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HOUSE ARMED SERVICES COMMITTEE
SEAPOWER AND EXPEDITIONARY FORCES
SUBCOMMITTEE

STATEMENT OF

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BEFORE THE

SEAPOWER AND EXPEDITIONARY FORCES SUBCOMMITTEE

OF THE

HOUSE ARMED SERVICES COMMITTEE

ON

FORCE STRUCTURE REQUIREMENTS AND
ALTERNATIVE FUNDING STRATEGIES FOR THE
UNITED STATES SUBMARINE FLEET

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Mr. Chairman, distinguished members of the Subcommittee, thank you for providing us with this opportunity to appear before you to discuss the submarine industrial critical skills, the Navy's plan to reduce the average per-unit cost of the VIRGINIA Class to \$2 billion (Fiscal Year 2005 baseline) by Fiscal Year 2012, and the procurement strategies to increase the build rate of submarines.

Submarine Industrial Critical Skills

The submarine industrial base is composed of two major components, the construction base and the design base. As you know, the Navy is currently procuring one VIRGINIA Class nuclear attack submarine (SSN) per year from Fiscal Year 2004 to Fiscal Year 2008 under a Multi-Year Procurement contract. One-third of the proposed 30-submarine Class is under contract with three ships delivered and another six currently under construction. The Navy's Annual Long-Range Plan for Construction of Naval Vessels calls for procuring two VIRGINIA Class submarines per year starting in Fiscal Year 2012 with a cost goal of \$2 billion per hull calculated in Fiscal Year 2005 dollars. Though the submarine construction base will remain stable until Fiscal Year 2012, this does not imply that the submarine construction base is at its optimal level. Instead, while far from robust, it is at a sustaining and constant level, two attributes that could not have been said ten years ago.

For the first time in its history, the United States Nuclear Submarine Force does not have a new class of submarine design underway. Consequently, the pool of experienced naval architects, designers, and engineers with submarine design experience is atrophying. To better understand this issue, the Navy commissioned the RAND Corporation to independently evaluate cost and schedule impacts of strategies for managing submarine design resources, which include shipyards, critical component suppliers, and the Navy itself.

With regard to shipyard capacity, RAND evaluated two strategies: sustain a number of workers in excess of current design demand or let the workforce erode and then rebuild it for the next submarine design. Sustaining workers in excess of current demand was found to be the least expensive. The shipyards would be able to more efficiently accomplish the next design by retaining a minimum range of 800-1050 designers and engineers to perform design work during the design gap. The shipyards are addressing specifics of the critical skills problem, so RAND did not repeat that effort; however, RAND described the recommended sustained workforces by general skill category.

The RAND study recognized that suppliers provide important capabilities to the submarine industrial base. They surveyed submarine critical component suppliers regarding the potential problems arising from a design gap, and initial indications show that some vendors may be at risk. This concern will continue to be evaluated by the Navy.

Lastly, RAND studied the Navy's roles in submarine design including: (1) the infrastructure and expertise enabling us to be a smart buyer and technical authority; (2)

accomplishing specialized testing, analysis, and evaluation; (3) designing critical components with no commercial viability; (4) integrating combat systems; and (5) developing new technologies for incorporation into successive submarine designs. RAND reviewed these roles, along with workforce structure and trends in Navy organizations, and came to the following conclusion: Sufficient design expertise in the various major skill categories was unlikely to be sustained to support hull, mechanical, and electrical submarine design functions at the Naval Surface Warfare Center's Carderock Division. Approximately \$35 million per year would be the minimum requirement to sustain sufficient design capability in these areas across the design gap.

According to RAND, extending the period of the design of the next submarine class would alleviate the concern over erosion of critical capabilities. Based on its analysis, RAND recommended that the Navy consider starting the next submarine design in 2009 to mitigate excess costs, delays, and risks a design gap would cause. If that course of action is not followed, RAND recommended the Navy consider building upon the VIRGINIA Class through spiral development or design without construction as a substitute for working on the next-generation submarine.

The Navy has elected to preserve critical engineering skills in the near-term by investing in cost reduction design initiatives for VIRGINIA Class submarines. The Navy has budgeted more than \$300 million in RDT&E, across the FYDP, to achieve the savings required to procure two submarines per year starting in Fiscal Year 2012. In addition, the Navy has accelerated the buy for the OHIO Class replacement. The lead ship will now start in Fiscal Year 2019 (per the Navy's Annual Long-Range Plan for Construction of Naval Vessels). The requirement for the OHIO Class replacement will be driven by the missile requirement. STRATCOM and Navy have begun efforts to define the targeting and warhead requirements. Once this is determined, the Navy will explore platform options for the OHIO Class replacement.

VIRGINIA Class Cost Reduction Plans

The VIRGINIA Class Shipbuilders, General Dynamics Electric Boat and Northrop Grumman Newport News (NGNN), are making significant headway in moving down the construction learning curve and bringing down the cost of these platforms. Most notable is the on-time delivery of the third ship of the class, HAWAII (SSN 776), in December 2006. In fact, NORTH CAROLINA (SSN 777), the fourth ship of the class, being built at NGNN, is on track for an on-time delivery in December 2007. With NORTH CAROLINA's delivery, we will close out the last of the first block of VIRGINIAS. The next ship, NEW HAMPSHIRE (SSN 778), is a stand alone ship that the Navy ordered under the fixed price incentive fee structure of the second construction contract. The remaining five ships under the Block II contract have transitioned to a Multi-Year Procurement with Economic Order Quantity material buy. As these submarines progress through their construction pipeline, we are gaining real-world, real-time lessons that are being applied to follow-on VIRGINIA Class submarines. With each VIRGINIA Class Submarine delivery, the program is showing marked improvement and as we progress through the Block II ships we expect to see even better performance.

The Multi-Year Procurement Contract with Economic Order Quantity purchase of material is the single most important item required to attain the \$2 billion (Fiscal Year 2005 \$) VIRGINIA Class submarine. For baseline comparison, the Fiscal Year 2007 ship, SSN 782, is budgeted for \$2.4 billion (Fiscal Year 2005 \$). By ordering two VIRGINIA Class ships in Fiscal Year 2012 as part of a seven-ship Multi-Year Procurement Contract with Economic Order Quantity, the Navy will cut \$200 million (Fiscal Year 2005 \$) out of the per-unit cost. Multi-Year Procurement offers the largest, most easily attainable cost savings and the lowest risk to the program. Without Multi-Year Procurement authorization in the next seven-ship contract, it is unlikely the Navy will be able to procure two VIRGINIA Class submarines for \$4 billion (Fiscal Year 2005 \$) in Fiscal Year 2012.

To remove \$400 million (Fiscal Year 2005 \$) per hull from the Fiscal Year 2012 hulls, the VIRGINIA Class Program Office has established a three-element cost reduction plan. This plan is described in the May 22, 2006 Navy's Report to Congress on "VIRGINIA Class Submarine Technology Insertion to Lower Cost" per Section 215 of the Fiscal Year 2006 Defense Authorization Act. This plan was updated in the February 21, 2007 Navy's Report to Congress on "VIRGINIA Class Cost Reduction" as directed by the Fiscal Year 2007 Senate Armed Services Committee Report 109-254. As previously noted, the first part of this cost reduction plan is signing a contract for seven VIRGINIA Class submarines under a Multi-Year Procurement strategy that will account for \$200 million (Fiscal Year 2005 \$). Second is improving construction performance. By realigning work between the two shipbuilders for increased module size and efficiency; applying lessons learned to current and future ships; full utilization of the Capital Expenditure incentive; reducing the construction span from seven to five years; and modifying how we install and test Non-Propulsion Electrical Systems, we have the potential to reduce costs by more than \$100 million (Fiscal Year 2005 \$). To realize the remaining cost reductions, the Navy is looking to redesign portions of the submarine on a capability-neutral basis. The VIRGINIA Class is executing from a solid foundation and we have an understanding of what can be achieved and we believe that by Fiscal Year 2009 the Navy will be signing a contract that includes two VIRGINIA Class submarines for \$4 billion (Fiscal Year 2005 \$) in Fiscal Year 2012.

The Chief of Naval Operations, in the Navy's Report to Congress on Annual Long-Range Plan for Construction of Naval Vessels for Fiscal Year 2008, set Fiscal Year 2012 as the year to purchase two VIRGINIA Class submarines for \$4 billion (Fiscal Year 2005 \$). Procuring VIRGINIA Class submarines at a rate of two per year prior to Fiscal Year 2012 would reduce the per-unit cost of the ships and it could reduce some risks associated with the \$2 billion (Fiscal Year 2005 \$) VIRGINIA Class submarines in Fiscal Year 2012. However, starting the two per year build rate will not expedite achieving the \$2 billion (Fiscal Year 2005 \$) mark and, because of the need for more SCN (inside the FYDP), it could increase the risk to the Long-Range Plan for Construction of Naval Vessels and negatively impact other critical shipbuilding programs and their associated shipyards.

Potential Procurement Strategies

The Navy examined potential procurement strategies to increase the build rate of submarines. As indicated in the February 12, 2007 Navy's Report to Congress on "Accelerating VIRGINIA Class Submarine Construction", one option for increasing the build rate of submarines is to fully fund nine SSNs in Fiscal Year 2009-2013 and begin two per year in 2010. This would require the next contract to be for nine instead of seven hulls and require an additional \$5.1 billion in SCN funding in the FYDP. The Navy also considered multi-year funding alternatives that utilize either incremental funding or advance appropriations. Multi-year funding nine SSNs in Fiscal Year 2009-2013 would require an additional \$1.7 billion of SCN funding; a decrease of \$3.4 billion from fully funding all nine SSNs. By comparison, although multi-year funding eight SSNs (beginning two per year build rate in Fiscal Year 2011) would not increase SCN funding required in the FYDP, it would lead to additional SCN costs beyond the FYDP (\$2.6 billion). Any alternative funding strategy that requires additional SCN funding in the FYDP without top-line TOA relief would require reallocating this amount to submarine funding from within current SCN funding levels and would significantly deviate from the Navy's Report to Congress on Annual Long-Range Plan for Construction of Naval Vessels for Fiscal Year 2008. Such a funding alternative would increase the risk of destabilizing the Navy's overall shipbuilding plan and negatively impact other shipbuilding programs and associated industrial facilities.

Summary

The VIRGINIA Class program is working to ensure that the Navy will be able to buy two submarines for \$4 billion (Fiscal Year 2005 \$) in Fiscal Year 2012. The Program Office, shipbuilders, and vendors are working together to reduce costs and deliver these critical platforms. With three ships delivered and six more under construction, the Navy is working off of a solid foundation and is confident that it will meet the Chief of Naval Operations' goal.

The Navy has addressed the RAND study conclusions and addressed the design industrial base through a two prong approach – cost reduction activity and acceleration of the follow-on design for OHIO Class replacement.

In closing, Mr. Chairman, thank you for the opportunity to testify before the Subcommittee regarding submarine industrial base. We will be happy to answer any questions that you may have.