

NOT FOR PUBLICATION UNTIL RELEASED BY
THE HOUSE ARMED SERVICES COMMITTEE
SUBCOMMITTEE ON SEAPOWER AND
EXPEDITIONARY FORCES

STATEMENT OF

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BEFORE THE

SUBCOMMITTEE ON SEAPOWER AND EXPEDITIONARY FORCES

OF THE

HOUSE ARMED SERVICES COMMITTEE

ON THE

US NAVY SUBMARINE FORCE STRUCTURE AND ACQUISITION POLICY

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Chairman Taylor, Ranking Member Bartlett, distinguished members of the Seapower and Expeditionary Forces Subcommittee, thank you for this opportunity to appear before you again to discuss the Navy's submarine force structure and acquisition strategy.

Introduction

In my testimony for this subcommittee's hearing on submarines last March I discussed briefly the history and capabilities of Northrop Grumman Newport News, our role in producing the great nuclear submarines that continue to serve our Navy so well, the issues we face as shipbuilders with capital investments, investments we are making in our skilled people, and changes we are making to our processes. I will not repeat that discussion here today, but will say that after another year as president of Northrop Grumman Newport News, I am even prouder of our 19,000 shipbuilders for all that they accomplished in 2006 and the path we are on for achieving new heights in the years ahead.

I testified last year that the teaming arrangement between Northrop Grumman Newport News and General Dynamics Electric Boat for the production of *Virginia*-class submarines was "strong and functioning well." I can tell you that this statement has been validated time and again in the last year. As we complete delivery of more and more *Virginia*-class submarines, the wisdom of this arrangement becomes ever clearer. Thanks to teaming, we have preserved the nation's submarine industrial base and brought to bear the talents and capabilities of two great shipyards, all for the good of the Navy and the nation.

2006 – A Year of Achievement

Since last testifying before you, Northrop Grumman Newport News delivered its first submarine in 10 years – *USS Texas*, the second in the *Virginia*-class – on June 20, 2006. This was an exciting day for all of us at Newport News and Groton. She was

subsequently commissioned in Galveston, Texas on September 9 and set off on a path to full combat readiness for the Navy.

In August, we closed the pressure hull on the fourth ship of the class, *North Carolina*. This is a critical milestone that marks the transition of the ship from construction to final outfitting and testing. We are now working toward christening on April 21 and launch on May 5 with sea trials and delivery at the end of this year. Based on the lessons we have learned from *USS Texas* and *Hawaii*, we are accelerating the planned delivery of the ship by several months. Our progress on *North Carolina* at pressure hull closure was well ahead of *USS Texas* at the same point and comparable to where Electric Boat was on *Hawaii*, which they delivered on an accelerated schedule.

In December, our partners at Electric Boat delivered the third ship of the class, *Hawaii*, to the Navy and it was subsequently placed in shake-down service with the active fleet.

As 2006 drew to a close, we were completing work on the final module and first “super-module” to be produced by Newport News for *New Hampshire*, the fifth *Virginia*-class submarine. We shipped this 1600 ton bow module to Electric Boat in February 2007 with the sail already installed – a change in construction process implemented after study by the team and a determination that this change could help reduce costs and improve overall schedule performance. With this change, we will now be installing the sail on all subsequent submarines, regardless of who is to deliver it to the Navy. We shipped our modules for *New Hampshire* to Electric Boat with some fifty thousand man-hours of increased Newport News work scope while, at the same time, we achieved 18 percent reduction in total man-hours compared to *Hawaii*. Shipment of this module marks the completion of Newport News’s work on *New Hampshire*. Electric Boat will deliver the ship to the Navy in 2009.

Throughout the year, we continued our work on our modules for *New Mexico*. Thanks to process improvements and greater efficiency of our people, this was the first ship to have all of the structural modules delivered for outfitting according to the class construction

plan. This accomplishment will help us achieve our goal of accelerating delivery of this ship.

You should note that the achievements I have just summarized were only in our *Virginia*-class program at Northrop Grumman Newport News. In the rest of the shipyard, 2006 was also a year of strong performance. We christened and launched CVN 77, *George H. W. Bush*, the last of the *Nimitz*-class nuclear aircraft carriers. We continued the mid-life refueling, overhaul and modernization of the nuclear aircraft carrier *USS Carl Vinson* and prepared it to leave the dry dock during 2007. We continued building advance procurement modules for the CVN 78, *Gerald R. Ford*, the first of the new class of carriers for the 21st century. When completed, this ship will serve in the nation's defense well past the middle of the century. Finally, we re-delivered the nuclear submarines *USS Minneapolis-St. Paul* and *USS Oklahoma City* after extended maintenance periods and began a dry dock maintenance period on *USS Toledo*.

Along with all of this work, we continued our focus on developing our people and improving our processes throughout the shipyard to drive out cost and improve performance as I discussed with you last year. Our efforts throughout the shipyard are paying off in strong performance in every program.

Let me turn now to the specific questions you asked that I address for today's hearing.

Virginia-Class Submarine Acquisition Strategy

The successful *Virginia*-class acquisition strategy has been distinguished by two key elements – teaming and stability.

In the FY 1998 National Defense Authorization Act, Congress authorized the Navy to procure the first four *Virginia*-class submarines under a teaming arrangement which Electric Boat and Newport News had proposed in December 1996. A formal teaming agreement was signed by both companies in February 1997. Subsequent Authorization

Acts have continued the requirement to procure this class of submarines from an Electric Boat – Newport News team.

We now have experience as a team delivering three submarines, we are working together on the next six and together we are procuring long-lead material for the tenth and final submarine of Block 2. We have learned a great deal by working with each other and, most importantly, we have proven that teaming Electric Boat and Newport News on submarine construction was, and continues to be, the right way to proceed. Changes to this arrangement at this point would be harmful to the combined efforts we have ongoing to reduce costs, improve designs for better producibility, and improve schedules.

Just as we have seen the efficiency in construction that has come from the teaming agreement's work share arrangement, we have also seen how sharing a single profit pool, as we do today, puts in place the necessary incentives for employees at both yards to work together effectively to reduce costs, to collaboratively and quickly resolve issues which arise, and to share ideas on ways to accomplish work more efficiently. Sharing a single profit pool equally makes the success of each yard dependent on the success of the entire team. Problems that develop at one yard, if not resolved quickly, degrade the performance of both team members. The result of all this is that there has been an active exchange of people, best practices, lessons learned and other information between the two yards – all to the benefit of the program.

When I testified before you last year, I provided a number of examples of our successes as a team and described the various initiatives we had underway to improve performance throughout the program. I will not repeat those examples here, but I believe it is essential that we exploit what we have learned from our ten years of working together as a team and continue this arrangement for the rest of the program. Only in this way can we deliver to the Navy the most sophisticated submarines in the world in the quantities they require and at a price they can afford.

The second element of *Virginia*-class acquisition strategy is stability. Until recently this program was plagued by continual delays of when the Navy would begin procuring two submarines per year. I am happy to see that the Chief of Naval Operations' 30-year shipbuilding plan has been successful at bringing some stability to our industry. This year's plan, unlike many we have seen in the past decade, does not delay the 2012 start date for two submarines per year that appeared in last year's plan. It is hard to believe, but we have seen the start date for two submarines change seven times since 1995 – a clear example of instability. The new stability we are seeing is encouraging, but, as I discussed last year, stability must go hand-in-hand with volume if we are to reduce the costs of these ships. The sooner we are able to increase volume, the sooner we will see more significant reductions in cost.

Stability is enhanced when acquisition is accomplished through multi-year procurement authorizations with advance procurement funding. We have seen the benefits of the current multi-year contract with economic order quantities in Block 2. To date the Electric Boat – Newport News team has achieved a target set by the Navy to save \$240 million on material purchases for ships six through ten. The Navy intends to achieve savings of \$160 million on government furnished equipment for a total of \$400 million in savings. In addition, the shipyards have found \$23 million in savings on 35 key material items above and beyond the target of \$240 million. We can reasonably expect that similar results will be achieved as the program hits its stride with greater volume.

The benefits of multi-year procurement flow as well to the supplier base which is an essential part of the *Virginia*-class team. You have heard much about the fragility of our submarine industrial base in the past several years. The base continues to be fragile, but multi-year procurements have helped add a degree of predictability to the demand for critical components produced by the industrial base. With predictability, these businesses can make rational, fact-based decisions on capitalizing their business to ensure they can meet both present and future requirements. Thus, multi-year procurement and advanced procurement funding help to shore up the industrial base at the same time that they provide the means for obtaining needed components at the lowest possible price.

While teaming and stability are essential elements for the success of the Virginia-class acquisition strategy, there is today a third element that is also critical – ship over ship performance improvement. Our expectation in this program has always been that we will meet or exceed cost and schedule requirements while maintaining high quality. Given where we are in our program, we must also demonstrate ship over ship improvements in both of these areas without allowing any slippage in the high quality of the submarines we are producing. The bottom line is that ours must be a high performing program if we are to provide the Navy the highly capable submarines it needs to sustain a long-term force structure goal of 48 submarines.

And the *Virginia*-class submarine acquisition program today is, indeed, high performing. It has become a model acquisition program. We are delivering on our commitments, exceeding expectations, and demonstrating improvement with each successive ship.

Capital Expenditure Program (CAPEX)

In the past four years, Northrop Grumman shareholders have invested over \$250 million of capital to modernize critical equipment and build new facilities to improve the efficiency of our operations and reduce costs on Navy programs. Some of our investments are in machinery and specialized shops which will benefit all Navy programs. Others are specific to the submarine program where the *Virginia*-class contract has provided additional incentives for us to do so. These incentives require an up-front use of shipyard resources with the possibility of earning an incentive, but only if the improvement actually delivers the savings that we estimated. Both Electric Boat and Newport News propose incentive projects to the Navy and fund them from corporate resources. If the Navy agrees that the anticipated savings are being achieved through the project, the incentive is paid by the Navy and split equally by the two shipyards. This is yet another example of how the success of each team member is tied to the success of their partner. The results we have seen to date make the wisdom of this approach clear.

At Newport News, we are focused on establishing multi-use, multi-purpose facilities that increase our flexibility to do work where it is best for our employees and where the work can be done most efficiently. We have, for example, invested in covered modular assembly and modular outfitting facilities because we know that weather affects productivity and productivity drives labor costs. Under the CAPEX incentive program, we have added the necessary equipment, services and connections necessary to one of the bays of the submarine Modular Outfitting Facility (MOF) to create a second bay capable of final assembly work on submarines. Prior to this, only one bay was equipped for covered, final assembly work in the MOF. Thus, a follow-on submarine would reach a point in its construction when it would have to move to the one final assembly bay displacing the nearly complete submarine in that bay. This ship would be moved outside of the MOF, closer to its ultimate launch site, where final preparations for launch would be performed. With this second bay appropriately equipped, two submarines can now complete their preparations for launch protected from the weather and without the expense of an additional move from one end of the MOF to the other before being launched. This project has been implemented and is paying dividends in the construction of *North Carolina*. This is also an excellent example of a Block 2 incentive being used for the benefit of both Block 1 and Block 2 submarines. Moreover, this improvement was a step that had to be taken to be able to produce two submarines per year efficiently.

Similarly, we have invested in upgrades to our Covered Module Assembly Facility (CMAF) to enable more efficient construction of the sail, habitability module, auxiliary machinery room module and sonar sphere. With these upgrades in place, we are seeing efficiencies in the production of these modules across all areas which will contribute to both further cost reduction and schedule improvement.

In the next five years we will continue our capital investments at Newport News with more than \$300 million across all programs. In my view, this is a clear indication of our commitment to the Navy to reduce costs on their programs in every way that we can.

Meeting the \$2 Billion Challenge

In my testimony last year I expressed confidence that the Electric Boat – Newport News team could meet the Navy’s \$2 billion challenge “if the current positive trends continue for shipbuilding costs, the government successfully executes its plans to reduce the cost of government furnished equipment, and we increase the rate of submarine production to two ships per year under a multi-year procurement with economic order quantity (EOQ) purchases.” Our experience in 2006 has only served to strengthen my confidence in the ability of the Electric Boat – Newport News team to meet this challenge.

I would like to highlight briefly a few of the key things we are doing to be able to get to two submarines for \$4 billion. Specifically, I want to discuss how we are reducing labor costs through learning improvements and reducing labor and material costs through design for affordability changes as well as other process improvements.

Shipbuilders and Navy officials know that the cost of Navy ships has three components: shipbuilder labor, shipbuilder material, and government costs which include government material and support agency costs. Currently on the *Virginia*-class, shipbuilder labor accounts for about 40 percent of the total cost; shipbuilder material accounts for about 25 percent; and government material and support accounts for about the remaining third. As shipbuilders, we continue to take steps to reduce our labor and material costs and we are making great strides, but to be successful, attention must be given to all three components. The Navy must continue to take steps to stabilize requirements, minimize unnecessary design changes after production begins, and reduce the cost of government furnished equipment and support provided by Navy laboratories and other Navy agencies. My comments throughout my testimony today address only the 65 per cent or so of costs that I have influence over as a shipbuilder. We are doing our part to reduce costs on what we control and I am confident the Navy is addressing its third of the costs with equal vigor.

There is ample evidence from previous classes of submarines and other serial ship production that when production goes into series, labor costs are reduced as a result of doing tasks multiple times and learning how to do them more efficiently. Our history with the production of *Los Angeles*-class submarines in the 1990's demonstrated a steady decline in man-hours required to build these ships as shipbuilders had the opportunity to find more efficient ways to accomplish similar tasks from ship to ship. As a result, we were able to sustain steady movement down a learning curve.

Similar to our experience on the *Los Angeles*-class, both shipyards today are seeing nearly a twenty percent reduction in labor man-hours on recurring costs from their first delivered ship to their second. From *Virginia* to *Hawaii*, the Electric Boat – Newport News team saw fifteen percent reduction in labor. From *Texas* to *North Carolina*, the team is on track for about eighteen percent reduction in labor. The ability to achieve such reductions is even more remarkable given the significant impact of very low production rates of *Seawolf* at Electric Boat and the fact that there was no submarine construction at Newport News for ten years prior to our work on *USS Texas*. All the evidence indicates that the trends are moving in the right direction – downward.

For example, on *New Hampshire*, the lead boat of Block 2, we completed our work for 700,000 fewer man-hours than what we needed on *Hawaii*. As I indicated earlier, we also completed more work on the modules for *New Hampshire* than on similar modules of *Hawaii* and we finished nearly \$10 million under budget.

In addition to the benefits of learning, we are beginning to experience cost savings from many of the design for affordability initiatives that are under way. Some of these initiatives will reduce the time required to perform certain work, such as modifications to some critical bulkheads, changes to the way the sail is produced, and movement of components from one module to another. Others, such as changing the material used for certain pump impellers and paints and coatings, will reduce the cost of procuring some contractor furnished equipment (CFE) and some government furnished equipment (GFE). As long as design changes are limited to those that reduce costs or are essential for ship

performance, they can be beneficial. Our experience with the *Los Angeles*-class, however, shows that there are risks that come along with design changes and, especially, with major insertions of new technologies. The Navy - Electric Boat - Newport News team understands these risks and is weighing each proposed change carefully to ensure maximum benefit is derived with the least amount of disruption.

Other producibility improvements are being made which are also paying dividends in reduced labor or schedule requirements. Many of these improvements come from skilled craftsmen on the deck plate and shop floor who bring their suggestions forward for consideration. We have begun to achieve savings by implementing suggestions on such diverse issues as changing the way torpedo tubes are assembled, modifying non-destructive testing techniques on certain components, changing the location and timing of some tests and literally hundreds of others. When we see benefit to making such changes, we share this information with our teammates at Electric Boat so they too can benefit from them and they do likewise for us. In the *Virginia*-class submarine program we are seeing once again what shipbuilders everywhere know – when you empower the skilled craftsmen who best know the work, you unleash enormous amounts of energy and initiative that results in smoother, faster and cheaper performance.

In addition to the submarine-specific actions I've described, we are also continuing to focus on process improvement initiatives across the shipyard which I have spoken about on previous occasions. By paying attention to value streams that apply to the entire shipyard and knocking down unintentional obstacles, we are improving processes which affect every ship we repair or build. We are making good progress in these efforts and are seeing the impact of them in every program.

There are two final ingredients to getting to \$2 billion. First is the continued wise use of capital investment to enhance the infrastructure necessary to produce at full efficiency. This includes full utilization of the CAPEX initiatives the Navy has wisely put in place for Block 2 submarines. As I discussed earlier, we are seeing great benefit from this

incentive program and hope that the Navy will see the wisdom in continuing such incentives into Block 3 as well.

Finally, as I have said many times before, we cannot neglect the importance of volume in getting to the \$2 billion target. Volume will spread overhead costs, improve production efficiency and enable material savings. When shipbuilders are able to buy required construction material and components from subcontractors in volume, savings are achieved. Just as shipbuilders achieve learning curve savings with volume production, suppliers are better able to manage their workforces, maintain continuity in production, maintain critical skills, and achieve un-interrupted learning curve efficiencies. As production rates increase, the shipyards use economic order quantity purchases to aggressively negotiate with vendors and to achieve the lowest price on these materials. All of these benefits are limited when volume is one submarine per year.

Watching the performance of this team throughout 2006, I continue to be confident that we can meet the challenge of “two for \$4 billion” in 2005 dollars. But performance and innovation alone are not enough. Nor is volume alone enough. It takes the combination of volume with good performance, innovation, process improvements and investment to successfully reduce costs. There is no doubt in my mind that the teaming agreement and its unique equal sharing of work and profit, coupled with cost reductions in GFE by the Navy, is the best way for the shipbuilders to meet the Navy’s \$2 billion challenge.

Our Ability to Increase Production Prior to 2012

You have asked if the Electric Boat – Newport News team has the ability to accelerate production to two submarines per year before 2012. From my perspective at Newport News, the answer is a solid “yes.” But if there is going to be a decision to accelerate production, it needs to be made soon so that there is sufficient time to procure long-lead material and to adjust existing work plans and schedules. The careful and detailed planning that will be required in this situation cannot be accomplished overnight. The sooner we get started, the sooner we will assure our success.

The availability of material is critical to successfully accelerating production. If we are to start building two submarines each year before 2012, adequate advance procurement funding in this year's budget is essential. We will need the right amount of funds and they must arrive in time to meet ordering schedules. I have already commented on some of the issues the submarine industrial base has been confronted with in recent years. Suppliers need adequate time to expand their production capabilities and to obtain parts from the next tier of suppliers before they can deliver the materials we need to begin building the ship. My experience tells me that several hundred million dollars will be needed in the FY 2008 defense authorization and appropriations acts to ensure the right material is on hand when needed for starting construction.

To be clear, if advance procurement funding and authorization is provided for production of two submarines per year before 2012, we will support this decision energetically and enthusiastically. I remain mindful, however, of the painful lessons that our entire industry has learned from instability and I appreciate the importance of the stability inherent in the Chief of Naval Operations' 30-year shipbuilding plan. A decision to accelerate production must not come at the price of destabilizing the entire shipbuilding plan. While large shipyards like mine could, most likely, weather more instability, the challenge this would pose to the shipbuilding industrial base – those critical suppliers of components and piece parts operating across the entire country – would be significant and could have serious adverse implications for every class of ships.

Thus, answering the question of how to fund acceleration of submarine construction is just as critical to the future security of our nation as answering whether we should accelerate it. I am confident that as Congress considers the answers to both these questions, you will weigh carefully the testimony given before this committee by Secretary of the Navy Winter and CNO Admiral Mullen on March 1 as well as the Secretary's February 12, 2007 report to Congress on this subject.

Also for the sake of clarity I should make one final point. Our team is committed to lowering the cost of *Virginia*-class submarines to “two for \$4 billion” in 2005 dollars by

the time we arrive at the CNO's planned start date of two submarines per year in 2012. Many of the changes we are working on to bring about these cost savings will take some time to be implemented and to be seen in cost reductions. If the start date for two submarines per year is accelerated, Newport News will continue to do its part to achieve the goal of producing two submarines for \$4 billion prior to 2012, but there is no certainty that this could be accomplished in 2010 or 2011. Savings from design and process changes that are being made today and savings from GFE and CFE may require longer than 2010 to be fully recognized. Nonetheless, all of us in this program will do all we can to reduce the cost of submarines as quickly as we can.

Conclusion

I welcome the attention of Congress, and this subcommittee in particular, to the submarine needs of our Navy. Shipbuilders are skilled men and women who choose this difficult occupation because they believe that what they are doing is important and contributes to the nation's security. All of us on the Electric Boat – Newport News team are working hard to squeeze every unneeded man-hour and dollar out of our costs and every possible day out of our schedules.

With the strong support you have always shown our industry, we will continue to build the world's finest nuclear submarines for the world's greatest Navy.