

Russian American Nuclear Security Advisory Council

**Accomplishments of Selected
Threat Reduction and Nonproliferation Programs in Russia, By Agency**

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DEPARTMENT OF DEFENSE (Cooperative Threat Reduction) PROGRAMS

Strategic Offensive Arms Elimination (Russia and NIS)

| | May 2003 | 2007 (proj.) | 2012 (proj.) |
|--|----------|--------------|--------------|
| Nuclear warheads deactivated | 6,032 | 8,371 | 9,726 |
| ICBMs destroyed | 506 | 982 | 1,264 |
| ICBM silos eliminated | 438 | 524 | 546 |
| ICBM mobile launchers destroyed | 1 | 312 | 400 |
| Ballistic missile submarines destroyed | 26 | 35 | 42 |
| Sub-launched ballistic missiles eliminated | 382 | 635 | 719 |
| SLBM launchers eliminated | 408 | 540 | 664 |
| Strategic bombers eliminated | 109 | 128 | 137 |
| Nuclear Air-to-Surface Missiles destroyed | 554 | 708 | 708 |
| Nuclear test holes/tunnels sealed | 194 | 194 | 194 |

*Source: Defense Threat Reduction Agency Scorecard, March 11, 2003, Projections as of November 6, 2002;
Additional updates from the Testimony of Deputy Under Secretary of Defense for Technology Security Policy and
Counterproliferation Lisa Bronson on May 8, 2003*

Nuclear Weapons Storage Security

Site Security Enhancements

This program provides Russia with equipment necessary to upgrade physical security at Ministry of Defense (MOD) nuclear weapons storage sites. Accomplishments include:

- Provided 123 kilometers of “Quick fix” security fencing and associated sensor systems for installation at warhead storage sites in Russia.
- The MOD has installed 42 kilometers of fencing at 52 sites, and completed the quick fix installation at more than 30 sites
- Completed access agreements for further installation in April 2003.

Security Assessment, Training and Logistics

Operating from the Security Assessment and Training Center (SATC) located in Sergiyev Posad, Russia, this program enables Department of Defense (DOD) and MOD development of a system for physical security upgrades of MOD's nuclear weapons storage sites. SATC continues to test and integrate equipment into MOD's physical security systems, train and equip MOD's guard force, and enhance the capability of MOD to evaluate personnel with access to nuclear weapons.

Sources: DTRA web site, GAO report, March 2003, Testimony of Deputy Under Secretary of Defense for Technology Security Policy and Counterproliferation Lisa Bronson on May 8, 2003

Nuclear Weapons Transportation Security

This effort supports secure transport of Russian warheads from deployment to storage, and from storage to dismantlement locations. There were 131 shipments to dismantlement facilities and consolidation sites as of September 2002. There are currently, on average, 6-7 shipments per month. DOD has also provided funding for 79 specialized railcars used for warhead transport and has contracted for the development of emergency response vehicles, nuclear weapons recovery equipment and MOD training for response to nuclear accidents. Additional examples of assistance provided include security upgrade kits for railcars, secure blankets, and "supercontainers" for warhead transport and storage. DOD assisted MOD in certifying the proper maintenance of 165 railcars as of the third quarter of 2002, and continues to certify other railcars. DOD secured a commitment from Russia to destroy two unusable offensive weapons program warhead transport rail cars at its own expense for every new car provided by the Cooperative Threat Reduction (CTR) program for dismantlement and secure storage purposes.

Source: DTRA web site, Testimony of Deputy Under Secretary of Defense for Technology Security Policy and Counterproliferation, Lisa Bronson on May 8, 2003

Construction of Mayak Fissile Material Storage Facility

Over 90% of the work on the first wing of the Mayak Facility has been completed. When finished during 2003, it will hold 25,000 containers of fissile material from more than 6,000 dismantled nuclear weapons. When both wings are completed, the Mayak Facility will store fissile material from approximately 12,500 dismantled nuclear warheads.

Source: DTRA web site, Testimony of Deputy Under Secretary of Defense for Technology Security Policy and Counterproliferation, Lisa Bronson on May 8, 2003

Chemical Weapons (CW) Destruction

Chemical Weapons Site Security Enhancements

This project seeks to enhance the security around ground-delivered CW stockpiles, reducing the risk of theft at the Kizner and Shchuch'ye sites. Two phases of security equipment are being implemented. Completion of these upgrades will assure the security of 35% of Russia's nerve agent stockpile considered to be most vulnerable to diversion. Accomplishments to date include:

- Installation of microwave sensors and fencing around 8 storage buildings at Shchuch'ye and 23 at Kizner, completed in the first phase of upgrades as of February 2002.

- Initiation in July 2002 of site perimeter enhancements with two layers of fencing, sensors, lighting, closed circuit television cameras, and improved central alarm stations, with an expectation of project completion in the Fall 2003.

Chemical Weapons Production Facilities Demilitarization

This project seeks to eliminate Russia's chemical weapons production infrastructure, concentrating on sites in Novocheboksarsk and Volgograd. Accomplishments to date include:

- Demilitarization or destruction of 15 buildings at Volgograd.
- Demilitarization of a munitions preparation building at Novocheboksarsk.
- Preparatory activities for demilitarization of another building at Novocheboksarsk.

Source: DTRA web site, GAO Report, March 2003

Biological Weapons (BW) Proliferation Prevention

Security Enhancements

This project enhances BioSecurity and BioSafety at Biological Research and Production Centers to ensure safe and secure storage and handling of biological pathogens. Many of these projects in Russia are implemented through the International Science and Technology Center.

Accomplishments to date include:

- Improved perimeter and building entrance security at the State Research Center of Virology and Biotechnology (VECTOR) facility in Novosibirsk and the State Research Center for Applied Microbiology (SRCAM) in Obolensk.
- Initiated physical security assessments for institutes in Golitsino and Pokrov.
- Proposals for additional BioSecurity and BioSafety activities have reached advanced stages for facilities in Golitsino, Pokrov, and Kazan.
- Completed strain security, excess infrastructure removal, and security perimeter construction at Otar State Research Agricultural Institute (SRAI) and the Almaty Institute for Research on Plague Control (KIRPC) in Kazakhstan, and began working toward follow-up activities.
- Began implementation of quick-fix physical security upgrades at the Samarkand Institute of Veterinary Science, the Research Institute of Virology/Ministry of Health (MOH) Virus Museum – Arbovirus Facility, and Center for Prophylaxis and Quarantine of Most Hazardous Inspections (CPQHI) in Uzbekistan.

Cooperative BioDefense Research

This project seeks to prevent proliferation of biotechnology with offensive applications, increase transparency, and enhance U.S. force protection capabilities through research projects with former BW scientists at Biological Research and Production Centers. These activities are implemented via ISTC. Accomplishments to date include:

- Signed 14 Project Agreements leading to the initiation of research in Russia, with 8 more projects in various stage of development.
- Moved toward contract completion with the Almaty KIRPC and developed a project for the Otar SRAI in Kazakhstan.
- Prepared execution of two projects under a new oversight agreement in Uzbekistan.

- Started to build a Bioattack Early Warning and Preparedness Project with several Central Asian states.

Dismantlement

This project seeks to eliminate infrastructure and equipment at Biological Research and Production Centers that have BW capability. These projects will be implemented via ISTC. Accomplishments to date include:

- Working toward completion of a project at VECTOR BiAlgam and development of additional projects at VECTOR, SRCAM, Golitsino, and Pokrov.
- Reached Phase IV for removal of equipment at JSC Biomedpreparat in Stepnogorsk, Kazakhstan, during which facility dismantlement is commenced.
- Destroyed all viable anthrax spores in 100 tons of anthrax weapons found at Vozrozhdeniye Island in Uzbekistan.

Source: DTRA website, GAO Report, March 2003, Testimony of Deputy Under Secretary of Defense for Technology Security Policy and Counterproliferation, Lisa Bronson on May 8, 2003

DEPARTMENT OF ENERGY PROGRAMS

Nonproliferation Policy

Reduced Enrichment for Research and Test Reactors (RERTR)

This project works with Russia to facilitate conversion of its research and test reactors from highly enriched uranium (HEU) fuel types to low enriched uranium (LEU) fuels.

Accomplishments to date include:

- Successfully tested a generic, high-density LEU fuel type that can be used to replace existing HEU fuels.
- Completed a bilateral agreement with Uzbekistan on cooperation.
- Conversion analysis was initiated for Soviet-designed research reactors in Uzbekistan and Ukraine.

Russian Research Reactor Fuel Return (RRFR)

This program repatriates civil HEU fuel from Russian-supplied research reactors in various countries to Russia, removing dangerous nuclear materials many regions of proliferation concern. Accomplishments to date include:

- Reached preliminary agreement on spent fuel management cost and pilot shipment site.
- Secretary of State Colin Powell and Energy Secretary Spencer Abraham completed the first agreement with Uzbekistan to repatriate highly enriched uranium to Russia and subsequently convert its research reactor to low-enriched uranium fuel. The agreement also plans security, safety, and storage upgrades at the Uzbek reactor site.
- Drafted and tabled a bilateral agreement on research reactor fuel transfers to Russia.
- Completed six U.S.-Russia-International Atomic Energy Agency fact-finding missions to the Ukraine, Uzbekistan, and Yugoslavia, plus two technical preparation visits to Uzbekistan.

Kazakhstan BN-350 Project

This project prevents proliferation of nuclear weapons by securing the nearly three tons of weapons-grade plutonium in spent fuel discharged from the BN-350 breeder reactor - enough material for hundreds of nuclear weapons. A separate project facilitates decommissioning of the facility. Accomplishments to date include:

- Completed the stabilizing and packaging of spent nuclear fuel in radiation barrier canisters, and placed this material under IAEA safeguards.
- Began joint conceptual design study on dual-use cask proposal to assist decision-making in Kazakhstan.
- Developed innovative safeguards system to measure plutonium in packaged spent fuel assemblies, a unique nuclear fingerprint for each canister, and a nuclear materials monitoring system for IAEA usage during implementation and verification of the program.

Warhead Dismantlement and Fissile Material Transparency

DOE has negotiated lab-to-lab contracts to develop methods and procedures for secure and transparent dismantlement of Russia's nuclear warheads. These contracts attempt to ensure technical dialog between American and Russian nuclear warhead experts, and also to bolster

advocates for transparency within the Russian nuclear weapons complex. Accomplishments to date include:

- Completed 35 Lab-to-Lab projects involving joint technology development, experiments, and technical interchange meetings; nearly 40 additional projects are either planned, or ongoing, including 3 technical interchange meetings for FY 2003.
- Specifically negotiated 3 Lab-to-Lab agreements for U.S. access to Russian technologies that can support U.S. counter-terrorism efforts.
- Demonstrated 12 total Russian transparency technologies developed via Lab-to-Lab interactions.
- Arzamas-16 has developed and demonstrated radiation measurement technologies for potential application to the dismantlement process, including the “Passport System” to measure warhead radiation signatures at Russian storage facilities, and the “Radiation Mark System” to uniquely tag and monitor warheads during the dismantlement process.
- Chelyabinsk-70 has conducted transparency technology demonstrations that have detected the presence of high explosives during the dismantlement process, destroyed high explosive removed from dismantled nuclear warheads, destroyed nuclear warhead casings to confirm that the dismantlement process is irreversible, and installed a computer model of a Russian "hypothetical" Russian dismantlement facility for use in analyzing and evaluating the candidate transparency technologies and methods.

Mayak Fissile Material Storage Facility Transparency/Trilateral Initiative

This program is intended to help verify through bilateral and multilateral means the weapons-origin of the material to be stored in the Mayak Fissile Material Storage Facility.

Accomplishments to date include:

- Devised an “attribute verification with information barriers” technique for monitoring of nuclear weapons storage sites without divulging weapons secrets.
- Developed a Subsidiary Arrangement for implementation of the Trilateral Initiative of the U.S., Russian Federation, and the International Atomic Energy Agency at the Mayak site, which will advance IAEA involvement in verification activities on weapon-origin fissile material.

Source: Lab-to-Lab Warhead Dismantlement Transparency Program Webpage, IAEA Bulletin 43/4/2001, Department of Energy FY04, FY03 Budget Justification, DOE News, March 12, 2002, Section 1205 Report to Congress, February 2003

Export Control Program

International Nuclear Export Control Program

This program works with governments in Russia, the NIS, and other states to strengthen national systems of international nuclear export control. It targets emerging suppliers and high-traffic transit nations. Accomplishments to date include:

- Facilitated improvement in Russian and NIS export licensing procedures by establishing partnerships between governments and technical experts, as well as installing an automated licensing systems. Recently installed a secure export license review system in Kazakhstan.

- Encouraged industry compliance with Russian and NIS export control regulations with regional and site-specific industry outreach, provision of compliance software tools, and the production of an export control newsletter. Recently conducted 7 industry compliance workshops in Russia and the Ukraine.
- Developed enforcement capability by enhancing training courses and curricula for Russian and NIS Customs Academies and training customs inspectors to better identify nuclear-related commodities.
- Expanded successful efforts previously used in other states to Baltic, Caucasus, and Central Asian states, including the provision of expert nuclear advice to law enforcement and border agencies and training-the-trainers programs.

Source: Department of Energy FY04, FY03 Budget Justification, correspondence with U.S. Government Official, April 2002

International Nuclear Materials Protection and Cooperation

Navy Complex

This program improves security in two areas. First, it installs improved nuclear material protection, control, and accounting systems at 36 Russian naval warhead storage sites (5 storage sites, 27 operational sites, and 4 rail transfer points) containing approximately 4,000 nuclear warheads. Second, it improves security over the estimated 60 metric tons (MTs) of HEU in 34 buildings at 11 naval fuel storage facilities and shipyards where nuclear materials are present.

Accomplishments to date include:

- Installed rapid security upgrades on all of the Russian Navy's estimated 4,000 nuclear warheads, and comprehensive upgrades on 40% of the warheads. Rapid upgrades have been installed at 33 of the 36 sites; comprehensive upgrades were completed at 8 locations, and initiated at 5 more as of January 2003.
- Completed comprehensive upgrades on 98% of the Navy's weapons usable material. Comprehensive upgrades were finished at 9 of the 11 fuel storage sites. At these sites, work was completed at 27 buildings, partially completed at 1 building, and recently initiated at 4 buildings.

Strategic Rocket Forces

This program improves security on Russian warheads by installing MPC&A systems at Strategic Rocket Forces (SRF) storage sites. Agreement was reached to initiate this program in FY 2004.

Accomplishments to date include:

- Signed vulnerability assessment and conceptual design contracts for 2 SRF pilot project sites.

Minatom Weapons Complex

This program provides upgrades to Ministry of Atomic Energy (Minatom) nuclear weapons, uranium enrichment, and material processing/storage sites, containing 500 MTs of HEU and weapon-grade plutonium at 133 buildings in ten closed "nuclear cities." Accomplishments to date include:

- Installed rapid upgrades on 20% of the weapons-usable nuclear material in the complex, and comprehensive upgrades on 4%.

- Completed upgrades on 14 buildings, partially completed at 12 buildings, and recently initiated work at 20 buildings in the complex.
- Negotiated access to 35 new buildings in the weapons complex.
- Signed 24 new contracts, mostly concerning rapid upgrades and physical protection system design, with Weapons Complex entities, including design contracts to protect 80 MT of weapons-usable material at the Tomsk-7 Chemical Metallurgical Plant.
- Developed central storage facilities at the Chelyabinsk-70 and Arzamas-16 sites, potentially upgrading security on 30 MT of weapons-usable material.

Civilian Nuclear Sites

This program installs MPC&A systems in 76 buildings at 18 Russian sites, in addition to 13 non-Russian sites, containing approximately 40 MTs of the most vulnerable material of proliferation concern. Accomplishments to date include:

- Installed rapid upgrades on 98% of 40 MTs of weapons-usable nuclear material.
- Comprehensive upgrades completed on 54% of materials.
- Comprehensive upgrades have been completed at 11 of 18 Russian sites. At these sites, work was completed at 58 buildings, partially completed at 5 buildings, and recently initiated at 1 building.
- Comprehensive upgrades have been completed at all non-Russian sites.

Material Conversion and Consolidation

This program reduces the complexity and the long-term costs of securing Russian weapons-usable nuclear material by consolidating excess, non-weapons highly enriched uranium and plutonium into fewer, more secure locations. Accomplishments to date include:

- Converted 3.5 of a total of 29 MTs of HEU planned to be converted to LEU; elimination of an additional 1 MT to be completed before the end of 2003.
- Inventoried all nuclear materials at the Obninsk Institute of Physics and Power Engineering, and relocated its Central Storage Facility to a newly remodeled building.
- Will complete removal of fissile material from 23 buildings by the end of FY 2003, reducing the number of locations where material is stored from 162 to 139 buildings.

Radiological Dispersal Devices

This program identifies and pursues actions that can be taken to reduce the threat of a radiological attack against the United States. Specific attention is given to prioritizing better control of materials of greatest concern throughout the world. It cooperates with the IAEA to complete work in Russia and the former Soviet Union. Accomplishments to date include:

- Completed an initial assessment of risks from former Soviet orphaned radioactive sources.
- Initiated security upgrades at 4 sites in Russia, 3 in Uzbekistan, and 1 in Georgia.
- Initiated activities to locate, consolidate, and secure 9 orphan or surplus radioactive sources stored at one site in Georgia.

National Programs and Sustainability

This program includes projects to help ensure sustained operation and maintenance by Russia of installed MPC&A systems, assist Russian development of a legal and regulatory framework on

nuclear matters, and support the growth of MPC&A expert cadres in Russia. Accomplishments to date include:

- To promote transportation security, hardened 22% of 638 trucks and 41% of 143 rail cars; the program also provided 13% and hardened 40% of the 488 secure transportation overpacks.
- Installed unattended monitoring systems (MPC&A Operations Monitoring Systems – or MOMS) to allow Russian and U.S. officials to ensure ongoing operation of installed MPC&A systems, with 3% of the work completed.
- Observed 37 inspections/exercises of MPC&A systems at Russian nuclear sites by Gosatomnadzor (GAN, the Russian nuclear safety inspectorate), Minatom or Ministry of the Interior.
- Completed 71 communications connections so that Material Balance Areas at Russian sites can report to the Russian Federal MPC&A Information System (FIS).
- Initiated needs assessment and design activities for an MPC&A support facility in the Kola region.
- Enhanced the equipment of protective forces of nuclear materials by distributing bulletproof vests, helmets, response vehicles, cold-weather uniforms, and other items; rapid upgrades were completed for 5 Russian sites, and 5 Ukrainian sites.

Second Line of Defense

The SLD program provides equipment and training to Russian customs and border security units, to detect, interdict, and prevent nuclear smuggling from Russia and other former Soviet states.

Accomplishments to date include:

- Installed 130 radiation detection equipment systems at 15 additional strategic transit and border sites, preventing illicit trafficking in nuclear materials at a total of 20 locations in Russia.
- Provided introductory training to 24 Ukrainian border enforcement officials for nuclear material detection and WMD recognition.
- Surveyed border sites in Kazakhstan.
- A mobile training platform has been deployed, complete with training materials, equipment, and video demonstrations.
- Training materials have been developed for use by the 30,000 Russian Customs field personnel.
- Different types of equipment have been evaluated at the U.S. national laboratories for use in the program, including a unique Russian-built system for inspecting rail cars.
- Assumed responsibility for installation of radiation detection equipment in 19 states throughout Eastern/Central Europe, the Caucasus, and Central Asia.

Sources: Correspondence with U.S. Government Official, March 2001, Correspondence with U.S. Government Official, February 2001, FY04, FY03 Energy Department Budget Justification, Section 1205 Report to Congress, February 2003, Testimony of Amb. Linton Brooks before the House Armed Services Committee on March 4, 2003, General Accounting Office report, March 2003, Comments from the Department of Energy in response to General

Accounting Office findings, March 2003¹, Testimony of Deputy Administrator Ken Baker before the House International Relations Committee on May 8, 2003

International Safeguards

Sustainability of Safeguards and Security Systems in the NIS/Baltics

In order to develop appropriate systems and procedures to sustain the security of protected nuclear material for the foreseeable future in the former Soviet Republics, this program works with national laboratories, private sector entities, and IAEA specialists to develop security infrastructures and create a safeguarding culture consistent with international norms within participating states. Accomplishments to date include:

- Site security upgrades were completed at 13 non-Russian nuclear sites.
- Enhanced previously-installed security upgrades in Uzbekistan.
- Provided physical security and MPC&A training to personnel from Kazakhstan, Ukraine, and Uzbekistan.
- Completed detailed vulnerability assessments of physical security and safeguards systems at 3 sites in Ukraine, one site in Kazakhstan, and one site in Latvia.
- Signed contracts for additional upgrades at two sites in Kazakhstan; initiated negotiations for upgrades at two sites in Ukraine.
- Signed contract for long-term sustainability plans in Kazakhstan.

Source: Department of Energy FY04, FY03 Budget Justification, Section 1205 Report to Congress, February 2003

Russian Transitions Initiative

Nuclear Cities Initiative (NCI)

This program facilitates reduction of the Russian nuclear weapons complex by removing functions and equipment from the weapons facilities within the closed nuclear cities and helping to create sustainable, alternative non-weapons work for scientists who will be displaced by downsizing. Accomplishments to date include:

- Initialed NCI Access Arrangement with Russia.
- Converted a total of 550,000 square feet of weapons facilities to civilian use.
- Signed closure agreement with Russia, which publicly commits Minatom to cease nuclear weapons work at Avangard by 2003.
- Achieved a 15% reduction in the physical footprint of the Avangard nuclear weapons plant in Sarov, including removal of super-computers from two facilities.
- Leveraged \$24.7 million funding from industry, plus \$50 million for complex downsizing and \$4.8 million to 24 NCI projects from Minatom with \$37.5 million in US government spending.
- Assisted 370 nuclear cities workers in finding employment.
- Opened Open Computing Centers in Sarov and Snezhinsk, which employ former weapons scientists in the areas of software development and modeling complex systems

¹ In the GAO's March 2003 report, it differed with DOE on the counting of buildings in the Russian nuclear complex where fissile materials were stored. This report makes use of GAO's count of buildings, rather than DOE's.

through contract research with U.S. national laboratories and private companies, including Adapco, Oracle, Lucent, and Animatek.

- Opened International Development Centers (IDC) in Zheleznogorsk and Snezhinsk. IDCs are Russian non-profit organizations that support efforts by residents to diversify the economies of the cities. The IDCs helped create 280 jobs.
- Trained 1,800 individuals in business management and marketing skills.
- Created two nonproliferation centers in the closed nuclear cities of Snezhinsk and Sarov. The establishment of the centers is part of a strategy for developing nonproliferation analysis and research as a form of alternative, non-weapons employment for Russian nuclear weapons scientists, while also promoting a nonproliferation culture within Russia.
- Facilitated the award of \$17 million in Minatom defense conversion funds to the Zheleznogorsk City Administration by supporting project evaluation and other required activities.

Initiatives for Proliferation Prevention (IPP)

This program engages former Soviet weapons of mass destruction scientists and experts in cooperative, non-weapons-related projects involving the ten major DOE National Laboratories and U.S. industry. Accomplishments to date include:

- Attracted \$50 million of venture capital funding for commercializing five IPP projects.
- Engaged over 13,000 NIS scientists, engineers, and technicians since program inception; approximately 5,000 are currently employed in applied R&D projects.
- Successfully partnered with 97 different American businesses, leveraging over \$125 million matching contributions by U.S. industry to support government expenditures. US industry currently shares the costs of 132 different projects.
- Five projects attracted \$60 million in private-sector venture capital beyond industry partner commitments.
- Currently 400 projects are underway at 170 institutes in Russia, Ukraine and Kazakhstan. Over 100 of these projects are underway in Russia's closed nuclear cities, particularly Sarov, Snezhinsk, Zheleznogorsk, and Zelenogorsk.
- Successfully commercialized 12 projects, representing over \$30 million in sales and 1,000 long-term jobs created in the former Soviet Union
- Developed technologies with significant counter-terrorism applications, including: needle-free injector systems for mass inoculations; light-weight radiation detectors to detect nuclear materials smuggling; and high-technology, high-volume filters to remove dangerous pathogens from public water supplies.

Source: Correspondence with U.S. Government Official, March 2001, NCI Program Web Site, IPP website, Department of Energy FY04, FY03 Budget Justification, Section 1205 Report to Congress, February 2003, Testimony of Amb. Linton Brooks before the House Armed Services Committee on March 4, 2003

HEU Transparency Implementation

This program develops and implements mutually-agreeable transparency measures for the February 1993 HEU Purchase Agreement between the United States and the Russian Federation, helping to provide overall confidence that the material is weapons origin, and is being down-blended and not recycled into new weapons. Accomplishments to date include:

- Verified the conversion of 171.3 MTs of HEU to LEU from 1995 through December 2002.
- Conducted 18 of the 24 allowed Special Monitoring Visits at Russia's four uranium processing facilities in Fiscal Year 2002.
- Completed an agreement between DOE and Minatom, at the Ministerial level, in July 2001 to install Blend Down Monitoring System (BDMS) equipment at the remaining two Russian blending facilities, with completed installation at both sites planned for 2004.
- The BDMS at Ural Electrochemical Plant (UEIP) was operational 90% of the time.
- Staffed the Transparency Monitoring Office at Novouralsk near UEIP for 30 of the plant's 50-week operational cycle in FY 2002.
- Obtained 80,000 pages of material accountability data from Russia.
- Negotiated access to BDMS equipment at the Zheleznogorsk Electrochemical Plant.

Source: Department of Energy FY04, FY03 Budget Justification, Section 1205 Report to Congress, February 2003

International Nuclear Safety and Cooperation

This program is DOE/NNSA's focal point for international nuclear safety and emergency management policies and programs. Working on a broad array of international efforts, the program includes activities involving Soviet-designed research reactor safety and shutdown, BN-350 breeder reactor shutdown, and nuclear power plant protection from sabotage and terrorist attacks. Accomplishments to date include:

- Fabricated, installed, and operated cesium traps for decontamination of coolant at the BN-350 reactor in Kazakhstan, thus completing 20% of required efforts toward the goal of a FY 2002 shutdown.
- Connected 7 Russian nuclear sites to a Situation and Crisis Center.

Source: Department of Energy FY04, FY03 Budget Justification

Elimination of Weapons-Grade Plutonium Production

DOE is now the executive agent for this program, which will help Russia refurbish or construct fossil fuel energy plants, enabling Russia to shut down its last three plutonium production reactors that also provide heat and electricity to cities in Siberia. Accomplishments to date include:

- DOE completed its first plutonium storage monitoring visit under the Plutonium Production Reactor Agreement.
- Contracts for initial work at Zheleznogorsk and Seversk were placed.

Source: Department of Energy FY04, FY03 Budget Justification, Section 1205 Report to Congress, February 2003

Accelerated Material Disposition

This new initiative, resulting from the May 2002 Bush-Putin Presidential Summit, re-commits the United States and the Russian Federation to the elimination of additional weapons-usable highly enriched uranium. Accomplishments to date include:

- Completed technical experts report on accelerated nuclear materials reduction involving HEU/LEU purchase and stockpile, HEU research reactor fuel purchase, accelerated

RERTR activities, and accelerated Material Conversion and Consolidation implementation.

Source: Department of Energy FY04 Budget Justification

Fissile Materials Disposition

Russian Surplus Fissile Materials Disposition

In September 2000, the U.S. and Russia signed the Plutonium Management and Disposition Agreement, which seeks to transform excess weapons plutonium into forms unusable for weapons. This program will facilitate the final disposition of 68 total tons of excess weapons-grade plutonium (34 tons each from both Russia and the U.S.). Accomplishments to date include:

- Within the framework of the G-8 Global Partnership Against the Spread of Weapons and Materials of Mass Destruction, pledges above and beyond the originally announced \$200 million amount have reportedly been produced, from the United Kingdom, Japan, Italy and France to support plutonium disposition.
- Completed a number of technical tasks to enable plutonium disposition, including equilibrium core design for VVER-1000 reactors to burn plutonium-uranium mixed-oxide (MOX) fuel.
- Initiated discussions on the details of the program for disposing of surplus Russian weapons-grade plutonium.
- Supported development of gas-turbine, modular helium reactor to expand plutonium disposition capacity in Russia.
- Detailed design of MOX Fuel Fabrication facilities will be completed and construction of the facilities in both Russia and the US will begin during FY 2004.

Source: Department of Energy FY04, FY03 Budget Justification

DEPARTMENT OF STATE PROGRAMS

Export Control and Related Border Security Assistance (EXBS)

The EXBS program broadly seeks to stem the proliferation of weapons of mass destruction by ensuring that potential suppliers have proper controls on exports of arms, dual-use goods, and related technologies. EXBS operates active programs in over 30 countries. It also helps states that may serve as transit and transshipment points to develop the tools to interdict illicit shipments. Within Russia and former Soviet states, the program has worked to improve national legal and regulatory infrastructures related to export controls; provided equipment and training in WMD identification and interdiction techniques for customs officers, border guards, and other personnel; and encouraged regional cooperation in the interdiction of smuggled materials among former Soviet states.

The State Department intends to continue funding for projects in the FSU for 2003/2004 while expanding to countries (both source and transit) in South Asia, the Balkans, the Middle East, and Southeast Asia. In addition, sophisticated detection equipment is to be supplied to the Baltic States.

Sources: FY03 International Affairs Budget Request, State Department FY 2004 Budget Request, Testimony of State Department Bureau of Nonproliferation Assistant Secretary John S. Wolf before the House Committee on International Relations, May 8, 2003

International Science and Technology Center (ISTC) and Science and Technology Center in Ukraine (STCU)

The Science Centers Program, working through the ISTC and the STCU, is a multilateral program funding projects aimed at preventing WMD proliferation by redirecting former Soviet weapons scientists and experts to peaceful scientific endeavors. Since 1993, the Science Centers Program has engaged almost 50,000 scientists and engineers and continues to support nearly 2,000 scientific research and development projects, producing 270 patentable ideas. As of February 2003, ISTC has funded 1,704 projects valued at \$498 million. Biological and life science projects made up the largest share of the funding (24.5%). The STCU funds nearly 500 projects totaling \$66 million. During 2002, ISTC provided direct grant payments to 25,857 scientists and their team members, producing redirection for 7,690 full-time person-years, added 31 new Partner organizations, and approved the accession of Tajikistan to the ISTC Agreement.

Sources: ISTC website, ISTC 2002 Annual Report STCU website, Testimony of State Department Bureau of Nonproliferation Assistant Secretary John S. Wolf before the House Committee on International Relations, May 8, 2003

Civilian Research and Development Foundation (CRDF)

The CRDF supports the prevention of "brain drain" of former Soviet scientists and engineers by funding collaborative non-weapons research and development projects. Using a grant from the State Department, the CRDF supports the review process for proposals submitted to institutes under the Science Centers Program. CRDF's nuclear nonproliferation commitment spans across most of its program areas, including the Closed Cities program, the Cooperative Grants program, and the Next Steps to Market program. By the end of 2000, more than 700 defense scientists had participated in 235 projects budgeted at more than \$10 million.

Sources: CRDF website, CRDF 1998-2000 Program Report

Biological and Chemical Redirection

This program, involving 30 institutes in former Soviet states, provides incentives to former biological weapons scientists to not market their skills to rogue states and terrorists, while also promoting access and transparency at former Soviet biological weapons research and production sites. The State Department coordinates and guides activities of the Department of Health and Human Services Biotechnology Enhancement Program (BTEP), the US Department of Agriculture/Agricultural Research Service's Collaborative Research in Biotechnology Program, and the Environmental Protection Agency.

Source: State Department FY2004 Budget Request

Nonproliferation and Disarmament Fund (NDF)

NDF, part of the State Department's Bureau of Nonproliferation, is designed to respond to immediate, unanticipated proliferation challenges in various countries throughout the world. NDF works with DOE to identify and dispose of HEU from Soviet-supplied research reactors throughout the world.

In 2003, NDF intends to expand its Dangerous Materials Initiative, a program that inventories, secures, and removes dangerous materials from insecure locations worldwide. In addition, funds will go to expanding NDF's Tracker program, an automated export control system. Further planned activities include a worldwide fissile materials protection initiative and assistance to foreign governments in developing indigenous protection capabilities.

As of 2002, NDF has overseen the removal of 100 lbs of HEU from the Vinca reactor in Belgrade, the destruction of 24 SS-23 missiles, 47 SCUD missiles, and 50 FROG missiles, and assisted Cyprus in returning nuclear reactor parts en route to the Middle East to a more secure location.

Sources: State Department FY2004 Budget Request, Testimony of John Wolf, Assistant Secretary of State for Nonproliferation, before the Senate Foreign Relations Committee, March 19, 2003