EXHIBIT R-2, RDT&E Budget Item Justification							DATE: February 2006	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4**					R-1 ITEM NOMENCLATURE PE0603721N / Environmental Protection			
COST ($ in Millions)	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	
Total PE Cost	**27.847**	**27.547**	**20.271**	**21.301**	**21.555**	**22.192**	**22.665**	
Shipboard Waste Management / 0401	**16.675**	**8.873**	**7.079**	**7.706**	**8.089**	**8.146**	**8.611**	
Environmental Compliance / 2210****	**0.745**	**0.828**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	
Pollution Abatement / 0817	**6.803**	**7.478**	**8.929**	**9.276**	**9.110**	**9.646**	**9.603**	
Marine Mammal Detection & Mitigation / 9204*	**2.028**	**4.468**	**4.263**	**4.319**	**4.356**	**4.400**	**4.451**	
Anoxia Research In Puget Sound / 9536**	**1.353**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	
COMNAVMAR Invasive Species Demonstration Program / 9537***	**0.243**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	
Congressional Adds / 9999 *****	**0.000**	**5.900**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(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 and evaluates processes, 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-4 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 the Navy to develop and validate technologies to enable Navy facilities to comply with environmental laws, regulations, and policies in a cost-effective manner.

* Project 9204 is a Congressional add in FY05 for an Integrated Marine Mammal Monitoring and Protection System. It becomes a budgeted project in FY06.

** Project 9536 Funds used to determine the causes of increasingly severe anoxic and hypoxic conditions in the Hood Canal in Washington State, the site of the Bangor Submarine Base.

*** Project 9537 Funds, used to research the invasion of foreign species (brown snake) on overseas U. S. territories.

**** In FY07, the requirements and funding of Project 2210 are combined with Project 0817

***** Project 9999 - Congressional Adds $5.900M

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: February 2006
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	R-1 Item Nomenclature: PE0603721N / Environmental Protection

B. PROGRAM CHANGE SUMMARY:

Funding:	FY 2005	FY 2006	FY 2007
Previous President's Budget: (FY 06 Pres Controls)	28.021	21.977	22.373
Current BES/President's Budget:	27.847	27.547	20.271
Total Adjustments	-0.174	5.570	-2.102
Summary of Adjustments			
FY05 SBIR Tax	-0.133		
Congressional Undistributed Reductions	-0.005	-0.229	
Department of Energy Transfer	-0.013		
Program Adjustments			-2.195
Execution Adjustments	-0.023		
Rate Adjustements			0.093
Revised Economic Assumptions		-0.101	
Congressional Add		5.900	
Subtotal	-0.174	5.570	-2.102

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2006	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection				PROJECT NUMBER AND NAME 0401 / Shipboard Waste Management			
COST ($ in Millions)	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	
Project Cost	**16.675**	**8.873**	**7.079**	**7.706**	**8.089**	**8.146**	**8.611**	
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., hull antifouling and access to environmental data for planning Fleet operations and exercises that pose significant operational and port entry threats to the Navy Fleet.

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2006
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE0603721N / Environmental Protection	0401 / Shipboard Waste Management

B. Accomplishments/Planned Program

	FY 05	FY 06	FY 07
Ozone Depleting Substances	1.000	0.100	0.000
RDT&E Articles Quantity			

FY 05: (U) Continued development of solutions for lubrication and engineering design problems in surface ship CFC-114 air-conditioning plant conversion designs.

FY 06: (U) Complete development of solutions for lubrication and engineering design problems in surface ship CFC-114 air-conditioning plant conversion designs.

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2006
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE0603721N / Environmental Protection	0401 / Shipboard Waste Management

B. Accomplishments/Planned Program

	FY 05	FY 06	FY 07
Integrated Liquid Wastes	5.600	5.300	5.100
RDT&E Articles Quantity			

FY 05: (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: continued development of MPCD treatment systems; continued development of shipboard Oil Pollution Abatement System improvements; continued evaluation of commercial non-oily wastewater treatment systems.

FY 06: (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; complete development of shipboard Oil Pollution Abatement System improvements; continue evaluation of commercial non-oily wastewater treatment systems.

FY 07: (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 and evaluation of MPCD treatment systems, technologies, and procedures. Continue evaluation of commercial non-oily wastewater treatment systems.

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2006
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE0603721N / Environmental Protection	0401 / Shipboard Waste Management

B. Accomplishments/Planned Program (Cont.)

	FY 05	FY 06	FY 07
Solid Wastes	0.500	0.050	0.000
RDT&E Articles Quantity			

FY 05: (U) Continue evaluation of commercial thermal destruction systems for shipboard solid wastes.

FY 06: (U) Complete evaluation of commercial thermal destruction systems for shipboard solid wastes.

	FY 05	FY 06	FY 07
Hazardous and Other Major Ship Wastes	9.575	3.423	1.979
RDT&E Articles Quantity			

FY 05: (U) Continued shipboard hazardous materials substitution and elimination process and continued test and evaluation of pollution-prevention equipment aboard surface ships and submarines. Continued development of marine mammals ship database tracking system: continued demonstration of acoustic modelling; transition to Project 9204 in FY06. Continued development and testing of new low/no-copper underwater hull antifouling coatings. Continued development of underwater hull cleaning system. Continued development of Environmental Information Management System (EIMS).

FY 06: (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 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).

FY 07: (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 and testing of new low/no-copper underwater hull antifouling coatings. Complete development of underwater hull cleaning system. Complete development of Environmental Information Management System (EIMS).

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2006**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE0603721N / Environmental Protection	0401 / Shipboard Waste Management

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost

(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)

D. ACQUISITION STRATEGY:

(U) RDT&E Contracts are Competitive Procurements.

Exhibit R-3 Cost Analysis (page 1)								DATE: February 2006						
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		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 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 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	24.750			0.600	10/04	0.000		0.000		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										11.850	11.850
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									Cont	Cont	N/A
Ancillary Hardware Development	Various	Misc. Contracts	18.384			0.100	Various	0.365		0.300		N/A	N/A	N/A
Primary Hardware Development	C/CPFF	Oceaneering				1.000							1.000	
Ship Integration													0.000	
Ship Suitability													0.000	
Systems Engineering	C/CPFF	John J. McMullen & Son	4.487			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			88.314	0.000		1.700		0.365		0.300		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	8.038			1.800	10/04	1.000		0.000		0.000	10.838	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			8.038	0.000		1.800		1.000		0.000		0.000	10.838	
Remarks:														

Exhibit R-3 Cost Analysis (page 2) | DATE: **February 2006**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-4** | 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 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NSWCCD, Bethesda, MD	141.524			6.500	10/04	4.000		4.000		Cont	Cont	N/A
Developmental Test & Evaluation	WR	NRL,Wash,DC	27.982			0.700	10/04	0.500		0.400		Cont	Cont	N/A
Developmental Test & Evaluation	WR	SPAWARSYSCEN,SD,CA	10.070			1.000	10/04	0.500		0.200		Cont	Cont	N/A
Process Control Engineering	C/CPFF	GSA/BAH, Arlington, VA	12.322									Cont	Cont	N/A
Developmental Test & Evaluation	WR	Misc. Govt Labs	22.732			0.100	Various	0.000		0.000		Cont	Cont	N/A
Developmental Test & Evaluation	C/CPFF	Geo-Centers, Inc,Bos.,MA	14.251			0.400	04/05	0.600		0.500		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	12.052			0.222	Various	0.388		0.159		Cont	Cont	N/A
Process Control Engineering	C/CPFF	M. Rosenblatt & Sons	0.000			1.500	04/05	1.500		1.500			3.000	
Developmental Test & Evaluation	PD	ONR, Arlington, VA	0.000			0.400	03/05						0.400	
Developmental Test & Evaluation	WR	Naval Postgraduate School	0.000			1.800	03/05						1.800	
Process Control Engineering	MIPR	EPA, Hdqtrs				0.400	01/05						0.400	
GFE													0.000	
Award Fees													0.000	N/A
Subtotal T&E			252.933	0.000		13.022		7.488		6.759		0.000	Cont	N/A
Remarks:														
Contractor Engineering Support													0.000	
Government Engineering Support													0.000	
Program Management Support													0.000	
Travel			0.210			0.020		0.020		0.020			Cont	
Labor (Research Personnel)													0.000	
SBIR Assessment						0.133							0.133	
Subtotal Management			0.210	0.000		0.153		0.020		0.020		0.000	Cont	
Remarks:														
Total Cost			349.495	0.000		16.675		8.873		7.079		Cont	Cont	Cont
Remarks:														

EXHIBIT R4, Schedule Profile			DATE: **February 2006**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection	PROJECT NUMBER AND NAME 0401 / Shipboard Waste Management	

Fiscal Year	2005				2006				2007				2008				2009				2010				2011			
	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																												
Lubrication and Engineering Problems for HFC-236fa Air-Conditioning Plants	■	■	■	■	■																							
Integrated Liquid Wastes																												
Uniform National Discharge Standards (UNDS) Rulemaking	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Develop & Evaluate Marine Pollution Control Device Systems & Technologies	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Oil Pollution Abatement (OPA) System Improvements	■	■	■	■	■	■	■	■																				
Evaluate Commercial Non-Oily Wastewater Treatment Systems	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■								
Solid Wastes																												
Evaluate Commercial Thermal Destruction Systems	■	■	■	■	■	■	■	■																				
Hazardous and Other Major Ship Wastes																												
Hazardous Materials and Pollution Prevention	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Protected Marine Animals	■	■	■	■																								
Low/No-Copper Hull Antifouling Coatings	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■								
Underwater Hull Cleaning System	■	■	■	■	■	■	■	■	■																			
Environmental Information Management System (EIMS)	■	■	■	■	■	■	■	■	■																			

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2006**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603721N, ENVIRONMENTAL PROTECTION				PROJECT NUMBER AND NAME 2210, ENVIRONMENTAL COMPLIANCE			
COST ($ in Millions)		FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
2210 ENVIRONMENTAL COMPLIANCE		**0.745**	**0.828**					
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 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. Funding is realigned from RDT&E 2210 to 0817 in beginning in Fiscal Year 2007.

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2006
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /	0603721N, ENVIRONMENTAL PROTECTION	2210, ENVIRONMENTAL COMPLIANCE

B. Accomplishments/Planned Program

		FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost		0.507	0.552	

Engine Emissions Technology:
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, low emissions combustor technology, aircraft source noise modeling and mitigation technologies.

		FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost		0.238	0.276	

Aircraft Hazardous Materials and Shipboard Waste Reduction:
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 and composite repair kits, environmentally compliant cleaners, coatings and coatings maintenance technologies repair kits.

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2006
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603721N, ENVIRONMENTAL PROTECTION	2210, ENVIRONMENTAL COMPLIANCE

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost
PE 0603851D (Environmental Security Technology Certification Program)	0.75								0.75

D. 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.

Exhibit R-3 Cost Analysis (page 1)								DATE: February 2006				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603721N, ENVIRONMENTAL PROTECTION			PROJECT NUMBER AND NAME 2210, ENVIRONMENTAL COMPLIANCE						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development											0.000	
Ancillary Hardware Development											0.000	
Aircraft Integration											0.000	
Ship Integration											0.000	
Ship Suitability											0.000	
Systems Engineering	TBD	NAWCAD, Pax River, MD	0.405	0.507	10/04	0.552	10/05				1.477	
Training Development											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			0.405	0.507		0.552		0.000		0.000	1.477	
Remarks:												
Development Support											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:												

Exhibit R-3 Cost Analysis (page 2)								DATE: February 2006				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT 0603721N, ENVIRONMENTAL PROTECTION			PROJECT NUMBER AND NAME 2210, ENVIRONMENTAL COMPLIANCE						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 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	WX	NAWCAD, Patuxent River MD	0.338	0.238	10/05	0.276	10/05				0.852	
Travel											0.000	
Transportation											0.000	
SBIR Assessment											0.000	
Subtotal Management			0.338	0.238		0.276		0.000		0.000	0.852	
Remarks:												
Total Cost			0.743	0.745		0.828		0.000		0.000	2.316	
Remarks:												

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2006	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection				PROJECT NUMBER AND NAME 0817 / Pollution Abatement			
COST ($ in Millions)	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	
Project Cost	**6.803**	**7.478**	**8.929**	**9.276**	**9.110**	**9.646**	**9.603**	
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) Inherent to the realization of the vision outlined in Sea Power 21 are certain environmental consequences that will, to a lesser or greater degree, impact on the Navy's ability to fully achieve the strategy outlined in the Navy Capability Pillars (NCP) SEA SHIELD, SEA STRIKE, SEA BASING and FORCEnet and the supporting initiatives of SEA WARRIOR, SEA TRIAL and SEA ENTERPRISE. Readiness and training are primary considerations for determining whether any fighting force is at its peak proficiency. The ability to train our forces in a realistic environment is paramount. Today's reality requires training and operating within environmental constraints (national and international laws and agreements), and searching for alternatives to comply with and alleviate those constraints. Moreover, as we develop new systems and technologies in support of Sea Power 21, the Navy must anticipate potential environmental regulations which, while not currently an issue, could in the future adversely impact our ability to project and sustain our forces at home and abroad.

This program identifies pervasive Navy shoreside environmental requirements and develops and validates information, new processes, and technologies that address requirements that pose significant impact on Naval shore activities in complying with environmental laws, regulations, orders, and policies. The goal of the program is to maximize opportunities for significant cost savings while minimizing personnel liabilities, operational costs, and regulatory oversight while preserving or enhancing the ability of Naval shore activities to accomplish their required missions and functions in support of the Navy's transformational strategy. Program investments supports 4 of 5 Environmental Enabling Capabilities (EEC-2 though 5) that are required to meet the objectives of Sea Power 21 as detailed in the POM06 Integrated Navy Environmental Readiness Capability Assessment for S&T and DT&E.

(U) EEC-2 MAXIMIZE TRAINING AND TESTING RANGE REQUIREMENTS WITHIN ENVIRONMENTAL CONSTRAINTS

(U) This capability addresses environmental impacts and restrictions at Navy land and sea ranges, including munitions testing and manufacturing, to ensure Navy ranges are available to conduct required training and testing operations for the Fleet. Investments in EEC-2 provide validated knowledge, models, and process to mitigate environmental impacts, restrictions, and costs at Navy training and test range to maximize the availability and utilization of the ranges. The results support operational readiness by providing the tools and technologies necessary for sustaining and managing Navy land and sea ranges related to UXO and munitions, encroachment, air quality, airborne noise, water quality, and wetlands. Capabilities gained include the ability to assess and determine the risks from underwater UXO, the evaluation and prioritization ordnance contaminated sites for evaluation in environmental programs, and the implementation of range specific best management practices by evaluating and modeling available process, procedures, and technologies.

Funding was realigned from RDT&E 2210 to 0817 beginning in FY07.

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2006**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE0603721N / Environmental Protection	0817 / Pollution Abatement

(U) EEC-3 PLATFORM MAINTENANCE AND REPAIR WITH MINIMAL ENVIRONMENTAL FOOTPRINT

(U) This capability focuses on minimizing or to eliminate environmental impact related to Navy and Marine Corps weapon system O, I, and D level repair and maintenance operations. Investments in EEC-3 provide valid knowledge, models, process, and technologies to minimize regulated emissions, discharges and hazardous material usage during the repair and maintenance of ships, submarines, and surface/sub-surface vehicles (EEC-3a) and aircraft and air vehicles (EEC-3b). The program supports Fleet operational readiness and Navy acquisition communities by investing in information to understand emerging environmental requirements and to develop innovative processes and technologies that result in savings while reducing the fleet environmental constraints related to platform maintenance. Capabilities and benefits gained include, but are not limited to, the reduction in the usage of heavy metals used in metal finishing (chromium and cadmium), reduced hazardous air pollutant (HAP) emissions, and the development of best management practices and tools to minimize the use of hazardous materials and the generation of hazardous wastes associated with maintaining and repairing ships, submarines and aircraft and unmanned vehicles. Results of program investments will be leveraged across weapon system and platform acquisition to ensure continued reduction in lifecycle costs and long-term environmental compliance burdens to the Fleet.

(U) EEC-4. SUPPORT SHORE READINESS WITHIN ENVIRONMENTAL CONSTRAINTS

(U) Naval shore establishment requires the capability to operate and maintain facilities and provide waterfront (ship-to-shore interface) and airfield services to the fleet while complying with applicable environmental regulations and minimizing environmental impacts and costs. The program invests in knowledge and innovative processes and technologies that maximize infrastructure and operational costs while minimizing regulated emissions, discharges and hazardous material usage from ship (waterfront) and aviation operations. Capabilities and benefits gained under EEC-4 include reduced costs associated with wastewater treatment, elimination/reduction in the use of HAPs/ODS/VOCs and the associated reporting requirements, reduced hazardous waste and disposal costs, and improved storm water management.

((U) EEC-5. COST-EFFECTIVE MANAGEMENT OF ENVIRONMENTAL REGULATORY REQUIREMENTS

(U) The environmental compliance regulations require base managers to permit, monitor and report on many processes associated with weapon system and platform operations. Naval shore environmental managers require the capability to efficiently and costs effectively manage these compliance requirements. Under EEC-5, the program invests in improved data collection, methods, and models to assess environmental impacts and ecological risk assessments of Naval operations on harbors, US waterways, and surrounding communities. Benefits include gaining standardized technical environmental management improvements/techniques related to source control, assessment, and monitoring. EEC-5 also provides validated knowledge, models, processes and technologies to improve environmental monitoring and reporting, and to reduce the cost of compliance with regulations applicable to coastal contamination and contaminated sediments.

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2006
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE0603721N / Environmental Protection	0817 / Pollution Abatement

B. Accomplishments/Planned Program - EEC-2 Maximize Training and Testing Range Requirements Within Environmental Constraints

	FY 05	FY 06	FY 07
Maximize Training and Testing Requirements Within Environmental Constraints	1.578	1.687	2.359
RDT&E Articles Quantity			

FY 05: The tasks in this EEC support the requirements for addressing the transport, fate, and effects of underwater UXO needed to support scientifically valid decisions. Toxicity and Degradation Study of Ordnance in Marine Sediments and Waters will allow determine the applicability of existing fresh-water data and allow for the development of a comprehensive data set regarding the degradation rates, adsorption coefficients and solubility of munitions constituents in marine water and sediments. Localized corrosion tests will determine the corrosion scenarios associated with ordnance underwater. UXO Transport Evaluations will determine the physical transport mechanisms associated with underwater ordnance items for use in developing an Underwater UXO Risk Assessment Model. Development of a comprehensive data set on toxicity of munitions constituents to regulatory acceptable marine species will define potential bioaccumulation, cellular level impacts , and trophic transfer. The toxicity analysis of TNT in water and sediment exposures and the toxicity of RDX and HMX in water exposures will be defined. The confined burn facility open burning replacement project will provide an environmentally acceptable alternative for implementation at Navy/DOD open burning sites. The analysis of the long term disposition of seafloor cables will identify cable impacts to the marine environments aiding the sustainment and management of Navy underwater ranges and support new underwater surveillance systems that require the laying of seafloor hardware and cables. Development of a range residue management tool will provide range managers with the capability to project range residue management and manage processing costs based on what if scenarios allowing managers to implement range specific best management practices. The development of the dataset necessary to calculate ecological soil screen levels (Eco-SSL) for munitions and explosive related chemicals will allow the Navy to better asses the potential for adverse effects at sites where soil contamination due to munitions or explosive constituents is a concern.

FY06: Continue providing validated knowledge, models, and process to mitigate environmental impacts, restrictions, and costs at Navy training and test range to maximize the availability and utilization of the ranges. Continuing efforts include the analysis into the environmental effects of underwater UXO in order to give the Navy the ability to assess and determine risks from underwater UXO and development of range residue managemtne tools ensure continued operation at Navy testing and training ranges.

FY07: Continue providing validated knowledge, models, and process to mitigate environmental impacts, restrictions, and costs at Navy training and test range to maximize the availability and utilization of the ranges.

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B. Accomplishments/Planned Program (Cont.) - EEC-3a Platform Repair & Maintenance with Minimal Environmental Impact - Ships

	FY 05	FY 06	FY 07
Ship Maintenance	1.208	1.286	1.521
RDT&E Articles Quantity			

FY 05: Continue providing new systems and processes to minimize regulated emissions, discharges and hazardous material usage resulting from the repair and maintenance of ships and submarines. Liquid crystal polymer (LCP) alternative for metal working (cutting) fluid will demonstrate the environmental and economic advantages of using LCP as a metal working fluid in place of straight oil or conventional oil-water emulsions by reducing the fluid procurement and disposal costs and lowering the operation and maintenance costs. Analysis on acid recycle systems for pipe flushing wastes will identify technology alternatives and allow selection of a candidate system as a pierside integrated system to recycle and reuse of acid/heavy metal wastewater generated in submarine and surface ship pipe flushing operations and submarine missile tube cleaning. The development of an automated convergent spray process for non-skid coatings using 100% solid non-skid coating system will eliminate volatile organic compounds emissions during the application of non-skid on Navy vessels. Dry dock best management practices tool will assist naval shipyards, naval stations, and submarine bases in meeting the copper discharge standards for NPDES and Stormwater discharges. Alternative solvents demonstrations for ship maintenance operations will be conducted to allow development of a decision tool to standardize the approach to HM avoidance across ship and shore activities and identify alternatives for NAVSEA targeted chemicals.

FY06: Continue providing new systems and processes to minimize regulated emissions, discharges and hazardous material usage resulting from the repair and maintenance of ships and submarines. Development of dry dock best management practices and decision selection tool assisting naval shipyards, stations and bases in meeting the copper discharge standards will continue. Alternative solvents demonstrations for ship maintenance operations and identification of alternatives for NAVSEA targeted chemicals will continute. Acid recycle system for shipboard seawater heat exchanger pipe flushing wasteswill be completed. Convergent spray process for non-skid coatings systems will be completed.

FY07: Continue providing new systems and processes to minimize regulated emissions, discharges and hazardous material usage resulting from the repair and maintenance of ships and submarines.

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B. Accomplishments/Planned Program (Cont.) - EEC-3b Platform Repair & Maintenance with Minimal Environmental Impact - Aviation

	FY 05	FY 06	FY 07
Aviation Maintenance	1.274	1.460	2.661
RDT&E Articles Quantity			

FY 05: Tasks included on-going shoreside efforts transferred from Project 2210 to Project 0817. Continued and completed legacy 2210 aircraft maintenance projects. Continue providing new systems and processes to minimize regulated emissions, discharges and hazardous material usage resulting from the repair and maintenance of aircraft. Material and component testing will validate high velocity oxygen fuel (HVOF) thermal spray coatings as a cost-effective and technologically superior alternative to the current hard chrome plating used on helicopter dynamic components. The use of HVOF coatings will result a significant reduction in worker exposure to carcinogenic hexavalent chromium and increase service life of components. Thin film sulfuric acid anodizing (TFSAA) with non-chromated sealers as an alternative to chrome acid anodizing will be evaluated to help the Navy meet the requirements of EO 13148 that requires a 50% reduction in use of hexavalent chromium by 31 Dec. 2006. Zinc-nickel plating will be demonstrated as an acceptable replacement for cadmium plated repairs as a touch-up applications for high-strength steels. This results in the reduction hexavalent chrome used by the Navy. Advanced sealant technologies to replace chromated sealants on static wicks, antennas, floorboards, and windscreen sills with non-hazardous sealants and gaskets will be demonstrated. Validation of a PMB technology to remove coke deposits from the F404 engine drive shaft will result in the elimination the use of MIL-C-85704, a hazardous air pollutant, used to chemical strip the coke deposits, thereby minimizing a chemical waste stream, reducing record keeping and reducing hazardous material usage. The demonstration of a sustainable integrated maintenance concept facility that is specifically designed for containing will validate a method of controlling hazardous materials/wastes generated from corrosion control maintenance. A suitable substitutes for polystyrene/polyester resins and chemical strippers used during repairs to radome will be demonstrated. A demonstration and validation of an autonomous process control system that will filter, monitor, add/change solution and remotely monitor tank solutions in a rinse bath used cleaning shops that will result in an increase in environmental compliance for waste stream reduction while improving product quality. A fuel leak detection project will eliminate the use of Freon, a hazardous ODS, to detect fuel leaks on P-3s.

FY 06: Continue providing new systems and processes to minimize regulated emissions, discharges and hazardous material usage resulting from the repair and maintenance of aircraft. Zinc-nickel plating altenative for cadmium plated repairs demonstration will be concluding. The demonstration of suitable substitutes for polystyrene/polyester resins and chemical strippers used during repairs to radome will be completed.

FY 07: Continue providing new systems and processes to minimize regulated emissions, discharges and hazardous material usage resulting from the repair and maintenance of aircraft. Beginning in FY07 the requirements under Project 2210 requirements were rebaselined to Project 0817, Pollution Abatement Ashore. These projects support development and implementation of technologies which will lead to environmentally safe naval aviation operations and support; compliance with international, federal, state, and local regulation and policies; reduction of increasing compliance costs and personal liability; and enhancement of naval aviation mission readiness and effectiveness.

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2006
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
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B. Accomplishments/Planned Program (Cont.) - EEC-4 Support Shore Readiness within Environmental Constraints

	FY 05	FY 06	FY 07
Support Shore Readiness within Environmental Constraints	1.142	1.499	1.582
RDT&E Articles Quantity			

FY 05: Continue providing new systems and processes to minimize regulated emissions, discharges and hazardous material usage resulting specifically from waterfront support (ship-to-shore interface), aviation support, and other base operations. The validation of manufacture's claims that their products stabilized lead in removed lead based paint (LBP) thereby preventing leaching when landfilled would allow the Navy to dispose of the removed LBP as a non-hazardous waste. The validation that the organics found in solvent based paints, used aboard Navy vessels, can easily be degraded by microorganisms will lead to a significant cost savings and reduction of off-site hazardous waste transfer and disposal. The demonstration and validation of Improved BMPs- Stormwater Treatment Technology will enhance the management of stormwater run-off and reduce cost while addressing Navy unique requirements ensuring compliance with stormwater discharge regulations. The development and demonstration of a zinc removal filter for treating collected Compwater will reduce disposal and operation costs and preserve the capability to refuel Naval vessels in port. Optimization of oil-change intervals for DOD vehicles by developing onsite condition monitoring system and implementing better petroleum, oil, and lubricant (POL) products will reduce HW generation and storage and disposal liabilities, reduce labor, material (oil & filter), and disposal costs, increase engine life by ensuring better engine oil quality, predict engine condition and repairs, and improve vehicle reliability and readiness. The identification and qualification of alternative "state of the art" green designer solvents for use in Navy maintenance activity will allow the replacement of cleaners that contain VOCs and HAPs. This will eliminate the use of chemical that are required to be reported under TRI reporting requirements, and minimize costs associated with cleaning operations by reducing environmental compliance costs. The validation of NoFoam systems for AFFF fire suppression tests will eliminate the generation of AFFF wastewater which is of an environmental concern because of high biological oxygen demand (BOD), chemical oxygen demand (COD), extreme foaming action, and which contains perofluro-octanyl sulfonate (a toxic bioaccumulating compound that does not readily biodegrade). The development of a wastewater treatment system to collect and treat the waste stream for vertical launch missile tubes will improve submarine readiness while reducing the release of hazardous wastes to the environment. An investigation into the feasibility of the of onshore treatment of ballast water to control the introduction of aquatic invasive species will provide an assessment tool to manage invasive species and minimize open-water ballast water exchanges.

FY06: Continue providing new systems and processes to minimize regulated emissions, discharges and hazardous material usage resulting specifically from waterfront support, aviation support, and other base operations. Continue selected demonstrations of alternative solvents for industrial operations. Continue demonstration of NoFoam system for fire fighting pumper trucks. Initiate effort to determine strategy for use of compliant diesel engines.

FY07: Continue providing new systems and processes to minimize regulated emissions, discharges and hazardous material usage resulting specifically from waterfront support, aviation support, and other base operations. Efficiencies related to aligning the program to the priorities of SEAPOWER 21 and focusing on addressing the fleets high priority needs have resulted in cost saving starting in FY07 and investments in process related to general base operation that are not associated with waterfront or aviation support is ended.

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2006
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B. Accomplishments/Planned Program (Cont.) - EEC-5 Cost-Effective Management of Environmental Regulatory Requirements

	FY 05	FY 06	FY 07
Coastal Contamination and Contaminated Sediments	1.601	1.546	0.806
RDT&E Articles Quantity			

FY 05: Continue providing validated knowledge, models, processes and system to improve environmental monitoring and reporting, and reduce the cost of compliance with regulations applicable to coastal contamination and contaminated sediments. The development of a Navy TMDL technical strategy will provide Navy shore commanders and activities, along with the Navy Watershed/TMDL Workgroup, a guidance document and a case study that establishes a technical approach for developing Total Maximum Daily Loads (TMDLs) in a cost-effective and scientifically defensible manner allowing better decision making by managers. Development NPS runoff export coefficients for Navy industrial facilities and ranges allow Navy facilities to easily assess the magnitude of their NPS pollutant loadings and the impact on receiving water bodies. This would help the Navy facilities in their negotiation with regulators regarding stormwater compliance and developing their TMDLs. The identification, review, and demonstration of sediment transport methods and tools that assess physical stability and natural recovery potential at contaminated sediment sites will provide a defined framework that can be used by program mangers an their technical staff to clearly understand the kind of measurements needed at sites and how those measurements can be used to develop management decisions at contaminated sediment sites. The information and data produced by this project will facilitate the identification and use of appropriate and cost-effective technologies and methods for characterizing the behavior of sediment-bound contaminants. This in turn will result in more complete site characterizations, improved evaluation and selection of sediment remedial alternatives in the FS, and potentially more cost-effective cleanups. The results will also facilitate the implementation of more effective long-term monitoring programs for sediment sites. The development of an automated process of capturing radar imagery through the BirdRad unit and transferring the near real-time bird sightings against a backdrop of historical NEXRAD data, base topography, facility maps, and available bird migration patterns aid natural resource managers in monitoring bird activities in and around airfields reducing the cost and saving lives resulting from aircraft striking birds.

FY 06: Continue providing validated knowledge, models, processes and system to improve environmental monitoring and reporting, and reduce the cost of compliance with regulations applicable to coastal contamination and contaminated sediments. Continue developing containment and monitoring strategies for contaminated sediments. Continue effort developing non-point source runoff coefficients. Initiate contaminant mobility for in situ treatment technologies. Demonstrate the benefits of automated reporting of toxic emissions. Initiate task for improves sensors for environmental monitoring.

FY07: Continue providing validated knowledge, models, processes and system to improve environmental monitoring and reporting, an to reduce the cost of compliance with regulations applicable to coastal contamination and contaminated sediments. Efficiencies related to aligning the program to the priorities of SEAPOWER 21 and focusing on addressing the fleets high priority needs have resulted in cost saving starting in FY07 and investments in assessment and risk based management of contaminated sediments not associated with range sustainability is concluded in FY07.

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2006
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
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C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost

(U) P-1 Procurement Line Item No. & Name. Not Applicable.
(U) C-1 MILCON Project No. & Name. Not Applicable.
(U) RELATED RDT&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).

(U) PE 0602233N, Readiness, Training, and Environmental Quality Technology Development
(U) PE 0603716D, Strategic Environmental Research & Development Program (SERDP)
(U) PE 0603851D, Environmental Security Technology Certification Program (ESTCP)

D. 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 (NWCF) 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) Program. All these acquisition processes are pursued using a common strategy that satisfies the needs of all the critical stakeholders: 1) Navy end user; 2) Funding sponsor for the Navy end user; 3) Cognizant environmental federal, state, and local regulators; 4) Other stakeholders with cognizance over the Navy process or operation being changed, and 5) The private or government organization that will produce the product.

Exhibit R-3 Cost Analysis (page 1)													DATE: February 2006		
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 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
EEC 2	WR/PO	NFESC	0.222			1.326	varies	1.160	varies	1.789	varies	Continuing	Continuing	N/A	
EEC 2	WR/PO	SSC/SD				0.252	varies	0.527	varies	0.570	varies	Continuing	Continuing	N/A	
EEC 2	WR/PO	NSWC/IH	15.666			0.000		0.000		0.000		0.000	15.766	N/A	
EEC 3a	WR/PO	NSWC/CD	10.582			0.277	varies	0.500	varies	0.800	varies	Continuing	Continuing	N/A	
EEC3a	WR/PO	NFESC	5.040			0.931	varies	0.786	varies	0.721	varies	Continuing	Continuing	N/A	
EEC 3b	WR/PO	NAWC PAX				0.815	varies	0.850	varies	1.750	varies	Continuing	Continuing	N/A	
EEC 3b	WR/PO	NFESC				0.459	varies	0.610	varies	0.911	varies	Continuing	Continuing	N/A	
EEC4	WR/PO	NFESC	16.558			1.142	varies	1.499		1.582	varies	Continuing	Continuing	N/A	
EEC 5	WR/PO	SSC/SD	1.842			0.793	varies	0.543	varies	0.180	varies	Continuing	Continuing	N/A	
EEC 5	WR/PO	NFESC	2.123			0.808	varies	1.003	varies	0.626	varies	Continuing	Continuing	N/A	
Subtotal Product Development			52.033	0.000		6.803		7.478		8.929					

Remarks:
(U) 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), Naval Air Warfare Center, Patuxent River (NAWCD PAX)
(U) Total Prior Years Cost: Summation starts with FY80. Subtotal does not include performing activities from prior years that are no longer performing activities.
(U) 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	0.000	

Remarks: (U) Included in Product Development costs.

Exhibit R-3 Cost Analysis (page 2)								DATE: February 2006						
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 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 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	0.000	
Remarks: Not applicable.														
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	0.000	
Remarks: Not applicable.														
Total Cost			52.033	0.000		6.803		7.478		8.929		0.000		
Remarks:														

EXHIBIT R4, Schedule Profile																													DATE: **February 2006**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**					PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection												PROJECT NUMBER AND NAME 0817 / Pollution Abatement												
Fiscal Year	2005				2006				2007				2008				2009				2010				2011			
	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
EEC 2: Maximiize training and Testing Requirements within Environmental Constraints																												
EEC 3a: Platform Repair and Maintenance with Minimal Environmental Impact - Ships																												
EEC 3b: Platform Repair and Maintenance with Minimal Environmental Impact - Aviation																												
EEC 4: Support Shore Readiness within Environmenal Constraints																												
EEC 5: Coast Effective Management of Environmental Regulatory Requirements																												

EXHIBIT R-2a, RDT&E Project Justification							DATE: February 2006	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection				PROJECT NUMBER AND NAME 9204 / Marine Mammal Research			
COST ($ in Millions)	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	
Project Cost	**2.028**	**4.468**	**4.263**	**4.319**	**4.356**	**4.400**	**4.451**	
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

(U) The Navy has been and will continue to be subject to litigation with regard to the potential injuring and killing of marine animals by the use of intense underwater sound. Since Fleet operation and training areas coincide with known or probable marine mammal habitats, migration routes, or breeding areas, the possibility exists that such incidents are likely to continue in the future. The increasing public interest and pressure has resulted in escalating Fleet costs. For example, Fleet and SYSCOM development activities have been interrupted, modified, or altogether cancelled and environmental regulations have, among other things, required new ship construction shock trials to obtain Federal permits and conduct extensive environmental planning that can take several years to complete. The incorporation of mitigation measures in Fleet training operations to minimize the potential adverse effects on protected marine animals can significantly reduce the realism of these operations. In addition, the testing, evaluation, and deployment of new sonar detection and monitoring systems that use active acoustics are under severe public scrutiny for their potential adverse effects on whales and other marine animals. Navy needs scientific evidence to substantiate its claims of limited or inconsequential adverse effects to marine life from operations.

(U) This program primarily focuses on the development of planning and monitoring tools to aid the Fleet in minimizing contact with and the potential harassment of protected marine animals during operations, exercises, training, and undersea surveillance and weapons testing. These new capabilities will encompass historical and newly acquired data and analytical models that together can predict marine animal habitats (where they are likely to be) and their natural and expected behavior (diving patterns, prey localization, calling activity, etc.).

(U) Accurate and timely monitoring and predicting the movement of whales and other protected marine animals plus an enhanced knowledge of how marine animals may react to Fleet activities (e.g., hearing and behavioral effects) will reduce Navy interaction with these animals; minimize the risk that legally-imposed monitoring and avoidance measures will adversely affect Fleet operations and exercises; minimize the substantial costs associated with operations, exercises, and tests that have to be modified or curtailed as a result of concerns about protected marine animals; and will reduce the likelihood of litigation related to actual or anticipated compliance problems with protected animals.

This project is a Congressional add in FY05 for an Integrated Marine Mammal Monitoring and Protection System. It becomes a budgeted project in FY06.

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2006
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE0603721N / Environmental Protection	9204 / Marine Mammal Research

B. Accomplishments/Planned Program

	FY 05	FY 06	FY 07
Marine Mammal Location, Abundance and Movement	0.000	1.980	1.818

FY 06: (U) Initiate investigation in marine mammal location, abundance, and movement through habitat investigations; predictive models; marine mammal database; and data analysis, protocols and surveys.

FY 07: (U) Continue investigations in marine mammal location, abundance, and movement through habitat investigations; predictive models; marine mammal database; and data analysis, protocols and surveys.

	FY 05	FY 06	FY 07
Criteria and Thresholds, Physiology and Behavior, and Effects of Sound	0.000	0.975	0.861

FY 06: (U) Initiate investigation in criteria and thresholds, physiology and behavior, and effects of sound through hearing sensitivity; temporary threshold shift (TTS)/Sub-TTS; physical injury models; cumulative effects of sound and/or multiple events; effects of sound on the marine mammal habitat; and workshops.

FY 07: (U) Continue investigations in criteria and thresholds, physiology and behavior, and effects of sound through hearing sensitivity; temporary threshold shift (TTS)/Sub-TTS; physical injury models; cumulative effects of sound and/or multiple events; effects of sound on the marine mammal habitat; and workshops.

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2006
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE0603721N / Environmental Protection	9204 / Marine Mammal Research

B. Accomplishments/Planned Program

	FY 05	FY 06	FY 07
Mitigation Methodologies: Monitoring, New Technology, and Risk Assessment	0.000	1.350	1.351

FY 06: (U) Initiate mitigation methodologies for monitoring, new technology and risk assessment through passive acoustic monitoring; active acoustic monitoring; improved tag development; alternative monitoring; defining risk assessment variables; model risk assessment and determine mitigation effectiveness.

FY 07: (U) Continue mitigation methodologies for monitoring, new technology and risk assessment through passive acoustic monitoring; active acoustic monitoring; improved tag development; alternative monitoring; defining risk assessment variables; model risk assessment and determine mitigation effectiveness.

	FY 05	FY 06	FY 07
Acostic Source Propagation	0.000	0.163	0.233

FY 06: (U) Initiate investigation of acoustic source propagation through 3-D modeling of multiple acoustic sources.

FY 07: (U) Continue investigation of acoustic source propagation through 3-D modeling of multiple acoustic sources.

EXHIBIT R-2a, RDT&E Project Justification		DATE: February 2006
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE0603721N / Environmental Protection	9204 / Marine Mammal Research

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost

(U) Related RDT&E: (U) Office of Naval Research (PE 601153 / PE 602435 / PE 602782 / PE 603235)
(U) Strategic Environmental Research & Development Program (SERDP)
(U) National Oceanographic Partnership Program (NOPP)

D. ACQUISITION STRATEGY:

(U) RDT&E Contracts are Competitive Procurements.

Exhibit R-3 Cost Analysis (page 1)								DATE: February 2006						
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT PE0603721N / Environmental Protection			PROJECT NUMBER AND NAME 9204 / Marine Mammal Research									
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost			FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development														
Primary Hardware Development														
Primary Hardware Development														
Primary Hardware Development														
Primary Hardware Development														
Primary Hardware Development														
Ancillary Hardware Development														
Component Development														
Ship Integration														
Ship Suitability														
Systems Engineering														
Training Development														
Licenses														
Tooling														
GFE														
Award Fees														
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000				
Remarks:														
Development Support														
Software Development														
Training Development														
Integrated Logistics Support														
Configuration Management														
Technical Data														
GFE														
Award Fees														
Subtotal Support			0.000	0.000		0.000		0.000		0.000				
Remarks:														

Exhibit R-3 Cost Analysis (page 2)								DATE: February 2006						
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT PE0603721N / Environmental Protection			PROJECT NUMBER AND NAME 9204 / Marine Mammal Research									
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost			FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	Misc. Govt Labs/Misc Contr						2.468		2.263				
Developmental Test & Evaluation	PD	NPGS, Monterey, CA						2.000		2.000				
Developmental Test & Evaluation														
Process Control Engineering														
Developmental Test & Evaluation														
Developmental Test & Evaluation														
Developmental Test & Evaluation														
Developmental Test & Evaluation														
Operational Test & Evaluation														
Live Fire Test & Evaluation														
Test Assets														
Tooling														
GFE														
Award Fees														
Subtotal T&E			0.000	0.000		0.000		4.468		4.263				
Remarks:														
Contractor Engineering Support														
Government Engineering Support														
Program Management Support														
Travel														
Labor (Research Personnel)														
SBIR Assessment														
Subtotal Management			0.000	0.000		0.000		0.000		0.000				
Remarks:														
Total Cost			0.000	0.000		0.000		4.468		4.263				
Remarks:														

EXHIBIT R4, Schedule Profile																													DATE: **February 2006**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**					PROGRAM ELEMENT NUMBER AND NAME PE0603721N / Environmental Protection												PROJECT NUMBER AND NAME 9204 / Marine Mammal Research												
Fiscal Year	2005				2006				2007				2008				2009				2010				2011			
	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
Marine Mammal Location, Abundance, and Movement																												
Criteria and Thresholds, Physiology and Behavior, and Effects of Sound																												
Mitigation Methodologies: Monitoring, New Technology, and Risk Assessment																												
Acoustic Source Propagation																												

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2006**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE0603721N / Environmental Protection	Project Unit (PU) No. and Name: Congressional Plus-Ups: VARIOUS

CONGRESSIONAL PLUS-UPS:

	FY 06			
9537C				
Invasive Species Eradication Program	0.500			

(U) Prevent brown tree snake (BTS) from reaching other topical islands and the United States Mainland by reducing BTS populations around Navy cargo and port facilities.
The brown tree snake (BTS), a non-native, invasive species on the island of Guam, has caused severe economic and environmental problems and public health concerns for the island's residents and industries. The BTS has eliminated most of Guam's native forest birds and lizards. This dramatic wide-scale destruction of native species is unprecedented in modern ecological history. Snakes contacting electric power transmission lines have caused frequent power outages, resulting in millions of dollars in damage and lost revenue. Livestock producers have suffered losses from snakes preying on poultry and other small animals. Children and people sensitive to the snake's mild venom are threatened by the large number of snakes inhabiting urbanized areas on the island. Even more significantly, BTS originating from Guam have been found throughout the Pacific region, associated with outbound commercial and military air and sea cargo. The abundance of snakes on Guam, coupled with the tendency of the BTS to hide in cargo, create a significant threat to the biodiversity and economic security of the tropical Pacific.

	FY 06			
9765N				
Coatings and Polymeric Films Development for Naval Applications	2.100			

(U) This Congressional Add is a continuation of a Congressional Add previously managed by ONR. This effort will involve the development of coatings and polymeric films from bio-based polymers for application to Naval vessels.

R-1 SHOPPING LIST - Item No. 62

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2006**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE0603721N / Environmental Protection	Project Unit (PU) No. and Name: Congressional Plus-Ups: VARIOUS

CONGRESSIONAL PLUS-UPS:

	FY 06			
9766N				
Integrated Marine Mammal Monitoring and Protection System	1.500			

(U) This Congressional Add is a continuation of Congressional Add Project 9204. This effort involves the development and testing of an Integrated Marine Mammal Monitoring and Protection System (IMAPS), which integrates an Active/Passive Sonar System with the Mitigation Management and Control Module (MMCM). The active/passive acoustic system will act as the primary detection method, while the MMCM will act to optimize the functional settings of the active/passive system to maximize the probability of detection of marine mammals for the given operation. This system will be evaluated for its ability to track Grey Whales and other mammals of special interest to the Navy.

	FY 06			
9768N				
Puget Sound Anoxic Research	1.800			

(U) This Congressional Add is a continuation of Congressional Add Project 9536. This effort will involve the monitoring of the oxygen content of the water in Hood Canal and streams throughout the watershed and will increase understanding of the long-term effects of low-oxygen levels on sealife. The monitoring information will be used to develop a mathematical model of Hood Canal. The model will be used to evaluate the effect of different potential sources of input to Hood Canal that might account for an existing anoxic condition.

R-1 SHOPPING LIST - Item No. 62