Statement of David Huizenga
Assistant Deputy Administrator
Office of International Material Protection and Cooperation
Defense Nuclear Nonproliferation
National Nuclear Security Administration
US Department of Energy
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Introduction

Thank you Chairman Lautenberg, Ranking Member Smith, and other distinguished members of the Subcommittee. I am the Assistant Deputy Administrator for the Department of Energy – (DOE) National Nuclear Security Administration's (NNSA) Office of International Material Protection and Cooperation (IMPC). My office is one of six program offices within the Office of Defense Nuclear Nonproliferation (DNN). The collective mission of DNN is to detect, prevent, and reverse the proliferation of weapons of mass destruction. Our programs are structured in support of multiple layers of defense against nuclear terrorism and state-sponsored nuclear proliferation. This multi-layered approach is intended to identify and address potential vulnerabilities within the international nonproliferation regime, to limit terrorists' access to deadly weapons and material, and to prevent the illicit trafficking of dangerous materials that could be used in a nuclear or radiological weapon.

Today, I will be discussing NNSA's Megaports Initiative and our role in the Secure Freight Initiative (SFI). I would like to highlight recent progress made under SFI and Megaports. I will also address some of the positive lessons learned from the SFI Pilot deployments and key hurdles that we will have to overcome in order to accelerate and expand the radiation scanning of US-bound containers at foreign seaports as required by the Safe Port and 9/11 Implementation Acts. In short, building on decades of experience securing nuclear materials in DOE's nuclear weapons complex, NNSA is supplying radiation detection equipment and relevant training to the SFI ports to scan containers for the presence of nuclear and other radioactive materials that could be used by terrorists to fabricate a nuclear or radiological dispersal device.

In summary, we have learned a lot from SFI pilot implementation. The SFI deployments in Honduras, the United Kingdom, and Pakistan indicate that scanning US-bound maritime containers is possible on a limited scale. We have proven that we can effectively integrate data from radiation detection equipment and non-intrusive imaging equipment to improve our overall detection capability, and that we can take this large amount of data and transmit it near real-time to the United States for analysis. While we have been successful at these three locations, transshipment continues to present the

greatest challenge to fully implementing the 100% scanning requirements. It is clear that obtaining buy-in from the foreign governments and key stakeholders at the port is critical to success. Overall, the concept of scanning US-bound containers overseas has proven to be viable in some cases, but we continue to believe that a risk-based approach to deployment of these systems is the best use of available resources.

We know that the threat of nuclear terrorism is real. It is common knowledge that Al-Qa'ida's desire to develop weapons of mass destruction goes back at least 10 years. But we also know that ongoing nuclear detection efforts have successfully resulted in seizures of nuclear and radiological materials – underscoring the importance of the nuclear detection mission. For example, in 2003, Georgian border guards, using US-provided portal monitoring equipment at the Sadakhlo border crossing with Armenia, detected and seized approximately 173 grams of highly enriched uranium (HEU) carried by an Armenian national. Also, in late 2005, a Megaports radiation portal monitor (RPM) picked up a neutron signal from a scrap metal container leaving Sri Lanka bound for India. The source of the signal turned out to be an extremely small commercial neutron source, which was found by the Indian authorities. More recently, in November 2007, several Cesium-137 sources were detected in a container of scrap metal leaving Honduras bound for a smelting facility in the Far East. An NNSA team assisted the Honduran Government with the recovery of the industrial sources, preventing those sources from reaching, and possibly contaminating, the facility. These examples provide clear evidence that detection systems are effective in alerting us to the presence of very small quantities of radioactive material and therefore play an important role in our efforts to combat the threat of nuclear terrorism.

Overview of the Material Protection Effort

For the last 15 years, the IMPC office has focused on securing nuclear materials and weapons at well over 100 research, storage and manufacturing facilities in Russia and other states of the Former Soviet Union. Our longstanding nonproliferation programs in international safeguards and export controls have existed for more than 30 years, but the dramatic increase in our efforts to secure nuclear material took place in the years following the demise of the Soviet Union. All of our efforts are centered on the premise that confronting the threat of nuclear terrorism as close to the source as possible, far from our borders, is the most effective means to reduce the risk of an attack. This focus on securing nuclear weapons and materials in-place is the ***first line of defense*** in our strategy to deny terrorists access to the essential element of a nuclear weapon - fissile material. We are scheduled to complete the vast majority of the nuclear security upgrades at these facilities by the end of 2008 as part of the Bratislava Agreement between President George W. Bush and then-Russian President Vladimir Putin.

Second Line of Defense (SLD) Program

The ***Second Line of Defense*** (SLD) Program – the other mission area of my office – is a natural complement to these activities and supports the multi-layered defense system to protect the US homeland from attack by a nuclear or radiological dispersal device. The

mission of the SLD program is to strengthen the capability of foreign governments to deter, detect, and interdict illicit trafficking in nuclear and other radioactive materials across international borders and through the global maritime shipping system. Under this program, NNSA works collaboratively with foreign partners to equip border crossings, airports and seaports with radiation detection equipment. SLD provides training in the use of the systems for appropriate law enforcement officials and initial system sustainability support while the host government assumes long-term responsibility for the system's operations and maintenance. To date, under the SLD Program, NNSA has installed over 1,000 radiation portal monitors (RPMs) at over 160 sites. The SLD Program has recently awarded contracts to three teams at a value of up to $700 million for the equipment, design, integration, and construction expertise to support the deployment of systems in additional locations. The SLD program is divided into two areas: the ***Core Program*** and the ***Megaports Initiative***.

Under our ***Core Program***, NNSA focuses primarily on partnerships in Russia, former Soviet states, and Eastern Europe to install radiation detection systems at land borders, international airports, and strategic feeder ports. The SLD Core Program started in 1998 in Russia. Since its inception, the Core Program has worked closely with the Federal Customs Service of the Russian Federation to deploy radiation detection systems to international crossing points throughout Russia. With our Russian colleagues, we have committed to equip all border crossings in Russia (approximately 350 sites) by 2011. Russian Customs is a full partner in this effort and is paying to equip approximately half of these sites themselves. In addition, they will be assuming responsibility for the maintenance of all equipment deployed under this program by 2013.

Megaports Initiative

Building on the experience we have gained by equipping 20 seaports in Russia under the SLD Core Program, in 2003 we expanded the scope of the program to consider large seaports worldwide with the establishment of the Megaports Initiative. This effort was developed in response to the concern that terrorists and states of concern might use the global maritime shipping network to smuggle nuclear or other radioactive materials to locations where terrorists could utilize those materials to fabricate or detonate a nuclear weapon or radiological dispersal device. The goal of the Megaports Initiative is to scan as much container traffic at a port as possible (including imports, exports, and transshipments) regardless of destination.

We began with a focus on the first 20 seaports in the Department of Homeland Security's Container Security Initiative (CSI), i.e., the ports shipping the largest volumes of containerized cargo to the United States. Supported by consultations with the Intelligence Community, private-sector specialists, and our national laboratories, we later added a threat component to our prioritization strategy. As a result, we identified approximately 75 ports of interest (i.e., a little over 10% of the total number of container ports shipping directly to the United States) for the deployment of our systems. We update this list periodically based on new information.

I am pleased to report that we have made significant progress on the Megaports Initiative over the last five years. We are currently operational in 12 ports (including the three ports selected as pilots under the Department of Homeland Security's Secure Freight Initiative and as mandated by the 2006 SAFE Port Act). We are at various phases of implementation and testing in 27 additional ports. We expect to complete eleven of these ports by the end of this fiscal year. We are finalizing agreements with a number of additional countries and continue to conduct outreach and planning activities with approximately 30 other major international seaports in anticipation of implementation in the future. Our goal is to equip approximately 75 priority ports by 2013, at which point we estimate that we will be scanning over 50 % of global shipping traffic.

Support to Secure Freight Initiative

NNSA has been partnering with the Department of Homeland Security's Customs and Border Protection (CBP) for several years on its container security initiatives. The synergy between the Megaports Initiative and the Container Security Initiative (CSI) is an important element in ensuring the security of US-bound containers – radiation detection equipment provided by NNSA under the Megaports Initiative provides an additional tool that enhances risk assessment and targeting activities at foreign seaports in support of CSI. NNSA has participated with CBP on joint outreach missions and has signed seven agreements jointly with CBP and our international partners to implement both Megaports and CSI. Because of the success of the Megaports Initiative and our ongoing relationship with CBP, partnering on the Secure Freight Initiative (SFI) mission was a natural fit.

In support of SFI, NNSA has provided radiation detection equipment, and associated optical character recognition (OCR) technology, integrated software and communications systems, as well as training and maintenance support, to host and US government officials at SFI ports. SFI builds upon existing port security measures by utilizing the OCR technology to integrate data from radiation detection and non-intrusive imaging equipment, along with data from secondary inspection equipment, thereby providing more comprehensive information about US-bound containers that strengthens existing risk assessment efforts.

SFI Pilot Lessons Learned and Challenges to 100% Scanning

Let me start by stating that the SFI pilots have demonstrated that 100% scanning of US-bound containers is possible on a limited scale. Operationally, we have been able to demonstrate three different approaches to integrated scanning of the US-bound containers at overseas ports that provide valuable lessons learned as we look to expand scanning efforts to additional ports. We were able to demonstrate both the feasibility of transmitting large amounts of data in near-real time for review and analysis by CBP and the host nation, and the successful integration of multiple sets of data by electronically linking container ID number to scanning data through use of OCR technology. Coupling radiation scans with imaging efforts increases our chances of detecting shielded HEU, because the image allows us to look for anomalies within the contents of the shipping container that might indicate shielding and therefore warrant further inspection. Under

SFI, we have demonstrated that these two technologies can be integrated effectively without negatively impacting the flow of commerce, albeit at relatively small ports. We were also able to take advantage of the SFI pilot project in Southampton England, to demonstrate the use of an advanced spectroscopic portal (ASP) as a secondary inspection tool that should dramatically improve the secondary inspection process in terms of reliability, process time, and manpower requirements. Based on lessons learned and the results of the pilot in Southampton, we plan to deploy ASPs to additional Megaports around the world for use in secondary inspections.

Additionally, our partnership with CBP on SFI implementation has been successful and the roles and responsibilities have been well defined. As we have done in our cooperation with CBP for the last several years, we continue to explore ways to maximize use of NNSA and CBP resources, in order to streamline SFI implementation and avoid duplication of efforts.

Nonetheless, in addition to the positive lessons learned from the SFI pilot ports, there are still several challenges to implementing 100% scanning of all US-bound containers at overseas ports. We believe that scanning US-bound containers overseas is possible at some locations; however, scanning every US-bound container at a foreign port before it arrives in the United States presents significant operational, technical, cost, and diplomatic challenges. There are a few challenges, in particular, that I would like to focus on as these have the most direct impact on NNSA and the Megaports Initiative.

Transshipment

First, while the operational Megaports and the SFI pilot ports have shown that gate traffic can be easily captured by taking advantage of existing chokepoints into and out of a port, transshipped cargo continues to present a significant challenge for both SFI and Megaports implementation. Because of shorter dwell times for containers, space constraints, availability of shipping data, and the difficulty of identifying chokepoints within the container terminals, capturing transshipments without seriously impacting port operations requires new and creative solutions.

From a technical standpoint, NNSA has been innovative in its approach to scanning transshipped containers. The first mobile detection platform, a straddle carrier, was deployed at the Port of Freeport in the Bahamas in June 2006 using both plastic Polyvinyl Toleune (PVT) for primary detection and a spectroscopic detector for secondary isotopic identification. NNSA, working in conjunction with the terminal operator, Hutchison Port Holdings, has successfully scanned over 730,000 containers at Freeport Container Terminal. We will soon be issuing a request for proposals to provide straddle carriers equipped with radiation detectors at additional transshipment ports.

NNSA is also evaluating a new mobile platform for scanning transshipped containers on the quay at the Port of Salalah, Oman. The mobile system will increase the number of transshipped containers that can be scanned as well as improve the effectiveness and efficiency of the scanning process of transshipped containers with the same efficiency as

fixed monitors. Containers will be scanned using the Mobile Radiation Detection and Identification System (MRDIS) – utilizing a plastic PVT for primary detection and a second MRDIS unit with spectroscopic detectors for secondary isotopic identification.

NNSA is currently analyzing crane-based technology, which, if proven effective for the radiation detection component, would improve our ability to scan transshipped containers. In this regard, we are working closely with our colleagues at CBP and at the Domestic Nuclear Detection Office (DNDO) in evaluating private-sector efforts to develop a crane-based radiation detection system utilizing existing spreader-bar technology. We recently conducted a suite of tests on a spreader-bar in the Port of Oakland, California, and will be participating in CBP's upcoming evaluation of spreader-bar systems at their test bed at the Port of Tacoma, WA. We anticipate conducting additional testing and analysis on the effectiveness of these systems at one of our national laboratories later this summer.

While we are hopeful that these technologies will help address the transshipment issue for radiation scanning, it is currently unclear if it would be possible to pursue similar technological solutions to conduct the complementary non-intrusive imaging (NII) scan. In the near term, coupling radiation scans with NII operations at transshipment ports is likely to continue to pose significant technological and operational challenges.

Cost

Moving beyond operational and technical challenges, there is also a significant cost to scanning all US-bound containers before they reach the homeland. Even if technology is developed to effectively scan 100% of US-bound containers with both the detection and imaging systems without impacting port operations, it may not necessarily be a cost-effective risk management strategy to equip the 700+ ports that ship directly to the United States. As I mentioned earlier, Megaports and SFI are two programs that support a multi-layered approach to increasing our security against nuclear and radiological threats and defending the homeland from terrorist attacks. We need to ensure that we continue to expand nuclear detection and container security efforts overseas without neglecting other areas of concern that potentially pose greater risk and vulnerability to the country. For example, NNSA also has a responsibility to apply resources and efforts to broader nonproliferation programs including our international material protection program – securing materials at the source – and the SLD Core Program. We must strive for an effective layered strategy that addresses multiple threats and risks in order to reduce the likelihood that dangerous materials will fall into the hands of terrorists. NNSA will continue to promote the use of a risk-based approach to guide implementation priorities to scanning US-bound containers. We will work closely with our interagency partners to prioritize countries and ports as we move ahead with the Megaports Initiative and implementation of SFI, as this approach allows us to utilize our resources and funding in the most effective way.

One obvious way to address the cost of overseas scanning is to encourage cost-sharing with host governments and with private industry. Indeed under the Megaports program,

we are finding ways to do this where we provide equipment and training and the host government is responsible for design, construction and installation costs. We are also discussing various models with industry and encouraging them to integrate scanning into their fundamental port operations. Beyond purchasing and installing radiation detection equipment, an integrated scanning system requires effective staffing levels to assess and respond to radiation alarms and image anomalies. Our host nation partners (both government and private sector) will also have to absorb costs associated with increased staffing levels including overtime, training, and personnel assigned to full-time operations.

Data Sharing

Our partnership with the host government also relies on the exchange of information, including scan and image data. One of the lessons learned during the SFI pilot phase is that for some countries, the data sharing requirement presents a significant challenge, either because there are specific laws that prohibit or limit the provision of this type of information or because there is no existing legal framework to allow it to happen. These concerns, along with the issue of reciprocal provision of information on cargo leaving the US, will need to be addressed if we continue to expand SFI.

Information exchange is also an important element of the Megaports Initiative. Under Megaports, we have been able to address this issue by limiting the information we receive to data on detections and seizures and by developing specific data-sharing formats; however, it is important to note that data under Megaports is not received in real-time. It is provided to CSI if in-country and to the Embassy.

Stakeholder Partnerships

Which brings me to the last point…a critical aspect to implementation of scanning initiatives is host nation and terminal operator buy-in. I cannot underscore enough that SFI or Megaports Initiative implementation cannot be successful without the partnership of the host nation, port authority, terminal operators, and other key stakeholders at the port. We have been very successful where we have strong partnership with our host nation partners. Alternatively, we have had considerable implementation challenges where we have not. For that reason, we will continue to partner with CBP to conduct joint outreach missions in attempt to garner both host government and private-sector support for these critical initiatives. We believe that integrating security measures into the design and business practices of the supply chain will improve security with the least amount of disruption to legitimate trade and could ultimately reduce costs through increased efficiencies. NNSA will continue to work closely with DHS, host nations, and the major marine terminal operators to develop and implement strategies for increasing container security without impacting port operations.

All in all, the lessons learned during Phase I of SFI implementation have provided us with useful information on how to move ahead with our nuclear detection efforts in the future. However, there are many hurdles and significant costs associated with 100%

scanning of US-bound containers that need to be carefully considered as we move forward with the SFI program.

Conclusion

In summary, NNSA is committed to continue to expand our Megaports program to scan overseas containers independent of destination and partner with CBP in the SFI efforts to scan US-bound containers. As we consider the expansion of SFI, I believe that NNSA and CBP should continue to work together to identify the ports at which we would like to work by applying the principles of risk-based prioritization, which include both volume and regional threat. We have both utilized such approaches successfully in the past.

We will also continue to work with DHS and the private sector to explore new concepts of operation that will enable us to scan more containers and to investigate new technologies to scan transshipped containers without impacting port operations. We will continue to advocate with the major marine terminal operators that partnering with NNSA and DHS on these container security initiatives makes good business sense.

Finally, while NNSA will continue to support SFI implementation, the Megaports mission has proven to be an important element of our multi-layered defense strategy both from a nonproliferation and counter-terrorism perspective. Indeed, the program is already operational in 12 ports around the world and several more ports should go operational this year. NNSA will continue to push forward with the Megaports Initiative to meet our goal of 75 Megaports by 2013.

I want to thank Congress for their continued support of our program. I hope that the information that I have provided will be useful to the Subcommittee as it considers the SFI pilot project and the future of SFI implementation.

Thank you. I would be happy to answer any questions you may have.