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SENATE ARMED SERVICES COMMITTEE
SEAPOWER SUBCOMMITTEE

STATEMENT OF
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OFFICE OF THE DEPUTY CHIEF OF NAVAL OPERATIONS
BEFORE THE
SEAPOWER SUBCOMMITTEE
OF THE
SENATE ARMED SERVICES COMMITTEE
ON
FY 2003 MAJOR NON-SHIPBUILDING SUBMARINE ACQUISITION PROGRAMS
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Mr. Chairman and distinguished members of the Seapower Subcommittee, thank you for the opportunity to discuss Submarine Force non-shipbuilding acquisition programs. Thank you too for your continued strong support of our Sailors, their Families and our Submarine Force.

As the Navy's Director of Submarine Warfare, it is my principal job to determine the capabilities required of our undersea forces across a wide spectrum from peace through deterrence to conflict. Inherent in this job is the responsibility to ensure the programs and initiatives we are pursuing are an efficient and effective use of limited defense resources. My remarks today will include a description of the enduring characteristics of nuclear powered submarines, the strategic concepts that form the Submarine Force's vision for the future and the capabilities we are pursuing for our systems.

The focus of our acquisition programs in Presidential Budget 2003 (PB03) is to improve the joint warfighting effectiveness of our submarines and undersea systems to meet current and future Commander-in-Chief (CINC) and National requirements. In addition to shipboard programs, I will also discuss submarine rescue systems, fixed acoustic arrays and other off-hull undersea warfare sensors and systems for which I am responsible.

To understand the importance of today's Submarine Force, we need look no further than the contributions of our submarines during the early phases of Operation Enduring Freedom (OEF). Following the attacks of September 11, *USS Providence* (SSN 719) and her sister ship *USS Key West* (SSN 722) were among the first on the scene. Recent Submarine Force initiatives including the High Data Rate (HDR) antenna, Acoustic Rapid Commercial-Off-The Shelf (COTS) Insertion (ARCI) Sonar System, advanced TB-29 towed array and IT-21 local area network were critical to the successes of these ships in preparing the battlespace, providing anti-diesel cueing to the *USS Enterprise* and *USS Carl Vinson* Battle Groups, recording and forwarding

Intelligence, Surveillance and Reconnaissance (ISR) information and rapidly executing time-critical strike missions. I will include a discussion of each of these acquisition programs and initiatives later.

➤ **ENDURING SUBMARINE CHARACTERISTICS**

The ability of our submarines to conduct surprise operations has been critical to success during the War on Terrorism and will prove a key capability in unforeseeable future conflicts involving mobile adversaries operating without regard to national borders. Our submarines make use of their unique **stealth**, **endurance** and **agility** to provide critical and irreplaceable capabilities, in support of joint forces, against the emerging threats and challenges of today and tomorrow.

- **Stealth.** Uniquely undetectable and survivable, U.S. submarines can operate covertly or overtly, creating surprise, fear and uncertainty among adversaries and assuring access for friendly naval and joint forces. Of the five military domains (land, surface-sea, undersea, the atmosphere and space), undersea operations are the least visible and therefore the stealthiest. U.S. submarines remain virtually undetectable by other forces and their sensors, enabling them to operate with impunity – covertly when required, or overtly if desired – inside an adversary’s threat envelope in advance of less survivable joint forces. Their stealth also gives them inherent protection from precision guided missiles, electro-magnetic pulses (EMP) and chemical, biological, radiological, nuclear and enhanced high explosive (CBRNE) weapons. Under stealthy cover, the submarine’s ability to deliver payloads in hostile or denied areas is singularly unique, providing the CINCs with survivable ground-truth sensors inside the enemy’s battlespace as well as credible combat power for use against naval and land-based targets.

- **Endurance.** U.S. submarines conduct sustained, independent operations within an enemy’s battlespace. They often operate alone in areas where detection or risks from hostile forces prevent other forces from operating. Their endurance, combined with their stealth, enables them to operate with no defensive or logistics support from other forces for months at a time. With their advanced sensors and precision firepower, they have a remarkably high “tooth-to-tail ratio.”

- **Agility.** Robust in capability and highly maneuverable, U.S. submarines carry out unique national, operational and tactical missions across the spectrum from peace to deterrence to war. Their ability to surge between theaters with sustained speed is a key capability in providing responsive, forward-deployed forces. Often “first in and last out,” they provide presence, 24/7 intelligence collection and improved situational awareness through special operations during peacetime and pre-hostility phases. Able to transition to emerging missions on station, they also provide credible conventional deterrence, dominant undersea warfare and early and covert precision strike when conflicts arise. A single U.S. nuclear submarine can conduct a wide range of missions in one deployment.

➤ **SUBMARINE FORCE JOINT STRATEGIC CONCEPTS AND VISION FOR THE FUTURE**

The Submarine Force’s vision is to leverage the unique attributes of our ships to provide critical and irreplaceable capabilities, in support of joint forces, against the emerging threats and challenges of today and tomorrow. To support this, we emphasize four Strategic Concepts:

- **U.S. submarines assure access for joint forces.**

Our submarines operate “out front” and prepare the battlespace in denied, hostile or sensitive areas. Because they can operate where other platforms cannot, submarines

neutralize enemy anti-access systems or operate in spite of them, often enabling attacks against time-sensitive targets. Information provided by submarines, in conjunction with that available via Integrated Undersea Surveillance Systems (IUSS) and SURTASS ships, provides valuable expeditionary capability for assuring access for joint forces.

- **U.S. submarines exploit their unique access to develop and share knowledge.**

Able to operate undetected very close to a potential adversary's forces or territory, our submarines collect information and provide real-time high data rate reporting about adversaries and their capabilities that other assets cannot – improving national and theater-level situational awareness.

- **Stealth, access, knowledge and firepower make U.S. submarines a potent deterrent.**

In addition to strategic nuclear deterrence, our submarines provide the CINCs and the Secretary of Defense with unlocatable, close-in presence in support of diplomatic and military objectives. Accurate and timely knowledge combined with early and unpredictable conventional attack capabilities from our submarines strengthen our leaders' deterrent options against aggression.

- **Undetected presence and access enable U.S. submarines to project power with surprise from close-in.**

Stealthy and survivable, our submarines provide an early and rapid precision strike capability against time-sensitive targets, as well as attack capabilities within contested or sensitive areas.

➤ **PURSuing A CAPAbILITIES-BASED FORCE**

Armed with this vision, the Submarine Force, in close coordination with industry and government laboratories, is moving forward to identify and invest in programs and technologies that bring the needed capabilities to our submarines and undersea systems. Through an enduring

and comprehensive process, this consortium of warfighters, shipbuilders and technologists share ideas and a consistent focus. This process, called SUBTECH, ensures all current and future submarine program efforts are geared toward achieving our vision for the future. The capabilities that we are pursuing can be summarized under three themes; **extended reach, fully netted** and **greater adaptability**:

- **Extended reach** to increase the submarine's tactical horizon and collection capabilities, enabling better penetration of hostile or inaccessible areas to improve situational awareness and provide more information in support of CINC and national tasking. Current initiatives include the upgrade and modification of existing shipboard acoustic and command, control, communications and computer (C4) ISR systems and development of off-board sensors.
- Submarine information systems **fully netted** with national and theater level assets to improve processing capabilities and provide integrated data for onboard and off-hull interpretation and knowledge sharing. Fully netted systems allow the data collected by submarines and their organic and off-board sensors to be distributed to joint forces and national agencies, while also allowing real-time reach-back from submarines deployed in forward regions to central intelligence and cueing resources.
- **Greater adaptability** to provide the Submarine Force with more mission flexibility and volume of firepower to adapt to emerging threats and technology. The development of modular concepts and designs and incorporation of interoperable COTS technology that can be rapidly upgraded and/or reconfigured will aid in supporting this concept.

➤ **IRREPLACEABLE SUBMARINE MISSIONS AND JOINT WARFIGHTING**

Leveraging their enduring characteristics and guided by the above strategic concepts, submarines and undersea systems play a unique and thus irreplaceable role in joint warfighting

and in fulfilling CINC and National requirements in the following primary areas; **Undersea Superiority, Battlespace Preparation (including ISR and SOF), Covert Early Strike** and **Global Deterrence**. I will now discuss our PB03 programs and initiatives in the context of these four mission areas. Although many of the programs and initiatives are applicable to more than one mission area, I will only include each under its primary mission area.

✓ **Undersea Superiority**

U.S. submarines penetrate conventional enemy defenses to ensure undersea superiority and sea control, defeating enemy area denial capabilities. Our submarines are critical to the Navy's ability to wrest control of the sea from a determined enemy employing mines, cruise missiles and/or quiet, advanced diesel submarines. They can disrupt and destroy our adversaries' military and commercial operations at sea, ensuring maritime dominance for the U.S. or its allies. Over a number of years, our submarines have established unparalleled anti-submarine and anti-surface capabilities. Armed with significantly improved sensors and weapons, today they provide an even greater ability to locate, track and if necessary destroy submarines, surface ships and shipping in both the open ocean and the littorals.

Undersea superiority enables the safe arrival and employment of joint forces in distant theaters of operations. Our submarines and other undersea surveillance assets (e.g. Integrated Undersea Surveillance Systems (IUSS)) are critical to the Navy's ability to ensure freedom of the seas and the flow of forces in support of Joint Operations in the face of an adversary's maritime threat.

PB03 acquisition programs and initiatives to support continued undersea superiority include the following:

- Underwater Acoustics

Acoustic superiority over modern diesel and advanced nuclear submarines is fundamental to control of the seas, underwater dominance and assured access for our naval and follow-on forces. Current initiatives include use of a standard sonar system (TB-29 towed array with COTS technology) for all submarine classes, Integrated Undersea Surveillance Systems (IUSS) and SURTASS ships, and continued development and installation of Acoustic Rapid COTS Insertion (ARCI) sonar systems to maximize collection of acoustic data.

Annual updates via the Advanced Processor Build installation and management plan have proven effective in steadily maintaining ARCI systems up to date. Shipboard installations are being done in a two-year cycle to best fit submarine deployment and operational schedules.

All deploying SSNs will have towed array ARCI (Phase II) by October 2003 and hull mounted ARCI (Phase III/IV) by October 2005. All SSBNs will have towed array ARCI by October 2006 and hull mounted ARCI (Phase III) by October 2010. SSGNs will have towed array and hull mounted ARCI installed after conversion.

- Submarine Weapons

Submarine launched torpedoes provide essential combat power for sea control missions. Submarine launched MK 48 Advanced Capability (ADCAP) heavy-weight torpedoes are the most effective anti-shipping weapons in the Navy. Advancements in submarine weapons to ensure continued undersea superiority and sea control in response to emerging threats in the littoral waters include the following:

- Improvements to the MK-48 ADCAP. Modifications are in progress to upgrade the current inventory of ADCAPs from MOD 5 to MOD 6, yielding significant

improvements in weapon guidance/control and propulsion systems and improved performance in the difficult littoral environment. The MOD 6 guidance and control section has four times the memory and processing speed of its predecessor to support continual software updates for enhanced weapon performance. These software improvements, coupled with hardware developments that support installing updates onboard the submarine, will enable improved capability at a reduced cost. Propulsion system improvements include sound-quieting to reduce weapon operating noises and reduce target alertment, yielding a significant tactical advantage for our submarines.

- o Development of the Common Broadband Advanced Sonar System (CBASS) torpedo as the next improvement to the Mk-48 ADCAP. CBASS takes advantage of improved sonar technologies and processing capabilities and is deliberately designed to defeat the submerged adversary of the future (very quiet, low operating speed, diesel or Air Independent Propulsion (AIP) platform, capable of high speed evasions, deploying countermeasures, operating in a high noise, high contact density, very shallow water environment). Initial Operational Capability (IOC) for CBASS is 2007.

- o Submarine Countermeasures. Work continues on making submarine countermeasures uniform in dimension so every submarine can fire all countermeasures in the inventory. The new 6-inch countermeasures offer increased performance and endurance over the previous generation. Additionally, progress continues on the anti-torpedo torpedo, a joint submarine and surface force weapon, with first at-sea testing scheduled in 2006.

- Submarine Combat Control Systems (CCS) Modernization

Current CCS enhancements will enable full capability for Tactical Tomahawk (TACTOM) and use of the IT21 communications system, deliver significant improvements in high contact density littoral areas and enable periodic improvements in capability. The program implements an open architecture system similar to ARCI sonar that is more conducive to competition for software and hardware development.

Today's CCS integrate two different functions: contact tracking and management and control of weapons. Our ultimate goal is to split these functions so that contact management upgrades are not tied in with costly and time-consuming testing requirements for upgrades to weapon control systems. We fully intend to apply the lessons learned from our experience with the ARCI sonar system in developing the architecture and the Advanced Processor Build process for the CCS.

Equally important is the installation of Phase 2 of the Tactical Integrated Digital System (TIDS), a mission critical digital network incorporating the Navy's first on-board tactical network. It will provide robust, survivable servers and network hardware that will serve as a ready host for a wide range of future applications. It is a fundamental building block to achieving network centric warfare capability on submarines. The first installations have been completed, and the program is aiming to complete fleet wide installation within the future year defense plan (FYDP).

- Off-board Sensors

Recent efforts have accelerated experimentation, development and fielding of Unmanned Underwater Vehicles (UUV), Unmanned Autonomous Vehicles (UAV) and deployable systems to expand the submarine's payload and reach. Autonomous,

off-board vehicles and sensors deployed from submarines will allow covert penetration of denied/hostile areas with leave-behind persistent intelligence collection capabilities in support of the warfighting CINCs. Off-board vehicles and sensors will improve the situational awareness and multiply the operational impact and flexibility of their host platform – and the supported Joint forces – at significantly reduced risk.

- The Long-Term Mine Reconnaissance System (LMRS) is an autonomous UUV currently under development that will enable our submarines to search for mines in denied littoral waters and other areas while remaining covert and out of danger.

LMRS is scheduled for IOC in 2005.

- The Mission Reconfigurable UUV (MRUUV) is a next-generation UUV that will provide the ability to greatly extend the range and variety of off-board sensors.

MRUUV will be the Navy's first fully autonomous vehicle that has specified interface standards to enable acceptance of a wide array of sensor payloads.

- Cueing provided by the Integrated Undersea Surveillance System (IUSS) is essential to the Navy's undersea warfighting capability. Current fixed and mobile systems provide persistent maritime surveillance worldwide.

- IUSS Fixed Systems, the legacy Sound Surveillance System (SOSUS) and the newer Fixed Distributed System (FDS), provide long-term, forward-deployed covert surveillance. Cost of these systems is typically shared with our allies.

- For our mobile IUSS component, SURTASS ships will be even more capable with the installation of highly effective TB-29A twin line arrays, with first installation scheduled to occur in FY04. Additionally, after receiving

authorization from the National Maritime Fisheries Service, we expect to begin Low Frequency Active Sonar operations this year.

- Development of Advanced Deployable System (ADS), a transformational system that provides rapid deployability, continues with initial delivery of an operational system to the Fleet in FY05. For the future, we are developing a variant of ADS that will not require a cable link to shore.

- Submarine Rescue

Following the sinking of the Russian submarine *Kursk* and subsequent loss of lives, the Navy conducted a thorough analysis of the safety and habitability of our submarines following a major casualty. While we had already taken a proactive role in this area including installing new escape equipment and developing a new rescue system, FY03 provided an opportunity to further improve our capability. The Navy has increased funding to procure and install new carbon-dioxide removal equipment to allow sailors to survive until escape or rescue. Additionally, we have accelerated the installation of an improved escape suit by two years from 2007 to 2005 and are pursuing initiatives to re-establish pressurized escape training for our Sailors.

- ✓ **Battlespace Preparation, including ISR and support of Special Operation Forces (SOF).**

- **ISR.** Space-based and airborne signals interception is complemented in critical ways by our submarine intercepts. Our submarines can position themselves to capture electromagnetic emissions or observe maritime activities or tests that would elude other sensors and systems. They are critical assets in ensuring comprehensive, persistent surveillance of many information domains (visual, acoustic and electronic), ensuring complete situational awareness and

precluding enemy sanctuary. Submarines also provide sole-source “tip-off” information, which enables the intelligence community to optimally allocate other collection assets.

U.S. submarine-gathered intelligence focuses military planning and operations and minimizes threats to national assets. Operating closely and continuously to observe activities without the adversary’s knowledge, submarines provide Battle Group and Joint Force Commanders real-time information that helps define and prepare the battlespace. Intelligence gleaned from such operations ranges from the highly technical details of military platforms to knowledge of a potential adversary’s military doctrine and intentions. Their non-provocative and non-escalatory presence also enables them to gain “ground-truth” intelligence that aids diplomatic efforts and helps anticipate (and preclude) hostilities.

Programs and initiatives to enhance submarine ISR capabilities include the following:

- Submarine Communications

The Submarine IT21 Communications suite significantly improves connectivity via Wideband (128 kbps) and Narrowband (32-48 kbps) Internet Protocol (IP) technology. IT21 communications provide secure, covert connectivity in the littorals and more efficient use of limited satellite resources while enabling our submarines to be fully netted with the Carrier Battle Group. Submarine IT21 is being outfitted on all submarines deploying with the Battle Group; and, to date approximately 20 percent of the SSN fleet has this capability. The goal, as supported by the Program of Record, is for all submarines (SSN, SSBN and SSGN) to be modernized with this capability by the end of FY07.

- Submarine Imagery and Signals Intercept

Current efforts in the areas of tactical imagery and visual intelligence (VISINT) will significantly advance the submarine's capability from World War II era optics to state-of-the-art imaging technologies. Efforts include real-time rangefinding, continuous video output (both visual and infrared) and digital still camera imaging. This high quality digitalization of imagery will enable the submarine to gain greater tactical control while operating at periscope depth in high contact density, littoral areas and also provide high resolution VISINT to theater and national intelligence networks quickly.

Submarine operations since September 11 have highlighted the critical importance of sensitive, state-of-the-art Signals Intelligence (SIGINT). To ensure maximum capability in this area, we have greatly accelerated procurement and installation of the state-of-the-art AN/BLQ-10 SIGINT suite which provides our submarines the capability to exploit the entire spectrum of signals.

- **Submarine Geospatial Information**

The Submarine Force continues to pursue improvements in precision position/attitude/time determination and geographic reference that are critical to exchanging relevant contact information in a tactical or national network.

Nearly all operational SSNs have been upgraded to the AN/BPS-15(H) integrated radar and digital chart system, which has significantly enhanced ship's safety during surfaced and submerged operations in high contact density environments. All remaining SSNs will be upgraded to the AN/BPS-15(H) by 2004. The AN/BPS-15(H), in conjunction with Ring Laser Gyro Navigator, the replacement for the legacy

Electronically Suspended Gyro Navigator, will provide seamless integration with geospatial standards and will meet Navy goals for electronic navigation.

○ **SOF.** U.S submarines are excellent platforms to deploy and retrieve covert forces. Our submarines' inherent stealth and endurance – as well as their sophisticated communications equipment, sensors and navigation suites – make possible the secure, precise and reliable insertion and extraction of SOF (SEALS, Rangers, and Recon Marines) close to shore objectives. These covertly placed personnel can plant remote sensors, collect intelligence, exploit and/or disable weapons and communication systems and perform other classified missions inside denied areas. OEF has demonstrated conclusively the importance of being able to deploy SOF quickly and covertly in places and situations that cannot be anticipated.

The Submarine Force has always had the capability to insert SOF, but the recent decommissioning of *USS Kamehameha* has limited our capability to short duration employments with small teams of special forces. SSGN, in combination with the Advanced Seal Delivery System funded by SOCOM, will enable us to achieve a quantum increase in our capability to insert and support Special Forces from submarines. The prospects are exciting, and we are beginning to lay the foundations for reaping significant operational capability benefits from the synergy of SSGN and SOF. To support this, we have updated nearly all of our non-shipbuilding procurement programs to give SSGN the same capability as SSNs in acoustics, imaging, combat control and communications.

- **Covert, Early, Conventional Strike**

Submarine launched land-attack missiles provide essential combat power for strike missions. U.S. submarines provide combat-credible presence with responsive and reliable delivery – early

strike, with surprise, from close-in. Littoral access and survivability enable unique strike capabilities with reduced risk to personnel.

Our submarines are not threatened by area denial weapons such as coastal cruise and tactical ballistic missiles or weapons of mass destruction, thus delivering a conventional punch with impunity. They can execute attack operations against targets that might otherwise be alerted by a visible naval presence. Historically, submarines have deployed one-third of the Navy's Tomahawk land-attack missiles, and submarines launched nearly 38 percent of all Tomahawk cruise missile strikes during the first phase of OEF.

The development of TACTOM will enable our submarines to project power more swiftly with precision against defensive systems and other time-sensitive targets. In the future, SSGN, loaded with deployable sensors (e.g. unmanned vehicles), TACTOMs, future land attack missiles and miniature air-launched decoys and jammers, will provide robust capability to destroy an Integrated Air Defense System (IADS) or any other anti-access system from within the adversary's threat envelope.

- **Global Deterrence**

U.S. submarines fulfill a unique role in our nation's ability to deter aggression. Asymmetric in concept and capability, our submarines provide an unlocated but certain strike capability – both nuclear and conventional – whose time and place of employment is completely uncertain in the mind of a would-be adversary. The survivable offensive strike weapons carried by our nuclear submarines play a pivotal role in achieving global deterrence as part of the nation's New Strategic Triad.

Ballistic missile submarines (SSBNs) are our nation's choice for nuclear deterrence.

Our SSBNs are virtually undetectable. They comprise greater than 50 percent of our nation's nuclear deterrent, and 100 percent of our nation's survivable deterrent, using only 34 percent of our strategic budget and less than 1.5 percent of our naval personnel.

- The Presidential Budget for FY03 fully funds a service life extension program to match the life of D5 submarine launched ballistic missiles (SLBM) to the recently extended 44-year life of *Ohio* Class SSBNs. This program refreshes the missile guidance and electronics systems to prevent obsolescence and procures additional missiles for required flight testing. The D5 life extension program will ensure maximum weapon system reliability and accuracy for this critical strategic deterrent.

In addition to traditional strategic deterrence provided by SLBMs, Tomahawk cruise missiles carried onboard *Los Angeles* and *Seawolf* Class attack submarines (and *Virginia* Class submarines, when delivered) provide a capable conventional deterrent. SSGN will add up to 154 Tomahawk or future TACTOM cruise missiles per platform to advance our capabilities in this area.

➤ **Enduring Processes for Innovation and Transformation**

The Submarine Force has incorporated innovative processes to ensure our submarines have the necessary tools to meet the challenges of today as well as those of the future.

As I have already referred to, **SUBTECH** is a collaborative organization comprised of OPNAV, industry, acquisition community and fleet representatives developed to identify and prioritize promising technologies consistent with the Submarine Force vision. Working hand-in-hand with SUBTECH, the Submarine Force's **Experimentation Working Group** ensures our vision is pursued through an end-to-end process that guides concept development, war gaming,

Science and Technology, experimentation and research and development to deliver the required fielded capabilities to the fleet and transform the force vision into reality.

The **Payloads and Sensors Program** uses the above processes, leveraging and integrating technologies developed by others, to identify submarine payloads and sensors for the future. The SSGN Payloads and Sensors program will make use of SSGN's large ocean interface – 22 large-diameter, 44-foot tubes – to develop future payloads and sensors to be deployed by SSGN. Additionally, SSGN will serve as the transformation “bridge” to provide these and future advanced joint payloads, including mission-specific weapons and sensors, via the **Technology Insertion Program**, to *Virginia* class submarines with reconfigurable torpedo rooms, advanced sails and large payload modules.

Conclusion. Mr. Chairman, thank you for the honor of testifying today. I would like to close by reiterating the critical need for submarine-delivered capabilities as a vital component of our nation's defense. The capabilities we are building into our ships and undersea systems today and those that are planned for tomorrow are crucial to meeting the threat today and in the future. Our submarines are stealthier and more capable than any ships in the world. Our relevance in regional peace or conflict enabled by our stealth and combined with the endurance and agility that nuclear power brings are absolutely necessary to support CINC and National mission tasking.

Innovative modernization of our current submarines, continued development of the superb *Virginia* Class and transformation of four *Ohio* Class fleet ballistic missile submarines to SSGNs will ensure the U.S. remains the preeminent Submarine Force. With your support, we will continue to upgrade and maintain our platforms as the most advanced, technologically sophisticated submarines in the world.