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“Addressing a New Generation of WMD Threats”
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Thank you very much for the opportunity to testify today on NNSA's nuclear security programs to reduce the global threat of nuclear proliferation. This hearing is particularly timely, as it touches upon many issues at the forefront of today's national security—and international security—agenda, including: brokering a new strategic relationship with key allies such as Russia on mutual nonproliferation and nuclear security objectives; addressing continued challenges such as North Korea and Iran; and stepping up U.S. and multilateral efforts to prevent terrorist acquisition of nuclear weapons and related materials. I am proud of the NNSA's contributions to addressing the global threat of nuclear proliferation, and am honored to share with the Committee today our work to mitigate global risks.

This nonproliferation and arms control suite of activities complements the Department's recognized capabilities in counterterrorism, emergency operations, and WMD intelligence and analysis. In addition, consistent with the President's call for progress towards a world without nuclear weapons, NNSA provides technical support for negotiations of the START follow-on agreement, Comprehensive Nuclear Test-Ban Treaty (as well as supporting the President's CTBT objectives by ensuring a safe, secure and reliable nuclear weapons stockpile in the absence of testing and supporting the elements necessary to verify the treaty), and a verifiable Fissile Material Cutoff Treaty. However, I will focus my remarks on the nonproliferation capabilities that the Committee has expressed an interest in hearing about today.

My remarks today will focus on three areas:

- Today's global nuclear proliferation threat and NNSA's nuclear nonproliferation strategy and response;
- NNSA's role in the President's nonproliferation strategy; and
- Our planned future activities to achieve these crucial national security objectives.

I have often had the opportunity to speak to some Members of the Committee on the important work NNSA's Nuclear Security Enterprise carries out to ensure that the United States nuclear stockpile remains safe, secure and effective to deter any adversary, and provide a defense umbrella to our allies. While today I am speaking on a separate component of NNSA's national security mission, the nonproliferation component of NNSA's national security mission relies upon similar scientific and technical expertise. It is that scientific and technical nuclear expertise, combined with our proven track record of international program implementation, which has allowed the NNSA to become the most effective nonproliferation organization in the world.

As the Committee is aware, today's proliferation challenge is dramatically different from that faced by the United States forty years ago, or even twenty years ago. We remain concerned about the spread of nuclear weapons to new countries, but are increasingly concerned about the spread of nuclear weapons capabilities, and the necessary nuclear materials, equipment, and technologies themselves, as well. North Korea's continued defiance of the international community through its WMD-related missile and nuclear activities makes clear the urgency of today's global nuclear threat. Revelations regarding the intricacies of the A.Q. Khan illicit procurement network and the International Atomic Energy Agency's investigations into Iranian and Syrian activities, as well as concerns about the potential acquisition of nuclear weapons by non-state actors, demonstrate the unprecedented scope and complexity of the task facing us today .

However, while the global proliferation threat has evolved over the years, the primary proliferation choke-point has not. The most difficult task for a would-be proliferator—whether an individual country or a non-state actor—remains acquiring the necessary fissile material. For this reason, NNSA's highest nuclear security priority remains keeping these dangerous materials out of the hands of the world's most dangerous actors. Preventing access to nuclear weapons and fissile material has many dimensions. The most direct way to prevent acquisition of nuclear weapons is by denying access to fissile material.

NNSA's Material Protection Control and Accounting (MPC&A) program utilizes NNSA's nuclear security expertise and experience to secure nuclear materials in place, by working cooperatively with partner countries in Russia and the former Soviet Union to implement sustainable material protection, control and accounting programs at nuclear facilities. The MPC&A Program helps its partners develop a robust, multi-layered, and domestically sustained MPC&A infrastructure using a structured and graded approach. To date, the MPC&A Program has completed nuclear security upgrades at 73 Russian nuclear warhead sites, 39 Russian Navy sites, 25 Russian Strategic Rocket Forces (SRF) sites, and 9 sites of the 12th Main Directorate of the Russian Ministry of Defense. Additionally, the MPC&A program has improved nuclear security at 37 Russian nuclear material sites. Within these sites, a total of 214 buildings containing nuclear material have been identified for security upgrades, and 87% of these buildings have been upgraded. Beyond Russia, the MPC&A program has also completed upgrades at 15 buildings containing nuclear material at 13 sites in the Former Soviet Union (FSU), and

completed a series of security workshops and joint projects with China. The MPC&A Program supports the long-term sustainability of these improvements through many related activities such as regulatory development and improvements in training, security culture, protective force capabilities and secure transportation assets.

NNSA's Global Threat Reduction Initiative (GTRI) also builds the first layer of defense, through 3 different categories of activities at civilian nuclear and radiological sites. First, GTRI strengthens security through physical protection upgrades at civilian nuclear and radiological sites in 57 countries across the globe. Second, using NNSA's nuclear reactor and fuel fabrication expertise, GTRI works to convert research reactors that use highly enriched uranium (HEU) to less-proliferation sensitive low enriched uranium (LEU) fuel and, where needed, develops high-density replacement LEU fuels to support other conversions. Third, GTRI helps repatriate HEU fuel to its country of origin, reducing and consolidating stocks of HEU that would be attractive to proliferators or terrorists. To date, GTRI has converted 57 HEU-fueled research reactors in 32 countries to the use of LEU fuel, and shutdown another 7. GTRI has returned 910 kilograms of Russian-origin HEU for secure storage and/or downblending in Russia, over 1,200 kilograms of U.S.-origin HEU, and more than 176 kilograms of other HEU and plutonium that could not be repatriated under the U.S.-origin and Russian-origin programs (otherwise known as gap material). Together, these NNSA efforts have helped secure enough HEU for more than 90 nuclear weapons.

Nuclear safeguards are also an important part of securing nuclear material. NNSA's Nonproliferation and International Security program employs NNSA's nuclear accounting expertise to enhance nuclear material verification and nuclear safeguards overseas, another key element of the first line of defense. Through the HEU Transparency program, NNSA and our Russian counterparts are verifying the downblending of 500 metric tons of Russian weapons-origin HEU, which then provides fuel for commercial U.S. reactors and provides 10% of all U.S. electricity. To date, this effort has verifiably downblended 367 metric tons of HEU—enough for 14,700 nuclear weapons.

Within this office, the Nuclear Noncompliance Verification (NNV) program develops technologies, equipment, and analytical methodologies to verify declared nuclear activities, detect undeclared nuclear materials and activities, and implement dismantlement and verification of nuclear programs in countries of proliferation concern. The program also provides technical and operational support for USG nonproliferation policies and activities, and oversees DOE participation in the U.S. Support Program to IAEA safeguards, which develops equipment and technology and provides inspector training and consultant support to the IAEA Department of Safeguards. The International Nuclear Safeguards and Engagement Program works bilaterally with 18 countries, Taiwan, the European Atomic Energy Community (EURATOM), and the Brazilian-Argentine Agency for Accounting and Control of Nuclear Material (ABACC) to enhance nuclear safeguards approaches and techniques, to the benefit of both sides. In 2008, NNSA launched the Next Generation Safeguards Initiative (NGSI) to develop the technology, concepts, and expertise necessary to strengthen the International Atomic

Energy Agency (IAEA) and the international safeguards system to confront the challenges posed by nuclear proliferation and the anticipated global nuclear energy expansion. Although this is a new initiative, we have already achieved several early successes, including the development of new types of portable inspection equipment and supporting more than 50 safeguards internships and safeguards courses across several National Laboratories.

The *second line of defense* against nuclear proliferation consists of developing an infrastructure to deter, detect, and respond to illicit trafficking of nuclear materials and related equipment. As the A.Q. Khan network demonstrated, gaps in the nonproliferation regime can be exploited to give proliferators (or terrorists) an opportunity. As the second pillar of our nonproliferation strategy, several NNSA programs work to strengthen international capabilities to detect, deter, and interdict illicit nuclear materials and nuclear-related smuggling. NNSA's Second Line of Defense program provides radiation detection equipment, training, and sustainability support to bolster nuclear materials detection and interdiction capabilities at key airports, border crossings, and seaports (through the Megaports program).

The Second Line of Defense Core Program has equipped a total of 161 sites in Russia with radiation detection systems and is partnering with the Russian Federal Customs Service to jointly equip all of Russia's border crossings (approximately 370 sites) with radiation detection equipment by the end of 2011. The Core Program has also equipped a total of 69 sites outside of Russia with radiation detection equipment systems. The Core Program is also working with foreign law enforcement entities to deploy mobile (e.g., van-mounted) radiation detection systems to enhance their efforts to deter, detect, and interdict along unofficial "green" borders and at points internal to the country.

The Second Line of Defense Megaports Initiative has completed installations at 23 ports in various countries to date, and will complete work at 5 additional ports this year, bringing the total to 28. The Megaports Initiative also cooperates with the U.S. Department of Homeland Security's Bureau of Customs and Border Protection (CBP) by making technical resources available to complement the Container Security Initiative (CSI) and the Secure Freight Initiative (SFI) at international ports. Equipment installed under the Megaports Initiative serves as an additional screening tool to enhance CSI officer's ability to effectively target high-risk U.S.-bound containers at international seaports before they are loaded onto vessels destined for the United States. Under SFI, all U.S.-bound containers are being scanned by an integrated system consisting of a Radiation Portal Monitor, a DHS/CBP installed imaging system, and optical character recognition technology, at three ports in Pakistan, Honduras, and the United Kingdom. Megaports and DHS/CBP are also working at ports in South Korea, Oman, and Hong Kong to demonstrate integrated scanning of U.S.-bound containers at larger container terminals at high-volume ports.

Within the Nonproliferation and International Security program, NNSA's International Nonproliferation Export Control Program (and similar domestic efforts) strengthens national export control systems to help stem the flow of WMD-related equipment,

materials, and technologies to end-users of concern. Building on NNSA's technical export control know-how, INECP also developed and conducts Commodity Identification Training (CIT), a gold standard commodity recognition program to sensitize frontline customs and enforcement officials both in the U.S. and overseas to the risks and red-flags of illicit WMD trade. CIT works by highlighting the visually distinctive aspects of strategic commodities, including equipment, raw materials, and technologies. The CIT training provides hands-on training and technical resources to help customs and enforcement officials in 52 countries, Hong Kong, and Taiwan recognize nuclear items and "dual-use" commodities that have legitimate commercial uses as well as proliferation-related applications. Together, these international efforts help reduce the risk and increase awareness of nuclear-related smuggling via commercial global trade, by providing the equipment, training, and expertise to identify suspect shipments.

While these NNSA nonproliferation programs—International Material Protection and Cooperation; the Global Threat Reduction Initiative; and Nonproliferation and International Security—provide the bulk of NNSA's response to today's global nuclear security threat, three other NNSA programs complement these activities. NNSA is working with Russia to shut down Russia's last three plutonium producing reactors and thus end the production of weapons-grade plutonium in Russia; is working to disposition excess weapons-grade U.S. and Russian plutonium as well as U.S. HEU; and conducting advanced R&D to support NNSA and U.S. national and nuclear security missions. The Elimination of Weapons Grade Plutonium Production program has already shutdown two reactors in Seversk, Russia, and is working to shut down Russia's sole remaining plutonium production reactor by 2010. The Fissile Materials Disposition program is working to dispose of inventories of surplus weapons-usable fissile materials. NNSA's R&D program develops tools to help detect, locate and analyze global proliferation activities, focusing on nuclear weapons technology and the diversion of special nuclear material-support materials detection and deterrence.

Today's complex global nuclear threat requires a multifaceted response strategy. Together, all of these programs implement NNSA's primary defense nuclear nonproliferation mission to detect, secure, and dispose of dangerous nuclear material worldwide and comprise the *defense in depth* that NNSA's nonproliferation strategy is built upon.

In support of U.S. nonproliferation and national security objectives, NNSA and its predecessors have been implementing nonproliferation efforts since the passage of the Atomic Energy Act, and have become a recognized global threat reduction leader. In response to the evolving nature of the nuclear proliferation and terrorism threats, NNSA's nonproliferation mission has grown and evolved. We have parlayed our technical and international implementation expertise into cooperative partnerships with over 130 country partners across the globe, through 19 specialized nuclear security activities. In support of this global mission, seven international partners have provided nearly \$60 million USD to date in contributions to NNSA's international nonproliferation programs, recognizing and facilitating NNSA's tangible international nuclear security progress.

The President's April 5, 2009 speech in Prague outlined an ambitious new American strategy for responding to the threat of international nuclear terrorism and nuclear proliferation. He proposed measures to reduce and eventually eliminate existing nuclear arsenals, halt proliferation of nuclear weapons to additional states, and prevent terrorists from acquiring nuclear weapons or arsenals. His plan to lead an international effort to secure all vulnerable nuclear materials around the world within four years and disrupt nuclear smuggling networks is a cornerstone of this strategy. The NNSA nuclear security programs will serve as an important means to achieve some of these Administration objectives.

To support these Administration goals, we have identified the scope of work we need to accomplish to support the President's call to secure all vulnerable nuclear material worldwide within four years. This identified workscope includes priority-based assessment of the activities required to address security concerns at specific sites. We have also worked to identify any high-level diplomatic efforts that might be needed to conclude new nuclear security cooperation agreements with additional partner countries or to address potentially vulnerable sites in that have not yet been open to cooperation under NNSA programs. Our workscope assessment outlines the specific actions NNSA will undertake within the next four years to:

- Expand nuclear security cooperation with Russia and other key partners;
- Secure nuclear material at the most vulnerable sites worldwide;
- Remove and eliminate weapons-usable nuclear materials where possible;
- Strengthen international nuclear security standards, practices, and international safeguards; and
- Improve international capabilities to detect and intercept smuggling of nuclear materials, and to prevent terrorists and proliferant states from poaching on the international market in dual-use and nuclear weapons-related equipment and technologies.

To meet the four year timeline to secure vulnerable nuclear material, some existing NNSA activities in these areas will be accelerated, while other aspects of the President's agenda will require new or expanded efforts. NNSA is now developing detailed implementation plans with associated schedules and costs. Once we better understand the available resources—both funding and personnel—available in the outyears for this effort, we will finalize NNSA implementation plans.

This NNSA plan of work alone will not accomplish all of the President's nuclear security objectives. The Departments of State, Defense, Homeland Security and others also will play a role in achieving these goals, and NNSA will continue to work with our interagency partners. No one entity, or even country, can alone ensure international security. A global challenge such as today's threat of nuclear proliferation requires a global response. As the President noted, America will work with our international partners to fulfill his international security vision. The Global Summit on Nuclear Security that will be held next year underscores the U.S. commitment to renewed partnerships. NNSA stands ready to convert these international commitments into

concrete actions and progress. By continued and accelerated implementation of these key NNSA nuclear nonproliferation programs, NNSA can and will significantly contribute to the President's nuclear security vision.

The April Prague speech provides a priority list of areas in which NNSA will focus its future nuclear security activities. Chief among them is the President's call to "secure all vulnerable nuclear materials around the world within four years, expand our cooperation with Russia, pursue new partnerships to lock down these sensitive materials."

NNSA's future plans rely upon expanding key partnerships. One such key partnership is our long-standing bilateral relationship with our Russian counterparts. Historically, nonproliferation has been a bright spot in U.S.-Russian relations, and NNSA-Russian cooperation has enjoyed this same success. I have shared with some Members of this Committee before some of the work conducted under the 2005 U.S.-Russian Bratislava Nuclear Security Initiative. I am proud to report that NNSA successfully completed, by the agreed-upon December 2008 deadline, all DOE/NNSA nuclear security upgrades included within the scope of this Initiative. This success was the result of a multi-year joint effort between NNSA's MPC&A Program, the Russian Ministry of Defense, and Russian Rosatom as I described in earlier testimony. Through the Bratislava Initiative, we were able to accelerate security work by more than two years at Russian nuclear sites, Rosatom Weapons Complex sites, civilian non-Rosatom sites, Rosatom civilian sites, and Russian Navy reactor fuel sites.

Also within the Bratislava Initiative scope, the NNSA Global Threat Reduction Initiative, with its Russian and other international counterparts, successfully completed 22 Russian-origin nuclear fuel return shipments back to Russia, together totaling enough HEU for more than 32 nuclear weapons. Through this bilateral cooperation, all HEU has been removed from Latvia, Bulgaria, and Romania.

We hope to build upon these remarkably successful joint efforts. In Moscow just last week, Presidents Obama and Medvedev, noting their special responsibility for nuclear weapons security, agreed to "broaden and deepen" long-term bilateral cooperation to increase further the security of nuclear facilities around the world. This expanded cooperation includes minimizing the civil use of HEU, including through research reactor conversions and additional fuel repatriations, and the consolidation and conversion of nuclear materials. An important aspect of our effort is seeking to develop guidelines on the Management and Minimization of HEU, an effort that we have discussed in some detail to date with France, and will eventually expand to other countries. The July 6, 2009 Moscow Joint Statement on Nuclear Cooperation lays the groundwork also for expanded cooperation on physical protection and nuclear material accounting, nuclear security best practices, international safeguards, and expanding capabilities to combat the illicit trafficking of nuclear and radiological materials. The Joint Statement also noted both countries' commitment to executing the Plutonium Management and Disposition Agreement (PMDA), under which framework both countries will dispose of no less than 34 metric tons of weapons-grade plutonium. In short, this Joint Statement outlines the very priorities that NNSA and our Russian counterparts will take on.

However, as I have often said, we recognize that there is nuclear material of concern across the globe. In addition to expanding our cooperative relationship with Russia, we are going to have to pursue new and intensified nuclear security partnerships with many other countries to achieve the President's objective of securing all vulnerable nuclear material worldwide within four years. Increasingly, our focus will include civilian sites with vulnerable nuclear material. These activities will be as agreed upon by the USG interagency process and prioritized in keeping with NNSA's methodology. I am optimistic that the Global Summit on Nuclear Security that will be held next year can serve as a forum to build the consensus and partnerships needed to meet the President's requirements.

A complete nuclear security strategy must deal not only with existing or vulnerable materials worldwide, but also address the future production of nuclear materials and necessary supporting security norms. In Prague, the President also called for setting "new standards" on nuclear security. As mentioned, part of NNSA's future strategy includes strengthening nuclear security practices and international safeguards. This includes continuing to provide financial, in-kind, and expert support to the IAEA's Office of Nuclear Security and its increasing mission. It also includes providing continued technical and policy support to such efforts as revising the international physical protection standards enshrined in IAEA Information Circular 225/Rev.4 *on the Physical Protection of Nuclear Materials and Facilities*. This IAEA document serves as the recognized international standard for adequate physical protection, and is a key component of international efforts to ensure that States maintain robust and adequate physical protection measures. NNSA will also intensify efforts to ensure the security of U.S.-obligated nuclear material, conduct bilateral physical protection training and assessments, consistent with the Nuclear Nonproliferation Act of 1978.

The President also noted in his Prague speech the need for "stronger international inspections around the world" while "improving the effectiveness of current resources and authorities." The Next Generation Safeguards Initiative will contribute to strengthening the international safeguards system, bolstering the U.S. safeguards technical and human capital bases, revitalizing the international safeguards system, and building an international capacity to help prevent the theft, diversion or spread of nuclear materials. In some circles, the anticipated renaissance in nuclear energy as a means to assure the clean energy needed to meet future demand only adds to the urgency of the international safeguards mission. We must ensure an adequately robust international safeguards system to support the peaceful uses of nuclear technology while reducing the risk that proliferators could pursue nuclear weapons under the guise of civil nuclear energy programs. The Next Generation Safeguards Initiative will develop advanced safeguards approaches and technologies to ensure that the IAEA can effectively address the increasing number, size, and complexity of civilian nuclear facilities. We look forward to the second Next Generation Safeguards Initiative international conference, to be held in Fall 2009, as a mechanism to launch new safeguards partnerships through NGSi to address tomorrow's nuclear safeguards needs.

The President's Prague strategy also included intensified "efforts to break up black markets, detect and intercept materials in transit..." NNSA strengthens the ability of foreign government partners to deter, detect, and interdict illicit shipments of nuclear equipment, material, and technology. In support of the President's call, NNSA will accelerate our Second Line of Defense/Megaports and export control cooperation activities. Beginning in Fiscal Year 2010, we will increase work to provide a mobile radiation detection capability to overseas law enforcement agencies in order to facilitate the detection of nuclear trafficking at unofficial, "green," border crossings. We have also begun a pilot collaboration with partner country law enforcement agencies to enhance their capabilities to investigate and act against smugglers. We will ramp-up work to complete installations at 15 Megaports in FY2010, thus increasing the total number of Megaports to 43, out of the 100 ports identified for cooperation under this Initiative. Our International Nonproliferation Export Control Program will likewise accelerate its activities and international engagement, launching new Commodity Identification Training in 16 countries. We will also continue to support the Proliferation Security Initiative, including through the development of training exercise scenarios and informational resources, such as the WMD Commodity Guide developed for and provided to PSI partners.

As Presidents Obama and Medvedev recently noted in their Joint Statement on Nuclear Cooperation, we are also working to "dispose of existing stockpiles of weapon-grade materials that are surplus to defense needs consistent with our obligations under Article VI of the NPT." As I shared with some Members of the Committee recently, the United States and Russia have agreed on the basic principles underlying a revised Russian program to dispose of 34 metric tons of surplus Russian weapons plutonium. This revised program is consistent with Russia's national energy strategy and relies on the use of Russian fast reactors to dispose of the plutonium with certain nonproliferation add-ons. The program includes a U.S. commitment to provide \$400 million, subject to the availability of appropriated funds, and a Russian commitment to pay for the balance of the disposition program costs. These changes will be codified in a Protocol that amends the 2000 U.S.-Russian Plutonium Management and Disposition Agreement which we expect to sign in the near future.

In parallel, NNSA is making significant progress on the U.S. plutonium disposition facilities at the Savannah River Site, consistent with our obligations under the 2000 Agreement. Construction of both the MOX Fuel Fabrication Facility and the related Waste Solidification Building are proceeding according to their respective validated cost and schedule baselines.

While some believe that the U.S. plutonium disposition program is no longer a nonproliferation program, I maintain that the U.S. program demonstrates leadership in living up to our nonproliferation commitments by drawing down our nuclear arsenals and materials in a transparent and irreversible manner. The commitment made by Presidents Obama and Medvedev last week in Moscow, as part of the Joint Statement on Nuclear Cooperation, to executing both countries' commitments under the Plutonium Management and Disposition Agreement demonstrates that this is a vital nonproliferation

program. As a result of the U.S. program and reciprocal Russian effort, the United States and Russia will ultimately dispose of enough weapons plutonium for at least 17,000 nuclear weapons.

In conclusion, I am proud of the nonproliferation accomplishments that NNSA has reached to date. NNSA stands ready to continue and build upon this foundation of achievements to help realize the international security dividends enshrined in the President's global nuclear security vision. I have the utmost confidence in the enormous contribution that, together with our interagency and international partners, through *concerted* action, we can make towards this shared goal. I thank the Chairman and the Committee for your time.