Opening Statement

Of

Dr. Charles R. Gallaway

Director (Acting), Domestic Nuclear Detection Office

Department of Homeland Security

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Good morning Chairman Price, Ranking Member Rogers, and distinguished members of the subcommittee. As Acting Director of the Department of Homeland Security's (DHS) Domestic Nuclear Detection Office (DNDO), I would like to thank the Committee for the opportunity to discuss challenges in container security and to highlight the work DNDO is pursuing. I would also like to thank the Committee for its support of DNDO's mission to reduce the risk of radiological and nuclear (RN) terrorism for the Nation.

DNDO was established to improve the Nation's capability to detect and report unauthorized attempts to import, possess, store, develop, or transport nuclear or radiological material for use against the Nation, and to further enhance this capability over time. To that end, our work is guided by our development of an enhanced global nuclear detection architecture (GNDA). DNDO has developed a time-phased, multi-layered, defense-in-depth GNDA that is predicated on the understanding that no single layer of defense can detect all RN threats. For this reason, the GNDA provides multiple detection and interdiction opportunities overseas, at our borders, and within the United States to effectively increase the overall probability of system success. DNDO has worked with intra- and inter-agency partners to develop time-phased strategies and plans for improving the probability of detecting and interdicting RN threats. DNDO will continue to enhance the GNDA over time by developing better RN detection technologies, improving concepts of operations (CONOPS), enabling real-time reporting of detection events, and providing effective response to real threats.

My testimony today will share with the Committee some of our progress and plans related to promoting container security and also emerging mission requirements that will protect the United States from RN threats.

The United States border is the first layer within the GNDA where the United States has full control over detection and interdiction. As such, considerable effort and resources have been placed on this layer to provide comprehensive RN detection capabilities, particularly at ports of entry (POEs).

A key consideration in RN detection is the ability to effectively detect threats without impeding the flow of legitimate trade and travel across the border. United States Customs and Border Protection (CBP) currently scans cargo entering at our Nation's POEs using polyvinyl toluene (PVT)-based radiation portal monitors (RPMs) that can detect radiation, but cannot distinguish between threat materials and naturally-occurring radioactive material (NORM), such as kitty litter and ceramic tiles. To address this limitation, DNDO is developing next generation technology to automatically detect and distinguish threat from non-threat materials, while also reducing false alarm and referral rates. This will be especially important for POEs that have a high volume of containers, or those that see a high rate of NORM.

As you may know, DNDO initiated the Advanced Spectroscopic Portal (ASP) program in 2006. ASP units are now being developed under two separate contracts. These units have been subjected to one of the most rigorous testing campaigns of RPMs ever conducted prior to deployment. One of the systems has completed system qualification testing (SQT) to verify compliance with the performance specification; integration testing at Pacific Northwest National Lab (PNNL) to verify that ASP performance remains sound when it is integrated into the POE

architecture; two rounds of performance testing at the Nevada Test Site (NTS) to validate the detection and identification capabilities of ASP systems against special nuclear materials (SNM) and radioactive material that could be used in a radiological dispersal device (RDD); and is currently in the midst of field validation (FV) testing at four sites; results are being analyzed prior to further FV testing. The other system has completed SQT; performance testing at NTS; is about to undergo integration testing at PNNL and, if exit criteria are satisfied, will advance to FV. After FV, both systems will complete operational testing and evaluation conducted by the DHS Science and Technology Directorate's Operational Testing Authority. Test data will be provided in support of the Secretary's Certification decision. DNDO is also engaged with the National Academy of Sciences, to allow NAS to review ASP testing and inform the certification process, as required in the fiscal year (FY) 2008 Consolidated Appropriations Act. Indeed, in its most recent report on ASP testing, the Government Accountability Office (GAO) has acknowledged the many enhancements and lessons learned that DNDO has incorporated into its testing programs.

In addition to improving the basic functionality of the RPMs, DHS faces a number of unique challenges to securing cargo at our POEs that may require development of new CONOPS or technologies in order to mitigate risks. For example, the intermodal transportation of containerized cargo at terminals which transfer containers from a ship to a rail facility that is within the terminal, referred to as "on-dock rail", accounts for approximately 2% of all import containers to the United States. These shipments leave on rail cars that bypass the detectors at the terminal exit gate, which scan the trucks departing with the other 98% of the containers.

Operational testing at the Rail Test Center (RTC) at the Port of Tacoma has demonstrated that mobile RPM (mRPM) systems can be used to scan cargo where special carts or container chassis move the containers to the rail facility, but this approach is not applicable where ports use straddle carriers in this role. For these terminals DNDO, CBP and the Department of Energy (DOE) are investigating alternative technologies including "spreader bar" detectors and straddle carrier portals. Recent tests by both CBP and DOE have indicated technical weaknesses in the spreader bar approach, so DNDO is moving forward with the construction of a straddle carrier portal test article at RTC this year. We will reach a key decision point next year, where the results of spreader bar detection systems tested by CBP and DOE can be compared to the results of prototype straddle carrier portal testing by DNDO at RTC. At that point, we will identify the most effective mix of spreader bar detectors, straddle portal detectors, or a combination of the two approaches.

Another key DNDO program seeks to address the threat of shielded nuclear materials placed in cargo conveyances that passive spectroscopic systems, such as ASP, are not capable of detecting. DNDO is also working with CBP to address next-generation radiography needs that can utilize radiography scanning to detect RN threats. The Cargo Advanced Automated Radiography System (CAARS) program is specifically designed to automatically detect shielded nuclear material. Since beginning the program in 2006, however, the commercial marketplace has made many advances. This, coupled with lessons learned from the ASP program - namely that high-risk development should not necessarily be procured concurrently with production - has led DNDO to de-scope the CAARS program from an acquisition program to a research and development-focused program. Under the new course, FY 2009 CAARS activities will subject

both CAARS systems and commercially-available systems to a test and evaluation program and a final demonstration of the products.

Similarly, DNDO is also making progress on our Human Portable Radiation Detection Systems (HPRDS) program, which is designed to meet Federal, State, and local law enforcement and other first-responder requirements for detectors with enhanced capability to detect and identify RN materials, at less cost, and lower weight. HPRDS are being designed so as to easily facilitate phased improvements of early systems through the incorporation of these next-generation capabilities. Requirements from land borders, aviation, maritime, and interior customer groups have been brought to bear on the HPRDS development process to ensure that these next generation systems address mission needs to the highest degree possible.

One thing that DNDO has learned in its short existence is that industry, even without government funding, often continues to develop commercial-off-the-shelf (COTS) detectors that may satisfy a greater range of requirements with limited additional development. DNDO has accordingly adjusted its strategy to investigate opportunities to address certain needs by developing customer-driven design modifications to currently available human portable equipment. In addition to these efforts, DNDO will develop human portable systems that transition successfully from our transformational research and development work. As we work at DNDO to improve our business models, we are looking at additional ways to leverage COTS technology wherever appropriate.

DNDO also has a Congressional mandate to set Technical Capability Standards and implement a test and evaluation program to provide performance, suitability, and survivability information and related testing for preventive RN detection (PRND) equipment in the United States. In fulfillment of this requirement, we have established the Graduated Rad/Nuc Detector Evaluation and Reporting (GRaDER) program to assure independent and consistent testing of radiation detectors. This program will be leveraged to ensure technologies advanced by industry will be considered for acquisition programs, as appropriate. We are in the first phase of this program that will provide for commercially-driven and privately-funded testing of COTS rad/nuc detection systems. GRaDER will work with the DOE and the National Institute of Science and Technology (NIST) to use the National Voluntary Laboratory Accreditation Program (NVLAP) to support testing of COTS radiation detection detectors. PNNL has already received NVLAP accreditation, and it is anticipated that the first units to be tested through GRaDER will be COTS handheld detectors. Results of the GRaDER program will also be made available to DHS components and State, local, and tribal law enforcement and first responder agencies to inform their procurement and grant process.

To address gaps in the GNDA that remain unfulfilled by current technologies for RN detection, DNDO established a transformational research and development program that identifies, explores, and develops scientific and technological approaches that will dramatically improve the performance of nuclear detection components and systems. We have three efforts underway that support long-term research – Exploratory Research, Advanced Technology Demonstrations (ATDs), and a dedicated Academic Research Initiative (ARI). There is tremendous involvement with the National Labs, private industry, and academia for these efforts. I am proud to say that

these programs have already yielded some very promising results that we hope will make a tangible impact on this Nation's nuclear detection capabilities in the future.

Just as one example, there have been major advances made in the area of new materials for passive radiation detection. Since all detectors rely on some material to detect the radiation emitted by a threat, discoveries of new, more effective detection materials have a high payoff because they can be incorporated into many different types of detectors for many different applications or threat scenarios. For gamma-ray detection, the new materials will result in detectors that are more efficient, cheaper, or have improved ability to reduce false alarms. For neutron detection, DNDO is accelerating the final development and initial production of new materials to replace the scarce, but presently-used, helium-3 by the end of FY 2009 or early FY 2010. To put this in perspective, to advance from the discovery of a new detector material to construction of prototype instruments in the space of two-three years is really remarkable. It is our intent to continue and accelerate these material research successes in FY 2010.

Our ongoing work with CBP to facilitate container security has resulted in the scanning of 98% of all incoming containerized cargo for RN at our land and sea ports of entry. Due to this significant progress, DNDO is now able to place a greater emphasis on gaps and vulnerabilities that the GNDA identified in other pathways – namely land borders between POEs, maritime, air, and the interior - that have previously received little, if any, attention.

One successful strategy that DNDO has used to fill these gaps to date is that of "piggy-backing" on existing security programs. In the land border between POEs, DNDO initiated the Phased Deployment Implementation Plan (PDIP) with CBP to evaluate and field test potential RN detection options where no off-the-shelf solutions are currently available and environmental conditions are particularly challenging. DNDO expedited the procurement of radioactive isotope identification devices (RIIDs) to provide CBP with an initial operating RN detection capability, and will improve that capability over time. Similarly, DNDO has coupled RN capabilities with the Transportation Security Administration's (TSA) Visible Intermodal Prevention and Response Teams (VIPR) to provide a greater Federal detection capability and add an additional layer of RN detector-equipped law enforcement personnel in support of the GNDA. Through the delivery of tailored training and a suite of RN detection equipment, the TSA VIPR teams will become another Federal asset that can perform regular PRND operations and may be called upon during periods of heightened alert levels. Prior to DNDO's involvement, the VIPR teams had no preventive RN detection capability.

In the maritime environment, DNDO has established the West Coast Maritime Pilot to work with authorities in Washington's Puget Sound and the San Diego area to design, field, and evaluate a RN detection architecture (specific to each selected region) that reduces the risk of RN threats that could be illicitly transported on recreational craft or small commercial vessels in a "direct-to-target" scenario. The project aims to develop RN detection capabilities for public safety forces for use during routine public safety and maritime enforcement operations. In addition to this pilot, we have tested boat-mounted detection systems under our Crawdad test campaign.

DNDO has similarly expanded work to secure the air pathway – both commercial operations and general aviation. Within the aviation pathway, RN threats may be transported via air as a

prelude to an attack elsewhere, or the actual attack involving an RN threat device may be executed and delivered by air. As a result, DNDO is working closely with CBP to enhance capabilities to detect and interdict illicit RN weapons or materials entering the United States via the international general aviation pathway. These efforts included a test campaign, with CBP officers, at Andrews Air Force Base in 2008 that characterized CBP's current radiological scanning capability and identified methods to improve effectiveness by enhancing equipment and operational techniques.

To further build upon the layered structure of the GNDA, DNDO works within the Nation's borders to develop PRND capabilities for urban areas, transportation vectors, special events, and State and local entities. Whether it be through the Securing the Cities Program, the Southeast Transportation Corridor Pilot, or other regional activities, DNDO works regularly with Federal, State, local, and tribal entities to integrate nuclear detection capabilities in support of the GNDA. DNDO initiated a State and Local Stakeholder Working Group with 25 States and territories meeting approximately once a quarter to bring the Nation's PRND community together, inform participants on activities within DNDO and the community, and obtain feedback on DNDO's programs and initiatives. State and local authorities also can use the PRND Program Management Handbook created by DNDO which provides consistent guidance for building or enhancing State and local PRND programs. In FY 2008, DNDO used a five course training curriculum to train over 7,400 law enforcement, first responder personnel, and public officials, and has provided Federal, State, and local exercise support as a validation instrument to evaluate their RN detection, deterrence, prevention, reporting, vulnerability reduction and alarm adjudication capabilities in a risk-free environment.

To address the critical area of nuclear forensics, DNDO stood up the National Technical Nuclear Forensics Center (NTNFC) as a national-level interagency office. NTNFC serves as the national "system integrator" weaving together the various specialized nuclear forensics activities across a number of different agencies. This role includes exercising, assessing, planning, and providing overarching stewardship. NTNFC also leads the development of the national capability for pre-detonation rad/nuc materials forensics, which provides the technical capabilities to rapidly, accurately, and credibly conduct nuclear forensics to support attribution conclusions about the origin, nature, and pathways of interdicted threats.

A related area of concern identified by the American Association for the Advancement of Science, the American Physical Society, the White House Office of Science and Technology Policy, and the National Academy of Sciences is the loss of trained individuals versed in nuclear science and engineering. DNDO has begun efforts to address these "pipeline" issues on multiple fronts, including awards of academic fellowships, internships, and research grants to academic institutions and national laboratories. The goal is to reinvigorate the nation's pool of trained nuclear scientists and engineers. These individuals represent an investment in the future of DNDO, the overall GNDA, and the nation's long-term security.

Many facets of DNDO's work directly impact container security and, over the lifetime of DNDO, technologies and strategies to secure containerized cargo have been developed and implemented, so that the large majority of incoming cargo is physically scanned by CBP officers. By working with our DHS and interagency partners, DNDO is continuing to assess the best

technological solutions for use at our borders. We remain committed to providing cutting-edge detection technology that can be used in a variety of environments by Federal, State, local and tribal operators to address identified vulnerabilities in the GNDA. RN detection at our official POEs is but one layer of the entire GNDA, which encompasses a broad perspective to mitigate risk. Detection technologies and strategies are coupled with DNDO's operational support services to ensure that personnel on the front lines are properly trained in the PRND mission, alarms are promptly resolved, and detection of threats is seamlessly transitioned to operational response. Continuous coordination with interagency partners and State and local officials allows DNDO to integrate user requirements with technological solutions to address vulnerabilities. I look forward to continuing to work with components within DHS, other departments, State and local agencies, and the Members of this Subcommittee and Congress to pursue this goal.

This concludes my prepared statement. Chairman Price, Ranking Member Rogers, and Members of the Subcommittee, I thank you for your attention and will be happy to answer any questions that you may have.