

UNCLASSIFIED

CLASSIFICATION:

| | | | | | | | | |
|---|---------|---------|---------|---------|---|---------|---------------|---------|
| EXHIBIT R-2, RDT&E Budget Item Justification | | | | | | | DATE: | |
| | | | | | | | February 2003 | |
| APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY/BA-7 | | | | | R-1 ITEM NOMENCLATURE NAT'L SHIPBLDG RES PROG ADV SHIPBLDG ENTERPRISE/0708730N | | | |
| COST (\$ in Millions) | FY 2002 | FY 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 |
| Total PE Cost | 28.356 | 12.046 | 10.068 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NSRP/ASE/S2466/S2811 | 21.632 | 9.703 | 10.068 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Maritime Tech, Ship Design & Sys Develop Init/R9121 | 6.724 | 2.343 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Defense Emergency Response Funds (DERF) Funds: N/A | | | | | | | | |
| A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: | | | | | | | | |
| Project S2466/S2811 (NSRP ASE): The mission of the National Shipbuilding Research Program Advanced Shipbuilding Enterprise (NSRP ASE) is to manage and focus national research funding on technologies that will enhance U.S. commercial shipbuilding and ship repair competitiveness and reduce the cost of naval ships, construction, modification and repair. Industry has developed a landmark long range Strategic Investment Plan which will guide NSRP ASE investments. This Strategic Investment Plan provides a framework to guide collaborative research and development among all segments of the U.S. ship construction and repair industry, educational and research institutions, and Government. The objective is to assist the industry in achieving significant reduction in the cost and time required for both commercial and Navy ship construction, conversion, and repair. The recommended investment portfolio includes major initiatives that tie the strategic vision to proposed industry research through collaborative R&D. The major initiatives include: Shipyard Production Process Technologies, Business Process Technologies, Product Design and Material Technologies, Systems Technologies, Facilities and Tooling. Additionally, several critical success factors were found to cut across all of the major initiatives. These "Crosscut Initiatives" include Education and Training, Technology Transfer, Organizational Change, Environmental Protection and Human Resources. The collaboration of major shipyards that lead the program are: General Dynamics Electric Boat Corporation, General Dynamics Bath Iron Works, Northrop Grumman Newport News, Atlantic Marine, Northrop Grumman Ship Systems Ingalls, Halter Marine, Northrop Grumman Ship Systems Avondale, General Dynamics NASSCO, Todd Pacific, Cascade General and Bender Shipbuilding. | | | | | | | | |
| Project R9121 (Maritime Technology, Ship Design and Systems Development Initiative): Develop a cooperative research effort to improve the quality of shipyard products, efficiency of shipyard production and introduce advanced ship system designs. Thrust areas for this effort include: 1) Lean/agile manufacturing; 2) Shipyard Production Process Automation; 3) Shipyard Production Process Improvement; 4) Ship Design and Production Simulation and Visualization; 5) Education and Training; 6) Application of Advanced Materials to Ship Design and Manufacturing; 7) Design and Application of Advanced Ship Systems. A team of Navy, University of New Orleans, and Northrop Grumman Ship Systems (Avondale) personnel will prioritize potential research projects supporting these thrust areas and oversee project execution to ensure program goals are being met. | | | | | | | | |

R-1 SHOPPING LIST - Item No. 213

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Exhibit R-2, RDTEN Budget Item Justification
(Exhibit R-2, Page 1 of 15)

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|---|--|---------|---------|---------|---|---------|-------------------------------|---------|
| EXHIBIT R-2a, RDT&E Project Justification | | | | | | | DATE: February 2003 | |
| APPROPRIATION/BUDGET ACTIVITY RDT&E, N/BA-7 | PROGRAM ELEMENT NUMBER AND NAME 0708730N/NSRP ASE | | | | PROJECT NUMBER AND NAME S2466/S2811/NSRP ASE | | | |
| COST (\$ in Millions) | FY 2002 | FY 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 |
| Project Cost | 21.632 | 9.703 | 10.068 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RDT&E Articles Qty | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Project S2466/S2811 (NSRP ASE):

The mission of the National Shipbuilding Research Program Advanced Shipbuilding Enterprise (NSRP ASE) is to manage and focus national research funding on technologies that will enhance U.S. commercial shipbuilding and ship repair competitiveness and reduce the cost of naval ships, construction, modification and repair.

Industry has developed a landmark long range Strategic Investment Plan which will guide NSRP ASE investments. This Strategic Investment Plan provides a framework to guide collaborative research and development among all segments of the U.S. ship construction and repair industry, educational and research institutions, and Government. The objective is to assist the industry in achieving significant reduction in the cost and time required for both commercial and Navy ship construction, conversion, and repair. The recommended investment portfolio includes major initiatives that tie the strategic vision to proposed industry research through collaborative R&D. The major initiatives include: Shipyard Production Process Technologies, Business Process Technologies, Product Design and Material Technologies, Systems Technologies, Facilities and Tooling. Additionally, several critical success factors were found to cut across all of the major initiatives. These "Crosscut Initiatives" include Education and Training, Technology Transfer, Organizational Change, Environmental Protection and Human Resources.

The collaboration of major shipyards that lead the program are: General Dynamics Electric Boat Corporation, General Dynamics Bath Iron Works, Northrop Grumman Newport News, Atlantic Marine, Northrop Grumman Ship Systems Ingalls, Halter Marine, Northrop Grumman Ship Systems Avondale, General Dynamics NASSCO, Todd Pacific, Cascade General and Bender Shipbuilding.

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, Page 2 of 15)

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| EXHIBIT R-2a, RDT&E Project Justification | | | DATE: February 2003 | | | | | | | | | | | | | | | | |
|--|--|---|-------------------------------|-------|--|-------|-------|-------|-------|--------------------------------------|--------|-------|-------|--|-------------------------|-----|-----|-----|--|
| APPROPRIATION/BUDGET ACTIVITY RDT&E, N/BA-7 | PROGRAM ELEMENT NUMBER AND NAME 0708730N/NSRP ASE | PROJECT NUMBER AND NAME S2466/S2811/NSRP ASE | | | | | | | | | | | | | | | | | |
| B. Accomplishments/Planned Program | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 02</th><th style="width: 15%;">FY 03</th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td>8.505</td><td></td><td></td><td></td></tr><tr><td>RDT&E Articles Quantity</td><td>N/A</td><td></td><td></td><td></td></tr></tbody></table> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">Complete all remaining technology development projects in the six major initiative areas selected from Research Announcement One (13 projects). Projects since previous President's budget include: World Class Manufacturing Model, Line Heating, Knowledge Based Modular Repair, Advanced Structural Joining, Autogen, Ship Component Factory, Theory of Constraints, Wold Class Material Standards, ISE-1, Consensus Ergonomics, Stormwater Mock-up, Virtual Resource Center, and Structural Fire Protection. All projects are being performed jointly by the Executive Control Board of the National Shipbuilding Research Program to support current and future Navy shipbuilding programs.</div> | | | | | | FY 02 | FY 03 | FY 04 | FY 05 | Accomplishments/Effort/Subtotal Cost | 8.505 | | | | RDT&E Articles Quantity | N/A | | | |
| | FY 02 | FY 03 | FY 04 | FY 05 | | | | | | | | | | | | | | | |
| Accomplishments/Effort/Subtotal Cost | 8.505 | | | | | | | | | | | | | | | | | | |
| RDT&E Articles Quantity | N/A | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 02</th><th style="width: 15%;">FY 03</th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td>11.589</td><td>8.758</td><td></td><td></td></tr><tr><td>RDT&E Articles Quantity</td><td>N/A</td><td>N/A</td><td></td><td></td></tr></tbody></table> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">Complete all remaining technology development projects in the six major initiative areas selected from Research Announcement Two and Two Prime (14 projects). Projects since the previous President's budget include: OSHA, SPARS, ISE-2, Five S, Water Blasting, Crosscut, Welding, Laser, Stormwater, Lean Manufacturing, Harvest, LASOX, ESTEP and ISPE. All projects are being performed jointly by the Executive Control Board of the National Shipbuilding Research Program to support current and future Navy shipbuilding programs.</div> | | | | | | FY 02 | FY 03 | FY 04 | FY 05 | Accomplishments/Effort/Subtotal Cost | 11.589 | 8.758 | | | RDT&E Articles Quantity | N/A | N/A | | |
| | FY 02 | FY 03 | FY 04 | FY 05 | | | | | | | | | | | | | | | |
| Accomplishments/Effort/Subtotal Cost | 11.589 | 8.758 | | | | | | | | | | | | | | | | | |
| RDT&E Articles Quantity | N/A | N/A | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 30%;"></th><th style="width: 15%;">FY 02</th><th style="width: 15%;">FY 03</th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td>0.400</td><td>0.400</td><td>0.400</td><td></td></tr><tr><td>RDT&E Articles Quantity</td><td>N/A</td><td>N/A</td><td>N/A</td><td></td></tr></tbody></table> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">Continue utilization of industry-led major initiative teams to perform the execution and annual review of the Strategic Investment Plan, including technology transfer among the Navy, shipbuilding industry, academia, equipment and material suppliers and the R&D community.</div> | | | | | | FY 02 | FY 03 | FY 04 | FY 05 | Accomplishments/Effort/Subtotal Cost | 0.400 | 0.400 | 0.400 | | RDT&E Articles Quantity | N/A | N/A | N/A | |
| | FY 02 | FY 03 | FY 04 | FY 05 | | | | | | | | | | | | | | | |
| Accomplishments/Effort/Subtotal Cost | 0.400 | 0.400 | 0.400 | | | | | | | | | | | | | | | | |
| RDT&E Articles Quantity | N/A | N/A | N/A | | | | | | | | | | | | | | | | |

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Exhibit R-2a, RDTEN Project Justification
(Exhibit R-2a, Page 3 of 15)

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| EXHIBIT R-2a, RDT&E Project Justification | | | DATE: February 2003 | | | | | | | | | | | | | | | | |
|---|--|---|-------------------------------|-------|--|-------|-------|-------|-------|--------------------------------------|-------|-------|-------|--|-------------------------|-----|-----|-----|--|
| APPROPRIATION/BUDGET ACTIVITY RDT&E, N/BA-7 | PROGRAM ELEMENT NUMBER AND NAME 0708730N/NSRP ASE | PROJECT NUMBER AND NAME S2466/S2811/NSRP ASE | | | | | | | | | | | | | | | | | |
| B. Accomplishments/Planned Program | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 25%;"></th><th style="width: 15%;">FY 02</th><th style="width: 15%;">FY 03</th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td></td><td></td><td>9.128</td><td></td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td></td><td>N/A</td><td></td></tr></tbody></table> <div style="border: 1px solid black; padding: 10px; margin-top: 10px;">Initiate technology development projects in the six major initiative areas selected from Research Announcement Three. All projects will be performed jointly by the Executive Control Board (ECB) of the National Shipbuilding Research Program (NSRP) to support current and future Navy shipbuilding programs.</div> | | | | | | FY 02 | FY 03 | FY 04 | FY 05 | Accomplishments/Effort/Subtotal Cost | | | 9.128 | | RDT&E Articles Quantity | | | N/A | |
| | FY 02 | FY 03 | FY 04 | FY 05 | | | | | | | | | | | | | | | |
| Accomplishments/Effort/Subtotal Cost | | | 9.128 | | | | | | | | | | | | | | | | |
| RDT&E Articles Quantity | | | N/A | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 25%;"></th><th style="width: 15%;">FY 02</th><th style="width: 15%;">FY 03</th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td>0.250</td><td>0.250</td><td>0.250</td><td></td></tr><tr><td>RDT&E Articles Quantity</td><td>N/A</td><td>N/A</td><td>N/A</td><td></td></tr></tbody></table> <div style="border: 1px solid black; padding: 10px; margin-top: 10px;">Continue transition of projects to shipbuilding programs.</div> | | | | | | FY 02 | FY 03 | FY 04 | FY 05 | Accomplishments/Effort/Subtotal Cost | 0.250 | 0.250 | 0.250 | | RDT&E Articles Quantity | N/A | N/A | N/A | |
| | FY 02 | FY 03 | FY 04 | FY 05 | | | | | | | | | | | | | | | |
| Accomplishments/Effort/Subtotal Cost | 0.250 | 0.250 | 0.250 | | | | | | | | | | | | | | | | |
| RDT&E Articles Quantity | N/A | N/A | N/A | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 25%;"></th><th style="width: 15%;">FY 02</th><th style="width: 15%;">FY 03</th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td>0.295</td><td>0.295</td><td>0.290</td><td></td></tr><tr><td>RDT&E Articles Quantity</td><td>N/A</td><td>N/A</td><td></td><td></td></tr></tbody></table> <div style="border: 1px solid black; padding: 10px; margin-top: 10px;">Operate multi-agency support office to facilitate technology transfer between Government and industry.</div> | | | | | | FY 02 | FY 03 | FY 04 | FY 05 | Accomplishments/Effort/Subtotal Cost | 0.295 | 0.295 | 0.290 | | RDT&E Articles Quantity | N/A | N/A | | |
| | FY 02 | FY 03 | FY 04 | FY 05 | | | | | | | | | | | | | | | |
| Accomplishments/Effort/Subtotal Cost | 0.295 | 0.295 | 0.290 | | | | | | | | | | | | | | | | |
| RDT&E Articles Quantity | N/A | N/A | | | | | | | | | | | | | | | | | |

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| EXHIBIT R-2a, RDT&E Project Justification | | | DATE: February 2003 | |
| APPROPRIATION/BUDGET ACTIVITY RDT&E, N/BA-7 | PROGRAM ELEMENT NUMBER AND NAME 0708730N/NSRP ASE | PROJECT NUMBER AND NAME S2466/S2811/NSRP ASE | | |
| B. Accomplishments/Planned Program | | | | |
| | FY 02 | FY 03 | FY 04 | FY 05 |
| Accomplishments/Effort/Subtotal Cost | 0.593 | | | |
| RDT&E Articles Quantity | N/A | | | |
| Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638. | | | | |
| | FY 02 | FY 03 | FY 04 | FY 05 |
| Accomplishments/Effort/Subtotal Cost | | | | |
| RDT&E Articles Quantity | | | | |
| | | | | |
| | FY 02 | FY 03 | FY 04 | FY 05 |
| Accomplishments/Effort/Subtotal Cost | | | | |
| RDT&E Articles Quantity | | | | |
| | | | | |

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| EXHIBIT R-2a, RDT&E Project Justification | | | DATE: February 2003 | |
| APPROPRIATION/BUDGET ACTIVITY RDT&E, N/BA-7 | PROGRAM ELEMENT NUMBER AND NAME 0708730N/NSRP ASE | PROJECT NUMBER AND NAME S2466/S2811/NSRP ASE | | |

C. PROGRAM CHANGE SUMMARY:

| Funding: | FY 2002 | FY 2003 | FY 2004 | FY 2005 |
|--|---------|---------|---------|---------|
| Previous President's Budget: (FY 03 Pres Controls) | 22.565 | 9.943 | 0.000 | |
| Current BES/President's Budget (FY04 President's Controls) | 21.632 | 9.703 | 10.068 | |
| Total Adjustments | -0.933 | -0.240 | 10.068 | |
| Summary of Adjustments | | | | |
| SBIR/STTR Transfer | -0.593 | | | |
| Economic Assumptions | -0.061 | -0.056 | | |
| Miscellaneous Adjustments | -0.279 | -0.184 | | |
| Program Extension | | | 10.068 | |
| Subtotal | -0.933 | -0.240 | 10.068 | |

Schedule:

Not Applicable.

Technical:

Not Applicable.

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| EXHIBIT R-2a, RDT&E Project Justification | | | | | | | DATE: February 2003 | | | |
| APPROPRIATION/BUDGET ACTIVITY RDT&E, N/BA-7 | | PROGRAM ELEMENT NUMBER AND NAME 0708730N/NSRP ASE | | | PROJECT NUMBER AND NAME S2466/S2811/NSRP ASE | | | | | |
| D. OTHER PROGRAM FUNDING SUMMARY: | | | | | | | | | | |
| <u>Line Item No. & Name</u> | <u>FY 2002</u> | <u>FY 2003</u> | <u>FY 2004</u> | <u>FY 2005</u> | <u>FY 2006</u> | <u>FY 2007</u> | <u>FY 2008</u> | <u>FY 2009</u> | <u>To Complete</u> | <u>Total Cost</u> |
| None. | | | | | | | | | | |
| E. ACQUISITION STRATEGY: | | | | | | | | | | |
| R&D projects have been solicited and awarded by an industry collaboration represented by the Executive Control Board (ECB) of the National Shipbuilding Research Program (NSRP). The Navy has entered into an agreement with the industry collaboration using "other transaction" authority pursuant to 10 U.S.C. 2371. | | | | | | | | | | |
| NOTE: No funding has been received through the Emergency Response Fund, Defense (ERF,D) | | | | | | | | | | |

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| Exhibit R-3 Cost Analysis (page 1) | | | | | | | | | | DATE: February 2003 | | |
|--|------------------------|--------------------------------|-------------------|------------|------------------|-------------------------|------------------|------------|------------------|---------------------|------------|--------------------------|
| APPROPRIATION/BUDGET ACTIVITY | | | PROGRAM ELEMENT | | | PROJECT NUMBER AND NAME | | | | | | |
| RDT&E, N/BA-7 | | | 0708730N/NSRP ASE | | | S2466/S2811/NSRP ASE | | | | | | |
| Cost Categories | Contract Method & Type | Performing Activity & Location | Total PY s Cost | FY 03 Cost | FY 03 Award Date | FY 04 Cost | FY 04 Award Date | FY 05 Cost | FY 05 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
| | | | | | | | | | | | 0.000 | |
| Technology Development | SS OT* | ECB NSRP** | 63.813 | 9.364 | VARIOUS | 9.748 | VARIOUS | | | | 82.925 | |
| | | | | | | | | | | | 0.000 | |
| | | | | | | | | | | | 0.000 | |
| | | | | | | | | | | | 0.000 | |
| | | | | | | | | | | | 0.000 | |
| | | | | | | | | | | | 0.000 | |
| | | | | | | | | | | | 0.000 | |
| | | | | | | | | | | | 0.000 | |
| | | | | | | | | | | | 0.000 | |
| | | | | | | | | | | | 0.000 | |
| Subtotal Technology Development | | | 63.813 | 9.364 | | 9.748 | | 0.000 | | 0.000 | 82.925 | |
| Remarks: * Other Transactions IAW 10 USC 2371 ** Executive Control Board of the National Shipbuilding Research Program | | | | | | | | | | | | |
| Gov't Support Serv/Other Agencies | MIPR/WR | MARAD | 2.533 | 0.030 | | 0.030 | | | | | 2.593 | |
| Support Services Revolving Accts | MIPR/WR | VARIOUS | 0.846 | 0.279 | | 0.260 | | | | | 1.385 | |
| | | | | | | | | | | | 0.000 | |
| | | | | | | | | | | | 0.000 | |
| | | | | | | | | | | | 0.000 | |
| | | | | | | | | | | | 0.000 | |
| | | | | | | | | | | | 0.000 | |
| | | | | | | | | | | | 0.000 | |
| Subtotal Support | | | 3.379 | 0.309 | | 0.290 | | 0.000 | | 0.000 | 3.978 | |
| Remarks: | | | | | | | | | | | | |

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Exhibit R-3, Project Cost Analysis
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| Exhibit R-3 Cost Analysis (page 2) | | | | | | | | DATE: February 2003 | | | | |
| APPROPRIATION/BUDGET ACTIVITY RDTE, N/BA-7 | | | PROGRAM ELEMENT 0708730N/NSRP ASE | | | PROJECT NUMBER AND NAME S2466/S2811/NSRP ASE | | | | | | |
| Cost Categories | Contract Method & Type | Performing Activity & Location | Total PY s Cost | FY 03 Cost | FY 03 Award Date | FY 04 Cost | FY 04 Award Date | FY 05 Cost | FY 05 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
| Developmental Test & Evaluation | | | | | | | | | | | 0.000 | |
| Operational Test & Evaluation | | | | | | | | | | | 0.000 | |
| Live Fire Test & Evaluation | | | | | | | | | | | 0.000 | |
| Test Assets | | | | | | | | | | | 0.000 | |
| Tooling | | | | | | | | | | | 0.000 | |
| GFE | | | | | | | | | | | 0.000 | |
| Award Fees | | | | | | | | | | | 0.000 | |
| Subtotal T&E | | | 0.000 | 0.000 | | 0.000 | | 0.000 | | 0.000 | 0.000 | |
| Remarks: | | | | | | | | | | | | |
| Contractor Engineering Support | | | | | | | | | | | 0.000 | |
| Technology Development | Reqn* | TRW/Schafer Corp. | 0.810 | 0.000 | | 0.000 | | | | | 0.810 | |
| Technology Development | SS | PSU/APL | 0.385 | 0.000 | | 0.000 | | | | | 0.385 | |
| PM Support | RC | NASSCO | 0.070 | 0.000 | | 0.000 | | | | | 0.070 | |
| NSNET | RC | University of Michigan | 0.400 | 0.000 | | 0.000 | | | | | | |
| Travel | | | 0.099 | 0.030 | | 0.030 | | | | | 0.159 | |
| SBIR Assessment | | | 0.593 | 0.000 | | 0.000 | | | | | 0.593 | |
| Subtotal Management | | | 2.357 | 0.030 | | 0.030 | | 0.000 | | 0.000 | 2.417 | |
| Remarks: * Procure under GSA Schedule | | | | | | | | | | | | |
| Total Cost | | | 69.549 | 9.703 | | 10.068 | | 0.000 | | 0.000 | 89.320 | |
| Remarks: | | | | | | | | | | | | |

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Exhibit R-3, Project Cost Analysis
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| EXHIBIT R-2a, RDT&E Project Justification | | | | | | | DATE: February 2003 | |
| APPROPRIATION/BUDGET ACTIVITY RDT&E, N/BA-7 | PROGRAM ELEMENT NUMBER AND NAME 0708730N/NSRP ASE | | | | PROJECT NUMBER AND NAME R9121/Maritime Tech, Ship Design & Systems Development Initiative | | | |
| COST (\$ in Millions) | FY 2002 | FY 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 |
| Project Cost | 6.724 | 2.343 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RDT&E Articles Qty | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Develop a cooperative research effort to improve the quality of shipyard products, efficiency of shipyard production and introduce advanced ship system designs. Thrust areas for this effort include: 1) Lean/agile manufacturing; 2) Shipyard Production Process Automation; 3) Shipyard Production Process Improvement; 4) Ship Design and Production Simulation and Visualization; 5) Education and Training; 6) Application of Advanced Materials to Ship Design and Manufacturing; 7) Design and Application of Advanced Ship Systems. A team of Navy, University of New Orleans, and Northrop Grumman Ship Systems (Avondale) personnel will prioritize potential research projects supporting these thrust areas and oversee project execution to ensure program goals are being met.

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Exhibit R-2a, RDTEN Project Justification
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| EXHIBIT R-2a, RDT&E Project Justification | | | DATE: February 2003 | | | | | | | | | | | | | | | | |
|---|--|--|-------------------------------|-------|--|-------|-------|-------|-------|--------------------------------------|-------|-------|--|--|-------------------------|-----|-----|--|--|
| APPROPRIATION/BUDGET ACTIVITY RDT&E, N/BA-7 | PROGRAM ELEMENT NUMBER AND NAME 0708730N/NSRP ASE | PROJECT NUMBER AND NAME R9121/Maritime Tech, Ship Design & Systems Development Initiative | | | | | | | | | | | | | | | | | |
| B. Accomplishments/Planned Program | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 25%;"></th><th style="width: 15%;">FY 02</th><th style="width: 15%;">FY 03</th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">6.544</td><td></td><td></td><td></td></tr><tr><td>RDT&E Articles Quantity</td><td style="text-align: center;">N/A</td><td></td><td></td><td></td></tr></tbody></table> | | | | | | FY 02 | FY 03 | FY 04 | FY 05 | Accomplishments/Effort/Subtotal Cost | 6.544 | | | | RDT&E Articles Quantity | N/A | | | |
| | FY 02 | FY 03 | FY 04 | FY 05 | | | | | | | | | | | | | | | |
| Accomplishments/Effort/Subtotal Cost | 6.544 | | | | | | | | | | | | | | | | | | |
| RDT&E Articles Quantity | N/A | | | | | | | | | | | | | | | | | | |
| <div style="border: 1px solid black; padding: 5px; min-height: 60px;">Project funding has been received, added to the Gulf Coast Region Maritime Technology Center Cooperative Agreement and research projects have been initiated. Projects currently underway include: Shipboard Applications of Lightweight Ship Structures; Socket Welding of Titanium Grades Using GTAW with Flux Assist; Short Robot Production Runs; Ship Works Robotics Laboratory Vision System; Lean Six Sigma in Shipbuilding; Avondale Manufacturing Process Modeling. All projects are being performed jointly by the University of New Orleans and Northrop Grumman Ship Systems Avondale Operations to support Navy ship programs such as LPD-17.</div> | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 25%;"></th><th style="width: 15%;">FY 02</th><th style="width: 15%;">FY 03</th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td style="text-align: center;">0.180</td><td></td><td></td><td></td></tr><tr><td>RDT&E Articles Quantity</td><td style="text-align: center;">N/A</td><td></td><td></td><td></td></tr></tbody></table> | | | | | | FY 02 | FY 03 | FY 04 | FY 05 | Accomplishments/Effort/Subtotal Cost | 0.180 | | | | RDT&E Articles Quantity | N/A | | | |
| | FY 02 | FY 03 | FY 04 | FY 05 | | | | | | | | | | | | | | | |
| Accomplishments/Effort/Subtotal Cost | 0.180 | | | | | | | | | | | | | | | | | | |
| RDT&E Articles Quantity | N/A | | | | | | | | | | | | | | | | | | |
| <div style="border: 1px solid black; padding: 5px; min-height: 60px;">Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.</div> | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 25%;"></th><th style="width: 15%;">FY 02</th><th style="width: 15%;">FY 03</th><th style="width: 15%;">FY 04</th><th style="width: 15%;">FY 05</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td></td><td style="text-align: center;">2.343</td><td></td><td></td></tr><tr><td>RDT&E Articles Quantity</td><td></td><td style="text-align: center;">N/A</td><td></td><td></td></tr></tbody></table> | | | | | | FY 02 | FY 03 | FY 04 | FY 05 | Accomplishments/Effort/Subtotal Cost | | 2.343 | | | RDT&E Articles Quantity | | N/A | | |
| | FY 02 | FY 03 | FY 04 | FY 05 | | | | | | | | | | | | | | | |
| Accomplishments/Effort/Subtotal Cost | | 2.343 | | | | | | | | | | | | | | | | | |
| RDT&E Articles Quantity | | N/A | | | | | | | | | | | | | | | | | |
| <div style="border: 1px solid black; padding: 5px; min-height: 60px;">Funds will be provided to the Gulf Coast Region Maritime Technology Center Cooperative Agreement for projects in the following thrust areas: 1) Lean/agile manufacturing; 2) Shipyard Production Process Automation; 3) Shipyard Production Process Improvement; 4) Ship Design and Production Simulation and Visualization; 5) Education and Training; 6) Application of Advanced Materials to Ship Design and Manufacturing; 7) Design and Application of Advanced Ship Systems. A team of Navy, University of New Orleans, and Northrop Grumman Ship Systems (Avondale) personnel will prioritize potential research projects supporting these thrust areas and oversee project execution to ensure program goals are being met.</div> | | | | | | | | | | | | | | | | | | | |

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| EXHIBIT R-2a, RDT&E Project Justification | | | DATE: February 2003 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|--|----------------------------|---------|--|---------|---------|---------|---------|----------|--|--|--|--|--|-------|-------|--|--|--|-------|-------|--|--|-------------------|--------|-------|--|--|------------------------|--|--|--|--|--------------------|--------|--|--|--|----------------------|--------|--|--|--|---------------------------|--------|--|--|--|-------------------------|--|-------|--|--|----------|--------|-------|--|--|
| APPROPRIATION/BUDGET ACTIVITY RDT&E, N/BA-7 | PROGRAM ELEMENT NUMBER AND NAME 0708730N/NSRP ASE | PROJECT NUMBER AND NAME R9121/Maritime Tech, Ship Design & Systems Development Initiative | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C. PROGRAM CHANGE SUMMARY: <table style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 40%;"></th><th style="width: 10%; text-align: right;">FY 2002</th><th style="width: 10%; text-align: right;">FY 2003</th><th style="width: 10%; text-align: right;">FY 2004</th><th style="width: 10%; text-align: right;">FY 2005</th></tr></thead><tbody><tr><td>Funding:</td><td></td><td></td><td></td><td></td></tr><tr><td>Previous President's Budget: (FY 03 Pres Controls)</td><td style="text-align: right;">7.000</td><td style="text-align: right;">0.000</td><td></td><td></td></tr><tr><td>Current BES/President's Budget (FY04 President's Controls)</td><td style="text-align: right;">6.724</td><td style="text-align: right;">2.343</td><td></td><td></td></tr><tr><td>Total Adjustments</td><td style="text-align: right; border-top: 1px solid black;">-0.276</td><td style="text-align: right; border-top: 1px solid black;">2.343</td><td></td><td></td></tr><tr><td colspan="5" style="padding-top: 10px;">Summary of Adjustments</td></tr><tr><td>SBIR/STTR Transfer</td><td style="text-align: right;">-0.180</td><td></td><td></td><td></td></tr><tr><td>Economic Assumptions</td><td style="text-align: right;">-0.019</td><td></td><td></td><td></td></tr><tr><td>Miscellaneous Adjustments</td><td style="text-align: right;">-0.077</td><td></td><td></td><td></td></tr><tr><td>Congressional increases</td><td></td><td style="text-align: right;">2.343</td><td></td><td></td></tr><tr><td>Subtotal</td><td style="text-align: right; border-top: 1px solid black;">-0.276</td><td style="text-align: right; border-top: 1px solid black;">2.343</td><td></td><td></td></tr></tbody></table> <div style="margin-top: 20px;">Schedule: Not Applicable.</div> <div style="margin-top: 20px;">Technical: Not Applicable.</div> | | | | | | FY 2002 | FY 2003 | FY 2004 | FY 2005 | Funding: | | | | | Previous President's Budget: (FY 03 Pres Controls) | 7.000 | 0.000 | | | Current BES/President's Budget (FY04 President's Controls) | 6.724 | 2.343 | | | Total Adjustments | -0.276 | 2.343 | | | Summary of Adjustments | | | | | SBIR/STTR Transfer | -0.180 | | | | Economic Assumptions | -0.019 | | | | Miscellaneous Adjustments | -0.077 | | | | Congressional increases | | 2.343 | | | Subtotal | -0.276 | 2.343 | | |
| | FY 2002 | FY 2003 | FY 2004 | FY 2005 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Funding: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Previous President's Budget: (FY 03 Pres Controls) | 7.000 | 0.000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Current BES/President's Budget (FY04 President's Controls) | 6.724 | 2.343 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Adjustments | -0.276 | 2.343 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Summary of Adjustments | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SBIR/STTR Transfer | -0.180 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Economic Assumptions | -0.019 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Miscellaneous Adjustments | -0.077 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Congressional increases | | 2.343 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Subtotal | -0.276 | 2.343 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| EXHIBIT R-2a, RDT&E Project Justification | | | | | | | DATE: February 2003 | | | |
| APPROPRIATION/BUDGET ACTIVITY RDTE&E, N/BA-7 | | PROGRAM ELEMENT NUMBER AND NAME 0708730N/NSRP ASE | | | PROJECT NUMBER AND NAME R9121/Maritime Tech, Ship Design & Systems Development Initiative | | | | | |
| D. OTHER PROGRAM FUNDING SUMMARY: | | | | | | | | | | |
| <u>Line Item No. & Name</u> | <u>FY 2002</u> | <u>FY 2003</u> | <u>FY 2004</u> | <u>FY 2005</u> | <u>FY 2006</u> | <u>FY 2007</u> | <u>FY 2008</u> | <u>FY 2009</u> | <u>To Complete</u> | <u>Total Cost</u> |
| None. | | | | | | | | | | |
| E. ACQUISITION STRATEGY: | | | | | | | | | | |
| R&D will be executed through the Gulf Coast Region Maritime Technology Center Cooperative Agreement with the University of New Orleans. | | | | | | | | | | |
| NOTE: No funding has been received through the Emergency Response Fund, Defense (ERF,D) | | | | | | | | | | |

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| Exhibit R-3 Cost Analysis (page 1) | | | | | | | | | | DATE: February 2003 | | | |
| APPROPRIATION/BUDGET ACTIVITY | | | PROGRAM ELEMENT | | | | PROJECT NUMBER AND NAME | | | | | | |
| RD&E, N/BA-7 | | | 0708730N/NSRP ASE | | | | R9121/Maritime Tech, Ship Design & Systems Development Initiative | | | | | | |
| Cost Categories | Contract Method & Type | Performing Activity & Location | Total PY s Cost | FY 03 Cost | FY 03 Award Date | FY 04 Cost | FY 04 Award Date | FY 05 Cost | FY 05 Award Date | Cost to Complete | Total Cost | Target Value of Contract | |
| | | | | | | | | | | | 0.000 | | |
| Technology Development | CA | University of New Orleans | 6.344 | 2.313 | | | | | | | 8.657 | | |
| | | | | | | | | | | | 0.000 | | |
| | | | | | | | | | | | 0.000 | | |
| | | | | | | | | | | | 0.000 | | |
| | | | | | | | | | | | 0.000 | | |
| | | | | | | | | | | | 0.000 | | |
| | | | | | | | | | | | 0.000 | | |
| | | | | | | | | | | | 0.000 | | |
| | | | | | | | | | | | 0.000 | | |
| | | | | | | | | | | | 0.000 | | |
| Subtotal Technology Development | | | 6.344 | 2.313 | | 0.000 | | 0.000 | | 0.000 | 8.657 | | |
| Remarks: | | | | | | | | | | | | | |
| Development Support | | | | | | | | | | | 0.000 | | |
| Software Development | | | | | | | | | | | 0.000 | | |
| Training Development | | | | | | | | | | | 0.000 | | |
| Integrated Logistics Support | | | | | | | | | | | 0.000 | | |
| Configuration Management | | | | | | | | | | | 0.000 | | |
| Technical Data | | | | | | | | | | | 0.000 | | |
| GFE | | | | | | | | | | | 0.000 | | |
| Award Fees | | | | | | | | | | | 0.000 | | |
| Subtotal Support | | | 0.000 | 0.000 | | 0.000 | | 0.000 | | 0.000 | 0.000 | | |
| Remarks: | | | | | | | | | | | | | |

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| Exhibit R-3 Cost Analysis (page 2) | | | | | | | | | | DATE: February 2003 | | |
| APPROPRIATION/BUDGET ACTIVITY RDTE, N/BA-7 | | | | PROGRAM ELEMENT 0708730N/NSRP ASE | | | PROJECT NUMBER AND NAME R9121/Maritime Tech, Ship Design & Systems Development Initiative | | | | | |
| Cost Categories | Contract Method & Type | Performing Activity & Location | Total PY s Cost | FY 03 Cost | FY 03 Award Date | FY 04 Cost | FY 04 Award Date | FY 05 Cost | FY 05 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
| Developmental Test & Evaluation | | | | | | | | | | | 0.000 | |
| Operational Test & Evaluation | | | | | | | | | | | 0.000 | |
| Live Fire Test & Evaluation | | | | | | | | | | | 0.000 | |
| Test Assets | | | | | | | | | | | 0.000 | |
| Tooling | | | | | | | | | | | 0.000 | |
| GFE | | | | | | | | | | | 0.000 | |
| Award Fees | | | | | | | | | | | 0.000 | |
| Subtotal T&E | | | 0.000 | 0.000 | | 0.000 | | 0.000 | | 0.000 | 0.000 | |
| Remarks: | | | | | | | | | | | | |
| Contractor Engineering Support | | | | | | | | | | | 0.000 | |
| Government Engineering Support | | | | | | | | | | | 0.000 | |
| Program Management Support | | | 0.170 | 0.025 | | | | | | | 0.195 | |
| Travel | | | 0.030 | 0.005 | | | | | | | 0.035 | |
| Labor (Research Personnel) | | | | | | | | | | | 0.000 | |
| SBIR Assessment | | | 0.180 | | | | | | | | 0.180 | |
| Subtotal Management | | | 0.380 | 0.030 | | 0.000 | | 0.000 | | 0.000 | 0.410 | |
| Remarks: | | | | | | | | | | | | |
| Total Cost | | | 6.724 | 2.343 | | 0.000 | | 0.000 | | 0.000 | 9.067 | |
| Remarks: | | | | | | | | | | | | |

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Exhibit R-3, Project Cost Analysis
(Exhibit R-3, Page 15 of 15)