

**Statement of Anne Harrington
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on the
Prevention of Smuggling at U.S. Ports
Before the
U.S. House of Representatives**

**Subcommittee on Border and Maritime Security
House Committee on Homeland Security**

**Subcommittee on Coast Guard and Maritime Transportation
House Committee on Transportation and Infrastructure**

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I. INTRODUCTION

Chairwoman McSally, Chairman Hunter, Ranking Member Vela, Ranking Member Garamendi, and distinguished Members of the Subcommittees, thank you for giving me the opportunity to testify on the Department of Energy National Nuclear Security Administration's (DOE/NNSA) efforts to detect, deter, and investigate the illicit smuggling of nuclear and other radioactive materials. Thank you for your continued interest and leadership on this important issue. I would also like to thank my colleagues from the Department of Homeland Security for being constructive and indispensable partners in the effort to reduce the risk of radiological incidents.

NNSA's core mission pillars are to maintain a safe, secure, and effective nuclear deterrent; to prevent, counter, and respond to the threats of nuclear proliferation and terrorism worldwide; and to provide naval nuclear propulsion. The role of NNSA's Office of Defense Nuclear Nonproliferation (DNN) is to prevent non-state actors and proliferant states from developing nuclear weapons or acquiring weapons-useable nuclear material, equipment, technology, and expertise; and to prevent non-state actors from acquiring nuclear and radiological materials for an improvised nuclear device (IND) or radiological dispersal device (RDD). Although technology and expertise are important to anyone attempting to develop a weapon or improvised device, an adversary's ability to access material is essential. Consequently, minimizing the availability of materials, securing them, and interdicting them when they are out of regulatory control are all key elements of our mission. Our programs are organized to reflect this:

- **Material Management and Minimization (M³):** Minimize and, when possible, eliminate excess weapons-usable nuclear material, ensure sound management principles for remaining nuclear materials, and support peaceful uses of nuclear energy by making nuclear materials available for these purposes;

- **Global Material Security (GMS):** Achieve adequate security, protection, control, and accounting for all nuclear and radiological materials worldwide (in accordance with internationally accepted recommendations), and prevent the illicit trafficking of nuclear weapons and nuclear and radiological materials;
- **Nonproliferation and Arms Control (NPAC):** Prevent the proliferation of weapons of mass destruction (WMD)—as well as relevant dual-use materials, equipment, technology, and expertise—by state and non-state actors through nuclear safeguards and export controls and by strengthening nonproliferation and arms control regimes;
- **Nonproliferation Research & Development (R&D):** Develop effective technologies to detect nuclear weapons proliferation and nuclear detonations and support monitoring and verification.

Today, I would like to focus my remarks on DNN’s efforts to prevent the smuggling of nuclear and radiological materials that could be used in an IND or a RDD. To frame the issue, I would like to take a few moments to describe the threat landscape.

II. THREAT LANDSCAPE

Securing nuclear and radiological materials from theft, diversion or trafficking is a critical element of U.S. national security strategy. Terrorist groups have sought nuclear and radiological materials and the expertise needed to weaponize them. More than 30 countries currently possess weapons-useable nuclear material stored at hundreds of sites, with the largest inventory in Russia. In addition, radiological materials are ubiquitous, with more than 100 countries possessing radiological material stored at thousands of sites. Despite much progress over the past twenty years by international cooperative programs to improve the security of these materials, gaps remain.

In addition, unknown quantities of material may already be out of regulatory control and the existing black market for nuclear and radiological materials, to include, recent examples of interdictions in countries like Georgia and Moldova, demonstrates this. Beyond the examples of these recent interdictions, Russia’s decision to halt most of our nuclear security cooperation leads to a concern that security controls on material in Russia are weakening. Furthermore, the expansion of ungoverned spaces and entrenched corruption in many regions of the world create safe havens for terrorists, compounded by the emergence of an adversarial pseudo-state (self-proclaimed Islamic State of Iraq and Syria) with a demonstrated capability to conduct international terror operations and some expressed interest in acquiring and using radiological and possibly nuclear materials against Western interests.

As you well know, the use of a high-yield IND in a major U.S. city would cause hundreds of thousands of fatalities. The use of an RDD would not cause a large loss of human life, but

would be a destabilizing force and could have global social and economic impacts. Because the threat is so complex and continuously evolving and the physical, economic, and psychological consequences of terrorists using a nuclear or radiological device are so high, significant resources and a multifaceted and layered approach must be employed to counter the threat.

III. EFFORTS TO PREVENT NUCLEAR SMUGGLING

In this environment, the U.S. Government has developed integrated and enduring strategies to prevent terrorists from obtaining nuclear and radiological materials. Within DNN, much of this work is done by the Office of Global Material Security (GMS), which collaborates with partners within our government and partners worldwide to build sustainable capacity to secure nuclear weapons, weapons-usable nuclear material, and radiological material, and to detect the illicit trafficking of those materials. We have more than 20 years of experience in this area and have worked with over 100 countries. We employ a robust sustainability approach that focuses on gradual transition of responsibility to the partner and continued engagement once a partner assumes responsibility for an activity. We also work closely with the international community to put in place the international standards and frameworks needed to support these capacities over the long-term.

This work dates back to a DOE-developed task force in 1994 to mitigate the nuclear security vulnerabilities in the Former Soviet Union, which subsequently became the Material Protection, Control & Accounting (MPC&A) Program. In response to the attacks on September 11, 2001, the suite of technical assistance provided by MPC&A was modified to address the changing threat landscape. The primary change was to the approach, which developed into a graded, defense-in-depth security approach that begins at the source of the material outward, encompassing physical protection, material control & accounting, transportation security and response forces upgrades. The guiding principle of these efforts is to support improved security of nuclear and radiological material at the source, prior to it leaving the nuclear facility or site, which has been referred to as the first line of defense. However, recognizing this is not enough in light of continued smuggling activity and existence of materials out of regulatory control, DOE began the Second Line of Defense Program, which is now known as the Nuclear Smuggling Detection and Deterrence Program (NSDD).

NSDD is a critical component of overall U.S. efforts to counter nuclear smuggling. As a part of the Global Nuclear Detection Architecture (GNDA), NSDD works to judiciously deploy radiation detection systems internationally at official crossing points, along rugged, unofficial borders and disputed territories (i.e. “green” borders) and maritime borders (i.e. “blue” borders), and at internal locations for law enforcement operations. The GNDA is predicated on a layered defense of law enforcement, intelligence, and technology to maximize a system of detection and deterrence capability. DHS oversees the domestic layer of this architecture and the Departments of State, Energy, and Defense lead on the exterior layer in coordination with DHS. In the words of DNDO, NSDD “is the largest single program in the exterior layer and provides significant potential to stop a U.S.-bound terrorist attack outside our borders.”

NSDD has a long history of close collaboration with DHS, including both the Domestic Nuclear Detection Office (DNDO) and Customs and Border Protection (CBP). NSDD and DNDO regularly share information on their perception and definition of the threat and their prioritization methodologies for addressing the threat. NSDD and DNDO also collaborate on a number of technical and maintenance topics to leverage our respective experiences in deploying and maintaining large fleets of detection systems. Most recently, NSDD and DNDO signed an interagency Integrated Project Team Charter to jointly study the long-term effects of temperature fluctuations on the performance of radiation portal monitors. This allows us to share resources and work together to better understand an issue that will shape our approach to both procurement and long-term maintenance of these systems. With regard to collaboration with CBP, NSDD and CBP's Container Security Initiative (CSI) are working together collaboratively in many of the same seaports overseas. To coordinate our efforts, NSDD and CBP/CSI have a signed Standard Operating Procedures document that lays out how we share information, resources, and equipment to maximize our efforts to secure maritime cargo. As a final example, NSDD and the United Kingdom recently co-hosted an international workshop on enhancing maritime security that focused on promoting radiation detection in the maritime supply chain and developing enhanced measures to permanently remove materials found out of regulatory control. As a 2016 Nuclear Security Summit deliverable, 14 countries endorsed the best practices and recommendations from this workshop. DHS, both DNDO and CBP, played a critical role in this event and offered their insights, lessons learned and best practices to a group of over 15 countries and 9 international organizations dedicated to strengthening maritime security.

With regard to maritime security, it is important to note that the scanning of inbound containers at U.S. ports and border crossings is extremely important and crucial to our national defense, but the effectiveness of the systematic approach to detection is significantly strengthened by international efforts that extend detection away from U.S. soil. If an actual IND or RDD weapon reaches the U.S. shores, the detection may be too late to avoid its catastrophic consequences. In addition, the length of U.S. borders, along with the potential use of non-traditional delivery mechanisms such as light aircraft or small diesel powered submarines, makes securing the U.S. borders a difficult undertaking. Consequently, it is important for U.S. Government Agencies to collaborate effectively in the deployment of a layered defense that keeps materials secure *in situ*, but that also can prevent illicit trafficking internationally, at multiple vectors, at the farthest possible point from the U.S. border.

NSDD's role, working closely with DHS/DNDO and DOS, is to push the ring of security out as far as possible. The program has greatly contributed to building international awareness of nuclear threats and the capacity of the U.S Government and partner countries to detect, deter, and investigate the illicit trafficking of nuclear and radioactive materials at international border crossings and internal partner country chokepoints. This has resulted in equipping 579 sites, including 45 large container seaports, and the provision of 102 mobile radiation detection vans.

But countering nuclear smuggling is not achieved by equipment alone. An effective Counter Nuclear Smuggling strategy involves coordination among many agencies and experts within partner countries; including border security, police, customs and security services, technical reach back, ministries of foreign affairs, and others. The United States Government interagency works in coordination to pursue this inclusive engagement, enabling a systematic approach where all kinds of capabilities are coordinated. NSDD plays a specific role in building capacity to counter nuclear smuggling and to link countries to international organizations, such as INTERPOL and the International Atomic Energy Agency (IAEA), in order to develop an integrated and cohesive community focused on combatting nuclear smuggling. To date, through its work with foreign partners NSDD has created a network of more than 100 agencies in 65 countries. NSDD has also transitioned sustainability responsibilities to approximately 85% of sites equipped.

NSDD supports this network by providing training, technical and best practices exchanges, workshops and exercises, assessment tools for tracking performance, and assistance with regulatory development. This ongoing engagement ensures a sustainable transition of responsibility for detection equipment to partners. It also allows NSDD to promote best practices in the long term and keep communication channels open to monitor trafficking incidents and evolving threat patterns.

I would like to draw your attention to a recent Government Accountability Office (GAO-16-460) report on the NSDD program, referencing three partner countries visited as part of the audit—Azerbaijan, Bulgaria, and Georgia. GAO reported that “law enforcement officers and government officials attributed multiple cases of successful detection, deterrence and seizure of smuggled nuclear and radiological materials to the use of NSDD-provided radiation detection equipment.” These nations all have both fixed site and mobile NSDD-provided detectors.

The development of robust and holistic counter nuclear smuggling capabilities also requires nuclear material analysis and characterization, also known as nuclear forensics. Attribution of interdicted material is key to identifying gaps in nuclear material security as well as enabling and supporting countries in their efforts to prosecute traffickers. In coordination with the Department of State, NSDD supports peer-to-peer efforts to broaden understanding of nuclear forensic signatures, provides technical expertise to support analytical capabilities and development of national nuclear forensics libraries, and supports development of international recommendations and implementing guidance through the IAEA and Global Initiative to Combat Nuclear Terrorism (GICNT).

DOE/NNSA’s technical capabilities and expertise at the national laboratories are essential to advancing NSDD’s success in maximizing the performance of radiation detection equipment and advancing forensics. The laboratories test all equipment against rigorous performance standards, and maintain a feedback loop with vendors and maintenance providers in order to continuously improve detection capabilities and advance the user experience to make equipment easier to operate and maintain.

IV. STRATEGIC REVIEW AND PLANS

DNN's programs periodically undergo strategic reviews to assess progress, determine strategic direction, and recalibrate goals of the respective program's mission in light of the dynamic international threat environment. Related to the evolving nuclear smuggling threat landscape, NSDD conducted a strategic review in 2015 to assess progress and prioritize future work based on the current threat landscape.

The NSDD strategic review included qualitative (i.e., subject matter expertise) and quantitative (i.e., modeling) analyses. NSDD's conclusions were:

1. Radiological/nuclear smuggling threat is evolving, ungoverned spaces are expanding, and massive movements of people are overwhelming governments, particularly as this impacts border security;
2. It is imperative to test, qualify, and apply sustainable, flexible, and modular detection and identification technologies to address longstanding challenges;
3. The changed threat environment requires reinforcement of detection capabilities (strategic layering of fixed, mobile, and modular capability);
4. Maintaining insight into partner operation of systems is vitally important; and
5. The detection and deterrence value of radiation portal monitors (RPMs) continues to play a key role in the exterior and domestic layers of the GNDA.

NSDD plans include deploying radiation detection systems in critical pathways through the Fergana Valley in Central Asia, Ukraine, and Eastern Europe, along with targeted deployments at seaports in key regions. This includes continuing to deploy mobile detection systems to law enforcement to reinforce and complement the fixed radiation detection architecture established. This fixed and mobile work has been the traditional NSDD implementation approach, and with a focused effort during the next several years, much of this work will be completed. NSDD will continue to maintain strategic relationships that have been built which provide important insights into the counter smuggling challenges faced in various countries and regions. The program will continue to carry out technical and best practices exchanges with high income countries, such as China. These peer-to-peer engagements allow NSDD to share technical expertise, but we look to our partners to make the investments and have immediate responsibility for the maintenance and sustainment of any equipment.

NSDD's updated strategy includes a focus on partner countries that are "one-step out" from nuclear and radioactive source countries where bilateral cooperation efforts have not been successful. This ring approach has included an emphasis on using flexible and modular radiation detection tools in the maritime and air traffic vectors. The Strategic Airports Initiative is focused on expanding the application of radiation detection systems in the Middle East and South Asia, whereas the Maritime Vectors Partnership focuses on unregulated, open waterways that have the potential of linking source materials to potential users/buyers. The operational

approach to these maritime activities will be to expand use of radiation detection equipment for land based and at sea operations.

A key element of NSDD's activities with partner countries is their sustainability program. While we have reached an 85% transition point, continuing to make progress in transitioning this responsibility is a continued emphasis. NSDD's unique relationships with partners underscore the need to remain engaged after transition with bilateral, regional, and international partners to support continued effective use of deployed systems. NSDD will continue its work with partners to further develop their training programs, including conducting workshops, field and training exercises, and drills to continue to enhance the international capacity to detect and interdict nuclear smuggling.

NSDD, like our other DNN offices, will need to continue to expand its engagement with international organizations as force multipliers. This means collaborating on capacity building efforts with the IAEA, European Commission Joint Research Center (EC-JRC), GICNT, Global Partnership, and INTERPOL. As we look forward from the 2016 Nuclear Security Summit, these organizations will be champions of continuing the strides made in advancing the global nuclear security architecture under the Summit process and will be a key component of long-term nuclear security.

As a result of NSDD's strategic review, we believe that NSDD and programs like it must remain vigilant and responsive to the evolving threat landscape. We have found that our approach to tailoring technical capabilities to their location and function is successful. Based on feedback from our partners, RPMs continue to be a key tool in the technology component to counter nuclear smuggling of the GNDA because they drive smugglers toward riskier and costlier behavior that exposes them to law enforcement or other means of detection. When RPMs are combined with other mobile and portable detection tools, we are able to close off many of the pathways smugglers might use.

V. ADDITIONAL PROGRAMS

Within DNN, there are complementary efforts that further the overall mission to detect, deter, and investigate illicit trafficking of nuclear and other radioactive material. Of particular note is the Commodity Identification Training (CIT) conducted by the Office of Nonproliferation and Arms Control. This course enhances the ability of enforcement personnel, primarily customs officers, to recognize and interdict strategic commodities. CIT Instructor Training prepares national specialists to provide CIT on a widespread basis and to provide support when inspectors request analysis of suspect items. This course is provided to many of the same partners as NSDD collaborates with and is another capacity that they develop in executing their overall border enforcement missions.

Also of note are the complementary international activities that are conducted by DOE/NNSA's Office of Counterterrorism and Counterproliferation (CTCP). This office is charged with

understanding nuclear threat devices (i.e., improvised nuclear devices, foreign nuclear weapons of a proliferant concern, and any device that may have fallen outside of a foreign state's custody). As this relates to NSDD, one area that CTCP is focused on is Emergency Response and Forensics. In accomplishing these missions, CTCP has collaborated with NSDD and its partners to provide technical expertise and collaboration on training, workshops, and other activities that further develop international nuclear nonproliferation capacity.

Beyond work within DOE/NNSA, we work with the Interagency to further enhance the capabilities of our partners. NSDD collaborates with the Department of State, Department of Defense, and FBI on field training exercises and workshops that focus on response plans and standard operating procedures, as they relate to radiation detection and border security. Depending on the event, each U.S. Government organization plays a different role and supports each other in these efforts. NSDD also regularly participates in coordination meetings with interagency counterparts.

An example of a NSDD collaboration with FBI is providing Radiation Detection and Investigative Techniques (RDIT) training to international partners. This training jointly provided by NSDD and FBI incorporates law enforcement elements into radiation detection operations and is extremely popular with our international partners.

Internationally, NSDD is involved with all of the major players who provide guidance and technical support on topics related to radiation detection and countering nuclear smuggling. This includes the IAEA, INTERPOL, EC-JRC, World Customs Organization (WCO), and GICNT. We provide subject matter experts to support training events, workshops, and guidance development.

VI. RECENT HOUSE COMMITTEE ON ENERGY AND COMMERCE (HE&C) INTEREST AND THE GAO REPORT

As you may know, bipartisan leaders of the HE&C sent a letter on May 2, 2016 to Secretary of Energy seeking further information on the current status of the DOE/NNSA NSDD programs. They noted that the purpose of the letter was in consideration of the fact that "recent international developments—particularly the rise of well-funded terror groups and the curtailment of U.S.-Russian cooperation on nuclear material security—have underscored the importance of NNSA's Nuclear Smuggling Detection and Deterrence (NSDD) programs." They noted that information reviewed to date has highlighted the importance of maintaining a strong deterrence and detection posture at foreign ports and border crossings, in partnerships with other nations, and mentioned that "given the current threat environment, now is not the time to weaken our detection and interdiction programs overseas." NSDD provided some follow-up briefings and will be providing additional information in response to the HE&C Committee's request.

As I mentioned earlier in this testimony, GAO recently completed an audit on NSDD. We were pleased that the audit underscored the importance of NSDD's work to enhance the global nuclear security architecture. The conclusion in particular noted that "NSDD plays a key role in building the capacity of its 59 partner countries to detect, interdict, and investigate the illicit trafficking of nuclear and radiological materials, and the use of NSDD-provided equipment has resulted in positive outcomes, including the interdiction of weapons-grade HEU."

VII. CONCLUSION

The threat posed by nuclear terrorism remains. Terrorist groups have sought nuclear and radiological materials and the expertise needed to weaponize them. Without the long-standing cooperation to improve the security of Russian weapons-useable materials, security conditions may weaken. Terrorist groups are taking root in under-governed spaces that hold radiological materials of concern. All of these facts underscore a critical component of U.S. national security strategy is to prevent the illicit trafficking of nuclear and radiological materials. This challenge is dynamic and requires a broad set of capabilities to be effective.

We have taken important steps forward in countering this threat through the deployment of detection systems, development of competent partners, and advancement of nuclear forensics capabilities. Through its strategic review, NSDD has further identified ways to lead the global effort to combat nuclear smuggling while remaining agile and responsive to the shifting threat landscape. The GAO report, while overwhelmingly positive, identified areas where NSDD can apply more rigorous tracking of milestones and goals, and NSDD is taking steps to respond to this guidance. Given NSDD's ability to adapt, widespread and diverse international partnerships, and ongoing collaboration with interagency partners, NSDD is uniquely poised to remain the global leader in deploying and sustaining the global nuclear detection architecture with the ultimate goal of preventing the use of a nuclear weapon or dirty bomb in the United States.

Thank you for the opportunity to appear before you today. I am happy to answer any questions.