

THE NUCLEAR WEAPONS COUNCIL

HEARING

BEFORE THE

SUBCOMMITTEE ON STRATEGIC FORCES

OF THE

COMMITTEE ON ARMED SERVICES
UNITED STATES SENATE

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THE NUCLEAR WEAPONS COUNCIL

WEDNESDAY, MAY 4, 2022

UNITED STATES SENATE,
SUBCOMMITTEE ON STRATEGIC FORCES,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

The Committee met, pursuant to notice, at 4:37 p.m. in room SD-G50, Dirksen Senate Office Building, Senator Angus King (Chairman of the Subcommittee) presiding.

Committee Members present: King, Reed, Warren, Rosen, Kelly, Fischer, Cotton, Rounds, and Tuberville.

OPENING STATEMENT OF SENATOR ANGUS KING

Senator KING. The subcommittee will come to order. We are involved in a series of votes today so there will be a lot of back and forth. They are supposedly 10-minute votes but I would advise the witnesses, if St. Peter ever says to you you have 10 minutes to live, you should respond, “I would like it to be during a 10-minute Senate vote,” because that will give you a lot more time.

Let me thank the witnesses for agreeing to appear today before our Strategic Forces Subcommittee. Thank you all for your service.

The purpose of today’s hearing is to examine the processes and procedures of how the Nuclear Weapons Council (NWC) coordinates Department of Defense (DOD) requirements for nuclear weapons with the Department of Energy’s (DOE) National Nuclear Security Administration (NNSA) and their budgets. We have as witnesses the principals of the Nuclear Weapons Council, except for the Under Secretary of Defense for Policy.

This hearing is a historic one, tracing its roots to actions that occurred 76 years ago and reflective of tensions that exist between the manufacture and utilization of nuclear weapons. The Nuclear Weapons Council once was called the Military Liaison Committee and it was established in the 1946 Atomic Energy Act, after the Manhattan Project was just established.

The committee was the result of an amendment to the 1946 act by Senator Vandenberg of Michigan, who, after a much-heated debate on the civilian versus military control of nuclear weapons—at the time consisted of nine such weapons, by the way, in our entire stockpile—Senator Vandenberg referred to this debate as a tempest in a teapot. I would note that Senator Vandenberg worked with President Truman to form NATO [North Atlantic Treaty Organization] and the Marshall Plan, and is quoted as stating that “partisan politics should stop at the water’s edge. Senator Vandenberg’s portrait hangs in the reception room to our Senate chamber.

Section 2C of the 1946 act authorized the Military Liaison Committee to be staffed with representatives of the War Department and the Navy. It directed the civilian commissioners of the Atomic Energy Commission to advise and consult with the committee on all atomic energy matters which the committee deems to relate to the military applications and the manufacture or utilization of atomic weapons.

The provision then goes on to state that if the committee, at any time, concludes that any action, proposed action, or failure to act of the commission on such matters is adverse to the responsibility of the Departments of War or Navy, the committee may refer such action or proposed action to the Secretaries of the War or Navy. If the Secretary concurs, they may refer such action to the President, whose decision shall be final. Amazingly, that debate which Senator Vandenberg referred to as a tempest in a teapot, still occurs today.

The Military Liaison Committee was renamed the Nuclear Weapons Council after the 1986 Blue Ribbon Task Force on Nuclear Weapons Management found that the Department of Defense and the Department of Energy should be coordinating more tightly on nuclear weapons programs and budgets. I am hopeful that today we can examine the relationship between the Department of Defense and the NNSA and how requirements and budgets are coordinated. And we keep in mind that the debate that occurred in 1946 really revolves around the civil-military control of nuclear weapons. It is an important and healthy tension but one we must respect as fundamental to our laws and Constitution.

We have just finished another nuclear posture review. Russia is making reckless statements about nuclear use, and the NNSA is executing its highest workload since the 1980s, as we rebuild our aging triad. Now more than ever we need the Department of Defense and the NNSA to closely coordinate, in a unified way, their requirements and budgets so that our nuclear deterrent continues to be, as Secretary Ash Carter described it, "the backbone of every national security action we undertake today."

Again, let me thank today's witnesses for you all agreeing to appear, and after brief opening statements we will have rounds of 5-minute questions to the witnesses.

Senator Fischer?

STATEMENT OF SENATOR DEB FISCHER

Senator FISCHER. Thank you, Mr. Chairman. I will keep my statement short so that we can save time for more questions.

First of all, welcome to all of our witnesses. We appreciate the effort it took to align your schedules and appear before us today. I am sorry that Secretary Kahl could not be with us, but Dr. Plumb, we are glad to have you here. Thank you.

I also want to thank the staff, Jon Epstein, in particular, for their effort to bring this hearing together.

We have before us today the most senior panel that I can recall ever appearing before this subcommittee, and we look forward to your testimony and about the Nuclear Weapons Council's work to ensure our deterrent remains safe, secure, effective, and credible, as the geopolitical landscape becomes less stable and nuclear

threats increase. I remain concerned that we are not doing enough and that we continue to accept greater risk in our policies, plans, and programs.

Russia's increasingly overt nuclear threats should remind all of us of the importance of nuclear deterrence and the risk of deterrence failure. This is the Department of Defense's most important mission, and we must ensure it has the capabilities and resources necessary to succeed.

Thank you, Mr. Chairman.

Senator KING. Ms. Hruby, if you would begin?

STATEMENT OF THE HONORABLE JILL M. HRUBY, UNDER SECRETARY OF ENERGY FOR NUCLEAR SECURITY ADMINISTRATOR, NATIONAL NUCLEAR SECURITY ADMINISTRATION

Ms. HRUBY. Chairman Reed, Chairman King, Ranking Member Fischer, and Members of the Subcommittee, it is my pleasure to be here today with my colleagues from the Nuclear Weapons Council.

The Nuclear Weapons Council serves an indispensable coordination role between NNSA and DOD for the design, development, testing, and production of U.S. nuclear weapons and delivery systems. It also serves a critical role for anticipating future needs and managing priorities and risks.

The biggest challenge NNSA faces today is conducting five stockpile modernization programs while simultaneously revitalizing our infrastructure. NNSA is fully committed to executing programs as efficiently and quickly as possible while managing risks. However, the risk will persist until we complete the enterprise recapitalization efforts.

Steady progress is being made. The W88 Alt 370 and the B61-12 are on track to meet DOD operational schedule. NNSA is also developing the modernized W80-4, W87-1, and W93, in partnership with DOD. I am proud of how well NNSA is working with the Navy, Air Force, USSTRATCOM [United States Strategic Command], and the Nuclear Weapons Council during this demanding time.

The 2022 Nuclear Posture Review (NPR) laid out some clear initiatives that impact the NNSA. We are committed to implementing production-based resilience and warhead science and technology innovation. We are also diligently working to recruit, develop, and retain our workforce.

Lastly, I would be remiss if I did not mention NNSA's equally strong commitment to our responsibilities to promote nonproliferation, reduce nuclear risk, and enhance counterterrorism and counter-proliferation efforts. We appreciate your sustained, bipartisan support.

Thank you, and I look forward to your questions.

Senator KING. Admiral Richard?

STATEMENT OF ADMIRAL CHARLES RICHARD, COMMANDER, UNITED STATES STRATEGIC COMMAND

Admiral RICHARD. Chairman Reed, Chairman King, Ranking Member Fischer, distinguished Committee Members, it is a pleasure to be here again as the operational commander responsible for

our nation's nuclear forces, and being able to testify beside my Nuclear Weapons Council colleagues.

Given Russia's ongoing war against Ukraine, I will have to limit my responses in this unclassified forum.

Let me begin with this observation. We are facing crisis deterrence dynamics right now that we have only seen a few times in our nation's history. When I testified to this committee in March I expressed concern regarding three party deterrence dynamics that we face today. The nation and our allies have not faced a crisis like Russia's invasion of Ukraine in over 30 years. President Putin simultaneously invaded a sovereign nation while using thinly veiled nuclear threats to deter United States and NATO intervention.

The PRC [People's Republic of China] is watching the war in Ukraine closely and will likely use nuclear coercion to their advantage in the future. Their intent is to achieve the military capability to reunify Taiwan by 2027, if not sooner.

STRATCOM has been preparing for this class of threat for years, developing theoretical deterrence concepts and putting them into action. Yet my ability to maintain strategic deterrence is limited. As stated in my fiscal year 2023 unfunded priorities memo, the war in Ukraine and China's nuclear trajectory, their strategic breakout, demonstrates that we have a deterrence and assurance gap against the threat of limited nuclear employment. To help close this gap, pursuing a low-yield, non-ballistic capability that does not require visible generation, should be re-examined, in my opinion, in the near future, along with other measures to address this.

Weapons program delays have driven us past the point where it is possible to fully mitigate operational risks. In some cases we are simply left to assess the damage to our deterrent. Further programmatic delays, budget shortfalls, or policy decisions to lower operational requirements to meet infrastructure capacity will result in operational consequences. However, the Nuclear Weapons Council, I believe, is well-positioned to assess and meet these challenges.

I applaud my Secretary, Secretary Austin's Integrated Deterrence Initiative, to confront the three-party deterrence dynamic. However, I ask us not to forget that the foundation of the nation's integrated deterrent is a safe, secure, and effective nuclear enterprise. Without this foundation, integrated deterrence simply does not work.

I look forward to your questions.

Senator KING. Thank you. Mr. LaPlante?

STATEMENT OF THE HONORABLE WILLIAM LaPLANTE, UNDER SECRETARY OF DEFENSE FOR ACQUISITION AND SUSTAINMENT

Mr. LAPLANTE. Thank you, Chairman King and also Ranking Member Fischer, and thanks to my colleagues here from the Nuclear Weapons Council for this really important subject. It was very daunting to hear the history and the provenance of this very committee. Thank you, Senator.

Nuclear deterrence, as has been said, is the top priority and is the backbone of everything we have. It is the backbone of every operational plan the Department of Defense has, as was pointed

out by others. And for over 60 years the bedrock of that, of course, has been the triad, and we need it to be with us for many decades to come.

And as the admiral just said, we have pushed the modernization of those platforms and those capabilities as long as we can. So in addition to having the five programs that the administrator just talked about, the five programs of the stockpile that are being modernized, we are recapitalizing three legs of the triad at the same time—as you all know, *Columbia*-class, SSBN, the B-21 bomber, the GBSB [ground-based strategic deterrence] ICBM [intercontinental ballistic missile] replacement. So we are doing a lot right now because we have to, in many ways because we have waited to do this, as a country.

So if there ever was a need for a Nuclear Weapons Council I would think it would be today and with these colleagues here. As you know, they play a critical and unique role in the deterrence mission and had all the purpose that the chairman mentioned in this opening remarks.

It is a joint DOD/NNSA forum, and it is designed to facilitate priorities to make sure we are going across these seams and understanding the interdependencies, which are many, between all these different pieces. This is the time, as much as anything else, for this to happen, and I welcome the transparency and the strong commitment that colleagues at the Department of Energy as well as Administrator Hruby have given us.

We had our first, at least for me, my first session I chaired yesterday, and I can tell you we are all on the same page. We are all on the same page. So as was mentioned, the NPR is out. We now know what our guidance is to do. We have to get on and execute. So that is our challenge, and a lot of this also, the backdrop is reconstituting capabilities and a workforce that has atrophied. These systems that are being modernized or recapitalized, the workforce we are using to do it is largely a workforce that was not there when their predecessor systems, that we have today, were built. So this is really a big challenge for us, and I look forward to engaging with this committee and with the Nuclear Weapons Council. So thank you.

Senator KING. Thank you for your chairmanship of the Council.

I just want to state for the record that this hearing was planned in January, before the invasion of Ukraine, and I do not want anyone to interpret this hearing as somehow nuclear saber-rattling on behalf of the United States. This is a hearing that this subcommittee felt was important, but it is not related to the events in Ukraine in any specific way. I think it is important to make that point.

Ms. Shyu, please.

**STATEMENT OF THE HONORABLE HEIDI SHYU, UNDER
SECRETARY OF DEFENSE FOR RESEARCH AND ENGINEERING**

Ms. SHYU. Chairman King, Ranking Member Fischer, and Subcommittee Members, thank you for inviting us to provide testimony for the Senate Armed Services Committee hearing on the Nuclear Weapons Council's activities to sustain and modernize the U.S. nuclear deterrent. I am honored and proud to be seated beside my

other distinguished council members and to represent all of the incredible military, civilian, laboratory, and contractor personnel that carry out the work of ensuring our nation sustains a safe, secure, reliable, and effective nuclear deterrent.

The Office of Under Secretary of Defense for Research and Engineering is responsible for the Department of Defense's National Defense Science and Technology strategy, including the Department's nuclear weapon modernization activities. We share the responsibility of ensuring an enduring scientific and technological advantage for the nation's nuclear enterprise, with the National Nuclear Security Administration. Together we are tasked with creating innovative ways to ensure that the modernization of the nuclear triad achieves strategic deterrence during a period of rapidly evolving threats.

A month ago I testified before the Senator Armed Services Committee Subcommittee on Emerging Threats and Capabilities on how I am working to accelerate innovation for the warfighter. This mission has never been more important than it is today, and applies as much to a nuclear force as it does to our conventional forces.

Strategic competitors to the United States are rapidly developing their nuclear arsenal in new and novel ways, with a clear intent of increasing their reliance on these weapons in their security strategies. The United States must not allow ourselves to be taken by technological surprise, and we must have the technological resilience to anticipate and rapidly respond to emerging threats.

We have a solemn responsibility to ensure that we place our nuclear delivery systems and platforms in both a timely and cost-effective manner. My job is to make sure that we bring the best technological innovation that the nation has to offer. This includes leveraging emerging technologies and advanced manufacturing methods, making wise investments in the defense industrial base, ensuring the integrity of our supply chains, and increasing focus on exquisite modeling and simulation, rapid prototyping, and demonstration capabilities.

I have also set for the Department 14 critical technology areas vital to maintaining our military technological advantage, some of which specifically applies to the nuclear enterprise, such as areas surround microelectronics, advanced materials, quantum science, advanced computing and software, and integrated network systems assistance.

The Department of Defense is also committed to investing in retaining a highly skilled nuclear science and technology workforce. This is the enduring means by which we ensure the long-term viability of our nation's nuclear deterrent.

These are the current ways my office is contributing to the Nuclear Weapons Council activities and will work towards implanting nuclear policy objectives, including supporting the modernization of the nuclear triad.

Thank you for the invitation to testify before this committee. I look forward to your questions.

Senator KING. Thank you.

John Plumb, Assistant Secretary of Defense for Space Policy.

**STATEMENT OF THE HONORABLE JOHN PLUMB, ASSISTANT
SECRETARY OF DEFENSE FOR SPACE POLICY**

Mr. PLUMB. Thank you, Senator King. Chairman Reed, Chairman King, Ranking Member Fischer, and Members of the Subcommittee, I am also honored to testify here today with my colleagues on the Nuclear Weapons Council, where I am proud to represent policy for most meetings.

In my role as Assistant Secretary of Defense I am responsible for nuclear weapons policy, and so I thought today it would be appropriate to use my brief time to discuss the 2022 Nuclear Posture Review.

The Department completed its review of nuclear posture earlier this year, in close consultation with the interagency, outside experts, allies, and partners. The NPR represents a comprehensive, balance approach to U.S. nuclear strategy, policy, posture, and forces, and as Admiral Richard said, maintaining a safe, secure, and effective nuclear deterrent as well as a strong, incredible, extended deterrence commitment remains the top priority for the Department. This top priority is further reinforced by Russia's invasion of and nuclear rhetoric regarding Ukraine and by China's rapid nuclear modernization and expansion.

Committed to that priority, the President's fiscal year 2023 budget request includes \$34.4 billion for the nuclear enterprise. This includes fully supporting the modernization of the triad, modernizing our nuclear security infrastructure, and investments in our NC3, nuclear command, control, and communications architecture.

That \$34.4 billion is nearly \$7 billion more than the fiscal year 2022 request. It includes funding for the B-21 bomber and the LRSO for the air leg, GBSD for the ground leg, and the *Columbia* SSBN and the Trident II life extension for the sea leg. At the same time and after considering all viewpoints, the NPR concluded that the SLCM [sea-launched cruise missile] should be cancelled and the B-83-1 should be retired.

The NPR underscores the U.S. commitment to reducing the role of nuclear weapons and reestablishing our leadership in arms control. We will continue to emphasize strategic stability, seek to avoid costly arms races, and facilitate risk reduction and arms control arrangements, where possible.

Our nuclear forces remain the bedrock of our deterrence architecture. They are foundational to every defense priority established in the National Defense Strategy (NDS), and they remain indispensable to our national security. It is my honor to work with the Nuclear Weapons Council and the Congress and the committee on these issues.

Thank you, and I look forward to your questions.

Senator KING. Thank you, sir.

The final witness, Admiral Christopher Grady, Vice Chairman of the Joint Chiefs of Staff. Admiral Grady.

**STATEMENT OF ADMIRAL CHRISTOPHER GRADY, VICE
CHAIRMAN OF THE JOINT CHIEFS OF STAFF**

Admiral GRADY. Chairman Reed, Chairman King, Ranking Member Fischer, and distinguished Members of the Subcommittee, thank you for the opportunity to testify today with my colleagues.

For 78 years, since the end of World War II, democratic institutions and the rules-based order have prevented great-power war. Since the advent of the nuclear age, our nuclear deterrent has served a vital purpose in a U.S. national security strategy and continues to be an essential part of our strategy to preserve peace and stability by deterring aggression against the United States, our allies, and our partners.

However, today we face a complex global threat environment characterized by increasingly sophisticated and militarily capable strategic competitors who intend to fundamentally change the rules-based order, and this, of course, as recently evidenced by an unprovoked and unnecessary war of aggression by Russia.

Since the Manhattan Project, a partnership between the National Laboratories, production facilities, and our respective departments has provided us with the cornerstone of our security, the nuclear deterrent, and these relationships are evolving and growing stronger as we transition from maintaining legacy systems to producing modern capabilities. This is why the 2022 National Defense Strategy and Nuclear Posture Review reinforces our commitment to modernize the triad.

As the subcommittee conducts its crucial oversight on this important topic there are three areas that I recommend require focused leadership. First, everything we do should start with the threat, and the threat is moving fast, and the Joint Force requires capabilities that give us the ability to deter and respond at the time and place of our choosing.

Next, we must accelerate how we buy, develop, experiment, and field modern capabilities, particularly how we manage the Phase X process. Moving at the speed of relevance is not a “nice to have.” It is a “must have,” but many of our processes and our products are products of the industrial age.

We also require timely and predictable funding to achieve modernization, and our activities are highly interdependent and funding gaps disrupt our ability to deliver, and I appreciate the support of the committee to that end.

In closing, a thank the subcommittee for its leadership and commitment to the nuclear deterrence mission and all of our servicemembers, and I look forward to your questions. thank you.

[The joint prepared statement of Hon. Jill Hruby, Hon. Heidi Shyu, Hon. William LaPlante, Hon. John Plumb, Admiral Richard, and Admiral Christopher W. Grady, follows:]

JOINT PREPARED STATEMENT BY HON. WILLIAM LAPLANTE, HON. HEIDI SHYU, HON. JILL HRUBY, ADMIRAL CHRISTOPHER W. GRADY, ADMIRAL CHARLES RICHARD, AND HON. JOHN PLUMB

Chairman King, Ranking Member Fischer, and distinguished Members of the Subcommittee, thank you for giving the Members of the Nuclear Weapons Council (NWC) the opportunity to testify before you today. The NWC is a joint Department of Defense (DOD) and Department of Energy (DOE) National Nuclear Security Administration (NNSA) organization, codified in law by Title 10, United States Code Section 179, and established to facilitate cooperation and coordination and institute priorities between the two Departments regarding the management, sustainment, and modernization of the U.S. nuclear deterrent. Together, the Council is proud to represent extraordinary and highly skilled soldiers, sailors, marines, airmen, guardians, civilians, laboratory personnel, and contractors who are the core of the nuclear security enterprise. They are professional, mission-oriented, and innovative problem-

solvers charged with ensuring our Nation sustains a safe, secure, reliable, and effective nuclear deterrent.

The U.S. nuclear stockpile remains the bedrock of our strategic deterrent. As the United States continues to advance nuclear modernization programs, the NWC sees an increasing need to collaborate to best manage risk. It is essential that the stockpile remains balanced, flexible, and adaptable to address emerging threats and to remain credible.

We are witnessing one of the largest shifts in global geostrategic power in recent memory, and the NWC—in support of the nuclear deterrence mission—has never been more important or relevant than it is today. The threat we face as a Nation is no longer a projection, it is here: China is modernizing its nuclear stockpile and strategic nuclear forces at a rapid pace while Russia's decades-long modernization program of their strategic deterrent forces is nearly complete. In addition, Russia's nuclear saber-rattling amid its unprovoked invasion of Ukraine underscores the nuclear risks that the United States, our allies, and our partners face amid an increasingly challenging security environment. As the United States faces these developments, the modernization of U.S. nuclear forces must continue to advance to ensure that no adversary engaged in increasingly assertive and aggressive actions believes that it can prevail through the use of nuclear coercion, the employment of nuclear weapons, or the employment of other strategic capabilities for any reason, under any circumstance.

NWC ORGANIZATION

As mandated by Title 10, U.S. Code 179, the NWC manages and sets priorities for the nuclear weapons stockpile. Our membership includes the Under Secretary of Defense (USD) for Acquisition and Sustainment (Chair), the DOE Under Secretary for Nuclear Security and Administrator of the National Nuclear Security Administration (NNSA), the USD for Policy, the USD for Research and Engineering, the Vice Chairman of the Joint Chiefs of Staff, and the Commander of U.S. Strategic Command. To ensure all equities within the nuclear security enterprise are represented, we receive consistent, valuable participation from other organizations including the Military Services, the DOD Comptroller, the DOD Office of Cost Assessment and Program Evaluation (CAPE) and NNSA Office of Cost Estimating and Program Evaluation (CEPE), the Office of Management and Budget (OMB) and the National Security Council (NSC). While the NWC is statutorily required to meet quarterly, for years we have elected to meet once a month at the executive-level. All NWC Principals believe that this pace appropriately reflects the amount of work to be done and the level of commitment to the nuclear deterrence mission at the highest levels of both Departments. A core tenet of the NWC's process is reaching consensus, and the pace of meetings supports this important principle.

To ensure that the NWC properly engages at all levels, we use subordinate committees and action groups to identify and analyze issues and provide detailed recommendations to the Council. The NWC Standing and Safety Committee (NWCSSC), co-chaired by the Assistant Secretary of Defense for Nuclear, Chemical, and Biological Defense Programs and the Deputy Administrator for Defense Programs at DOE/NNSA, provides senior executive advice, assistance, information, analysis, and recommendations on issues for the Council's consideration. Additionally, DOE/NNSA details members of its staff to DOD and most importantly, a staff member to serve as the NWCSSC Executive Secretary, ensuring interagency representation and leadership at the staff-level. The NWC continually analyzes our current working relationships to ensure well-informed and empowered teams are preparing and providing recommendations to the NWC through a streamlined decision-making process. NWC issues are not only addressed when the Members and subcommittees meet, our mission is executed every day through this organizational structure and open collaborations between interagency partners.

NWC FOCUS ON STOCKPILE MODERNIZATION AND ITS CHALLENGES

The NWC recognizes the need for our future nuclear stockpile to be balanced, flexible, and adaptable to address emerging threats and to remain credible in a shifting security environment. Due to the age of our legacy weapons systems, maintenance and sustainment is becoming increasing costly and ineffective at quickly and efficiently addressing the future security environment. As a result, the nuclear enterprise must balance priorities between the maintenance of legacy systems and the increasing investments in modernization. Through the annual assessment process, the NWC monitors and advises the Secretaries of Defense and Energy on all issues facing the aging stockpile. The NWC is committed to ensuring that U.S. nuclear weapon and delivery system modernization programs in both Departments are

aligned, which will help in the identification and mitigation of risk across the modernization portfolio. There are currently four major nuclear weapons delivery system programs and five warhead programs simultaneously underway, and the NWC will continue to be intimately involved in their progress.

DOE/NNSA's warhead programs have reached some significant milestones since the last time the Council testified before this body. The first production unit of the W88 Alteration 370 was completed in July 2021, extending the life of the W88 through its planned retirement in the 2040s. The B61-12 achieved first production in November 2021, further assuring allies we value our extended deterrence commitment. The W80-4 cruise missile warhead, which will be mated to the modernized Long-Range Standoff (LRSO) weapon, is expected to enter the production engineering phase of development in fiscal year 2023. NNSA and the NWC are reevaluating the schedule for the first production unit of W80-4, but NNSA does not anticipate it will affect the initial operating capability date for LRSO. The W87-1, the first warhead modernization truly driving the full production enterprise since the end of the Cold War, is on track to enter its engineering development phase in time to begin replacing the W78 on alert in 2030. Finally, the W93 just entered its feasibility study phase, furthering opportunities for both the United States and the United Kingdom to responsibly address challenges within their legacy nuclear forces. Although production delays have impacted our ability to meet key program milestones, the close coordination between DOE/NNSA and DOD on all of these programs indicates the tangible progress that both Departments have made through the NWC to sustain and modernize the stockpile and to provide deterrence capabilities for decades to come. However, without predictable, sustained and timely funding of the DOD and NNSA budgets, this close coordination is not enough to overcome the challenges we face in sustaining and modernizing the stockpile.

NUCLEAR SECURITY ENTERPRISE PRODUCTION CAPABILITIES AND CAPACITIES

The United States has not embarked on the production of nuclear weapons at-scale in over 30 years and will not be fully postured to do so until the middle of the next decade. The nuclear security enterprise must continue revitalizing efforts aimed at establishing resilience and responsiveness in the weapons production complex and defense industrial base through investments in science and engineering capabilities, technology innovation, and infrastructure, as well as enterprise intellectual capital. These efforts are required to maintain the nuclear stockpile, without underground nuclear explosive testing, and improve the safety, security, reliability, and effectiveness of the deterrent into the future. Ensuring the supply chain is flexible, resilient, and secure will eliminate single-point failures and enable DOE/NNSA to manufacture nuclear weapons with the speed and in the quantities required to address evolving threats. Both Departments will seek opportunities to accelerate the joint acquisition process for nuclear weapons and evaluate the tradeoffs that they entail during the annual program and budgeting cycles.

DOE/NNSA is currently working to reconstitute key production capabilities to deliver the critical components needed to modernize the stockpile, including weapon primaries, secondaries, and non-nuclear components, to meet the NWC's stockpile requirements. The NWC remains committed to NNSA's two-site strategy for plutonium pit production and recognizes the accomplishment of meeting two key milestones in fiscal year 2021: the approval of Critical Decision (CD)-1 packages for major capital acquisition projects that underpin the two-site strategy for pit production, the Los Alamos Plutonium Pit Production Program (LAP4) and the Savannah River Plutonium Processing Facility (SRPPF). NNSA has informed the Congress and the DOD that meeting the DOD requirement for 80 pits per year (PPY) by 2030 is unachievable. Re-establishing war reserve pit production at the required rate of 80 PPY as close as technically and programmatically feasible to 2030 is essential to executing the stockpile modernization Program of Record and maintaining the credibility of the Nation's strategic deterrent force. NNSA is continuously working to mitigate the impacts associated with the inability to produce 80 pits per year by 2030. We are working to assess the operational impacts we are accepting as a result of this delay while still actively exploring options to accelerate schedule and to deliver on DOD's needed capabilities. DOE/NNSA assesses the equipment installation and facility construction needed to produce the additional 50 war reserve pits per year from SRPPF is achievable in the 2032-2035 timeframe and is committed to identifying an implementation path to produce 80 pits per year as close to 2030 as possible. Pit production is just one of many critical capabilities needed to ensure the Nation retains a viable and robust nuclear security enterprise.

Today, key production capabilities and needed capacities are at great risk in large part due to infrastructure challenges. In late 2021, the NWC agreed to pursue a

deeper understanding of the issues associated with production capability and capacity across the nuclear security enterprise and continues to gather data and evaluate scenarios regarding key decision points. The NWC continues to fully support ongoing life extension and modernization programs to deliver on critical needs for the U.S. deterrent.

2022 NUCLEAR POSTURE REVIEW

The Under Secretary of Defense for Policy led the 2022 Nuclear Posture Review (NPR). The Department of Defense transmitted the classified 2022 National Defense Strategy (NDS) to Congress on March 28, integrated in the NDS was the 2022 NPR and 2022 Missile Defense Review (MDR), in support of the President's Fiscal Year 2023 Budget which was fully informed by these policy documents. In keeping with the Secretary's vision of integrated deterrence, the NPR and MDR are nested under the NDS. The NPR takes a balanced approach to strategic stability in the 21st century—evinced by a commitment to a safe, secure, and effective nuclear deterrent and strong and credible extended deterrence, while simultaneously taking steps to reduce the role of nuclear weapons in our strategy through nuclear nonproliferation, nuclear risk reduction, nuclear arms control, and nuclear counterterrorism and counterproliferation. Nuclear weapons will continue to provide unique deterrence effects that no other element of U.S. military power can replace. Amidst the current security environment, the NWC will continue to support investments in modernized nuclear forces that are responsive to the threats we face, to deter aggression, and preserve the security of the United States, our allies, and our partners.

CONCLUSION

We cannot overstate the significance of the present moment for nuclear modernization. Successful, on-time execution of the Program of Record, and commitment to the development and funding of modernization programs will ensure no potential adversary ever believes it can carry out a strategic attack on the United States or our allies for any reason, under any circumstances, without risking devastating consequences. We thank this Committee for its longstanding, bipartisan support for our nuclear deterrent mission and for the professionals across the nuclear security enterprise. We look forward to your questions.

Senator KING. Thank you, Admiral. Thanks to all of our witnesses. We will do 5-minute rounds, as per the committee's custom.

Let me begin. Mr. LaPlante, you are the chair. The most general question is, how is it working? We have had problems in the past. There have been, as you know, some controversy over the last several years. Do you feel that the budget process this year between NNSA and the Department of Defense worked as it should? Was it vigorous but smooth?

Mr. LAPLANTE. Yeah, thanks for the question, Mr. Chairman. Yes, it is my understanding, and I have done a lot of talking in my last couple of weeks and listening to a lot of my colleagues, including on this group, that it was quite thorough and robust, the work of NWC, in reviewing the budget. In fact, it was chaired by my colleague who is actually here behind me, Honorable Rosenblum. And it was very thorough and complete, and went through, I do not know, several months of it, and seemed to end up at a place where I think people felt pretty comfortable that we had looked at things with a good degree of fidelity, and of course concluded the adequacy of what we were trying to do, but also agreed with the NNSA conclusion about getting to 80 pits per year by 2030 is not being, at least as of today, appears to be possible.

So it appears—and again, as I mentioned in my opening remarks, I chaired my first meeting yesterday, and I could just say from that meeting, who knows. We all are on the same page. I mean, we are also struck by the enormity of what we have to do. I mean, again, we do not have time to bicker and we do not have

time to go into silos now. We just do not have the time. And everything is so independent.

Senator KING. It is really a triad of modernization. It is the triad, the delivery. We are modernizing all three legs, we are modernizing the weapon system, but we are also modernizing the facilities themselves at NNSA. I have been to Los Alamos and there are some—I think there are some facilities that date back to the Manhattan Project. So it is massive undertaking.

Admiral Richard, you touched on this, I think, in your testimony, and we were talking about deterrence. The budget defunds the sea-launch cruise missile, and my question is, do we have a deterrent capability below the level of a massive response, and if not, is that not a gap in our deterrent capacity?

Admiral RICHARD. We do have a deterrent capability, and you are talking about a class of deterrence challenge that STRATCOM has been working on since 2015. How do you deter limited employment?

Nuclear Posture Review, very thorough review. I think as you all have seen this is an excellent strategy that has resulted. But I think it is incumbent upon us to learn lessons as we go along, as the threat changes, both China's strategic breakout and what we are learning in real time in the crisis inside Ukraine.

And so not all of your triad is available all of the time. Day-to-day we have a dyad. And so the question becomes, as we go forward, what changes, capacity, capacity, and posture do we need to have to better deter the threats we face? And I do submit that is a question we need to be looking at, and based on what we are learning from the Ukraine crisis, the deterrence and assurance gap—it is important not to leave that out—a non-ballistic, low-yield, non-treaty accountable system that is available without visible generation, would be very valuable.

Senator KING. And we do not have that today. Is that correct?

Admiral RICHARD. That is correct.

Senator KING. A different question on deterrence. One of the things that keeps me up at night is nonstate actors getting ahold of nuclear weapons. Ms. Hruby, I know that part of your list of things to do is nonproliferation. The problem with terrorists having a nuclear weapon is that deterrence does not work with them. They do not care too much about dying and they do not have a capital city to be worried about. And I just commend to all of you, and perhaps I can submit this question for the record, particularly you, Admiral Richard, I would like to something about how we deter, how do we deal with the risk of a proliferation of nuclear weapons to a terrorist, to nonstate actors, for whom the normal, the theory of deterrence does not really apply?

Final quick question, Ms. Hruby, and you may want to talk about this later. Savannah River, 80 pits a year. It does not look like we are going to make it. Is there a plan to accelerate that process and get a better handle on costs?

Ms. HRUBY. The Savannah River pit production facility would make 50 pits per year to allow us, as a country, combined with the Los Alamos 30 pits per year, to make 80.

We are moving as fast as we can on the Savannah River pit production facility design. That is the phase that we are in. That de-

sign is occurring at about 75 percent of the time that a non-nuclear design of that same magnitude would take place, so I feel like that is accelerated. When the design is complete we will begin construction. When the construction is complete we will begin trying to make pits at rate. So we have multiple steps. We will try to accelerate each of those steps, and, in fact, we are hoping to begin to do some prebuys of long-lead items to prepare for the construction phase now.

Senator KING. Thank you. Senator Fischer.

Senator FISCHER. Thank you, Mr. Chairman.

Admiral Richard, I would like to ask my first question of you, and it is a repeat of what Chairman King asked. You reported to us last year, in your prepared statement, you said, speaking of SLCM, "Without this capability adversaries may perceive an advantage at lower levels of conflict that may encourage limited nuclear use." Is that still your view?

Admiral RICHARD. Senator, it is.

Senator FISCHER. And you believe that we have a deterrence and an assurance gap without SLCM. Is that correct?

Admiral RICHARD. Senator, I do. And what I would add is that one of the takeaways, I think, from Ukraine is there are certain scenarios that were judged to be highly improbable that have now materialized in front of us in real life, and I think that requires us to go back and reassess some of the decisions we have made in the past.

Senator FISCHER. Do you believe that the NPR that just came out recently from the Administration, does that provide the Department to have conversations on not just the threats that are out there but also on the needs that this country must have to defend the homeland?

Admiral RICHARD. Senator, I think it does. The NPR has produced, in my opinion, a very good strategy. I think as we implement the NPR what we have to do is take that strategy, and then as threats change, right—and I would refer to China's strategic—we do not know where China is going to wind up in capability and capacity. We are learning probabilities are different, based on what we are seeing in Ukraine, and the NPR calls for that. The next step is to actually implement that process and ask ourselves what posture, what capability, what capacity do we need to execute that good strategy.

Senator FISCHER. And do you feel confident that you and other members of the Department and the military will be able to express those views in a very thoughtful manner and the confidence in the Administration and the possibilities of looking at change?

Admiral RICHARD. Senator, I am certainly asking for that.

Senator FISCHER. Thank you very much.

Admiral Grady, your predecessor, General Hyten, testified in support of SLCM many times. He was quoted in one of his appearances before this subcommittee. He said, "My job as a military officer is to look at the threat, understand the threat, and propose capabilities to this body to deliver to the military so that we can respond to any threat that exists. It is all about the threat."

Have the threats changed, sir?

Admiral GRADY. Yes, ma'am. First of all—

Senator FISCHER. Would it be your best military advice to at least continue research and development on the capability that we have with SLCM?

Admiral GRADY. I am aligned with the chairman on this, and I think consistent with my testimony and with his in that it is all about providing the President options against a broad series of contingencies, and in this respect, then, I am in favor of continuing to assess and evaluate the SLCM end going forward.

Senator FISCHER. Thank you, Sir.

Dr. Plumb, welcome. In Section 1641 of the fiscal year 2022 Defense Authorization Bill there was a requirement that the Department submit the analysis of alternatives conducted for the sea-launched cruise missile. When will that be submitted?

Mr. LAPLANTE. Thank you for the question. My understanding is it is within a matter of days. I think they are putting together the cover letter and the rest, to send that AOA over here.

Senator FISCHER. The Nuclear Posture Review, it estimates the total cost for the SLCM program. Can you provide us with a written breakdown of that cost estimate in the future, please?

Mr. LAPLANTE. Thank you. To the extent that it is available. Again, I have not been briefed on the AOA. To the extent that it is available, absolutely.

Senator FISCHER. Okay. Thank you.

Dr. Plumb, maybe this is for you. Over the next 8 years China is expected to quadruple its stockpile, and Russia's arsenal, which already exceeds our own, is also expected to grow further. While this NPR recommends continuing the replacement of our aging delivery systems, this essentially recapitalizes a force that is sized and configured along the lines of the 2010 New START Treaty force structure.

Is this Administration's view that all the developments we have seen, for example, China's crash nuclear buildup, Russia's violation of the INF [Intermediate-Range Nuclear Forces] Treaty, that they do not have any real impact on United States nuclear posture, and the modernization plan initially conceived of in 2010, is sufficient?

Mr. PLUMB. Thanks, Senator. China's breakout, if you will, but certainly their advanced modernization of their ICBMs and their nuclear posture overall is clearly concerning. As you well know, Russia's intent to include nuclear weapons throughout its forces, almost at every level, is also of concern.

I would just point out two things. One, the three-body problem we are about to face here, or are facing even now, is new, and it is going to require serious consideration, and I do not think there is a single person in the Administration on any side of these issues that does not realize that and think that this is a problem that is going to require continued introspection and review.

And the second thing, not everyone values nuclear weapons at the same level. Each country has its own approach. I think we have seen Russia's conventional forces is weaker than certainly they imagine, and than we imagined, and that explains further their over-reliance on nuclear weapons. I do not think we need to match them one-for-one or yield-for yield to be able to deter each adversary.

Senator FISCHER. The 2010 plan, though, that did not really consider China. You know, China's buildup was after that. How would you respond to that?

Mr. PLUMB. Again, I would say you are correct. China's acceleration here was maybe thought of but certainly not as direct of a threat to us right now. I think we are postured to deter both, but all of these things require continued reevaluation of the threat and reevaluation of posture.

The one thing to note, of course, and this council is the place to address this, is we have a huge bow wave of modernization coming just for these things in the triad that we need. \$34.4 billion is not the largest number. There are larger numbers coming. We have capacity issues with NNSA as well, and so we have to take all of these realities into account as we look at this problem.

Senator FISCHER. And the reality of the—one last point—the reality of the Defense Department's budget is there is a very small percentage that goes to our nuclear weapons. Is that not true?

Mr. PLUMB. I believe it is 4.5 percent for the nuclear piece overall. The weapons piece obviously is smaller, Senator.

Senator FISCHER. Thank you.

Senator KING. Thank you, Senator Fischer. Senator Reed.

Senator REED. Thank you very much, Mr. Chairman. I had the opportunity to speak with Administrator Hruby yesterday, and I am trying to understand two messages. One, Administrator Hruby wrote to the committee on April 12th, indicating the unfunded priority of \$250 million to \$500 million for pit production at the Savannah River site. Then on April 22nd, the Nuclear Weapons Council wrote to the committee that additional funding would not be required. Indeed, the words were "funding alone will not enable it to meet pit production requirements."

So at least in my mind there appears to be a discrepancy between what NNSA is saying and what the Nuclear Weapons Council is saying, so let me begin with Secretary LaPlante and then ask Administrator Hruby to comment.

Mr. LAPLANTE. Thank you, Senator, for the question. I understand the question.

The Nuclear Weapons Council stands by the assessment that I signed on April 22nd, of the adequacy of the budget as well as that no additional money will get the pits to 80 per year. And I would say this. The Nuclear Weapons Council has been tracking, since the fall, this potential idea and concepts of additional, let's say, early, long-leads items possibilities that might help bring the pit production to 80 per year by 2030, but just will be assistance in leaning forward. We have been aware of this for some time. It was not really at a high degree of fidelity when we reviewed it so we did not consider it at the time.

I think since then, particularly for the part—and I would also defer to my colleague in a moment—that involved the \$250 million, the three items, the glove boxes and the building facility as well as the training, it appears that we have enough fidelity that it looks like it might be sensible to do. However, we need to review it, and the plan right now is the Nuclear Weapons Council, in the next few weeks, we are going to take a look at this proposal and

we will make our comments on it and make it available both to you and to this committee.

I would just say this. We really want to applaud leaning forward, so our bias is going to be leaning forward. If there are good ideas that will continue to up, out of our colleagues at NNSA, we need to make sure we look at them, and if they are solid we need to implement them. And this is going to be a continuous process.

Subject to questions, that is my answer.

Senator REED. Thank you. Administrator, your letter preceded the commission's letter. You are a member of the commission. Do you concur with that or do you offer additional advice?

Ms. HRUBY. I concur, but, Senator, if you would let me try to clarify. So the Nuclear Weapons Council letter made a comment that no additional amount of money will get 80 pits per year in 2030. That is a statement that I completely agree with. The request for additional money, the letter I signed out, was associated with trying to buy down risks and accelerate processes to get construction completed faster and to get to pit production faster, not to get to 2030. So this would still be post-2030, but it would allow us to have more confidence that we would not have to stop or stall because we did not have equipment when we were doing the construction project and to make sure that the people are ready to make pits when they can get in the building.

Senator REED. Well, I would appreciate further advice and comment as you study this issue going forward. And one other issue, which might not be appropriate for an open session, is that we both agree that 2030 target is not achievable. As it goes back we have to think about what effect it has on our nuclear deterrence, on our ability to actually arm nuclear weapons. I am sure you are doing that, and in a classified session we can pursue that question. Thank you.

I have a brief bit of time, but for the vice chairman, admiral. The proposal for the submarine-launched cruise missile would actually involve the attack submarines. Is that correct?

Admiral GRADY. That is correct, sir.

Senator REED. And was part of the analysis the effect on the operational requirements of attack submarines, vis-à-vis strategic ballistic missile submarines, and did that factor into the recommendation by the Nuclear Posture Review?

Admiral GRADY. Sir, since my time as the vice chairman I have not studied that issue nor have I seen that study. That is not to say it did not happen. So I would like to go back and determine whether that did happen.

Now the SLCM-N [nuclear-armed sea-launched cruise missile] was validated CONOP [concept of operations] and how it might affect the —

Senator REED. Admiral Richard, because I am over, but do you have a quick comment?

Admiral RICHARD. Admiral Grady's assessment was very accurate, and I will offer that there are a wide range of CONOPS that are available to the Navy for the employment of SLCM-N on a nuclear-powered submarine, not necessarily the CONOP that we used for the old TLAM-N.

Senator REED. [Presiding.] Thank you very much.

Let me recognize Senator Cotton, please, on behalf of Senator King.

Senator COTTON. Thank you all for your appearance here today. It is good to see the entire Nuclear Weapons Council here, with one exception, the Under Secretary of Defense for Policy, Colin Kahl. Mr. Plumb, you are filling in for Mr. Kahl today. Do you know why he could not be here?

Mr. PLUMB. Senator, I do not have a specific but I will say that on his behalf I attend the Nuclear Weapons Council meetings. That is my responsibility as ASD [Assistant Secretary of Defense] Space Policy, the nuclear weapons policy. And so we have got a close working relationship, but I think from a panel standpoint, at least in my mind, sir—

Senator COTTON. I am glad you do that, and I am sure you do. Was he in the Pentagon today, working? Does anybody know? Admiral Grady, do you know if he was in the Pentagon working today?

Admiral GRADY. I do not know, sir.

Senator COTTON. Is he in the Washington National Capital region? Do you know that, Mr. Plumb?

Mr. PLUMB. Sir, I do not.

Senator COTTON. Mr. LaPlante, you are the chair of the council. Do you know where one of your council members is?

Mr. LAPLANTE. I do not. Not right now. Not today. Thank you.

Senator COTTON. I just want to point out this seems to be part of a continued pattern on behalf of the Chairman of the Committee and apparently now the Subcommittee of protecting Colin Kahl at all costs from appearing in public before this Committee. And I think it is a pattern that should stop.

Admiral Richard, I know you have already touched briefly on this. I was gone. I just want to make sure I understand your testimony. You said on your unfunded priorities list that you need, quote, “a low-yield, non-ballistic capability to deter and respond without visible generation.” Let’s put that in plain English. “Low-yield, non-ballistic capability.” That sounds a lot like a cruise missile. “Without visible generation.” That sounds like something that is not on an airplane. So to me that sounds like a sea-launched cruise missile with nuclear capabilities. Is that right?

Admiral RICHARD. Senator, a sea-launched cruise missile would fit those requirements.

Senator COTTON. Okay. So is it your best military advice that we continue developing this nuclear-capable sea-launched cruise missile?

Admiral RICHARD. Senator, yes.

Senator COTTON. So you agree in that regard with Chairman Milley and General Wolters’ testimony?

Admiral RICHARD. Yes, sir.

Senator COTTON. Okay.

Admiral Grady, you just heard Admiral Richard’s testimony. Is it your best military advice that we continue with the sea-launched cruise missile with nuclear capabilities as well?

Admiral GRADY. Senator, it is.

Senator COTTON. Okay.

Admiral Richard, given that Russia's arsenal already exceeds ours and that China's arsenal is rapidly growing, if we keep our plans exactly the same as they are today will the STRATCOM commander who comes after you in 8 years, 2030, have a force that is capable of deterring both Russia and China?

Admiral RICHARD. That is the number one question that we need to ask ourselves as this moves forward.

Senator COTTON. That is why I asked you.

Admiral RICHARD. What we have is the absolute minimum. It depends on the trajectory of where this goes, and we will not be able to do it with the same level of risk that we are carrying today if we do not ask that question.

Senator COTTON. Churchill said, in his Iron Curtain speech, that you should not engage in temptations in a trial of strength by merely exceeding your adversary by a small amount in military power. Do you agree with Churchill's recommendation that you do not encourage trials of strength?

Admiral RICHARD. I do, but I would also point out, look, it is not necessary to match your opponent weapon-to-weapon. We have a good strategy. You have to have sufficient capability to execute that strategy as the threat changes, and that is the question. The triad is the minimum. We are going to have to ask that question going into the future to execute the strategy.

Senator COTTON. How many road-mobile and rail-mobile missiles does Russia have?

Admiral RICHARD. Senator, I need to give you that answer in a classified forum.

Senator COTTON. Let me ask you this. Do they have road-mobile and rail-mobile missiles?

Admiral RICHARD. They have road-mobile missiles, yes.

Senator COTTON. Okay. What about China?

Admiral RICHARD. China has a significant number of road-mobile missiles.

Senator COTTON. Okay. How many road-mobile and rail-mobile missiles does the United States have?

Admiral RICHARD. We do not have any.

Senator COTTON. Oh, we do not have any at all?

Admiral RICHARD. No, sir.

Senator COTTON. So that is yet another capacity that we have refrained from developing over the years, for justifiable reasons, I understand. My point is that we cannot simply decide to disarm unilaterally on all these different domains, like a sea-launched cruise missile or other non-strategic or tactical or battlefield weapons, however you want to phrase them.

Admiral Richard, one final question. So I am pleased to see that once again the force is in favor of modernizing our triad, which, as you say, is the absolute minimum, have succeeded against the efforts of the Far Left to defund them. I do worry about some potential single points of failure on these modernization programs, though, and the operational impacts that could occur from any delays. Could you share your thoughts on this risk and how to avoid it?

Admiral RICHARD. First, Senator, what I want to offer is three STRATCOM commanders in a row have come here and said we

have no margin. We do not have any operational margin left. We used that operational margin to delay the recapitalization as long as we have. What is left inside your triad is its inherent ability to hedge between legs, inter-leg hedging. That capability is there for operational, technical, and geopolitical risk. It was not placed in our triad for programmatic convenience.

I recommend that we maintain that hedge for the purpose it was designed for, and we start asking the question, what is it going to take to get this recapitalization done on time, because I have very little ability operationally to mitigate delays.

Senator COTTON. All right. Thank you all for your very important work on the Nuclear Weapons Council.

Senator REED. Thank you, Senator Cotton.

Senator Rosen, you are recognized, and if Senator King does not appear at the conclusion of your comments could you recognize Senator Rounds, on behalf of the chair? Thank you.

Senator ROSEN. Thank you, Chairman. Thank you all for being here today and for all your work and your service to our country. I really appreciate it.

I am going to talk a little bit about the Nevada Test Site. I am going to keep calling it the Nevada Test Site. It is a lot easier than the Nevada National Security Site, NNSS. It is a little easier to say that.

You know, it was ground zero for the majority of our country's explosive nuclear testing between 1945 and 1992 with 100 atmospheric tests and 828 underground tests being conducted at the site. As someone who lived in Nevada when our nation conducted the last explosive testing that shook the ground—the whole ground would shake, all around Las Vegas on those first Saturdays of the month when they would do them—I am strongly, more than strongly opposed to the resumption of explosive nuclear testing in our state.

So today the site oversees the Stockpile Stewardship Program, principally, as we know it, the U1a facility and underground laboratory where scientists conduct subcritical experiments to verify the reliability and effectiveness of our nuclear stockpile.

Administrator Hraby, I know we have spoken about this, just for the record. In your professional opinion do you agree that there is not a current or foreseeable need for the United States to resume explosive nuclear testing that produces nuclear yields?

Ms. HRUBY. Yes, Senator Rosen, I do. And I would just go further to say our entire Stockpile Stewardship Program is designed around the principal that we will make sure we understand weapons enough so that we do not have to test.

Senator ROSEN. Thank you. And I want to build a little bit again on our discussion last week about U1a advancements, and how will the U1a upgrades, the upgrades to the complex, improve the Stockpile Stewardship Program so that, honestly, we will never have to return to those days of explosive nuclear weapons testing?

Ms. HRUBY. Yeah, thank you, Senator, for the question. The U1a complex at the Nevada Test Site—I will follow your lead—is the tunnel complex where we do subcritical tests to study the science, and we are investing significantly in upgrading the infrastructure in that tunnel complex as well as new experimental capabilities in

the Enhanced Capabilities for Subcritical Experiments project. And with that, when we are able to do those experiments, we will be able to use weapon-relevant geometries and materials to study the implosion of a pit that will allow us to have even better models and assess the stockpile so that we do not have to test.

Senator ROSEN. Thank you. I am going to ask one more question on this to you, Administrator Hruby. The Nuclear Weapons Council is required to report regularly to the President regarding the safety and reliability of the U.S. stockpile and to provide an annual recommendation on the need to resume underground nuclear explosive testing, like we are talking about, to preserve the credibility of the U.S. nuclear deterrent.

And so I am going to ask you, Administrator Hruby and Secretary LaPlante, what is the position of the council on renewed explosive testing, for the record?

Ms. HRUBY. As you rightly state, the three NNSA lab directors are required by law to assess the safety and reliability and performance of our stockpile, and to specifically address whether or not we need testing at this time. And to date the statements have been clear that testing is not needed.

Senator ROSEN. Thank you. Mr. LaPlante?

Mr. LAPLANTE. And I would just add, my understanding, again, the Nuclear Weapons Council agreed with that assessment and that testing at this time is not needed.

Senator ROSEN. Thank you. I appreciate that.

I am just going to ask quickly, the fiscal year 2021 NDAA included a provision to ensure that the Nuclear Weapons Council has an opportunity to review the test site budget early enough so it can determine whether the budget adequately supports DOD requirements. It requires the Secretary of Energy to submit the proposed budget to the council prior to submitting it to OMB [Office of Management and Budget].

And so, Administrator Hruby, last question. I am sorry, if you can answer quickly. Has this new review process had any impacts on the budgets to modernize and recapitalize the test site infrastructure?

Ms. HRUBY. I do not believe so. I have only done the process once, and in this process the Nuclear Weapons Council assessed that the DOE budget for the test site was adequate.

Senator ROSEN. All right. Well maybe we can talk offline a little bit more about that. Thank you very much, and let's see, Senator King. Oh no, Senator Rounds, I believe.

Senator KING. [Presiding.] Senator Rounds is next.

Senator ROSEN. Senator Rounds.

Senator ROUNDS. Thank you, Mr. Chairman.

Admiral Richard, well, first of all let me just say thank you to all of you for your service to our country, and I think it is very special that the entire council be here today. This is a very special opportunity for us.

Admiral Richard, in August of 2021, at the Space and Missile Defense Symposium, you described China's explosive growth and modernization of its nuclear and conventional forces as breathtaking. You went on to caution, "Make no mistake. China's strategic breakout is cause for action," and that we need to understand what we

are up against. And I would like to just have you share with us, or to describe in plain and as simple English as we can get to, as I call it, third-grade level here, as the USSTRATCOM commander, what it is that we are up against so that the American people clearly understand how grave this threat truly is, and to assure that we continue to pace this growing threat with our own capabilities for ourselves and our allies. Could you also speak to how imperative it is that we do the threat-to-capability need reviews on a more continuing basis?

Admiral RICHARD. Senator, let me start by trying to characterize the speed this way. When I first testified 2 years ago the great debate was whether China was going to double its stockpile by the end of the decade. That has already happened while I have been the commander of U.S. Strategic Command. Details that you would like to have, the biggest and most visible one is the expansion from 0 to at least 360 solid-field intercontinental ballistic missile silos. Significant growth, and this has occurred over the course of just a few years. Double number of road-mobile missiles.

China now has a true air leg, nuclear capable with their H-6N bombers and an air-launched ballistic missile. They are not capable of continuous at-sea deterrent patrols with their *Jin*-class submarines from protected bastion in the South China Sea, and more are coming. They have a true nuclear command and control system. They are building a warning system. They aspire to launch under warning launch, under attack capability. They have raised the readiness of their forces. They have a substantial number of theater-range systems, many of which are nuclear, which have no role in a true minimum-deterrent, no-first-use policy.

They are changing their command and control, and this is before we even get into the novel weapon systems. The most public one of those was the Fractional Orbital Bombardment System that has an unlimited range, can attack from any azimuth and comes down in a hypersonic glide vehicle with great performance. No nation in history has ever demonstrated that capability.

And, Senator, the rest of the details are actually in my written posture statement, but that is why I describe this as—this is easily the biggest expansion in China's history and rivals the biggest expansion of any nation in history, including us and the Soviet Union back in the early '60s.

Senator ROUNDS. And just for the record, they are continuing to produce nuclear weapons to fill these expected weapon systems at an ongoing and very rapid rate. I do not know if we can talk about how quick it is, but it is at a very significant rate. Correct?

Admiral RICHARD. Senator, yes. The bottom line, what I have directed my staff at STRATCOM to do—and you are right, the details are classified—whatever the intelligence community tells you about what China is going to do, divide it by 2 in time and you will probably be closer to what happens.

Senator ROUNDS. Thank you, Admiral.

Administrator Hruby, this is the lead-in to the question that I would have for you regarding our ability just to produce plutonium pits. Earlier you mentioned that we are not going to make the 80 pits per year goal by 2030, which is what the statutory requirement is. If we are not going to, and recognizing, not even what all

of our near-peer competitors are doing but just what China alone is doing, it would seem to me if we are not even going to make this number, what is our Plan B?

Ms. HRUBY. Thank you, Senator, for that question, and we are actively working this in the Nuclear Weapons Council right now, is what can we do to have a safe, secure, reliable, and effective stockpile in light of what we think we can practically do in terms of making pits? We will look at that carefully. There may be options, but we are in the middle of that study.

I just want to remind you that we are making new pits because we are concerned about pit aging. We do not want to put old pits in new weapons if we think, in the 30 years those weapons will be in the stockpile they may have aging problems. But we do not know for sure that they will have aging problems because that is a science problem that is very difficult and that we are studying at NNSA.

Senator ROUNDS. If I could, what you have suggested then—and I am out of time, but I would just say, one of the options for Plan B is that we either rejuvenate or we continue to use existing pits that already have in inventory.

Ms. HRUBY. Right. We reuse pits.

Senator ROUNDS. Thank you. Mr. Chairman, I am out of time. Thank you.

Senator KING. Thank you, Senator Rounds. Senator Warren.

Senator WARREN. Thank you, Mr. Chairman.

So it is no secret that I think our nuclear modernization program is unsustainable and dangerous. I wanted to see significantly less emphasis on nuclear weapons in the National Defense Strategy but the Biden administration made the right call in cancelling the sea-launched cruise missile, known as the SLCM, or “slick-em.” A low-yield nuclear weapon launch from ships duplicates capabilities we already have and undermines the Navy’s conventional mission.

Even after eliminating this missile, however, our nuclear modernization program is still incredibly expensive. The Congressional Budget Office estimated that it would cost \$1.7 trillion, and I suspect we are going to find out that that estimate, once again, is far too low. But we have been hearing a tremendous amount today from my Republican colleagues who somehow think we are still spending too little on nuclear weapons and the process of producing them.

So let’s just see if we can clear something up. Admiral Richard, we have discussed this before, but to confirm again, was Strategic Command fully consulted and able to fully participate in the Nuclear Posture Review process?

Admiral RICHARD. Senator, as far as the process inside the Department of Defense, yes. And I will also point out Ukraine and the crisis that we are in happened after the Nuclear Posture Review.

Senator WARREN. All right. But you were part of this while review, right?

Admiral RICHARD. I was, Senator.

Senator WARREN. And I know that we have to make tough calls, especially to make sure that nuclear weapon spending does not cannibalize our conventional capabilities. The Navy said that pursuing SLCM would be, quote/unquote, “cost prohibitive.” That is

the description from the Navy. Our nuclear weapons modernization plans include constructing new plutonium pits, which produce the radioactive raw material we need for nuclear weapons. I remain concerned about the costs and the risks in the pit production program, which is already far behind schedule and far over budget.

So Administrator Hruby, both Admiral Richard and your deputy have told this committee that throwing more money at this problem is not going to get us to our original goal of 80 pits per year by 2030. The Nuclear Weapons Council has also concluded that additional funding simply will not get us there.

So, Administrator Hruby, despite the fact that more money will not solve the fundamental flaws in this program, your unfunded priorities list, the wish list that you submit to Congress on top of your \$21.4 billion budget request, includes an additional \$500 million more dollars for pit production. Is that correct?

Ms. HRUBY. It is.

Senator WARREN. So, Administrator Hruby, when you were before this committee last week you could not even tell us how much the pit production program would cost. So why should taxpayers be throwing an extra \$500 million on top of a program that you do not even have a cost estimate for?

Ms. HRUBY. Yes, Senator Warren. We are in the process of doing the design so that we can have a credible cost and schedule estimate. That design will be complete in early 2024. We do know, however, based on other construction projects that we are currently doing that some items that will be needed in the pit production facility, like nuclear-qualified piping and glove boxes, are taking a very long time to buy. So the request for additional monies has to do with procuring some of the long-lead items that we will need so that when our design is complete we can do construction at the fastest possible pace.

Senator WARREN. You know, I just have to say it was your opening line there, when you said, yourself, just now that you do not have a credible estimate, and you are hoping to have a credible estimate at some point in the future. I have got to say, I am really unhappy to have to tell taxpayers that you get a half a billion dollars on something for which you do not have a credible estimate yet on what you are going to need, because the credible estimate actually may guide whether or not we decide to do this program and how we do this program. So saying, well, go ahead and throw and extra half billion in right now just in case is troubling.

Now look, I realize I am out of time. Dr. LaPlante, I am going to submit some questions for the record for you on where you see the most programmatic risk for the Department in this. We can just go back and forth over that when we are not on the clock.

You know, we are talking about spending trillions of dollars, and the American people truly, they want to spend what it takes to keep us safe. But when you cannot answer basic questions about these programs it does not inspire much confidence that this is the number that we should be supporting.

So thank you, Mr. Chairman.

Senator KING. Thank you, Senator. We are going to have a short second round for those of us who are wishing to follow up.

Secretary LaPlante, give me an assessment of where the GBSD program is. Are we on budget, on schedule? This is a big, new project, and we do not want surprises. So how do you feel about where that project stands right now?

Mr. LAPLANTE. Senator, I will start with a caveat that I am doing a deep dive in the program probably in the next 1 to 2 weeks. The last time I did any bit of a deep dive, I would say as a citizen, whatever I was, was about 2 years, when I asked to look at it. So every impression I am going to give you is what I sent—

Senator KING. But when you finish that process I hope you will inform the committee.

Mr. LAPLANTE. I will. I will. And what I will just say, as you know, they are somewhat early, 1 to 2 years, into engineering and manufacturing development (EMD), try to get to a first flight. I would say of the three legs and where they are in their EMD, they are the earliest along, so that means there still is significant risks. What are the risk areas? The risk areas are rad-hard electronics. The risk areas are the infrastructure and all the rest of it. And I intend to look into it, and I will give you that assessment of where that is. I am going to do a deep dive on all three of the legs, but I am starting with GBSD.

Senator KING. I would appreciate having that as soon as you have it available.

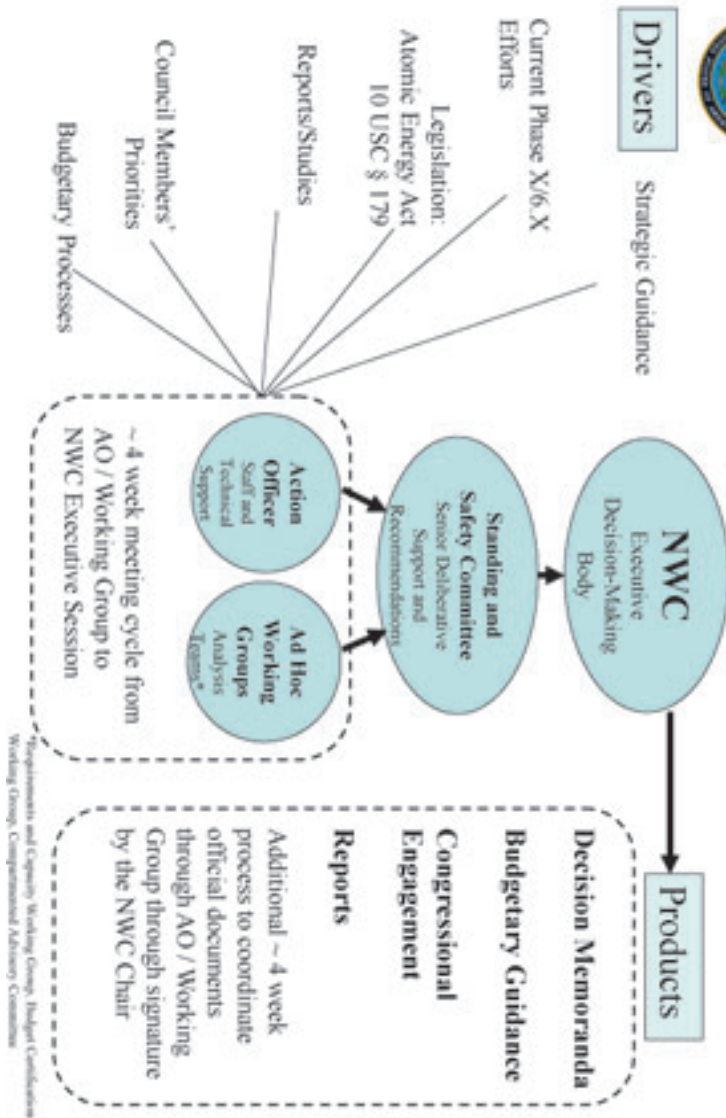
Mr. LAPLANTE. Yes. Thank you.

Senator KING. As part of this hearing I would like to submit for the record a chart that has been prepared by staff that tracks the financial history of the nuclear enterprise.

[The information referred to follows:]

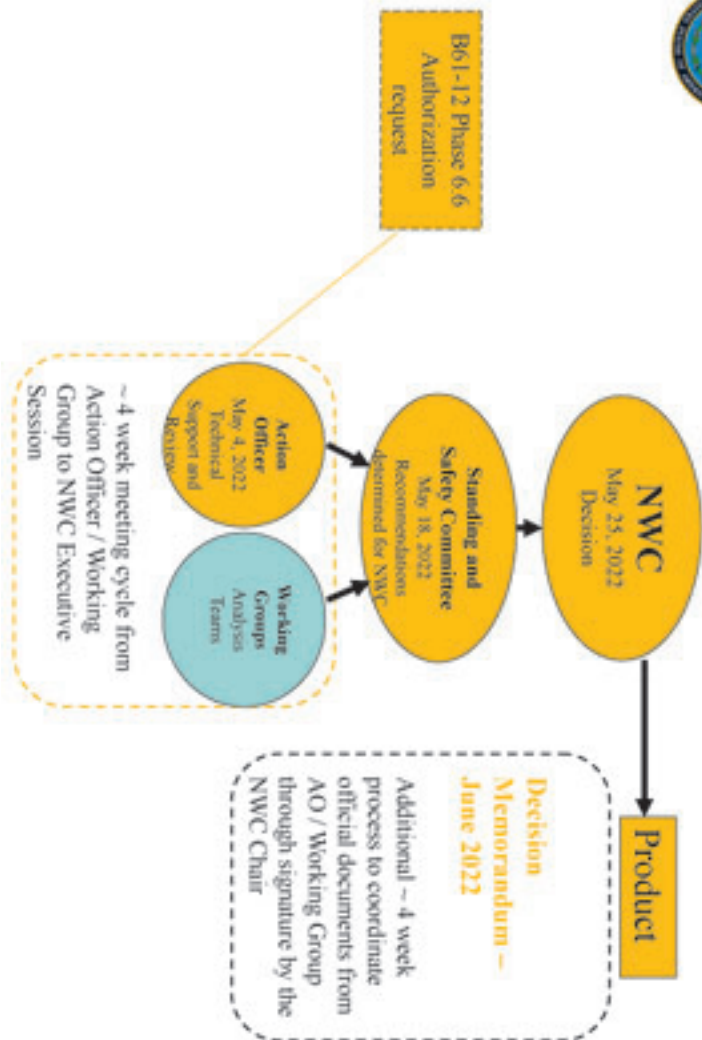


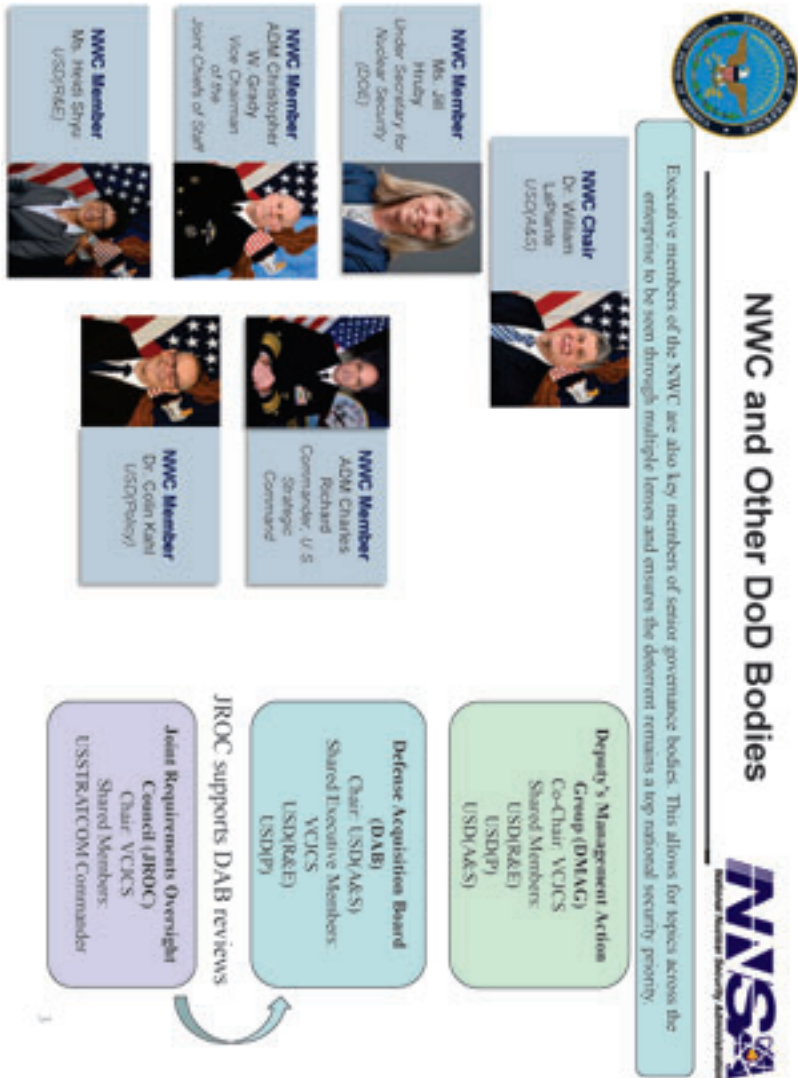
NWC Decision Making Process





Example: B61-12 Phase 6.6 Authorization





Senator KING. In 1962, the total triad expense was 17 percent of the defense budget. In 1984, it was 10 percent. Before the modernization program that started a few years ago it was about 2.7 percent of the defense budget, and when you add the recapitalization of the triad and of the nuclear facilities, and that includes the *Columbia*-class submarines, the B-21, and the GBSD, you get to about 6.4 percent of the defense budget.

So I think it is important to keep these figures in perspective in terms of this is the bedrock basis of our strategy to defend this country we are still way below what it was 50 years ago, way below what it was 40 years ago, and a relatively modest percentage of the overall defense budget, that does not mean it is still not a lot of money, and I understand Senator Warren's questions. Taxpayers are being asked to pay this money and it is our responsibility to be sure that it is used well and effectively.

But I think the recapitalization is sort of skewing this discussion. I refer to it as the pig in the budget python. It is a very large expenditure that we are going to have to cover over a few years, frankly in part because we have put off that expenditure for a number of years and we are having to do all three legs of the triad at once. So I think that is an important perspective to have on the record of this hearing.

A final question, and Administrator Hruby, I think this may be to you, although if others have an answer. It is a little puzzling to me. Apparently China is expressing no interest whatsoever in any arms control, nonproliferation, even discussing it. They are just racing toward a very significant, and I suspect for them an expensive nuclear enterprise. Why is that? Why can we not engage them in some mutual discussions that would assist both countries? And, of course, once we get through what is going on now, re-engage with Russia on these issues, nonproliferation is in everyone's interest, it seems to me, and cutting the expense of these programs is what led to the agreements 20 years ago.

Ms. HRUBY. Senator King, your inclination on this is the same as mine. First, let me just say it is the primary responsibility of the State Department to engage in those dialogues. The NNSA brings to those discussions a potential for technical collaboration, which worked in the past with Russian scientists and potentially could work with the Chinese, and certainly offer that we would be willing to engage in good technical dialogue and discussion to the extent that it could help strategic stability.

Senator KING. Thank you. For the record, could you give me your thoughts to the question that I asked Senator Richard about deterrence of a non-state actor, because that is really a proliferation question? It may be that if deterrence does not work we have to fall back on keeping this material out of their hands in the first place, and I would like your thoughts on that, for the record, for Administrator Hruby.

Ms. HRUBY. I would be happy to.

Senator KING. Thank you. Senator Fischer.

Senator FISCHER. Thank you, Mr. Chairman, and I just want to thank all of you once again for being here today for this extremely important hearing that we are having.

Administrator Hruby, last year the Nuclear Weapons Council noted significant concern about the long-term funding profile of NNSA's budget in a letter to this committee. And while this budget projects continued growth for next year, after that it would level off and then it would decline, which is exactly what the Nuclear Weapons Council warns against.

Do you believe this level of funding is sufficient or will increases beyond what is projected in this budget be necessary in order to meet our modernization requirements?

Ms. HRUBY. Senator Fischer, thank you for that question. We will be looking at the FYNSP [Future Year Nuclear Security Plan] again in light of what we know now, what our requirements are as well as what our infrastructure needs are, and, in fact, we are just starting the fiscal year 2024 budget bill so will be doing that in great detail.

Senator FISCHER. Thank you.

Dr. LaPlante, does the Nuclear Weapons Council remain concerned about the out-year budget for NNSA and continue to believe that low or no growth, quote, "will not provide a sound foundation for the planned capabilities and capacities needed to meet current and future requirements," end quote?

Mr. LAPLANTE. Senator, thanks for the question. The Nuclear Weapons Council, my understanding, again, did the deep-dive review of the 2023 budget, and that is the letter that I sent over on the 22nd. I believe, you know, as the 2024 budget starts to be built we are going to be brought in and do the same thing again, and we will comment on whether we have concerns, just as we showed, as the law provides. Thank you.

Senator FISCHER. Thank you very much. I understand that Senator Reed discussed the plutonium pit production and NNSA's request for additional funding, but Administrator Hruby, your unfunded priorities, which have been referenced here, the letter indicates the request contains \$500 million shortfall in funding for pit production. I appreciate you making the committee aware of this and your clear testimony that these additional resources would help minimize any delay in achieving the target of 80 pits per year.

I would like to ask the rest of the panel their views on this. Do the members of the Nuclear Weapons Council agree these funds are necessary and believe it is critical to achieve full production as close to 2030 as possible? Secretary LaPlante, let us start with you.

Mr. LAPLANTE. Yeah, thank you. First is just as a formality that as the chair of the Nuclear Weapons Council we have not formally reviewed that, and we will, and we intend to do it in the next couple of weeks and we will provide to you our assessment, as a council.

Personal view, from the little that I have seen and discussed with the administrator, it appears, at least, for the three items that she has identified, and she talked about this earlier in this hearing, of long-lead items, they seem very sensible. And as we find, as the NNSA finds other things that are sensible to do I think we need to investigate them and not make it a static process. We should be asking for these ideas all the time.

I defer to my colleagues for the rest of their reviews.

Senator FISCHER. Madam Secretary, did you have a comment on this?

Ms. SHYU. We first heard about this at yesterday's Nuclear Weapons Council meeting.

Senator FISCHER. A little closer to the mic.

Ms. SHYU. Sorry. How about this?

Senator FISCHER. Very good.

Ms. SHYU. So we first heard about this detail yesterday at the Nuclear Weapons Council, and certainly what Administrator Hruby talked about made a lot of sense. There are long-lead items you need to buy when you do construction so you do not stop the construction, wait for the long-lead item. So we are eager to take a look at the details of this in the coming weeks, just as Dr. LaPlante mentioned.

Senator FISCHER. Great. Thank you. Secretary Plumb?

Mr. PLUMB. Yes, Senator. I just echo the same comments Secretary LaPlante and Secretary Shyu have made, which is we are eager to lean forward. We would all like to kind of look at it, I think, now that NSA [National Security Agency] has got some good fidelity, on what that approach should be, I think we are all inclined to. Yes, but we would like to get back to you.

Senator FISCHER. Do you agree with the goal of what was presented, or do you agree that you have to minimize the delay?

Mr. PLUMB. The goal—I think we are on the same page with the goal—is to get to 80 pits per year as close to 2030 as possible, so if we can find a way to do it. And I think the argument that I understand it is some of these procurement items, it is kind of that keeping a line going. So we want to keep the line going so we do not have to restart it.

Senator FISCHER. Keep moving forward.

Mr. PLUMB. Yes, ma'am.

Senator FISCHER. So keep moving forward and do not shorten a big delay.

Mr. PLUMB. And do not add additional delay by not procuring, I think is a specific concern to the acquisition community.

Senator FISCHER. Good. Admiral Grady?

Admiral GRADY. Yes, ma'am. The military requirement is clear, 80 pits per year as soon as possible. If not by 2030, then as soon as possible after that. I am looking forward to reviewing the director's proposals and helping the Nuclear Weapons Council decide whether this is the right way forward. But the military requirement is absolutely clear.

Senator FISCHER. Thank you. Admiral Richard, anything to add?

Admiral RICHARD. I would add, STRATCOM supports this or any other measure that NNSA can execute that minimizes the delay and ultimately reduce the operational risk that I am going to have to carry because we cannot meet the requirement.

Senator FISCHER. And I would assume the operational risks need to be discussed in classified?

Admiral RICHARD. They will. And, in fact, they will be discussed as part of the Nuclear Weapons Council deliberations.

Senator FISCHER. Thank you. Thank you, Mr. Chairman.

Senator KING. Senator Rounds.

Senator ROUNDS. Thank you, Mr. Chairman. I think my colleague, Senator Warren, has asked a question but I am not sure we have had the opportunity for a good response. I would like to go into this a little bit, and Admiral Richard, I would begin with you, sir.

Since you have been in the services, I do not believe that you have ever served at time in which we did not have a very strong and well-defined nuclear deterrent. Can you imagine a world today where the United States did not have a clearly recognized nuclear deterrent capability that helps to keep peace in the rest of the world?

Admiral RICHARD. Senator, I cannot, and I think it is worth a second to explain why I say that.

Senator ROUNDS. I think so.

Admiral RICHARD. Nuclear deterrence is foundational to integrated deterrence because no other capability to date or combination of capabilities gets anywhere close to the destructive potential of nuclear. So if you do not set the foundation of your integrated deterrent when you are in a competition with another nuclear-capable opponent, if you cannot deter their vertical escalation everything else is useless to you.

The reverse is also true. If you set that strong foundation then using every military and other instrument of national power is actually very much to your benefit because it enables you to resolve conflict at the lowest possible level of violence. But there is a theoretical reason why we have to have a strong nuclear deterrent.

Senator ROUNDS. See, I think sometimes because we live with it and we have always assumed that we are free because we are simply strong and economically power, and the rest of the world simply does not have the desire to dominate us, that somehow that means that we do not need the nuclear deterrent that we carry today. And because we have not had a threat to the homeland since, really, 9/11, and that was not a nuclear threat, I think there is a misunderstanding that somehow there is no need for this nuclear deterrent anymore.

And I think the message that you are sharing, one that says the reason that we have been able to maintain our freedom is because we have had a clearly recognized nuclear deterrent, but that also means that generation after generation we have to improve it and we have to keep up with our competition.

If we had—and once again, I would defer, Admiral Richard, to you, but Admiral Grady, you are most certainly welcome to respond to this as well. Our adversaries have become better and better at, first of all, trying to defeat some of our nuclear capabilities and to defend basically not only against the nuclear but some of our conventional capabilities as well.

Would it be fair to say that if you simply said one nuclear bomb or one nuclear missile or one nuclear long-range weapon dropped from a B-52 bomber, since we could that our enemies would fear us? Clearly it would not be the case, and clearly we have to have enough weapons and modernized enough to where we can get around, or at least make them think we have the capabilities of getting around them in order to maintain that deterrent, and that capability that they have is changing on a daily basis. Is that fair?

Admiral RICHARD. Senator, yes it is.

Admiral GRADY. Senator, I would just comment that the number is interesting but it is the effect that that number generates, and that is that it gives the President many, many options across a broad range of contingencies, and that is what drives the number. There is strong analysis in math behind that number, and that is what we need to have that credible nuclear deterrent that you and Admiral Richard have been talking about.

Senator ROUNDS. Admiral Grady, I think you need to lay that out in a little bit more explainable terms to the American public and to this committee. What do you mean by that when you say that when you have the deterrent, the Trident, that you have multiple options available for the President of the United States in order to keep peace? What do you mean by that?

Admiral GRADY. Chaz, I think I will defer to you on that one.

Admiral RICHARD. What you want to be able to do is offer the President any number of ways at which he might be able to create an effect that will change the opponent's decision calculus and get them to refrain or otherwise seek negotiation vice continued hostility. So ballistic versus non-ballistic. Do you want it visible? Do you want it not visible? Do you want it prompt? Do you want it to come in a long period of time? Each of those is very situational specific.

My recommendation on the SLCM-N, for example, is not an effort to relitigate the Nuclear Posture Review. It is based on the conditions we find ourselves in today, when I look at what I am able to offer to the President, and ask myself what would do a better job, lower the risk, give us more confidence in our deterrent capability. That is where that recommendation comes from. It is a specific example of the broader. That is why you want a lot of options, Senator.

Senator ROUNDS. And one last question. Admiral Grady, do you think Russia would have invaded Ukraine today if Ukraine was a nuclear capability, if they had a nuclear capability?

Admiral GRADY. I think they would have had many, many second thoughts about that as an option for them if they were facing a nuclear-armed adversary.

Senator ROUNDS. Thank you. Thank you, Mr. Chairman.

Senator KING. Thank you, Senator Rounds.

I want to thank each and every one of you for your dedication to the country, for your sober-minded approach to these very difficult issues, for the work that you put in on behalf of the public, often in quiet and unsung ways. And I want you to know that we recognize what are contributing to the defense of this country.

The irony of nuclear weapons is that the reason we have them is that we never want to use them, and the best way to ensure that we never use them is to have them, and to have those who would commit aggression understand that this is something that has to be, as the admiral said, part of their decision-making calculus. Evil exists in the world, and we have to be prepared to defend ourselves and our allies. The work that you are doing is contributing mightily to that end.

So I want to thank you again for your testimony today, thank you for appearing before the committee.

Senator Fischer, did you have a closing statement you would like to make? No.

Again, thank you, and this hearing is adjourned.

[Whereupon, at 6:00 p.m., the Subcommittee adjourned.]

[Questions for the record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR ELIZABETH A. WARREN

PIT PRODUCTION

1. Senator WARREN. Administrator Hruby, what is the current estimated cost of pit production over the next 30 years?

Administrator HRUBY. The answer has two parts: (1) estimated cost for design, construction, and equipment for the facilities, and (2) estimated cost for operating the facilities out to the 30-year mark. For design, construction, and equipment, the preliminary cost estimate ranges from the “Critical Decision (CD)-1” (Approve Alternative Selection and Cost Range) stage, were \$2.7 billion—\$3.9 billion for the Los Alamos Plutonium Pit Production Project (LAP4) and \$6.9 billion—\$11.1 billion for the Savannah River Plutonium Processing Facility (SRPPF). Cost estimates will depend on facility and equipment designs, which have not yet reached 90 percent completion. We will provide estimates of the costs of operating these facilities after designs are 90 percent complete in fiscal year 2024. Costs associated with ongoing production and certification activities and the installation of equipment to restore Los Alamos’ ability to produce 10 pits per year are reflected in the Plutonium Modernization program.

2. Senator WARREN. Administrator Hruby, when does the National Nuclear Security Administration expect to release updated estimates of pit production costs?

Administrator HRUBY. We will be able to provide updated cost estimates with reasonable fidelity once design is 90 percent complete for LAP4 and SRPPF, which is scheduled to occur in fiscal year 2024 for both projects.

3. Senator WARREN. Administrator Hruby, the fiscal year 2020 National Nuclear Security Administration Congressional budget request stated that new pits will be “W87-like.” Does that indicate that future pits will be heavily modified? If so, what work has NNSA done to ensure their reliability?

Administrator HRUBY. Current and future modernization plans include pit types based on previously tested and certified designs, with well-understood modifications that provide key advantages (such as easier manufacturing, for example). Discussion of specific modifications can be provided in a classified setting. NNSA has done a great deal of science-based stockpile stewardship work during the past three decades to underpin justified confidence in the reliability of warheads that include these designs. The pit production capability being established in NNSA must be capable of making pits other than the W87.

4. Senator WARREN. Administrator Hruby, Mr. LaPlante, is future pit production scheduled to maintain the safety and reliability of the existing nuclear weapons stockpile? Why not if so?

Administrator HRUBY. Pit production will allow us to maintain the high reliability of our nuclear weapons stockpile while improving safety and security as needed. Establishing required pit production capacity as close as possible to 2030 remains a high priority. The later this capability becomes available, the more we will be pushed toward returning old pits to the stockpile instead of newly manufactured pits. The pit production capability will provide deliberate replacement of older existing plutonium pits with newly manufactured pits as risk mitigation against the potentially negative implications of plutonium aging.

Mr. LAPLANTE. Through the annual assessment process, today’s pits are continually assessed for safety and reliability. These assessments continue to indicate the pits meet all safety and reliability requirements. Future pit production is scheduled to replace today’s pits to maintain and improve the safety, security, and reliability of the stockpile.

5. Senator WARREN. Administrator Hruby, Mr. LaPlante the costs of pit production are not included in the cost estimates for the W87–1 warhead. This is a key component of nuclear weapons and requisite for the detonation of a warhead. Why do cost estimates for the W87–1 warhead not include pit production costs?

Administrator HRUBY. The cost of producing pits per unit is included in our W87-1 cost estimates, but the costs to restore the Nation's ability to produce 80 pits per year are calculated separately since these investments are required for future systems as well, not just the W87-1. NNSA's cost estimates for the W87-1 Modification Program are being updated as the program enters Phase 6.3 this summer. This will include an Independent Cost Estimate and a Weapons Design Cost Report to inform NNSA's overall cost estimate for the program.

Mr. LAPLANTE. As the Nuclear Weapons Council Chair, my understanding indicates that pit production is a capability necessary across the stockpile, and, therefore, is not tied to a budget line of one warhead.

6. Senator WARREN. Administrator Hruby, Mr. LaPlante, will the W93 require a new plutonium pit?

Administrator HRUBY. A decision has not yet been made on the type of pit that will be used in the W93. The decision will be influenced by the schedule for achieving pit-production capabilities, as this schedule becomes better known from the increasing maturity of facility design and the evolution of funding profiles. Additional information related to W93 plans can be provided in a classified setting.

Mr. LAPLANTE. The Nuclear Weapons Council is planning for all warheads to contain new plutonium pits, beginning with the W87-1. However, given the shortfalls in meeting pit production requirements, the NWC is reviewing and assessing the requirements demand and determining where we prioritize new pits, what schedule adjustments can be made, and where we can accept a reused pit in a program and the implications for each option.

7. Senator WARREN. Administrator Hruby, can you provide some details as to why it will take several years to produce such a more detailed plan on achieving 80 pits per year when it was requested by Congress two years ago, if not longer?

Administrator HRUBY. Design and construction of nuclear facilities for pit production is a complex process, partly because these one-of-a-kind facilities must be designed and built to operate reliably for many decades while meeting safety, security, and environmental requirements and achieve a high confidence capability to produce pits qualified to military specifications. Design efforts at both the Los Alamos National Laboratory and Savannah River Site are progressing. NNSA previously communicated information resulting from Critical Decision (CD)-1 for both LAP4 and SRPPF to Congress. As these projects reach CD-2, Approve Performance Baseline, NNSA will proactively provide Congress with updated information based on the 90 percent design for both of these one-of-a-kind facilities.

8. Senator WARREN. Administrator Hruby and Admiral Richard, when can we expect reporting on the impact on the stockpile if the NNSA cannot meet the 80 pit per year goal in a reasonable time?

Administrator HRUBY. NNSA remains committed to identifying acceleration pathways to achieve the required pit production rates as close to 2030 as possible. NNSA is working with subject matter experts from across the nuclear security enterprise to identify acceleration options and associated risk mitigation. Pit production rates of 80 pits per year will require construction and a reliable production process to produce certified pits to be established.

Per direction in House Report 116-449, accompanying the Consolidated Appropriations Act, 2021 (P.L. 116-260) NNSA is required to provide an annual report on a contingency plan to meet the needs of the nuclear deterrent that did not solely rely on the current need dates for pit production. NNSA developed this plan in coordination with the Department of Defense and delivered the last report to Congress in December 2021. The Nuclear Weapons Council continues to evaluate and increase fidelity of schedule options.

Admiral RICHARD. In addition to the NNSA Pit Production Contingency Plans required by the 2021 Consolidated Appropriations Act provided to Congress in December 2021, the Atomic Energy Act (50 U.S.C. 2525), as amended by fiscal year 2016 NDAA, also requires the CDRUSSTRATCOM to submit to the SECDEF an annual assessment of the safety, security, reliability, and military effectiveness of the Nation's nuclear weapons stockpile NLT 1 Dec. I expect the fiscal year 2022 assessment will address the operational implications, risks, and/or impacts on military effectiveness of failing to meet the statutory 80 PPY by 2030 requirement. The President subsequently provides this assessment to Congress no later than 15 March of the following year.

SLCM

9. Senator WARREN. Admiral Richard you have suggested the proposed new SLCM-N is desirable because it would be a “low-yield, non-ballistic capability that does not require visible generation.” Do you think our adversaries will interpret this as the United States seeking an undetectable first strike capability?

Admiral RICHARD. While I hesitate to speculate exactly how our adversaries will interpret it, I do not think they will see it as a first strike capability. The 2018 Nuclear Posture Review was clear that this capability was meant to address the perception that an adversary might have regarding the feasibility or an advantage in using a limited number of nuclear weapons in a conflict. That is, to address a potential deterrence and assurance gap.

The situation in Ukraine and China’s nuclear trajectory convinces me that a deterrence and assurance gap exists. To address this gap, a low-yield, non-ballistic capability to deter and respond without visible generation is necessary to provide a persistent, survivable, regional capability to deter adversaries, assure Allies, provide flexible options, as well as complement existing capabilities. Such a capability with these attributes should be re-examined in the near future.

The United States deployed the Tomahawk Land-Attack Missile-Nuclear (TLAM-N) for 25 years before it was retired. We have no indications that deploying this system was perceived as an effort to seek an undetectable first strike capability.

10. Senator WARREN. Assistant Secretary Plumb, how will the presence of nuclear-armed missiles on submarines affect the ability of U.S. submarines to pass through allied countries waters or visit their ports?

Assistant Secretary PLUMB. It is the policy of the United States to neither confirm nor deny nuclear weapons onboard any individual U.S. submarine. If a new sea launched nuclear cruise missile was developed and deployed on US fast attack submarines, some coastal Allies or partners might choose to deny port access to all US fast attack submarines due to the potential for nuclear weapons being onboard. We respect the sovereign rights of our allies and partners.

GBSD

11. Senator WARREN. Secretary LaPlante, what issues do you expect to address in your deep dive of the GBSD program?

Mr. LAPLANTE. Modernizing the delivery systems that compose the nuclear Triad remains a top acquisition priority of the Department of Defense. I recently began conducting deep-dive reviews of all three legs of the Triad. I completed my review of the Sentinel program, formerly the Ground Based Strategic Deterrent, on May 16, 2022. The review addressed requirements, schedule, performance, cost, and risk. It demonstrated that Sentinel is a complex program executing to an aggressive schedule. The Air Force is actively mitigating risk, but little to no margin exists. My team and I will remain closely engaged as the program progresses with a focus on cost, schedule, and performance.

12. Senator WARREN. Secretary LaPlante, here do you see the greatest schedule, cost, and technical risks in our nuclear modernization plans?

Mr. LAPLANTE. Schedule, cost, and technical risks associated with the nuclear modernization programs have my full attention. Following a series of deep dives of the nuclear modernization programs, I am focused on the concurrent execution of these programs. Nearly every system is beyond its designed service life, and must be modernized and delivered on time and on specification. This places significant pressure on the capacity of our industrial base, supply chains, workforce, and infrastructure. My team and I will continue to assess trends across the programs and work to mitigate risks. This is a once-in-a-generation modernization, and it is imperative that these programs remain on track to ensure there is no gap in our ability to effectively, reliably, and credibly deter our adversaries and assure our Allies and partners.

 QUESTIONS SUBMITTED BY SENATOR DAN S. SULLIVAN

AUKUS

13. Senator SULLIVAN. Secretary Hruby and Secretary Shyu, I understand that NNSA is currently involved in an 18-month study period regarding the optimal pathway to deliver nuclear propulsion technology to Australia as a part of the AUKUS agreement. The U.S. has only shared nuclear propulsion technology once before, with the United Kingdom. Our Naval Nuclear Propulsion Program is a

model of excellence. The same can be said for the UK. How you are balancing the need to ensure the Australians have the same level of stewardship for their program, with the need to move out quickly on the terms of this agreement?

Administrator HRUBY. NNSA is part of a broad interagency and trilateral 18-month study period. Nuclear stewardship is a central element of the consultation period. The effort will intensively examine the full suite of requirements that underpin nuclear stewardship with a specific focus on the following areas: safety, design, construction, operation, maintenance, disposal, regulation, training, environmental protection, installations and infrastructure, industrial base capacity, workforce, and force structure.

We continue to analyze multiple options to identify the optimal pathway for Australia to acquire a nuclear-powered submarine capability. However, since nuclear stewardship is such an important part of the culture and safety of operating this technology, a focus on stewardship will be foundational to every decision we make as we work to fulfill the objectives set forth by the AUKUS leaders.

Secretary SHYU. Ms. Shyu respectfully defers to Administrator Hruby's response, as NNSA is best positioned to provide the answer.

NWC COORDINATION

14. Senator SULLIVAN. Secretary LaPlante, a recent GAO report released in January 2022 stated that while the DoD and NNSA generally have existing joint processes to manage and communicate risks at the level of individual programs (such as a warhead life extension program), the two agencies have not established a joint process to identify, assess, and respond to enterprise-level risks that may affect the mission across the strategic nuclear triad. How would you characterize the communication regarding enterprise-level risk assessment and decision making between members of the NWC?

Mr. LAPLANTE. In my short tenure as chair of the Nuclear Weapons Council, I have found communication between the DoD and DOE/NNSA to be clear and transparent. Recently, the NWC discussed the need to implement a strategic framework for integrated decisionmaking, and we are actively working to mature that framework. Additionally, the 2022 Nuclear Posture Review directed the DoD to develop and implement a risk mitigation and opportunity exploitation framework, designed to allow senior leaders to understand and act upon the interdependencies of our nuclear modernization programs. This framework will leverage the long-standing practices and commitment of the Members of the Nuclear Weapons Council and the programs of the DOE/NNSA. I am confident that with these tools, the NWC will become even more effective.

15. Senator SULLIVAN. Secretary LaPlante, what steps could be taken to improve coordination between the NNSA and DoD on the NWC?

Mr. LAPLANTE. Coordination between the DoD and NNSA remains vital to the success of the NWC and the nuclear modernization programs across the enterprise, and my short tenure has indicated that while coordination is strong, steps could be taken to improve. I intend to continue to review the practices of the NWC and determine areas to strengthen our coordination.

QUESTIONS SUBMITTED BY SENATOR ANGUS S. KING

NON-STATE ACTORS

16. Senator KING. Administrator Hruby and Admiral Richard, "I would like to [know] something about how we deter, how do we deal with the risk of a proliferation of nuclear weapons to a terrorist, to nonstate actors, for whom the normal, the theory of deterrence does not really apply?" (p. 28, lines 4–8)

Administrator HRUBY. The U.S. Government's approach to countering nuclear terrorism recognizes the difficulty of deterring non-state actors through the means traditionally used to deter hostile states, that is, threatening overwhelming reprisal in response to a nuclear attack.

Consequently, the U.S. strategy for deterring nuclear terrorism features two central elements:

1. Convincing terrorists that the commodities needed to build an improvised nuclear device (IND)—chiefly nuclear material—are prohibitively difficult to obtain and that even if they were to acquire an IND, a nuclear attack against the United States would be unsuccessful for a variety of reasons. In particular, we attempt to persuade terrorists that any nuclear plot will be detected and

disrupted, and that the outcome of a nuclear attack would feature less death, destruction, and terror than they desire.

2. Deterring foreign governments from providing support to would-be nuclear terrorists, including by threatening military retaliation for facilitating an act of nuclear terrorism.

Detering Nuclear Terrorists

The United States undertakes multiple efforts to (1) prevent non-state actors from accessing nuclear material and (2) persuade them that acquiring a nuclear capability is difficult and the probability of a successful nuclear attack is low.

The U.S. Government expends significant resources around the world consolidating, securing, and when possible, eliminating the nuclear materials necessary to construct an IND. To date NNSA has removed, eliminated, downblended, or confirmed the disposition of over 500,000 kilograms of highly enriched uranium (HEU) and plutonium from 48 countries and Taiwan. NNSA also works to prevent non-state actors from acquiring the expertise and equipment needed to assemble an IND through export controls and support to USG interdiction operations. Additionally, NNSA develops tools to detect nuclear proliferation networks. In addition to the intrinsic value of these programs, which have dramatically improved global nuclear security, a secondary benefit is to nurture the perception that nuclear materials are simply too difficult to acquire. This perception may, in turn, persuade terrorists to pursue less lethal attack modes.

Additionally, the United States fields a variety of domestic and international defenses against nuclear terrorism and actively messages these capabilities in various media. For example, internationally the U.S. Government has installed radiation portal monitors at hundreds of points of entry and deployed hundreds of mobile and portable systems for radiation detection along trafficking routes, thereby complicating the ability of smugglers and terrorists to move nuclear material from its point of origin to the United States. At home, the U.S. Government also scans for radiation at airports, seaports, and other ports of entry. Additionally, NNSA's Nuclear Emergency Support Team (NEST) maintains capabilities to search for, interdict, characterize, and disable terrorist nuclear devices. As part of a conscious strategy to deter non-state actors from attempting a nuclear attack, NNSA consistently advertises that these assets are strategically pre-positioned throughout the country to respond to nuclear incidents.

Detering State Support for Nuclear Terrorism

The second pillar of the United States' deterrence strategy is to dissuade hostile foreign governments from providing nuclear material, equipment, and expertise to would-be nuclear terrorists, wittingly or unwittingly. This objective requires two parallel efforts: refining nuclear forensic capabilities to identify the source of material used in a nuclear device and telegraphing to hostile states the consequences of facilitating nuclear terrorism.

NNSA invests substantial resources to advance its nuclear forensic tools to determine the provenance of nuclear material found outside of regulatory control. In concert with law enforcement and Intelligence Community capabilities, these scientific tools are part of a broader U.S. process to attribute responsibility for an act of nuclear terrorism. Like other U.S. defenses, the existence of nuclear forensic capabilities is actively messaged using a variety of media platforms. In addition to deterring hostile state actors, these capabilities may also induce foreign governments to strengthen their nuclear security practices, lest an inadvertent loss of material be perceived as an act of willful assistance to terrorists.

In tandem with forensic tools, the United States has consistently issued declaratory policy stipulating the severe consequences that would result if a state enabled a terrorist nuclear attack. Successive Administrations' Nuclear Posture Review reports have expressly stated that the United States would hold accountable any actor who facilitated an act of nuclear terrorism, and similar language can be found in a variety of other public pronouncements by senior U.S. officials, military leaders, and lawmakers. Such messaging is intended to signal unmistakably the United States' resolve to retaliate in response to any state-supported act of nuclear terrorism.

Conclusion

Although deterrence of non-state actors and potential foreign patrons is merely one dimension of the United States' strategy to counter nuclear terrorism, these efforts represent an important element of the Nation's defense-in-depth against this enduring threat.

Additional information on the U.S. Government's approach to deterring nuclear terrorism can be provided in a classified setting.

Admiral RICHARD, [Deleted.]

Within the Department of Defense, United States Special Operations Command has the primary responsibility for carrying out this strategy.

