

Advance Policy Questions for Marvin L. Adams
Nominee for Deputy Administrator for Defense Programs,
National Nuclear Security Administration

Duties and Qualifications

What background and experience do you possess that qualify you to perform the duties of the Deputy Administrator for Defense Programs of the National Nuclear Security Administration (NNSA)?

I have been engaged in the U.S. nuclear weapons program since starting my career at the Lawrence Livermore National Laboratory (LLNL) in 1986. Since I became a nuclear-engineering professor at Texas A&M University in 1992, I have encountered diverse opportunities to serve U.S. national security, and I have learned from each activity. As a member of the JASON Advisory Group for the last 15 years, I participated in more than 20 in-depth studies of nuclear-weapons activities, issues, and concerns, including studies sponsored by the Department of Defense (DoD) as well as NNSA, serving as study leader for most of them. As an individual “outside” expert, I have performed in-depth reviews for NNSA of several major stockpile-stewardship efforts executed by NNSA’s three national-security laboratories. I have served on numerous review and advisory bodies related to weapons work at those laboratories, and on several National Academies of Sciences, Engineering, and Medicine studies related to nuclear weapons.

During the past four decades, most of my technical effort has focused on improving the fidelity of computational results and combining computational, experimental, and theoretical results to predict the behavior of complex systems, with quantified uncertainties. This is a cornerstone capability of stockpile stewardship. As a member of the Predictive Science Panel since 2004, including three years as Chair, I have helped scientists and engineers at the Lawrence Livermore and Los Alamos National Laboratories address difficult stewardship challenges. I have played a similar role for Sandia National Laboratories through participation in their Predictive Engineering Sciences Panel and the External Review Panel for their hostile-environment simulation project. Many students whose research I directed have become employees of the NNSA laboratories, and most of them work in support of the nuclear weapons stockpile.

In recent years, I have chaired the Mission Committee at the Los Alamos National Laboratory, whose purview includes plutonium pit production in addition to other weapons activities. This role has deepened my knowledge of NNSA’s weapons design and assessment efforts, warhead delivery schedules and mandates, and the production enterprise. I have learned a great deal about topics ranging from the management of large capital projects to supply-chain issues to the detailed science and engineering challenges of producing specialized components (such as plutonium pits) while meeting stringent requirements for quality, safety, and security.

I have viewed NNSA from the DoD perspective, for example as a member of the STRATCOM Strategic Advisory Group’s Stockpile Assessment Team.

These and other activities have led me to appreciate the importance of delivering on all elements of Defense Programs—science, weapons, and infrastructure. I understand the broad portfolio of activities and technologies needed to maintain and enhance the safety, reliability, and effectiveness of the U.S. nuclear weapons stockpile. I understand what it takes to steward the unique capabilities that Defense Programs must employ to design, assess, transport, surveil, dismantle, and produce nuclear warheads, meeting military requirements now and into the future.

Do you believe that there are any steps that you need to take to enhance your expertise to perform the duties of the Deputy Administrator for Defense Programs?

While I believe I have the expertise to perform the duties of the Deputy Administrator for Defense Programs, I also believe I have a responsibility to continuously improve. I have sought and received counsel from current and former leaders in the nuclear weapons enterprise regarding all aspects of Defense Programs, and I will continue this, if confirmed.

Major Challenges and Priorities

What are the major challenges confronting the next Deputy Administrator for Defense Programs of NNSA?

An immediate challenge is to execute current programs within planned costs and schedules. This includes producing the B61-12 and W88 Alt 370 warheads; making timely progress on the W80-4, W87-1, and W93/Mk7 programs; and executing numerous infrastructure projects, including those that will enable pit production at the two chosen sites. A long-standing challenge is to improve responsiveness, an example of which would be to reduce the time required to execute major warhead programs.

If confirmed, how would you address these challenges?

Regarding execution of a challenging workload, if confirmed: I will partner with the NNSA Associate Principal Deputy Administrator in his efforts to improve productivity across the enterprise (for example, by simplifying processes that consume workforce time). I will learn what the NNSA labs, plants, and sites are doing to address their workforce issues, monitor their progress, and partner with them to devise and implement innovative workforce initiatives to address any gaps between progress and needs.

Regarding pit production, if confirmed, I will gain a detailed understanding of the critical path producing at least 80 pits per year, work with experts to develop options for reducing timelines, and pursue options that show promise. Recognizing that schedule uncertainties are inevitable, I will partner with the DoD to devise plans that can

accommodate schedule variations within likely bounds. (The related topic of pit lifetime is addressed below.)

Regarding responsiveness (a goal that has been stated for many years but has remained elusive), if confirmed, I will begin by understanding what has been and is being done to reduce costs and timelines (including in the Stockpile Responsiveness Program). I will seek root causes of previous cost and schedule overruns with the goal of helping current and future programs avoid such overruns.

If confirmed, what would be your main priorities for the Office of Defense Programs?

If confirmed, my top priorities will be to maintain the safety, security, and effectiveness of the warheads deployed in today's stockpile and to deliver on commitments for stockpile modernization. The latter requires development and deployment of a more agile infrastructure, including plutonium pit manufacturing capabilities, and construction of essential infrastructure for secondaries, non-nuclear components, and more. While focusing on these priorities, I will also work to develop and nurture the capabilities that will be needed for the challenges our nuclear weapons enterprise will face in the future.

Relations with Congress

What are your views on the state of the relationship between the Deputy Administrator for Defense Programs and the Senate Armed Services Committee, in particular, and with Congress, in general?

I understand that the Office of Defense Programs has a strong relationship with the Committee and Congress, in general. If confirmed, I will continue to build upon this relationship.

If confirmed, what actions would you take to sustain a productive and mutually beneficial relationship between Congress and the Deputy Administrator for Defense Programs?

I believe that maintaining open lines of communication with Congress is integral to maintaining a productive and mutually beneficial relationship. If confirmed, I will be proactive in sharing timely updates, responsive to requests for information, and will seek feedback from Congress on Defense Programs' efforts.

Nuclear Posture Review Implementation

The Department of Defense is expected to release its Fiscal Year 2023 budget request concurrently with an updated National Defense Strategy. A key element of this strategy will be a Nuclear Posture Review (NPR), for which the NNSA will be responsible for fulfilling the stockpile requirements set forth by the Department of Defense.

If confirmed, will you work with the Department of Defense to implement all of the recommendations of the NPR to the best of the ability of NNSA and inform Congress in a timely fashion of any shortfalls that you anticipate in meeting these requirements?

If confirmed, I will ensure that NNSA works with DoD to implement NPR recommendations to the best of NNSA's ability, and I will keep Congress informed in a timely manner of any issues.

Relationship with the Department of Defense

If confirmed, you will support the Administrator of NNSA as a member of the Nuclear Weapons Council (NWC) and serve as co-chair of the NWC Standing and Safety Committee. The Council establishes NNSA goals and ensures NNSA activities are aligned with DOD military requirements for nuclear forces, which form the basis of the core mission of NNSA. Given the breadth of the nuclear modernization effort currently being undertaken, the Department of Defense is, in a sense, NNSA's primary customer.

How would you assess the relationship between NNSA and the Department of Defense at senior levels?

It is my understanding that NNSA and DoD have a strong relationship and remain in close coordination for all modernization efforts. If confirmed, I will work to ensure that we retain this strong relationship.

Specifically, how would you assess the relationship between the office you have been nominated to lead and the office of the Assistant Secretary of Defense for Nuclear, Chemical, and Biological Programs, the closest equivalent in the Department of Defense?

It is my understanding that the Office of Defense Programs has a strong working relationship with the Office of the Assistant Secretary of Defense for Nuclear, Chemical, and Biological Defense Programs. If confirmed, I will make every effort to keep this relationship strong and keep the two offices closely coordinated.

Do you believe that NNSA is adequately responsive to the requirements set by the Department of Defense?

Yes, to the best of my knowledge, I believe NNSA is adequately responsive. If confirmed, I will work to support continued responsiveness to DoD requirements.

As a result of concern about the relationship between the NNSA and the Department of Defense in meeting stockpile requirements, section 1632(b) of the Fiscal Year 2021 National Defense Authorization Act set a detailed schedule of interactions

between the NNSA and the NWC to ensure the NNSA weapons budget meets DOD requirements.

If confirmed, will you execute to the best of your ability the requirements of section 1632(b)?

If confirmed, I will execute these requirements to the best of my ability.

Defense Programs

The Stockpile Stewardship Program has supported the annual nuclear weapons certification effort for approximately the last 20 years.

In your view, do you believe that we currently have the capabilities to ensure that the stockpile is safe, secure, and effective without nuclear weapons testing?

Yes, I am confident we can continue to maintain a safe, secure, and effective U.S. nuclear stockpile without additional explosive nuclear weapons testing. For over 20 years, the science-based Stockpile Stewardship Program has given the Directors of the National Security Laboratories and the Commander of U.S. Strategic Command the confidence to state this in writing every year. Continued investments in stockpile stewardship capabilities will be critical to maintaining this confidence into the future.

The NWC has laid out a schedule for approximately the next 20 years that includes the completion of four life extension programs (LEPs), a new Navy warhead, as well as multiple refurbishment programs, and the maintenance of the existing stockpile. The 2018 NPR directed NNSA to develop a “roadmap that sizes production capacity to modernization and hedging requirements,” to at least partially help manage this list of programs.

In your view, do you have any concerns with this schedule?

If confirmed, I will review the schedule and work to mitigate any concerns to meet DoD requirements.

If confirmed, do you commit to an ongoing and open dialogue with Congress on the progress and content of the roadmap directed by the 2018 NPR, as well as any changes that may result from the 2022 NPR?

Yes.

The 2018 NPR also noted the need for increased flexibility, including measures to “reduce the time required to design, develop, and initially produce a warhead, from a decision to enter full-scale development.”

If confirmed, what measures would you recommend in order to reduce this timeline, both for currently planned life extension programs and for future programs?

Successful execution and delivery of such programs will rely on a strong foundation that includes workforce, infrastructure, and scientific capabilities. If confirmed, I will work closely with the subject matter experts at NNSA and the labs, plants, and sites to develop clear and attainable recommendations to reduce this timeline where possible. Support from Congress, and timely, stable, and predictable funding are critical to the success of these efforts.

Congress authorized the Stockpile Responsiveness Program (SRP) in section 3112 of the Fiscal Year 2016 NDAA. The purpose of the program is to exercise design and engineering skills in support of the nuclear weapons mission. On August 31, 2021, the Defense Program Advisory Committee (DPAC), released a report entitled “Independent Report on Stockpile Responsiveness Program”.

Have you reviewed section 3112 of the 2016 NDAA, and if so, do you agree with the five objectives of the SRP outlined in section 3112?

Yes, I have reviewed Section 3112 of the 2016 NDAA and agree with the objectives established in law for the Stockpile Responsiveness Program.

Have you reviewed DPAC report, and if so, do you agree with the report’s findings?

I have reviewed the DPAC report and, if confirmed, I will review the Stockpile Responsiveness Program and form opinions about the findings of the DPAC report once my review is complete.

Do you agree with the report’s cover letter, and in particular the statement that “more emphasis is needed on back-end activities of warhead production, engineering and manufacture”?

I have read the cover letter and, if confirmed, I will review the Stockpile Responsiveness Program and form opinions about the cover letter once my review is complete.

If confirmed, would you support the Stockpile Responsiveness Program and make full use of the authorities it provides NNSA?

Yes.

Stockpile Modernization

The National Nuclear Security Administration and the Department of Defense are currently undertaking the most expansive recapitalization of U.S. nuclear forces and

supporting infrastructure in forty years in order to ensure the continued viability of the Nation's nuclear deterrent.

Do you support full funding and timely execution of all aspects of the ongoing nuclear modernization plan and, if confirmed, will you advocate for such efforts to continue?

Yes, and, if confirmed, yes.

Please explain your views and the programmatic risks with the following stockpile programs in meeting DOD requirements and timelines.

B61-12

B83

W87-1

W80-4

W88

W93

As with any program of this size, there are always technical and funding risks. If confirmed, I will work with the subject matter experts involved to identify and mitigate these risks to the extent possible. Support from Congress, and timely, stable, and predictable funding are critical to the success of these programs.

Advanced Computing

Since the Manhattan project, the Department of Energy (DOE) and the NNSA have been world leaders in advanced computing. Section 3172 of the Fiscal Year 2021 NDAA required the NNSA to enter into an agreement with the National Academies of Science on the future of computing beyond exascale. Section 3138 of the Fiscal Year 2022 NDAA requires the NNSA to submit a ten year roadmap on advanced computing.

Have you reviewed sections 3172 and 3138?

Yes.

What is your assessment of advanced computing beyond exascale relevant to NNSA stockpile needs?

Advanced computing is a key element of stockpile stewardship. It enables innovative solutions to complex problems across the field of nuclear security. I am supportive of the agreement with the National Academies of Science. If confirmed, I look forward to reviewing their findings to help inform the best path forward for NNSA in utilizing advanced computing for stockpile needs.

Materials Under Extreme Conditions

The understanding of materials at extreme conditions is essential to the understanding of weapon performance. Specifically, there are several efforts related to plutonium that are underway to understand its behavior under extreme pressures and temperatures as well as understanding the aging mechanisms of plutonium and its behavior under static and dynamic conditions.

What are your views of the Enhanced Capabilities for Subcritical Experiments and the U1a complex enhancement project, 17-D-640? If confirmed, what results do you expect it to provide for stockpile performance?

I believe the Enhanced Capabilities for Subcritical Experiments is a priority for stockpile stewardship. This new set of capabilities, enabled by the U1a complex enhancement project, will enable scientists and engineers to address important stockpile questions that cannot be addressed today.

The NNSA has developed a long-term multi-laboratory roadmap on plutonium aging.

If confirmed, will you review this roadmap?

Yes.

If confirmed, will you ensure it delivers a meaningful understanding of plutonium aging both under static and dynamic conditions for stockpile assessments and modernization?

Yes. If confirmed, I will personally engage on this roadmap and press our subject matter experts to ensure that it delivers the most useful understanding of plutonium (and pit) aging, under static and dynamic conditions, to inform stockpile assessments and modernization.

If confirmed, will you commit to periodically inform Congress on its progress?

Yes.

Inertial Confinement Fusion

Section 3137 of the Fiscal Year 2020 NDAA requires the NNSA to enter into an arrangement to assess the future of High Energy Density Physics program and assess the current and future directions of this program.

Have you reviewed this section?

Yes.

If confirmed, will you and the National Academies brief the congressional defense committees on its findings?

Yes.

Strategic Grade Radiation Hardened Electronics

The NNSA is a leader in the production of high-performance strategic grade radiation hardened electronics.

Please describe the current status of facilities to produce hardened electronics and plans for future upgrades to these facilities.

In my current role, I am not privy to the status of these facilities. If confirmed, I will review and assess the state of these facilities.

Defense Programs Budget

The 2018 NPR noted the presence of “significant infrastructure funding shortfalls [at NNSA] over the next five years” that will need to be addressed in order to meet the needs of the nuclear enterprise. The fiscal year 2021 enacted budget was 18 percent higher than the fiscal year 2020 budget to help address this shortfall, principally in facilities and production modernization. The fiscal year 2022 request was essentially flat and decreased funding for infrastructure and stockpile research, technology and engineering in order to maintain production modernization and stockpile management.

If confirmed, will you commit to advocating for sufficient funding to address the infrastructure sustainment and modernization needs of the Nuclear Security Enterprise?

If confirmed, I will advocate for meeting the most pressing needs of the nuclear deterrent, including infrastructure sustainment and modernization.

Section 179(f)(1) of title 10, United States Code (USC), requires an annual certification to the Senate Armed Services Committee by the NWC for the budget submission for the NNSA. The certification letter for the fiscal year 2022 budget is dated July 23, 2021. Pursuant to section 179(f)(5), a separate letter was sent to the Armed Services Committee on August 9, 2021 by the Vice Chairman of the Joint Staff describing the Commander of the U.S. Strategic Command’s separate views on the adequacy of the budget request, which were attached.

Have you reviewed the fiscal year 2022 NWC certification letter and the letter submitted by the Vice Chairman of the Joint Staff containing the Commander of the U.S. Strategic Command’s views?

Yes.

Do you agree with the warnings included in the NWC’s certification letter?

I agree that recapitalization of our nuclear infrastructure is of the utmost importance, and that it requires stable and predictable funding to ensure there is no increased programmatic risk. If confirmed, I will closely coordinate with DoD to ensure that military requirements are met.

In particular, do you agree with the NWC’s statement that “All NWC members believe that—for FY 2022 only—the DOE/NNSA budget request for Weapons Activities meets nuclear stockpile and stockpile stewardship requirements and contains minimally sufficient immediate investment to ensure a safe, secure, and effective nuclear deterrent. However, NWC members also believe that this budget injects risk into the longer-term schedule required to ensure modernization of the U.S. nuclear deterrent.”

In my current position, I am unable to determine the sufficiency of the Weapons Activities budget nor am I privy to the decisions in formulating it. If confirmed, I commit to thoroughly reviewing the budget to ensure Defense Programs is sufficiently resourced to meet mission requirements.

If confirmed, what do you believe are the specific areas in NNSA’s Office of Defense Programs that will need to be supported at higher levels in the out-years?

If confirmed, I will assess the Weapons Activities portfolio and budget to determine whether higher levels of support are needed in the out-years.

Personnel

As of July 2019, the NNSA projected approximately 260 personnel will be defense programs employees under your direct responsibility. However, this does not include approximately 40-50,000 employees of the operating plants and laboratories responsible for executing the funding for defense programs, which for fiscal year 2021 totaled \$19.7 billion.

What management experience do you have for the federal employees you will directly oversee?

While I have not managed federal employees in my previous positions, I have managed multi-level teams engaged in complex technical tasks; I have helped develop management and operations structures and strategies for NNSA laboratories; and I have actively participated in oversight of management and operations at the Los Alamos National Laboratory, in addition to many other leadership roles.

What management experience do you have to oversee and execute a multi-billion dollar budget spread across three design laboratories, four production plants, multiple simultaneous large capital projects, and the Nevada National Security Site where stockpile experiments are conducted?

While I have not been responsible for executing multi-billion-dollar budgets in my previous positions, I served as Chair of the Los Alamos National Laboratory Mission Committee, responsible for overseeing more than two billion dollars per year in mission execution, including design programs, pit and detonator production programs, multiple simultaneous large capital projects, and experimental and construction efforts at the Nevada National Security Site.

If confirmed, do you believe that the Office of Defense Programs has the appropriate number of civilian employees to perform its mission?

Having ample, stable staffing is critical to the success of all NNSA's mission functions. If confirmed, I will assess the strength and readiness of the workforce within the Office of Defense Programs and work with the Administrator to achieve the staffing levels required to accomplish the mission.

If not, what would be the appropriate size of the civilian staff and what would the additional personnel be able to accomplish that NNSA is not able to accomplish today? Which components would you recommend growing?

If confirmed, I will work with the Administrator to ensure the Office of Defense Programs is resourced appropriately to accomplish its vital national security mission.

What do you believe are the biggest challenges to recruiting, training, and retaining civilian and contractor personnel in this area?

Defense Programs has a vital national security mission and sustaining workforce capabilities and expertise required to execute this mission is critical to success. While I am not able to speak to NNSA's current personnel challenges, I am certainly aware of challenges both in recruiting and retention of personnel in the current job market, especially in highly technical vocations. If confirmed, I will work to bring in new talent and retain experienced personnel to continue to deliver on Defense Programs' mission.

If confirmed, what specific steps would you take to retain critical nuclear weapons expertise among both the NNSA federal civilian and the contractor workforce?

If confirmed, I will look to continue leveraging NNSA's strong partnership with its management and operating contractors, their parent companies, NNSA's strong academic alliances, and other key partners to support workforce recruitment and retention initiatives.

Facilities and Infrastructure

More than half of NNSA's infrastructure is over 40 years old, and some facilities date back to the Manhattan Project. As former Administrator Frank Klotz said in 2017, "If not appropriately addressed, the age and condition of NNSA's infrastructure will put NNSA's missions, safety of its workers, the public, and the environment at risk." Section 3111 of the Fiscal Year 2018 NDAA directed NNSA to establish the Infrastructure Modernization Initiative to reduce the backlog of deferred maintenance and repair needs by at least 30% by 2025. This goal was amended by Section 3116 of the Fiscal Year 2022 NDAA to achieve 45% by 2030.

Have you reviewed sections 3111 and 3116?

Yes.

If confirmed, how would you work with the Associate Administrator for Safety, Infrastructure, and Operations in order to prioritize infrastructure requiring maintenance within the Office of Defense Programs' portfolio?

If confirmed, I will rely on the Associate Administrator to provide advice and recommendations on the prioritization of infrastructure maintenance within the Weapons Activities portfolio. I will also coordinate with them to ensure that Defense Programs needs are understood.

While you will not be responsible for constructing facilities to meet Defense Program needs, if confirmed, you will be responsible for setting facility requirements to meet Department of Defense stockpile needs through the NWC. A thorough understanding of how these requirements translate into facility cost and schedule is essential. If requirements are unrealistic or unstable this will translate into cost and schedule overruns and ultimately the credibility of the stockpile program. Projects such as the Modern Pit Facility, Chemistry and Metallurgy Research Replacement – Nuclear Facility, Uranium Processing Facility, and Mixed Oxide Fuel Fabrication Facility are all examples of past NNSA efforts plagued by cost overruns, schedule delays, and on certain occasion, cancellation.

In your opinion, to what extent did unrealistic requirements contribute to failures in these projects?

If confirmed, I intend to thoroughly review the instances outlined to determine the factors that contributed to issues with these projects. I will ensure that NNSA and DoD remain in close coordination so that all requirements are supported by necessary parties.

To what extent do you believe a lack of funding prioritization may have contributed to inefficiencies in these projects?

I believe stable and predictable funding is critical to the success of any project, and I believe NNSA prioritized funding for these projects in their requests. If confirmed, I will thoroughly review what factors contributed to issues with these projects and apply the lessons learned to avoid such issues in the future.

If confirmed, will you commit to ensuring the committee is promptly informed of significant concerns with the feasibility of achieving major facility requirements, including overviews of likely required resources or statutory/regulatory changes that would be needed to achieve such requirements?

Yes.

DOE Order 413 “Program and Project Management of Capital Assets” governs the acquisition of capital assets exceeding a Total Project Cost of \$50 million. Most, if not all, Defense Program facilities are covered under DOE Order 413.

Have you reviewed DOE Order 413?

Yes.

Please describe the critical decision points under DOE Order 413 and what you believe the predominant risks are associated with each decision point as they pertain to correctly determining a cost and schedule for high hazard defense program facilities.

The Order provides DOE and NNSA with program and project management direction for the acquisition of capital assets, with the following Critical Decision (CD) points:

- CD-0, *Approve Mission Need*: Documents that a mission need has been identified, requiring material investment.
- CD-1, *Approve Alternative Selection and Cost Range*: Determines the selected alternative and approach optimized to meet the mission need. The cost range at CD-1 allows for uncertainty.
- CD-2/3, *Approve Performance Baseline and Start of Construction*: NNSA approves a combined CD-2 and CD-3. CD-2 approves preliminary design and sets the project’s baseline cost and schedule. CD-3 authorizes the release of funds to start construction.
- CD-4, *Approve Start of Operations and Project Completion*: Allows for formal closeout of the project.

If confirmed, I will assess each of the major decision points under DOE Order 413.3B and work to ensure appropriate cost and schedule decisions are made.

In 2014 the Government Accountability Office published “Analysis of Alternatives Could Be Improved by Incorporating Best Practices”, GAO 15-137.

Have you reviewed this report?

Yes.

In your view, what are the major findings and recommendations?

This report found that NNSA does not follow all of GAO's best practices for Analysis of Alternatives (AoA) and that the Office of Acquisition and Project Management should update its project management order requirements to incorporate best practices for conducting an AoA.

In your view, what is the significance of section 3112 of the Fiscal Year 2022 National Defense Authorization Act and how it pertains to GAO 15-37?

Section 3112 calls for the Administrator to ensure that any cost estimate used in an AoA for a project carried out using funds authorized by a DOE national security authorization is designed to fully satisfy the requirements outlined in the mission needs statement approved at CD-0 in the acquisition process, as set forth in DOE Order 413.3B. This relates to the GAO recommendation to use project management best practices for NNSA AoAs. If confirmed, I will look into this requirement more carefully to see how congressional requirements will align with NNSA's current practices and GAO recommendations.

The following Defense Programs capital asset projects are currently covered by DOE Order 413. What is your assessment of each project based on DOE Order 413 and where you see major programmatic risks?

If confirmed, I look forward to working with subject matter experts to learn the details of the status and risks for each project. Stable and predictable funding is key to future milestones for all NNSA major construction projects.

Uranium Processing Facility, Project 06-D-141

Construction of the UPF project continues. My understanding is that four of the seven subprojects have been completed, and that the remaining buildings are under construction and are expected to be complete in Fiscal Year (FY) 2026. As with most large projects there are always technical and funding risks. If confirmed, I will work with the subject matter experts involved to identify and mitigate these risks to the maximum extent possible.

Lithium facility, Project 18-D-690

The Lithium Processing Facility (LPF) project achieved CD-1, which approves alternative selection and cost range, in FY 2020. My understanding is that construction is scheduled to begin in FY 2026.

High Explosives Synthesis Formulation and Pit Production, Project 21-D-510

The High Explosives Synthesis Formulation and Pit Production project achieved CD-1, which approves alternative selection and cost range, in FY 2021 and is under design. My understanding is that construction is scheduled to begin in FY 2024.

Tritium Finishing Facility, Project 18-D-650

The Tritium Finishing Facility (TFF) project achieved CD-1 in FY 2020.

The following efforts are underway to re-establish or expand production capabilities to meet Defense Program needs. Some efforts have been restarted after being dormant for 30 or more years, while others are overextended in capacity. Please describe what you understand are the major programmatic risks and what specifically can be done to overcome these risks.

As with most large projects there are always technical and funding risks. If confirmed, I will work with the subject matter experts involved to identify and mitigate these risks to the maximal extent possible.

Plutonium pit production

Lithium processing

Depleted Uranium processing

High explosives fabrication for upcoming weapons modernization efforts

Expansion of the Kansas City production plant

Re-establishment of a weapons effect and survivability infrastructure

Office of Cost and Program Evaluation

After a series of program failures, section 3221 of the Fiscal Year 2014 NDAA created the Office of Cost and Program Evaluation (50 U.S.C. 2411). The director of the office “shall be the principal advisor to the Administrator, the Deputy Secretary of Energy, and the Secretary of Energy with respect to cost estimation and program evaluation for the Administration”.

Have you reviewed 50 U.S.C. 2411?

Yes.

If confirmed, will you ensure your staff cooperates fully with the office in carrying out its duties consistent with section 1652 of the Fiscal Year 2018 NDAA?

Yes.

NNSA Site Offices

While you will have programmatic responsibility for carrying out the NNSA's responsibility to meet DOD requirements, the NNSA Site Offices are responsible for day-to-day operations of the NNSA sites and ensuring that their operations are carried out in a safe and secure manner while assessing the performance of their Management and Operating contractors.

If confirmed, please describe how you will work with the site offices to meet your DOD programmatic requirements.

If confirmed, I will ensure that I have several touchpoints with the sites and work closely with Field Office Managers to remain aligned on priorities and daily operations to meet DoD programmatic requirements.

If confirmed, will you promptly report any issues with respect to the Site Offices that you believe will encumber your ability to meet your DOD requirements?

Yes.

Plutonium Strategy

Four consecutive administrations have validated the need to reestablish plutonium pit production to ensure the long-term viability of the U.S. nuclear weapons stockpile. Currently, 50 USC 2538a requires the Secretary of Energy to ensure the Nuclear Security Enterprise is capable of producing not less than 80 war reserve quality plutonium pits by 2030.

Do you support the reestablishment of U.S. plutonium pit production capabilities, consistent with U.S. law and Department of Defense requirements?

Yes.

NNSA has selected two sites for plutonium pit production: Los Alamos will produce approximately 30 pits per year and the Savannah River Plutonium Processing Facility (SRPPF) at the Savannah River Site will produce up to 50 pits per year, for a projected two-site total of not less than 80 pits per year.

Do you support the two site solution for reestablishing U.S. plutonium pit production capabilities?

Yes.

What are your views on the Los Alamos site and its capabilities to achieve its pits per year production target to support the demands of the ongoing stockpile program?

The Los Alamos National Laboratory is NNSA's plutonium center of excellence and has produced plutonium pits in the past. If confirmed, I commit to reviewing the plan to achieve pit production in detail.

In your view, what challenges must NNSA overcome to ensure SRPPF achieves its pits-per-year production target to support the requirements of the ongoing stockpile modernization program?

Restoring the Nation's ability to produce pits is a complex, unique challenge. A combination of sustained, reliable funding and outstanding project management is required to ensure the entire portfolio of pit production activities can meet this challenge. If confirmed, I commit to reviewing these efforts, seeking ways to reduce cost and schedule, and assessing the degree to which NNSA has the resources it needs to execute.

Section 3120(e) of the Fiscal Year 2019 NDAA contains detailed certification procedures for the NWC to ensure that the reestablishment of U.S. pit production capabilities are meeting programmatic milestones established by 50 U.S.C. 2538a. In accordance with these statutory procedures, on March 31, 2021, the NWC certified to the Senate Armed Services Committee that the NNSA was on track to meet the 2030 timeline for producing no less than 80 war reserve pits per year.

Subsequently, on August 31, 2021, pursuant to section 3114(b) of the Fiscal Year 2021 NDAA, the Secretary of Energy informed the Senate Armed Services Committee that based on the Critical Decision 1 (CD-1) funding profile of \$3.9 billion, Los Alamos was on track to meet a requirement of 30 pits per year by the 2026-2027 timeframe.

However, on November 30, 2021, the Secretary of Energy notified the Senate Armed Services Committee that "manufacturing 30 War Reserve (WR) pits per year (ppy) during 2026 at the Los Alamos National Laboratory (LANL) in Los Alamos, NM, is achievable, but manufacturing 50 WR ppy during 2030 at the Savannah River Site (SRS) in Aiken, SC, is not achievable. As a result, manufacturing the 80 WR ppy during 2030 as required by 50 U.S. Code 2538a will not be achievable." This analysis was based on the CD-1 cost and schedule range for converting the former Mixed Oxide Fuel (MOX) plant after the NWC letter of March 31, 2021.

On December 23, 2021 the Secretary of Energy informed the committee that the CD-1 cost range was \$6.9 billion - \$11.0 billion with an 85 percent estimate of \$10.2 billion to achieve CD-4 in the FY2032-2035 timeframe. However, this does not include additional time to produce WR qualified pits. The CD-1 cost and schedule for converting the MOX

plant exceeded the Analysis of Alternatives to produce 50 ppy, which was based on a preliminary Engineering Assessment from April 20, 2018, which showed a mean probability cost of \$4.6 billion to achieve CD-4 in the 2026-2030 timeframe. The Senate Armed Services Committee was briefed on this Engineering Assessment in May of 2018 (“Plutonium Pit Production Engineering Assessment Results,” May 2018) to help justify converting the MOX plant for pit production.

Have you reviewed the following documents and statutes? And if not, do you plan to review these documents if you are confirmed?

Yes, I have reviewed the below documents and statutes.

50 U.S.C. 2538a (2014, as amended)

Section 3120 of the Fiscal Year 2019 NDAA

Section 3114 of the Fiscal Year 2021 NDAA

The redacted FOIA version of the April 20, 2018 Engineering Assessment

The May 2018 briefing to the Senate Armed Services Committee

The March 31, 2021 NWC letter to the Senate Armed Services Committee

The November 30, 2021 Secretary of Energy letter to the Senate Armed Services Committee

The December 23, 2021 Secretary of Energy letter to the Senate Armed Services Committee on the CD-1 Independent Cost Estimate for converting the SRS MOX plant to pit production

What are the principal risks to achieving CD-4 for the SRPPF based on the November 30, 2021 and December 23, 2021 Secretary of Energy letters?

The risks associated with completing SRPPF on time are common to many of NNSA’s large construction projects – these include ensuring stable and predictable annual funding and providing sufficient staff to support design and construction activities. Supply chain issues are also a challenge to overcome within the industry. If confirmed, I look forward to reviewing these efforts and risks in much greater detail with the subject matter experts.

If confirmed, what actions will you take to monitor the risks in meeting the Critical Decisions (CD) 1-4 under DOE Order 413 for completing the SRPPF?

If confirmed, I will work closely with the subject matter experts to identify each risk, monitor closely, and mitigate as needed.

Will you commit to promptly informing Congress at first sign that these risks may pose further schedule delays and cost increases?

If confirmed, yes.

Uranium Strategy and Tritium Production

The U.S. government currently requires low-enriched uranium (LEU) in order to produce tritium, as well as for research and isotope production reactor fuel. The Department of Energy (DOE) has maintained as policy that only unobligated LEU can be used for national security purposes, meaning that neither the uranium nor the technology used to enrich it carries an “obligation” from a foreign country requiring that the material be used for only non-weapons purposes. Since USEC ceased enrichment operations in 2013, the DOE has relied upon down blending recycled high-enriched uranium (HEU) to meet requirements for unobligated LEU, but the available supply of recycled HEU for down blending is finite. The United States does not currently have an indigenous uranium enrichment capability.

Do you believe NNSA should build a future capability to address LEU for tritium production only, or for all national security purposes?

If confirmed, I will carefully consider the most effective ways to ensure steady, reliable access to key strategic nuclear materials, including tritium and LEU. These materials are vital for the long-term sustainment of the U.S. nuclear deterrent.

The NNSA is the lead U.S. agency for establishing requirements under the Mutual Defense Agreement between the United States and the United Kingdom to share research and material in support of each other’s nuclear deterrent. In section 3138 of the Fiscal Year 2020 NDAA, the Department of Energy was directed to “determine whether the Agreement [between the United States of America and the United Kingdom of Great Britain and Northern Ireland] for Cooperation on the Uses of Atomic Energy for Mutual Defense Purposes, signed at Washington, July 3, 1958 (9 UST 1028), between the United States and the United Kingdom, permits the United States to obtain low-enriched uranium for the purposes of producing tritium in the United States.”

If confirmed, will you review the response to this section and report back to the Senate Armed Services Committee of your assessment?

Yes.

The 2018 NPR noted that tritium production is now “insufficient to meet the forthcoming U.S. nuclear force sustainment demands,” and added that “a marked increase in the planned production of tritium in the next few years” will be required in order to prevent the atrophy of our nuclear capabilities below requirements.

In your opinion, is NNSA's current tritium strategy, in terms of quantity and schedule, sufficient to support such a marked increase?

As a member of the JASON Advisory Panel, I co-led an in-depth study of this question in 2018, and thus I am familiar with the tritium strategy. In my opinion, I believe the tritium strategy can support this increase. If confirmed, I will thoroughly review the current tritium production schedule, along with risks of interruptions and plans for mitigating interruption, and I will assess this against stockpile needs.

Do you believe NNSA should be investigating alternative tritium production methods besides the current program of providing material for the Tennessee Valley Authority to irradiate in the Watts Bar reactors?

If confirmed, I will thoroughly review options to ensure steady, reliable access to key strategic nuclear materials, including tritium.

Regulation and Oversight

Staff at NNSA's national laboratories have stated that they are overburdened by regulation and oversight, both internal and external, and that this contributes to the challenges in staying under cost and on schedule for major projects.

Do you believe that environmental, safety, and construction regulations are properly applied to NNSA projects and operations?

NNSA's vital missions depend upon a framework of environmental, safety, and construction regulations to protect its workforce, the communities in which NNSA's labs, plants and sites are located, and the environment. Integrating such regulations into operations and project plans can prevent costly compensatory actions.

The framework of DOE requirements and directives has been established and refined over decades of practical experience with inherently hazardous work. This framework provides an excellent foundation which can be built upon by incorporating best practices as appropriate. At the same time, I look forward to working with the Associate Principal Deputy Administrator to see if the implementation of environmental, safety, and construction regulations can be improved such that protections are enhanced while workforce productivity is increased.

In your opinion as someone who has spent most of his career at the laboratories, do these regulations serve the labs and the country well?

Governance and oversight are necessary to ensure safe operations and mission success. NNSA has a strong safety record and has made meaningful enhancements to the governance and management of its labs, plants, and sites. This type of continuous

improvement is vital to the continued health and success of any organization. I believe further improvements could simultaneously improve environmental protection, personnel safety, and workforce productivity, and, if confirmed, I will challenge the organization to find such improvements.

Do you believe the labs are subject to the appropriate level of oversight from NNSA, DOE, the Defense Nuclear Facilities Safety Board, GAO, and/or Congress?

Organizations such as the GAO and DNFSB provide different views and perspectives that are invaluable to achieving NNSA's mission. A cooperative team, working together towards successful mission accomplishment, ultimately provides the labs the appropriate level of oversight. If confirmed, I will work with the Administrator and others to assess the appropriate level of oversight.

If confirmed, are there any changes in regulatory or oversight structures based on your experience that you would recommend?

I believe NNSA should balance governance and oversight with risk and changes. This is vital to NNSA's continued success. If confirmed, I will collaborate with my peers across the nuclear security enterprise to identify and consider changes as appropriate.

Notification of Congress

If confirmed, will you work with the Administrator of NNSA to notify Congress promptly of any significant issues in the safety, security or reliability of the nuclear weapons stockpile?

Yes.

Sexual Harassment

What is your assessment of the current climate regarding sexual harassment and gender discrimination in the NNSA?

Sexual harassment and gender discrimination should never be tolerated in any workplace. I have been pleased to learn that NNSA is taking proactive steps to assess the work environment and address any issues that may be occurring and not being reported.

If confirmed, what actions would you take were you to receive or become aware of a complaint of sexual harassment or discrimination from an employee of the DOE, NNSA, or a component thereof?

If confirmed, I will be committed to creating a workplace that provides a safe and welcoming environment for the workforce. If I receive or became aware of a complaint of sexual harassment or discrimination, I will immediately contact our Office of Human

Resources to ensure that the complaint is reviewed and that the cognizant office begins the process of investigation. If the investigation revealed inappropriate conduct, appropriate disciplinary action would be initiated, up to and including removal from federal service.

Congressional Oversight

In order to exercise legislative and oversight responsibilities, it is important that this committee, its subcommittees, and other appropriate committees of Congress receive timely testimony, briefings, reports, records—including documents and electronic communications, and other information from the executive branch.

Do you agree, without qualification, if confirmed, and on request, to appear and testify before this committee, its subcommittees, and other appropriate committees of Congress? Please answer with a simple yes or no.

Yes.

Do you agree, without qualification, if confirmed, to provide this committee, its subcommittees, other appropriate committees of Congress, and their respective staffs such witnesses and briefers, briefings, reports, records—including documents and electronic communications, and other information, as may be requested of you, and to do so in a timely manner? Please answer with a simple yes or no.

Yes.

Do you agree, without qualification, if confirmed, to consult with this committee, its subcommittees, other appropriate committees of Congress, and their respective staffs, regarding your basis for any delay or denial in providing testimony, briefings, reports, records—including documents and electronic communications, and other information requested of you? Please answer with a simple yes or no.

Yes.

Do you agree, without qualification, if confirmed, to keep this committee, its subcommittees, other appropriate committees of Congress, and their respective staffs apprised of new information that materially impacts the accuracy of testimony, briefings, reports, records—including documents and electronic communications, and other information you or your organization previously provided? Please answer with a simple yes or no.

Yes.

Do you agree, without qualification, if confirmed, and on request, to provide this committee and its subcommittees with records and other information within their

oversight jurisdiction, even absent a formal Committee request? Please answer with a simple yes or no.

Yes.

Do you agree, without qualification, if confirmed, to respond timely to letters to, and/or inquiries and other requests of you or your organization from individual Senators who are members of this committee? Please answer with a simple yes or no.

Yes.

Do you agree, without qualification, if confirmed, to ensure that you and other members of your organization protect from retaliation any military member, federal employee, or contractor employee who testifies before, or communicates with this committee, its subcommittees, and any other appropriate committee of Congress? Please answer with a simple yes or no.

Yes.