

| RESEARCH & DEVELOPMENT CAPITAL PURCHASES JUSTIFICATION<br>(\$ in Thousands) |       |  |               |             |              | A. Budget Submission<br>FY 2005 President's Budget   |         |              |               |
|---|-------|--|---------------|-------------|--------------|--|---------|--------------|---------------|
| B. Component/Business Area/Date<br>DON/R&D/NUWC/February 2004               |       | C. Line No. & Item Description<br>N/A Productivity Non ADP Equip (Major)<br>Projects (\$500K - \$999K) |               |             |              | D. Activity Identification<br>NUWC Division, NPT/KPT |         |              |               |
|   |       | FY 2003  |               | FY 2004     |              |  | FY 2005 |              |               |
| ELEMENTS<br>OF COST   | Quant | Unit<br>Cost   | Total<br>Cost | Quant       | Unit<br>Cost | Total<br>Cost  | Quant   | Unit<br>Cost | Total<br>Cost |
| Productivity Non ADP<br>Major (500K – 999K)                                 | 6     |  | 3,330         | 2           |              | 1,240  | 4       |              | 2,730         |
| Narrative Justification:  |       |  |               |             |              |  |         |              |               |
|   |       | <u>Location</u>  | <u>FY03</u>   | <u>FY04</u> | <u>FY05</u>  |  |         |              |               |
| System Suitability Validation   |       | Keyport  | 397           |             |              |  |         |              |               |
| Fleet Readiness Support   |       | Keyport  | 400           |             |              |  |         |              |               |
| Undersea Weapons Consolidation  |       | Keyport  | 546           |             |              |  |         |              |               |
| Environmental Test & Evaluation   |       | Keyport  | 599           |             |              |  |         |              |               |
| UUV Testing   |       | Keyport  | 894           |             |              |  |         |              |               |
| COTS Systems Testing  |       | Keyport  | 494           |             |              |  |         |              |               |
| B/G ARG Sys Dev & Integration Lab   |       | Keyport  |               | 740         |              |  |         |              |               |
| MILCON Collateral Equipment   |       | Keyport  |               | 500         |              |  |         |              |               |
| Integrated Test, Training & Life Cycle Support Lab                          |       | Keyport  |               |             |              | 500  |         |              |               |
| Hawaii Detachment Relocation to Pearl Harbor                                |       | Keyport  |               |             |              | 550  |         |              |               |
| Littoral USW Testbed  |       | Newport  |               |             |              | 875  |         |              |               |
| Testing Facility Upgrades   |       | Newport  |               |             |              | 805  |         |              |               |

| RESEARCH & DEVELOPMENT CAPITAL PURCHASES JUSTIFICATION<br>(\$ in Thousands) |       |  |               |         |              | A. Budget Submission<br>FY 2005 President's Budget   |         |              |               |
|---|-------|--|---------------|---------|--------------|--|---------|--------------|---------------|
| B. Component/Business Area/Date<br>DON/R&D/NUWC/February 2004               |       | C. Line No. & Item Description<br>N/A Productivity Non ADP Equipment (Minor) |               |         |              | D. Activity Identification<br>NUWC Division, NPT/KPT |         |              |               |
|   |       | FY 2003  |               | FY 2004 |              |  | FY 2005 |              |               |
| ELEMENTS<br>OF COST   | Quant | Unit<br>Cost   | Total<br>Cost | Quant   | Unit<br>Cost | Total<br>Cost  | Quant   | Unit<br>Cost | Total<br>Cost |
| Productivity Non ADP<br>Minor   | 7     |  | 1,226         | 10      |              | 2,670  | 13      |              | 4,795         |
| Narrative Justification:  |       |  |               |         |              |  |         |              |               |
| Projects Between \$0K - \$499K  |       |  |               |         |              |  |         |              |               |

| RESEARCH & DEVELOPMENT CAPITAL PURCHASES JUSTIFICATION<br>(\$ in Thousands) |       |   |               |         |              | A. Budget Submission<br>FY 2005 President's Budget   |         |              |               |
|---|-------|---|---------------|---------|--------------|--|---------|--------------|---------------|
| B. Component/Business Area/Date<br>DON/R&D/NUWC/February 2004               |       | C. Line No. & Item Description<br>N/A Replacement Non ADP Equipment (Minor)<br>Projects |               |         |              | D. Activity Identification<br>NUWC Division, NPT/KPT |         |              |               |
|   |       | FY 2003   |               | FY 2004 |              |  | FY 2005 |              |               |
| ELEMENTS<br>OF COST   | Quant | Unit<br>Cost  | Total<br>Cost | Quant   | Unit<br>Cost | Total<br>Cost  | Quant   | Unit<br>Cost | Total<br>Cost |
| Replacement Non ADP<br>Minor  | 4     |   | 490           | 6       |              | 1,710  |         |              |               |
| Narrative Justification:<br><br>Projects Between \$0K - \$499K              |       |   |               |         |              |  |         |              |               |

| RESEARCH & DEVELOPMENT CAPITAL PURCHASES JUSTIFICATION<br>(\$ in Thousands) |       |   |               |         |              | A. Budget Submission<br>FY 2005 President's Budget   |         |              |               |
|---|-------|---|---------------|---------|--------------|--|---------|--------------|---------------|
| B. Component/Business Area/Date<br>DON/R&D/NUWC/February 2004               |       | C. Line No. & Item Description<br>N/A Environmental Non ADP Equipment (Minor) |               |         |              | D. Activity Identification<br>NUWC Division, NPT/KPT |         |              |               |
|   |       | FY 2003   |               | FY 2004 |              |  | FY 2005 |              |               |
| ELEMENTS<br>OF COST   | Quant | Unit<br>Cost  | Total<br>Cost | Quant   | Unit<br>Cost | Total<br>Cost  | Quant   | Unit<br>Cost | Total<br>Cost |
| Environmental Non ADP<br>Minor  | 1     |   | 240           | 2       |              | 470  |         |              |               |
| Narrative Justification:  |       |   |               |         |              |  |         |              |               |
| Projects Between \$0K - \$499K  |       |   |               |         |              |  |         |              |               |

| RESEARCH & DEVELOPMENT CAPITAL PURCHASES JUSTIFICATION<br>(\$ in Thousands) |  |   |               |         |              | A. Budget Submission<br>FY 2005 President's Budget   |         |              |               |
|---|--|---|---------------|---------|--------------|--|---------|--------------|---------------|
| B. Component/Business Area/Date<br>DON/R&D/NUWC/February 2004               |  | C. Line No. & Item Description<br>N/A New Mission Non ADP Equip (Major)<br>Projects (\$500K - \$999K) |               |         |              | D. Activity Identification<br>NUWC Division, NPT/KPT |         |              |               |
|   |  | FY 2003   |               | FY 2004 |              |  | FY 2005 |              |               |
| ELEMENTS<br>OF COST   | Quant  | Unit<br>Cost  | Total<br>Cost | Quant   | Unit<br>Cost | Total<br>Cost  | Quant   | Unit<br>Cost | Total<br>Cost |
|   | New Mission Non ADP<br>Major (\$500K – \$999K) | 2   |               | 1,775   | 1            |  | 925     |              |               |
| Narrative Justification:  |  |   |               |         |              |  |         |              |               |
|   | <u>Location</u>                                | <u>FY03</u>   | <u>FY04</u>   |         |              |  |         |              |               |
| Littoral USW Facility   | Newport  | 855   |               |         |              |  |         |              |               |
| USW Testing and Support Facility  | Newport  | 920   | 925           |         |              |  |         |              |               |

| RESEARCH & DEVELOPMENT CAPITAL PURCHASES JUSTIFICATION<br>(\$ in Thousands) |       |   |               |         |              | A. Budget Submission<br>FY 2005 President's Budget   |         |              |               |
|---|-------|---|---------------|---------|--------------|--|---------|--------------|---------------|
| B. Component/Business Area/Date<br>DON/R&D/NUWC/February 2004               |       | C. Line No. & Item Description<br>N/A New Mission Non ADP Equipment (Minor) |               |         |              | D. Activity Identification<br>NUWC Division, NPT/KPT |         |              |               |
|   |       | FY 2003   |               | FY 2004 |              |  | FY 2005 |              |               |
| ELEMENTS<br>OF COST   | Quant | Unit<br>Cost  | Total<br>Cost | Quant   | Unit<br>Cost | Total<br>Cost  | Quant   | Unit<br>Cost | Total<br>Cost |
| New Mission Non ADP<br>Minor  | 2     |   | 745           | 4       |              | 550  |         |              |               |
| Narrative Justification:  |       |   |               |         |              |  |         |              |               |
| Projects Between \$0K - \$499K  |       |   |               |         |              |  |         |              |               |

| RESEARCH & DEVELOPMENT CAPITAL PURCHASES JUSTIFICATION<br>(\$ in Thousands)   |       |  |            |         |           | A. Budget Submission<br>FY 2005 President's Budget   |         |           |            |
|---|-------|--|------------|---------|-----------|--|---------|-----------|------------|
| B. Component/Business Area/Date<br>DON/R&D/NUWC/February 2004   |       | C. Line No. & Item Description<br><u>L269</u> Common Product Development |            |         |           | D. Activity Identification<br>NUWC Division, Newport |         |           |            |
|   |       | FY 2003  |            | FY 2004 |           |  | FY 2005 |           |            |
| ELEMENTS OF COST  | Quant | Unit Cost  | Total Cost | Quant   | Unit Cost | Total Cost   | Quant   | Unit Cost | Total Cost |
| Common Product Development  | 1     |  | 1,179      | 1       |           | 1,200  |         |           |            |
| Narrative Justification:  |       |  |            |         |           |  |         |           |            |
| <p>The emphasis of this initiative will be directed toward the development of cost effective processes and methods that facilitate the utilization of state-of-the-art tools that are essential for a credible and validated approach for application of Simulation Based Design / Simulation Based Acquisition to Undersea Warfare Systems. This project is focused on the provision of "high-end" tools that permit the design and analysis of undersea warfare systems as virtual products containing all the attributes of actual systems such as performance, vulnerability, reliability, maintainability, and total ownership cost. The affordability of these tools and processes is addressed by common utilization across all product lines. These tools will be applied to undersea system problems, including the development of models that predict sonar performance metrics, mechanical performance (shock, thermal, hydrodynamic, etc.), geometries of systems, structural characteristics and how these properties relate to each other in producing the loads and stresses experienced by the combined system. These tools also address affordability in terms of total ownership costs. This investment is needed to enhance NUWC's capabilities and efficiency in integrated design, modeling, and simulation as it pertains to SBD/SBA. This investment is also leveraged to encourage teamwork across the division and to assure the maximum sharing of resources.</p> |       |  |            |         |           |  |         |           |            |

| RESEARCH & DEVELOPMENT CAPITAL PURCHASES JUSTIFICATION<br>(\$ in Thousands)  |  |  |               |         |              | A. Budget Submission<br>FY 2005 President's Budget   |         |              |               |
|--|--|--|---------------|---------|--------------|--|---------|--------------|---------------|
| B. Component/Business Area/Date<br>DON/R&D/NUWC/February 2004  |  | C. Line No. & Item Description<br><u>L270</u> Scientific Computational Resources Upgrade |               |         |              | D. Activity Identification<br>NUWC Division, Newport |         |              |               |
|  |  | FY 2003  |               | FY 2004 |              |  | FY 2005 |              |               |
| ELEMENTS<br>OF COST  | Quant                                      | Unit<br>Cost   | Total<br>Cost | Quant   | Unit<br>Cost | Total<br>Cost  | Quant   | Unit<br>Cost | Total<br>Cost |
|  | Scientific Computational Resources Upgrade |  |               |         |              |  |         | 1            |               |
| Narrative Justification:   |  |  |               |         |              |  |         |              |               |
| <p>In order to provide the necessary scientific computer resources at the Naval Undersea Warfare Center, Division Newport, adequate systems must be acquired to meet the Research, Development, Test and Evaluation (RDT&amp;E) needs. The Scientific Computational Resources Upgrade project enhances existing scientific computational engines or replaces systems that are no longer cost effective to operate. This project provides the visualization engines and repositories of DoD high performance computer systems for engineers and scientists to develop innovative undersea warfare solutions. These computational engines are a key component and requirement for many of the existing and proposed projects to be fully functional. Replacement of the obsolete computer equipment and the addition of these visualization engines will provide Division Newport with more reliable and more cost effective resources which will ensure that the technical areas have the capabilities they need to meet their requirements. Increased reliability will reduce maintenance costs, increase overall efficiency, and enhance compatibility internally and externally to the Division.</p> |  |  |               |         |              |  |         |              |               |

| RESEARCH & DEVELOPMENT CAPITAL PURCHASES JUSTIFICATION<br>(\$ in Thousands) |       |  |                 |             |              | A. Budget Submission<br>FY 2005 President's Budget   |         |              |               |
|---|-------|--|-----------------|-------------|--------------|--|---------|--------------|---------------|
| B. Component/Business Area/Date<br>DON/R&D/NUWC/February 2004               |       | C. Line No. & Item Description<br>N/A ADP & Telecommunications Equip (Major)<br>Projects (\$500K - \$999K) |                 |             |              | D. Activity Identification<br>NUWC Division, NPT/KPT |         |              |               |
|   |       | FY 2003  |                 | FY 2004     |              |  | FY 2005 |              |               |
| ELEMENTS<br>OF COST   | Quant | Unit<br>Cost   | Total<br>Cost   | Quant       | Unit<br>Cost | Total<br>Cost  | Quant   | Unit<br>Cost | Total<br>Cost |
| ADP Projects Major (\$500K - \$999K)  | 9     |  | 3,494           | 3           |              | 1,875  | 3       |              | 2,375         |
| Narrative Justification:  |       |  |                 |             |              |  |         |              |               |
|   |       |  | <u>Location</u> | <u>FY03</u> | <u>FY04</u>  | <u>FY05</u>  |         |              |               |
| Strategic Management Information Center                                     |       |  | Newport         | 109         |              |  |         |              |               |
| Undersea Warfare Modeling & Simulation Support                              |       |  | Newport         | 163         |              | 600  |         |              |               |
| Vehicle Emulation Initiative  |       |  | Newport         | 249         |              |  |         |              |               |
| Integrated Display Center Upgrade   |       |  | Newport         | 130         |              |  |         |              |               |
| Scientific Comp Resources Upgrade   |       |  | Newport         | 993         | 875          |  |         |              |               |
| Fleet Test Data Analysis & Feedback   |       |  | Keyport         | 200         |              |  |         |              |               |
| Fleet Obsolescence Management Integration                                   |       |  | Keyport         | 430         |              |  |         |              |               |
| Next Generation RIDC  |       |  | Keyport         | 798         |              |  |         |              |               |
| CASS Platforms  |       |  | Keyport         | 422         |              |  |         |              |               |
| USW Testbed for Decision Support  |       |  | Newport         |             | 500          | 900  |         |              |               |
| P-381 RIDC Capital Equipment  |       |  | Keyport         |             | 500          |  |         |              |               |
| Common Product Development  |       |  | Newport         |             |              | 875  |         |              |               |

|   |  |
|---|--|
| RESEARCH & DEVELOPMENT CAPITAL PURCHASES JUSTIFICATION<br>(\$ in Thousands) | A. Budget Submission<br>FY 2005 President's Budget |
|---|--|

|   |   |  |
|---|---|--|
| B. Component/Business Area/Date<br>DON/R&D/NUWC/February 2004 | C. Line No. & Item Description<br><u>N/A</u> ADP & Telecommunications Equip (Minor) | D. Activity Identification<br>NUWC Division, NPT/KPT |
|---|---|--|

| ELEMENTS<br>OF COST                       | FY 2003 |              |               | FY 2004 |              |               | FY 2005 |              |               |
|---|---------|--------------|---------------|---------|--------------|---------------|---------|--------------|---------------|
|   | Quant   | Unit<br>Cost | Total<br>Cost | Quant   | Unit<br>Cost | Total<br>Cost | Quant   | Unit<br>Cost | Total<br>Cost |
| ADP & Telecommunications<br>Equip (Minor) | 11      |              | 2,310         | 26      |              | 6,330         | 16      |              | 5,920         |

Narrative Justification:

Projects Between \$0K - \$499K

| RESEARCH & DEVELOPMENT CAPITAL PURCHASES JUSTIFICATION<br>(\$ in Thousands) |                  |  |               |       |              |               | A. Budget Submission<br>FY 2005 President's Budget   |              |               |     |
|---|------------------|--|---------------|-------|--------------|---------------|--|--------------|---------------|-----|
| B. Component/Business Area/Date<br>DON/R&D/NUWC/February 2004               |                  | C. Line No. & Item Description<br>N/A Software (Minor) |               |       |              |               | D. Activity Identification<br>NUWC Division, NPT/KPT |              |               |     |
|   |                  | FY 2003  |               |       | FY 2004      |               |  | FY 2005      |               |     |
| ELEMENTS<br>OF COST   | Quant            | Unit<br>Cost   | Total<br>Cost | Quant | Unit<br>Cost | Total<br>Cost | Quant  | Unit<br>Cost | Total<br>Cost |     |
|   | Software (Minor) |  |               | 216   |              |               |  |              |               | 450 |
| <p>Narrative Justification:</p> <p>Projects less than \$500K</p>            |                  |  |               |       |              |               |  |              |               |     |

| RESEARCH & DEVELOPMENT CAPITAL PURCHASES JUSTIFICATION<br>(\$ in Thousands)  |       |           |  |       |           |            | A. Budget Submission<br>FY 2005 President's Budget   |           |            |
|--|-------|-----------|--|-------|-----------|------------|--|-----------|------------|
| B. Component/Business Area/Date<br>DON/R&D/NUWC/February 2004  |       |           | C. Line No. & Item Description<br>N/A Minor Construction |       |           |            | D. Activity Identification<br>NUWC Division, NPT/KPT |           |            |
|  |       |           | FY 2003  |       | FY 2004   |            | FY 2005  |           |            |
| ELEMENTS OF COST   | Quant | Unit Cost | Total Cost   | Quant | Unit Cost | Total Cost | Quant  | Unit Cost | Total Cost |
| Minor Construction   |       |           | 1,370  |       |           | 2,030      |  |           | 1,970      |
| Narrative Justification:   |       |           |  |       |           |            |  |           |            |
| <u>FY04</u><br>Building 15 (South) Renovation (Productivity)<br>Renovate/Consolidate Code 90 Facilities (Productivity)<br>Alterations for Network Upgrade (Productivity)<br>Americans for Disabilities Act (Replacement)<br>AT/FP Parking/Gate Modifications (Productivity)<br>Restoration & Modernization of NUWC DIV NPT Waterfront (Productivity) |       |           |  |       |           |            |  |           |            |
| <u>FY05</u><br>Reconfigure Conduits / Trenches (Productivity)<br>Upgrade DRMO Facility (Environmental)<br>Fleet Engineering & Support Facility (Productivity)<br>Quality of Life Infrastructure Improvements (Productivity)<br>B1190 Addition (Productivity)<br>Otto Fuel Storage facility (New Mission)   |       |           |  |       |           |            |  |           |            |