Advance Policy Questions for Brent Park
Nominee for Deputy Administrator for Defense Nuclear Nonproliferation,
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 Nuclear Nonproliferation, National Nuclear Security Administration (NNSA)?

For more than 20 years, my professional life has been dedicated to the nuclear security enterprise. As a nuclear physicist and a senior executive serving as Associate Laboratory Director at Oak Ridge National Laboratory (ORNL), I believe I have both the technical knowledge and the management capabilities to lead the National Nuclear Security Administration's Defense Nuclear Nonproliferation program.

I have led and managed complex interdisciplinary science and engineering programs and formulated transformational R&D, built on sound business and operational experience. My work has included collaboration with the U.S. national defense, homeland security, and intelligence communities in the application of advanced technologies to meet national security requirements. As the Director of the DOE/NNSA Remote Sensing Laboratory (RSL), I led efforts to advance and field cutting-edge technologies in support of counterterrorism and radiological incident response for the nation. Additionally, I managed and contributed to basic and applied research programs at Los Alamos National Laboratory (LANL) in the areas of defense nuclear nonproliferation, nuclear emergency search team activities, modeling and analysis for nuclear weapons engineering efforts in support of the stockpile stewardship, nuclear weapons physics, and basic research in physics

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 Nuclear Nonproliferation?

Based on my operational, laboratory and management experience, I personally believe am ready to assume the responsibilities of the Deputy Administrator for Defense Nuclear Nonproliferation**.** However, I also believe in the life-long pursuit of improvement and learning. If confirmed, I will engage frequently with the laboratories, plants, headquarters and the field offices to broaden my understanding of NNSA and DNN requirements and challenges.

Major Challenges and Priorities

What are the major challenges confronting the next Deputy Administrator for Defense Nuclear Nonproliferation?

The United States faces significant proliferation challenges. As the President highlights in the National Security Strategy released last year, the danger from hostile state and non-state actors who are trying to acquire nuclear and radiological weapons is increasing. If confirmed, I would be leading the office on the front lines of protecting the United States from these threats.

The United States currently faces no greater security challenge than the weapons of mass destruction and ballistic missile proliferation activities of the DPRK. In addition, we, along with our international partners, must continue to address the proliferation challenges presented by Iran as well as the dangers of nuclear security in South Asia.

The continued interest in nuclear and radiological material exhibited by terrorists reminds us that we must remain vigilant in our efforts to achieve the highest level of security of these materials globally. I believe we must continue efforts to minimize the use of these materials as possible, protect them where they are needed, and disrupt illicit trafficking of nuclear and radiological material. As part of this effort, the security of Russian nuclear material remains a long-term security interest of the United States.

DNN plays an important role in providing technical and policy solutions to these challenges and, if confirmed, I look forward to building upon DNN's past successes to enhance U.S. national security, consistent with the President's goals.

If confirmed, how would you address these challenges?

I believe DNN must continue to work with the U.S. interagency, international organizations, such as the International Atomic Energy Agency, and our foreign partners to prevent nuclear and radiological materials from falling into the wrong hands. If confirmed, I will ensure that DNN and our national laboratories have the resources and support needed to address the threats posed by DPRK, to ensure that Iran continues to meet its commitments under the Joint Comprehensive Plan of Action, and to secure materials in the United States and worldwide.

Additionally, DNN should continue to look for opportunities to engage Russia on topics of mutual interest within the constraints of the existing legal restrictions.

Finally, I believe that increasing the global reach is among the highest priorities for DNN. For example, DNN's support to the negotiation of 123 Agreements, export licensing, and multilateral export control regimes such as the Nuclear Suppliers Group, DNN ensures that U.S. nonproliferation standards are mirrored by our partners and other suppliers globally.

If confirmed, what would be your main priorities?

Addressing the threats from DPRK and Iran are top national security priorities for the United States and they will continue to be my top priorities if I am confirmed as Deputy Administrator for Defense Nuclear Nonproliferation. I firmly believe that the security

and proliferation threats posed by the DPRK and Iran affect every nation, not just the United States and our allies.

Just as important, however, is to keep materials out of the reach of non-state actors. Terrorist groups have demonstrated interest in nuclear and radiological materials and the expertise needed to weaponize them, and the use of chemical weapons by ISIS indicates a willingness to employ WMD against civilian populations. If confirmed, the security of these materials, the prevention of nuclear smuggling, and working with our partners to ensure sustainability, will remaintop priorities.

A major priority for nuclear nonproliferation programs at DNN, and in support of the President's objectives, is achieving and maintaining a balance between the promotion of legitimate nuclear commerce and controlling the spread of weapons usable material, equipment, technology, and expertise. DNN's nuclear nonproliferation programs play a critical role in helping ensure that such exports take place in accordance with the highest nonproliferation standards.

Defense Nuclear Nonproliferation (DNN) includes a diverse portfolio of nonproliferation programs, subprograms, and activities.

What criteria would you apply and what processes would you follow to establish priorities and evaluate tradeoffs in investment between the various DNN commitments?

I believe DNN's core program areas work in concert. If confirmed, I will evaluate strategic reviews to assess progress, determine strategic direction, and recalibrate milestones and goals of the respective programs' missions, if needed, in light of the dynamic international threat environment.

Relations with Congress

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

I understand DNN has a good relationship with the Senate Armed Services Committee and Congress. However, I will work to strengthen those relationships with open and frequent communications.

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

Open and frequent communications is key to a successful relationship. If confirmed, I am committed to ensuring communications with the Committee and Congress.

Big-Picture Issues

In what ways do you see the United States exercising its global leadership on nonproliferation issues, and what would you do as head of DNN to advance, and balance, both U.S. interests and the global nonproliferation regime?

The United States has long been a leader in the global effort to combat nuclear proliferation. I understand DNN has led efforts to secure nuclear material around the world, build international partnerships to raise barriers against the illicit transfer of proliferation sensitive technologies or materials, and to eliminate excess highly enriched uranium and separated plutonium.

As I stated previously, a major priority for nuclear nonproliferation programs at DNN, and in support of the President's objectives, is achieving and maintaining a balance between the promotion of legitimate nuclear commerce and controlling the spread of weapons usable material, equipment, technology, and expertise.

If confirmed, among my priorities will be to continue to work with American companies so that they may engage in civil nuclear commerce around the world, while also ensuring our international partners remain committed to the peaceful use of nuclear technology. I will also use DNN's resources, including the DOE National Laboratories, to continue to keep materials beyond the reach of non-state actors. Together, our resources and leadership help to strengthen the nonproliferation regime and ensure peace and stability.

The Treaty on the Non-Proliferation of Nuclear Weapons (NPT) regime has been challenged since the Treaty entered into force in 1970, and the divisions between the nuclear weapons states and the non-nuclear weapons states are becoming more apparent, exemplified by the conclusion of the Nuclear Weapons Ban Treaty in the last year.

What do you see as your role, if confirmed, in strengthening support for the NPT and the nuclear nonproliferation regime at this time of stress?

I believe DNN plays an important role in the development of innovative technical and policy solutions to help strengthen the NPT regime. If confirmed, I look forward to working with the talented experts within NNSA and our national laboratories, and our colleagues in other U.S. departments and agencies, to achieve the Administration's goal of strengthening the NPT regime.

If confirmed, what will be your role in mitigating the international perception that the United States is not committed to its NPT Article VI commitments at a time when the Nuclear Posture Review proposes new weapons and new roles and missions for nuclear weapons?

The Administration has reaffirmed its longstanding commitment to the ultimate goal of nuclear disarmament reflected in Article VI of the NPT. Nevertheless, the Administration's Nuclear Posture Review and National Security Strategy acknowledge the plain reality that international security conditions have deteriorated over the last several years. If confirmed, I look forward to helping the Administration develop ways to advance U.S. goals with regard to the Treaty in a way that recognizes the international security environment and that enhances the national security of the United States and its allies.

What is your position on the Comprehensive Test Ban Treaty (CTBT)?

As I understand it, the United States remains committed to a moratorium on nuclear testing, while continuing to review the Comprehensive Test Ban Treaty. I believe the United States should continue to call on all states possessing nuclear weapons to declare or maintain a moratorium.

The CTBT Organization (CTBTO) has, among its organizational goals, achieving universality of the treaty.

Do you agree with this goal? If yes, how might DNN support its attainment? If not, what do you think the United States' role should be in continuing to work with the CTBTO?

As indicated above, I believe the United States should continue to call on all states possessing nuclear weapons to declare or maintain a moratorium. While I do agree with the goal of no nuclear explosive tests anywhere in the world, I strongly agree with the President that our first priority is to protect the United States, its allies, and its partners.

Fissile Material Disposition

The fissile material disposition program, under which the United States and Russia each committed to dispose of 34 metric tons of surplus weapons-grade plutonium, has been plagued by numerous problems and delays. Construction of the MOX fuel fabrication facility is a major construction project that is a substantial portion of the NNSA nonproliferation budget request.

Is the Plutonium Management Disposition Agreement still viable and relevant? If yes, what steps would you take to preserve and implement it? If not, what would be your plan for the excess plutonium once subject to the agreement?

It is my understanding that Russia has suspended the PMDA and placed unreasonable requirements on its resumption, including: 1) reduction of military infrastructure and manpower in certain NATO countries; 2) repeal of the Magnitsky Act and Ukraine Freedom Support Act; 3) cancellation of all sanctions; and 4) compensation of all damages incurred as a result of sanctions.

If confirmed, I am committed to ensuring that NNSA meets its legal obligations.

NNSA is currently working on a lifecycle cost estimate for the dilute and dispose alternative for disposing of the 34 metric tons of plutonium.

Based on your experience, do MOX and dilute and dispose approaches compare in terms of the amount of funding each will require on a yearly basis?

I understand a life cycle cost estimate is currently underway. If confirmed, I will thoroughly review the information.

Assuming that DNN worked with Department of Energy officials overseeing the Waste Isolation Pilot Plant (WIPP) in developing the dilute and dispose strategy, what steps do you believe are necessary in order to allow for the disposal of all of that plutonium at the WIPP?

I understand that the Department of Energy (DOE) recently submitted a permit modification to the New Mexico Environment Department to address capacity issues at WIPP related to this issue.

International Atomic Energy Agency (IAEA) and Safeguards

The IAEA is integral to verifying Iran's compliance with its commitments under the Joint Comprehensive Plan of Action (JCPOA).

What is DNN's role in supporting the IAEA to play a viable part in its mission, while maintaining the agency's independence and without making it reliant on any one member state?

In partnership with the DOE national laboratories and Department of State, I understand DNN provides many training courses to the IAEA each year. DNN also supports five DOE laboratories as part of the IAEA's Network of Analytical Labs (or NWAL), develops cutting edge technologies and capabilities with the IAEA to measure, monitor, and track safeguarded nuclear materials and facilities, and provides considerable expertise from the DOE Complex.

Do you believe that the IAEA will be able to reach a so-called "Broader Conclusion" with respect to the peaceful nature of Iran's nuclear program by October 2023—the date when the United States and the European Union will take steps to eliminate nuclear-related sanctions on Iran?

As I understand it, "Broader Conclusion," is a complex and time-consuming process. One aspect that is important for the IAEA to be able to draw a Broader Conclusion is the level of cooperation. The more cooperation and transparency a country provides, the easier it is for the IAEA to draw a Broader Conclusion; the less cooperation and transparency a country provides, the harder it can be.

Nuclear fuel reprocessing programs in East Asia, particularly Japan, have created a glut of fissile material in the region and have added to the IAEA's safeguards burden.

Do you believe the IAEA is adequately resourced to effectively apply safeguards on reprocessing programs?

I believe in the current climate, and with support from various countries, including Japan, the IAEA is positioned to be able to effectively safeguard fuel cycle activities in the region, including reprocessing in Japan.

What is DNN's role in assisting the IAEA to develop safeguard techniques and technologies applicable to reprocessing programs?

DNN and the DOE National Laboratories maintain a robust safeguards R&D program to assist the IAEA in meeting its technical and technology challenges. I understand they provided numerous technical and monitoring approaches to support the IAEA's mission, including among other things, unattended and remote monitoring systems, advanced nuclear material measurement and analytical instruments, process monitoring capabilities, to assist the IAEA in effectively and efficiently safeguard these facilities.

What other concerns, if any, do you have with reprocessing and plutonium accumulation in East Asia and elsewhere?

For countries that are reprocessing, there must be a credible and timely disposition pathway to minimize the accumulation of plutonium. And, of course, until that material has been disposed of in a manner that is consistent with nonproliferation objectives, it must be secured to prevent its theft or misuse.

What are some other emerging challenges for the international safeguards regime/IAEA safeguards and how might DNN's work contribute or be leveraged to meeting those challenges?

Advanced fuel cycle facilities, including those where independent nuclear material accountancy measures pose additional challenges are of concern. I understand that DNN works with the IAEA and various countries to instill a "safeguards by design" approach to such new facilities.

<u>Nuclear Material Security</u>

What strategy, if any, has NNSA developed for prioritizing its nuclear security activities so that the material that poses the highest risk is identified and addressed first?

I understand several of NNSA's offices have undertaken efforts to analyze and prioritize material inventories in order to inform future planning. Additional information, such as

assessments on corruption and state fragility are also considered to take into account all relevant factors that could lead to loss of control of nuclear material.

Given the current freeze in nuclear security cooperation with Russia after billions of dollars in nuclear material protection, control, and accounting invested, what faith should we have, if any, that this sizable investment in nuclear security at dozens of Russian facilities is being sustained by the Russians?

Given the size and scope of Russia's nuclear enterprise, I continue to be concerned about the vulnerabilities of nuclear material from Russia that could pose a serious threat to U.S. and global security.

What visibility does DNN have on Russian efforts to sustain the equipment and technology we have provided, and what more in your view should DNN be doing to sustain those investments?

I understand that engagement with ROSTECHNADZOR, Russia's nuclear regulator, and some nuclear facilities continues through participation in nuclear security best practices exchanges, and evaluations of changes in Russian regulations and inspection practices. If confirmed, I believe this work should be continued and potentially expandedwithin the legal constraints.

What, in your view, are the other areas of nuclear security and nonproliferation cooperation that could be sustained or initiated with Russia in the next five years?

I understand that DNN continues to have success cooperating with Russia to repatriate Russian-origin HEU from third countries. Work remains in this area, and I hope will continue, to consolidate and eliminate these nuclear materials.

Significant progress has been made over the past two decades to improve security over vast amounts of vulnerable nuclear material or to consolidate fissile material to fewer, more secure locations. Some of the remaining countries have been unwilling or reluctant to cooperate with us and the DNN nuclear material security programs.

Do you believe efforts to secure fissile material around the world have run their course?

There are still significant materials that need to be better protected. We must consider nuclear material security as an enduring mission in the U.S. national security interest. I believe DNN must continue its efforts to ensure nuclear security programs remain effective, that nuclear newcomers integrate security into civilian nuclear power programs starting at the planning stage, and, most importantly, weapons-usable nuclear material is secure.

How do you believe we should address cases where countries have been unwilling to cooperate, what would you do differently, and what new strategies would you employ, if confirmed?

I believe we need to continue to pursue direct and indirect relationships with these countries. DNN has been successful in facilitating nuclear security cooperation with some countries that are unwilling to cooperate bilaterally by working through the International Atomic Energy Agency (IAEA). I would continue to support that agency. If confirmed I will work with the interagency to devise creative solutions and new strategies to tackle these outstanding priorities. This may involve reaching out to other U.S. government agencies to see what leverage or incentives could be brought to the table to encourage countries to engage.

With the end of the Nuclear Security Summits, what are your thoughts on how international consensus building and dialogue on nuclear security can continue between the United States and senior leadership of key foreign governments? What models or mechanisms would you propose?

The United States continues to play a key role in the Nuclear Security Contact Group, which comprises a group of more than 40 countries that monitor trends in nuclear security as well as accomplishments that have been achieved in securing and eliminating nuclear material. I would support continuation of that group as well as bilateral groups established between DNN and their international counterparts for similar purposes.

This administration has emphasized working with other countries on a bilateral basis. In your view, what are the top five countries with which the United States needs to work most closely bilaterally on nuclear security technical and policy issues, and what are the most pressing issues that need to be addressed with each of those countries?

Given the amounts of weapons-usable nuclear material held, the top five priority countries, in my view, are Russia, China, India, Pakistan, and South Africa. With the exception of South Africa, each of these countries have various facilities with sizeable material holdings. Additionally, the evolving threat environments in each of these countries requires continued attention to security.

In your view what are the guidelines and objectives that should be part of developing nuclear security cooperation with China? India? Pakistan?

I understand that DNN has participated in bilateral or multilateral nuclear security cooperation with all three countries and is continuing to build and expand these relationships as possible. The focus remains on capacity building with partner countries to reinforce sustainability of upgrades and the need to continuously improve nuclear security, with support for limited nuclear security upgrades on a case-by-case basis.

What is the role of NNSA-sponsored Centers of Nuclear Security Excellence in engaging such countries, and what tangible results have you seen from those centers?

A Nuclear Security Support Center (NSSC) is a centralized location where a country or region can send professionals for training in various aspects of nuclear security, from physical protection and material control and accounting to nuclear security culture and cyber security.

I understand DNN is working with Argentina, China, India, Japan, Kazakhstan, and the Republic of Korea to develop national training centers that will help sustain and spread effective nuclear security principles globally.

Historically, efforts to minimize, inventory/account for, and secure nuclear materials have focused on civilian stockpiles to the exclusion of military stockpiles. Crossover between civilian/military nuclear programs is problematic.

What is DNN's role, if any, in addressing the dangers posed by military fissile material stockpiles?

The United States role is not limited to civilian nuclear materials. Consolidation of materials to fewer locations, applying the highest standard of security in storage and transport, and developing sophisticated methods to account for materials – are equally valid for civilian or military stockpiles.

As with other nuclear materials security programs, DNN has significant accomplishments in terms of converting research reactors to run on low-enriched uranium. However, a number of highly enriched uranium-fueled reactors continue to operate around the world, and converting some of these reactors presents greater technological and other challenges than NNSA has previously encountered in other reactor conversions, including strong political resistance to such conversions.

How should DNN approach these challenges?

I understand DNN has converted or verified the shutdown of many highly enriched uranium (HEU) -fueled research reactors worldwide, including some in the United States. DNN should continue to work with the IAEA and other partner countries to identify alternative options to bilateral engagement where there are political challenges in converting the reactors. DNN should continue to closely monitor each of those countries to ensure that we are prepared to engage with the relevant political and technical experts in those countries should the opportunity arise for bilateral cooperation.

DNN has an ongoing program to replace Cesium-137 blood irradiators in hospitals, but this program is modest and faces limitations.

Do you believe DNN has the capacity for a more comprehensive program?

DNN does have the capacity for a more comprehensive program and in fact, I understand that DNN has been expanding this program. The President's FY19 budget request further increases that number of replacements.

Additionally, while the focus remains on domestic cesium irradiator replacement, I understand there are more is planned internationally under the Global Cesium Security Initiative (GCSI).

If confirmed, how do you plan on overcoming the program's limitations?

If confirmed, I plan to continue to prioritize this program as indicated in the President's FY19 budget request. My goal would be to have this program keep up with the increasing demand for irradiator replacements.

The fall of Mosul revealed that ISIS was in close proximity to many sources used for commercial and medical purposes.

What are your views on securing nuclear materials and their borders in the Levant?

I believe DNN's Office of Global Material Security has robust security cooperation countries across the Levant (Israel, Jordan, and Lebanon) as well as countries in the broader Middle East (Algeria, Iraq, and Oman). While I understand that the safety of our experts remains a challenge in addressing some of these materials in-situ, there are other opportunities for training and technical exchanges that can enhance security in key countries.

Former Soviet states that border Russia have historical trade and smuggling routes that stretch from the Russian border to the Levant.

What are your perceptions of nuclear smuggling in these regions and what do you believe NNSA should or should not be doing to control nuclear smuggling in this region and along these routes?

FSU partners should be a major priority for DNN, given the historical threat within these countries along with the connection to global smuggling networks, including in the Levant. The pathways within and between these regions should remain a high priority, especially in light of the emergence of adversaries with an intent to obtain WMD material, and geopolitical conflicts that have led to the expansion of uncontrolled territory.

Nuclear Cooperation Agreements and Export Controls

The United States is working on a nonproliferation agreement with Saudi Arabia under section 123 of the Atomic Energy Act.

Do you believe Saudi Arabia should be allowed to reprocess spent nuclear fuel or have the ability to enrich uranium?

I am currently not aware of the status or details of any negotiations on a 123 agreement with Saudi Arabia.

What proliferation risks do you see from such an agreement, and what would be DNN's role in managing these risks?

I am currently not aware of the status or details of any negotiations on a 123 agreement with Saudi Arabia.

In spite of process improvements, DNN has faced criticism from the nuclear industry for its implementation of 10 C.F.R. Part 810 regulations controlling the export of civilian nuclear technology.

What ideas do you have for improving the implementation of Part 810, and how would you go about implementing them, if confirmed?

As a senior manager at Oak Ridge National Laboratory, I have experience ensuring that laboratory activities such as international engagements, publications, and foreign visits are fully compliant with the requirements of Part 810 and other export control rules. If confirmed, I will work to ensure the effective implementation of the Part 810 regulations in order to achieve U.S. nonproliferation goals while, at the same time, helping to facilitate U.S. exports.

In the debates surrounding Part 810, which implements section 57(b) of the Atomic Energy Act, there is disagreement as to the extent to which some of the controlled technologies—such as some types of light-water reactor technology—pose a proliferation risk. To what extent do you believe that export controls should cover such technologies?

I understand that the Atomic Energy Act covers all technologies that may result in the direct or indirect development or production of special nuclear material. Because nuclear reactors can produce plutonium in their operation, I understand that such technology would fall within the scope of the Act.

How does one ensure enforcement with export control licenses and conditions when it is increasingly common for end users to change affiliations?

I believe DNN works to build U.S. and global export control capacities to detect and prevent the illicit or inadvertent transfer of nuclear and dual-use materials, equipment, and technology to suspect or proscribed end users. Through the use of national laboratory expertise and in close collaboration with the Departments of State and Commerce, DNN promotes and pro-actively addresses proliferation risks by conducting

thousands of technical reviews of U.S. dual-use export license applications with a focus on end uses and suspect end users.

In addition, the effective enforcement of export controls must include active engagement between the U.S. Government and U.S. companies. If confirmed, I look forward to developing measures, in partnership with our licensees, to ensure that the changes noted in your question to not undermine our nonproliferation goals or impact negatively the licensees' business operations.

If confirmed, how would you address the challenges posed by increasingly sophisticated illicit procurement networks that can get around export controls?

I would work with Congress to ensure that the range of DNN activities that support the U.S. interagency's regulatory and interdiction efforts are appropriately funded. This includes support to U.S. interdiction casework and analysis, coordinated with the Department of State (DOS) and other agencies. This also includes training of U.S. enforcement agencies to familiarize them with controlled nuclear and dual-use material, equipment, and technology, which could be used for WMD purposes; and, in collaboration with DOS and the World Customs Organization, providing similar training to foreign partners so that they can detect and deter illicit procurement activities.

If confirmed, I will work closely with my counterparts in law enforcement to ensure that NNSA is taking every step we can to facilitate their work, including through appropriate information-sharing.

How would you substantiate the claim that the United States must maintain a leadership role in the global nuclear industry in order to maintain leadership in global nonproliferation efforts?

Leadership in nuclear exports, including both physical exports, technology, and the provision of assistance and expertise, is fundamental to ensuring the highest nonproliferation standards are observed globally. In order for the United States and its companies to regain their leading role in the global civil nuclear industry, I will work to identify ways to more effectively achieve the longstanding U.S. goals of advancing U.S. exports through the implementation of nuclear agreements that achieve the highest nonproliferation norms.

How does this argument frame the role of the Nuclear Suppliers Group (NSG) in maintaining global standards?

As a leading supplier of NSG controlled items, and at the forefront of innovation in these industries, the United States, and DOE in particular, has a responsibility to shape NSG priorities on future technology controls, shape the review of existing and potentially outdated controls, and to facilitate open and regular communication between industry and the NSG.

These priority areas will seek to streamline NSG controls, fill growing or emerging regulatory gaps, eliminate regulatory burdens where no or little risk exists, and provide an open and consistent channel of communication to allow the NSG to adapt to changing technical, proliferation, and commercial practices and realities.

What ideas do you have for strengthening the NSG export guidelines, and what would be DNN's approach for doing so, if you are confirmed?

I understand a significant priority for DNN is the maintenance and close review of control lists. DNN should continue to work on a regular basis to ensure these lists appropriately control all viable pathways to fissile material production and weaponization.

NNSA has previously advocated for India's membership to the NSG, which has in turn led Pakistan to advocate for its membership.

Do you support India's and/or Pakistan's membership to the NSG?

Decisions on NSG membership should be taken individually and on the basis of the individual merits of each application.

If you are confirmed, what would be DNN's role in advocating for or against their membership?

DNN should continue to provide technical and policy guidance to U.S. participation in the NSG on a range of issues. On matters related to membership for applicants that are not States Parties to the Nuclear Non-Proliferation Treaty, DNN should continue to support U.S. participation in discussions within the group on a membership framework for non-NPT Parties.

<u>Nonproliferation Research and Development</u>

Public reports appear to indicate that North Korea made technological advances in its nuclear program that came significantly earlier than anticipated.

What, if any, potential areas for growth in proliferation detection or nuclear detonation detection do you see that could improve our ability to assess the advances made by North Korea or other aspiring weapons states?

Detecting the signatures of material production and movement, weapons development, and nuclear detonations—and understanding their interconnections—are essential to identifying state and non-state efforts to develop or acquire nuclear devices or weapons-usable nuclear materials.

I believe there is a need for increased emphasis on technologies dealing with the identification of small or nascent nuclear weapons programs; on distinctions between strategic and non-strategic assets; and on application of new technologies applied in non-traditional fashions to obtain a wider range of proliferation signatures. There is a need for continued improvement of radiation detection capabilities because, while radiation detection equipment has had limited use in arms control treaty verification, future needs call for more intrusive approaches to provide confidence of compliance and to distinguish between nuclear warhead types.

There must be continued emphasis on adaptation of "multi-intelligence" fusion and exploitation tools, to include adaptation of conventional war-fighting intelligence, surveillance, and reconnaissance ("ISR") advances to nuclear monitoring applications. And finally, there must be continued emphasis in the development of dynamic and autonomous networks to provide better information from current sensors, and in the application of data science to provide new signatures or exploit new sources. These technologies have the potential to provide earlier warning of proliferation and provide better characterization of proliferant capabilities.

While many agencies and offices across the U.S. government are tasked with addressing proliferation concerns, DOE/NNSA has the responsibility to develop technical detection capabilities that address current and projected threats to national security posed by the proliferation of nuclear weapons and diversion of special nuclear material. DOE/NNSA must continue to prioritize the development of the nation's nuclear proliferation detection and monitoring mission capabilities, investing in near- and long-term efforts that advance innovative capabilities in the national labs, academia, and industry to support and sustain solutions for the difficult challenges ahead. And while all these challenges are significant, they are not insurmountable. The DOE/NNSA must continue its ongoing belief in the importance of sound investments in technology R&D to support detection and verification efforts for nonproliferation and arms control regimes and its firm commitment to harnessing the power of science to minimize nuclear threats around the world.

The Government Accountability Office (GAO) and others have reported on issues affecting the nonproliferation research and development capacity in the NNSA nuclear security enterprise, including deteriorating facilities, stagnant or diminishing production capacity, a retirement-driven "brain drain," and a constrained resource environment with many competing priorities.

What complex-related priorities should NNSA focus on to ensure continued capability and advancement in the nonproliferation area?

I believe, maintaining the core competency of the workforce across the enterprise should be a priority for NNSA, as a significant portion of the workforce, specifically scientists, engineers and technicians, are approaching retirement in the next five years. To retain critical nuclear weapons expertise, and cross train the workforce, I will work to ensure that the nuclear security enterprise continues to employ the brightest and the best by

recruiting, retaining and growing the highly skilled workforce needed to maintain the U.S. nuclear weapons stockpile.

Further, more than half of NNSA's facilities are over 40 years old, and nearly 30 percent date back to the Manhattan Project era. I believe we must work tirelessly to meet the long-term challenges of modernizing NNSA's infrastructure.

Budget Execution and Program Management

The President's budget request for fiscal year 2019 for NNSA nonproliferation programs is significantly lower than in previous years.

If confirmed, what steps would you take to prioritize resources to ensure the maximum programmatic benefit?

If confirmed, I will take steps to ensure that DNN's mission is adequately funded to address the President's national security priorities, while striving to utilize our funding appropriately and efficiently. If confirmed, I will also continue to draw upon the DOE National Laboratories to maintain state-of-the art capabilities to protect our country. Finally, to truly achieve maximum programmatic benefit, I would take steps to maintain effective communication internally, with the DOE National Laboratories, with the U.S. interagency and our international partners, improve DNN's internal processes, and strengthen DNN project and program management.

DNN has made progress in recent years in providing transparency to the cost and schedule for some programs by issuing its annual strategic plan to reduce global nuclear threats. However, as reported by GAO in 2017, some DNN programs lack cost and schedule baselines or baselines change annually, and programs generally lack information that compares actual program performance against baselines.

What do you believe is the appropriate degree of program management that DNN should have to ensure its programs can demonstrate performance against cost and schedule commitments while also acknowledging the uncertainty of its operating environment—for example, its dependence on international partners to accomplish its mission?

I firmly believe that DNN's ability to meet the President's national security objectives is hinged upon comprehensive, responsible program management, complemented by sound financial and fiscal management principles. Operating within an international environment will carry a certain level of uncertainty and risk that may impact scope, cost, and timelines. If confirmed, I will ensure that DNN continues to apply and document the best and leading practices in program management, while considering the uncertainty impacting scope, timelines, and execution.

To what extent would you support a requirement for all DNN programs to establish life-cycle cost and schedule baselines and measure performance against those baselines in its annual report?

I understand DNN currently implements elements of life-cycle program management where appropriate and reasonable, and if confirmed, I will continue to support this approach.

As a manager in several Department of Energy/NNSA institutions, how did you identify units or processes that were not working as intended or achieving results, and how did you go about making changes to them?

Metrics available to leadership make it easily recognizable when a program is headed for failure. The bigger challenge comes with implementing changes for course correction. In my experience, poorly executed programs tend to focus on the early phase of proving concepts without fully incorporating life-cycle costs that come with long-term operations and maintenance. More often than not, the point of failure occurs when requirements are not very well defined, communicated or understood from the early stages. When it comes to change implementation, I highly value subject matters experts with hands-on experience in both technical and program management to guide the steps for course correction. I fully understand that for any change to be effective, consistent, coordination and communication with all internal and external stakeholders is imperative.

What sort of approach might you take with some of the programs managed by DNN?

I believe that active communication, clear expectations, tasks and objectives are all key to managing a successful program. Ensuring that subject matter experts with hands-on technical and management experience bring their capabilities and experience to bear is vital. If confirmed, I will place the highest priority on ensuring DNN has the right skills and knowledge, that we are training the next generation workforce and that we are developing NNSA's and DNN's future leaders.

Congressional Oversight

In order to exercise its legislative and oversight responsibilities, it is important that this Committee and other appropriate committees of Congress are able to receive testimony, briefings, and other communications of information.

Do you agree, if confirmed, to appear before this Committee and other appropriate committees of Congress?

Yes.

Do you agree, if confirmed, to appear before this Committee, or designated members of this Committee, and provide information, subject to appropriate and necessary security protection, with respect to your responsibilities as the Deputy Administrator for Defense Nuclear Nonproliferation?

Yes.

Do you agree to ensure that testimony, briefings, and other communications of information are provided to this Committee and its staff and other appropriate committees in a timely manner?

Yes.

Do you agree to provide documents, including copies of electronic forms of communication, in a timely manner when requested by a duly constituted committee, or to consult with this Committee regarding the basis for any good faith delay or denial in providing such documents?

Yes.

Do you agree to answer letters and requests for information from individual Senators who are members of this Committee?

Yes.

If confirmed, do you agree to provide to this Committee relevant information within the jurisdictional oversight of the Committee when requested by the Committee, even in the absence of the formality of a letter from the Chairman?

Yes.