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THE HOUSE ARMED SERVICES COMMITTEE  
STRATEGIC FORCES SUBCOMMITTEE

STATEMENT  
OF  
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BEFORE THE  
SUBCOMMITTEE ON STRATEGIC FORCES  
OF THE  
HOUSE ARMED SERVICES COMMITTEE  
ON  
FY 2023 BUDGET REQUEST FOR NUCLEAR FORCES AND  
ATOMIC ENERGY DEFENSE ACTIVITIES

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## **Introduction**

Chairman Cooper, Ranking Member Lamborn, and distinguished Members of the subcommittee, thank you for this opportunity to discuss the sustainment and recapitalization of the sea-based leg of the nuclear triad. It is an honor to represent the Navy's Strategic Systems Programs (SSP) and the contributions the Navy provides to our national and global security through Sea Based Strategic Deterrence.

As ADM Richard, Commander, US Strategic Command, testified before this committee just last month, "Every operational plan in the DoD, and every other capability we have rests on the assumption that strategic deterrence, and in particular nuclear deterrence, will hold. If strategic or nuclear deterrence fails, integrated deterrence and no other plan or capability in the DoD will work as designed. The Nation's nuclear forces underpin integrated deterrence and enable the U.S., our Allies and partners to prevent, and if necessary, confront aggression around the globe using all instruments of national power." Nuclear weapons remain the most powerful and destructive weapons known to humanity. As long as nuclear weapons exist, we have a special charge to be responsible custodians of our nuclear capabilities and work with a sense of urgency to create a security environment that would allow for their elimination. SSP takes this charge very seriously.

SSP's core mission comprises two fundamental lines of effort: the safety and security of our Nation's strategic assets entrusted to the Navy; and the design, development, production, and sustainment of the Navy's Strategic Weapons System (SWS). We strive to maintain a culture of excellence, underpinned by rigorous 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, our Sailors, our Marines, our Navy Masters at Arms, our Coast Guardsmen, and our industry partners remain dedicated to supporting the strategic deterrence mission, to responding to the emerging needs of our warfighter, and to protecting and safeguarding our Nation's assets with which we are entrusted. We certainly could not do this without the support from this Committee.

The Nation's nuclear triad consists of intercontinental ballistic missiles, heavy bombers, and ballistic missile submarines (SSBNs) equipped with submarine-launched ballistic missiles (SLBM). These platforms and their associated weapons systems are essential to the very foundation of our Nation's security and survival. The Navy must defend the Homeland with an assured nuclear deterrent from beneath the sea to deter all forms of strategic attack. While the U.S. nuclear arsenal remains safe, secure and effective, most U.S. nuclear deterrent systems – including the SSBN fleet – are operating beyond their original design life, increasing concerns about mission effectiveness, reliability and availability. Replacement programs are ongoing, but there is little or no margin between the end of useful life of existing programs and the fielding of their replacements.

The U.S. Navy provides the most survivable leg of the nuclear triad with the interdependent *Ohio*-Class SSBNs and the TRIDENT II D5 SWS. The SSBN fleet is responsible for more than 70 percent of the Nation's operationally deployed nuclear warheads that are subject to the New START Treaty. As the Navy carefully manages the approach to end of life of *Ohio*-Class SSBNs, addressing the viability of the SWS throughout the life of the *Columbia*-Class SSBNs remains a top priority. *Columbia*-Class SSBNs will ensure the effectiveness and availability of the nation's Sea Based Strategic Deterrent through the 2080s. The currently deployed TRIDENT II D5 Life Extension (D5LE) missiles will support initial load-outs on *Columbia*, but modernization of the D5LE SWS, via D5LE2, is required to support later *Columbia*-Class missile inventory and seamlessly sustain USSTRATCOM requirements. D5LE2 will ensure the SWS will be flexible and adaptable in order to maintain demonstrated performance and survivability despite the dynamic threat environment.

As the fourteenth Director, it is my highest honor to serve as the program manager, technical authority, safety and security lead, regulatory lead, and U.S. Project Officer under the Polaris Sales Agreement (PSA) for the Naval Nuclear Weapons Program. Most importantly, I am honored to represent the men and women of SSP, comprising approximately 1,500 Sailors, 1,000 Marines, 300 Coast Guardsmen, 1,400 civilians, and thousands of 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.

### **SWS Sustainment on *Ohio*-Class SSBN and Procurement for *Columbia*-Class SSBN**

The fragile relationship between sustainment of our legacy systems and the development and production of their replacements is an ever-present factor in the calculus of effectively deterring adversaries. The Navy's highest priority acquisition program is the *Columbia*-Class submarine. The *Ohio*-Class SSBNs will begin decommissioning in the late 2020s, and the *Columbia*-Class must be ready to begin patrols no later than early FY31. Recapitalizing our SSBNs is a significant investment that only happens every other generation, making it critically important that we do it right and on time. Delays to the Navy's SSBN modernization plan are not an option. The continued assurance of our sea-based strategic deterrent requires not only a next class of ballistic missile submarines, but equally critical, a credible SWS – to include not just the weapon system itself, but the infrastructure and the people as well. The Navy is taking the necessary steps to ensure that the next generation deterrent is designed, built, delivered, and tested on time and provides flexibility and adaptability in a dynamic threat environment.

To lower development costs and leverage the proven reliability of the TRIDENT II D5 SWS, the *Columbia*-Class SSBN will enter service with the same functionality and performance of the currently deployed TRIDENT II D5 SWS, including the life extended TRIDENT II D5 missile, which resides on today's *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 in the U.S. and, under the auspices of the PSA, with the United Kingdom (UK) *Vanguard*-Class and *Dreadnought*-Class submarines into the 2040s.

### **TRIDENT II D5 Life Extension and Life Extension 2**

The TRIDENT II D5 SWS capability has been deployed on the *Ohio*-Class ballistic missile submarines for nearly three decades and is planned to be deployed more than 55 years. This demand to maintain demonstrated high performance while extending the service life past initial

design requirements required a missile life extension effort in order to support the *Ohio*-Class submarine service life and, in concert with the Shipboard Modernization Program for shipboard systems, to serve as the initial SWS for the *Columbia*-Class SSBN. The D5LE will ensure an effective and credible SWS on both the *Ohio*-Class and *Columbia*-Class SSBNs into the 2040s.

As the Navy carefully manages the approach to end of life of our *Ohio*-Class SSBNs, we must address the viability of the SWS throughout the life of the *Columbia*-Class SSBNs. A minimum of twelve *Columbia*-Class SSBNs will replace today's 14 *Ohio* SSBNs and beginning in FY30, D5LE missiles will support initial load-outs on *Columbia* (Hulls 1-8). Production of additional D5LE missiles is not practical due to obsolete parts and the lack of a robust industrial base. The TRIDENT II D5 Life Extension 2 (D5LE2) program is required to modernize the SWS to support *Columbia*-Class missile inventory starting in FY39 (targeting Initial Fleet Introduction – or, IFI – on *Columbia* Hull 9). It will be incorporated on all follow on Hulls as well as Hulls 1-8 during their Extended Refit Period from FY39-49 to continue to meet USSTRATCOM requirements. D5LE2 will ensure the weapon system maintains demonstrated performance and remains survivable while facing a dynamic threat environment driven by two near peer competitors until *Columbia* end of life.

D5LE2 is a hybrid of pull-through cost-effective technology (e.g., solid rocket motors, ignitors) and redesigned and updated components (e.g., avionics, guidance, system architecture). D5LE2 is structured to maintain today's unmatched reliability and demonstrated performance, while unlocking untapped system potential to efficiently respond to emerging needs and to maintain a credible Sea Based Strategic Deterrent.

As directed in the 2018 Nuclear Posture review, SSP executed system architecture studies in FY20-22 to evaluate solutions to problems associated with emerging threats, supportability, and adaptability required to address challenges in a dynamic threat environment. Additionally, activities focused on missile and guidance technology to determine the effective composition of redesign, remanufacture, and pull-through of highly reliable components. This ensures longer-lead, unique SLBM subsystems are mature for a Preliminary Design Review in FY28, Critical Design Review in FY32, first flight off a pad in FY33, Low Rate Initial Production in FY34 and flight testing off a manned platform in FY36. FY23 activities continue the refinement of systems

studies and critical Missile and Guidance Technology work while beginning focused subsystem redesign and industrial base development activities for the D5LE2 program.

Unlike SLBM programs of the past, D5LE2 does not have the benefit of a healthy industrial base that comes from maintaining production and continuous development. These efforts will be critical to reconstituting the SLBM industrial base to restart production on critical components whose production lines were shut down over the last decade and to build a workforce to design and develop subsystems to meet unique nuclear weapons surety requirements. The Administration recognizes the need for D5LE2 and will prioritize near-term investments to ensure that D5LE2 is effective in the expected threat environment and delivers on time. In short, full support of D5LE2 today is vital to achieving 2039 IFI and to embarking on a path that maintains an SLBM deterrent capability through the service life of the *Columbia* Class SSBN.

### **Warhead and Reentry Body Activities**

The Navy is also working in partnership with the Department of Energy's (DOE) National Nuclear Security Administration (NNSA) to refurbish our existing reentry systems and develop new reentry systems in response to USSTRATCOM requirements. As the threat environment the nuclear enterprise faces continues to evolve, it is critical that the Navy designs, develops, and deploys programs that meet the needs of the Warfighter. The TRIDENT II D5 missile is capable of carrying two types of warhead families today, the W76 and the W88. The W93/Mk7 warhead will be designed for use on both the D5LE and D5LE2 missiles and, through the Polaris Sales Agreement and Mutual Defense Agreement, will support the United Kingdom's sovereign Replacement Warhead program. In 2019, NNSA completed the W76-1 Life Extension Program (W76-1/Mk4A), marking the U.S. stockpile's first full-scale warhead refurbishment program. The Navy continues to work on modernizing integrated aeroshells that house these warheads through the Mk4B program with the inclusion of a Shape Stable Nose Tip, which reduces reentry variability and improves performance margins.

The W88/Mk5 warhead continues to undergo its refurbishment program (ALT370) on a revised timeline based on capacitor component issues that did not meet reliability requirements. The Navy and NNSA coordinated on tightly coupled schedules for the fleet, the nuclear enterprise

weapons complex, and production of affected non-nuclear components to execute an 18-month delay to the original schedule that was approved by the Nuclear Weapons Council (NWC). This program reached the First Production Unit milestone on schedule in 2021 and achieved Initial Operational Capability in January 2022. I am confident that our teams will continue to work together to manage and deliver this program, as we have historically addressed refurbishment challenges with a mission-focused attitude and rigor. The Navy will continue to prioritize meeting our Warfighters' requirements and minimizing disruption to the operational fleet to ensure that the sea-based leg of the triad continues to fulfill its deterrence mission. However, the setback this program faced is indicative of the pervasive and overwhelming risk carried within the nuclear enterprise as refurbishment programs face capacity, historical funding, and schedule challenges.

In 2021, the Navy entered Phase 1 of the joint DoD-DOE Nuclear Weapons Lifecycle Process with NNSA for the W93/Mk7. This effort will address evolving ballistic missile warhead modernization requirements; improve operational effectiveness for USSTRATCOM; and mitigate technical, operational, and programmatic risk in the sea-based leg of the nuclear triad while simultaneously reinvigorating the atrophied industrial base and modernizing a Cold War era stockpile. W93/Mk7 will provide flexibility and adaptability to meet future warfighter needs. With the near simultaneous age out of the deployed stockpile in the 2040s, the W93/Mk7 will help address production concerns in the weapons complex and ensure an uninterrupted at-sea deterrent for the sea-based leg of the nuclear triad. In FY22, the W93/Mk7 program received NWC authorization to proceed into Phase 2, Feasibility Study and Design Options, which will further refine and mature the design of the W93/Mk7 program in a manner that provides an affordable, credible, safe, and secure weapon to the Warfighter. Even with the addition of the W93/Mk7 to the stockpile, we will not increase the deployed stockpile. The Navy will work in close coordination with DoD, NNSA, the NWC, and the Congress as this effort matures, but we cannot continue to life extend our leftover Cold War era weapons and systems and successfully carry out our national strategy.

## **Industrial Base and Infrastructure**

To borrow again from ADM Richard’s remarks, “maintaining and strengthening deterrence for the long term requires a modern infrastructure and industrial base able to develop credible capabilities necessary for a more challenging security environment.” The nation requires a fully modernized nuclear force and supporting infrastructure to execute our national strategy. Our modernization needs cannot succeed without investing in the research and development (R&D), critical skills, and facilities needed to produce, sustain, and certify our nuclear systems. Ensuring robust defense and aerospace industrial base capabilities—such as radiation-hardened electronics, strategic inertial instrumentation, and solid rocket motors—remains an important priority in conjunction with R&D investment. SSP has placed particular emphasis on the solid rocket motor industry and its sub-tier suppliers and appreciates the support of the Congress to allow for the continuous production of these vital components. Essential to the nuclear deterrent is a national aeroshell production capability. The Navy has not delivered an integrated aeroshell since the 1980s and needs to reinvigorate a production capability that only resides in a small cadre of highly skilled experts in an exceptionally niche industry. Aeroshell investment supports the Navy but will also be cost-effectively leveraged by our colleagues in the Air Force – and also our strategic partners in the United Kingdom as they pursue their independent reentry program endeavors. Finally, R&D investment is critical to today’s nuclear modernization needs to ensure that we advance necessary technology ahead of design needs and to train our workforce during the early years of development. If the nation does not continue to address these concerns, no amount of money will be able to adequately mitigate the risks associated with key stockpile and infrastructure losses.

From an infrastructure perspective, our program is entering unprecedented times. Existing facilities are reaching their 30-year recapitalization windows while we simultaneously face weapons systems modernization periods in order to meet future requirements. Investing in facility sustainment and modernization is required for cradle-to-grave operations. Appropriate Military Construction and Facility Sustainment, Restoration, and Modernization resourcing is critical to the Navy maintaining a credible deterrence posture to include providing more than 70 percent of the Nation’s operationally deployed nuclear warheads. We will make smart investments to address through-put constraints and build in surge capacity to address requirements presented by new and emerging threats. The Navy relies on a limited footprint to

process missiles and outfit the SSBNs. Maintaining and sustaining facilities is critical to meeting USSTRATCOM and Fleet mission requirements. Our nation, and the Navy, will continue to prioritize and resource the sustainment and modernization of its nuclear infrastructure enterprise to provide an effective and flexible deterrent now and into the future.

As the Navy executes the modernization and replacement of the SSBN and associated SLBM leg of the nuclear triad, DoD and NNSA's infrastructure must be prepared to respond in tandem to the evolving needs of the Nation. Of most importance, we must have an effective, resilient, and responsive plutonium pit production capability. This capability can address age-related risks, support planned refurbishments, as well as prepare for future uncertainty. Additionally, tritium, lithium, and uranium, and high explosives and energetics, among other strategic materials, are vital to ensuring the Navy can continue to meet its strategic deterrent requirements. Efforts to sustain and modernize deterrent forces must continue. Our strategic forces underpin every military operation around the world, and we cannot afford to delay given the increasing threats facing our nation.

## **Workforce**

History reminds us that the swift, successful creation and execution of the Fleet Ballistic Missile program in the 1950s was truly a result of national commitment, congressional support, and 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 focused determination and drove this program with a vision. People are as fundamental to our nuclear deterrent as the SWS itself. Today, SSP and its industry partners are focused on inspiring, growing, and retaining a generation of workforce that did not live through the darkest days of the Cold War. Connecting a new workforce to this fundamental global security mission remains an important task shared among the entire nuclear enterprise. A capable, credible, and affordable strategic deterrent for our Nation for the next 60 years requires not only technical, policy, management, and financial acumen—it requires passion and a commitment to making this our life's work.

SSP has made significant strides in recent years to honor our past, innovate our present, and ensure our future workforce is connected to the fundamental global security mission. In order to create the ideal workforce and workplace, SSP developed the SSP Human Capital Operating Plan (HCOP) in FY19. The HCOP is a five-year plan aligning human capital initiatives to SSP's strategic goals. SSP is now in the fourth year of the HCOP execution and is realizing valuable change from these efforts. The five goals and associated successes are outlined below.

Goal 1 – Recruitment and Retention: create and implement effective strategies to recruit and retain highly qualified candidates and employees, internal and external, sufficient to ensure that SSP fulfills its mission requirements. Accomplishments toward this end include: developing a comprehensive Talent Pipeline Strategy; Standardizing SSP-enterprise Exit & Stay Interview processes; Established Human Resources (HR) Data Analytics position and integrated efforts across HR functions;

Goal 2 – Talent Development and Sustainment: support, develop, and strengthen the workforce to continually evolve and successfully execute the mission. Accomplishments toward this end include: developing Science & Technology Subject Matter Expert career tracks; conducting a staffing study to assess current and future competencies and capacities; implementing robust mentorship programs; Established Career Development Counseling Program; and Developing an SSP Academy.

Goal 3 – Leadership Development: strengthen enterprise leadership at all levels through robust leadership development programs and clear assignment and execution of authority, accountability, and responsibility. Accomplishments toward this end include: Implementing robust coaching programs for leaders and developmental employees; delivering supervisory training for hybrid work environments; continuously promoting internal leadership programs; and Developing an HR Management for Supervisors course

Goal 4 – Culture: clearly define and communicate SSP culture and values. Reinforce and assess the organizational culture as necessary for continuous improvement at every level. Accomplishments toward this end include: Developing an improved employee recognition and awards process; delivering on-going health and wellness activities; establishing a 'We Heard

You' campaign to communicate SSP's responses to feedback; defining SSP Culture and Values (Director's Intent) and developing SSP Culture Videos.

Goal 5 – Diversity and Inclusion: create and implement effective strategies to cultivate a diverse and inclusive work environment that promotes employee engagement and the exchange of different ideas, philosophies, and perspectives. Accomplishments toward this end include: Conducting barrier analysis; establishing Diversity and Inclusion Council; increasing use of Individuals with Disabilities Recruitment Program; and connecting a Leadership Learning Series with Special Emphasis Program.

### **Polaris Sales Agreement: Support to the UK**

Development of the future SWS not only addresses known U.S. risks, it also supports the UK's critical need to recapitalize its deterrent and, given the UK deterrent's contribution and commitment to NATO, this recapitalization is essential to our NATO partners' overall defense posture. A critical component of the *Columbia*-Class Program is the procurement of a Common Missile Compartment (CMC) with the UK under the auspices of the Polaris Sales Agreement. Our partnership with the UK supports production of the CMC in both U.S. and UK build yards. Ensuring that the *Columbia*-Class program remains on schedule supports not only our Nation's operational requirements, but also the ability of the UK, one of our most important allies, to maintain its Continuous-at-Sea Deterrent. Similar to the U.S. Navy, the Royal Navy is recapitalizing its four aging *Vanguard* Class ballistic missile submarines with the *Dreadnought* Class SSBN. The CMC will support today's TRIDENT II D5 SWS, which the U.S. Navy sells to the Royal Navy for deployment aboard its *Vanguard*-Class SSBNs, and that will be deployed as the initial loadout on both *Columbia* and the UK *Dreadnought*-Class SSBNs. For decades, U.S. policy has recognized that the independent UK nuclear deterrent adds to joint efforts to deter aggression and attack against NATO and thereby positively contributes to global stability. Under the 1958 Mutual Defense Agreement and the 1963 Polaris Sales Agreement, the United States Navy has provided decades of support and material, consistent with international law, to the UK deterrent program. Without this assistance, the cost and schedule risk to maintain the UK's independent deterrent would rise significantly, thus creating additional challenges for the UK in sustaining its nuclear contribution to NATO alongside the United States.

## **Conclusion**

Our Nation's sea-based strategic deterrent has been a critical component of our national security since the 1950s and must continue to assure our allies and partners and to deter potential adversaries well into the future. SSP ensures a safe, secure, effective, flexible, and tailorable strategic deterrent, with a steadfast focus on the proper stewardship, 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. 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 nuclear triad and the vital role it plays in our national and global security.