

Statement of Lieutenant General Frank Klotz, USAF (Ret)
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on
“The Obama Nuclear Deterrent Modernization Plan and Schedule: A Bipartisan Consensus”
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Chairman Rogers, Ranking Member Cooper, Members of the Subcommittee, thank you for the opportunity to testify on the nuclear deterrent modernization plan and schedule. The Secretary of Energy and I appreciate the attention this Committee has focused on the U.S. nuclear security enterprise, and the steadfast and abiding support it has provided to our Department. NNSA’s life extension programs and infrastructure modernization efforts are central to the Administration’s goal of maintaining a credible deterrent, and ensuring the safety, security, and effectiveness of our nuclear arsenal.

The nuclear deterrent is a foundational capability of U.S. national security strategy.¹ Although it has been decades since the end of the Cold War, our nuclear enterprise continues to play an essential role in preventing conflict and deterring attacks upon the United States, our armed forces, and our Allies and friends. As Secretary of Defense Ash Carter recently said, “a safe, secure and reliable nuclear arsenal is part of the American security structure as far into the future as I can see.”

The world is increasingly unpredictable – a condition that is unlikely to change. While there have been significant reductions in the size of the Russian and U.S. nuclear weapons stockpiles since the end of the Cold War, thousands of nuclear weapons and large amounts of weapons-usable nuclear materials remain. Countries such as Russia, China, and North Korea are now modernizing, expanding, and diversifying their nuclear arsenals. State and non-state actors continue to pursue nuclear and radiological capabilities. This environment requires a credible deterrent appropriate for advanced military competitors, regional WMD states, and non-state terrorist networks.

We must maintain nuclear deterrent capabilities not only for ourselves, but also for our Allies and partners. As NATO reaffirmed just last week in the Warsaw Summit Communiqué, “As long as nuclear weapons exist, NATO will remain a nuclear alliance. The strategic forces of the Alliance, particularly those of the United States, are the supreme guarantee of the security of the Allies... If the fundamental security of any of its members were to be threatened however, NATO has the capabilities and resolve to impose costs on an adversary that would be unacceptable and far outweigh the benefits that an adversary could hope to achieve.”

¹ National Security Strategy, February 2015. Available at:
https://www.whitehouse.gov/sites/default/files/docs/2015_national_security_strategy.pdf

The nuclear deterrent also serves other important national security interests. It both helps to promote peace and stability and removes incentives for others to develop indigenous nuclear capabilities. These assurances play a critical role in maintaining strategic stability across the globe, and have often overlooked nonproliferation benefits.

The 2010 Nuclear Posture Review (NPR) recognized the necessity of maintaining a safe, secure, and effective deterrent for as long as nuclear weapons exist. In order to do so, the NPR directed that the United States pursue a sound Stockpile Management Program and modernize the aging infrastructure to provide a hedge against technical and geopolitical surprise, while also continuing to reduce the overall size of the U.S. nuclear weapon stockpile.

Today, I will focus on how NNSA has implemented the programs prescribed in the NPR, specifically the life extension programs and major alteration for four of the weapons in our stockpile and our efforts to modernize the facilities and infrastructure at our national security laboratories and production plants. The scope, budgets, and schedules of the life extension programs (LEP), infrastructure modernization, and the Department of Defense's (DoD) nuclear delivery systems have been fully integrated through coordinated and tightly coupled efforts. These programs are the foundation of our ability to maintain today's deterrent as we prepare for the increasingly uncertain security environment of the future.

Life Extension Programs and Alterations

In order to maintain a safe, secure, and effective stockpile without nuclear explosive testing, NNSA extends the lifespan of weapons that have reached the end of their original design life. As we work on extending the life of the nuclear arsenal, we also exercise the capabilities and maintain the scientific, technical, and engineering proficiency of our workforce and infrastructure.

In accordance with policy objectives for improved safety and security, NNSA is extending the life of our warheads to maintain operational capabilities by replacing nuclear and nonnuclear parts, or inserting new parts that use modern technologies. These major efforts require the use of a significant portion of our capabilities for research, development, testing, and evaluation (RDT&E), and production. Any changes to the configuration of a warhead, such as to improve security and safety or to replace obsolete components, have to be evaluated and certified using experimental and computational tools to ensure the warhead will operate as designed.

W76-1 LEP

The W76-1 LEP is associated with the Navy's submarine launched ballistic missile. NNSA started producing the W76-1 in 2008 and, by the end of this year, we will have completed more than 70 percent of the total number of W76-1 warheads to be provided to the Navy.

Throughout the production phase, we had to overcome a variety of challenges to stay on schedule. For example, in the middle of the W76-1 production run, we moved our Kansas City operations -- where we produce or procure non-nuclear components for the stockpile -- from a sprawling, World War II-era factory to our new, state-of-the art Kansas City National Security

Campus. We also had to contend with flooding from unusually heavy rainfalls and frequent lightning from nearby thunderstorms at Pantex, both of which can force a halt to operations.

Nevertheless, we fully expect to complete production of the W76-1 on schedule in 2019. The Navy will then have a life-extended warhead for its ballistic missile submarine fleet that will last for at least another 30 years, and will enable an almost 50 percent reduction of the total number of W-76 warheads currently in the inventory.

B61-12 LEP

The B61-12 LEP is critical to modernizing the nuclear gravity weapon stockpile sustaining the Nation's strategic and non-strategic air-delivered nuclear deterrent capability. The development activities of the B61-12 LEP will be leveraged in subsequent life extension activities.

The LEP for the B61-12 gravity bomb has achieved many important milestones in the last year. Working with the Air Force, we successfully completed environmental flight tests on the F-15, F-16, and B-2 aircraft on or ahead of schedule. These tests ensured that the B61-12 is compatible with analog aircraft like F-16s and digital aircraft like F-15s and F-35s, as well as the B-2 bomber.

This past January, the B61-12 LEP completed its System Baseline Design Review, an important milestone which allows us to produce the next round of development hardware, and to continue engineering and testing activities. In May, the Preliminary Design Review and Acceptance Group (PDRAAG), which includes representatives from the Air Force, Navy, and Army, formally determined that the baseline design of the B61-12 meets DOD Military Characteristics and Stockpile-to-Target Sequence requirements.

Last month, the NNSA authorized the Nuclear Weapons Laboratories and production plants to enter Phase 6.4, *Production Engineering*. An important milestone of this phase is the upcoming release of the Baseline Cost Report which will update the program cost, scope, and schedule with information gained from development activities conducted so far.

The B61-12 LEP remains on track for a FPU in March 2020, the date agreed within the NWC and supported by the President's FY 2017 budget request. When the LEP is finished, it will add at least 20 years to the life of the system and consolidate four variants of the B61 into a single variant, and facilitate the retirement of the B83-1. These actions will result in a 50 percent reduction in the number of nuclear gravity bombs in the stockpile and an 80 percent reduction in the amount of nuclear material used in air delivered gravity weapons.

W88 Alt 370 [with CHE refresh]

The W88, another submarine-launched ballistic missile warhead, is undergoing a major Alteration (Alt) 370 that was originally authorized to replace the weapon's Arming, Fuzing, and Firing systems, and to make key safety enhancements. In the past year, based on results from the ongoing surveillance of the nuclear weapons stockpile performed by Los Alamos National Laboratory and peer-reviewed by Lawrence Livermore National Laboratory, the NWC decided

to expand the planned W88 ALT 370 program to include replacement of the conventional high explosive (CHE) in the warhead.

We are accelerating all planning activities associated with CHE refresh and will combine them into a single W88 ALT 370 program by the time we enter Phase 6.4, Production Engineering, in February 2017. The Department submitted a \$25 million reprogramming request to Congress in June 2016 to meet this milestone and maintain a FPU of December 2019 and delivery to the Navy shortly thereafter.

W80-4 LEP

We are in the initial stages of the W80-4 LEP, in support of the Air Force's Long Range Standoff (LRSO) program. The W80-4, a life-extended version of the existing cruise missile warhead, the W80-1, recently completed the *Concept Study* phase, or Phase 6.1, and received NWC approval to enter Phase 6.2, which initiates the *Feasibility Study*. NNSA's laboratories are already ramping up their hiring to perform this LEP.

The NWC identified, and subsequently reaffirmed, the need for the LRSO. The FY 2015 National Defense Authorization Act requires the Secretary of Energy to deliver the FPU of a life-extended W80 warhead for the LRSO by 2025, and we are on track to meet that timeline.

Infrastructure Requirements

The NNSA mission depends on facilities, infrastructure, and equipment for success -- we are long overdue to build the modern, smaller, and safer complex that will meet military requirements; keep the deterrent safe, secure and effective; and improve worker and public safety. More than 50 percent of NNSA's facilities are over 40 years old, and almost 30 percent date to the Manhattan Project. Current demands from the LEPs, along with demands of the stockpile stewardship program (SSP), have increased loads on the aging NNSA infrastructure. Without infrastructure modernization, this risk to NNSA's mission will increase.

NNSA cannot accomplish its mission to sustain the nuclear deterrent over the long-term without reliable and modern programmatic, security, and general purpose infrastructure that provides necessary capabilities for today, allows for the opportunity to expand future capacities, and minimizes risks. As stressed in the 2010 NPR, NNSA's infrastructure must be able to not only support the work we currently have planned, but respond to technical challenges and geopolitical surprises.

Key Investments for Uranium and Plutonium Capabilities

Major investments are currently underway to address a number of critical capabilities identified in the 2010 NPR, including the Uranium Strategy, which includes the Uranium Processing Facility (UPF), and the Plutonium Strategy, which includes the Chemistry and Metallurgy Research Replacement (CMRR) Project.

NNSA is committed to ending enriched uranium (EU) program operations in most of Building 9212 and delivering UPF by 2025 for no more than \$6.5 billion. The project has completed conceptual design on budget and on schedule. Aligned with the Secretary of Energy's rigorous project management guidance, NNSA will ensure the project achieves 90% design maturity on the nuclear facilities before establishing the critical decision (CD) 2 cost and schedule baseline. The project is currently on track to achieve CD-2 in late 2017. Once delivered, UPF will provide new floor space for select building 9212 capabilities (which cannot be relocated) and segregate Enriched Uranium operations by security and hazard requirements.

Following on the heels of the successful completion of the Site Readiness Subproject, which was \$20 million under budget, the UPF Site Infrastructure Subproject is progressing under budget and on schedule as well. NNSA is also making progress on reducing sources of mission and safety risk in the existing plan to ensure long-term EU operations continue safely. We are also increasing the safety posture of Y-12 as the plant makes progress moving material-at-risk to the Highly Enriched Uranium Materials Facility. Key investments with existing EU manufacturing capabilities such as casting, machining, and metal purification will improve the reliability of those systems and further reduce overall mission risk at the plant.

Infrastructure investments are currently being executed under NNSA's three-step plutonium infrastructure strategy. The Plutonium Strategy recapitalizes key plutonium capabilities in the nuclear security enterprise by optimizing existing facilities. NNSA remains committed to meeting the NWC requirements for plutonium pits and we are making progress on the fabrication of a development pit using existing materials. This will help exercise our plutonium capabilities and critical skills and is a major step toward reaching pit manufacturing goals.

The CMRR project maintains continuity of analytical chemistry (AC) and materials characterization (MC) capabilities, and allows the cessation of program operations in the Chemistry and Metallurgy Research Facility in 2019. NNSA is evaluating alternatives to provide infrastructure for future pit production requirements and to address the life of current facilities as part of the Plutonium Modular Approach (PMA). Once the analysis of alternatives is completed and a selection is made, NNSA will begin conceptual design work.

Increasing Resources for Maintenance & Recapitalization

Despite the recent increases in funding, primarily for key plutonium and uranium capabilities and stockpile LEPs, resources for maintenance, recapitalization, and RDT&E have not kept pace with the needs of an aged enterprise. Funding these shortfalls is necessary to decrease risk in ongoing LEPs, re-establish the capability to produce strategic material needed for the stockpile, and position the enterprise for long term stockpile stewardship without having to resort to underground nuclear explosive testing. These additional investments will also reduce maintenance, operating, and associated security costs and reduce our footprint.

In order to mitigate the current infrastructure challenges, NNSA has improved its infrastructure investment strategy by using the new budget structure improvements approved by Congress, improving decision-making, and implementing program management tools.

Starting in FY 2015, NNSA also began requesting a higher percentage of funding for Recapitalization and Maintenance projects. These funding increases are essential steps to decrease deferred maintenance, arrest the declining state of infrastructure, increase enterprise productivity, improve safety, eliminate costly compensatory measures, and shrink the NNSA footprint through the disposition of unneeded facilities. NNSA also deployed a project prioritization methodology to evaluate return on investment, energy savings, and other efficiencies that lower the cost to operate the NNSA enterprise while balancing programmatic and safety risk reduction. Further, NNSA has improved recapitalization execution by managing all recapitalization work as projects.

NNSA has also made progress in the disposition of excess facilities, demolishing buildings 9744 and 9808 at Y-12 in FY 2014 and 2015 and preparing for the disposition of the Kansas City Bannister Federal Complex in FY 2017. Ultimately, however, the long-term success of the NNSA mission relies on a blend of infrastructure investments including funding for Maintenance and Repair, Recapitalization, and Line-Item construction.

Finally, the Department of Energy and NNSA continue to pursue third-party financing and public-private partnerships to complement traditional line-item capital construction projects as a means of providing appropriately-sized and modernized non-nuclear facilities for our 21st century operations and workforce.

We recently achieved a major success with the construction of a brand new facility for the production of non-nuclear components for nuclear weapons in Kansas City, MO. The facility was built by a private developer and then leased by NNSA through the General Services Administration (GSA). The modern Kansas City campus opened for business in August 2014, replacing an antiquated, World War II-era factory. The net result is a 50 percent reduction in our footprint in Kansas City, a \$100 million a year savings to the U.S. Government in operating and maintenance costs, and significantly improved operational efficiency and workforce morale.

Just last month, NNSA authorized the management and operation contractor for the Pantex nuclear weapons assembly and dismantlement facility in Amarillo, TX, to enter into a lease agreement for a new office building that a private developer will build using third-party financing. This project will allow about a thousand employees to move out of dilapidated, 1950s-era buildings into a modern, energy efficient workspace. It will also eliminate approximately \$20 million in deferred maintenance at the Pantex site and enhance recruitment and retention by improving the quality of the work environment.

We strongly believe greater use of such approaches to recapitalizing our aging facilities and infrastructure should continue to be explored, and appreciate this Committee's strong endorsement of that view.

Conclusion

The role of the nuclear deterrent as a foundational capability of the security of the United States and its Allies is unquestionable, and for as long as this deterrent is necessary, NNSA will continue to assure the stockpile remains safe, secure, and effective, without nuclear explosive

testing. But achieving our plans for tomorrow's stockpile will require adequate resources, national commitment, and balanced investments in life extension programs and infrastructure modernization. This approach will enhance our ability to maintain strategic stability, provide for credible deterrence, and assure our allies and partners. Thank you again for giving me the opportunity to testify today on these important priorities before your Committee.