0401 / Shipboard Waste Management														
Fiscal Year	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			
Ozone Depleting Substances																															
Alternative (Non-Vapor-Compression) Cooling Concepts																															
Non-ODS Fire Protection Systems																															
Lubrication and Engineering Problems for HFC-236fa Air-Conditioning Plants																															
Integrated Liquid Wastes																															
Uniform National Discharge Standards (UNDS ) Rulemaking																															
10-gpm Oil/Water Separator Polisher (OWS-10)																															
50-gpm Oil/Water Separator Polisher (OWS-50)																															
5-gpm Oil/Water Separator Polisher (OWS-5)																															
Evaluate Commercial Non-Oily Wastewater & MPCD Treatment Systems																															
Oil Pollution Abatement (OPA) System Improvements																															
Solid Wastes																															
Submarine Plastics Waste Management																															
Advanced Thermal Destruction Systems																															
Commercial Thermal Destruction Systems																															
Hazardous and Other Major Ship Wastes																															
Hazardous Materials Substitution/Elimination																															
Pollution Prevention Equipment																															
Test Reformulated Commercial Paints																															
Protected Marine Animals																															
Low/No-Copper Hull Antifouling Coatings																															
Underwater Hull Cleaning System																															
Environmental Information Management System (EIMS)																															

R-1 SHOPPING LIST - Line No. 62

UNCLASSIFIED

**UNCLASSIFIED**

**CLASSIFICATION:**

[illegible]

R-1 SHOPPING LIST - Line No. 62

**UNCLASSIFIED**

**Exhibit R-4a, Schedule Detail**  
(Exhibit R-4a, page 11 of 25)

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: <b>February 2004</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection				PROJECT NUMBER AND NAME 2210 / Environmental Compliance			
COST (\$ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		2.742	0.758	0.776	0.811	1.027	1.070	0.833
RDT&E Articles Qty								

### A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

A. (U) Mission Description and Budget Item Justification: This project supports development and implementation of technologies which will lead to environmentally safe naval aviation operations and support; compliance with international, federal, state, and local regulations and policies; reduction of increasing compliance costs and personal liability; and enhancement of naval aviation mission readiness and effectiveness. This project will support aviation compliance and pollution prevention technologies as well as additional operational and shipboard aviation requirements previously unsupported. Specific regulatory requirements include Executive Orders 12856 (Pollution Prevention) and 12873 (Recycling & Waste Prevention), and 13148, the National Environmental Policy Act (NEPA), Clean Air Act (CAA) Title I, National Ambient Air Quality Standards (NAAQS), relating to pollutants aircraft contribute to base air emission limits (volatile organic compounds (VOCs), particulate matter (PM), oxides of nitrogen (NOx), oxides of sulfur (SOx), and unburned hydrocarbons (UHCs)), the National Emission Standards for Hazardous Air Pollutants (NESHAPs), the Clean Water Act (CWA), the Resource Conservation and Recovery Act (RCRA), as well as Occupational, Safety and Health Administration (OSHA) standards.

2210 legacy aircraft maintenance facility requirements were rebaselined to Project 0817, Pollution Abatement Ashore, beginning in FY 04.

R-1 SHOPPING LIST - Line No. 62

**Exhibit R-2a, RDTEN Project Justification**  
(Exhibit R-2a, page 12 of 25)

# UNCLASSIFIED

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: <b>February 2004</b>																
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection	PROJECT NUMBER AND NAME 2210 / Environmental Compliance																	
<b>B. Accomplishments/Planned Program</b>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 10%;"></td> <td style="width: 15%; text-align: center;">FY 03</td> <td style="width: 15%; text-align: center;">FY 04</td> <td style="width: 15%; text-align: center;">FY 05</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td></td> <td style="text-align: center;">1.086</td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">0.000</td> </tr> <tr> <td>RDT&amp;E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>							FY 03	FY 04	FY 05	Accomplishments/Effort/Subtotal Cost		1.086	0.000	0.000	RDT&E Articles Quantity				
		FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost		1.086	0.000	0.000															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <p><b>Alternative Maintenance Processes:</b> Research, develop, and test alternatives to aircraft and propulsion systems maintenance processes that use toxic heavy metals, hazardous air pollutants (HAPs) and Volatile Organic Compounds (VOCs). Objectives include formulation and certification of newly developed aircraft coatings including paint primers, topcoats, cadmium and chromium electroplating replacements, high velocity oxy-fuel (HVOF), pre- and post-treatments, and anodize coatings. Additional objectives include; maintaining expertise in and execution of flight test and evaluation of low-VOC bonding, petroleum distillate (PD) solvent, conversion coatings, aluminum manganese (Al/Mn) coatings and alternative weapons materials and proce</p> </div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 10%;"></td> <td style="width: 15%; text-align: center;">FY 03</td> <td style="width: 15%; text-align: center;">FY 04</td> <td style="width: 15%; text-align: center;">FY 05</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td></td> <td style="text-align: center;">1.656</td> <td style="text-align: center;">0.524</td> <td style="text-align: center;">0.535</td> </tr> <tr> <td>RDT&amp;E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>							FY 03	FY 04	FY 05	Accomplishments/Effort/Subtotal Cost		1.656	0.524	0.535	RDT&E Articles Quantity				
		FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost		1.656	0.524	0.535															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <p><b>Engine Emissions Technology:</b> Research, develop and test low emissions technology for gas turbine engines. Objectives include test, demonstrate and validate jet fuel additives for pollution prevention and compliance, gas turbine engine particulate matter measurement and testing technology, and low emissions combustor technology.</p> </div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 10%;"></td> <td style="width: 15%; text-align: center;">FY 03</td> <td style="width: 15%; text-align: center;">FY 04</td> <td style="width: 15%; text-align: center;">FY 05</td> </tr> <tr> <td>Accomplishments/Effort/Subtotal Cost</td> <td></td> <td style="text-align: center;">0.000</td> <td style="text-align: center;">0.234</td> <td style="text-align: center;">0.241</td> </tr> <tr> <td>RDT&amp;E Articles Quantity</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>							FY 03	FY 04	FY 05	Accomplishments/Effort/Subtotal Cost		0.000	0.234	0.241	RDT&E Articles Quantity				
		FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost		0.000	0.234	0.241															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"> <p><b>Aircraft Hazardous Materials and Shipboard Waste Reduction:</b> Research, develop and test alternatives to aircraft and propulsion and power systems manufacture, finishing and repair processes that generate toxic heavy metals, hazardous air pollutants (HAPs) and volatile organic compounds (VOCs). Objectives include the test, demonstration and validation of aircraft structural stainless steels, long life lead and cadmium free aircraft batteries and shipboard validation of corrosion repair kits.</p> </div>																			

R-1 SHOPPING LIST - Line No. 62

UNCLASSIFIED

**UNCLASSIFIED**

**CLASSIFICATION:**

EXHIBIT R-2a, RDT&E Project Justification		DATE:
		<b>February 2004</b>
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
<b>RDT&amp;E, N / BA-4</b>	PE0603721N / Environmental Protection	2210 / Environmental Compliance
<b>C. PROGRAM CHANGE SUMMARY:</b>		
Funding:	FY 2003	FY 2004
Previous President's Budget:	2.896	0.767
Current BES/President's Budget	2.742	0.758
Total Adjustments	-0.154	-0.009
Summary of Adjustments		
Congressional undistributed reductions		-0.009
SBIR/STTR Transfer	-0.083	
FY 03 BTR	-0.071	
Other program adjustments		-0.118
Congressional increases		
Subtotal	-0.154	-0.009
Schedule:		
Not applicable		
Technical:		
Not applicable		

R-1 SHOPPING LIST - Line No. 62

**UNCLASSIFIED**

**Exhibit R-2a, RD TEN Project Justification**  
(Exhibit R-2a, page 14 of 25)

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE:	
							February 2004	
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME			PROJECT NUMBER AND NAME			
RDT&E, N / BA-4		PE0603721N / Environmental Protection			2210 / Environmental Compliance			

  

**D. OTHER PROGRAM FUNDING SUMMARY:**

<u>Line Item No. &amp; Name</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>
Related RDT&E:									
PE0603851D (Environmental Security Technology Certification Program)	0.750	0.950	0.750						
PE0602121N (Ship, Submarine and Logistics Technology)									
PE060223N (Readiness/Training/Environmental Quality)									
PE0603716D (Strategic Environmental R&D Program)									

  

**E. ACQUISITION STRATEGY:**

Technologies developed under this project are demonstrated and validated primarily through competitive procurements. Validated technology is transitioned to users through new or revised performance specifications, technical manuals or competitive procurements of subsystems, materials or processes.

  

**F. MAJOR PERFORMERS:**

R-1 SHOPPING LIST - Line No. 62

UNCLASSIFIED

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: <b>February 2004</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection				PROJECT NUMBER AND NAME 0817 / Pollution Abatement			
COST (\$ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		10.195	4.027	6.885	7.588	9.184	9.365	9.557
RDT&E Articles Qty								

### A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) This project develops and validates new technologies needed to address pervasive Navy shoreside environmental requirements imposed on Naval shore activities by the need to comply with environmental laws, regulations, orders, and policies. The goal of the program is to minimize personnel liabilities, operational costs, and regulatory oversight while preserving or enhancing the ability of Naval shore activities to accomplish their required missions and functions. Each project task addresses one or more of the requirements from the Navy Environmental Quality RDT&E Requirements of January 2001. Project investment is made in eight thrust areas. Thrust areas were changed in FY01 to better align the tasks with technical area needs resulting from shoreside requirements and two thrust areas were added in FY04.

#### (U) SHIP MAINTENANCE/REPAIR/DEACTIVATION

(U) Thus far, tasks in this thrust area have addressed environmental requirements originating at Naval shipyards. As the Navy pursues a strategy to reduce ship maintenance costs by shifting work to Ship Intermediate Maintenance Activities (SIMAs), new requirements are emerging as these processes and resulting hazardous waste streams become more decentralized. SIMAs will require technologies that are cost-effective when operated less frequently and with lower throughput. SIMA tasks have been selected based on compliance and pollution prevention studies conducted for the Naval Station Mayport SIMA as part of the Navy Environmental Leadership Program (NELP).

#### (U) ORDNANCE TESTING/MANUFACTURE/DISPOSAL

(U) Current tasks in this thrust address specific compliance-driven environmental requirements of Navy ordnance activities. With respect to disposal, the thrust addresses requirements for disposal of quantities typical of testing and manufacturing operations, not of the much larger quantities associated with demilitarization. Future tasks will shift much of the investment in this area to pollution prevention requirements, particularly where they also reduce compliance impacts and costs. These tasks will be selected based on the ordnance environmental requirements study conducted in partnership with the Navy's Ordnance Environmental Specialty Office (OESO).

#### (U) INDUSTRIAL OPERATIONS AND MAINTENANCE

(U) Tasks in this thrust address compliance and pollution prevention environmental requirements originating from the industrial operations of Navy Public Works Centers and Naval Stations. As part of an overall Navy strategy, future tasks will shift more of the investment from compliance technologies to pollution prevention technologies that are cost-effective solutions to compliance requirements. It is also expected that there will be new requirements driven by the trend towards stricter federal, state, and local air emission and wastewater regulations.

R-1 SHOPPING LIST - Line No. 62

**Exhibit R-2a, RDTEN Project Justification**  
(Exhibit R-2a, page 16 of 25)

# UNCLASSIFIED



# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: <b>February 2004</b>
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection	PROJECT NUMBER AND NAME 0817 / Pollution Abatement
<p>(U) INSTALLATION RESTORATION</p> <p>(U) Tasks in this thrust address requirements to reduce the Navy's cost and liabilities associated with the cleanup of contaminated sites at Naval activities. Tasks evaluate alternative site characterization, remediation, and monitoring technologies for the over 1000 Navy sites requiring cleanup and restoration under Comprehensive Environmental Response, Compensation, &amp; Liability Act (CERCLA). Due to funding reduction, investment in this thrust area will be eliminated in FY04 with the exception of outyear tasks to reduce long term monitoring costs. The Navy will rely on demonstrations conducted by other Federal agencies, such as EPA, as well as academia to validate innovative technologies for terrestrial site cleanup.</p> <p>(U) ENVIRONMENTAL EFFECTS OF UNDERWATER UXO</p> <p>(U) The thrust is new for FY04 based on results of the Initiation Decision Report (IDR) completed on Environmental Effects of Underwater UXO in FY02. The tasks in this thrust support the requirements for addressing the transport, fate, and effects of underwater UXO needed to support scientifically valid decisions.</p> <p>(U) AVIATION MAINTENANCE AND SUPPORT</p> <p>(U) This thrust is new for FY04. The tasks in this thrust will reduce the shoreside environmental impacts of aviation operations and maintenance at air bases and depots. Specific tasks will be from transfer of shoreside efforts under Project 2210 based on a review to occur in FY03.</p> <p>(U) COASTAL CONTAMINATION AND CONTAMINATED SEDIMENTS</p> <p>(U) This thrust area was created in FY02. Tasks within this area address requirements for reducing the cost of environmental compliance and cleanup for coastal contamination and contaminated sediments. Navy compliance with all of the laws and regulations dealing with marine and coastal environments is complex and costly. Tasks will develop and evaluate technologies for sediment characterization and monitoring, sediment management and remediation, and marine environmental risk assessment.</p> <p>(U) EMISSIONS DETECTION AND MONITORING</p> <p>(U) This thrust area was created in FY02. Tasks under this thrust will address legal and policy requirements for monitoring and detection of wastewater discharges and air emissions. The detection and monitoring devices and procedures demonstrated under this thrust will improve process performance, provide mission-compatible compliance with provisions of the Clean Water Act (CWA), Clean Air Act (CAA), Resource Conservation &amp; Recovery Act (RCRA), Toxic Substance Control Act (TSCA), State, and local regulations and reduce costs for environmental sampling analysis. In addition, Navy operational air pollution modeling capability will be developed and including hardware, software, system administration processes, and guidelines. Due to funding reduction in FY04, new tasks will be delayed to outyears.</p>		

R-1 SHOPPING LIST - Line No. 62

UNCLASSIFIED

Exhibit R-2a, RDTEN Project Justification  
(Exhibit R-2a, page 17 of 25)

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: <b>February 2004</b>																
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection	PROJECT NUMBER AND NAME 0817 / Pollution Abatement																	
<b>B. Accomplishments/Planned Program</b>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;"></th><th style="width: 15%;">FY 03</th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th></tr></thead><tbody><tr><td>Ship Maintenance/Repair/Pierside</td><td></td><td style="text-align: center;">0.945</td><td style="text-align: center;">0.132</td><td style="text-align: center;">0.602</td></tr><tr><td>RDT&amp;E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table> <div style="border: 1px solid black; padding: 10px; margin-top: 10px;"><p>FY 03: Complete demonstration of Coating Removal from Delicate Substrates. Continue SIMA tasks for improved painting operations.</p><p>FY 04: Complete SIMA tasks for improved painting operations. Initiate acid recycle system for pipe flushing wastes.</p><p>FY 05: Initiate dry dock best management practices. Initiate mobile surface cleaner for drydock and industrial areas. Conduct alternative solvents demonstrations for ship maintenance operations.</p></div>							FY 03	FY 04	FY 05	Ship Maintenance/Repair/Pierside		0.945	0.132	0.602	RDT&E Articles Quantity				
		FY 03	FY 04	FY 05															
Ship Maintenance/Repair/Pierside		0.945	0.132	0.602															
RDT&E Articles Quantity																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;"></th><th style="width: 15%;">FY 03</th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th></tr></thead><tbody><tr><td>Ordnance Testing/Manufacture/Disposal</td><td></td><td style="text-align: center;">1.674</td><td style="text-align: center;">0.285</td><td style="text-align: center;">0.481</td></tr><tr><td>RDT&amp;E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table> <div style="border: 1px solid black; padding: 10px; margin-top: 10px;"><p>FY 03: Complete development of Exhaust Scrubber for Static Testing of Small Rocket Motors. Continue development of Confined Burn Facility (CBF) to Replace Open Burning of Ordnance and Energetics: complete construction of 80lb CBF facility. Initiate task to evaluate Navy Training Lands Sustainability and prepare Initiation Decision Report (IDR).</p><p>FY 04: Continue development of Confined Burn Facility (CBF): Complete construction and checkout and develop documentation for transition to other funding sources. Task will not be funded under Y0817 after FY04 due to funding reductions.</p><p>FY 05: Initiate Navy Training Lands Sustainability tasks, including fate and transport modeling to support Range Condition Assessments. Initiate Enhanced Recycle of Range Scrap Ordnance. Initiate task to develop Ecological Soil Screening Levels for munitions contaminants.</p></div>							FY 03	FY 04	FY 05	Ordnance Testing/Manufacture/Disposal		1.674	0.285	0.481	RDT&E Articles Quantity				
		FY 03	FY 04	FY 05															
Ordnance Testing/Manufacture/Disposal		1.674	0.285	0.481															
RDT&E Articles Quantity																			

R-1 SHOPPING LIST - Line No. 62

UNCLASSIFIED

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: <b>February 2004</b>																
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection	PROJECT NUMBER AND NAME 0817 / Pollution Abatement																	
<b>B. Accomplishments/Planned Program (Cont.)</b>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 10%;"></th><th style="width: 15%;">FY 03</th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th></tr></thead><tbody><tr><td>Industrial Operations and Maintenance</td><td></td><td style="text-align: center;">2.597</td><td style="text-align: center;">0.878</td><td style="text-align: center;">1.805</td></tr><tr><td>RDT&amp;E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>							FY 03	FY 04	FY 05	Industrial Operations and Maintenance		2.597	0.878	1.805	RDT&E Articles Quantity				
		FY 03	FY 04	FY 05															
Industrial Operations and Maintenance		2.597	0.878	1.805															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"><p>FY 03: Conduct demonstrations at IMC test facility. Complete demonstration of Catalysts for Advanced Oxidation Processes (AOP). Continue tasks for P2 of shoreside industrial operations. Conduct demonstration of Improved BMPs for Stormwater Runoff. Initiate task to evaluate cleaning solvents for 21st century.</p><p>FY 04: Complete demonstration of alternative AFFF. Complete Reduction of Solvent Based Paint task. Complete Triservice Methodology to Evaluate Alternative Cleaning Solvents. Continue evaluation of new cleaning solvents.</p><p>FY 05: Continue selected demonstrations of alternative solvents for industrial operations. Initiate task to evaluate fouling resistant permanent booms. Complete demonstration of technologies for optimized oil changes. Initiate demonstration of NoFoam system for fire fighting pumper trucks. Initiate task to evaluate new process for lead based paint removal.</p></div>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 10%;"></th><th style="width: 15%;">FY 03</th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th></tr></thead><tbody><tr><td>Installation Restoration</td><td></td><td style="text-align: center;">1.013</td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.000</td></tr><tr><td>RDT&amp;E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table>							FY 03	FY 04	FY 05	Installation Restoration		1.013	0.000	0.000	RDT&E Articles Quantity				
		FY 03	FY 04	FY 05															
Installation Restoration		1.013	0.000	0.000															
RDT&E Articles Quantity																			
<div style="border: 1px solid black; padding: 5px;"><p>FY 02: Developed protocol for assessing potential risks to amphibians at Navy sites. Initiated tasks for improving and optimizing remediation strategies including Zero Valent Iron Injection Demonstration and In Situ Abiotic Reductive Dechlorination with Bi-metallic Nanoparticles. Initiated task to develop Trace Analysis of Perchlorate in Environmental Samples.</p><p>FY 03: Complete development of in-situ sensor for MTBE. Complete and continue demonstrations efforts for improved remediation. Complete demonstration/validation of Trace Analysis of Perchlorates in Environmental Samples.</p><p>FY 04: All efforts completed.</p><p>FY 05: All efforts completed.</p></div>																			

R-1 SHOPPING LIST - Line No. 62

UNCLASSIFIED

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: <b>February 2004</b>																
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection	PROJECT NUMBER AND NAME 0817 / Pollution Abatement																	
<b>B. Accomplishments/Planned Program (Cont.)</b>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 35%;"></th><th style="width: 15%;"></th><th style="width: 15%;">FY 03</th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th></tr></thead><tbody><tr><td>Coastal Contamination and Contaminated Sediments</td><td></td><td style="text-align: center;">2.714</td><td style="text-align: center;">0.403</td><td style="text-align: center;">1.003</td></tr><tr><td>RDT&amp;E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table> <div style="border: 1px solid black; padding: 10px; margin-top: 10px;"><p>FY 03: Complete development of Methods to Assess Subsurface Contaminant Migration from Coastal Landfills. Continue site-specific validation methodologies for in-place sediment management. Continue tasks for evaluations of Fate/Effect of Underwater UXO. Initiate task for evaluating Sediment Transport.</p><p>FY 04: Complete site-specific validation methodologies for in-place sediment management. Continue task for evaluating Sediment Transport. Initiated task to provide risk assessment methodology for decisions related to the longterm disposition of seafloor cables.</p><p>FY 05: Continue task for evaluating Sediment Transport. Initiate containment and monitoring strategies for contaminated sediments .</p></div>							FY 03	FY 04	FY 05	Coastal Contamination and Contaminated Sediments		2.714	0.403	1.003	RDT&E Articles Quantity				
		FY 03	FY 04	FY 05															
Coastal Contamination and Contaminated Sediments		2.714	0.403	1.003															
RDT&E Articles Quantity																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 35%;"></th><th style="width: 15%;"></th><th style="width: 15%;">FY 03</th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th></tr></thead><tbody><tr><td>Emissions Detection and Monitoring</td><td></td><td style="text-align: center;">1.252</td><td style="text-align: center;">0.207</td><td style="text-align: center;">0.630</td></tr><tr><td>RDT&amp;E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table> <div style="border: 1px solid black; padding: 10px; margin-top: 10px;"><p>FY 03: Conduct case study simulations using Navy air modeling capability. Continue improved monitoring for stormwater assessment.</p><p>FY 04: Complete improved monitoring for stormwater assessment.</p><p>FY 05: Initiate effort to develop nonpoint source runoff coefficients. Initiate effort in fate and transport modeling to support TMDL regulations.</p></div>							FY 03	FY 04	FY 05	Emissions Detection and Monitoring		1.252	0.207	0.630	RDT&E Articles Quantity				
		FY 03	FY 04	FY 05															
Emissions Detection and Monitoring		1.252	0.207	0.630															
RDT&E Articles Quantity																			

R-1 SHOPPING LIST - Line No. 62

UNCLASSIFIED

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification			DATE: <b>February 2004</b>																															
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection	PROJECT NUMBER AND NAME 0817 / Pollution Abatement																																
<b>B. Accomplishments/Planned Program (Cont.)</b>																																		
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 35%;"></th><th style="width: 15%;"></th><th style="width: 15%;">FY 03</th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th></tr></thead><tbody><tr><td>Environmental Effects of Underwater Ordnance</td><td></td><td style="text-align: center;">0.000</td><td style="text-align: center;">0.845</td><td style="text-align: center;">1.072</td></tr><tr><td>RDT&amp;E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"><p>FY 04: The thrust is new for FY04 based on results of the Initiation Decision Report (IDR) completed on Environmental effects of Underwater UXO in FY02. The tasks in this thrust support the requirements for addressing the transport, fate, and effects of underwater UXO needed to support scientifically valid decisions. Continue toxicity and degradation studies of ordnance and explosives in marine environment. Continue UXO casing corrosion evaluation. Continue evaluation of UXO transport in marine sediments.</p><p>FY 05: Continue Toxicity and Degradation Study of Ordnance in Marine Sediments. Complete UXO Casing Corrosion. Complete UXO Transport Evaluation.</p></div> <table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 35%;"></th><th style="width: 15%;"></th><th style="width: 15%;">FY 03</th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th></tr></thead><tbody><tr><td>Aviation Maintenance &amp; Support</td><td></td><td style="text-align: center;">0.000</td><td style="text-align: center;">1.277</td><td style="text-align: center;">1.292</td></tr><tr><td>RDT&amp;E Articles Quantity</td><td></td><td></td><td></td><td></td></tr></tbody></table> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"><p>FY 04: This thrust is new for FY04. Tasks will be from transfer of shoreside efforts under Project W2210 based on review to occur in FY03. Continue and complete legacy W2210 aircraft maintenance projects. Complete high velocity oxygen fuel (HVOF) evaluations for hard chrome replacements. Complete thin film sulfuric acid anodize demonstration. Continue cadmium plating alternatives evaluations. Initiate alternative sealants. Conduct demonstration of F404 drive shaft cleaning.</p><p>FY 05: Complete Non-chromated Post Treatments. Continue cadmium plating alternatives. Continue alternative sealants. Initiate demonstration for alternative solvents. Initiate radome repair task. Initiate ultra chem alternative to hard chrome.</p></div>							FY 03	FY 04	FY 05	Environmental Effects of Underwater Ordnance		0.000	0.845	1.072	RDT&E Articles Quantity							FY 03	FY 04	FY 05	Aviation Maintenance & Support		0.000	1.277	1.292	RDT&E Articles Quantity				
		FY 03	FY 04	FY 05																														
Environmental Effects of Underwater Ordnance		0.000	0.845	1.072																														
RDT&E Articles Quantity																																		
		FY 03	FY 04	FY 05																														
Aviation Maintenance & Support		0.000	1.277	1.292																														
RDT&E Articles Quantity																																		

R-1 SHOPPING LIST - Line No. 62

UNCLASSIFIED

**UNCLASSIFIED**

**CLASSIFICATION:**

EXHIBIT R-2a, RDT&E Project Justification			DATE:	
			February 2004	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME		
RDT&E, N / BA-4	PE0603721N / Environmental Protection	0817 / Pollution Abatement		
C. PROGRAM CHANGE SUMMARY:				
Funding:	FY 2003	FY 2004	FY 2005	
Previous President's Budget: (FY 04 Pres Controls)	10.286	4.077	6.750	
Current BES/President's Budget:	10.195	4.027	6.885	
Total Adjustments	-0.091	-0.050	0.135	
Summary of Adjustments				
Other program adjustments	-0.091	-0.050	0.135	
Subtotal	-0.091	-0.050	0.135	
Schedule:				
Not applicable.				
Technical:				
Not applicable.				

R-1 SHOPPING LIST - Line No. 62

**UNCLASSIFIED**

**Exhibit R-2a, RD TEN Project Justification**  
(Exhibit R-2a, page 22 of 25)

# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: <b>February 2004</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>		PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection		PROJECT NUMBER AND NAME 0817 / Pollution Abatement			

  

**D. OTHER PROGRAM FUNDING SUMMARY:**

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
<p>P-1 Procurement Line Item No. &amp; Name. Not Applicable.  C-1 MILCON Project No. &amp; Name. Not Applicable.  (U) RELATED RDT&amp;E: This project transitions shoreside pollution abatement technologies from two Navy Science and Technology programs and the Strategic Environmental Research and Development Program (SERDP). Project funding is leveraged by transitioning technologies to the Environmental Security Technology Certification Program (ESTCP) for final certification and by providing funding for Navy participation in ESTCP projects. Execution of this project is coordinated with related Marine Corps, Army, Air Force and NASA programs through direct coordination and active participation in the Joint Group for Pollution Prevention (JG-PP).</p> <p>(U) PE 0602233N, Readiness, Training, and Environmental Quality Technology Development  (U) PE 0603712N, Environmental Quality, Logistics Advanced Technology Demonstrations  (U) PE 0603716D, Strategic Environmental Research &amp; Development Program (SERDP)  (U) PE 0603851D, Environmental Security Technology Certification Program (ESTCP)</p>									

  

**E. ACQUISITION STRATEGY: \***

(U) This project is categorized as Non-ACAT (Non Acquisition). The project delivers a broad spectrum of products that require a variety of acquisition processes to implement. Equipment products for Naval stations and other mission funded activities costing over 100K are often procured centrally through the Navy Pollution Prevention Equipment Program (PPEP) where as equipment products for Shipyards and other Navy Working Capital Fund (NWCFF) activities costing over 100K are procured through their Capital Purchases Program (CPP). For both types of activities, equipment products costing less than 100K, and process changes not requiring the purchase of new equipment such as consumable material or product substitutions, are funded through the activity's operating budgets. Occasionally there is a technology that must be implemented as a specialized facility. These are acquired through the Military Construction (MCON).

  

**F. MAJOR PERFORMERS: \*\***

Major performers include Naval Facilities Engineering Service Center, Port Hueneme, CA; SPAWAR Systems Center, San Diego, CA; Naval Surface Warfare Center, Carderock Division, MD; Naval Surface Warfare Center, Indian Head Division, MD; and Naval Air Warfare Center, Aircraft Division, Patuxant River, MD.

  

\* Not required for Budget Activities 1,2,3, and 6  
\*\* Required for DON and OSD submit only.

R-1 SHOPPING LIST - Line No. 62

UNCLASSIFIED

# UNCLASSIFIED

## CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: February 2004				
APPROPRIATION/BUDGET ACTIVITY RDT&E, N / BA-4			PROGRAM ELEMENT PE0603721N / Environmental Protection			PROJECT NUMBER AND NAME 0817 / Pollution Abatement						
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
Ship Maint/Repair/&Pierside Support	WR/PO	NSWC/CD	10.582	0.741	varies	0.050	varies	0.188	varies	Continuing	Continuing	N/A
Ship Maint/Repair/&Pierside Support	WR/PO	NFESC	5.040	0.204	varies	0.082	varies	0.415	varies	Continuing	Continuing	N/A
Ordnance Testing/Manufact/Disp	WR/PO	NSWC/IH	15.666	1.160	varies	0.285	varies	0.000	varies	Continuing	Continuing	N/A
Ordnance Testing/Manufact/Disp	WR/PO	NFESC	0.514	0.514	varies	0.000	varies	0.481	varies	Continuing	Continuing	
Industrial Operations & Maintenance	WR/PO	NFESC	16.558	2.598	varies	0.878	varies	1.804	varies	Continuing	Continuing	N/A
Industrial Operations & Maintenance	WR/PO	SSC/SD	7.576	0.000	varies	0.000	varies	0.000	varies	Continuing	Continuing	N/A
Installation Restoration	WR/PO	NFESC	1.013	1.013	varies	0.000	varies	0.000	varies	Continuing	Continuing	N/A
Coastal Contam/Contaminated Sed	WR/PO	SSC/SD	1.137	1.137	varies	0.378	varies	1.003	varies	Continuing	Continuing	N/A
Coastal Contam/Contaminated Sed	WR/PO	NFESC	1.576	1.576	varies	0.000	varies	0.000	varies	Continuing	Continuing	N/A
Emissions Detection/Monitoring	WR/PO	SSC/SD	0.705	0.705	varies	0.207	varies	0.000	varies	Continuing	Continuing	N/A
Emissions Detection/Monitoring	WR/PO	NFESC	0.547	0.547	varies	0.000	varies	0.630	varies	Continuing	Continuing	N/A
Env. Effects of Underwater UXO	WR/PO	NFESC		0.000	varies	0.645	varies	0.722	varies	Continuing	Continuing	N/A
Env. Effects of Underwater UXO	WR/PO	SSC/SD		0.000	varies	0.200	varies	0.350	varies	Continuing	Continuing	N/A
Aviation Maintenance and Support	WR/PO	NSWC PAX		0.000	varies	0.845	varies	1.292	varies	Continuing	Continuing	N/A
Aviation Maintenance and Support	WR/PO	NFESC		0.000	varies	0.457	varies	0.000	varies	Continuing	Continuing	N/A
Subtotal Product Development			60.914	10.195		4.027		6.885				
Remarks: Performing Activities: Naval Surface Warfare Center, Carderock Division (NSWC/CD), Naval Facilities Engineering Service Center (NFESC), Naval Surface Warfare Center, Indian Head Division (NSWC/IH), Space and Warfare Systems Center, San Diego (SSC/SC), Naval Research Laboratory (NRL). Total Prior Years Cost: Summation starts with FY80. Subtotal does not include performing activities from prior years that are no longer performing activities. Award Dates: About 55% of the project is executed via contracts awarded by the performing activities.												
Development Support											0.000	
Software Development											0.000	
Training Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks: Included in Product Development costs.												

R-1 SHOPPING LIST - Line No. 62

UNCLASSIFIED

Exhibit R-3, Project Cost Analysis  
(Exhibit R-3, page 24 of 25)



# UNCLASSIFIED

## CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)									DATE: <b>February 2004</b>			
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>			PROGRAM ELEMENT PE0603721N / Environmental Protection			PROJECT NUMBER AND NAME 0817 / Pollution Abatement						
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	
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	
Labor (Research Personnel)											0.000	
SBIR Assessment											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks: Not applicable.												
Total Cost			60.914	10.195		4.027		6.885		0.000		
Remarks:												

R-1 SHOPPING LIST - Line No. 62

UNCLASSIFIED

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