

**UNCLASSIFIED**

|                                                                       |                         |
|-----------------------------------------------------------------------|-------------------------|
| <b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2014 Navy | <b>DATE:</b> April 2013 |
|-----------------------------------------------------------------------|-------------------------|

| APPROPRIATION/BUDGET ACTIVITY                                                                                                               |                 |         |                      |              | R-1 ITEM NOMENCLATURE                        |               |         |         |         |         |                  |            |
|---------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------|----------------------|--------------|----------------------------------------------|---------------|---------|---------|---------|---------|------------------|------------|
| 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i><br>BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i> |                 |         |                      |              | PE 0603721N: <i>Environmental Protection</i> |               |         |         |         |         |                  |            |
| COST (\$ in Millions)                                                                                                                       | All Prior Years | FY 2012 | FY 2013 <sup>#</sup> | FY 2014 Base | FY 2014 OCO <sup>##</sup>                    | FY 2014 Total | FY 2015 | FY 2016 | FY 2017 | FY 2018 | Cost To Complete | Total Cost |
| Total Program Element                                                                                                                       | 362.616         | 21.407  | 21.080               | 18.850       | -                                            | 18.850        | 22.710  | 22.531  | 22.367  | 22.680  | Continuing       | Continuing |
| 0401: <i>Shipboard Waste Mgmt</i>                                                                                                           | 314.925         | 7.556   | 7.596                | 7.736        | -                                            | 7.736         | 7.752   | 7.556   | 7.731   | 7.834   | Continuing       | Continuing |
| 0817: <i>Environmental Sustainability Development (NESDI)</i>                                                                               | 21.225          | 5.845   | 5.889                | 4.516        | -                                            | 4.516         | 7.004   | 6.878   | 6.407   | 6.499   | Continuing       | Continuing |
| 9204: <i>Marine Mammal Research</i>                                                                                                         | 26.466          | 8.006   | 7.595                | 6.598        | -                                            | 6.598         | 7.954   | 8.097   | 8.229   | 8.347   | Continuing       | Continuing |

<sup>#</sup> FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

<sup>##</sup> The FY 2014 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.

**UNCLASSIFIED**

|                                                            |         |                                       |              |                  |               |
|------------------------------------------------------------|---------|---------------------------------------|--------------|------------------|---------------|
| Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy |         |                                       |              | DATE: April 2013 |               |
| APPROPRIATION/BUDGET ACTIVITY                              |         | R-1 ITEM NOMENCLATURE                 |              |                  |               |
| 1319: Research, Development, Test & Evaluation, Navy       |         | PE 0603721N: Environmental Protection |              |                  |               |
| BA 4: Advanced Component Development & Prototypes (ACD&P)  |         |                                       |              |                  |               |
| B. Program Change Summary (\$ in Millions)                 | FY 2012 | FY 2013                               | FY 2014 Base | FY 2014 OCO      | FY 2014 Total |
| Previous President's Budget                                | 21.714  | 21.080                                | 21.615       | -                | 21.615        |
| Current President's Budget                                 | 21.407  | 21.080                                | 18.850       | -                | 18.850        |
| Total Adjustments                                          | -0.307  | 0.000                                 | -2.765       | -                | -2.765        |
| • Congressional General Reductions                         | -       | -                                     |              |                  |               |
| • Congressional Directed Reductions                        | -       | -                                     |              |                  |               |
| • Congressional Rescissions                                | -       | -                                     |              |                  |               |
| • Congressional Adds                                       | -       | -                                     |              |                  |               |
| • Congressional Directed Transfers                         | -       | -                                     |              |                  |               |
| • Reprogrammings                                           | -       | -                                     |              |                  |               |
| • SBIR/STTR Transfer                                       | -0.307  | 0.000                                 |              |                  |               |
| • Program Adjustments                                      | 0.000   | 0.000                                 | -0.040       | -                | -0.040        |
| • Rate/Misc Adjustments                                    | 0.000   | 0.000                                 | -2.725       | -                | -2.725        |
| Change Summary Explanation                                 |         |                                       |              |                  |               |
| Technical: Not applicable.                                 |         |                                       |              |                  |               |
| Schedule: Not applicable.                                  |         |                                       |              |                  |               |

# UNCLASSIFIED

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                 |         |                      |              |                                                                |               |         |         |                                       |         |                  |            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------|----------------------|--------------|----------------------------------------------------------------|---------------|---------|---------|---------------------------------------|---------|------------------|------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                 |         |                      |              |                                                                |               |         |         | DATE: April 2013                      |         |                  |            |
| APPROPRIATION/BUDGET ACTIVITY<br>1319: Research, Development, Test & Evaluation, Navy<br>BA 4: Advanced Component Development & Prototypes (ACD&P)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                 |         |                      |              | R-1 ITEM NOMENCLATURE<br>PE 0603721N: Environmental Protection |               |         |         | PROJECT<br>0401: Shipboard Waste Mgmt |         |                  |            |
| COST (\$ in Millions)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | All Prior Years | FY 2012 | FY 2013 <sup>#</sup> | FY 2014 Base | FY 2014 OCO <sup>##</sup>                                      | FY 2014 Total | FY 2015 | FY 2016 | FY 2017                               | FY 2018 | Cost To Complete | Total Cost |
| 0401: Shipboard Waste Mgmt                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 314.925         | 7.556   | 7.596                | 7.736        | -                                                              | 7.736         | 7.752   | 7.556   | 7.731                                 | 7.834   | Continuing       | Continuing |
| Quantity of RDT&E Articles                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 0               | 0       | 0                    | 0            |                                                                | 0             | 0       | 0       | 0                                     | 0       |                  |            |
| # FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 |         |                      |              |                                                                |               |         |         |                                       |         |                  |            |
| ## The FY 2014 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 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 2012                               | FY 2013 | FY 2014          |            |
| Title: Technical Authority                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                 |         |                      |              |                                                                |               |         |         | 2.230                                 | 2.280   | 2.261            |            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                 |         |                      |              |                                                                |               |         |         | 0                                     | 0       | 0                |            |
| FY 2012 Accomplishments:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                 |         |                      |              |                                                                |               |         |         |                                       |         |                  |            |

**UNCLASSIFIED**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                              |                                                     |                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|-----------------------------------------------------|----------------|
| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2014 Navy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                              | <b>DATE:</b> April 2013                             |                |
| <b>APPROPRIATION/BUDGET ACTIVITY</b><br>1319: <i>Research, Development, Test &amp; Evaluation, Navy</i><br>BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>R-1 ITEM NOMENCLATURE</b><br>PE 0603721N: <i>Environmental Protection</i> | <b>PROJECT</b><br>0401: <i>Shipboard Waste Mgmt</i> |                |
| <b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                              | <b>FY 2012</b>                                      | <b>FY 2013</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.<br><br><b>FY 2013 Plans:</b><br>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.<br><br><b>FY 2014 Plans:</b><br>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. |                                                                              |                                                     |                |
| <b>Title:</b> Integrated Liquid Wastes<br><br><b>FY 2012 Accomplishments:</b><br>Continue to support rulemaking process in development of UNDS. Continue development of MPCD treatment systems, technologies and procedures, and evaluation of COTS wastewater systems.<br><br><b>FY 2013 Plans:</b><br>Continue to support rulemaking process in development of UNDS. Continue development of MPCD treatment systems, technologies and procedures, and evaluation of COTS wastewater systems.<br><br><b>FY 2014 Plans:</b><br>Continue to support rulemaking process in development of UNDS. Continue development of MPCD treatment systems, technologies and procedures, and evaluation of COTS wastewater systems.                                                                                                                                                                                                                                                                                                                                              |                                                                              | 3.026<br>0                                          | 3.087<br>0     |
| <b>Title:</b> Hazardous and Other Major Ship Wastes<br><br><b>FY 2012 Accomplishments:</b><br>Continue shipboard hazardous materials substitution and elimination process, and continue test and evaluation of pollution-prevention equipment aboard surface ships and submarines.<br><br><b>FY 2013 Plans:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                              | 1.100<br>0                                          | 1.216<br>0     |

## UNCLASSIFIED

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |                                                                              |                                                     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------|-----------------------------------------------------|
| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2014 Navy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  | <b>DATE:</b> April 2013                                                      |                                                     |
| <b>APPROPRIATION/BUDGET ACTIVITY</b><br>1319: <i>Research, Development, Test &amp; Evaluation, Navy</i><br>BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>                                                                                                                                                                                                                                                                                                                                                                                                                        |  | <b>R-1 ITEM NOMENCLATURE</b><br>PE 0603721N: <i>Environmental Protection</i> | <b>PROJECT</b><br>0401: <i>Shipboard Waste Mgmt</i> |
| <b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  | <b>FY 2012</b>                                                               | <b>FY 2013</b>                                      |
| Continue shipboard hazardous materials substitution and elimination process, and continue test and evaluation of pollution-prevention equipment aboard surface ships and submarines.                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                                                                              |                                                     |
| <b>FY 2014 Plans:</b><br>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> Ballast Water Exchange                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                                                                              |                                                     |
| <b>Articles:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  | 1.000<br>0                                                                   | 1.013<br>0                                          |
| <b>FY 2012 Accomplishments:</b><br>Continue ballast water double exchange surveys and procedural product developmental test and evaluation on Expeditionary Warfare ships.                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |                                                                              |                                                     |
| <b>FY 2013 Plans:</b><br>Continue ballast water double exchange surveys and procedural product developmental test and evaluation on Expeditionary Warfare ships.                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                              |                                                     |
| <b>FY 2014 Plans:</b><br>Continue ballast water double exchange surveys and procedural product developmental test and evaluation on Expeditionary Warfare ships.                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                              |                                                     |
| <b>Title:</b> Common Systems Assessment, Evaluation and Specification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                                                              |                                                     |
| <b>Articles:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  | 0.200<br>0                                                                   | 0.000                                               |
| <b>FY 2012 Accomplishments:</b><br>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. |  |                                                                              |                                                     |
| <b>Accomplishments/Planned Programs Subtotals</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | 7.556                                                                        | 7.596                                               |
| <b>C. Other Program Funding Summary (\$ in Millions)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                                                                              |                                                     |
| N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                              |                                                     |
| <b>Remarks</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                                                              |                                                     |

**UNCLASSIFIED**

PE 0603721N: *Environmental Protection*  
Navy

**UNCLASSIFIED**

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy                                                                                             |                        |                                        |                 |         |            |                                                                |            |              |            |                                       |            | DATE: April 2013 |                  |            |                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|----------------------------------------|-----------------|---------|------------|----------------------------------------------------------------|------------|--------------|------------|---------------------------------------|------------|------------------|------------------|------------|--------------------------|
| APPROPRIATION/BUDGET ACTIVITY<br>1319: Research, Development, Test & Evaluation, Navy<br>BA 4: Advanced Component Development & Prototypes (ACD&P) |                        |                                        |                 |         |            | R-1 ITEM NOMENCLATURE<br>PE 0603721N: Environmental Protection |            |              |            | PROJECT<br>0401: Shipboard Waste Mgmt |            |                  |                  |            |                          |
| Product Development (\$ in Millions)                                                                                                               |                        |                                        |                 | FY 2012 |            | FY 2013                                                        |            | FY 2014 Base |            | FY 2014 OCO                           |            | FY 2014 Total    |                  |            |                          |
| Cost Category Item                                                                                                                                 | Contract Method & Type | Performing Activity & Location         | All Prior Years | Cost    | Award Date | Cost                                                           | Award Date | Cost         | Award Date | Cost                                  | Award Date | Cost             | Cost To Complete | Total Cost | Target Value of Contract |
| Ancillary Hardware Development                                                                                                                     | Various                | Misc. Contracts:Not Specified          | 19.149          | 0.000   |            | 0.000                                                          |            | 0.000        |            | -                                     |            | 0.000            | 0.000            | 19.149     | Continuing               |
| Primary Hardware Development                                                                                                                       | C/CPFF                 | Oceaneering:Not Specified              | 1.000           | 0.000   |            | 0.000                                                          |            | 0.000        |            | -                                     |            | 0.000            | 0.000            | 1.000      | Continuing               |
| Systems Engineering                                                                                                                                | C/CPFF                 | John J. McMullen & Son:Not Specified   | 4.487           | 0.000   |            | 0.000                                                          |            | 0.000        |            | -                                     |            | 0.000            | 0.000            | 4.487      | Continuing               |
| Subtotal                                                                                                                                           |                        |                                        | 24.636          | 0.000   |            | 0.000                                                          |            | 0.000        |            | 0.000                                 |            | 0.000            | 0.000            | 24.636     |                          |
| Support (\$ in Millions)                                                                                                                           |                        |                                        |                 | FY 2012 |            | FY 2013                                                        |            | FY 2014 Base |            | FY 2014 OCO                           |            | FY 2014 Total    |                  |            |                          |
| Cost Category Item                                                                                                                                 | Contract Method & Type | Performing Activity & Location         | All Prior Years | Cost    | Award Date | Cost                                                           | Award Date | Cost         | Award Date | Cost                                  | Award Date | Cost             | Cost To Complete | Total Cost | Target Value of Contract |
| Software Development                                                                                                                               | WR                     | SPAWAR:Charleston, SC                  | 10.838          | 0.000   |            | 0.000                                                          |            | 0.000        |            | -                                     |            | 0.000            | 0.000            | 10.838     | Continuing               |
| Subtotal                                                                                                                                           |                        |                                        | 10.838          | 0.000   |            | 0.000                                                          |            | 0.000        |            | 0.000                                 |            | 0.000            | 0.000            | 10.838     |                          |
| Test and Evaluation (\$ in Millions)                                                                                                               |                        |                                        |                 | FY 2012 |            | FY 2013                                                        |            | FY 2014 Base |            | FY 2014 OCO                           |            | FY 2014 Total    |                  |            |                          |
| Cost Category Item                                                                                                                                 | Contract Method & Type | Performing Activity & Location         | All Prior Years | Cost    | Award Date | Cost                                                           | Award Date | Cost         | Award Date | Cost                                  | Award Date | Cost             | Cost To Complete | Total Cost | Target Value of Contract |
| Developmental Test & Evaluation                                                                                                                    | MIPR                   | US Army Corps of Engineers:Norfolk, VA | 0.687           | 0.000   |            | 0.000                                                          |            | 0.000        |            | -                                     |            | 0.000            | Continuing       | Continuing | Continuing               |
| Developmental Test & Evaluation                                                                                                                    | WR                     | NSWCCD, Bethesda, MD:Bethesda, MD      | 174.528         | 6.816   | Nov 2011   | 6.816                                                          | Nov 2012   | 7.066        | Nov 2013   | -                                     |            | 7.066            | Continuing       | Continuing | Continuing               |
| Developmental Test & Evaluation                                                                                                                    | WR                     | NSWCIRD:Indian Head, MD                | 0.000           | 0.453   | Aug 2012   | 0.647                                                          | Feb 2013   | 0.525        | Feb 2014   | -                                     |            | 0.525            | 0.000            | 1.625      |                          |
| Developmental Test & Evaluation                                                                                                                    | WR                     | NRL,Wash,DC:Wash,DC                    | 30.661          | 0.000   |            | 0.000                                                          |            | 0.000        |            | -                                     |            | 0.000            | 0.000            | 30.661     |                          |
| Developmental Test & Evaluation                                                                                                                    | WR                     | SPAWARSYSCEN:SD,CA                     | 1.952           | 0.113   | Nov 2011   | 0.113                                                          | Nov 2012   | 0.125        | Nov 2013   | -                                     |            | 0.125            | Continuing       | Continuing | Continuing               |

**UNCLASSIFIED**

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy                                                            |                        |                                        |                 |         |            |                                       |            |              |            |                            |            | DATE: April 2013 |                  |            |                          |
|-------------------------------------------------------------------------------------------------------------------|------------------------|----------------------------------------|-----------------|---------|------------|---------------------------------------|------------|--------------|------------|----------------------------|------------|------------------|------------------|------------|--------------------------|
| APPROPRIATION/BUDGET ACTIVITY                                                                                     |                        |                                        |                 |         |            | R-1 ITEM NOMENCLATURE                 |            |              |            | PROJECT                    |            |                  |                  |            |                          |
| 1319: Research, Development, Test & Evaluation, Navy<br>BA 4: Advanced Component Development & Prototypes (ACD&P) |                        |                                        |                 |         |            | PE 0603721N: Environmental Protection |            |              |            | 0401: Shipboard Waste Mgmt |            |                  |                  |            |                          |
| Test and Evaluation (\$ in Millions)                                                                              |                        |                                        |                 | FY 2012 |            | FY 2013                               |            | FY 2014 Base |            | FY 2014 OCO                |            | FY 2014 Total    |                  |            |                          |
| Cost Category Item                                                                                                | Contract Method & Type | Performing Activity & Location         | All Prior Years | Cost    | Award Date | Cost                                  | Award Date | Cost         | Award Date | Cost                       | Award Date | Cost             | Cost To Complete | Total Cost | Target Value of Contract |
| Developmental Test & Evaluation                                                                                   | WR                     | Misc. Govt Labs:TBD                    | 22.975          | 0.000   |            | 0.000                                 |            | 0.000        |            | -                          |            | 0.000            | 0.000            | 22.975     |                          |
| Developmental Test & Evaluation                                                                                   | C/CPFF                 | SAIC:San Diego, CA                     | 15.570          | 0.000   |            | 0.000                                 |            | 0.000        |            | -                          |            | 0.000            | 0.000            | 15.570     |                          |
| Developmental Test & Evaluation                                                                                   | C/CPFF                 | Misc. Contracts:TBD                    | 13.103          | 0.000   |            | 0.000                                 |            | 0.000        |            | -                          |            | 0.000            | Continuing       | Continuing | Continuing               |
| Process Control Engineering                                                                                       | C/CPFF                 | M. Rosenblatt & Sons:Arlington, VA     | 6.547           | 0.000   |            | 0.000                                 |            | 0.000        |            | -                          |            | 0.000            | 0.000            | 6.547      | Continuing               |
| Developmental Test & Evaluation                                                                                   | C/CPFF                 | ONR:Arlington, VA                      | 0.400           | 0.000   |            | 0.000                                 |            | 0.000        |            | -                          |            | 0.000            | 0.000            | 0.400      | Continuing               |
| Developmental Test & Evaluation                                                                                   | WR                     | Naval Postgraduate School:Monterey, CA | 1.800           | 0.000   |            | 0.000                                 |            | 0.000        |            | -                          |            | 0.000            | 0.000            | 1.800      | Continuing               |
| Process Control Engineering                                                                                       | MIPR                   | EPA, Hdqtrs:Washington, DC             | 0.840           | 0.000   |            | 0.000                                 |            | 0.000        |            | -                          |            | 0.000            | 0.000            | 0.840      | Continuing               |
| Subtotal                                                                                                          |                        |                                        | 279.063         | 7.382   |            | 7.576                                 |            | 7.716        |            | 0.000                      |            | 7.716            |                  |            |                          |
| Management Services (\$ in Millions)                                                                              |                        |                                        |                 | FY 2012 |            | FY 2013                               |            | FY 2014 Base |            | FY 2014 OCO                |            | FY 2014 Total    |                  |            |                          |
| Cost Category Item                                                                                                | Contract Method & Type | Performing Activity & Location         | All Prior Years | Cost    | Award Date | 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               | 0.310           | 0.025   | Nov 2011   | 0.020                                 | Nov 2012   | 0.020        | Nov 2013   | -                          |            | 0.020            | Continuing       | Continuing | Continuing               |
| SBIR Assessment                                                                                                   | TBD                    | Not Specified:Not Specified            | 0.078           | 0.149   | Feb 2012   | 0.000                                 |            | 0.000        |            | -                          |            | 0.000            | 0.000            | 0.227      | Continuing               |
| Subtotal                                                                                                          |                        |                                        | 0.388           | 0.174   |            | 0.020                                 |            | 0.020        |            | 0.000                      |            | 0.020            |                  |            |                          |
|                                                                                                                   |                        |                                        | All Prior Years | FY 2012 |            | FY 2013                               |            | FY 2014 Base |            | FY 2014 OCO                |            | FY 2014 Total    | Cost To Complete | Total Cost | Target Value of Contract |
| Project Cost Totals                                                                                               |                        |                                        | 314.925         | 7.556   |            | 7.596                                 |            | 7.736        |            | 0.000                      |            | 7.736            |                  |            |                          |
|                                                                                                                   |                        |                                        |                 |         |            |                                       |            |              |            |                            |            |                  |                  |            |                          |



UNCLASSIFIED

|                                                                                                                                                    |                    |         |         |                                                                |                |                  |                                       |               |                                |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------|---------|----------------------------------------------------------------|----------------|------------------|---------------------------------------|---------------|--------------------------------|--|
| Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy                                                                                             |                    |         |         |                                                                |                |                  | DATE: April 2013                      |               |                                |  |
| APPROPRIATION/BUDGET ACTIVITY<br>1319: Research, Development, Test & Evaluation, Navy<br>BA 4: Advanced Component Development & Prototypes (ACD&P) |                    |         |         | R-1 ITEM NOMENCLATURE<br>PE 0603721N: Environmental Protection |                |                  | PROJECT<br>0401: Shipboard Waste Mgmt |               |                                |  |
|                                                                                                                                                    | All Prior<br>Years | FY 2012 | FY 2013 | FY 2014<br>Base                                                | FY 2014<br>OCO | FY 2014<br>Total | Cost To<br>Complete                   | Total<br>Cost | Target<br>Value of<br>Contract |  |
| Remarks                                                                                                                                            |                    |         |         |                                                                |                |                  |                                       |               |                                |  |

**UNCLASSIFIED**

|                                                                                                                                                                                     |  |  |  |  |  |  |  |  |  |                                                                              |  |  |  |  |                         |  |  |  |  |                                                     |  |  |  |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|--|--|--|--|------------------------------------------------------------------------------|--|--|--|--|-------------------------|--|--|--|--|-----------------------------------------------------|--|--|--|--|
| <b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2014 Navy                                                                                                                        |  |  |  |  |  |  |  |  |  |                                                                              |  |  |  |  | <b>DATE:</b> April 2013 |  |  |  |  |                                                     |  |  |  |  |
| <b>APPROPRIATION/BUDGET ACTIVITY</b><br>1319: <i>Research, Development, Test &amp; Evaluation, Navy</i><br>BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i> |  |  |  |  |  |  |  |  |  | <b>R-1 ITEM NOMENCLATURE</b><br>PE 0603721N: <i>Environmental Protection</i> |  |  |  |  |                         |  |  |  |  | <b>PROJECT</b><br>0401: <i>Shipboard Waste Mgmt</i> |  |  |  |  |

  

|                                   |                                                                           |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |
|-----------------------------------|---------------------------------------------------------------------------|----|----|----|---------|----|----|----|---------|----|----|----|---------|----|----|----|---------|----|----|----|---------|----|----|----|---------|----|----|----|
| <b>SHIPBOARD WASTE MANAGEMENT</b> | FY 2012                                                                   |    |    |    | FY 2013 |    |    |    | FY 2014 |    |    |    | FY 2015 |    |    |    | FY 2016 |    |    |    | FY 2017 |    |    |    | FY 2018 |    |    |    |
|                                   | 1Q                                                                        | 2Q | 3Q | 4Q | 1Q      | 2Q | 3Q | 4Q | 1Q      | 2Q | 3Q | 4Q | 1Q      | 2Q | 3Q | 4Q | 1Q      | 2Q | 3Q | 4Q | 1Q      | 2Q | 3Q | 4Q | 1Q      | 2Q | 3Q | 4Q |
|                                   | Uniform National Discharge Standards (UNDS ) Rulemaking                   |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |
|                                   | Develop & Evaluate Marine Pollution Control Device Systems & Technologies |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |
|                                   | Evaluate Commercial Wastewater Treatment Systems                          |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |
|                                   | Hazardous Materials and Pollution Prevention                              |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |
|                                   | Technical Authority                                                       |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |
|                                   | Ballast Water Exchange                                                    |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |
|                                   | Common Systems Assessment, Evaluation and Specification                   |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |
|                                   |                                                                           |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |

  

2014DON - 0603721N - 0401

**UNCLASSIFIED**

|                                                                                                                                                                                     |                                                                              |                                                     |                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|-----------------------------------------------------|-------------------------|
| <b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2014 Navy                                                                                                                       |                                                                              |                                                     | <b>DATE:</b> April 2013 |
| <b>APPROPRIATION/BUDGET ACTIVITY</b><br>1319: <i>Research, Development, Test &amp; Evaluation, Navy</i><br>BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i> | <b>R-1 ITEM NOMENCLATURE</b><br>PE 0603721N: <i>Environmental Protection</i> | <b>PROJECT</b><br>0401: <i>Shipboard Waste Mgmt</i> |                         |

Schedule Details

| Events by Sub Project                                                     | Start   |      | End     |      |
|---------------------------------------------------------------------------|---------|------|---------|------|
|                                                                           | Quarter | Year | Quarter | Year |
| <b><i>SHIPBOARD WASTE MANAGEMENT</i></b>                                  |         |      |         |      |
| Uniform National Discharge Standards (UNDS ) Rulemaking                   | 1       | 2012 | 4       | 2018 |
| Develop & Evaluate Marine Pollution Control Device Systems & Technologies | 1       | 2012 | 4       | 2018 |
| Evaluate Commercial Wastewater Treatment Systems                          | 1       | 2012 | 4       | 2018 |
| Hazardous Materials and Pollution Prevention                              | 1       | 2012 | 4       | 2018 |
| Technical Authority                                                       | 1       | 2012 | 4       | 2018 |
| Ballast Water Exchange                                                    | 1       | 2012 | 4       | 2015 |
| Common Systems Assessment, Evaluation and Specification                   | 1       | 2012 | 4       | 2012 |

**UNCLASSIFIED**

|                                                                                                                                                    |                 |         |                      |              |                                                                |               |         |         |                                                                   |                  |                  |            |
|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------|----------------------|--------------|----------------------------------------------------------------|---------------|---------|---------|-------------------------------------------------------------------|------------------|------------------|------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy                                                                                            |                 |         |                      |              |                                                                |               |         |         |                                                                   | DATE: April 2013 |                  |            |
| APPROPRIATION/BUDGET ACTIVITY<br>1319: Research, Development, Test & Evaluation, Navy<br>BA 4: Advanced Component Development & Prototypes (ACD&P) |                 |         |                      |              | R-1 ITEM NOMENCLATURE<br>PE 0603721N: Environmental Protection |               |         |         | PROJECT<br>0817: Environmental Sustainability Development (NESDI) |                  |                  |            |
| COST (\$ in Millions)                                                                                                                              | All Prior Years | FY 2012 | FY 2013 <sup>#</sup> | FY 2014 Base | FY 2014 OCO <sup>##</sup>                                      | FY 2014 Total | FY 2015 | FY 2016 | FY 2017                                                           | FY 2018          | Cost To Complete | Total Cost |
| 0817: Environmental Sustainability Development (NESDI)                                                                                             | 21.225          | 5.845   | 5.889                | 4.516        | -                                                              | 4.516         | 7.004   | 6.878   | 6.407                                                             | 6.499            | Continuing       | Continuing |
| Quantity of RDT&E Articles                                                                                                                         | 0               | 0       | 0                    | 0            |                                                                | 0             | 0       | 0       | 0                                                                 | 0                |                  |            |

<sup>#</sup> FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

<sup>##</sup> The FY 2014 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,

# UNCLASSIFIED

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |                                                                |                                                                   |         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------|-------------------------------------------------------------------|---------|
| Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  | DATE: April 2013                                               |                                                                   |         |
| APPROPRIATION/BUDGET ACTIVITY<br>1319: Research, Development, Test & Evaluation, Navy<br>BA 4: Advanced Component Development & Prototypes (ACD&P)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  | R-1 ITEM NOMENCLATURE<br>PE 0603721N: Environmental Protection | PROJECT<br>0817: Environmental Sustainability Development (NESDI) |         |
| <p>processes, 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.</p> <p>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.</p> <p>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.</p> |  |                                                                |                                                                   |         |
| B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  | FY 2012                                                        | FY 2013                                                           | FY 2014 |
| Title: Maximize Training & Testing Requirements Within Environmental Constraints                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  | 1.913                                                          | 1.370                                                             | 0.650   |
| Articles:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  | 0                                                              | 0                                                                 | 0       |
| FY 2012 Accomplishments:<br>Completed the laboratory analysis of the long term disposition of seafloor cables, which identifies cable impacts to the marine environment aiding the sustainment and management of Navy underwater ranges and supports new underwater surveillance systems that require the laying of seafloor hardware and cables. In addition, the analysis of the environmental effects of lasers on biota in the marine environment was completed. The culmination of this work provided the Navy environmental planning offices with the tools necessary to technically defend EISs as they relate to the use of lasers in the marine environment. In addition, the validation of forensic approaches to per-chlorate source identification at Navy ranges was completed. Implemented best management practice DEM/VAL for mitigation of environmental impacts from venting of full scale practice bombs at Navy ranges.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |                                                                |                                                                   |         |

# UNCLASSIFIED

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |                                                                              |                         |                                                                                 |                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------|-------------------------|---------------------------------------------------------------------------------|----------------|
| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2014 Navy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                              | <b>DATE:</b> April 2013 |                                                                                 |                |
| <b>APPROPRIATION/BUDGET ACTIVITY</b><br>1319: <i>Research, Development, Test &amp; Evaluation, Navy</i><br>BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | <b>R-1 ITEM NOMENCLATURE</b><br>PE 0603721N: <i>Environmental Protection</i> |                         | <b>PROJECT</b><br>0817: <i>Environmental Sustainability Development (NESDI)</i> |                |
| <b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                                                              | <b>FY 2012</b>          | <b>FY 2013</b>                                                                  | <b>FY 2014</b> |
| Accomplishments include conducting a field study for long term disposition of seafloor communication cables. Initiated site analysis for the detection and classification of MEC in shallow highly-dynamic underwater environments.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |                                                                              |                         |                                                                                 |                |
| <b>FY 2013 Plans:</b><br>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 Navy ranges. Initiate Transportable Field Melter for Recycling of Bombing Range MPPEH, Innovative Cutting Process to Vent Full Scale Non-Explosive Practice Munitions |  |                                                                              |                         |                                                                                 |                |
| <b>FY 2014 Plans:</b><br>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. Continue transportable Field Melter for Recycling of Bombing Range MPPEH, Innovative Cutting Process to Vent Full Scale Non-Explosive Practice Munitions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                                                                              |                         |                                                                                 |                |
| <b>Title:</b> Maintenance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                                                              | 0.900                   | 1.080                                                                           | 0.860          |
| <b>Articles:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                                                              | 0                       | 0                                                                               | 0              |
| <b>FY 2012 Accomplishments:</b><br>Completed aircraft sustainment related projects such as non-chromated post treatment, and low temperature powder coating. Completed Alternative solvent demonstrations for ship maintenance operations and identification of alternatives for NAVSEA targeted chemicals continued, resulting in the development and issuance of a new HAP-free/low-VOC cleaner specification. Completed demonstration of the use of plastic blast media and removed coke deposits from the F404 engine shaft, thereby eliminating the use of a hazardous cleaning compound from this maintenance procedure.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                              |                         |                                                                                 |                |
| <b>FY 2013 Plans:</b><br>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. The development of hazardous material allocation information for ship maintenance continues. Continue Mobile Pier and Facility Waste Water Treatment System. Initiate Replacement of Film                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                              |                         |                                                                                 |                |

**UNCLASSIFIED**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                                                |            |                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------|------------|-------------------------------------------------------------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | DATE: April 2013                                               |            |                                                                   |
| APPROPRIATION/BUDGET ACTIVITY<br>1319: Research, Development, Test & Evaluation, Navy<br>BA 4: Advanced Component Development & Prototypes (ACD&P)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | R-1 ITEM NOMENCLATURE<br>PE 0603721N: Environmental Protection |            | PROJECT<br>0817: Environmental Sustainability Development (NESDI) |
| B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  | FY 2012                                                        | FY 2013    | FY 2014                                                           |
| 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.<br><br>FY 2014 Plans:<br>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, lead-free electric primers for medium caliber ammunition, and mobile pier and facility waste water treatment system.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                                                |            |                                                                   |
| Title: Support Shore Readiness within Environmental Constraints<br><br>Articles:<br><br>FY 2012 Accomplishments:<br>Demonstrated and validated a hull maintenance shroud that captures waste streams during repair and painting operations and validated a mobile surface cleaning technology for critical cleaning of shore side surfaces to remove contaminants. Completed final demonstration for the Motion Assisted Environmental Enclosure (MAEE) for overspray containment and completed the vertical launch missile tube demonstration.<br><br>FY 2013 Plans:<br>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 by mechanical intervention and material technologies.<br><br>FY 2014 Plans:<br>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. |  | 2.432<br>0                                                     | 1.250<br>0 | 1.169<br>0                                                        |
| Title: Cost-Effective Management of Environmental Regulatory Requirements<br><br>Articles:<br><br>FY 2012 Accomplishments:<br>Completed the Predictive Trajectory Model for oil spills for Navy harbors.<br><br>Completed an assessment strategy for vapor intrusion and prepared a technical report that identifies existing best practices, knowledge and data gaps. This report also identifies future research in vapor intrusion assessment strategies.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | 0.600<br>0                                                     | 2.189<br>0 | 1.837<br>0                                                        |

**UNCLASSIFIED**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                                                              |                         |                                                                                 |                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------|-------------------------|---------------------------------------------------------------------------------|----------------|
| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2014 Navy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |                                                                              | <b>DATE:</b> April 2013 |                                                                                 |                |
| <b>APPROPRIATION/BUDGET ACTIVITY</b><br>1319: <i>Research, Development, Test &amp; Evaluation, Navy</i><br>BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  | <b>R-1 ITEM NOMENCLATURE</b><br>PE 0603721N: <i>Environmental Protection</i> |                         | <b>PROJECT</b><br>0817: <i>Environmental Sustainability Development (NESDI)</i> |                |
| <b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |                                                                              | <b>FY 2012</b>          | <b>FY 2013</b>                                                                  | <b>FY 2014</b> |
| Completed pollutant source tracking effort; the real-time drinking water quality monitoring system; sustainable naval facilities; and use of biodiesel for ground tactical vehicles.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                              |                         |                                                                                 |                |
| <b>FY 2013 Plans:</b><br>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 NRRRC in San Diego; modeling tool for Navy facilities to quantify sources, loads & mitigation actions of metals in storm water 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 poly-aromatic 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                                                                              |                         |                                                                                 |                |
| <b>FY 2014 Plans:</b><br>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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |                                                                              |                         |                                                                                 |                |
| <b>Accomplishments/Planned Programs Subtotals</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                              | 5.845                   | 5.889                                                                           | 4.516          |
| <b>C. Other Program Funding Summary (\$ in Millions)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                                                              |                         |                                                                                 |                |
| N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |                                                                              |                         |                                                                                 |                |
| <b>Remarks</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |                                                                              |                         |                                                                                 |                |



UNCLASSIFIED

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                              |                                                                                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                              | DATE: April 2013                                                                |
| <b>APPROPRIATION/BUDGET ACTIVITY</b><br>1319: <i>Research, Development, Test &amp; Evaluation, Navy</i><br>BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>R-1 ITEM NOMENCLATURE</b><br>PE 0603721N: <i>Environmental Protection</i> | <b>PROJECT</b><br>0817: <i>Environmental Sustainability Development (NESDI)</i> |
| <b>D. Acquisition Strategy</b><br><p>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.</p> |                                                                              |                                                                                 |
| <b>E. Performance Metrics</b><br>Quarterly Budget Reviews                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                              |                                                                                 |

**UNCLASSIFIED**

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy                                                                                             |                        |                                |                 |         |            |                                                                |            |              |            |                                                                   |            | DATE: April 2013 |                  |            |                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------------------------|-----------------|---------|------------|----------------------------------------------------------------|------------|--------------|------------|-------------------------------------------------------------------|------------|------------------|------------------|------------|--------------------------|
| APPROPRIATION/BUDGET ACTIVITY<br>1319: Research, Development, Test & Evaluation, Navy<br>BA 4: Advanced Component Development & Prototypes (ACD&P) |                        |                                |                 |         |            | R-1 ITEM NOMENCLATURE<br>PE 0603721N: Environmental Protection |            |              |            | PROJECT<br>0817: Environmental Sustainability Development (NESDI) |            |                  |                  |            |                          |
| Product Development (\$ in Millions)                                                                                                               |                        |                                |                 | FY 2012 |            | FY 2013                                                        |            | FY 2014 Base |            | FY 2014 OCO                                                       |            | FY 2014 Total    |                  |            |                          |
| Cost Category Item                                                                                                                                 | Contract Method & Type | Performing Activity & Location | All Prior Years | Cost    | Award Date | Cost                                                           | Award Date | Cost         | Award Date | Cost                                                              | Award Date | Cost             | Cost To Complete | Total Cost | Target Value of Contract |
| EEC 2                                                                                                                                              | Various                | EXWC:PT HUENEME, CA            | 2.424           | 1.361   | Oct 2011   | 0.302                                                          | Oct 2012   | 0.613        | Oct 2013   | -                                                                 |            | 0.613            | 0.000            | 4.700      | Continuing               |
| EEC 2                                                                                                                                              | Various                | SSC:SAN DIEGO, CA              | 2.871           | 1.231   | Aug 2012   | 0.764                                                          | Mar 2013   | 0.425        | Mar 2014   | -                                                                 |            | 0.425            | 0.000            | 5.291      | Continuing               |
| EEC 2                                                                                                                                              | Various                | NSWC:BETHESDA, MD              | 0.717           | 0.008   | Dec 2011   | 0.000                                                          |            | 0.000        |            | -                                                                 |            | 0.000            | 0.000            | 0.725      | Continuing               |
| EEC 3                                                                                                                                              | Various                | NAWC:PATUXENT RIVER, MD        | 0.819           | 0.202   | Feb 2012   | 0.300                                                          | Mar 2013   | 0.260        | Mar 2014   | -                                                                 |            | 0.260            | 0.000            | 1.581      | Continuing               |
| EEC 3                                                                                                                                              | Various                | NSWC:BETHESDA, MD              | 2.234           | 0.400   | Aug 2012   | 0.400                                                          | Feb 2013   | 0.300        | Feb 2014   | -                                                                 |            | 0.300            | 0.000            | 3.334      | Continuing               |
| EEC 3a                                                                                                                                             | Various                | NSWC:BETHESDA, MD              | 1.019           | 0.000   |            | 0.000                                                          |            | 0.000        |            | -                                                                 |            | 0.000            | 0.000            | 1.019      | Continuing               |
| EEC 3b                                                                                                                                             | Various                | EXWC:PT HUENEME, CA            | 0.200           | 0.330   | Feb 2012   | 0.267                                                          | May 2013   | 0.267        | May 2014   | -                                                                 |            | 0.267            | 0.000            | 1.064      | Continuing               |
| EEC 4                                                                                                                                              | Various                | EXWC:PT HUENEME, CA            | 5.143           | 0.228   | Nov 2011   | 0.632                                                          | Aug 2013   | 0.537        | Jun 2014   | -                                                                 |            | 0.537            | 0.000            | 6.540      | Continuing               |
| EEC 4                                                                                                                                              | Various                | NSWC:BETHESDA, MD              | 1.511           | 0.293   | Jan 2012   | 0.950                                                          | Oct 2012   | 0.418        | Oct 2013   | -                                                                 |            | 0.418            | 0.000            | 3.172      | Continuing               |
| EEC 4a                                                                                                                                             | Various                | SSC:SAN DIEGO, CA              | 1.710           | 0.422   | Jul 2012   | 0.800                                                          | Apr 2013   | 0.409        | Apr 2014   | -                                                                 |            | 0.409            | 0.000            | 3.341      | Continuing               |
| EEC 5                                                                                                                                              | Various                | EXWC:PT HUENEME, CA            | 1.131           | 0.321   | Mar 2012   | 0.300                                                          | Jul 2013   | 0.100        | Jun 2014   | -                                                                 |            | 0.100            | Continuing       | Continuing | Continuing               |
| EEC 5                                                                                                                                              | Various                | SSC:SAN DIEGO, CA              | 0.705           | 0.000   |            | 0.000                                                          |            | 0.000        |            | -                                                                 |            | 0.000            | 0.000            | 0.705      | Continuing               |
| EEC 5                                                                                                                                              | Various                | NAWC:PATUXENT RIVER, MD        | 0.326           | 0.000   |            | 0.300                                                          | Jun 2013   | 0.200        | Jun 2014   | -                                                                 |            | 0.200            | 0.000            | 0.826      | Continuing               |
| EEC 5                                                                                                                                              | Various                | NSWC:BETHESDA, MD              | 0.415           | 0.192   | Jun 2012   | 0.000                                                          | Jun 2013   | 0.326        | Feb 2014   | -                                                                 |            | 0.326            | 0.000            | 0.933      | Continuing               |
| EEC 5                                                                                                                                              | Various                | NAWCWD:CHINA LAKE, CA          | 0.000           | 0.031   | Sep 2012   | 0.400                                                          | May 2013   | 0.287        | Feb 2014   | -                                                                 |            | 0.287            | 0.000            | 0.718      | Continuing               |
| EEC 5                                                                                                                                              | Various                | NAWC:LAKE HURST, NJ            | 0.000           | 0.098   | Feb 2012   | 0.200                                                          | May 2013   | 0.174        | Feb 2014   | -                                                                 |            | 0.174            | 0.000            | 0.472      | Continuing               |

**UNCLASSIFIED**

PE 0603721N: *Environmental Protection*  
Navy

UNCLASSIFIED

|                                                           |  |  |  |  |  |  |  |  |  |                                                        |  |  |  |  |  |  |  |  |  |
|-----------------------------------------------------------|--|--|--|--|--|--|--|--|--|--------------------------------------------------------|--|--|--|--|--|--|--|--|--|
| Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy         |  |  |  |  |  |  |  |  |  | DATE: April 2013                                       |  |  |  |  |  |  |  |  |  |
| APPROPRIATION/BUDGET ACTIVITY                             |  |  |  |  |  |  |  |  |  | R-1 ITEM NOMENCLATURE                                  |  |  |  |  |  |  |  |  |  |
| 1319: Research, Development, Test & Evaluation, Navy      |  |  |  |  |  |  |  |  |  | PE 0603721N: Environmental Protection                  |  |  |  |  |  |  |  |  |  |
| BA 4: Advanced Component Development & Prototypes (ACD&P) |  |  |  |  |  |  |  |  |  | PROJECT                                                |  |  |  |  |  |  |  |  |  |
|                                                           |  |  |  |  |  |  |  |  |  | 0817: Environmental Sustainability Development (NESDI) |  |  |  |  |  |  |  |  |  |

|           | FY 2012 |   |   |   | FY 2013 |   |   |   | FY 2014 |   |   |   | FY 2015 |   |   |   | FY 2016 |   |   |   | FY 2017 |   |   |   | FY 2018 |   |   |   |
|-----------|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
|           | 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 |
| Proj 0817 |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| EEC 2     |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| EEC 3     |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| EEC 4     |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| EEC 5     |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |

**UNCLASSIFIED**

|                                                                                                                                                                                     |                                                                              |                                                                                 |                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|---------------------------------------------------------------------------------|-------------------------|
| <b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2014 Navy                                                                                                                       |                                                                              |                                                                                 | <b>DATE:</b> April 2013 |
| <b>APPROPRIATION/BUDGET ACTIVITY</b><br>1319: <i>Research, Development, Test &amp; Evaluation, Navy</i><br>BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i> | <b>R-1 ITEM NOMENCLATURE</b><br>PE 0603721N: <i>Environmental Protection</i> | <b>PROJECT</b><br>0817: <i>Environmental Sustainability Development (NESDI)</i> |                         |

Schedule Details

| Events by Sub Project   | Start   |      | End     |      |
|-------------------------|---------|------|---------|------|
|                         | Quarter | Year | Quarter | Year |
| <b><i>Proj 0817</i></b> |         |      |         |      |
| EEC 2                   | 1       | 2012 | 4       | 2018 |
| EEC 3                   | 1       | 2012 | 4       | 2018 |
| EEC 4                   | 1       | 2012 | 4       | 2018 |
| EEC 5                   | 1       | 2012 | 4       | 2018 |

**UNCLASSIFIED**

|                                                                                                                                                    |                 |         |                      |              |                                                                |               |         |         |                                         |                  |                  |            |
|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------|----------------------|--------------|----------------------------------------------------------------|---------------|---------|---------|-----------------------------------------|------------------|------------------|------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy                                                                                            |                 |         |                      |              |                                                                |               |         |         |                                         | DATE: April 2013 |                  |            |
| APPROPRIATION/BUDGET ACTIVITY<br>1319: Research, Development, Test & Evaluation, Navy<br>BA 4: Advanced Component Development & Prototypes (ACD&P) |                 |         |                      |              | R-1 ITEM NOMENCLATURE<br>PE 0603721N: Environmental Protection |               |         |         | PROJECT<br>9204: Marine Mammal Research |                  |                  |            |
| COST (\$ in Millions)                                                                                                                              | All Prior Years | FY 2012 | FY 2013 <sup>#</sup> | FY 2014 Base | FY 2014 OCO <sup>##</sup>                                      | FY 2014 Total | FY 2015 | FY 2016 | FY 2017                                 | FY 2018          | Cost To Complete | Total Cost |
| 9204: Marine Mammal Research                                                                                                                       | 26.466          | 8.006   | 7.595                | 6.598        | -                                                              | 6.598         | 7.954   | 8.097   | 8.229                                   | 8.347            | Continuing       | Continuing |
| Quantity of RDT&E Articles                                                                                                                         | 0               | 0       | 0                    | 0            |                                                                | 0             | 0       | 0       | 0                                       | 0                |                  |            |

<sup>#</sup> FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

<sup>##</sup> The FY 2014 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 during observed and forecast oceanographic conditions 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) 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.

**UNCLASSIFIED**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                |                                         |            |            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|-----------------------------------------|------------|------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                | DATE: April 2013                        |            |            |
| APPROPRIATION/BUDGET ACTIVITY<br>1319: Research, Development, Test & Evaluation, Navy<br>BA 4: Advanced Component Development & Prototypes (ACD&P)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | R-1 ITEM NOMENCLATURE<br>PE 0603721N: Environmental Protection | PROJECT<br>9204: Marine Mammal Research |            |            |
| 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 2012                                 | FY 2013    | FY 2014    |
| <b>Title:</b> Marine Mammal Ecology and Population Dynamics<br><br><b>Articles:</b><br><br><b>FY 2012 Accomplishments:</b><br>Completed the establishment of Marine Mammal Reseach (MMR) standard operating procedures, initiated development of MMR website, accomplished fiscal year program management transition process.<br><br><b>FY 2013 Plans:</b><br>Continue 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.<br><br><b>FY 2014 Plans:</b><br>Continue 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.                                                                                                                                                                                  |                                                                | 1.988<br>0                              | 1.936<br>0 | 1.467<br>0 |
| <b>Title:</b> Criteria and Thresholds, Physiology and Behavior, and Effects of Sound<br><br><b>Articles:</b><br><br><b>FY 2012 Accomplishments:</b><br>Completed the establishment of MMR standard operating procedures, initiated development of MMR website, accomplished fiscal year program management transition process.<br><br><b>FY 2013 Plans:</b><br>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.<br><br><b>FY 2014 Plans:</b><br>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. |                                                                | 4.030<br>0                              | 3.723<br>0 | 3.654<br>0 |
| <b>Title:</b> Mitigation Methodologies: Monitoring, New Technology, and Risk Assess                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                | 1.988                                   | 1.936      | 1.477      |

**UNCLASSIFIED**

|                                                                                                                                                                                     |  |                                                                              |                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------|-------------------------------------------------------|
| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2014 Navy                                                                                                                  |  | <b>DATE:</b> April 2013                                                      |                                                       |
| <b>APPROPRIATION/BUDGET ACTIVITY</b><br>1319: <i>Research, Development, Test &amp; Evaluation, Navy</i><br>BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i> |  | <b>R-1 ITEM NOMENCLATURE</b><br>PE 0603721N: <i>Environmental Protection</i> | <b>PROJECT</b><br>9204: <i>Marine Mammal Research</i> |

  

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                |                |                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------|----------------|
| <b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>FY 2012</b> | <b>FY 2013</b> | <b>FY 2014</b> |
| <p align="right"><b>Articles:</b></p> <p><b>FY 2012 Accomplishments:</b><br/>Completed the establishment of MMR standard operating procedures, initiated development of MMR website, accomplished fiscal year program management transition process.</p> <p><b>FY 2013 Plans:</b><br/>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.</p> <p><b>FY 2014 Plans:</b><br/>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.</p> | 0              | 0              | 0              |
| <b>Accomplishments/Planned Programs Subtotals</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 8.006          | 7.595          | 6.598          |

  

|                                                                                     |  |  |
|-------------------------------------------------------------------------------------|--|--|
| <b>C. Other Program Funding Summary (\$ in Millions)</b><br>N/A                     |  |  |
| <b>Remarks</b>                                                                      |  |  |
| <b>D. Acquisition Strategy</b><br>(U) RDTEN Contracts are Competitive Procurements. |  |  |
| <b>E. Performance Metrics</b><br>Quarterly Program Reviews                          |  |  |



**UNCLASSIFIED**

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy                                                                                             |                        |                                              |                 |         |            |                                                                |            |              |            |                                         |            | DATE: April 2013 |                  |            |                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|----------------------------------------------|-----------------|---------|------------|----------------------------------------------------------------|------------|--------------|------------|-----------------------------------------|------------|------------------|------------------|------------|--------------------------|
| APPROPRIATION/BUDGET ACTIVITY<br>1319: Research, Development, Test & Evaluation, Navy<br>BA 4: Advanced Component Development & Prototypes (ACD&P) |                        |                                              |                 |         |            | R-1 ITEM NOMENCLATURE<br>PE 0603721N: Environmental Protection |            |              |            | PROJECT<br>9204: Marine Mammal Research |            |                  |                  |            |                          |
| Test and Evaluation (\$ in Millions)                                                                                                               |                        |                                              |                 | FY 2012 |            | FY 2013                                                        |            | FY 2014 Base |            | FY 2014 OCO                             |            | FY 2014 Total    |                  |            |                          |
| Cost Category Item                                                                                                                                 | Contract Method & Type | Performing Activity & Location               | All Prior Years | Cost    | Award Date | Cost                                                           | Award Date | Cost         | Award Date | Cost                                    | Award Date | Cost             | Cost To Complete | Total Cost | Target Value of Contract |
| Developmental Test & Evaluation                                                                                                                    | WR                     | University of Hawaii:Hawaii                  | 0.000           | 0.000   |            | 0.000                                                          |            | 0.200        | Dec 2013   | -                                       |            | 0.200            | 0.000            | 0.200      |                          |
| Need Item TextDevelopmental Test & Evaluation                                                                                                      | WR                     | EXWC, Port Hueneme:Port Hueneme, CA          | 0.000           | 0.000   |            | 0.000                                                          |            | 0.622        | Nov 2013   | -                                       |            | 0.622            | 0.000            | 0.622      |                          |
| Developmental Test & Evaluation                                                                                                                    | WR                     | NUWC:Newport, RI                             | 4.623           | 1.661   | Mar 2012   | 1.632                                                          | Nov 2012   | 1.000        | Nov 2013   | -                                       |            | 1.000            | Continuing       | Continuing | Continuing               |
| Developmental Test & Evaluation                                                                                                                    | SS/CPFF                | SEA Inc:California                           | 0.965           | 0.265   | Mar 2012   | 0.265                                                          | Dec 2012   | 0.236        | Feb 2014   | -                                       |            | 0.236            | Continuing       | Continuing | Continuing               |
| Developmental Test & Evaluation                                                                                                                    | WR                     | NPGS:Monterey, CA                            | 2.395           | 0.530   | Mar 2012   | 0.489                                                          | Dec 2012   | 0.300        | Dec 2013   | -                                       |            | 0.300            | Continuing       | Continuing | Continuing               |
| Developmental Test & Evaluation                                                                                                                    | MIPR                   | NOAA Fish Science Center:California          | 2.000           | 0.630   | Mar 2012   | 0.632                                                          | Dec 2012   | 0.632        | Dec 2013   | -                                       |            | 0.632            | Continuing       | Continuing | Continuing               |
| Developmental Test & Evaluation                                                                                                                    | SS/CPFF                | Scripps Institute:California                 | 7.173           | 1.062   | Apr 2012   | 1.049                                                          | Dec 2012   | 0.600        | Jan 2014   | -                                       |            | 0.600            | Continuing       | Continuing | Continuing               |
| Developmental Test & Evaluation                                                                                                                    | SS/CPFF                | Oregon State Univ.:Oregon                    | 1.206           | 0.274   | Apr 2012   | 0.222                                                          | Dec 2012   | 0.222        | Jan 2014   | -                                       |            | 0.222            | Continuing       | Continuing | Continuing               |
| Developmental Test & Evaluation                                                                                                                    | SS/CPFF                | Woods Hole Oceanographic Inst:Massachusettes | 1.901           | 0.666   | Apr 2012   | 0.563                                                          | Dec 2012   | 0.403        | Jan 2014   | -                                       |            | 0.403            | Continuing       | Continuing | Continuing               |
| Developmental Test & Evaluation                                                                                                                    | WR                     | SPAWAR:San Diego, CA                         | 1.507           | 0.544   | Jun 2012   | 0.515                                                          | Nov 2012   | 0.400        | Nov 2013   | -                                       |            | 0.400            | Continuing       | Continuing | Continuing               |
| Developmental Test & Evaluation                                                                                                                    | WR                     | Cascadia:Cascadia, WA                        | 1.410           | 1.025   | Apr 2012   | 0.950                                                          | Dec 2012   | 0.950        | Jan 2014   | -                                       |            | 0.950            | Continuing       | Continuing | Continuing               |
| Developmental Test & Evaluation                                                                                                                    | WR                     | NOAA Fish Science Center:Massachusettes      | 0.400           | 0.326   | Jun 2012   | 0.312                                                          | Dec 2012   | 0.312        | Dec 2013   | -                                       |            | 0.312            | Continuing       | Continuing | Continuing               |
| Developmental Test & Evaluation                                                                                                                    | SS/CPFF                | San Diego State Univ:San Diego, CA           | 1.301           | 0.486   | Jun 2012   | 0.457                                                          | Dec 2012   | 0.457        | Feb 2014   | -                                       |            | 0.457            | Continuing       | Continuing | Continuing               |
| Developmental Test & Evaluation                                                                                                                    | C/CPFF                 | St. Andrews Univ.:Scotland                   | 0.270           | 0.264   | Sep 2012   | 0.245                                                          | Dec 2012   | 0.000        |            | -                                       |            | 0.000            | Continuing       | Continuing | Continuing               |
| Developmental Test & Evaluation                                                                                                                    | WR                     | CNAF:San Diego, CA                           | 1.315           | 0.133   | Apr 2012   | 0.133                                                          | Nov 2012   | 0.133        | Nov 2013   | -                                       |            | 0.133            | Continuing       | Continuing | Continuing               |

## UNCLASSIFIED

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                        |                                                            |                 |         |            |                                                                |            |              |            |                                         |            |                  |                  |            |                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------------------------------------------------------|-----------------|---------|------------|----------------------------------------------------------------|------------|--------------|------------|-----------------------------------------|------------|------------------|------------------|------------|--------------------------|
| Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy                                                                                                                                                                                                                                                                                                                                                                                                                                    |                        |                                                            |                 |         |            |                                                                |            |              |            |                                         |            | DATE: April 2013 |                  |            |                          |
| APPROPRIATION/BUDGET ACTIVITY<br>1319: Research, Development, Test & Evaluation, Navy<br>BA 4: Advanced Component Development & Prototypes (ACD&P)                                                                                                                                                                                                                                                                                                                                        |                        |                                                            |                 |         |            | R-1 ITEM NOMENCLATURE<br>PE 0603721N: Environmental Protection |            |              |            | PROJECT<br>9204: Marine Mammal Research |            |                  |                  |            |                          |
| Test and Evaluation (\$ in Millions)                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                        |                                                            |                 | FY 2012 |            | FY 2013                                                        |            | FY 2014 Base |            | FY 2014 OCO                             |            | FY 2014 Total    |                  |            |                          |
| Cost Category Item                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Contract Method & Type | Performing Activity & Location                             | All Prior Years | Cost    | Award Date | Cost                                                           | Award Date | Cost         | Award Date | Cost                                    | Award Date | Cost             | Cost To Complete | Total Cost | Target Value of Contract |
| Developmental Test & Evaluation                                                                                                                                                                                                                                                                                                                                                                                                                                                           | WR                     | Bahamas Marine Mammal Research Organization (BMMRO:Bahamas | 0.000           | 0.140   | Sep 2012   | 0.131                                                          | Dec 2012   | 0.131        | Dec 2013   | -                                       |            | 0.131            | Continuing       | Continuing | Continuing               |
| Subtotal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                        |                                                            | 26.466          | 8.006   |            | 7.595                                                          |            | 6.598        |            | 0.000                                   |            | 6.598            |                  |            |                          |
| Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                        |                                                            |                 |         |            |                                                                |            |              |            |                                         |            |                  |                  |            |                          |
| Major performers will develops techniques for passive acoustic, monitoring in the Southern California Offshore Range (SCOR) and other Navy Ranges Complexes, including the Hawaii Range Complex, Atlantic and gulf of Mexico training range complex, and orthers. Use those techniques for marine mammal density estimation and predictive modeling for marine mammal presence.                                                                                                           |                        |                                                            |                 |         |            |                                                                |            |              |            |                                         |            |                  |                  |            |                          |
| Naval Undersea Warfare Center; Newport, RI:<br>Executes marine mammal demographics, which determines the likelihood of the presence of marine mammal species through observed and forecasted oceanographic conditions by developing habitat and ecological models. Establish criteria and thresholds from which to measure potential impact on marine mammals from Navy training operations. Conduct passive acoustic monitoring of marine mammals, particularly on Navy undersea ranges. |                        |                                                            |                 |         |            |                                                                |            |              |            |                                         |            |                  |                  |            |                          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                        |                                                            | All Prior Years | FY 2012 |            | FY 2013                                                        |            | FY 2014 Base |            | FY 2014 OCO                             |            | FY 2014 Total    | Cost To Complete | Total Cost | Target Value of Contract |
| Project Cost Totals                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                        |                                                            | 26.466          | 8.006   |            | 7.595                                                          |            | 6.598        |            | 0.000                                   |            | 6.598            |                  |            |                          |
| Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                        |                                                            |                 |         |            |                                                                |            |              |            |                                         |            |                  |                  |            |                          |

UNCLASSIFIED

|                                                           |                                                                           |    |    |    |         |    |    |    |         |    |    |                                       |         |    |    |    |         |    |    |    |         |                              |    |    |         |    |    |    |
|-----------------------------------------------------------|---------------------------------------------------------------------------|----|----|----|---------|----|----|----|---------|----|----|---------------------------------------|---------|----|----|----|---------|----|----|----|---------|------------------------------|----|----|---------|----|----|----|
| Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy         |                                                                           |    |    |    |         |    |    |    |         |    |    |                                       |         |    |    |    |         |    |    |    |         | DATE: April 2013             |    |    |         |    |    |    |
| APPROPRIATION/BUDGET ACTIVITY                             |                                                                           |    |    |    |         |    |    |    |         |    |    | R-1 ITEM NOMENCLATURE                 |         |    |    |    |         |    |    |    |         | PROJECT                      |    |    |         |    |    |    |
| 1319: Research, Development, Test & Evaluation, Navy      |                                                                           |    |    |    |         |    |    |    |         |    |    | PE 0603721N: Environmental Protection |         |    |    |    |         |    |    |    |         | 9204: Marine Mammal Research |    |    |         |    |    |    |
| BA 4: Advanced Component Development & Prototypes (ACD&P) |                                                                           |    |    |    |         |    |    |    |         |    |    |                                       |         |    |    |    |         |    |    |    |         |                              |    |    |         |    |    |    |
| MARINE MAMMAL RESEARCH                                    | FY 2011                                                                   |    |    |    | FY 2012 |    |    |    | FY 2013 |    |    |                                       | FY 2014 |    |    |    | FY 2015 |    |    |    | FY 2016 |                              |    |    | FY 2017 |    |    |    |
|                                                           | 1Q                                                                        | 2Q | 3Q | 4Q | 1Q      | 2Q | 3Q | 4Q | 1Q      | 2Q | 3Q | 4Q                                    | 1Q      | 2Q | 3Q | 4Q | 1Q      | 2Q | 3Q | 4Q | 1Q      | 2Q                           | 3Q | 4Q | 1Q      | 2Q | 3Q | 4Q |
|                                                           | Marine Mammal Location, Abundance, and Movement                           |    |    |    |         |    |    |    |         |    |    |                                       |         |    |    |    |         |    |    |    |         |                              |    |    |         |    |    |    |
|                                                           | Criteria and Thresholds, Physiology and Behavior, and Effects of Sound    |    |    |    |         |    |    |    |         |    |    |                                       |         |    |    |    |         |    |    |    |         |                              |    |    |         |    |    |    |
|                                                           | Mitigation Methodologies: Monitoring, New Technology, and Risk Assessment |    |    |    |         |    |    |    |         |    |    |                                       |         |    |    |    |         |    |    |    |         |                              |    |    |         |    |    |    |
|                                                           |                                                                           |    |    |    |         |    |    |    |         |    |    |                                       |         |    |    |    |         |    |    |    |         |                              |    |    |         |    |    |    |
|                                                           |                                                                           |    |    |    |         |    |    |    |         |    |    |                                       |         |    |    |    |         |    |    |    |         |                              |    |    |         |    |    |    |
|                                                           |                                                                           |    |    |    |         |    |    |    |         |    |    |                                       |         |    |    |    |         |    |    |    |         |                              |    |    |         |    |    |    |
|                                                           |                                                                           |    |    |    |         |    |    |    |         |    |    |                                       |         |    |    |    |         |    |    |    |         |                              |    |    |         |    |    |    |
|                                                           |                                                                           |    |    |    |         |    |    |    |         |    |    |                                       |         |    |    |    |         |    |    |    |         |                              |    |    |         |    |    |    |
|                                                           |                                                                           |    |    |    |         |    |    |    |         |    |    |                                       |         |    |    |    |         |    |    |    |         |                              |    |    |         |    |    |    |

2013OSD - 0603721N - 9204

**UNCLASSIFIED**

|                                                                                                                                                                                     |                                                                              |                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|-------------------------------------------------------|
| <b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2014 Navy                                                                                                                       |                                                                              | <b>DATE:</b> April 2013                               |
| <b>APPROPRIATION/BUDGET ACTIVITY</b><br>1319: <i>Research, Development, Test &amp; Evaluation, Navy</i><br>BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i> | <b>R-1 ITEM NOMENCLATURE</b><br>PE 0603721N: <i>Environmental Protection</i> | <b>PROJECT</b><br>9204: <i>Marine Mammal Research</i> |

Schedule Details

| Events by Sub Project                                                     | Start   |      | End     |      |
|---------------------------------------------------------------------------|---------|------|---------|------|
|                                                                           | Quarter | Year | Quarter | Year |
| <b>MARINE MAMMAL RESEARCH</b>                                             |         |      |         |      |
| Marine Mammal Ecology and Population Dynamics                             | 1       | 2012 | 4       | 2018 |
| Criteria and Thresholds, Physiology and Behavior, and Effects of Sound    | 1       | 2012 | 4       | 2018 |
| Mitigation Methodologies: Monitoring, New Technology, and Risk Assessment | 1       | 2012 | 4       | 2018 |