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

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>
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COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
Total Program Element	20.707	20.207	21.714	-	21.714	21.923	22.592	23.048	23.282	Continuing	Continuing
0401: <i>Shipboard Waste Mgmt</i>	5.683	5.911	7.705	-	7.705	7.707	8.054	7.942	7.779	Continuing	Continuing
0817: <i>Environmental Sustainability Development (NESDI)</i>	5.718	5.995	5.845	-	5.845	5.919	6.089	6.313	6.509	Continuing	Continuing
9204: <i>Marine Mammal Research</i>	8.509	8.301	8.164	-	8.164	8.297	8.449	8.793	8.994	Continuing	Continuing
9999: <i>Congressional Adds</i>	0.797	-	-	-	-	-	-	-	-	0.000	0.797

**A. Mission Description and Budget Item Justification**

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 laws, regulations, Executive Orders, policies and international agreements. The projects for this program element support the Navy's compliance with the (a) Clean Water Act, (b) Act to Prevent Pollution from Ships, (c) International Convention for the Prevention of Pollution from Ships (MARPOL 73/78), (d) DoD 4715.6 R1, Regulations on Vessels Owned or Operated by the Department of Defense, (e) OPNAVINST 5090.1B (CH-4), Environmental and Natural Resources Program Manual, (f) 40 CFR Part 9 and Chapter VII (Uniform National Discharge Standards [UNDS] Phase I Standard), (g) Executive Order (EO) 13148, Greening the Government Through Leadership in Environmental Management, (h) Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990, (i) National Invasive Species Act of 1996, (j) 33 CFR 151 Subpart D-Ballast Water Management for Control of Nonindigenous Species in Waters of the United States, (k) Clean Air Act, (l) Federal Insecticide, Fungicide, and Rodenticide Act, (m) Executive Order (EO) 13423 Strengthening Federal Environmental, Energy, and Transportation Management of 24 January, 2007, (n) NAVSEANOTE 5400, NAVSEA Warranted Technical Authorities, (o) NAVSEAINST 5400.97B, Virtual SYSCOM Engineering and Technical Authority Policy, (p) NSWCCD-63-TM-2005/9, Clean Ballast Engineering Analysis Phase II, (q) Northwest Environmental Advocates v. EPA, No. 03-05760, Order Granting Plaintiffs' Motion for Permanent Injunctive Relief at 18 (N.D. Cal. Sept. 18, 2006), (r) Environmental Requirements and Goals for Navy Systems Acquisition, CNO (N4) Memorandum 5090 Ser N4/5U890259 of 20 April 2005, (s) International Convention for the Control and Management of Ships' Ballast Water and Sediments, 31 Feb 2004. References (a) through (m) establish Level I environmental protection requirements for Navy shipboard systems, operations, and discharges in the areas of liquid wastes, hazardous materials, solid wastes, and other significant afloat environmental concerns. References (n) and (o) establish NAVSEA Technical Authority responsibilities for Ship Environmental Engineering. Project 0401 supports RDT&E efforts that enable Navy ships and submarines to comply with laws, regulations, and policies in six major areas: (1) Liquid Wastes, (2) UNDS Rulemaking, (3) Hazardous Materials and Pollution Prevention, (4) Hull Antifouling Paints, (5) Technical Authority, and (6) Ballast Water Exchange Improvements. An FY10 new start, Ballast Water Exchange Improvements, will provide engineering solutions for managing ballast water discharges to mitigate the transport and release of non-indigenous species. Project 0817 supports RDT&E to develop and validate technologies to enable Navy facilities to comply

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with environmental laws, regulations, and policies in a cost-effective manner. Project 9204 supports RDT&E to develop planning and monitoring tools for minimizing Fleet contacts with and potential harassment (physiological and behavior) of marine animals including threatened and endangered species in response to Federal laws and regulations and public scrutiny.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012 Base</b>	<b>FY 2012 OCO</b>	<b>FY 2012 Total</b>
Previous President's Budget	21.372	20.207	22.790	-	22.790
Current President's Budget	20.707	20.207	21.714	-	21.714
Total Adjustments	-0.665	-	-1.076	-	-1.076
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.511	-			
• Program Adjustments	-	-	-0.533	-	-0.533
• Section 219 Reprogramming	-0.153	-	-	-	-
• Rate/Misc Adjustments	-	-	-0.543	-	-0.543
• Congressional General Reductions Adjustments	-0.001	-	-	-	-

**Congressional Add Details (\$ in Millions, and Includes General Reductions)**

**Project: 9999: Congressional Adds**

Congressional Add: *Compliance Tools Development for Metals in Antifouling Paints*

Congressional Add Subtotals for Project: 9999

Congressional Add Totals for all Projects

	<b>FY 2010</b>	<b>FY 2011</b>
	0.797	-
	0.797	-
	0.797	-

**Change Summary Explanation**

Technical: Not applicable.  
Schedule: Not applicable.

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

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 0401: <i>Shipboard Waste Mgmt</i>
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COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
0401: <i>Shipboard Waste Mgmt</i>	5.683	5.911	7.705	-	7.705	7.707	8.054	7.942	7.779	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

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 considered environmentally susceptible, where special prohibitions on ship discharges and operations are imposed. Navy vessels must comply with applicable environmental legal requirements while maintaining continued access to all waters for operations, exercises, training, and port access. The large crews and limited on-board space of Navy ships and submarines severely constrain their ability to hold wastes for return to port for shore side disposal. The Shipboard Waste Management RDT&E project evaluates and develops shipboard environmental equipment, systems, technologies, processes, and practices to comply with environmental laws, regulations, Executive Orders, international agreements, foreign-country requirements, and DoD and Navy policies. The project focuses on providing engineering criteria, design guidance, and performance specifications for selecting, procuring, installing, integrating, and operating environmental equipment and systems on Navy ships and submarines, and on defining and developing processes, procedures and logistics support requirements. Environmental equipment, systems, processes and practices must meet legal environmental requirements and be reliable, maintainable and achievable at sea, and impose no or low manning burden. Environmental equipment and systems must meet Navy-unique shipboard requirements (performance, space, weight, shock, vibration, electromagnetic compatibility, manning, automation, etc.), incorporate integrated logistics support, minimize life-cycle cost, and include validated acquisition, design, installation, and operating documentation. Shipboard processes and practices must be feasible and must be compatible with ship and submarine operational, maintenance, manning, habitability, health, and safety requirements. It also addresses afloat environmental issues other than shipboard wastes, e.g., access to environmental data for planning Fleet operations and exercises. The Shipboard Environmental Protection Branch (SEA 05P25) is the designated Technical Warrant Holder for Environmental Systems & Materials Engineering, with responsibility and accountability for ensuring that ships and submarines are designed and upgraded, and can be operated, in compliance with existing and anticipated environmental requirements while minimizing total ownership cost and manning. This responsibility encompasses legacy platforms and new vessel designs, as well as Fleet operations exercises, and training.

**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	FY 2010	FY 2011	FY 2012
<b>Title:</b> Technical Authority	1.650	2.029	2.505
<b>Articles:</b>	0	0	0
<b>FY 2010 Accomplishments:</b> Developed environmental equipment/system requirements documentation, design criteria and guidance, specifications and standards, and certification protocols, and performed test and evaluation, to facilitate execution of technical authority for legacy and new-design ship and submarine environmental capabilities. Performed technology assessments, laboratory evaluations,			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2012 Navy		<b>DATE:</b> February 2011		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 0401: <i>Shipboard Waste Mgmt</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>
<p>shipboard evaluations, and point designs for oil pollution abatement, non-oily wastewater, solid waste and ballast water systems/equipment.</p> <p><b>FY 2011 Plans:</b> Continue developing environmental equipment/system requirements documentation, design criteria and guidance, specifications and standards, and certification protocols, and perform test and evaluation, to facilitate execution of technical authority for legacy and new-design ship and submarine environmental capabilities.</p> <p><b>FY 2012 Plans:</b> Continue developing environmental equipment/system requirements documentation, design criteria and guidance, specifications and standards, and certification protocols, and perform test and evaluation, to facilitate execution of technical authority for legacy and new-design ship and submarine environmental capabilities.</p>				
<p><b>Title:</b> Integrated Liquid Wastes</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2010 Accomplishments:</b> Continued to support rule making process in development of Uniform National Discharge Standards (UNDS). Continued development of marine pollution control device (MPCD) treatment systems, technologies and procedures, and evaluation of commercial off-the-shelf (COTS) wastewater systems. Conducted laboratory evaluation and ship impact feasibility study of parallel plate/microfiber element coalescing oil-water separator system used on LCS-1 Class ships. Completed characterization study of vacuum, collection, holding, and transfer (VCHT) collected blackwater on DDG-51 Class ships.</p> <p><b>FY 2011 Plans:</b> Continue support rulemaking process in development of UNDS. Continue development of MPCD treatment systems, technologies and procedures, and evaluation of COTS wastewater systems.</p> <p><b>FY 2012 Plans:</b> Continue support rulemaking process in development of UNDS. Continue development of MPCD treatment systems, technologies and procedures, and evaluation of COTS wastewater systems.</p>		2.988 0	2.762 0	2.900 0
<p><b>Title:</b> Hazardous and Other Major Ship Wastes</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2010 Accomplishments:</b> Continued shipboard hazardous materials substitution and elimination process, and continue test and evaluation of pollution-prevention equipment aboard surface ships and submarines. Continued development and testing of new low/no-copper</p>		0.647 0	0.748 0	1.100 0

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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>
underwater hull antifouling coatings. Performed Technical Toluene, Xylene and Naphthalene substitution/reduction efforts through the Planned Maintenance System (PMS). Evaluated the cost savings associated with long-life fluorescent bulbs. <b>FY 2011 Plans:</b> Continue shipboard hazardous materials substitution and elimination process, and continue test and evaluation of pollution-prevention equipment aboard surface ships and submarines. Complete development and testing of new low/no-copper underwater hull antifouling coatings. <b>FY 2012 Plans:</b> Continue shipboard hazardous materials substitution and elimination process, and continue test and evaluation of pollution-prevention equipment aboard surface ships and submarines.				
<b>Title:</b> Common Systems Assessment, Evaluation and Specification <b>Articles:</b>		-	-	0.200 0
<b>FY 2012 Plans:</b> Conduct testing of commercial off-the-shelf (COTS) equipment to gain additional information in support of new acquisition program decisions and equipment replacement programs for in-service ships. Candidate systems will be evaluated at two stages. The first stage is a written assessment of the ability to meet life cycle cost goals and technical, operational, and performance standards based on design drawings and manufacturer provided performance data. The second stage is laboratory testing of candidate systems down-selected from the first stage. This is a new start in FY 2012.				
<b>Title:</b> Ballast Water Exchange <b>Articles:</b>		0.398 0	0.372 0	1.000 0
<b>FY 2010 Accomplishments:</b> Conducted surveys of Expeditionary Warfare ships to explore feasible engineering enhancements reduce the time and/or and manpower involved in executing ballast water double exchange. Developed and documented double exchange procedures and guidance procedures and prepared documentation and training materials for the new ballast water management guidance. Investigated ballasting data logging options. Prepared a ballast water exchange guidance document, identified factors that complicate ballast water exchange operations, and executed a single-exchange efficacy study. <b>FY 2011 Plans:</b> Continue ballast water double exchange surveys and procedural product development on Expeditionary Warfare ships. <b>FY 2012 Plans:</b>				

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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2010	FY 2011	FY 2012
Continue ballast water double exchange surveys and procedural product development on Expeditionary Warfare ships.			
<b>Accomplishments/Planned Programs Subtotals</b>	5.683	5.911	7.705

**C. Other Program Funding Summary (\$ in Millions)**

<b>Line Item</b>	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• RDTEN/0601153N: <i>Defense Research Sciences</i>	397.181	429.767	434.899	0.000	434.899	447.160	469.627	489.434	510.567	0.000	3,178.635

**D. Acquisition Strategy**

RDT&E Contracts are Competitive Procurements.

**E. Performance Metrics**

Quarterly Program Reviews

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

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 0401: <i>Shipboard Waste Mgmt</i>
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<b>Product Development (\$ in Millions)</b>				<b>FY 2011</b>		<b>FY 2012 Base</b>		<b>FY 2012 OCO</b>		<b>FY 2012 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Ancillary Hardware Development	Various	Misc. Contracts:Not Specified	19.149	-		-		-		-	0.000	19.149	Continuing
Primary Hardware Development	C/CPFF	Oceaneering:Not Specified	1.000	-		-		-		-	0.000	1.000	Continuing
Systems Engineering	C/CPFF	John J. McMullen & Son:Not Specified	4.487	-		-		-		-	0.000	4.487	Continuing
<b>Subtotal</b>			24.636	-		-		-		-	0.000	24.636	

<b>Support (\$ in Millions)</b>				<b>FY 2011</b>		<b>FY 2012 Base</b>		<b>FY 2012 OCO</b>		<b>FY 2012 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Software Development	WR	SPAWAR:Charleston, SC	10.838	-		-		-		-	0.000	10.838	Continuing
<b>Subtotal</b>			10.838	-		-		-		-	0.000	10.838	

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2011</b>		<b>FY 2012 Base</b>		<b>FY 2012 OCO</b>		<b>FY 2012 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Developmental Test & Evaluation	MIPR	US Army Corps of Engineers:Norfolk, VA	-	0.687	Feb 2011	0.701	Feb 2012	-		0.701	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NSWCCD, Bethesda, MD:Bethesda, MD	169.844	4.684	Nov 2010	6.718	Nov 2011	-		6.718	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NRL,Wash,DC:Wash,DC	30.429	0.232	Dec 2010	-		-		-	0.000	30.661	
Developmental Test & Evaluation	WR	SPAWARSYSCEN:SD,CA	11.841	0.111	Nov 2010	0.113	Nov 2011	-		0.113	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	Misc. Govt Labs:TBD	22.928	0.047	Nov 2010	-		-		-	0.000	22.975	
	C/CPFF	SAIC:San Diego, CA	15.570	-		-		-		-	0.000	15.570	

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

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 0401: <i>Shipboard Waste Mgmt</i>
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<b>Test and Evaluation (\$ in Millions)</b>				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation													
Developmental Test & Evaluation	C/CPFF	Misc. Contracts:TBD	12.963	0.140	Feb 2011	0.143	Feb 2012	-		0.143	Continuing	Continuing	Continuing
Process Control Engineering	C/CPFF	M. Rosenblatt & Sons:Arlington, VA	6.547	-		-		-		-	0.000	6.547	Continuing
Developmental Test & Evaluation	C/CPFF	ONR:Arlington, VA	0.400	-		-		-		-	0.000	0.400	Continuing
Developmental Test & Evaluation	WR	Naval Postgraduate School:Monterey, CA	1.800	-		-		-		-	0.000	1.800	Continuing
Process Control Engineering	MIPR	EPA, Hdqtrs:Washington, DC	0.840	-		-		-		-	0.000	0.840	Continuing
<b>Subtotal</b>			273.162	5.901		7.675		-		7.675			

<b>Management Services (\$ in Millions)</b>				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	Allot	NAVSEA HQ:Washington, DC	0.300	0.010	Nov 2010	0.030	Nov 2011	-		0.030	0.000	0.340	Continuing
SBIR Assessment	TBD	Not Specified:Not Specified	0.078	-		-		-		-	0.000	0.078	Continuing
<b>Subtotal</b>			0.378	0.010		0.030		-		0.030	0.000	0.418	

	Total Prior Years Cost	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>		309.014	5.911	7.705	-	7.705		

**Remarks**

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2012 Navy		<b>DATE:</b> February 2011
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 0401: <i>Shipboard Waste Mgmt</i>

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2012 Navy		<b>DATE:</b> February 2011
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 0401: <i>Shipboard Waste Mgmt</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 0401</b>				
Uniform National Discharge Standards (UNDS ) Rulemaking	1	2010	4	2016
Develop & Evaluate Marine Pollution Control Device Systems & Technologies	1	2010	4	2016
Evaluate Commercial Wastewater Treatment Systems	1	2010	4	2016
Hazardous Materials and Pollution Prevention	1	2010	4	2016
Low/No-Copper Hull Antifouling Coatings	1	2010	4	2011
Technical Authority	1	2010	4	2016
Ballast Water Exchange	1	2010	4	2015
Common Systems Assessment, Evaluation and Specification	1	2012	4	2016

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2012 Navy									<b>DATE:</b> February 2011		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>				<b>PROJECT</b> 0817: <i>Environmental Sustainability Development (NESDI)</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012 Base</b>	<b>FY 2012 OCO</b>	<b>FY 2012 Total</b>	<b>FY 2013</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
0817: <i>Environmental Sustainability Development (NESDI)</i>	5.718	5.995	5.845	-	5.845	5.919	6.089	6.313	6.509	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Inherent to the realization of the vision outlined in Sea Power 21 are certain environmental consequences that will, to a lesser or greater degree, be an 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 and 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 through 5) that are required to meet the objectives of Sea Power 21 as detailed in the POM08 Integrated Navy Environmental Readiness Capability Assessment for Science and Technology (S&T) and Development, test and Evaluation (DT&E).

**EEC-2 MAXIMIZE TRAINING AND TESTING RANGE REQUIREMENTS WITHIN ENVIRONMENTAL CONSTRAINTS:**

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 processes to mitigate environmental impacts, restrictions, and costs at Navy training and test ranges 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 unexploded ordnance (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.

**EEC-3 PLATFORM MAINTENANCE AND REPAIR WITH MINIMAL ENVIRONMENTAL FOOTPRINT:**

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2012 Navy	<b>DATE:</b> February 2011
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<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 0817: <i>Environmental Sustainability Development (NESDI)</i>
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This capability focuses on minimizing or eliminating environmental impact related to Navy and Marine Corps weapon system 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 and aircraft and air vehicles. 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.

EEC-4. SUPPORT SHORE READINESS WITHIN ENVIRONMENTAL CONSTRAINTS:

Naval shore establishment requires the capability to operate and maintain facilities and provide waterfront 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 minimize infrastructure and operational costs, regulated emissions, while minimizing 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, ozone depleting substances (ODSs), and volatile organic compounds (VOCs), and the associated reporting requirements, reduced hazardous waste and disposal costs, and improved storm water management.

EEC-5. COST-EFFECTIVE MANAGEMENT OF ENVIRONMENTAL REGULATORY REQUIREMENTS:

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 cost effectively manages 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, U.S. 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.

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>
<b>Title:</b> Maximize Training & Testing Requirements Within Environmental Constraints	2.072	2.171	1.960
<b>Articles:</b>	0	0	0
<b>FY 2010 Accomplishments:</b>			
Continue providing validated knowledge, models, and processes to mitigate environmental impacts, restrictions, and costs at Navy training and test range to maximize the availability and utilization of the ranges. Completed the analysis of the long term disposition of seafloor cables which will identify cable impacts to the marine environments aiding the sustainment and			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2012 Navy		<b>DATE:</b> February 2011		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 0817: <i>Environmental Sustainability Development (NESDI)</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>
<p>management of Navy underwater ranges and support new underwater surveillance systems that require the laying of seafloor hardware and cables. Completed the analysis of the environmental effects of lasers on biota in the marine environment. Continued the validation of forensic approaches to perchlorate natural and anthropogenic source identification at Navy ranges.</p> <p><b>FY 2011 Plans:</b> Continue providing validated knowledge, models, and processes to mitigate environmental impacts, restrictions, and costs at Navy training and test range to maximize the availability and utilization of the ranges. Continued effort to assess environmental risk associated with abandoned equipment in underwater ranges. Continued the validation of forensic approaches to perchlorate natural and anthropogenic source identification at Navy ranges. Continue abandoned equipment effects at Nay ranges. Initiated BMJP DEM/VAL for mitigation of environmental impacts from venting of full scale practice bombs at Navy ranges.</p> <p><b>FY 2012 Plans:</b> Continue providing validated knowledge, models, and processes to mitigate environmental impacts, restrictions, and costs at Navy training and test range to maximize the availability and utilization of the ranges. Conclusion of the risk assessment associated with abandoned equipment in underwater ranges. Background Perchlorate Source Characterization at Navy Facilities and Ranges.</p>				
<p><b>Title:</b> Maintenance</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2010 Accomplishments:</b> Continue providing new systems and processes to minimize regulated emissions, discharges and hazardous material usage resulting from the repair and maintenance of ships, submarines, and aircraft. Completed aircraft sustainment related projects. Developed dry dock best management practices and decision selection tool assisting naval shipyards, stations and bases in meeting the copper discharge standards will conclude. Alternative solvents demonstrations for ship maintenance operations and identification of alternatives for NAVSEA targeted chemicals continued. The development of hazardous material allocation information for ship maintenance continued. Completed acid waste treatment project for cleaning shipboard heat exchangers.</p> <p><b>FY 2011 Plans:</b> Divest investments in EEC3 related to aircraft sustainment. Continue development of dry dock cleaning alternatives. Continue hull bio-fouling cleaning and removal technology. Tools/mitigation measures for coating operations on vessel freeboard areas. Elimination of Overspray in Shipbuilding and Facilities Maintenance Operations.</p> <p><b>FY 2012 Plans:</b> Continue all aviation sustainment related projects. Continue development of dry dock cleaning alternatives. Complete hull bio-fouling cleaning and removal technology. Continue hull bio-fouling cleaning and removal technology. Continue the elimination</p>		0.787 0	0.848 0	0.820 0

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2012 Navy		<b>DATE:</b> February 2011		
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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>
of overspray in shipbuilding and facilities maintenance operations. Initiate effort to develop tools/mitigation measures for coating operations on vessel freeboard areas.				
<b>Title:</b> Support Shore Readiness within Environmental Constraints				
<b>Articles:</b>		2.465 0	2.473 0	2.228 0
<b>FY 2010 Accomplishments:</b> 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. Continued selected demonstrations of alternative solvents for industrial operations. Continued the development of a wastewater treatment system to collect and treat the waste stream for vertical launch missile tubes. 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.				
<b>FY 2011 Plans:</b> Integrating effort related to Shipboard Acid Waste Treatment Technology. This pier-side reclamation system separates heavy metal and marine fouling sludge to allow ship waste water to meet local sanitary sewer discharge limits. Validate a Shipboard Mobile Surface Cleaning Technology. Validation of a mobile surface cleaning technology for critical cleaning of shipboard non-skid and shoreside surfaces to remove contaminants, mitigate pollution from weather deck and stormwater runoff and reduce associated manpower and waste management burden. Continue providing new systems and processes to minimize regulated emissions, discharges and hazardous material usage resulting specifically from waterfront support, and other base operations. Reduced Generation of Shoreside Managed Waste from Pierside Supported Underwater Ship Husbandry Operations.				
<b>FY 2012 Plans:</b> Continue providing new systems and processes to minimize regulated emissions, discharges and hazardous material usage resulting specifically from waterfront support and aviation support operations. Initiate Hull maintenance issues mitigation measures.				
<b>Title:</b> Cost-Effective Management of Environmental Regulatory Requirements				
<b>Articles:</b>		0.394 0	0.503 0	0.837 0
<b>FY 2010 Accomplishments:</b> Continue providing validated knowledge, models, processes and systems to improve environmental monitoring and reporting, and reduce the cost of compliance with regulations applicable to coastal contamination and contaminated sediments. Abiotic In Situ Treatment of 1,2,3-Trichloropropane to Protect Drinking Water Resources. Continue improved vapor assessment strategies for vapor intrusion. Continued DEM/VAL of Automated Condition Assessment of Coral Reefs at Guam Apra Harbor. Finalizing Metals removal from stormwater runoff using linear treatment system at San Diego. Initiate waste to energy alternatives in				

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2012 Navy	<b>DATE:</b> February 2011
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<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 0817: <i>Environmental Sustainability Development (NESDI)</i>
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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>
<p>San Diego/Miramar. Initiated resuspension of dredged sediments from prop wash and beneficial reuse of navigational dredge material.</p> <p><b>FY 2011 Plans:</b> The Potable Water Quality Management Guidance Document which provides Navy drinking water program managers with the direction and information for meeting compliance goals contained in the new disinfection byproducts rules. Continue providing validated knowledge, models, processes and system to improve environmental monitoring and reporting, and to reduce the cost of compliance with regulations applicable to coastal contamination and contaminated sediments. Continue effort to establish guidelines &amp; limitations for the Use of Biodiesel with Ground Tactical Vehicles. Maximize the use of biodiesel fuels in tactical vehicles and equipment. Continue demonstrating technology for vapor intrusion assessment, coral reef health assessments, dredge sediment resuspension modeling, beneficial reuse of dredged material, and waste to clean energy completion.</p> <p><b>FY 2012 Plans:</b> Continue providing validated knowledge, models, processes and systems to improve environmental monitoring and reporting, and to reduce the cost of compliance with regulations applicable to coastal contamination and contaminated sediments. Reduce Contaminant Transport Associated with Stormwater Runoff. Continue efforts related to Navy contribution to climate change and regulatory requirements.</p>			
<b>Accomplishments/Planned Programs Subtotals</b>	5.718	5.995	5.845

**C. Other Program Funding Summary (\$ in Millions)**

N/A

**D. Acquisition Strategy**

This project is categorized as Non-ACAT (Non Acquisition). 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 directly through the base operating budget. 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) Fleet end user; 2) Funding sponsor for the Navy end user; 3) Other stakeholders with cognizance over the Navy process or operation being changed, 4) Cognizant environmental federal, state, and local regulators; and 5) The private or government organization that will produce the product.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2012 Navy		<b>DATE:</b> February 2011
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 0817: <i>Environmental Sustainability Development (NESDI)</i>

**E. Performance Metrics**

Quarterly Budget Reviews

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

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 0817: <i>Environmental Sustainability Development (NESDI)</i>
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<b>Product Development (\$ in Millions)</b>				<b>FY 2011</b>		<b>FY 2012 Base</b>		<b>FY 2012 OCO</b>		<b>FY 2012 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
EEC 2	Various	NFESC:PT HUENEME, CA	1.242	0.500	Sep 2011	0.637	Sep 2012	-		0.637	0.000	2.379	Continuing
EEC 2	Various	SSC:SAN DIEGO, CA	1.621	1.250	Sep 2011	1.046	Aug 2012	-		1.046	Continuing	Continuing	Continuing
EEC 2	Various	NSWC:BETHESDA, MD	0.296	0.421	Sep 2011	0.355	Sep 2012	-		0.355	0.000	1.072	Continuing
EEC 3	Various	NAWC:PATUXENT RIVER, MD	0.519	0.300	Aug 2011	0.255	Aug 2012	-		0.255	0.000	1.074	Continuing
EEC 3	Various	NSWC:BETHESDA, MD	1.886	0.348	Sep 2011	0.355	Aug 2012	-		0.355	0.000	2.589	Continuing
EEC 4	Various	NFESC:PT HUENEME, CA	3.811	0.700	Jul 2011	0.587	Jul 2012	-		0.587	0.000	5.098	Continuing
EEC 4	Various	NSWC:BETHESDA, MD	0.588	0.923	Feb 2011	0.905	Jun 2012	-		0.905	0.000	2.416	Continuing
EEC 5	Various	SSC:SAN DIEGO, CA	0.705	-		-		-		-	0.000	0.705	Continuing
EEC 5	Various	NFESC:PT HUENEME, CA	0.631	0.200	Mar 2011	0.255	Apr 2012	-		0.255	0.000	1.086	Continuing
EEC 3a	Various	NSWC:BETHESDA, MD	1.019	-		-		-		-	0.000	1.019	Continuing
EEC 5	Various	NSWC:BETHESDA, MD	0.215	0.200	Feb 2011	0.316	Jun 2012	-		0.316	0.000	0.731	Continuing
EEC 4a	Various	SSC:SAN DIEGO, CA	0.860	0.850	Mar 2011	0.724	Jul 2012	-		0.724	0.000	2.434	Continuing
EEC 5	Various	NAWC:PATUXENT RIVER, MD	0.223	0.103	Jul 2011	0.255	Jul 2012	-		0.255	0.000	0.581	Continuing
EEC 3b	Various	NSWC:BETHESDA, MD	-	0.200	Aug 2011	0.155	Sep 2012	-		0.155	0.000	0.355	Continuing
<b>Subtotal</b>			13.616	5.995		5.845		-		5.845			

**Remarks**

Performing Activities: Naval Surface Warfare Center, Carderock Division (NSWC/CD), Naval Facilities Engineering Service Center (NFESC/MD), Naval Surface Warfare Center, Indian Head Division (NSWC/Bethesda MD), Space and Warfare Systems Center, San Diego (SSC/SC), Naval Air Warfare Center, Patuxent River (NAWC/PAX)  
 Total Prior Years Cost: Summation starts with FY08. 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.

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

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 0817: <i>Environmental Sustainability Development (NESDI)</i>
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	Total Prior Years Cost	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	13.616	5.995	5.845	-	5.845			

**Remarks**

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

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 0817: <i>Environmental Sustainability Development (NESDI)</i>
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	FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016			
	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
<b>Proj 0817</b>																												
EEC 2																												
EEC 3																												
EEC 4																												
EEC 5																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details: PB 2012 Navy</b>		<b>DATE:</b> February 2011
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 0817: <i>Environmental Sustainability Development (NESDI)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 0817</b>				
EEC 2	1	2010	4	2016
EEC 3	1	2010	4	2016
EEC 4	1	2010	4	2016
EEC 5	1	2010	4	2016

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

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 9204: <i>Marine Mammal Research</i>
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COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
9204: <i>Marine Mammal Research</i>	8.509	8.301	8.164	-	8.164	8.297	8.449	8.793	8.994	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

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 intense public scrutiny for their potential adverse effects on whales and other marine mammals. Navy needs scientific evidence to substantiate its claims of limited or inconsequential adverse effects to marine life from operations.

This project primarily focuses on the development of planning, monitoring, and mitigating 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.). This project consists of three major areas that will help ensure Navy compliance with the Marine Mammal Protection Act (MMPA).

These areas are (1) Mammal Demographics - Determine the likelihood of the presence of marine mammal species during observed and forecast oceanographic conditions by developing habitat and ecological models. Refine marine mammal survey techniques to optimize the accuracy of abundance estimates in small ocean regions of Navy interest.

Conduct analysis of long range, low frequency marine mammal vocalizations to determine natural variations in population estimates, residency, and migration routes over large ocean regions; (2) Criteria, Thresholds, and Mitigation - Establish criteria and thresholds from which to measure potential impact on marine mammals from Navy training

operations. Determine the effectiveness and usefulness of various mitigation measures in relation to the potential impact of Navy operations on marine mammals; and (3) Passive Acoustic Monitoring - Conduct Passive Acoustic Monitoring of Marine Mammals, particularly on Navy undersea ranges. Several feasibility demonstrations reveal the potential of passive acoustic monitoring as a unique form of mitigation and a special tool to obtain critical information about normal marine mammal behavior. Any impact of Navy operations on marine mammals, particularly behavior modification, will be derived after normal variations in marine mammal behavior resulting from natural factors are determined. Several remaining unknowns must be addressed before passive acoustic monitoring techniques are developed as an institutionalized system available to the Fleet.

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

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 9204: <i>Marine Mammal Research</i>
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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., physiological 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.

**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	FY 2010	FY 2011	FY 2012
<p><b>Title:</b> Marine Mammal Location, Abundance and Movement</p> <p style="text-align: right;"><b>Articles:</b></p> <p><b>FY 2010 Accomplishments:</b> Continued investigations in marine mammal location, abundance, and movement through habitat investigations; predictive models; marine mammal database; and data analysis, protocols and surveys. Produced new estimates of the abundance of blue and humpback whales to extend the 15-year time series and determined whether populations are continuing to increase and recover from whaling.</p> <p><b>FY 2011 Plans:</b> Continue investigations in marine mammal location, abundance, and movement through habitat investigations; predictive models; marine mammal database; and data analysis, protocols and surveys.</p> <p><b>FY 2012 Plans:</b> Continued research on integrated ecosystems; sensor and tag development; marine mammal diving and stress physiology, and the population structure of beaked whales in the vicinity of Navy training ranges.</p>	2.206 0	1.965 0	2.283 0
<p><b>Title:</b> Criteria and Thresholds, Physiology and Behavior, and Effects of Sound</p> <p style="text-align: right;"><b>Articles:</b></p> <p><b>FY 2010 Accomplishments:</b> Continued 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. Developed a model to predict the behavioral responses of individual beaked whales to sonar that will assess the level of take that is likely as a result of sonar operations, provide sufficient information to allow the energetic costs of disturbance by sonar to be estimated, and a modeling framework within which information concerning behavioral responses of beaked whales can be interpreted.</p> <p><b>FY 2011 Plans:</b></p>	2.030 0	2.055 0	1.914 0

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2012 Navy		<b>DATE:</b> February 2011			
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>		<b>PROJECT</b> 9204: <i>Marine Mammal Research</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>			<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>
<p>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.</p> <p><b>FY 2012 Plans:</b> Continued research to determine what constitutes biologically significant behavioral response to Navy-generated sound on individuals with respect to disruption of natural behavior patterns, ascertaining the short and long-term effects of such disruptions and documenting avoidance behaviors.</p>					
<p><b>Title:</b> Mitigation Methodologies: Monitoring, New Technology, and Risk Assess</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2010 Accomplishments:</b> Continued 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. Supported Navy ASW training activities at SCORE (San Clemente Island) by mitigating the effects of mid-range sonar on marine mammals.</p> <p><b>FY 2011 Plans:</b> 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.</p> <p><b>FY 2012 Plans:</b> Continued research to determine the observation, detection and classification measures required to develop effective monitoring and mitigation procedures. Focus to improve marine mammal monitoring capabilities over current methods by developing new and adapting existing technology.</p>			3.440 0	3.380 0	3.090 0
<p><b>Title:</b> Acoustic Source Propagation</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2010 Accomplishments:</b> Continued investigation of acoustic source propagation through 3-D modeling of multiple acoustic sources. Designed and fabricated a Terfenol-D Power Wheel transducer array that can be used to provide high power transmissions in the water in the frequency band that encompasses both the SQS-53C and SQS-56 system bands of operation.</p> <p><b>FY 2011 Plans:</b></p>			0.833 0	0.901 0	0.877 0

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

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 9204: <i>Marine Mammal Research</i>
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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2010	FY 2011	FY 2012
Continue investigation of acoustic source propagation through 3-D modeling of multiple acoustic sources.			
<b><i>FY 2012 Plans:</i></b> Continued research on developing protocols and models for predicting how sound energy (from a wide range of Navy sources) propagates in water.			
<b>Accomplishments/Planned Programs Subtotals</b>	8.509	8.301	8.164

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012 Base</b>	<b>FY 2012 OCO</b>	<b>FY 2012 Total</b>	<b>FY 2013</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• RD TEN/0601153N: <i>Defense Research Sciences</i>	397.181	429.767	434.899	0.000	434.899	447.160	469.627	489.434	510.567	0.000	3,178.635
• RD TEN/0602435N: <i>Ocean Warfighting Environment Applied Research</i>	47.098	49.491	50.093	0.000	50.093	50.854	52.051	53.475	54.695	0.000	357.757
• RD TEN/0602782N: <i>Mine &amp; Expeditionary Warfare Applied Research</i>	39.652	36.833	34.600	0.000	34.600	39.714	45.332	53.426	59.488	0.000	309.045
• RD TEN/0603235N: <i>Common Picture Advanced Technology</i>	98.618	96.720	53.728	0.000	53.728	48.226	52.897	46.345	40.536	0.000	437.070

**D. Acquisition Strategy**  
(U) RDT&E Contracts are Competitive Procurements.

**E. Performance Metrics**  
Quarterly Program Reviews

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

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 9204: <i>Marine Mammal Research</i>
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<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2011</b>		<b>FY 2012 Base</b>		<b>FY 2012 OCO</b>		<b>FY 2012 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Developmental Test & Evaluation	WR	NUWC:Newport, RI	3.248	1.375	Nov 2010	1.465	Nov 2011	-		1.465	Continuing	Continuing	Continuing
Developmental Test & Evaluation	SS/CPFF	SEA Inc:California	0.680	0.285	Nov 2010	0.295	Dec 2011	-		0.295	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NPGS:Monterey, CA	1.930	0.465	Nov 2010	0.465	Dec 2011	-		0.465	Continuing	Continuing	Continuing
Developmental Test & Evaluation	MIPR	NOAA Fish Science Center:California	1.230	0.770	Nov 2010	0.785	Dec 2011	-		0.785	Continuing	Continuing	Continuing
Developmental Test & Evaluation	SS/CPFF	Scripps Institute:California	5.483	1.690	Nov 2010	1.521	Dec 2011	-		1.521	Continuing	Continuing	Continuing
Developmental Test & Evaluation	SS/CPFF	Oregon State Univ.:Oregon	0.865	0.341	Nov 2010	0.341	Dec 2011	-		0.341	Continuing	Continuing	Continuing
Developmental Test & Evaluation	SS/CPFF	Woods Hole Oceanographic Inst:Massachusettes	1.301	0.600	Nov 2010	0.600	Dec 2011	-		0.600	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	SPAWAR:San Diego, CA	1.332	0.175	Nov 2010	0.179	Nov 2011	-		0.179	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	Cascadia:Cascadia, WA	0.290	1.120	Nov 2010	0.992	Dec 2011	-		0.992	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NOAA Fish Science Center:Massachusettes	0.140	0.260	Nov 2010	0.270	Dec 2011	-		0.270	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NOSSA:Indian Head, MD	0.485	0.375	Nov 2010	0.375	Nov 2011	-		0.375	Continuing	Continuing	Continuing
Developmental Test & Evaluation	SS/CPFF	San Diego State Univ.:San Diego, CA	0.771	0.530	Nov 2010	0.541	Dec 2011	-		0.541	Continuing	Continuing	Continuing
Developmental Test & Evaluation	C/CPFF	St. Andrews Univ.:Scotland	0.030	0.240	Nov 2010	0.260	Dec 2011	-		0.260	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	CNAF:San Diego, CA	1.240	0.075	Nov 2010	0.075	Nov 2011	-		0.075	Continuing	Continuing	Continuing
<b>Subtotal</b>			19.025	8.301		8.164		-		8.164			

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

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 9204: <i>Marine Mammal Research</i>
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Test and Evaluation (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total		Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost				

**Remarks**  
The planned execution strategy is based on the assumption that a formal appropriations bill has been signed into law near the end of the of the fiscal year. This strategy provides sufficient time for field activities receiving funds to obligate funds on contracts w/industry and academia, who are an integral component towards execution of Marine Mammal Research.

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	19.025	8.301		8.164		-		8.164			

**Remarks**

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2012 Navy		<b>DATE:</b> February 2011
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 9204: <i>Marine Mammal Research</i>

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2012 Navy		<b>DATE:</b> February 2011
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 9204: <i>Marine Mammal Research</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 9204</b>				
Marine Mammal Location, Abundance, and Movement	1	2010	4	2016
Criteria and Thresholds, Physiology and Behavior, and Effects of Sound	1	2010	4	2016
Mitigation Methodologies: Monitoring, New Technology, and Risk Assessment	1	2010	4	2016
Acoustic Source Propagation	1	2010	4	2016

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

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 9999: <i>Congressional Adds</i>
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COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
9999: <i>Congressional Adds</i>	0.797	-	-	-	-	-	-	-	-	0.000	0.797
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Congressional Add

**B. Accomplishments/Planned Programs (\$ in Millions)**

<b><i>Congressional Add:</i></b> Compliance Tools Development for Metals in Antifouling Paints	FY 2010	FY 2011
	0.797	-
<b><i>FY 2010 Accomplishments:</i></b> Develop a bioavailability model for copper in estuarine and marine waters, and potential alternative bioavailability-based sediment cleanup targets for metal contaminants, to support environmentally protective use of copper-based antifouling coatings on seagoing ships, and develop more site-specific, and thus cost-effective and achievable sediment cleanup targets for metals at Navy and other DoD sites.		
<b>Congressional Adds Subtotals</b>	0.797	-

**C. Other Program Funding Summary (\$ in Millions)**

N/A

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

Congressional Add