

**Statement of Jerald S. Paul  
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for the  
National Nuclear Security Administration  
U.S. Department of Energy  
Before the Senate Armed Services Committee  
Subcommittee on Emerging Threats and Capabilities  
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Mr. Chairman, Senator Reed, and Members of the Committee, it is a pleasure to be here today to discuss the nonproliferation activities of the U.S. Department of Energy's National Nuclear Security Administration (NNSA).

Acquisition of nuclear weapons, weapons of mass destruction (WMD) capabilities, technologies, and expertise by rogue states or terrorists pose the greatest threat to our national security. The pursuit of these capabilities by terrorists and states of concern underscores the importance of our threat reduction, detection, and interdiction programs.

I would like to begin by briefly outlining our (NNSA's) nonproliferation strategy and will highlight a few examples of where our programs, working with other agencies, fit into the context of broader U.S. Government efforts to stem the proliferation of WMD. Next, I will outline a few recent and new initiatives that the NNSA, particularly the Office of Defense Nuclear Nonproliferation (DNN), is supporting. Finally, I will discuss how the President's budget request supports these important missions. Before I begin, I would like to take a moment to note that it has been, and continues to be, a privilege and honor to work with the talented and dedicated individuals at the National Nuclear Security Administration. These are folks charged with the single most important national security mission in the Department – keeping the world's most dangerous materials out of the hands of the world's most dangerous people – and they continue to meet that goal day in and day out.

The mission of the Office of Defense Nuclear Nonproliferation, within the NNSA, is to detect, prevent, and reverse the proliferation of weapons of mass destruction.

Our programs are structured to support multiple layers of defense against nuclear terrorism and state-sponsored nuclear proliferation. We work with more than 70 countries to secure dangerous nuclear and radiological materials, and to dispose of surplus weapons-usable material. We also work closely with multilateral institutions, including the International Atomic Energy Agency and the Nuclear Suppliers Group, to strengthen the international nuclear safeguards regime and to improve the nuclear export control regulatory infrastructure in other countries. 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.

Since 9/11, the Office of Defense Nuclear Nonproliferation within NNSA has accelerated and expanded its implementation of a six-pronged defense-in-depth strategy to deny

terrorists and states of concern the materials, technology, and expertise needed to develop nuclear and radiological weapons. Our programs fall into six broad categories:

**First: To account for and secure nuclear material in Russia and the former Soviet Union.**

In cooperation with the Russian Federation our Office of Material Protection, Control and Accounting (MPC&A) works to upgrade security at Russia's Federal Atomic Energy Agency (Rosatom) weapons complex and at sites that store and process weapons-usable materials in Russia. Working with the Russian Ministry of Defense, we also cooperate to secure nuclear weapons at Russian Navy and Strategic Rocket Forces sites and consolidate weapons-usable material into fewer, more secure locations.

- To date, we have secured over 80% of the sites where these materials are stored and we are on course to finish all of our security upgrades by 2008 – a full two years ahead of the schedule.
- With over 95% of the warhead and nuclear fuels sites completed, we will finish our work to secure Russian Navy warhead and nuclear fuel sites in 2006. We are moving rapidly to identify and secure all remaining 12<sup>th</sup> Main Directorate and Strategic Rocket Forces warhead sites on an accelerated schedule by the end of 2008.

**Second: To detect and prevent the movement or trafficking of weapons-usable technologies and nuclear materials.**

Through our Second Line of Defense (or SLD) Program, which includes the Megaports Initiative, and International Nonproliferation Export Control programs, we are working with other countries to install radiation detection equipment at key transit choke points throughout the world - such as sea ports, airports, and land border crossings -- to enhance the capabilities of our international partners to detect movement of nuclear and radiological materials, and improve international export controls. These programs complement and build upon Department of Homeland Security (DHS) programs, such as the Container Security Initiative (CSI), and form an important layer in DHS's Domestic Nuclear Detection Office's "Global Architecture." In addition, our work goes hand-in-glove with the State Department's Export Control and Border Security (EXBS) initiative. With our CSI partners at DHS's Bureau of Customs and Border Protection, we are working to install radiation portal monitors at the foreign ports where CSI is present or will soon be operational.

- Through 2005, we have installed radiation detection equipment at more than 50 border crossings (rail crossings, vehicle crossings, small seaports) in Russia and other Former Soviet Union (FSU) and European countries. Additionally, we

maintain radiation detection equipment at approximately 60 locations originally equipped by the State Department and other agencies.

- The Megaports Initiative is currently operational in Greece, the Bahamas, Sri Lanka, Spain, and the Netherlands. NNSA is at various stages of implementation in nine other countries: Belgium, China, U.A.E., Honduras, Israel, Oman, the Philippines, Singapore, and Thailand.
- Our International Nonproliferation Export Control Program assists foreign governments to implement effective export controls, including training to identify and block transfers of proliferation-sensitive trade. This program is operating in over 40 countries, including nodal transshipment states in regions of concern and emerging suppliers.
- We are also placing an increasing emphasis on interdiction, including assessments of foreign WMD technology procurements and support for the Administration's Proliferation Security Initiative (PSI).

In addition to this important work, we are securing weapons expertise through joint collaboration and alternate infrastructure development. Through the Department's Global Initiatives for Proliferation Prevention (GIPP) program we are engaging former weapons experts in nuclear, chemical and biological weapons institutes in Russia, FSU, Libya, and Iraq. We often say that the proliferation threat has three elements – technology, materials, and expertise. This program addresses the third element. By redirecting weapons scientists to peaceful, commercially viable, activities, we reduce the likelihood that these individuals will want to work with proliferators – and reduce the likelihood that a rogue state or terrorist organization will be able to recruit them.

Another benefit of the GIPP program is the new sources of technology that it provides to U.S. industry. The program is structured to include participation of U.S. companies, which match the Department's project funds with their own resources to bring projects to the market and gain intellectual property rights. Among the GIPP program's commercial successes are advanced medical equipment, specialized metallurgy, improved fossil fuel exploration, and filters that have been used in manned space exploration.

### **Third: To stop the production of new fissile material in Russia.**

In 1997, the U.S. and Russia signed the Plutonium Production Reactor Agreement (PPRA) requiring the cessation of weapons-grade plutonium production for use in nuclear weapons. Under PPRA, we monitor the permanent shut-down of Russia's plutonium production reactors and the more than 10 metric tons of plutonium oxide to ensure the reactors and materials are no longer available for use in weapons production.

We are also working with Russia to expedite closure of the remaining three plutonium production reactors. In March 2003, the Department of Energy (DOE) and the Ministry

of the Russian Federation for Atomic Energy (now known as Rosatom) signed an agreement to carry out the objectives of PPRA, which committed DOE, subject to available funds, to assist in providing fossil fuel plants to replace the energy now provided by the reactors.

- We have made significant progress on this project in the last year. We have already begun construction work at the first site, Seversk, and will start construction at the second site, Zheleznogorsk, this spring.
- At both sites, we agreed to “quid pro quo” milestones that tie progress in fossil fuel plant construction to progress toward permanent reactor shutdown and are making satisfactory progress in meeting milestones.

**Fourth: To eliminate existing weapons-usable material in Russia and former Soviet States.**

To date more than 260 metric tons of Russian HEU from dismantled weapons have been down-blended to low-enriched, non-weapons grade material for use in commercial power reactors pursuant the HEU Agreement or what is often called the “Megatons to Megawatts” program. Altogether, by 2013, 500 metric tons of Russia’s HEU will be converted and used to support civilian nuclear power here in the United States at little or no cost to the American taxpayer. This down-blended material accounts for 10% of U.S. electricity production. In other words, one in every ten light bulbs in America is powered by material that was once contained in a Soviet nuclear warhead.

Additionally, through our plutonium disposition programs, we are working with the Russian Federation to eliminate 34 metric tons of weapons-grade plutonium in each country, enough for over 17,000 nuclear weapons.

**Fifth: To eliminate or consolidate the remaining weapons-useable nuclear and radiological materials that exists throughout the remainder of the world.**

In May 2004, DOE launched the Global Threat Reduction Initiative – or GTRI – to identify, secure, recover and/or facilitate the disposition of vulnerable nuclear and radiological materials around the world that pose a threat to the United States and to the international community.

GTRI works to convert research reactors worldwide from the use of highly-enriched uranium (HEU) nuclear fuels to low enriched uranium (LEU). GTRI repatriates the U.S. and Russian-supplied HEU nuclear fuels from these reactors to their country of origin, as well as addresses the “gap” material (i.e. material of concern that is not currently being addressed under existing programs) for final disposition, and performs research reactor physical security upgrades. GTRI also maintains a rapid response capability to address de-nuclearization. This capability was put to use during the material and source removal efforts in Libya and Iraq.

GTRI also addresses the threat of a radiological dispersal device or “dirty bomb” by identifying and recovering excess and abandoned radiological sources domestically and securing vulnerable radiological materials abroad.

- GTRI has converted 43 research reactors to the use of LEU and plans to convert all 106 targeted research reactors by 2014.
- GTRI has repatriated 145 kilograms of Russian-origin HEU from Russian-supplied research reactors and approximately 1,200 kilograms of U.S.-origin HEU in spent fuel assemblies from U.S.-supplied research reactors.
- The U.S. Radiological Threat Reduction program has recovered more than 12,000 radioactive sources in the U.S. and the International Radiological Threat Reduction program has completed security upgrades at 373 sites.

#### **Sixth: Support U.S. diplomatic initiatives.**

In his speech before the National Defense University two years ago, President Bush laid out an ambitious program of work to close gaps in the existing system of nonproliferation controls. DOE/NNSA and our national laboratories are playing a vital part in our nation’s broader effort to challenge proliferation in Iran; to prepare the groundwork for verifying any North Korean nuclear declaration in the context of the Six-Party Talks; to promote universal implementation of anti-proliferation measures outlined in United Nations Security Council Resolution 1540; to update Nuclear Suppliers Group guidelines and strengthen international safeguards; and to assist Libya eliminate its WMD programs.

Underpinning each of these policy initiatives, we maintain a vigorous Nonproliferation Research and Development (R&D) Program. This program conducts applied research, development, testing, and evaluation to produce technologies that lead to prototype demonstrations and resultant detection systems. This, in turn, strengthens the U.S. response to current and projected threats to national security worldwide posed by the proliferation of weapons of mass destruction and the diversion of special nuclear material. The R&D program is the technical base that provides our policy programs and operational agencies, including the Department of Defense, the Department of Homeland Security, and the Intelligence Community, with innovative systems and technologies to meet their nonproliferation, counter-proliferation, and counter-terrorism mission responsibilities. NNSA invests in strategic and often high-risk technical solutions to detect the proliferation of WMD.

As you may know, many of these programs have new, accelerated completion dates as a result of the Joint Statement on Nuclear Security by Presidents Bush and Putin following their meeting in Bratislava, Slovak Republic, in February 2005.

The Bratislava Nuclear Security Initiative called for the establishment of a bilateral Senior Interagency Working Group, co-chaired by U.S. Secretary of Energy Bodman and Russian Federal Atomic Energy Agency (Rosatom) Director Kiriienko. Together, they oversee enhanced nuclear security cooperation in five areas: Emergency Response; Best Practices; Security Culture; Research Reactors; and Material Protection, Control and Accounting.

While the NNSA has been working with our Russian counterparts in many of these areas for several years, the Bratislava initiative elevated our dialogue to a national level and has moved our cooperation to one of a shared partnership. As a direct result of the Bratislava Initiative, our cooperation on the physical protection of sensitive nuclear sites in Russia was accelerated and will be completed by the end of 2008. We continue to work with the Russian Government to ensure that they provide resources needed to sustain these upgrades and promote a strong nuclear security culture and employ best practices in handling nuclear materials.

It seems natural after summarizing such a successful Presidential initiative to discuss the Global Nuclear Energy Partnership or GNEP. In February, the Administration announced GNEP, as part of President Bush's Advanced Energy Initiative. GNEP is a comprehensive strategy to enable an expansion of nuclear power in the U.S. and around the world, to promote nuclear nonproliferation goals; and to help resolve nuclear waste disposal issues. Fundamental to GNEP is a new approach to fuel cycle technology. Under this proposed new approach, countries with secure, advanced nuclear fuel cycle capabilities would offer commercially competitive and reliable access to nuclear fuel services — fresh fuel and recovery of used fuel — to other countries in exchange for their commitment to forgo the development of enrichment and recycling technology.

Over the next year, we will work with other elements of the Department to establish GNEP, paying special attention to developing advanced safeguards and developing the parameters for international cooperation. I believe that GNEP takes us closer to expanding access to the benefits of peaceful nuclear technology while preventing the proliferation of nuclear weapons through tangible actions that will benefit directly those who join us in this partnership. GNEP will offer us the opportunity to take the international lead in making nonproliferation an integral part of our global nuclear safety and security culture.

## **BUDGET**

The Administration's request of \$1.73 billion to support NNSA activities addressing the global WMD proliferation threat represents almost a 7% increase over the budget for 2006 activities.

The Administration's FY 2007 Fissile Material Disposition budget request is \$638 million, an increase of \$169 million over FY 2006. This increase reflects the progress in

implementing the plutonium disposition program in the past year. Of this amount, \$551 million will be allocated for disposing of surplus U.S. and Russian plutonium and \$87 million is requested for the disposition of surplus U.S. highly enriched uranium. The plutonium disposition program, the Department's largest nonproliferation program, plans to dispose of 68 metric tons (MT) of surplus Russian and U.S. weapons-grade plutonium (34 MT from each country) by fabricating it into mixed oxide (MOX) fuel for use in nuclear power-generating reactors. The United States and Russia completed negotiations of a liability protocol for the program, and senior Russian Government officials have assured the United States that the Russian Government has no issues with this protocol and that it will be signed in the near future. DOE has also been working to validate the U.S. MOX project cost and schedule baseline as part of our project management process, and we will have a validated baseline in place before construction begins. DOE received authorization to begin construction of the MOX facility from the Nuclear Regulatory Commission, began site preparation work for the MOX facility at the Savannah River Site, and implemented a number of improvements to strengthen the management of the MOX project. Current plans call for construction of the U.S. MOX facility to start in 2006, with operations to start in 2015. The Administration's budget request is essential for continuing this work in FY 2007, which will be a peak construction year. Now that the matter of liability protections for the plutonium disposition program has been resolved, pending signature of the liability protocol, high-level U.S.-Russian discussions are taking place to discuss technical and financial details for the Russian program.

The Administration's FY 2007 budget request of \$107 million for the Global Threat Reduction Initiative (GTRI) is a 10% increase over FY 2006 and supports the ambitious completion dates and objectives set by the program. GTRI will identify, secure, recover, and/or facilitate the disposition of the vulnerable nuclear and radiological materials worldwide that pose a threat to the United States and the international community. Since the creation of GTRI, we have enjoyed a number of successes. Under our radiological threat reduction program, we secured more than 370 sites around the world. As a result of the Bush-Putin Bratislava joint statement on enhanced nuclear security cooperation, we have established a prioritized schedule for the repatriation of U.S.-origin and Russian-origin research reactor nuclear fuel located in third countries. As part of our nuclear materials threat reduction efforts under GTRI, three successful shipments were completed in FY 2005 to repatriate Russian-origin highly enriched uranium (HEU) fresh fuel from the Czech Republic (two shipments) and Latvia.

In accordance with the President's Bratislava commitment, we are also working with the Russian Federation to repatriate Russian-origin spent fuel. We have also conducted several successful shipments to repatriate U.S.-origin spent nuclear fuel from Japan, the Netherlands, Sweden, Greece, and Austria. Three research reactors in the Netherlands, Libya, and the Czech Republic have converted from the use of HEU to the use of low-enriched uranium (LEU) fuel so far in FY 2006.

The International Material Protection and Cooperation FY 2007 budget request of \$413 million reflects the completion of MPC&A security upgrades in 2008 and the acceleration of Second Line of Defense activities in the Caucasus region. This request

would fully fund both Bratislava and SLD requirements for 2007. For more than a decade, the United States has worked cooperatively with the Russian Federation and other former Soviet republics to secure nuclear weapons and weapons material that may be at risk of theft or diversion. As part of the Bush-Putin Bratislava joint statement, we agreed to accelerate security upgrades at Russian sites holding weapons-usable materials and warheads. The Bratislava joint statement also provided for a comprehensive joint action plan for cooperation on security upgrades of Russian nuclear facilities at Rosatom and Ministry of Defense sites. In addition, this statement called for enhanced cooperation in the areas of nuclear regulatory development, sustainability, secure transportation, MPC&A expertise training, and protective force equipment. A number of major milestones for this cooperative program are on the horizon, and the FY 2007 budget ensures that sufficient funding will be available to meet these milestones. Security upgrades for Russian Rosatom facilities will be completed by the end of 2008 - two years ahead of schedule. By the end of 2008 we will also complete cooperative upgrades at the nuclear warhead storage sites of the Russian Strategic Rocket Forces and the Russian Ministry of Defense sites. By the end of FY 2007, we will have provided security upgrades at more than 80% of all the nuclear sites in Russia at which we now plan cooperative work. In addition to the accomplishments reached thus far under Bratislava, we have also completed physical security upgrades at three priority sites housing dangerous materials in Ukraine, Kazakhstan, and Uzbekistan.

The Administration's budget request will enable us to expand and accelerate the deployment of radiation detection systems at key transit points within Russia and accelerate installation of such equipment in five other priority countries to prevent attempts to smuggle nuclear or radiological materials across land borders. Through our Megaports Initiative, we plan to deploy radiation detection capabilities at three additional major seaports in FY 2007, thereby increasing the number of completed ports to 13.

The FY 2007 budget request of \$207 million for the Elimination of Weapons Grade Plutonium Production (EWGPP) is an increase of 18% from FY 2006. The EWGPP program is working to establish the fossil fuel plants to allow for the complete and permanent shut down of the three remaining weapons grade plutonium production reactors in Russia at Seversk and Zheleznogorsk. Every week, these reactors currently produce enough fissile material for several nuclear weapons. The overall EWGPP plan is to replace the heat and electricity these reactors currently supply to the closed cities with energy generated by fossil fuel plants by December 2008 in Seversk and December 2010 in Zheleznogorsk. The reactors are to be shut down immediately when the fossil fuel plants are completed and will be monitored under PPRA to confirm that they are not restarted. The first validated estimate of total EWGPP program cost—\$1.2 billion—was determined in January 2004. After extensive negotiations with Russia, we achieved \$200 million in cost savings. Also, under the authority to accept international funding as provided in the Ronald W. Reagan National Defense Authorization Act for FY 2005, we have received pledges of \$30 million from six Global Partnership participants. Construction of the fossil fuel plant at Seversk started in late 2004, and the start of construction of the fossil fuel plant at Zheleznogorsk was recently approved.



The FY 2007 budget requests \$269 million for Nonproliferation and Verification Research and Development. This effort includes a number of programs that make unique contributions to national security by researching the technological advancements necessary to detect proliferation activity worldwide and to detect and prevent the illicit diversion of nuclear materials.

The Proliferation Detection program advances basic and applied technologies for the nonproliferation community with benefit to both national counter-proliferation missions and national counter-terrorism missions. Specifically, this program develops the tools, technologies, techniques, and expertise for the identification, location, and analysis of the facilities, materials, and processes of undeclared and proliferant WMD programs. The Proliferation Detection program conducts fundamental research in fields such as radiation detection and advanced infrared and radar imaging, providing support to the Department of Homeland Security, the Department of Defense, and the Intelligence Community. The Nuclear Explosion Monitoring program builds the nation's operational sensors that monitor the entire planet from space to detect and report surface, atmospheric, or space nuclear detonations, with sensors carried on every Global Positioning System and ballistic missile early warning satellite. This program also produces and updates the regional geophysical datasets enabling operation of the nation's ground-based seismic monitoring networks to detect and report underground detonations. The Nuclear Explosion Monitoring program has long supported the Department of Defense and the Department of State to conduct their missions.

The FY 2007 budget request for Nonproliferation and International Security is \$127 million. This figure reflects a budget structure change, rather than a significant funding increase, realigning the Global Initiatives for Proliferation Prevention and HEU Transparency programs to this GPRA unit. Through this program, the Department provides technical and policy expertise in support of U.S. efforts to strengthen international nonproliferation institutions and arrangements, fosters implementation of nonproliferation requirements through engagement with foreign partners, and helps develop the mechanisms necessary for transparent and verifiable nuclear reductions worldwide. This budget request addresses our need to tackle key policy challenges including efforts to strengthen the IAEA safeguards system, attempt to block and reverse proliferation in Iran and North Korea, augment U.S. cooperation with China, India, and Russia, and plan to build-up the nonproliferation component of the Global Nuclear Energy Partnership.

## **CONCLUSION**

The Defense Nuclear Nonproliferation programs are an important investment for this nation, and are achieving great results. Our budget request will support continuing our progress on reducing the threat posed by the proliferation of nuclear and radiological weapons, expertise, and related technologies. Above all, it will meet the national security needs of the United States of America in the 21st century.

Mr. Chairman, this concludes my statement. A statistical appendix follows that contains the budget figures supporting our request for the Office of Defense Nuclear Nonproliferation. I would be pleased to answer any questions on the justification for the requested budget.

FY2007 BUDGET TABLES

**Defense Nuclear Nonproliferation**  
**Funding Profile by Subprogram**

(dollars in thousands)

	FY 2005 Current Appropriation	FY 2006 Original Appropriation	FY 2006 a Adjustments	FY 2006 Current Appropriation	FY 2007 Request
<b>Defense Nuclear Nonproliferation and Verification</b>					
Nonproliferation Research and Development....	219,836	322,000	-3,220	318,780	268,887
Nonproliferation and International Security .....	143,764	75,000	-750	74,250	127,411
International Nuclear Materials Protection and Cooperation.....	403,451	427,000	-4,270	422,730	413,182
Global Initiatives for Proliferation Prevention	40,675	40,000	-400	39,600	0
HEU Transparency Implementation <sup>a</sup> .....	20,784	19,483	-195	19,288	0
Elimination of Weapons-Grade Plutonium Production.....	67,331	176,185	-1,762	174,423	206,654
Fissile Materials Disposition .....	619,060	473,508	-4,735	468,773	637,956
Offsite Recovery Project .....	7,540	0	0	0	0
Global Threat Reduction Initiative .....	0	97,975	-980	96,995	106,818
<b>Subtotal, Defense Nuclear Nonproliferation ....</b>	<b>1,522,441</b>	<b>1,631,151</b>	<b>-16,312</b>	<b>1,614,839</b>	<b>1,760,908</b>
Use of Prior Year Balances .....	-14,475	0	0	0	-34,695
<b>Total, Defense Nuclear Nonproliferation.....</b>	<b>1,507,966</b>	<b>1,631,151</b>	<b>-16,312</b>	<b>1,614,839</b>	<b>1,726,213</b>

NOTE: The FY 2006 column includes an across-the-board rescission of 1 percent in accordance with the Department of Defense Appropriations Act, 2006, P.L. 109-148.

**Public Law Authorization:**

P.L. 108-148, The Consolidated Appropriations Act, 2006

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<sup>a</sup> This budget request includes an across-the-board rescission of 1 percent for FY 2006 in accordance with the Department of Defense Appropriations Act 2006, P.L. 109-148.

## Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2008	FY 2009	FY 2010	FY 2011
<b>Defense Nuclear Nonproliferation</b>				
Nonproliferation and Verification Research and Development .....	279,439	293,924	311,551	324,034
Nonproliferation and International Security.....	132,458	134,706	138,835	146,990
International Nuclear Materials Protection and Cooperation .....	403,351	444,405	530,723	542,859
Elimination of Weapons Grade Plutonium Production .....	182,017	139,363	24,949	0
Fissile Materials Disposition.....	642,853	654,469	710,178	737,976
Global Threat Reduction Initiative.....	120,619	129,085	115,635	116,649
<b>Total, Defense Nuclear Nonproliferation .....</b>	<b>1,760,737</b>	<b>1,795,952</b>	<b>1,831,871</b>	<b>1,868,508</b>

### Major Outyear Considerations

(dollars in thousands)

	FY 2008	FY 2009	FY 2010	FY 2011
<b>Defense Nuclear Nonproliferation .....</b>	<b>1,760,737</b>	<b>1,795,952</b>	<b>1,831,871</b>	<b>1,868,508</b>

NNSA describes major outyear considerations at each GPRA-Unit level within this appropriation.