

National Nuclear Security Administration

NNSA Administrator Jill Hruby Remarks at Strategic Weapons in the 21st Century Symposium

APRIL 18, 2024

[National Nuclear Security Administration](#) » NNSA Administrator Jill Hruby Remarks at Strategic Weapons in the 21st Century Symposium

Good afternoon, everyone. It is a pleasure to address the Strategic Weapons in the 21st Century Symposium for my fourth time as Administrator. For nearly two decades Lawrence Livermore and Los Alamos national labs have hosted this symposium for the nuclear deterrence community, inviting diverse perspectives and in-depth discussions. Thank you.

Over the last few years, events like these have been dominated by conversations about a deteriorating international security environment. The title for this year's Symposium, "A Fundamentally Different Global Setting," is an important acknowledgement that the world has changed and is still in flux, perhaps likely to remain that way for some time.

So, instead of starting my remarks by talking about how the world has changed, I'm going to jump straight into what NNSA, along with our U.S. and international partners, are doing in response.

I will start with the headline. NNSA delivered over 200 modernized nuclear weapons to the Department of Defense this past year, the most since the end of the Cold War. And with the current program of record, which I will discuss in more detail shortly, a comparable rate of modernized weapon delivery will continue over the next decade and likely beyond. I highlight this accomplishment because it is a big change from just a few years ago and it also helps level set our thinking relative to Russia and China.

Yes, all indications are that Russia has a nuclear weapon complex capable of sustaining and growing their stockpile, producing both strategic and tactical weapons, and adding some key new capabilities. Similarly, all indications are that China is increasing its weapons production capacity so it can continue to sustain its stockpile as well as introduce newly designed weapons at pace. And today, I can tell you that the United States of America has a nuclear enterprise that can refurbish, rebuild, redesign, and adjust its nuclear stockpile to improve deterrence. So, from my perspective that means we don't need to panic about falling behind and we should take the time to think about the future wisely.

Getting to this point is a testimony to efforts of multiple administrations, Congress, and the nuclear enterprise. Thank you to all who have played a role so far, and to all that will continue the necessary and hard work ahead. And we do have work ahead, because admittedly, the next weapon systems will be more difficult to produce, and our infrastructure remains fragile.

Make no mistake, the program of record is daunting. For a number of years, we have been implementing five simultaneous modernization programs. The W88 Alt 370 Program and B61-12 Life Extension Program are currently in full rate production. This represents consistent progress since our announcement of the First

Production Units in Fiscal Years 2021 and 2022 respectively. The W80-4 warhead remains aligned with the Air Force schedule for the long-range standoff weapon and on track for a First Production Unit in September 2027. The W87-1 is scheduled to begin production in Fiscal Year 2031 or 2032. Lastly, the W93, a new warhead program based on existing designs, remains on track for production starting in the mid-2030s. This system is being designed and produced in parallel to the UK replacement warhead. These five programs, combined with the delivery system modernization by the Department of Defense, represent our effort to sustain the nuclear triad.

However, this past year, we have added two additional weapons into the existing program of record. These new systems directly respond to emerging deterrence needs and expand nuclear options available to the President.

The B61-13, announced last October, will add a capability for certain hardened and large-area military targets. These systems will be produced by modifying some B61-12s at the end of production and will provide an option similar to the B61-7 but with the improved safety, security, and accuracy of the B61-12. The number of B61-12s built will be decreased by the number of B61-13s manufactured, resulting in no change to the number of weapons in the stockpile. We anticipate a First Production Unit of the B61-13 in Fiscal Year 2026.

Additionally, the Sea-Launched Cruise Missile – Nuclear, or SLCM-N, was authorized in the Fiscal Year 2024 National Defense Authorization Act and funded in the Fiscal Year 2024 budget. SLCM-N will provide a low-yield, non-ballistic capability to the Navy. The NDAA requires an initial operating capability by the end of Fiscal Year 2034. NNSA is standing up a program office and coordinating with the Department of Defense on the details of this new program. Because of the timeframe directed along with the other systems in development and production, NNSA is looking for options that satisfy the deterrence need and interface appropriately with Navy delivery systems, while putting the least amount of stress on our busy enterprise.

With these two announced changes, we now have seven systems in the program of record to be delivered by the mid-2030s. This program represents not only an overhaul of all three legs of the nuclear triad, but also adds new deterrence capabilities that don't currently exist. The program is responsive to today's global environment both in timeframe and capability.

Now I'd like to talk about the NNSA production capability. As we've said for some time, our infrastructure needs to be more modern, capable, flexible, and resilient to realize this program of record and deliver the warheads needed in the decades that follow. And the infrastructure recapitalization effort must be accomplished in parallel to delivering modernized weapons. We knew it would be hard, and it is, but real progress is being made.

Over the past several years, we have prioritized capabilities most needed for the program of record and for safety. For the program of record, our highest priority is re-establishing the capability to produce new plutonium pits that was lost in 1989 when production at Rocky Flats was halted. As most of you know, we are pursuing a two-site plutonium pit production strategy centered at Los Alamos and Savannah River with the goal of a minimum capacity of 80 plutonium pits per year.

Last year, more development pits were produced at Los Alamos than ever before – nine full W87-1 development pit builds, with five more partial builds. Los Alamos is on track to "diamond stamp" the first fully qualified war reserve pit for the W87-1 this year. We anticipate Los Alamos achieving the capability to produce the 30 pits per year envisioned by the two-site plan in or near 2028, with increased manufacturing rate confidence as we install equipment through 2030.

At Savannah River, we are focused on completing construction of the Savannah River Plutonium Processing Facility, SRPPF, in 2032. Today, this involves procurement of long-lead items, site preparation work, and early construction activities that begin before design efforts are fully complete. We have put in place a new acquisition approach that directly uses a commercial construction manager. Once SRPPF construction is complete, we will need to introduce nuclear material, establish the manufacturing process, and obtain rate production by about 2035 to have new pits for the latter half of the W93 production schedule. We recognize this

is a **very** aggressive schedule and we are taking actions to enable its success. For example, to train employees before occupying the processing facility, we are building a High-Fidelity Training and Operations Center at the Savannah River Site.

Although we continue to study plutonium aging and refine lifetime predictions for pits, we know that a resilient pit production capability will be needed as long as the United States maintains nuclear weapons. Furthermore, the longer we take to establish the production capability, the higher the initial capacity will need to be. It makes good technical and financial sense to bring these capabilities on-line as soon as possible, and that's what we're aiming to do.

The reestablishment of pit production capabilities is the largest and most complex infrastructure undertaking at NNSA since shortly after the Manhattan Project. The program plan for pit production is tightly coordinated across the nuclear security enterprise and with the Department of Defense to ensure a safe, secure, reliable, and effective stockpile at all times. Our current total estimated acquisition cost range for pit production is \$28-37B, although this still needs to be reviewed inside the Department of Energy. I know that's a lot of money. However, I am much more confident in this estimate than earlier estimates, in part, because it is more consistent with other recent similar projects. For example, the Vogtle nuclear power plant units 3 and 4 in Waynesboro, Georgia cost \$34B in 2023 dollars. In France, EDF recently increased its cost estimate for 6 reactors to \$73.2B. Furthermore, there are currently three transportation projects in the U.S. with cost estimates above \$50B. The NNSA projects are more one-of-a-kind than these other large-scale projects. Although we will try to manage them carefully, it is naïve to believe our projects will be far less expensive than these commercial efforts. I can tell you that we are fully committed to completing these plutonium pit projects as quickly as possible and by learning to improve from others.

Our highest priority infrastructure project for safety is the Uranium Processing Facility, or UPF. UPF is now sixty percent built, nearly all material has been received, and construction is scheduled to be complete in 2027, with full operations by 2031. UPF is necessary to replace an aging building that suffers from legacy contamination, facility degradation, and outdated technology. UPF will be an important test case for transitioning from new construction to manufacturing with nuclear material.

Additionally, construction is underway for the High Explosive Science and Engineering project at Pantex to replace facilities beyond their lifetimes, groundbreaking has occurred for the Lithium Processing Facility at Y-12 (which is also important for worker safety), and groundbreaking is scheduled for the Kansas City Expansion in August. Many other infrastructure projects are at various stages of design or construction.

A commitment I made last year was to develop a new vision for the Nuclear Security Enterprise - an effort we are calling the Enterprise Blueprint. The Blueprint will identify the high priority facilities needed for science, production, safety, security, and people across the enterprise between now and about 2050, with ties to mission needs. Doing this will help reinforce NNSA's underlying philosophy of responsiveness, flexibility, and resiliency required to meet dynamic demands. The Enterprise Blueprint will be rolled out in the latter half of 2024.

Although I am truly proud of our accomplishments, we have much work in front of us. I want to take some time to describe our initiatives to shape the future.

Let me start by going over a few initiatives aimed at improving the efficiency of weapons design and production.

A top priority initiative is digital engineering. We are standing up an enterprise-wide classified collaborative computing environment along with a repository of digital product information. The digital engineering effort aims to fully enable digital engineering for the W93 program, but earlier modernization programs will benefit as it progresses. This initiative is especially important because it accelerates our ability to communicate seamlessly between design and production agencies, apply AI to improve production processes, identify and

assess anomalies in testing, predict aging effects from surveillance data, and inform future designs. We are driven to make this happen.

Another initiative is the introduction of a Scaled Agile Framework. This initiative seeks to build on the recommendations of a GAO study on federal management of software and IT. Agile processes can reduce the risks of program failure and more quickly incorporate modern technology. The first warhead program to deploy Agile will be the W93.

We are also tackling improvements to manufacturing processes. One example is radiation cases, an integral component of a nuclear weapon. In a familiar theme, NNSA halted production of radiation cases at the end of the Cold War, leading to capability atrophy. While NNSA retains limited legacy radiation case production capabilities, they have high material scrap rate, are labor-intensive, and rely on large and old processing equipment housed in Manhattan Project-era facilities. There are several promising technologies that could increase production efficiency currently under evaluation by Y-12, Los Alamos, and Livermore, with down-selects expected to begin in 2024 and with improved technologies to be used for W87-1 and W93 components.

We have also established construction initiatives to improve as we gain experience. I would like to highlight a few of these.

An initiative underway in the NNSA Office of Instructure, called Build SMART, aims to improve cost estimating and upfront planning, increase partnerships that support delivering projects more quickly, and deliver capability for the complex on time and within budget. Some of the specific activities include tracking weekly execution of projects, establishing partnering sessions, conducting specific deep dives for execution as well as planning, working with others like the Army Corps of Engineers to improve cost estimating, and using Artificial Intelligence to accelerate construction to production phases.

As an example of thinking about construction differently, I want to highlight Campaign 2032 at the Savannah River Site. This is the tagline adopted to get everyone aligned with completing construction of SRPPF in 2032. The reason this is worth mentioning is because it is a substantial departure from the way we've traditionally approached major construction projects. The DOE process focuses more on conservatively estimating cost and schedule for an assumed funding profile than completing a project on a defined timeline. Campaign 2032 identifies long-lead items, acts on activities in parallel, and continuously assesses priorities. Although this may create a less predictable funding profile, it will focus on the fastest project completion and therefore lowest cost. We will need to work closely within the DOE, and with OMB and Congress for this to be successful.

Additionally, we continue to explore new acquisition approaches that can save time and money. For example, the pilot project called MC² has been adopted as a regular approach to design and build commercial-like construction using a tailored 413.3b process to align project oversight with project risk. This approach has been used effectively for emergency operation centers and fire stations around the Complex and will be used for the Digital Infrastructure Capability Expansion (DICE) Facility at Livermore, the Special Materials Facility at Y-12, and the Plutonium Operations and Waste Management Office at LANL. In FY 2023, we received Congressional approval to raise the Minor Construction Threshold by indexing it to inflation on an annual basis. NNSA utilized this new authority this year to raise our minor construction threshold to \$34 million and we are planning another increase for next year. And we are leveraging existing real estate authorities to purchase facilities to provide modern space and expand capacity. For example, at our Kansas City Campus, we are partnering closely with OMB and the Department to work with a developer to build much needed additional manufacturing and office space in a step-wise fashion. These types of initiatives are crucial to establishing capabilities and capacities in time for weapon modernization, and to take full advantage of construction and occupancy trends in the United States.

Now, to the future of nuclear deterrence. In my opinion, it is time that we define the nuclear deterrence needs beyond the mid-2030s. These needs should be fully threat informed and account for integrated deterrence as an operating principle. I was recently at STRATCOM and impressed with the new thinking about integrated

deterrence and preventing escalation. As a community we need to work together to define future systems and the science, design, and infrastructure capabilities that will support them. Along with defining the future systems, we must resist introducing new systems into the already busy next decade to avoid catastrophic failure of our fragile enterprise.

Our deterrence thinking will need to be challenged to create an effective deterrent for two peer adversaries. Although we all recognize that Russia and China are innovating their deterrent capabilities, we have not yet fundamentally changed our thinking. But we know we need to outsmart our adversaries. It is time to begin this effort in earnest, not in panic.

Before I finish, I want to take a moment to talk about nonproliferation beyond our nuclear deterrent. Specifically, I want to mention how our Defense Nuclear Nonproliferation activities and priorities have changed with the new global dynamic.

In the absence of cooperation and physical inspections provided by treaties and agreements, we must advance our detection capabilities. Last year, NNSA reached an important scientific and engineering milestone by successfully conducting a chemical explosive test in P-tunnel at the Nevada National Security Site. This experiment is part of a planned series to advance our ability to detect very low-yield underground nuclear explosive tests around the world.

Additionally, and partially in response to the increased Russian rhetoric about the use of tactical nuclear weapons, we are advancing our ability to detect nuclear explosions from space. NNSA recently delivered the first newly completed next-generation Global Burst Detector payload to the U.S. Space Force. This new sensor will provide an order of magnitude increase in capabilities at reduced size, weight, and power.

We also continue to advance U.S. global nuclear threat reduction leadership, working with the IAEA and others. This work includes cooperation on countering malign state and non-state actor capabilities, advancing the peaceful uses of civil nuclear energy and nuclear technology without increasing proliferation or security risks, minimizing global stocks of excess weapons-usable nuclear material, implementing AUKUS with high nonproliferation standards, and reducing nuclear risks in Ukraine.

I would be remiss if I didn't take a minute to mention the importance of allies and partners in our thinking and planning. Strong partners create a distinct advantage for the United States.

Of course, in our nuclear deterrence efforts, the United Kingdom is our closest ally, and the partnership is as strong as ever. We are in the final stages of renewing our Mutual Defense Agreement, we are closely aligned with our W93 program and their replacement warhead program Astraea, we are working together to create a new development and training center for IAEA safeguards, and we are discussing a mutual resilience strategy for our nuclear deterrent. And importantly, together, we are working to provide Australia with a nuclear-powered, conventionally-armed submarine capability under the AUKUS agreement.

It goes without saying that we remain committed to our Euro-Atlantic partners, including NATO and our Indo-Pacific allies and are only looking to strengthen those relationships.

In addition to our defense partnerships, we are expanding our national security science and technology engagements. During the tri-lateral leaders summit last year, Presidents Biden and Yoon and Prime Minister Kishida announced a tri-lateral S&T program that the NNSA is leading for the United States. I will be in Japan and South Korea next week and intend to sign a Memorandum of Cooperation to implement this commitment.

Of course, the Department of Energy and the NNSA continue supporting Ukraine in energy resilience and to be able to deter, detect, and lower the consequence of any nuclear or radiological event. This work is often done in partnership with others in the U.S. government and partners in the region more widely, and the pace of activity is not slowing down.

NNSA works in more than 120 countries and international organizations to counter nuclear terrorism, detect

nuclear material transfer, and support nonproliferation efforts. NNSA must continue a strong tradition of global partnership in nuclear deterrence and science and technology that evolves to meet the needs of the time and demonstrates U.S. leadership every day.

In conclusion, I am proud of all we are accomplishing in NNSA. We are delivering today and setting ourselves up for success going forward. One thing is clear - in a more dynamic global environment we must be innovative, work smart, and continuously improve. I truly believe the next few decades will be some of the most challenging and rewarding for NNSA. And arguably the most important time for global peace.

Thank you and I look forward to your questions.

National Nuclear Security Administration

1000 Independence Ave., S.W.
Washington, DC 20585

Phone: 202-586-5000

Media Inquiries: 202-586-7371



An office of



RESOURCES



ENERGY.GOV RESOURCES



FEDERAL GOVERNMENT



[Web Policies](#) • [Privacy](#) • [No Fear Act](#) • [Whistleblower Protection](#) •
[Notice of EEO Findings of Discrimination](#) • [Information Quality](#) •
[Open Gov](#) • [Accessibility](#) • [Vulnerability Disclosure Program](#)