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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 2022 BUDGET REQUEST FOR NUCLEAR FORCES AND

ATOMIC ENERGY DEFENSE ACTIVITIES

10 JUNE 2021

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Introduction

Chairman Cooper, Ranking Member Turner, 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 testify before you today representing the Navy's Strategic Systems Programs (SSP) and the contributions the Navy provides to our national and global security.

The Nation's nuclear triad of intercontinental ballistic missiles, heavy bombers, and ballistic missile submarines (SSBNs) equipped with submarine-launched ballistic missiles (SLBM) is essential to the very foundation of our Nation's security and survival. The nuclear triad is the bedrock of our ability to deter aggression, to assure our allies and partners, to achieve U.S. objectives should deterrence fail, and to hedge against an uncertain future. While we are actively working to modernize our forces, U.S. modernization efforts lag behind those of our adversaries. As our Sea-Services leadership noted in December 2020's *Advantage at Sea*, "China's and Russia's aggressive naval growth and modernization are eroding U.S. military advantages. Unchecked, these trends will leave the Naval Service unprepared to ensure our advantage at sea and protect national interests within the next decade."

President Biden's Interim National Security Strategic Guidance reminds us that "[w]e must contend with the reality that the distribution of power across the world is changing, creating new threats. Both Beijing and Moscow have invested heavily in efforts meant to check U.S. strengths and prevent us from defending our interests and allies around the world." As ADM Richard testified before Congress, nuclear deterrence underwrites every US military operation and capability on the globe and serves as the backstop for both our national defense and the defense of our allies.

According to Secretary Austin's Message to the Force, "[t]he Department will prioritize China as our number one pacing challenge and develop the right operational concepts, capabilities, and plans to bolster deterrence and maintain our competitive advantage." Indeed, Great Power Competition has returned – and with it the need to recapitalize each essential and complementary leg of the nuclear triad.

The Navy provides the most survivable leg of the nuclear triad with the interdependent OHIO Class SSBNs and the TRIDENT II D5 Strategic Weapon System (SWS), which comprises both flight and shipboard systems. SSBNs are responsible for more than 70 percent of the Nation's operationally deployed nuclear warheads that are subject to the New START Treaty. As the Chief of Naval Operations stated in his 2021 NAVPLAN, "[o]ur ballistic missile submarines provide an assured response to any strategic nuclear attack on the United States. OHIO Class boats are nearing the end of four decades of service and must be replaced, making COLUMBIA Class program our top acquisition priority." Furthermore, "[p]rojecting power and influence from the seas is vital to deterring aggression and resolving crises on acceptable terms. Our power projection capabilities alongside our strategic deterrent provide the surest guarantee of security for America and our allies" – this starts with deterring a nuclear attack against our nation with our ballistic missile submarines.

Concurrent with the delivery of the COLUMBIA Class is the need to develop the next generation of TRIDENT II D5 SWS that will ensure the credibility of the sea-based strategic deterrent for the life of the COLUMBIA Class. 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 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 unremittingly 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 men and women of SSP have provided unwavering support to develop, sustain, and secure the sea-based leg of the triad for over 65 years. However, SSP's critical modernization bow wave is no longer part of the future – it is today. We are heading down a path from which we cannot turn away. Our workforce must evolve from years of sustainment efforts to the dual responsibilities of sustainment and development. Investment in critical workforce skills, the

industrial base, and complex technologies unique to strategic systems is essential to the Navy's ability to sustain not only today's sea-based strategic deterrent, but to respond to emerging warfighter needs with cost-effective, creative, and timely solutions 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 U.S. Project Officer under the Polaris Sales Agreement (PSA) for the Navy's 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. As previously stated, the Navy's highest priority acquisition program is the COLUMBIA Class submarine, which replaces the existing OHIO Class submarines. 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 the dynamic threat environment that ADM Richard mentioned before this committee at an affordable cost.

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.

Another major initiative to reduce risk associated with the overhaul of the sea-based strategic deterrent is the SSP Shipboard Modernization Program, which manages obsolescence and modernizes SWS shipboard systems through the use of open architecture design and commercial off-the-shelf hardware and software wherever feasible. The Shipboard Modernization Program refreshes shipboard electronics hardware and upgrades software, which will extend service life, enable more efficient and affordable future maintenance of the SWS, all while ensuring we continue to provide the highest level of nuclear weapons safety, security, and performance for the deployed SSBNs in order to meet U.S. Strategic Command (USSTRATCOM) requirements. The incremental upgrades to the SWS shipboard systems resident on the OHIO Class are also linchpins to the timely delivery of the COLUMBIA Class SSBNs. These upgrades are in progress and on track. Modernization of the SWS shipboard systems leverages engineering techniques and methodologies and embraces model-based engineering design practices in order to effectively respond to today's ever changing environment. The Navy's strategy of addressing obsolescence while simultaneously providing warfighter capability highlights the unique complexity of sustainment and modernization of our nation's nuclear deterrent.

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 50 years. This demand for service life from today's high-performing systems will require a missile life extension effort in order to match 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 D5 Life Extension (D5LE) will ensure an effective and credible

SWS on both the OHIO Class and COLUMBIA Class SSBNs into the 2040s. The initial life extension of missile and guidance flight hardware components was 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 D5LE program is executing on schedule to continue to meet deterrence requirements and will complete deployment by FY24.

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. 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 unavailable technologies and lack of an industrial base. The TRIDENT II D5 Life Extension 2 (D5LE2) program is required to modernize and replace D5LE to support later COLUMBIA Class missile inventory starting in FY39 (targeting COLUMBIA Hull 9 and will backfit Hulls 1-8 during their Extended Refit Period) to continue to meet USSTRATCOM requirements. D5LE2 will ensure the weapon system maintains demonstrated performance and remains survivable while facing a dynamic threat environment 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 deterrent throughout the life of the COLUMBIA Class.

In FY20 and continuing in FY21, SSP began system architecture studies to evaluate solutions to problems associated with emerging threats, supportability, and adaptability required to address challenges in an uncertain future. Additionally, these studies 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 in FY28 and FY29 to then be able to support large facility proofing and flight testing off a manned platform in the mid-2030s and Low Rate Initial Production (LRIP) in FY34.

Unlike SLBM programs of the past, D5LE2 does not have the benefit of a healthy industrial base that comes from maintaining continuous development. These early 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. In short, full support of D5LE2 today is vital to achieving 2039 Initial Fleet Introduction (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 and NPR Supplemental Capabilities

The Navy is also working in partnership with the Department of Energy's National Nuclear Security Administration (NNSA) to refurbish our existing reentry systems and develop new reentry systems in response to USSTRATCOM requirements. The TRIDENT II D5 missile is capable of carrying two types of warhead families, the W76 and the W88. The W93/Mk7 warhead will be designed for use on both the D5LE and D5LE2 missiles, and is essential to supporting the UK's Continuous-At-Sea-Deterrent. In 2019, NNSA completed the W76-1 Life Extension Program, marking the U.S. stockpile's first full-scale warhead refurbishment program. The Navy is now working 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 warhead continues to undergo its refurbishment program 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 propose an 18-month delay to the original schedule that was approved by the Nuclear Weapons Council (NWC). The program remains on track for reaching a First Production Unit in July 2021. I am confident that our teams will work together to manage the delay, 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, this program setback 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 is intended to 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. FY21 initial investment supports the reinvigoration of critical, niche national skillsets and capabilities uniquely associated with harsh reentry environments, and therefore, is applicable to both the Navy and Air Force future needs. Even with the addition of the W93 to the stockpile, we will not increase the deployed stockpile. The Navy will work in close coordination with the Department of Defense, 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.

Finally, SSP will continue to support the Navy's FY21 Analysis of Alternatives (AoA) for the 2018 NPR-directed nuclear-armed Sea Launched Cruise Missile (SLCM-N). The initial study for this AoA has been submitted to the DoD's Office of Cost Assessment and Program Evaluation (CAPE) to better inform decisions surrounding potential gaps in the full spectrum of deterrence.

Industrial Base and Infrastructure

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 allies 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 for as many as 5 to 10 years.

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 (MILCON) and Facility Sustainment, Restoration, and Modernization (FSRM) 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 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.

Truly, 2020 was an unprecedented year. I would like to take this opportunity to highlight some of the outstanding work the SSP team has done to continue to execute on our mission despite the uncertain environment:

SSP took an aggressive COVID-19 Testing and Vaccination posture for our Security Force commensurate with Tier 1 units to ensure their availability and to maintain the Nuclear Weapons Security Standard (NWSS). Additionally, we developed contingency plans to reinforce our security teams in order to mitigate COVID19 impacts. To date, we have not had to implement any of the contingency plans. We worked with nuclear policy leadership for the Secretary of Defense and Chief of Naval Operations staff to provide relief to some of the administrative training and PRP requirements in order to allow the force to remain focused on maintaining the NWSS and minimize interactions required across the force. We worked with our Marine Corps counterparts to adjust our Concept of Operations to maximize social distancing and minimize transmission by addressing guard rotations, reduction of security posts where possible based on

operational requirements (e.g., reduction of entry / exit lanes and associated guards commensurate with reduction of operations and personnel due to COVID (more people teleworking, less people have to enter area)), barracks berthing assignments, cleaning cycles, Personal Protective Equipment requirements, and aggressive contact tracing that minimized interaction between individual cohorts. Finally, we maximized the use of virtual inspections or using personnel already at that geographic location with the appropriate subject matter expertise in order to minimize external vectors that could negatively impact the security force. The combination of common sense measures and innovative tactics have enabled SSP to continue to deliver results despite the pandemic, and I am confident we will emerge from these tragic and unprecedented events stronger and more resilient than we were a year ago.

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 nuclear deterrent. Given the UK deterrent's contribution and commitment to NATO, this recapitalization is essential to our NATO defense posture. A critical component of the COLUMBIA Class Program is the development of a Common Missile Compartment (CMC) with the UK under the auspices of the Polaris Sales Agreement. Similar to the U.S. Navy, the Royal Navy is recapitalizing its four aging VANGUARD Class SSBNs 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 of ballistic missile submarines, and that will be deployed as the initial loadout on both COLUMBIA and the UK DREADNOUGHT Class SSBNs. Our partnership with the UK also supports production of the CMC in both US 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. For decades, US 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 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 US.

Conclusion

In keeping with the Administration's Interim National Security Strategic Guidance, "the United States must renew its enduring advantages so that we can meet today's challenges from a position of strength." 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.