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THE SENATE ARMED SERVICES COMMITTEE
STRATEGIC FORCES SUBCOMMITTEE

STATEMENT

OF

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BEFORE THE

SUBCOMMITTEE ON STRATEGIC FORCES

OF THE

SENATE ARMED SERVICES COMMITTEE

ON

U.S. NUCLEAR WEAPONS POLICY, PROGRAMS, AND STRATEGY
IN REVIEW OF THE DEFENSE AUTHORIZATION REQUEST
FOR FISCAL YEAR 2020 AND THE FUTURE YEARS DEFENSE PROGRAM

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Introduction

Chairman Fischer, Ranking Member Heinrich, and distinguished Members of the subcommittee, thank you for this opportunity to discuss the sea-based leg of the triad. It is an honor to testify before you this morning representing the Navy's Strategic Systems Programs (SSP).

The Nation's nuclear triad of intercontinental ballistic missiles, strategic bombers, and ballistic missile submarines (SSBNs) equipped with submarine-launched ballistic missiles (SLBM) is essential to our ability to deter major warfare with adversaries and assure our allies. Each leg provides unique attributes and, together, provides critical diversity and flexibility. The 2018 Nuclear Posture Review (NPR) reaffirmed that foreign nuclear threats are growing and Great Power competition has returned and, thus, reinforced the need to recapitalize each component of the triad. The nuclear triad is the bedrock of our ability to deter aggression, assure our allies and partners, achieve U.S. objectives should deterrence fail, and hedge against an uncertain future; it is the Department of Defense's number one priority mission.

The Navy provides the most survivable leg of the triad with our OHIO-Class SSBNs and the Trident II (D5) strategic weapon system (SWS) they carry. SSBNs are responsible for a significant majority of the Nation's operationally deployed nuclear warheads. The Chief of Naval Operations has made clear the priority the Navy places on the sustainment and modernization of the undersea leg of the triad, directing the Navy to "be ready to deploy USS COLUMBIA (SSBN 826) as quickly as possible—beating the current schedule—in order to preserve our ability to defeat the threat." Delay is not an option.

SSP's fundamental mission is to design, develop, produce, sustain, and ensure the safety and security of the Trident II (D5) SWS, comprising the SLBM, reentry systems, and shipboard systems. We strive to maintain a culture of excellence, underpinned by self-assessment, to achieve the highest standards of performance and integrity for personnel supporting the strategic deterrent mission. We focus unrelentingly on our

tremendous responsibility for the custody and accountability of our Nation's nuclear assets. The men and women of SSP and our industry partners remain dedicated to supporting the mission of our Sailors on strategic deterrent patrol and our Marines, Sailors, and Coast Guardsmen who stand watch, safeguarding the weapons with which we are entrusted by this Nation.

Our Fiscal Year (FY) 2020 budget request provides the required funding to support the program of record for the Trident II (D5) SWS. To sustain this capability and usher in a new era of development efforts, I am focusing on my top priorities: nuclear weapons safety and security; the Trident II (D5) Life Extension Program; NPR-directed activities; the COLUMBIA-Class Program; the Industrial Base, infrastructure, and capabilities; support to the United Kingdom's continuous at-sea deterrent; and the workforce that enables this mission every day.

The men and women of SSP and their predecessors have provided unwavering and single mission-focused support to develop, sustain, and secure the sea-based leg of the triad for over six decades. SSP now faces a bow wave of critical modernization activities, and our workforce is evolving from years of sustainment efforts to large-scale development, as most recently evidenced by the 2018 NPR implementation and our expanding mission into conventional hypersonic capabilities. The organization must be prepared not only to sustain today's deterrent, but to modernize it so that it remains a credible, effective SWS that can support our ballistic missile submarines and our strategic deterrent mission through the life of the COLUMBIA-Class SSBN.

As the fourteenth Director, it is my highest honor to serve as the program manager, technical authority, safety and security lead, regulatory lead, and Polaris Sales Agreement Project Officer for the Navy's nuclear weapons program. Most importantly, I am honored to represent the men and women of SSP, comprising approximately 1,700 Sailors, 1,000 Marines, 300 Coast Guardsmen, 1,200 civilians, and over 2,000 contractor personnel. It is my most critical goal to ensure they are poised to execute the mission with the same level of success, passion, and rigor both today and tomorrow as they have since our program's inception in 1955.

Safety and Security

The first priority, and the most important, is the safety and security of the Navy's nuclear weapons. Accordingly, Navy leadership delegated and defined SSP's role as the program manager and technical authority for the Navy's nuclear weapons. At its most basic level, this priority is the physical security of one of our nation's most valuable assets. Our Marines and Navy Masters at Arms provide an effective and integrated elite security force at our two Strategic Weapons Facilities and Waterfront Restricted Areas in Kings Bay, Georgia, and Bangor, Washington. U.S. Coast Guard Maritime Force Protection Units have been commissioned at both facilities to protect our submarines. Together, the Navy, Marine Corps, and Coast Guard team form the foundation of our security program, while headquarters staff ensures that nuclear weapons-capable activities comply with safety and security standards.

The Navy maintains a culture of self-assessment in order to ensure safety and security. This is accomplished through biennial assessments, periodic technical evaluations, formal inspections, and continuous on-site monitoring and reporting at the Strategic Weapons Facilities. We strive to maintain a culture of excellence to achieve the highest standards of performance and integrity for personnel supporting the strategic deterrent mission and continue to focus on the custody and accountability of the assets entrusted to the Navy. SSP's number one priority is to maintain a safe and secure strategic deterrent for the Navy.

D5 Life Extension Program

The Trident II (D5) SWS has been deployed on the OHIO-Class ballistic missile submarines for nearly three decades and is planned to be deployed more than 50 years. This is well beyond its original design life of 25 years and more than double the historical service life of any previous sea-based strategic deterrent system. As a result, SSP is extending the life of the Trident II (D5) SWS to match the OHIO-Class submarine service life and to serve as the initial SWS for the COLUMBIA-Class SSBN. Our life extension efforts will ensure an effective and credible SWS on both the OHIO-Class and

COLUMBIA-Class SSBNs until the 2040s. This is being accomplished through an update to all the Trident II (D5) SWS subsystems: launcher, navigation, fire control, guidance, missile, and reentry. Our initial life extension of missile and guidance flight hardware components is designed to meet the same form, fit, and function of the original system, maintain the deployed system as one homogeneous population, control costs, and sustain the demonstrated performance of the system.

The Navy's D5 life extension program is executing on schedule to continue to meet deterrence requirements. In FY 2018, the Navy deployed 24 life-extended D5 missiles (D5LE) to the fleet and remains on track to complete deployment by FY 2024. In June 2018, we successfully conducted the first D5LE flight test of four missiles to support the Commander Evaluation Test (CET) program. The CET program obtains and monitors reliability, accuracy, and performance data of the D5LE missile population in an operational environment, and is one method used to monitor the long-term effectiveness of this nuclear deterrent weapon system.

Another major initiative to ensure the continued sustainment of our SWS is the SSP Shipboard Systems Integration (SSI) Program, which manages obsolescence and modernizes SWS shipboard systems through the use of open architecture design and commercial off-the-shelf hardware and software. The SSI Program refreshes shipboard electronics hardware and upgrades software, which will extend service life, enable more efficient and affordable future maintenance of the SWS, and ensure we continue to provide the highest level of nuclear weapons safety and security for our deployed SSBNs while meeting U.S. Strategic Command (USSTRATCOM) requirements. Our organization performed over 90 fleet and shore-based incremental installations over the last three years. Sixteen installations were completed in 2018, and two began this year with an additional five planned for completion. Three shipboard modernization increments are currently in development for future installation.

The Navy also works in partnership with the Department of Energy's National Nuclear Security Administration (NNSA) to refurbish our reentry systems. The Trident II (D5) is capable of carrying two types of warheads, the W76 and the W88, which are

both undergoing refurbishment. Deliveries of life-extended W76 warheads, known as the W76-1, to the Navy are nearly 100 percent complete and are on track to finish by the end of FY 2019. The W76-1 program has been a tremendous effort that informs much of our understanding of refurbishment programs, and I laud our NNSA partners for their support of the Navy's deterrent. The W88 major alteration program also remains on track to support a first production unit in FY 2020 with production scheduled to be completed in FY 2024. These combined efforts to refurbish the Navy's reentry systems ensure that the Navy can meet USSTRATCOM requirements for decades to come.

Nuclear Posture Review Activities

The Navy is also beginning an approach to maintain a credible and effective SWS beyond 2040. For example, we are leveraging the work being done today to extend the life of the Trident II (D5) SWS as well as investigating opportunities to innovate, such as through the application of model-based engineering. As directed in the Nuclear Posture Review, the Navy will begin "studies in 2020 to define a cost-effective, credible, and effective SLBM that we can deploy throughout the service life of the COLUMBIA SSBN." These threat-informed studies will underpin decisions made to sustain the Trident II (D5) SLBM and to maintain an adaptable and flexible sea-based deterrent for the Nation. SSP has a history of more than 60 years of developing, producing, and supporting SWSs to support the undersea leg of the triad. We are optimizing our SWS by applying lessons learned from six generations of missiles and will continue to do so until the 2080s.

As we face increasingly agile, advanced, and persistent cyber threats to our nuclear enterprise, SSP must be constantly vigilant of our adversaries' means and methods of obtaining critical technology and information about the Navy's SWS. In order to protect our technical advantage from significant harm today and into the future, we are laying the groundwork with our industry partners to revolutionize our business practices. Securing program information within the industrial base and adjusting procurement approaches will ensure long-term stability of our design, development, and sustainment efforts. The ability to drive concerted progress within the nuclear enterprise is critical to the security

and survivability of our current and future SWS and the platform on which it is deployed to defend the Nation.

In accordance with the 2018 Nuclear Posture Review's recommendation to pursue supplemental capabilities, SSP is fielding of a small number of low-yield SLBMs and is participating in a nuclear-armed sea-launched cruise missile (SLCM) study. The near-term low-yield SLBM and long-term SLCM efforts are intended to address deterrence gaps and assure allies. Our budget request supports executing a low-yield SLBM option, configured to leverage the W76-1 life-extension efforts. The low-yield program, known as the W76-2, is on track to meet warfighter requirements. The W76-2 modification will not increase the number of deployed ballistic missile warheads and leverages the people, processes, and schedule from the W76-1 program to ensure a cost-effective and executable approach. The W76-2 weapon system will enhance deterrence by denying potential adversaries any mistaken confidence that limited nuclear employment can provide a useful advantage over the United States and its allies.

In the mid-term, the 2018 Nuclear Posture Review directed the Navy to investigate the feasibility of fielding the nuclear explosive package from the Air Force's W78 warhead replacement into a Navy reentry body. This ongoing effort will inform Nuclear Weapons Council decisions regarding SLBM warhead modernization needs.

SWS and the COLUMBIA-Class Program

The Navy's highest priority acquisition program is the COLUMBIA Class Program, which replaces the existing OHIO Class submarines. The continued assurance of our sea-based strategic deterrent requires a credible SWS, as well as the development of the next class of ballistic missile submarines. Accordingly, the Navy is taking the necessary steps to ensure the COLUMBIA SSBN is designed, built, delivered, and tested on time with the right capabilities at an affordable cost.

To lower development costs and leverage the proven reliability of the Trident II (D5) SWS, the COLUMBIA SSBN will enter service with the life-extended Trident II (D5) SLBM, which is resident today on OHIO-Class submarines. Maintaining a common

SWS during the transition between existing and successor submarine platforms allows the Navy to leverage a mature material and knowledge enterprise, thus reducing programmatic costs and risks. Life-extended missiles will be shared with both the OHIO- and COLUMBIA-Class submarines into the 2040s.

A critical component of the COLUMBIA Class Program is the development of a Common Missile Compartment (CMC) with the United Kingdom. Today, the U.S. Navy shares the Trident II (D5) SWS with the UK aboard its Vanguard class of ballistic missile submarines. Similar to the U.S. Navy, the UK is recapitalizing its four aging Vanguard Class SSBN submarines with the Dreadnought-Class SSBN. The CMC will support the life-extended Trident II (D5) SWS to be deployed on the COLUMBIA and the UK Dreadnought-Class SSBNs. Our partnership also supports production of these two new classes of SSBNs in both U.S. and UK build yards. Collaborative efforts also include construction of missile tubes to support building the U.S. prototype Quad-pack module and the SWS Ashore integration test site at Cape Canaveral, Florida.

To manage and mitigate technical risk associated with the delivery of the first submarines to both the U.S. and UK programs, SSP is leading the development of the SWS Ashore integration test site. This is a joint effort between the Navy and the state of Florida, investing in the redevelopment of a 1950s Polaris Missile site to conduct integration testing and verification for COLUMBIA and UK Dreadnought programs. We reached a programmatic milestone in 2017 when Test Bay One, which will be used to test the Missile Service Unit first article, achieved Initial Operational Capability. Last year, we successfully installed the first COLUMBIA missile tube into Test Bay Two and, in the beginning of 2020, we are scheduled to achieve the Initial Operational Capability for verifying and validating the SWS support systems for the COLUMBIA and UK Dreadnought programs.

To mitigate the risk in the restart of launcher system production, SSP developed a surface launch test facility at the Naval Air Warfare Center Weapons Division, China Lake, California. This facility will prove that the launcher industrial base can replicate the performance of the OHIO Class Trident II (D5) launcher system. Thirteen evaluation

and four qualification tests were conducted in 2018, and one qualification test was conducted in January 2019. Eleven remaining tests are planned for 2019. To date, OHIO-Class Trident II (D5) launch performance has been demonstrated.

The OHIO-Class SSBNs begin decommissioning in the late 2020s and the COLUMBIA Class must be ready to start patrols in FY 2031 to maintain a minimum operational force of 10 SSBNs. The Navy has already extended the OHIO Class service life from 30 years to 42 years, and there is no engineering margin left for further life extension. Recapitalizing our SSBNs is a significant investment that only happens every other generation, making it critically important that we do it right. Any delay has the potential to impact not only our ability to meet operational requirements, but also the United Kingdom's strategic deterrent requirements.

Industrial Base, Infrastructure, and Capabilities

Ensuring robust defense and aerospace industrial base capabilities—such as shipyard support, radiation-hardened electronics, and solid rocket motors—remains an important priority. SSP places particular emphasis on the solid rocket motor industry and its sub-tier suppliers. Although the Navy maintains a continuous production capability of solid rocket motors, the demand from both National Aeronautics and Space Administration (NASA) and the Air Force has precipitously declined. This decline results in higher costs for the Navy and puts an entire specialized industry at risk. Future Air Force modernization will provide some much needed relief beginning in the mid-2020s; however, our Nation cannot afford to lose this capability. While the efforts of our industry partners and others create short-term cost relief, the long-term support of the solid rocket motor industry, including its sub-tier supplier base, and maintenance of critical skills remains an issue that must be addressed. For example, we are concerned with ensured access to and affordability of certain critical solid rocket motor constituents, such as ammonium perchlorate. We will continue to work with our industry partners, the Department of Defense, senior NASA leadership, Air Force, and Congress to do everything we can to ensure this vital national security industry asset is preserved.

As the Navy executes the total overhaul and replacement of the SSBN and SLBM leg of the nuclear triad, which will be in service until 2084, NNSA's infrastructure must be prepared to respond in tandem to the evolving needs of the Nation. Of most importance, an effective, resilient, and responsive plutonium pit production capability and capacity can address age-related risks, support planned refurbishments, as well as prepare for future uncertainty. Additionally, tritium, lithium, and uranium, among other strategic materials, are vital to ensuring the Navy can continue to meet its strategic deterrent requirements.

Support to the United Kingdom

The U.S. and UK have maintained a longstanding shared commitment to nuclear deterrence, one that dates to the signing of the Mutual Defense Agreement in 1958 and with the Polaris Sales Agreement (PSA) in 1963. This year, the UK celebrates 50 years of its continuous-at-sea-deterrent—a momentous achievement that the U.S. has proudly supported. Today, the Navy's support encompasses not only the CMC and SSBN programs but also 100 percent of the shipboard systems, missile, and reentry portions—the Strategic Weapon System—of the UK's nuclear deterrent. As the Director of SSP, I serve as the delegated U.S. Project Officer of the PSA and am solely responsible for fulfilling lifecycle support to the UK's program. As SSP shapes the future SWS, we must continue to consider the UK's connection to our decisions and our responsibility to our most important ally. SSP remains steadfastly committed to the UK's continuous-at-sea deterrent and to the mutually beneficial relationship we have both maintained and celebrated for 60 years.

Conclusion

History reminds us that the swift, successful creation and execution of the Fleet Ballistic Missile program in the 1950s was truly a result of a cadre of hand-selected scientists, engineers, and inspirational leaders. Though process will always underpin our efforts, our dedicated predecessors—civilians, military, and industry partners alike—responded to the national need with gusto and drove this program with a vision. Today's SSP and its industry partners will continue this vision by attracting, nurturing, and

retaining the next generation workforce that will enable a capable, credible strategic deterrent for our Nation for the next 60 years.

SSP ensures a safe, secure, and effective strategic deterrent and focuses on the custody and accountability of the nuclear assets entrusted to the Navy. Sustaining and modernizing the sea-based strategic deterrent capability is a vital national security requirement. Our Nation's sea-based deterrent has been a critical component of our national security since the 1950s and must continue to assure our allies and partners and deter potential adversaries well into the future. I am privileged to represent this unique organization as we work to serve the best interests of our great Nation. I thank the committee for the opportunity to speak with you about the sea-based leg of the triad and the vital role it plays in our national security.