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U.S. Department of Energy
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INTRODUCTION

Mr. Chairman and members of this Committee, thank you for the opportunity to appear before you today to present this statement on Department of Energy (DOE) programs to reduce proliferation threats in Russia. With your permission, I will provide a more detailed statement for the record.

I very much appreciate having this opportunity to discuss our activities with you, Chairman Roberts, and with the rest of the members of the Subcommittee on Emerging Threats and Capabilities.

It has been more than a decade since the Berlin Wall fell, opening a new era in history. While the Soviet threat is gone, dangers arising from the global spread of nuclear, chemical and biological weapons, and missiles for their delivery, remain with us. As a nation, we may face no greater challenge than to prevent these weapons from falling into the hands of those who would use them against us or our allies.

To address this problem, the Clinton Administration has put in place the Expanded Threat Reduction Initiative (ETRI), a robust multi-agency and multi-dimensional nonproliferation agenda. The Department of Energy, under the leadership of Secretary Richardson, plays an important and unique role in implementing this agenda, drawing on the vast reservoir of scientific and technical expertise residing in the Department and its national laboratories. Our contributions are extensive and I am proud of efforts to promote core American security interests.

I wish to note up front that a key to ETRI's success is the strong partnership of the Departments of Energy, Defense, and State and the complementary nature of the nonproliferation activities we are pursuing in cooperation with Russia. Department of Defense programs to enhance the safety, security, control and accounting of nuclear weapons fit perfectly with our work to secure fissile materials and nuclear weapons expertise. Our cooperation to promote nuclear material control and protection in the Russian Navy is an example of this partnership. Also, the Department of Energy's brain drain/prevention programs build on the efforts of the State Department-supported International Science and Technology Center to transition former Soviet weapons

scientists to peaceful work. We have all benefitted greatly from the strong working relationships that exist across agencies.

Our progress to reduce proliferation threats is surpassed only by the work ahead of us. We know, for example, that it will take years and substantial financial investments to complete the HEU Purchase Agreement or to dispose of Russian and U.S. surplus military plutonium. There are still tens of tons of fissile material to secure and many thousands of nuclear weapons workers to integrate into Russia's commercial sector. We also continue to work with Russia to improve our access to their highly sensitive facilities. It is simply a fact of life that we need people on the ground in precisely those places that are among the most closely protected by the Russian government. Secretary of Energy Richardson, Under Secretary Moniz and I are committed not just to work the access issue, but to lay the foundations for long-term success in our cooperation with Russia to promote nonproliferation.

As a final introductory comment, I would note that my Office has undergone a number of recent organizational changes. In particular, as of March 1, 2000, my Office, known formerly as the Office of Nonproliferation and National Security, has been re-designated the Office of the Deputy Administrator for Defense Nuclear Nonproliferation in the new National Nuclear Security Administration. In addition, the Department's Office of Fissile Materials Disposition was incorporated into this new Office. I am confident that these changes will only sharpen our ability to address the proliferation problem.

ADDRESSING PROLIFERATION RISKS IN RUSSIA

The subcommittee has asked the panelists to address the current threat posed to U.S. security by Russian nuclear weapons, weapons-usable materials, and ~~brain drain~~, progress we are making to address this threat; and key next steps in our work with Russia.

John Lauder of the Central Intelligence Agency can best speak to the threat, but allow me to offer a few comments.

We must not fall prey to complacency as we work to improve security for hundreds of tons of nuclear material, or wrestle with the problems of ~~brain drain~~. As long as there are states and organizations interested in acquiring weapons of mass destruction, we know that there will be a market for weapons-usable materials and expertise. Sustaining these nonproliferation efforts is, therefore, a crucial national security priority for the United States.

In another sense, the proliferation dangers of several years ago persist today. From systemic problems, such as economic and social stress and civil unrest faced by Russia and the other Newly Independent States (NIS) as they transition away from Soviet structures of governance, to the challenge of working with these countries to build up their national nuclear security systems to prevent illicit nuclear trade, diversions, or other types of proliferation, we have much work to do.

There is no room for error in our campaign to reduce proliferation threats, and so we all share a responsibility to continue this work and expand it when opportunities arise.

Allow me to address Department of Energy progress in addressing these threats across a number of key nonproliferation programs we are undertaking in cooperation with Russia and the NIS.

SECURING NUCLEAR WEAPONS EXPERTISE

I wish to start by discussing our flagship brain drain prevention programs: the Nuclear Cities Initiative (NCI) and the Initiatives for Proliferation Prevention (IPP). As you know, Secretary Richardson and Minister for Atomic Energy Adamov established the NCI in late 1998 to cooperate with Russian efforts to create peaceful, commercial jobs for displaced nuclear weapons scientists and engineers in Russia's ten closed cities. NCI is a new type of brain drain prevention program in that it is focused on nuclear workers who are slated to leave the nuclear weapons complex as facilities, and their jobs, are eliminated. Our initial focus has been on three municipalities: Sarov (Arzamas-16), Snezhinsk (Chelyabinsk-70), and Zheleznogorsk (Krasnoyarsk-26).

This program is on track. Since April 1999, when my Office was first authorized to spend funds, we have commissioned an Open Computing Center in Sarov, an International Business Development Center in Zheleznogorsk (with similar centers to open soon in Snezhinsk and Sarov), upgraded telecommunications systems in all three cities, and signed an agreement at the end of December 1999 with the European Bank for Reconstruction and Development to open small business loan centers in the three cities, providing access to millions of dollars in potential financing.

We have also initiated high-level strategic planning efforts with the Ministry for Atomic Energy to establish goals, costs, and timelines for workforce reduction and facility closures in each of the three cities. The Sarov strategic plan was completed last September; it identifies the reduction of as many as 6,000 employees of the Institute of Experimental Physics, a nuclear weapons design institute. Through the plan, we have also agreed to the accelerated shutdown of weapons assembly and disassembly at the Avangard plant: weapons assembly will halt by the end of 2000; weapons disassembly will halt by the end of 2003. To implement this accelerated shutdown, a commercial agreement for the production of kidney dialysis equipment was also recently completed, linking Avangard (home of a Russian nuclear weapons assembly and disassembly plant in Sarov), a German-American medical equipment company, and the Lawrence Livermore National Laboratory. Similar private industry partnerships are under development in other closed cities.

I am proud to say that NCI is already working to create jobs. The Open Computing Center will have 100 new contract research employees this year, with another 500 jobs expected by 2001. A separate center in Sarov for nonproliferation analysis has opened and will employ 30 or so workers displaced by down-sizing in the Russian nuclear weapons complex. The kidney dialysis

equipment project at Avangard could create more than 100 jobs and has the potential to bring major investments into Sarov. In all, more than 30 civil projects, equating to more than 700 jobs, are either funded or under development across a range of commercial areas -- from laparoscopy in Sarov, to fiber optic production in Snezhinsk, to canola oil and seed processing in Zheleznogorsk. With a funding boost in FY 2001, we expect to create hundreds of new jobs in each of the three cities.

Like NCI, DOE's IPP program works to secure weapons of mass destruction expertise and know how. Since the program's inception in 1994, more than 6,000 weapons scientists in Russia and the Newly Independent States have been supported through 400 non-military projects. The program partners Russian and NIS scientists with specialists at the Department's national laboratories, and concentrates aggressively on the commercialization of projects that are cost-shared with U.S. industry. Major corporations -- such as United Technologies, DuPont, and American Home Products -- are participating in this program. To date, U.S. industry has contributed \$64 million, eclipsing the \$38 million provided by the Department of Energy for cost-shared projects. Six commercial projects have already been launched with full graduation from U.S. government financing, and another thirteen projects are poised for full commercialization by the end of 2001.

Improving the commercial thrust of the IPP program is just one of the recommendations suggested last year by the GAO that we have moved to implement quickly. All of our IPP projects are now reviewed by the U.S. Industry Coalition, helping to promote those having genuine commercial potential. Other issues raised by the GAO report have been addressed as well. For example, we now use the Civilian Research and Development Foundation to avoid the payment of taxes on IPP projects in Russia; we have the agreement of the governments of Ukraine and Kazakhstan not to tax IPP payments; we vet all projects through an interagency screening process to rule out activities that might further a weapons program; and we cap the amount of IPP budgeted funds going to DOE's national laboratories at 35 percent.

SECURING FISSILE MATERIALS

Another core DOE activity is our Materials Protection, Control and Accounting (MPC&A) program, an essential bulwark against the nuclear weapons aspirations of terrorists and countries of proliferation concern. Through the MPC&A program, we have built a legacy of trust, solid working relationships and cooperation with Russian agencies, institutes and scientists, facilitating our efforts to improve the security for fissile materials at highest risk throughout the Russian nuclear complex.

Our MPC&A efforts are progressing well. By the end of this calendar year, we will have completed security upgrades at 36 sites and improved protection for 400 metric tons of highly enriched uranium and plutonium. Last October, Secretary Richardson and Russian Minister for Atomic Energy Adamov signed a government-to-government agreement that will ensure the job gets done at the remaining 20 sites in Russia. We are also nearing completion of a separate

implementing agreement with the Russian Ministry of Defense that will advance our MPC&A work at a number of very sensitive Russian Navy sites. Over the last year, working in cooperation with the Department of Defense, we completed security upgrades at a highly enriched uranium storage facility in Murmansk, the home base of the Russian Navy's Northern Fleet. The Russian Navy has requested our assistance in improving security at additional storage sites, showing an unprecedented degree of cooperation and access to Department of Energy employees.

Beyond Russia's Navy, we are enhancing our programs with the Ministry for Atomic Energy to reduce long-term costs and proliferation risks by consolidating and converting material and promoting the sustainability of our MPC&A operations.

The material consolidation and conversion effort aims to reduce the number of buildings and sites that store plutonium and highly enriched uranium and convert the uranium to a low-enriched form, which is not directly usable in a nuclear weapon. We recently completed a model project to consolidate and convert more than 200 kilograms of highly enriched uranium. In the coming fiscal year, we will augment this effort by converting at least 600 additional kilograms of highly enriched uranium and clearing out 6 buildings and 2 sites. Over the next 2 years, our goal is to convert 8-10 additional metric tons of highly enriched uranium.

Our sustainability program will ensure that Russia has the infrastructure to maintain and operate MPC&A systems over the long-term. We must be certain that computers remain operational and that the locks we help to install do not rust and break away. For this task, we will establish training centers, identify credible Russian suppliers of MPC&A equipment, and help in the development of regulations and security force procedures, as well as a central system to track amounts and locations for all of Russia's nuclear material. Some of the expertise DOE has developed in this area will be built into Department of Defense efforts to safeguard biological materials and facilities. This is an excellent example of synergy between our programs.

As you can see, we are making solid progress on the MPC&A front. Nevertheless, economic turmoil, growing concern that insiders might sell nuclear material on the black market, and our recognition that the size and geographic scope of Russia's nuclear complex is larger than our original estimates in 1994, all suggest that our nonproliferation work in this area is not yet finished.

Our MPC&A work complements our related cooperative efforts with Russia to block illicit nuclear trade. MPC&A is our first line of defense. Our "second line of defense" program is working to help Russia prevent unauthorized nuclear trade at nine key border crossing points and transportation centers -- many of them possible transit points to Iran or North Korea. By the end of calendar year 2000, we plan to place radiation detection equipment at all nine points. We are also developing a detection equipment training manual, which will guide the work of more than 30,000 front-line Russian customs officials.

We have additional nuclear material security programs focused on MPC&A improvements in former Soviet states outside of Russia, as well as protection of spent fuel at the BN-350 reactor in Aktau, Kazakhstan. In Aktau, our on the ground efforts to can and secure more than 3,000 plutonium-bearing spent fuel rods is proceeding well. The first phase of the operation is nearly complete. The next phase involves placing the material in long-term storage. Expert discussions on this issue are progressing well and we expect to launch a long-term management program in FY 2001.

FISSILE MATERIALS DISPOSITION

The transfer of the Office of Fissile Materials Disposition to the new Office of the Deputy Administrator for Defense Nuclear Nonproliferation is now complete and has gone extremely well. Laura Holgate, who has served very ably as Director of that Office, is now Associate Deputy Administrator for Fissile Materials Disposition and Special Secretarial Negotiator for Plutonium Disposition. There is a strong synergy between fissile materials disposition and my Office's broader mission to demilitarize large stocks of U.S. and Russian fissile materials surplus to national security requirements. This work is extremely important and advances our long-term nonproliferation and national security goals. By assuring that hundreds of tons of fissile materials are withdrawn from U.S. and Russian stockpiles and never used again to build nuclear weapons, we are closing the door on an era of the nuclear arms race and improving security for future generations.

On the international front, we are continuing our efforts in partnership with Russia to demonstrate a number of plutonium disposition technologies, demonstrations that will accelerate Russia's ability to build the facilities needed to dispose of its own surplus plutonium. We are also continuing extensive negotiations with Russia on a bilateral plutonium disposition agreement. Implementation of such an agreement is needed to trigger the start of actual disposition in both countries. I am pleased to report that U.S. and Russian negotiators are very close to a final document; both sides are pushing hard to have an agreement in hand this spring. I would also note that plutonium disposition was raised internationally as a high priority issue in 1999, through the "AG8" and in our multilateral discussions on the Expanded Threat Reduction Initiative. This has laid the groundwork for attracting international funding for this important effort.

HEU TRANSPARENCY AND IMPLEMENTATION

In addition to plutonium, our work with Russia to convert surplus highly enriched uranium from the Russian military stockpile into a non-weapon-usable form is also progressing well. The 1993 U.S.-Russia HEU Purchase Agreement -- also known by the title "Megatons to Megawatts" -- remains one of the more impressive nonproliferation achievements of the last decade. Through the end of calendar year 1999, more than 80 metric tons of weapons grade uranium -- enough material for 3,200 weapons -- had been removed from the Russian military program under this Agreement and converted to low enriched uranium for commercial sale. Already, Russia has

received close to \$1.5 billion as compensation for converted HEU. Secretary Richardson and Under Secretary Moniz have been instrumental in keeping this complex agreement on track.

My Office administers the HEU transparency and implementation program to monitor the conversion and processing of this material at Russian facilities subject to the Agreement. Over 70 teams -- the equivalent of nearly 43,000 inspection hours -- have visited these facilities to monitor conversion operations. During the past year, we installed a Blend Down Monitoring System (BDMS) at one Russian facility to provide continuous monitoring data, providing still greater assurance that our transparency objectives are being met. Over the next two years, we plan to upgrade transparency measures at two additional Russian blending facilities and to explore new opportunities to strengthen this important activity.

BUILDING FOR FUTURE SUCCESS

As you know, the President's FY 2001 budget request for the Expanded Threat Reduction Initiative included a proposed \$100 million for a Department of Energy nonproliferation program with Russia. As Secretary Richardson said last week in Congressional testimony, this new program improves our ability to respond to the most serious dangers presented by Russian nuclear facilities and weapons-usable materials, bringing our cooperation with Russia to a new level.

Activities included in this new program will supplement existing efforts to reduce proliferation dangers in the Russian military nuclear complex, while focusing attention on an area that heretofore has not been addressed, that is, separated plutonium produced in Russia's civil nuclear sector. This effort should be viewed in the context of our broader efforts with Russia to end the production of fissile materials and reduce existing stockpiles, an effort that includes, among others, the Plutonium Disposition program, the HEU Purchase Agreement, and the Plutonium Production Reactor Agreement.

The new program has two main elements: the first attempts to plug gaps in our efforts to manage fissile material from the civil side of the nuclear fuel cycle; the second part addresses proliferation vulnerabilities in Russia's nuclear infrastructure.

Under the first part of this new initiative, we propose to work with Russia to construct a new dry-storage facility for their nuclear power plant spent fuel to prevent the further accumulation of separated civil plutonium. The Russian Minister of Atomic Energy, Yevgeniy Adamov, has agreed to begin talks on a moratorium on the removal of civil plutonium through its separation from spent fuel. If we implement this agreement, the stockpile of civilian plutonium in Russia -- which is currently more than 30 metric tons and growing at a rate of 2 additional tons per year -- would get no larger.

We would also conduct collaborative research into modern nuclear reactor technologies and fuels, with the aim of devising more proliferation-resistant systems. Since we continue to have concerns about Russian nuclear cooperation with Iran, we will undertake no major investments in area until

those concerns are met. Finally, we would conduct a program of technical cooperation with Russia to examine the issue of geologic repositories, and the many complicated questions before us relating to disposition of spent fuel and nuclear wastes.

The second part of this initiative proposes to expand our excellent cooperative work addressing problems of the nuclear weapons infrastructure -- for example working with the Russian Navy to help secure their stocks of nuclear fuel for the submarine fleet and ice breakers. As you have most likely read in the newspapers, the Russian Navy has suffered a series of incidents involving theft and diversion of fissile materials. As a result, they are eager to work with our Departmental experts on material protection and control. We will also expand efforts to consolidate nuclear weapons-usable materials in fewer sites and fewer buildings and convert these materials to a low enriched form. New funds will also help accelerate the closure of nuclear warhead assembly and disassembly plants at Avangard and Penza 19, under the auspices of our Nuclear Cities Initiative.

CONCLUSION

Mr. Chairman and members of the Committee: we have an enormous opportunity to increase the safety and security of our nation. This Committee has been supportive of our work in the past; now, we need to accelerate this work while we have the opportunity to do so. I am confident that the programs and activities being advanced today by the Department of Energy under Secretary Richardson's leadership will have dramatic payoffs tomorrow by reducing proliferation dangers.

Thank you and I look forward to answering any questions you may have.