Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603721N *I Environmental Protection*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	381.663	19.194	18.850	13.200	-	13.200	22.231	21.636	21.121	21.562	Continuing	Continuing
0401: *Shipboard Waste Mgmt*	322.481	6.984	7.736	5.612	-	5.612	6.464	6.624	6.716	6.867	Continuing	Continuing
0817: *Environmental Sustainability Development (NESDI)*	24.850	5.670	4.516	3.712	-	3.712	7.178	6.498	6.177	6.303	Continuing	Continuing
9204: *Marine Mammal Research*	34.332	6.540	6.598	3.876	-	3.876	8.589	8.514	8.228	8.392	Continuing	Continuing

The FY 2015 OCO Request will be submitted at a later date.

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 5090.1C, 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. 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. 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. Project 0817 supports RDT&E to develop and validate technologies to enable Navy facilities to comply 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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy					Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*			R-1 Program Element (Number/Name) PE 0603721N *I Environmental Protection*		
B. Program Change Summary ($ in Millions)	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO**	**FY 2015 Total**
Previous President's Budget	21.080	18.850	22.710	-	22.710
Current President's Budget	19.194	18.850	13.200	-	13.200
Total Adjustments	-1.886	-	-9.510	-	-9.510
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.153	-			
• Rate/Misc Adjustments	0.001	-	-9.510	-	-9.510
• Congressional General Reductions Adjustments	-1.734	-	-	-	-

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy										Date: March 2014		
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603721N / *Environmental Protection*				Project (Number/Name) 0401 / *Shipboard Waste Mgmt*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
0401: *Shipboard Waste Mgmt*	322.481	6.984	7.736	5.612	-	5.612	6.464	6.624	6.716	6.867	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

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 and 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 05P5) 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 2013	FY 2014	FY 2015
Title: Technical Authority	1.682	2.261	1.439
Articles:	-	-	-
FY 2013 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 0401 / *Shipboard Waste Mgmt*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Created draft Uniform National Discharge Standards (UNDS) for 25 vessel discharges based on EPA's proposed FY13 Vessel General Permit and Small Vessel General Permit discharges. Coordinated a DoD-wide review of the proposed UNDS discharges. Developed plan to assess the quantity and characterization of solid waste generated on LCS class ships to determine the risk of illegal discharge of solid waste while at sea. ***FY 2014 Plans:*** Develop environmental equipment/system requirements documentation, design criteria and guidance, specifications, standards and certification protocols. Perform test and evaluation to facilitate execution of technical authority for legacy and new-design ship and submarine environmental capabilities. ***FY 2015 Plans:*** Continue development of environmental equipment/system requirements documentation, design criteria/guidance, specifications, standards, and certification protocols. Perform test and evaluation to facilitate execution of technical authority for ship and submarine environmental capabilities.			
Title: Integrated Liquid Wastes	3.087	3.135	2.700
Articles:	-	-	-
FY 2013 Accomplishments: Developed an isolation window that prevents Radar TLI fouling in CHT/VCHT tanks to increase both CHT and Radar TLI reliability while reducing maintenance and personnel exposure to wastewater and increasing shipboard quality of life. Provided support projects related to elimination or reduction of VCHT foaming to address ejector pump cavitation and in-line sensors for treatment Marine Sanitation Devices. Assessed the commercial market for available H2S sensors to address current H2S sensor shortfalls due to shelf life and sensitivity to air contaminants. Assessed NFV Oil/Water Separator on LCS 3 to determine applicability for install to other ship platforms and identify any potential in-service issues. Tracked membrane secondary treatment fouling rate to determine in-service membrane life, including membranes that have been regenerated once fouled. Developed recommendations selection and use of bilge cleaners onboard ships to avoid degradation in the performance of Oil/Water Separators. ***FY 2014 Plans:*** Support rulemaking process in development of UNDS. Continue development of MPCD treatment systems, technologies and procedures, and evaluation of COTS wastewater systems. ***FY 2015 Plans:*** Provide support to UNDS "batch two" rulemaking process. Continue development of MPCD treatment systems, technologies and procedures, and evaluation of COTS wastewater systems.			
Title: Hazardous and Other Major Ship Wastes	1.216	1.307	1.200
Articles:	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 0401 / *Shipboard Waste Mgmt*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
FY 2013 Accomplishments: Revised the hazardous material stowage compatibility chart with input from NAVSUP Safety Center, TYCOMs and USFF. Conducted hazardous material substitution, minimization, and pollution prevention afloat to reduce system safety risk and shipboard waste streams. ***FY 2014 Plans:*** Conduct shipboard hazardous materials substitution and elimination process, and continue test and evaluation of pollution-prevention equipment aboard surface ships and submarines. ***FY 2015 Plans:*** Continue shipboard hazardous materials substitution and elimination process. Continue test and evaluation of pollution-prevention equipment aboard surface ships and submarines.			
Title: Ballast Water Exchange	0.999	1.033	0.273
Articles:	-	-	-
FY 2013 Accomplishments: Reviewed draft DoD Manual Volume #3, Regulations on Vessels Owned and Operated by the Department of Defense: Ballast Water, Well Deck Sediments, and Anchor Sediment Management. Updated and validated ballast water exchange deckplate level documentation on LHD 4 and LSD 47 for shipboard ballast operations. Provided technical feedback to on over 103 technical documents and related U.S. position papers in support of U.S. participation in IMO meetings MEPC 65 and BLG 17. Reviewed draft DoD regulation for Ballast Water for N45. ***FY 2014 Plans:*** Perform ballast water double exchange surveys and procedural product developmental test and evaluation on Expeditionary Warfare ships. ***FY 2015 Plans:*** Building on FY14 efforts, continue ballast water double exchange surveys and procedural product developmental test and evaluation on Expeditionary Warfare ships.			
Accomplishments/Planned Programs Subtotals	6.984	7.736	5.612

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 0401 / *Shipboard Waste Mgmt*

D. Acquisition Strategy

RDT&E Contracts are Competitive Procurements.

E. Performance Metrics

Quarterly Program Reviews

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy												Date: March 2014
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603721N / *Environmental Protection*				Project (Number/Name) 0817 / *Environmental Sustainability Development (NESDI)*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
0817: *Environmental Sustainability Development (NESDI)*	24.850	5.670	4.516	3.712	-	3.712	7.178	6.498	6.177	6.303	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

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 protect and sustain our forces at home and abroad.

This program identifies pervasive Navy shore side 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.

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 of 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: 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, processes, and technologies to minimize regulated emissions, discharges and hazardous material usage during the repair and maintenance of ships, submarines, and surface/

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 0817 / *Environmental Sustainability Development (NESDI)*

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 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, 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. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Maximize Training & Testing Requirements Within Environmental Constraints	0.900	0.764	0.590
Articles:	-	-	-

FY 2013 Accomplishments:
Continue providing 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. Continuation of the risk assessment associated with military expendable material used in underwater ranges. Finalize process to determine background perchlorate sources at Navy ranges. Conduct one-year post survey for cable pull field study to determine long term effects and site recovery of a cable removal in the near-shore environment. Complete assessment of alternative tank target. Continue demonstration of passive samplers for assessing environmentally realistic concentrations of munitions constituents at Underwater Unexploded Ordnance sites and the detection and classification of munitions and explosives of concern in shallow highly dynamic underwater environments. Complete the validation of forensic approaches to perchlorate natural and anthropogenic source identification at

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 0817 / *Environmental Sustainability Development (NESDI)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Navy ranges. Initiate Transportable Field Melter for Recycling of Bombing Range MPPEH, Innovative Cutting Process to Vent Full Scale Non-Explosive Practice Munitions ***FY 2014 Plans:*** Continue providing 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. Complete the risk assessment associated with military expendable material used in underwater ranges. Tech integration of process to determine background perchlorate sources at Navy ranges. Conduct two-year post survey for cable pull field study to determine long term effects and site recovery of a cable removal in the near-shore environment. Continue demonstration of passive samplers for assessing environmentally realistic concentrations of munitions constituents at Underwater Unexploded Ordnance sites and the detection and classification of munitions and explosives of concern in shallow highly dynamic underwater environments. Continue Transportable Field Melter for Recycling of Bombing Range MPPEH, and Innovative Cutting Process to Vent Full Scale Non-Explosive Practice Munitions. ***FY 2015 Plans:*** Continue providing validated knowledge, models, and processes to mitigate environmental impacts, restrictions, and costs of Navy training and test range to maximize the availability and utilization of the ranges. Multi-Spectral Weapon Impact Detection System and Underwater Low Environmental Impact, Munitions Breaching Technology were scheduled to be initiated in FY15.			
Title: Maintenance	1.500	0.860	0.725
Articles:	-	-	-
FY 2013 Accomplishments: 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. Complete aircraft sustainment related projects. Develop dry dock best management practices and decision selection tool assisting Naval Shipyards, stations and bases in meeting the copper discharge standards. Alternative solvents demonstrations for ship maintenance operations and identification of alternatives for NAVSEA targeted chemicals continue. Continue Mobile Pier and Facility Waste Water Treatment System. Initiate Replacement of Film Radiography with Computed Radiography, Demonstrate/Validate Alternatives to Methylene Chloride-based Chemical Paint Strippers, and Qualification of Proposed MIL-P-85891 Type 8 Plastic Media Blast (PMB) as a Replacement for Chemical-based Strippers and Existing Type 5/7 PMB. ***FY 2014 Plans:*** Continue all aviation sustainment related projects related to chrome alternatives and cadmium reductions, continue the elimination of overspray in shipbuilding and facilities maintenance operations. Initiate projects on cyanide waste reduction of electroplating and stripping process, leadfree electric primers for medium caliber ammunition, and mobile pier and facility waste water treatment			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 0817 / *Environmental Sustainability Development (NESDI)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
system. Initiate Demonstration Of Non-Chromated Adhesive Bond Primer For Metal Repair Bonding, Low-VOC and HAP Wipe Solvent and Paint Thinner DEM/VAL. ***FY 2015 Plans:*** Continue all aviation sustainment related projects related to chrome alternatives and cadmium reductions, continue the elimination of overspray in shipbuilding and facilities maintenance operations and mobile pier facility waste water treatment system. Low VOC and HAP Wipe Solvent and Paint Thinner DEM/VAL, DEM/VAL of Non-Chromated Adhesives Bond Primer for Metal Repair Bonding will not be completed. Leaking Thermosetting Elastomer Bomb Sealant in General Purpose Bombs, and Trivalent Chromium Conversion Coating-Enhanced Coloration of Aluminum Substrates will not be initiated.			
Title: Support Shore Readiness within Environmental Constraints ***Articles:*** ***FY 2013 Accomplishments:*** Continue providing new systems and processes to minimize regulated emissions, discharges and hazardous material usage resulting specifically from waterfront support such as the hull maintenance shroud, dry dock surface cleaning, and transition of MAEE. Continue development of a methodology to assess essential fish habitat for Navy coastal properties. Initiate oil boom biofouling control. ***FY 2014 Plans:*** 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 select demonstrations of alternative solvents for industrial operations. Emissions Capture Technology For Oxy-Fuel Hull Cutting Operations. ***FY 2015 Plans:*** 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 select demonstrations of alternative solvents for industrial operations.	1.219 -	1.169 -	0.995 -
Title: Cost-Effective Management of Environmental Regulatory Requirements ***Articles:*** ***FY 2013 Accomplishments:*** 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 Storm water Runoff. Continue efforts such as electrochemical detection and load reduction of copper and zinc in storm water runoff. Optimization of the storm water dual media filtration system at the NRRC in San Diego; modeling tool for Navy facilities to quantify sources, loads & mitigation actions of metals in storm water	2.051 -	1.723 -	1.402 -

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 0817 / *Environmental Sustainability Development (NESDI)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
discharges; compliance with the emerging requirements of the Stage II disinfectant and disinfection byproduct rule; methodology for identifying and quantifying metal pollutant sources in storm water runoff; and Navy-wide expansion of the Programmatic Environmental, Safety and Health Evaluation document authoring tool. Continue with leveraged efforts Smart Water Conservation Systems for Irrigated Landscapes; water conservation: treatment and recycling of waste water; demonstration and validation of sediment ecotoxicity assessment ring technology for assessment of ecological exposure; demonstration and validation of delivery and stability of reactive amendments for the in situ treatment of contaminated sediments in Navy harbors. Initiate work in the separation, detection, and removal of MEC/UXO from contaminated groundwater plumes, validation of a low tech storm water procedural best management practice, dynamic mixing zone modeling for NPDES permits, and toxicity associated with polyaromatic hydrocarbons used in clay targets. Complete DEM/VAL of Automated Condition Assessment of Coral Reefs at Guam Apra Harbor. Initiate Controlling Opacity During Submarine Hull Cutting & Demolition, Alternative Metal Hot Cutting Operations For Opacity, Remove Copper and Other Heavy Metals from Oily Water Treatment System (OWTS) Discharge for Compliance with NPDES Discharge Standards, Improving Non-Hazardous Solid Waste Diversion, A Quantitative Decision Framework for Assessing Navy VI Sites. ***FY 2014 Plans:*** Continue providing validate knowledge, models, processes and systems to improve environmental monitoring and reporting, and reduce the cost to compliance with regulations applicable to coastal contamination and contaminated sediments. Initiate Biological-Fouling (Bio-Fouling) Reduction To Ships Cooling Water Systems, Sustainable Remediation Of Low Ph Aquifers And Aquifers With A Continuing Contaminant Source Using Proton Reduction Technology, Aerobic Bioaugmentation For Remediation Of RDX-Contaminated Groundwater and Evaluation Of Low Impact Development Implementation. ***FY 2015 Plans:*** Continue providing validated knowledge, models, processes and systems to improve environmental monitoring and reporting, and reduce the cost to compliance with regulations applicable to coastal contamination and contaminated sediments. Continue with LID DEM/VAL and Emissions Capture Technology for Oxy-Fuel Hull Cutting Operations.			
Accomplishments/Planned Programs Subtotals	5.670	4.516	3.712

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

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 are often procured directly through the base operating budget. Equipment products

for Shipyards and other Navy Working Capital Fund (NWCF) activities costing over $250K are procured through their Capital Investment Program (CIP). For both types of activities, equipment products costing less than $250K, 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.

E. Performance Metrics

Quarterly Budget Reviews

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603721N / *Environmental Protection*				Project (Number/Name) 9204 / *Marine Mammal Research*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
9204: *Marine Mammal Research*	34.332	6.540	6.598	3.876	-	3.876	8.589	8.514	8.228	8.392	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

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, killing or biologically significant disturbance of marine animals by the use of intense underwater sound. Since Fleet operation and training areas coincide with known or probable habitats, migration routes, or breeding areas of marine mammals and other protected marine species, 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) and Endangered Species Act (ESA).
These areas are (1) Marine Ecology and Population Dynamics - Determine the likelihood of the presence of marine mammals or other protected species by developing habitat and ecological models. Refine marine animal survey techniques to optimize the accuracy of abundance estimates in small ocean regions of Navy interest.
(2) Criteria, Thresholds, and Mitigation - Establish criteria and thresholds from which to measure potential impact on marine mammals and other marine species 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) Mitigation Methodologies - Determine the observation, detection and classification measures required to develop effective monitoring and mitigation procedures for Fleet and SYSCOM use. Focus on improving marine animal monitoring capabilities over current methods by developing new technologies or improving existing technologies that improve monitoring and mitigation effectiveness, reduce cost, and minimize impacts on readiness activities.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2013**	**FY 2014**	**FY 2015**
Title: Marine Ecology and Population Dynamics	1.085	1.467	0.735
Articles:	-	-	-
FY 2013 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 9204 / *Marine Mammal Research*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Continue research on ecosystems; sensor and tag development; with a priority emphasis on the population structure of beaked whales in the vicinity of Navy training ranges.First data on marine mammal response to Navy sonar source using controlled exposure methods. Initiated transition of NUWC M3R range self-monitoring to the range operator. ***FY 2014 Plans:*** Continue research on ecosystems status and habitat use by marine species of Navy interest; sensor and tag development; with a priority emphasis on the population structure of beaked whales in the vicinity of Navy training ranges. Work with the Navy Marine Species Density data program to develop data standards and data management standards consistent with the best standards of the expert community. ***FY 2015 Plans:*** Continue research on ecosystems status and habitat use by marine species of Navy interest; sensor and tag development; with a priority emphasis on the population structure of beaked whales in the vicinity of Navy training ranges. Work with the Navy Marine Species Density data program to develop data standards and data management standards consistent with the best standards of the expert community.			
Title: Criteria and Thresholds, Physiology and Behavior, and Effects of Sound	2.948	3.654	1.113
Articles:	-	-	-
FY 2013 Accomplishments: Continue 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 - first data from actual Navy sonars in realistic training scenarios. Continue research on selected topics related to hearing-based criteria, such as hearing weighting functions an danatomically derived hearing properties for species that cannot be tested directly. ***FY 2014 Plans:*** Continue 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. Continue research on selected topics related to hearing-based criteria, such as hearing weighting functions an danatomically derived hearing properties for species that cannot be tested directly. ***FY 2015 Plans:*** Continue 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; reduced effort with fewer Navy ship playbacks.			
Title: Mitigation Methodologies: Monitoring, New Technology, and Risk Assess	2.507	1.477	2.028
Articles:	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 9204 / *Marine Mammal Research*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
FY 2013 Accomplishments: Began transition of NUWC M3R capabilities to allow instrumented ranges to self-monitor at greatly reduced cost, also adapted to MINEX training areas, reducing explosives risk to transiting marine mammals. ***FY 2014 Plans:*** Continue 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 for improved performance, reduced cost and reduced impacts on the realism and effectiveness of readiness training. In FY 14 and beyond an increased effort in assessing the potential of unmanned air and underwater platforms is anticipated, to reduce the cost of monitoring, expand coverage and reduce impacts on readiness training. ***FY 2015 Plans:*** Continue effective monitoring and mitigation procedures for Fleet and SYSCOM use in support of the Marine Mammal Research program (MMR) and in compliance with Environmental regulations. Continue monitoring capabilities of marine animals to include; development of new technologies. Improving on existing technologies such as, High-Frequency Recording Package (HAPR) for required Navy rage acoustic monitoring, and improves monitoring and mitigation effectiveness, reduce cost, and minimize impacts on readiness activities.			
Accomplishments/Planned Programs Subtotals	6.540	6.598	3.876

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

(U) RDTEN Contracts are Competitive Procurements.

E. Performance Metrics

Quarterly Program Reviews

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 9204 / *Marine Mammal Research*

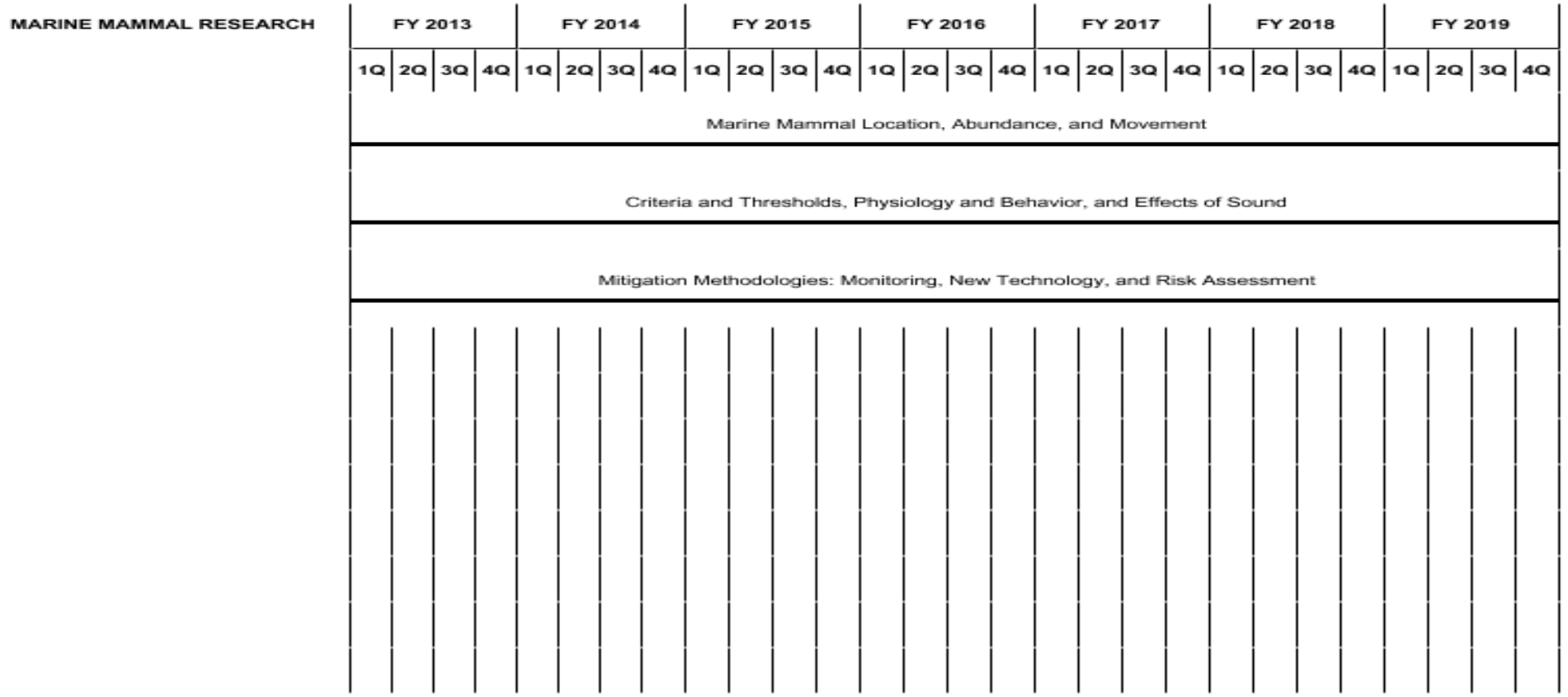

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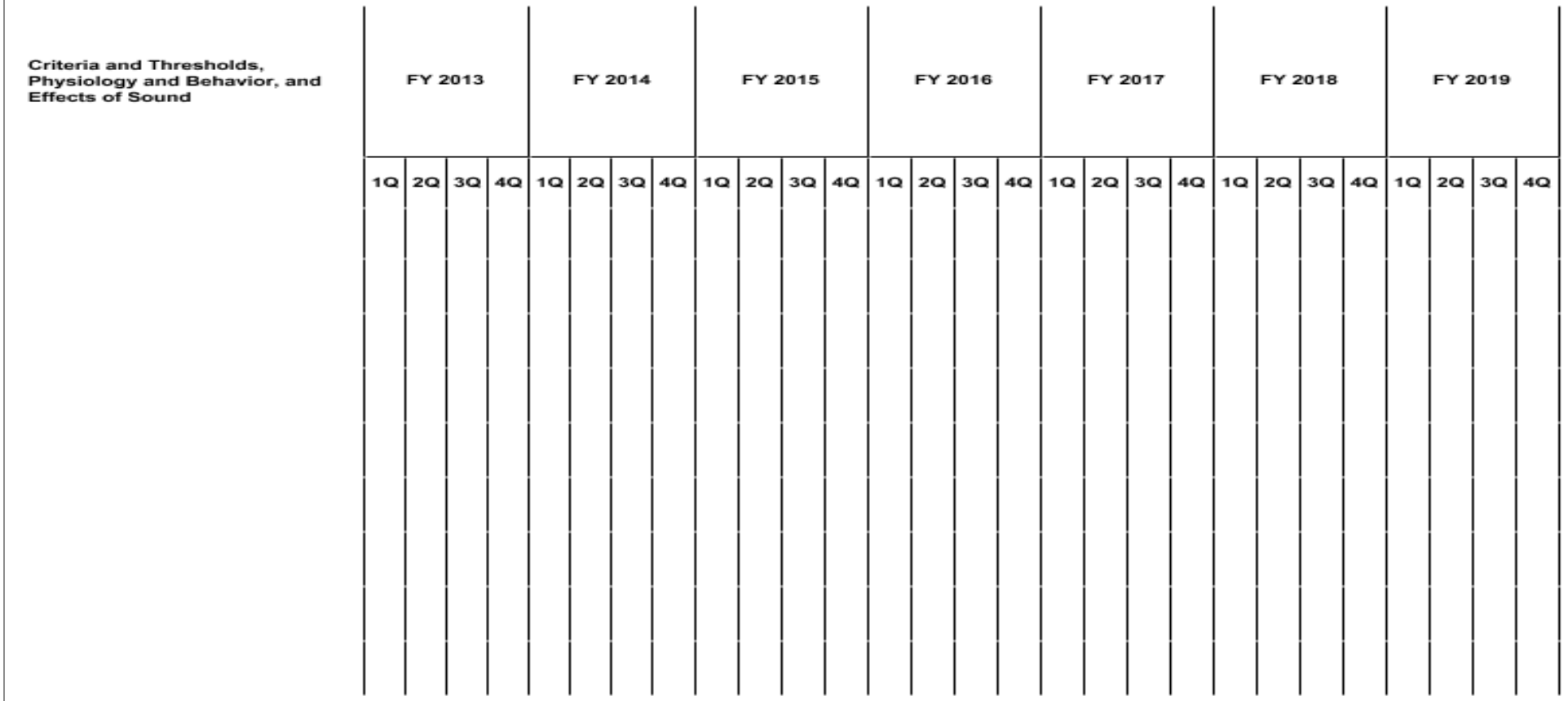
Exhibit R-4, **RDT&E Schedule Profile:** PB 2015 Navy		**Date:** March 2014
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603721N / *Environmental Protection*	**Project (Number/Name)** 9204 / *Marine Mammal Research*



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