Senate Armed Services Committee
Advance Policy Questions for Ms. Corey Hinderstein
Nominee to be 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)?

I have more than 25 years of experience focusing on nuclear nonproliferation, nuclear security and the nuclear fuel cycle. My experience includes close working relationships with the DOE, NNSA and other key elements of the U.S. national security enterprise, including the national laboratories and the State Department. I have developed and implemented international projects working with partners and allies and had oversight and governance responsibilities for such projects. In short, I have devoted my career to the issues that fall in DNN's portfolio and, if confirmed, I would be prepared to step into this important role, working closely with the DOE and NNSA leadership, the career staff at DNN and stakeholders across the U.S. interagency, the Congress and the international community.

If confirmed, 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?

The Deputy Administrator is responsible for substantive and strategic leadership, management of a diverse team, and stewardship of a large budget on behalf of the American taxpayers. If confirmed, I would balance early action with learning. I have been out of government since December 2017, and it would be presumptuous to think I could start on day one with all the knowledge needed to execute this important mission. In close collaboration with the NNSA and DOE leadership, and the career staff, it will be important to come up to speed quickly and begin to provide strategic guidance. The threats and challenges that DNN works are not on hold, but it is also important to act from a position of information and good judgement. If confirmed, I also would have a responsibility to the federal and contractor workforce of DNN and will want to understand their issues and challenges so that I can help them be more effective meeting the mission.

Major Challenges and Priorities

In your view, what are the major challenges confronting the next Deputy Administrator for Defense Nuclear Nonproliferation?

We face a complex and dynamic strategic environment that poses significant challenges to the nuclear nonproliferation, nuclear security, and arms control regimes. These

challenges include strategic competition from such adversaries as Russia and China, states seeking to improve their nuclear capabilities, such as Iran and North Korea, the potential for terrorist acquisition of nuclear or radioactive materials, and staying ahead of emerging technologies and new uses of existing technologies that could lower barriers to proliferation.

If confirmed, how would you address these challenges?

If confirmed, I would begin by reviewing and understanding DNN's current and planned activities and then identify opportunities to accelerate work to match the threat environment or begin new initiatives to address these challenges.

If confirmed, what would be your main priorities?

If confirmed, my main priorities would be maintaining and build upon DNN's core technical competencies so that DNN is ready to play our unique role in meeting not only the enduring challenges, but also those we may face in the future. In order to do this, we may also need to develop our current workforce and plan for future needs. Orienting DNN towards our most pressing national security challenges will require taking a "one house" approach with colleagues in other parts of the Department, such as the offices of science and nuclear energy, and with the rest of NNSA. If confirmed, I would also seek close coordination with the interagency and with Congress.

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?

The President has established the priority to renew U.S. nonproliferation leadership and reduce the dangers posed by the proliferation of nuclear weapons, as well as the threat of nuclear terrorism. DNN programs are a critical component of achieving this goal. If confirmed, I would base program prioritization decisions on the contributions of activities to the President's goals, as described inter alia *in the Interim National Security Strategy. I would closely evaluate DNN's strategic plans, and adhering program planning in this, and future, fiscal years to a forward-looking nonproliferation strategy as well as DOE/NNSA's established programming, planning, budgeting, and execution processes. I also would maintain a focus on pragmatic and deliverable program activities that make a specific impact on the security environment.*

<u>Relations with Congress</u>

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 that DNN has always had a strong relationship with its Congressional stakeholders. If confirmed, I would commit to a transparent and responsive relationship with the Committee and the Congress, and expect to continue the excellent support DNN reports that it has received over the years.

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?

If confirmed, I would engage regularly with DNN's stakeholders and partners in Congress, be responsive to requests for information, and provide regular updates on DNN's efforts and vision for the future. Recognizing the difference in responsibilities between the Congress and the executive branch, I would also seek input and feedback from the Congress as DNN develops and implements critical programs.

International Norms and Agreements

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

The United States has been, and continues to be, a global leader in nuclear nonproliferation. A strong global nonproliferation regime is in the United States' interest and serves our overarching goals of supporting the peaceful uses of the atom to benefit the environment, support global health, and underpin the U.S. commercial sector. The Department's role in support of these objectives has grown over the years through its world class science, global partnerships, and innovative policy approaches. If confirmed, I would seek to carry that tradition forward by supporting the Biden-Harris Administration's desire to re-engage with our global partners in the nonproliferation regime. This would include strengthening our work with the International Atomic Energy Agency (IAEA), working toward a successful Non-Proliferation (NPT) Review Conference in 2022, evolving our global partnerships to meet the changing landscape, and investing into our nonproliferation, safeguards, security, and verification assets – especially at the DOE's complex of labs, plants, and sites.

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, as exemplified by the conclusion of the Nuclear Weapons Ban Treaty which now has entered into force without the signature of nuclear weapons states.

What are your views with respect to the Nuclear Weapons Ban Treaty?

I do not support the "Ban Treaty." I share the position of this and previous Administrations that it is incompatible with U.S. extended deterrence relationships, which are still necessary for international peace and security, and reinforces divisions that hinder the international community's ability to work together to address pressing proliferation and security challenges.

What do you see as your role, if confirmed, in strengthening support for the NPT and the nuclear nonproliferation regime, as compared to the tenets of the Nuclear Weapons Ban Treaty?

If confirmed, I would lead DNN to engage with the U.S. interagency and allies to revisit the real-world impacts of the Ban Treaty. I want to help supporters of the treaty understand that the Ban Treaty poses significant threats to the nonproliferation regime, the NATO alliance, and it may have a negative impact on the NPT Review Conference. NNSA should continue to work in coordination with the Departments of State and Defense, to engage with allies on this issue, emphasizing that becoming a party to the TPNW could also potentially impact security cooperation with the United States.

If confirmed, what would be your role in mitigating the international perception that the United States is not committed to its NPT Article VI commitments in the context of modernizing its nuclear deterrent?

The United States is in full compliance with its NPT obligations, including Article VI. The United States has significantly reduced its nuclear stockpile since its peak, consistent with its national security needs. If confirmed, I would support a continued U.S. government participation in the P5 process, and other bi- and multilateral fora affirming our commitment to the shared goal of nuclear disarmament and emphasize the importance of the NPT as a central element of the nonproliferation regime.

What are your views on the Comprehensive Test Ban Treaty (CTBT)?

The Comprehensive Nuclear-Test-Ban Treaty (CTBT) is the security of the United States, and its entry-into-force would benefit all countries. It is a key step to diminishing the world's reliance on nuclear weapons and reducing the risk of another nuclear arms race, goals consistent with President Biden's Interim National Security Strategy.

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

Do you agree with this goal? If yes, and if confirmed, how might you support attainment of this goal as Deputy Administrator? If not, what do you think the United States' role should be in continuing to work with the CTBTO?

I agree with the U.S. Government's support for the CTBT and the commitment to achieve its entry-into-force, recognizing the significant challenges that lie ahead in reaching this

goal. If confirmed as Deputy Administrator, I would work with my U.S. interagency colleagues, the CTBTO PrepCom, non-governmental organizations, and the international community to promote the CTBT and encourage ratification by the Annex 2 countries necessary for the Treaty to enter into force. NNSA and the U.S. Government provide strong support to the CTBTO PrepCom, and recognize that the United States derives significant benefit from the effective functioning of the CTBTO's monitoring and verification system. If confirmed, I would look forward to helping to continue and grow that support.

What are your views on the zero yield standard to which the United States adheres, as compared to the interpretation by other CTBT signatories such as Russia and China?

The U.S. zero yield standard, consistent with the CTBT and the U.S. nuclear testing moratorium, does not allow any supercritical nuclear explosive testing that produces a self-sustaining chain reaction. I understand from the latest Compliance Report to Congress in April 2021 that the United States finds that Russia, since declaring its testing moratorium in 1996, has conducted nuclear weapons experiments that have created nuclear yield and are not consistent with the U.S. zero yield standard. I also understand that the United States has concerns regarding China's adherence to the U.S. zero yield nuclear weapons testing moratorium. If I am confirmed as Deputy Administrator, I look forward to learning more details about the concerns regarding activities in both countries and working with my departmental colleagues, including Defense Programs, and the U.S. interagency to address them.

For the past several years, the Intelligence Community and the Department of State have highlighted U.S. concerns that Russia, and especially China, are conducting nuclear tests that may be inconsistent with this standard. In your view, should countries that conduct tests producing nuclear yield face repercussions? If so, what actions would you recommend the international community take in response to these alleged activities on the part of China and Russia?

I am aware that the U.S. Government has raised concerns about Russia and China's nuclear testing and potential inconsistency with the zero yield standard. The United States has publicly challenged Russia and China to explain their actions and encouraged the international community to join in condemnation of any inconsistency with their self-declared moratoria or their obligations as signatories to the CTBT. If confirmed as Deputy Administrator, I look forward to learning more details about the concerns with both countries and helping to develop appropriate responses. One significant contribution of DNN is to support the U.S.' ability to detect and characterize nuclear explosions wherever they may occur globally. If confirmed, I would look forward to working with the team to understand our capabilities and remaining gaps.

What do you view as the purpose of Iran's nuclear program?

Iran has consistently cast its nuclear activities as being for exclusively peaceful purposes, yet it has regularly sought to expand and increase its nuclear material production capabilities beyond those justified by Iran's civilian need. I am deeply concerned by this.

Even if current activities are for civilian purposes, the existence of a nuclear weapons research and development effort prior to 2004, as reported in the unclassified 2007 National Intelligence Estimate and validated by the IAEA's December 2015 report, means that we cannot exclude the possibility that one purpose of the program is to retain the knowledge, skills, and abilities required to develop nuclear weapons if a decision is made to do so.

In your assessment, do Iran's nuclear program and ballistic missile program indicate a desire by the Iranian government to have a nuclear weapons capability?

According to the Office of the Director of National Intelligence's unclassified Annual Threat Assessment, Iran is not currently undertaking the key nuclear weapons-development activities the intelligence community judges would be necessary to produce a nuclear device. As I previously stated, we cannot exclude the possibility that Iran seeks to retain a latent capability to develop nuclear weapons if a decision is made to do so.

Under the 2015 Joint Comprehensive Plan of Action (JCPOA), the limitations on Iran's uranium enrichment expire between 2026 and 2031.

If the U.S. rejoins the JCPOA, do you assess that Iran will be legally able to increase its uranium enrichment after 2031?

Yes. According to the terms of the JCPOA, in 2031 Iran is permitted to enrich uranium above 3.67%, increase its enriched uranium stockpile above 300 kg, and conduct enrichment at facilities other than Natanz. Iran has already exceeded these key limits in response to our withdrawal from JCPOA. It is worth noting that Iran's obligations to accept IAEA monitoring and verification of its nuclear activities never expire under the JCPOA.

If Iran acquires enough fissile material to produce a nuclear weapon, what is the risk of other countries in the region seeking a nuclear weapons capability, in your assessment?

Iran's acquisition of a sufficient stockpile of enriched uranium for a nuclear weapon is a significant threat. I understand that this is a key reason for the stated intent of the Biden administration to pursue a diplomatic strategy to return to the JCPOA stockpile limits and the intrusive verification and monitoring of their nuclear activities.

In 2018, Israel's Mossad released a series of Iranian nuclear files, which included information about at least three uranium enrichment facilities that Iran had hidden from the International Atomic Energy Agency (IAEA).

Do you agree that providing the IAEA access to those sites is essential to ensuring oversight of Iran's nuclear program?

I have not reviewed these documents or collateral information. That said, I support the IAEA using all of its authorities to the fullest extent possible to be able to assure us and the international community that Iran's nuclear activities are exclusively peaceful. According to the most recent IAEA report in September, Iran is not being responsive to requests to resolve these outstanding issues and I believe they must do so under their existing legal obligations.

Given the existence of these sites (and possibly others), do you assess that returning to the 2015 JCPOA would effectively constrain Iran's nuclear program?

I believe that returning to the JCPOA is a critical first step to effectively constrain Iran's nuclear program and again provide the IAEA with the tools it needs to monitor all of Iran's nuclear activities.

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 now canceled, and a dilute and dispose approach substituted, with final disposal at the Waste Isolation Pilot Plant (WIPP).

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

The United States remains committed to the disposition of 34 MT consistent with its international obligations and consistent with the PMDA. As you are aware, Russia unilaterally withdrew from the PMDA in 2016, and, therefore, dialogue has not continued with Russia on this topic. I believe NNSA should continue to take the necessary steps to transition to the Dilute and Dispose strategy for the permanent disposition of the excess plutonium subject to the Agreement, as this decision was deemed to be in the U.S. national interest regardless of the unfortunate decision that Russia has made to withdraw.

The Office of the Deputy Administrator for Defense Nuclear Nonproliferation is now working with Department of Energy officials overseeing the WIPP in developing the dilute and dispose strategy. If confirmed, what steps would you deem necessary in order move forward with the final disposal of significant quantities of plutonium at the WIPP?

The key next steps necessary to move forward with the disposition of significant quantities of plutonium at the WIPP, all of which I understand are already underway, are finalizing of the National Environmental Policy Act analysis of the program and completing of construction of the necessary facilities to dilute and dispose all 34 MT of excess plutonium.

International Atomic Energy Agency (IAEA) and Safeguards

Timely and consistent IAEA access and monitoring is integral to verifying Iran's compliance with the provisions of the JCPOA. The Department of Energy and the NNSA are considered the Executive Branch's technical experts for verification and assessment of adherence to the JPCOA.

What is your understanding of role of the Deputy Administrator for Defense Nuclear Nonproliferation in supporting IAEA capability and will to execute its mission regarding JCPOA, while at the same time maintaining IAEA independence and without making it reliant on any one member state?

I understand that DNN is responsible for developing and maintaining verification and monitoring capabilities for a range of nonproliferation missions, including IAEA safeguards and JCPOA monitoring. Where the United States can offer unique capabilities to the IAEA that serve the national security interest of our country and our allies, I believe we should do so. That said, while DNN should provide significant financial and in-kind support to the IAEA Department of Safeguards, it cannot be a "one stop shop" for the IAEA's needs. If confirmed, I would support DNN's efforts to encourage the Secretariat to seek a diverse pool of donors beyond just the United States and take advantage of the technical and financial resources of the international community.

What is your assessment of recent actions by Iran to increase enrichment levels as well as actions Iran has taken with respect to its heavy water reactor?

According to IAEA reports, since May 2019, Iran has expanded its nuclear activities above and beyond JCPOA limits. Iran has been clear and consistent in its public messaging that it would reverse these steps if it receives sanctions relief. These activities are, however, concerning. Specifically, Iran's operation of advanced centrifuges and efforts to produce uranium metal could result in knowledge gains that cannot be reversed even if the machines are uninstalled and the metal reconverted. The return of the verification and monitoring regime in Iran would be critical in any resumption of JCPOA constraints to gain confidence that Iran does not resume these activities or benefit from their knowledge to expand nuclear activities. Regarding the heavy water reactor, I understand from the IAEA reports that the conversion effort has slowed but that there has not been an attempt to resume construction of the reactor under the old, more dangerous

design. If confirmed, and if there is a return to the JCPOA, I would support DNN experts again contributing to the reactor conversion effort so that the facility is permanently unable to operate under the old design.

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 safeguard burden.

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

The IAEA verification budget has remained essentially flat while its workload has increased as new facilities around the world come online and the quantity of spent nuclear fuel and separated civil plutonium grows. The Agency has augmented its regular budget with extrabudgetary contributions (primarily from the United States) but this approach is not sustainable as its workload continues to increase.

What is your understanding of the role of the Deputy Administrator for Defense Nuclear Nonproliferation in regard to IAEA's development of safeguard techniques and technologies applicable to reprocessing programs?

I understand that DNN has programs that develop and test safeguards techniques and technologies that are used as part of IAEA safeguards verification and could be used for reprocessing facilities.

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

NNSA supports U.S. efforts to limit the spread of uranium enrichment and spent fuel reprocessing technologies that pose risks of nuclear weapons proliferation. These sensitive technologies should be restricted to help minimize the spread of enrichment and reprocessing activities around the world. Ever increasing plutonium stockpile can be both proliferation risks and nuclear security risks. Both of these concerns need to be addressed, and plutonium accumulation, even in civil programs, should be discouraged.

In your view, what are the other emerging challenges for the international safeguards regime/IAEA safeguards and how might the Office of the Deputy Administrator for Defense Nuclear Nonproliferation contribute to addressing or be leveraged to meet those challenges?

The major challenges facing the IAEA safeguards regime include ongoing noncompliance issues from states such as Iran, DPRK, and Syria, stagnant verification budgets paired with increasing workload, understanding the threats and opportunities presented by emerging technologies, and the lack of universality of the highest standard of IAEA safeguards verification (e.g., the Additional Protocol) to enable the IAEA to

provide assurances that all nuclear material remains in peaceful use. The DNN office can contribute to all of these challenges through technical investment and innovations, and must collaborate with the IAEA and our partners to prioritize needs and find efficiencies.

Nuclear Material Security

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

I support a risk-informed approach to secure material of concern. If confirmed, I would want to understand how DNN applies their risk prioritization models to take into account information relevant to the threat environment, existing security vulnerabilities, and material consequences. I would also advocate for DNN with the intelligence community and other government agencies to get all the relevant information needed to make good decisions, if DNN is not already getting this information. This information allows DNN to effectively prioritize its risk reduction work and then build the necessary relationships in order to secure these materials and improve interdiction capabilities.

U.S. nuclear security cooperation programs with Russia are currently inactive after years of joint investment between our two countries to ensure our stockpiles of fissile materials have adequate protection.

What are your views with respect to the state of safeguards currently in place in Russia and the level of risk of diversion of Russia's fissile material?

Russia has the technical expertise among its nuclear security professionals to protect its most sensitive nuclear material and weapons. I understand that many of the best practices and lessons of the two decades of joint activity under the Cooperative Threat Reduction Agreement have been codified into their regulations. However, since 2014, the United States' influence and insight into the state of nuclear security in Russia has diminished. Considering the large quantity of nuclear materials and facilities in Russia and renewed emphasis on the nuclear enterprise, one could imagine a need for renewed focus on nuclear security in and around Russia. If confirmed, I would seek early briefings on this subject.

What visibility should the Deputy Administrator for Defense Nuclear Nonproliferation have on Russian efforts to sustain the equipment and technology the United States has provided? If confirmed, what more would you do to sustain those investments?

Given the complexities of the relationship, there is little to no direct information about the state of the investments that the United States made to nuclear security in Russia. Ultimately, it will be necessary to re-engage with Russian counterparts where

appropriate, to discuss nuclear security issues. Even when the relationship is fraught, this dialogue would serve U.S. national security interests.
If the broader political relationship were to evolve to be more favorable, this might include a cooperative re-engagement, as peers, to increase awareness and insight. Failing that, if confirmed, I would seek multilateral opportunities to create information exchanges with Russia on the sustainability of investments and try to learn from ongoing track 1.5 and track 2 efforts.

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?

The United States and Russia possess 90 percent of the world's useable materials and control the largest nuclear stockpiles and complexes. The reality is that it is difficult to address global nuclear security without such a significant player at the table. It would be in the United States' national interest to re-engage at a basic level with Russia to discuss nuclear security issues. If given the opportunity, there are a number of bilateral areas related to nuclear and radiological security and nonproliferation associated with fuel cycle activities that could be explored with Russia. It is not conceivable nor necessarily desirable that there would be a return to the same level of assistance on nuclear security of the past, but there may be opportunity and reason to engage on a peer-to-peer basis on common and global nuclear security challenges on a mutually-beneficial basis. The United States and Russia have successfully collaborated, even in recent years, to reduce nuclear security risks in third countries. If confirmed, I would continue this cooperation.

Significant progress has been made over the past two decades to improve security over vast amounts of vulnerable nuclear material and to consolidate fissile material to fewer, more secure locations. Yet, some countries remain unwilling or reluctant to cooperate with U.S. nuclear material security programs.

Do you agree with the assertion by some that efforts to secure fissile material around the world have run their course? Please explain your answer.

I believe that the challenge to secure fissile material is enduring, and there is still much work to do. The threat environment is constantly evolving and our nuclear security efforts must anticipate and stay ahead of emerging threats. There are remaining inventories of materials to convert or remove, new facilities being built, and regimes falling into instability. These are all factor that alter our nuclear security calculations.

How do you believe the United States should address countries that, to date, have been unwilling to cooperate with these efforts? What would you do differently, and what new strategies would you employ to this end, if confirmed?

If confirmed, I would support a continued, multi-pronged strategy which seeks bilateral relationships but also leverages multilateral relationships to support its efforts. In the cases in which NNSA does not have a direct bilateral relationship with a partner, its

multilateral efforts with the International Atomic Energy Agency (IAEA) and/or regional organizations are vital to supporting best practices and international norms for nuclear security. For those countries the United States cannot engage on nuclear security, NNSA should place special emphasis on providing layered defenses to counter smuggling of radioactive and nuclear materials that might originate from those countries. Building capacity in partners along high-risk pathways provides for risk reduction when NNSA cannot work with specific countries of concern.

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, if confirmed?

The Nuclear Security Summits were valuable engagements to highlight the important nuclear security work that had been done, but more importantly they highlighted the magnitude of work left to be completed. I was honored to lead the Department of Energy's participation in the 2016 Summit, so I saw the process and challenges firsthand. I believe it is necessary to sustain awareness at the highest levels while also working on practical, tangible projects and collaborative approaches at the working level. If confirmed, I would support advocacy for nuclear security in international fora, in bilateral engagements with NNSA and DOE leadership and their counterparts, and through senior representation at key opportunities, such as the upcoming first Review Conference on the Convention on the Physical Protection of Nuclear Material and its Amendment.

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 on nuclear security technical and policy issues, and what are the most pressing issues that need to be addressed with each of those countries?

I would include Belarus, India, Russia, South Africa, and Ukraine in my top five list of countries to engage on nuclear security because of either large volumes of proliferation-sensitive materials present in-country and/or nuclear security conditions in-country.

In alphabetical order:

- *Belarus – In addition to the historical upgrades that DOE/NNSA completed at the Joint Institute for Power and Nuclear Research (JIPNR) in Belarus and the successful removal of all fresh and spent HEU fuel from the Pamir research reactor, my understanding is that since 2016 NNSA has been engaging with JIPNR on nuclear security culture and gradually expanded the cooperation to include insider threat mitigation, response training, and performance evaluation. DNN must also continue efforts to remove the remaining highly enriched uranium in the country.*

- *India – India has a well-developed nuclear program including a growing nuclear power program with a complete nuclear fuel cycle and a weapons program. We have developed and delivered training jointly through the Global Center for Nuclear Energy Partnership (GCNEP). We will continue to prioritize cooperation on nuclear security topics including: accounting for nuclear material, advanced modelling to improve physical security, transportation security for radiological sources, and emergency response.*
- *Russia – Considering the large quantity of nuclear materials and facilities in Russia we need a renewed focus on nuclear security with Russia, despite the very real and appropriate constraints on working with them.*
- *South Africa – South Africa is involved in every part of the nuclear fuel cycle. South Africa is the only country to have declared and denuclearized a full nuclear weapons program, and there are large amounts of HEU still located there. As South Africa seeks additional nuclear power generation and advanced reactor technologies, a strong partnership with South Africa on nuclear security will only grow in importance.*
- *Ukraine – Ukraine continues to be an important partner for nuclear security. Two key power plants, Zaporizhzhia and South Ukraine, are located near the Line of Conflict, the border between Ukraine and the areas under Russian-backed Ukrainian separatists. Priority areas of work with Ukraine should include: protective/response force training, physical protection upgrades at South Ukraine Nuclear Power Plants and physical security upgrades at Zaporizhzhia Nuclear Power Plant.*

I would add honorable mentions, in alphabetical order, for both China and Pakistan, but don't feel that I have all the relevant information to make specific recommendations. Both were active participants in the Nuclear Security Summit process, but I no longer have good insight into their activities. If confirmed, I would seek briefings on these two countries' nuclear security situations urgently.

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

If confirmed, I would work with the White House and interagency on key principles for engaging with these countries in service of U.S. national security. I would not seek engagement for the sake of engagement. China represents a significant challenge that is changing rapidly, and engagement with China on nuclear issues is entangled in the broader strategic relationship. India is a key nuclear security partner, and, if confirmed, I would like to continue to mature and deepen this collaborative relationship, especially on nuclear security. Pakistan is an important country for bilateral engagement on nuclear security and I would seek early information on their current situation. Given that India and Pakistan are high-priority countries, it is important to continue to carry out and implement bilateral nuclear security cooperation through existing mechanisms, but it is also vital to develop creative strategies to further engage with India and Pakistan

through track 2 dialogues to provide a platform for open and continued dialogues on nuclear security topics.

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

The NNSA-sponsored Centers of Nuclear Security Excellence (COE) have been instrumental in improving nuclear security worldwide. In particular, these centers provide venues for training and professional development activities in support of sustaining nuclear security at the national and regional levels where none were before. Further, the COEs are a part of the IAEA's network that further expands and sustains IAEA's influence at the international and regional level for the important elements of a nuclear security regime. If confirmed, I would request information about the specific and tangible results from each of the COEs, and seek ways to improve their reach and effectiveness, if possible.

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 to you envision as the role, if any, of the Deputy Administrator for Defense Nuclear Nonproliferation in addressing the dangers posed by military fissile material stockpiles?

DNN's role is to engage with any partner who maintains fissile material stockpiles – either by civilian entities or by the military. If confirmed, I will look for increased opportunities to engage in this area and to strengthen our engagement with weapons states. Vulnerable nuclear material is vulnerable nuclear material, and it does not matter what its intended purpose is.

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.

In your view, how should the Deputy Administrator for Defense Nuclear Nonproliferation approach these challenges?

There are technical and political challenges in converting the remaining high performance HEU research reactors to LEU fuel. If confirmed, I will approach these challenges by advocating for continued funding for the qualification of high-density LEU fuels necessary to convert these reactors, and by working closely with our international

partners to address any political challenges that arise in the process. Part of that task is understanding the role and purpose of the remaining HEU-fueled reactors and seeking ways to build confidence that the missions can be met after conversion to LEU.

The Office of the Deputy Administrator sponsors an ongoing program to replace Cesium-137 blood irradiators in hospitals, but this program is modest and faces limitations.

Do you believe the Office of the Deputy Administrator has the requisite capacity for a more comprehensive program?

If confirmed, I would need to understand the capacity limits of the program and the lab experts supporting it to know if there is a need to expand the program. A more comprehensive program could expand beyond just cesium-137-based blood irradiators. There are irradiators used for other applications that have viable alternative technologies available now and the program should expand their focus to those other applications. The program is on track to replace all cesium-based blood irradiators by 2027 as called for in the 2019 NDAA.

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

The program's main limitation is the number of irradiators that it can safely recover in year. If confirmed, I will look for ways to increase the rate of yearly recoveries including optimizing the use of existing transportation containers.

The fall of Mosul in Iraq revealed that ISIS was in close proximity to many sources of Cesium-137 used for commercial and medical purposes.

What are your views on the way forward in securing nuclear materials in the Levant?

I think there should be a focus on permanent risk reduction in all regions where the risk is high that a terrorist could access nuclear or radioactive materials. DNN's approach, as I understand it, is sound – working with bilateral partners to focus on transitioning to alternative, non-radioisotope technologies and removing the radioactive sources. In September 2021, DNN removed three cesium-based devices from Lebanon and replaced them with x-ray devices. I understand that DNN is in discussions for similar activities with partners in Iraq. In order to address concerns about vulnerable material in the Levant, cooperation with multiple partner agencies on counter nuclear smuggling is of highest importance. NNSA must look to build layered defenses throughout the region, working with border security partners, law enforcement agencies, and security services to build capacity detect materials outside regulatory control and to return those materials to control and accounting systems. Current DNN efforts with Lebanon, Israel,

Jordan, and Turkey reflect this approach. If confirmed, I would seek additional information about these efforts and the overall risk environment to inform prioritization.

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 the extent of nuclear smuggling in these regions?

These are definitely areas of concern, but my current information is anecdotal. If confirmed, one of my first tasks will be to review the current intelligence on nuclear smuggling and seizures in these regions.

If confirmed, what do you believe NNSA should or should not be doing to control nuclear smuggling in this region and along these routes?

NNSA has a crucial role in this region to support partner country systems already deployed and to build additional layers of defense, particularly with law enforcement, internal security, and regulatory agencies. I believe NNSA should continue its commitment to sustaining baseline capacity, including building indigenous capacity for training, operations, maintenance, policies, and assessments. Further, NNSA should help enhance partner capabilities not just at official points of entry but also along frontier regions and in the interior of countries. This should be complemented with investigation support to help partner countries translate detections into prosecutions. By building layered defenses and long-term security partnerships in this region, NNSA can provide an enduring benefit to U.S. national security.

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 that Saudi Arabia should be required to adhere to the IAEA additional protocols?

Yes, consistent with longstanding U.S. policy supporting universal adherence to the Additional Protocol (AP), I believe that Saudi Arabia should have an AP in force. U.S. policy is to encourage all states, particularly those with civil nuclear programs, to bring into force an Additional Protocol to their safeguards agreements with the IAEA.

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

The introduction of reprocessing or enrichment technology into Saudi Arabia could be destabilizing, which would not serve U.S. national security interests. One of the pillars of United States nonproliferation policy is to encourage foreign partners to make the

sovereign decision to rely upon the strong and reliable international nuclear fuel industry for their fuel supplies, and not pursue domestic enrichment and reprocessing capabilities. I believe this is the right approach for Saudi Arabia.

What proliferation risks do you see as arising from any nonproliferation agreement with Saudi Arabia, and if confirmed, what would be your role in and approach to managing these risks?

A well-crafted nuclear cooperation agreement with Saudi Arabia can address key nonproliferation risks and concerns. Such an agreement would address nuclear safeguards and the possibility of enrichment and reprocessing. If such an agreement with Saudi Arabia were possible, it would also serve U.S. interests by supporting U.S. industry, providing a channel for sharing high safety, security and nonproliferation standards, and reduce the chances that Russia or China would provide nuclear technology with lower requirements than those that come with U.S. technology.

To what extent do you believe the likelihood of reaching such an agreement could be affected by reports of Saudi Arabia's conclusion of agreements for uranium exploration with two Chinese entities, one of which is China's primary nuclear weapons infrastructure construction provider?

I don't think that Saudi Arabia's mining of uranium presents obstacles for a 123 Agreement with the United States. In fact, because of the Chinese presence in these activities, it is even more important that the U.S. emphasize in its bilateral engagements the need for a strong export control regime, in-line with Nuclear Suppliers Group principles, so that any mined uranium from Saudi Arabia is used only for peaceful purposes.

In spite of process improvements, the Deputy Administrator for Defense Nuclear Nonproliferation 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?

This is an area where I will need more information, if confirmed. I know that DNN has an on-going Process Improvement Plan for its implementation of Part-810, and that it remains dedicated to constantly working to improve response times and authorization determinations. If confirmed, I will work closely with interagency partners on best practices and improving efficiency. I support reviewing and enhancing DNN's 810 system so that it is useful and effective for U.S. exporters, and is not a barrier to industry efforts.

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?

It remains U.S. nonproliferation policy to protect information and know-how related to production of special nuclear material, which could aid in the development of weapons usable material. Based on my current understanding, I believe this technology is appropriately controlled under 10 CFR Part 810 because all nuclear reactors (including light water reactors) have the ability to produce plutonium. If confirmed, I would seek to understand the concerns in this area, as appropriate.

In your view, how does one ensure enforcement through export control licenses and conditions when it is increasingly common for end users to change affiliations?

Review of export licenses by the USG is an effective tool to mitigate the risk of transferring sensitive goods and technologies to proliferant entities and networks, but it is not a silver bullet. I believe DNN has a responsibility to make the process as robust as possible. DNN applies a rigorous license review process including a comprehensive technical review and an end user review. This process builds confidence that the goods being exported are appropriate for the stated end use and also identifies other potential end uses would be consistent with proliferation-related activities. The end user review portion consists of an open-source review and an all-source intelligence review. The end user review identifies any present or past proliferation activities as well as any known association of the entity to other organizations of concern including military, government, proliferation networks and changed affiliations. Periodic updates support the assessment of whether the end user reviews remain relevant.

If confirmed, how would you address the challenges posed by increasingly sophisticated illicit procurement networks that can circumvent export controls with apparent ease?

If confirmed, I will continue DNN's support to U.S. interdiction efforts, evaluate the end-user review process, and continue participating in interagency activities to strengthen the Export Administration Regulations.

I also would continue DNN's partnership with the intelligence community so that issues related to attempts to circumvent Part 810 export controls are understood and addressed in a timely manner to maintain our strong nonproliferation regime.

If confirmed, how would you go about substantiating 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?

I would not seek to 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. Rather, if confirmed, I would seek to understand (and request indicators of) how *U.S. engagement in the nuclear industry can support economic goals while also bolstering nonproliferation and nuclear security priorities. It is true that providing access to peaceful nuclear technology establishes a multi-decade relationship with partner countries. Through this relationship, the United States may influence critical thinking in partner countries about the importance of nonproliferation. The global nuclear market has become very competitive with Russia and China seeking to use access to cheap financing to turn traditional partners and new partners away from the United States, undermining our nonproliferation efforts. In spite of Russian and Chinese efforts, most of the world still recognizes that the United States can supply the safest and most advanced nuclear technology. If confirmed, I will work with my departmental colleagues, including the Office of Nuclear Energy, and the interagency to facilitate robust civil nuclear cooperation to support the President's climate change agenda while protecting nonproliferation leadership and innovation.*

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

As the global standard bearer for the supply of peaceful nuclear technologies, the NSG is an important part of the nonproliferation regime. The role of the NSG becomes more important as the global marketplace becomes more competitive as it requires members to include minimum of nonproliferation requirements in all transactions, including the application of IAEA safeguards, physical protection, and peaceful uses. This puts all suppliers on a basic, even playing field. If confirmed, I will seek to work with our partners in U.S. industry and academia as well as with other NSG Participating Governments to increase understanding and effectiveness of current controls and to identify new technologies of proliferation concern that may warrant control through the NSG.

If confirmed, what ideas and approaches would you apply to strengthening the NSG export guidelines?

The NSG has been at the forefront of the export control regimes in terms of innovation in its policies and practices. Much of this innovation has come from the work that the Department and its national labs have done over the years to understand how global regulators and global industry can interact effectively and efficiently. Broadening the engagement of the NSG directly with the global industry may a vital next step for the regime. I believe adoption of the IAEA Additional Protocol as a formal condition of supply should also be vigorously pursued.

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

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

I support the U.S. policy of considering all NSG membership applications on their individual merits on a case-by-case basis. The United States continues to support India's NSG membership .

If you are confirmed, what would you perceive to be your role in advocating for or against membership by India and Pakistan?

If confirmed, I would support the United States' policy of considering all NSG membership applications on their individual merits on a case-by-case basis, and would help DNN bring to bear its expertise to contribute to a technically-informed evaluation process for any membership applications.

Nonproliferation Research and Development

North Korea enriches and reprocesses fissile material for its nuclear weapons program.

In your view, what areas of research and development do you believe are needed to further assess the advances North Korea has or is making in its nuclear weapons program?

DNN has a strong R&D program in place with a focus on detecting and characterizing foreign nuclear weapons programs like that in North Korea. Results from this R&D program are transitioned to partners across the interagency but, in particular, the intelligence community and Department of Defense. In the case of North Korea, R&D to improve our ability to not only detect, but to characterize underground tests, such as the one conducted in 2017, is critical. DPRK is also a difficult access problem and R&D is needed that can provide technical remote monitoring solutions. For example, next generation AI tools may help us extract more information from the data we do get from watching North Korea remotely. Research and development in the areas of remote detection and recognition of processing signatures could help the United States better assess North Korea's fissile material processing activities. In addition, R&D of onsite verification technologies can prepare U.S. verification teams to implement negotiated measures in support of any denuclearization agreement.

If North Korea were to freeze its nuclear weapons program, what additional safeguards do you believe would be needed to verify such a freeze?

Deploying on-site verification teams (U.S., IAEA, or another model) will be the best way to independently verify the comprehensiveness and completeness of a freeze. Specific onsite monitoring actions would have to be tailored to each technical process that would be suspended. DNN has experience designing technical approaches and deploying expert teams to cover a range of activities in North Korea.

Future arms control agreements may propose a cap on the total number of nuclear warheads in each country. This would require significant portal monitoring of locations where such warheads are stored or employed.

What is your assessment of the capabilities of portal monitoring technologies to accurately identify nuclear warheads and their types?

There are different options for monitoring and verifying different types of potential warhead limits. In general, portal monitors could potentially play a role in future monitoring and verification, but their capability will depend on the exact use case and the specific configuration of the portal monitoring system and associated implementation procedures. While I am familiar with some past studies of portal monitoring for arms control monitoring, if confirmed I would need to increase my understanding of this issue to judge the applicability to future regimes.

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.

In your view, what complex-related priorities should NNSA focus on to ensure continued capability and advancement in the nonproliferation area?

The Nonproliferation Stewardship Program (NSP) within DNN R&D is sharply focused on many of these issues. The design of the NSP is to provide targeted infrastructure and S&T activities so that DNN has a cadre of nonproliferation expertise capable of meeting future nonproliferation threats and challenges. The U.S. can no longer rely only on a robust nuclear weapons development enterprise or a civilian nuclear power industry to provide future expertise. NNSA must be intentional and targeted in identifying and developing needed nonproliferation competencies. That said, it is important for DNN and Defense Programs to align human capacity development and expertise to benefit NNSA as a whole. If confirmed, I would seek to engage my counterpart in DP to assess our collective human capital needs. NNSA must focus on building and retaining a diverse, highly skilled, flexible workforce capable of addressing complex, multifaceted nonproliferation challenges. Recruiting the "best and the brightest," and providing them with world class facilities in which to work, should be a key priority for NNSA.

Budget Execution and Program Management

The President's budget request for fiscal year 2022 for NNSA nonproliferation programs is $2.26 billion.

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

If confirmed, my initial focus would be on reviewing DNN's mission activities to evaluate whether they reflect the appropriate balance of efforts to address the President's goals, as described in the Interim National Security Strategy, of renewing U.S. nonproliferation leadership and reducing the dangers posed by the proliferation of nuclear weapons as well as by the threat of nuclear terrorism. Further, I would work to align DNN's financial resources, and future fiscal year budget requests, to support activities that provide clear benefit to the U.S. national security. I would also emphasize through DNN the responsibility to use its financial resources efficiently.

If confirmed, I would assess DNN's programs to identify any possible efficiencies or areas that could be bolstered by additional resources. I would work with and welcome insights from members of this committee on how to best align DNN's budget to those priorities.

Other agencies, such as the Department of Homeland Security, also have nuclear forensics programs that are carried out by the NNSA nonproliferation program. Should these programs be consolidated under the NNSA, in your view? Why or why not?

I recognize the increased level of effort and the leadership role that the NNSA has assumed since technical nuclear forensics since I was last in the Department. If legislative change were enacted, I believe NNSA is well suited to accept the interagency coordination and expertise development responsibilities currently assigned to DHS. Technical nuclear forensics supports the broader mission of attribution. Attribution is, by necessity, an interagency effort relying on law enforcement, intelligence, technical, diplomatic, and others from across the government to provide the best determination and advice to the President in the event of an unclaimed nuclear attack. While the NNSA laboratories are clearly the centers of excellence for nuclear forensics, if confirmed, I would seek information from other departments and agencies to determine if they need additional support for their attribution responsibilities.

The Deputy Administrator for Defense Nuclear Nonproliferation has made progress in recent years in providing transparency to the cost and schedule for some programs by issuing an annual strategic plan to reduce global nuclear threats. However, because of international agreements, the DNN has been identified as maintaining carry over accounts for extremely long periods of time.

In your view, what is the appropriate degree of program management that DNN should exercise 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?

DNN faces unique challenges in budget planning and execution that relates to both technical constraint, partner support and the uncertainty that comes from implementing a substantially international program. Despite these challenges, I believe DNN must track budget and cost execution, relying on DOE/NNSA's project management practices, as precisely possible to make efficient use of taxpayer resources. Further, future fiscal year budget requests need to take into account existing and updated funding projections. Finally, I believe DNN programs need the latitude to pivot to take advantage of unanticipated program execution opportunities when they arise. If confirmed, I would take program stewardship seriously, and look forward to engaging with this Committee and other stakeholders if questions arise.

If confirmed, 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?

If confirmed, I would support appropriate reporting of performance against program cost and schedule baselines. I would welcome this committee's input on how DNN might better communicate its performance to budget.

Sexual Harassment

In April of 2021 the General Accountability Office released a report "Sexual Harassment: NNSA Could Improve Prevention and Response Efforts in Its Nuclear Security Forces", which in addition to the examination of the NNSA Security Forces gave recommendations for the NNSA and the DOE in how they surveys, assess and trains to prevent sexual harassment.

What are your views on the GAO report's findings and recommendations? Please explain your answer.

I have read the GAO report and understand that DOE/NNSA has concurred with all five recommendations. If confirmed, I would request an update on the status of addressing the recommendations. I am committed to working with DOE/NNSA to prevent and respond to incidents of sexual harassment.

What is your assessment of the current climate regarding sexual harassment and gender discrimination in the Office of the Deputy Administrator for Defense Nuclear Nonproliferation?

This is an important issue in any workplace, and one I take seriously. The only way for a workplace to be both ethically robust and mission effective is for everyone to be respected and protected. I understand that DNN already has a robust Diversity, Equity, Inclusion, and Accessibility (DEIA) effort underway that is coordinated with broader NNSA efforts and includes addressing all forms of discrimination and harassment. If confirmed, I look forward to learning more about this effort and working to address and eliminate all forms of discrimination and harassment in DNN.

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 Office of the Deputy Administrator?

First, if confirmed, I would identify the appropriate reporting procedure and make sure that it is communicated to all DNN employees and contractors. If there were a report, I would take all possible steps to make sure it is addressed fairly to all parties and in a timely manner, in accordance with NNSA policy.

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

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