

# RANSAC

## Policy Update

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*Reported Accomplishments of Selected Threat Reduction and Nonproliferation Programs,  
By Agency, for Fiscal Year 2004*

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This annual report summarizes the activities and accomplishments of cooperative threat reduction and nonproliferation programs conducted primarily in the Russian Federation and other former Soviet states by the Departments of Defense, Energy, and State.

Progress reports issued by these departments in their annual budget requests to Congress provide the main source of information for this report. Facts and figures gathered from Congressional testimony, press releases, public websites, and other government publications are also included.

Generally, this paper applies only through the conclusion of Fiscal Year 2004, as is the practice of most government agencies. However, when information through the conclusion of Calendar Year 2004 and into the early months of 2005 could be found, it has been included.

The report does not report on every cooperative threat reduction program and does not include completed or terminated programs. Previous accomplishments papers from RANSAC, available at these links to the RANSAC website, provide additional background for some of these programs:

- [2004](#)
- [2003](#)
- [2002](#)
- [2001](#)

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## DEPARTMENT OF DEFENSE PROGRAMS

### Strategic Offensive Arms Elimination

The Department of Defense cooperates with Russia to destroy strategic weapons delivery systems. Intercontinental Ballistic Missiles (ICBMs), Submarine Launched Ballistic Missiles (SLBMs), and their launchers, along with bombers, nuclear-powered missile submarines, and nuclear air-to-surface missiles (ASMs) are being dismantled or destroyed under the program.

Destruction progress is outlined in the following table:

### Nunn-Lugar Scorecard

<b>Program</b>	<b>Current Cumulative Reduction</b>	<b>2007 Projection</b>	<b>2012 Projection</b>
Warheads Deactivated	6632	7792	8567
ICBMs Destroyed	582	766	1140
ICBM Silos Eliminated	477	485	485
ICBM Mobile Launchers Eliminated	30	139	355
Bombers Eliminated	148	150	150
Nuclear ASMs Destroyed	789	829	829
SLBM Launchers Eliminated	420	472	572
SLBMs Eliminated	549	609	669
SSBNs Destroyed	28	32	32
Nuclear Test Tunnels/Holes Sealed	194	194	194

(Current cumulative reduction as of June 6, 2005; Projections as of December 31, 2004)

FY 2004 accomplishments included:

- Solid Propellant ICBM/SLBM and Mobile Launcher Elimination: Oversaw the dismantlement of 10 SS-N-20 missiles, and the elimination of an SS-24 train shed, 6 SS-24 ICBMs, 18 SS-25 sliding roof garages, and 7 rail mobile launchers. 14 railcar launchers were rendered useless. 9 SS-25 missiles and their launchers were taken out of service and transported to storage facilities to be eliminated.
- Liquid Propellant ICBM and Silo Elimination: 23 SS-18 ICBMs and 16 of their launcher silos were eliminated and 31 SS-18 ICBMs were taken out of service. 1,600 metric tons of missile fuel was shipped to storage facilities for future elimination.
- SLBM Launcher Elimination/SSBN Dismantlement: Dismantlement work continued on 1 Typhoon class nuclear submarine, the largest of the Soviet Navy's submarines, and 1 Delta I class submarine, another smaller Soviet-era submarine. Dismantlement contracts were signed for two additional submarines, one of which is a Typhoon.
- Spent Naval Fuel Disposition: Produced 25 spent naval fuel storage containers to hold spent naval fuel during transportation and storage and delivered 6 completed spent fuel railcars to the Mayak Storage Facility.
- Liquid Propellant SLBM Elimination: 89 SLBMs were destroyed, 19 of which were destroyed by Russia using equipment provided by the Defense Department.

## Strategic Nuclear Arms Elimination and WMD Infrastructure Elimination

Through this project, the Defense Department provides assistance to Ukraine to eliminate Tu-22M Backfire bombers, Tu-142 Bear nuclear-capable maritime patrol aircraft, Kh-22 nuclear air-to-surface missiles (ASMs), and strategic bomber trainers. The WMD Infrastructure Elimination program seeks to take military facilities out of service that could be used to advance countries' WMD programs. Such facilities include ICBM liquid propellant plants, airbases used by bombers, and weapons storage sites. In Kazakhstan, radiological sources that could be used in dirty bombs are being identified and secured.

FY 2004 accomplishments in Ukraine included:

- SS-24 Missile Disassembly, Storage, and Elimination: 163 SS-24 ICBM motors were stored pending final Department of Defense and Ukraine agreement on an appropriate dismantlement method.
- Bomber and Air-to-Surface Missile Elimination: The program destroyed 12 Tu-22M bombers, 110 Kh-22 ASMs, 2 Tu-142 maritime patrol aircraft, and their engines and launchers.
- National Nuclear Storage Site Elimination: The stockpile site at Raduga, Ukraine, was converted to non-military use, while the Department of Defense prepared for additional demilitarization work at 4 other nuclear weapons storage areas in Ukraine.

FY 2004 accomplishments in Kazakhstan included:

- Fissile and Radioactive Material Proliferation Prevention: The program continued to assist Kazakhstan in identifying and creating an inventory of the hundreds of unprotected sources of radioactive material being discovered around the country. Furthermore, the program assists in safely packaging and moving these sources to secure storage locations.

## Nuclear Weapons Safety and Security

This project consists of two programs, both assisting Russia in improving the security, safety, and control of nuclear weapons during storage and transport.

### *Nuclear Weapons Storage Security (NWSS) Program*

- Automated Inventory Control & Management System (AICMS): This project helps Russia track its nuclear weapons that are scheduled to be destroyed. To accomplish this, the project will install tracking hardware and software at 16 facilities and at one central control point and will provide training for use of this equipment. FY 2004 accomplishments included installation of hardware and software at 12 of the 16 facilities along with completion of training in its operation.
- Guard Force Equipment and Training: This project seeks to bolster the ability of Russian guards to prevent unauthorized access to nuclear weapons storage areas. FY 2004 accomplishments included the transfer all remaining Small Arms Training Systems and live-fire shooting ranges to Russia. Also, the project completed training in installation, operation, and maintenance of the small arms training system.

- Nuclear Weapons Storage Site Support: This project provides environmental control, safety, and site maintenance equipment to support the operation of nuclear weapons storage sites. For FY 2004, the project finished work on a Laboratory Information Management System, the final step in completing the Safety Enhancement Center. This center will help certify that equipment can safely move and store nuclear weapons that are scheduled for destruction. The project also trains Russian personnel in how to use this equipment.
- Site Security Enhancements: This series of projects helps improve security at up to 42 Russian nuclear weapons storage sites by installing physical security systems. Ultimately, the program seeks to make security standards at Russian sites equal to those found at U.S. nuclear weapons storage sites. FY 2004 accomplishments included the ordering and shipping of 80% of requested security equipment to the Russian Defense Ministry, including hand-held explosive detectors, portable lighting sets, locks, and flashlights. Vulnerability assessments were also completed for three sites in order to determine how best to upgrade their security.

#### *Nuclear Weapons Transportation Security (NWTs) Program*

- Nuclear Weapons Transportation: This project assists Russia in securely shipping nuclear warheads to dismantlement or storage locations. The number of shipments during FY 2004 was sharply reduced due to delays in reaching agreement on funding, and thus only 45 train shipments were supported for the year, 65% of the target number.
- Railcar Maintenance and Procurement: This project supports the maintenance and certification of railcars that transport Russian nuclear weapons. During FY 2004, the project funded the maintenance and certification of 34 of these railcars.
- Transportation Safety Enhancements: This project enhances Russia's ability to respond to accidents involving the transportation of nuclear weapons. During FY 2004, the Department of Defense took possession of six Russian-made trucks and delivered one to the project's Russian contractor. These trucks are designed to deliver emergency response equipment.

#### Russian Chemical Weapons Destruction and Demilitarization

Two projects within this program assist Russia in destroying its chemical weapons nerve agent in a safe and environmentally sound manner.

- Chemical Weapons Destruction Facility (CWDF): The U.S. has agreed to build a facility near the town of Shchuch'ye to destroy Russia's nerve agent stockpile in accordance with international obligations. FY 2004 accomplishments included the successful operation of a 1:50 scale model of the actual agent destruction process. Also, prototypes of agent removal equipment were tested. Overall design of the facility is 91% complete and construction is 18% complete. Main construction accomplishments included completing foundations for the Main Destruction, Administration, and Fire Station buildings.
- Chemical Weapons Production Facility (CWPF) Demilitarization: This project will dismantle two chemical weapons production facilities at Volgograd and Novocheboksarsk. This process will involve the dismantlement and destruction of

equipment that can be used to produce, transfer, and store prohibited chemical weapons nerve agent. During FY 2004, dismantlement activities were completed at two buildings and continued at six buildings at the Volgograd site and continued at two buildings at the Novocheboksarsk site. Work began on installation of a liquid waste incinerator at the Novocheboksarsk site.

### Biological Weapons Proliferation Prevention (BWPP)

This program contains four subprograms working to prevent the proliferation and use of biological weapons:

- Biological Weapons Infrastructure Elimination (BWIE): BWIE provides for the elimination of biological weapons infrastructure in the former Soviet Union by removing equipment from facilities that could be used to produce biological weapons or destroying those facilities that cannot be dismantled. This work continued at several different sites during FY 2004. The conversion of a former weapons production facility at Vector continued. Approval was granted to begin demolition work of two buildings at Stepnogorsk in Kazakhstan and to begin dual-use equipment removal and building demolition at the Biokombinat site in Georgia.
- Biosecurity and Biosafety: Projects in this area seek to upgrade security at facilities engaged in peaceful biological research. During FY 2004 in Russia, technical and management plans were developed for security improvement at the Vector, Golitsino, Pokrov, and Kazan sites and a security assessment was initiated at the Vladimir site. Outside Russia, security assessments were completed for 13 sites in Kazakhstan, Uzbekistan, and Georgia. In Georgia, security upgrades were completed at the National Center for Disease Control.
- Cooperative Biological Research: The Cooperative Biological Research program redirects former biological weapons scientists to peaceful pursuits in order to help prevent the proliferation of their expertise. In FY 2004, the program awarded contracts to the National Academy of Sciences to oversee the program and to the Civilian Research and Development Foundation to manage three projects in Kazakhstan and Uzbekistan. Contracts were also awarded to the University of New Mexico and Pennsylvania State University to recruit qualified scientists to conduct pathogen research.
- Biological Weapons Threat Agent Detection and Response (TADR): The TADR program seeks to strengthen the ability of authorities to detect the accidental release or diversion of biological materials in Kazakhstan, Uzbekistan, and Georgia by fortifying detection and response networks. In FY 2004, the program conducted a workshop on brucellosis, a disease common to all three countries, which highlighted the need for cooperation among their detection and response networks. Also, the three countries' existing disease diagnosis and surveillance networks were assessed.

### Fissile Material Storage Facility (FMSF) Program

The fissile material storage facility at Mayak will help provide safe and environmentally sound storage for weapons grade fissile material. The Department of Defense will work with the

Russian Federal Agency for Atomic Energy (Rosatom) to install a certified Inventory Sampling Measurement System that will enable monitors to verify that storage containers are loaded with weapons grade plutonium or enriched uranium, although current plans do not envision highly-enriched uranium (HEU) storage at Mayak. The facility was commissioned December 11, 2003. Continued work on this program is dependent on the signing of a transparency protocol between the United States and Russia, currently being negotiated. This protocol will govern the verification procedures necessary to ensure that the material stored at Mayak is weapons-grade material derived from Russia nuclear weapons. Meanwhile, the U.S. National Laboratories have helped develop a sampling-based verification procedure and have discussed this plan with their Russian colleagues.

## **DEPARTMENT OF ENERGY PROGRAMS**

### Global Initiatives for Proliferation Prevention

The Global Initiatives for Proliferation Prevention (GIPP) program, formerly the Russian Transition Initiative Program, seeks to prevent the migration of WMD expertise by engaging former weapons experts in peaceful efforts and by downsizing the nuclear weapons infrastructure of the former Soviet Union. GIPP combines a focus on scientist engagement and redirection with emphasis on business infrastructure improvement and workforce transition. Through April 2005, GIPP-related programs had engaged over 16,000 weapons scientists in over 750 projects and had created over 3,000 civilian jobs for former WMD personnel. Also, GIPP had secured over \$300 million in private sector funds and resources to redirect this expertise.

Every year, the program helps redirect 8,200 weapons scientists, engineers and technicians in the former Soviet Union to peaceful work and during FY 2004 a total of 16 technologies were commercialized or businesses created or expanded. During the year, GIPP obtained \$24 million in private funding contributions, providing 60% of total project funding. This private funding was crucial in areas where the use of U.S. government funding was prohibited, such as in joint projects with the Russian government. The program also held an exhibition featuring the work of scientists and engineers from Russia, Ukraine, and Kazakhstan.

### Kazakhstan BN-350 Reactor Shutdown

This effort supports the shutdown of the BN-350 plutonium breeder reactor in Kazakhstan. In addition to creating tons of weapons-grade plutonium, the reactor's sodium coolant is flammable, explosive and contains radioactive cesium. During FY 2004, the coolant draining process was completed and construction began on the Sodium Processing Facility that will transform the coolant into a more stable, less radioactive form.

### International Nuclear Materials Protection and Cooperation

The International Nuclear Materials Protection and Cooperation program helps prevent the acquisition of nuclear weapons and material by terrorists on two fronts. The first front is the security and elimination of nuclear weapons and material at their source. The second is the

installation of radiation detection equipment at border crossings and ports to prevent smuggling of these materials.

- Navy Complex: This program improves the security of Russian Navy warhead and fissile material by upgrading security at 50 sites where nuclear warheads, fuel and other nuclear materials are present. In FY 2004, contracts were signed for all remaining security upgrades to Russian Navy warhead sites. In addition, all 11 navy fuel and nuclear material storage sites have received complete, comprehensive security upgrades. The program has secured 34 navy warhead sites through FY 2004, with a goal of 39 secured by the end of FY 2006.
- Strategic Rocket Forces: This program installs improved security and accounting systems at 19 Russian nuclear warhead sites. Security upgrades were completed at two of these sites during FY 2004. In addition, rapid upgrade contracts have been signed for all sites and contracts for comprehensive security upgrades have been signed for five additional sites.
- Rosatom Weapons Complex: This program provides security and accounting system upgrades to nine Russian nuclear sites involving weapons, uranium enrichment, and material processing and storage. For FY 2004, upgrades were completed at two sites and through the end of the fiscal year 26% of the 600 metric tons of identified fissile material in Russia had been secured under this program and the Civilian Nuclear Sites program described below.
- Civilian Nuclear Sites: This program works to install improved security and accounting systems at 31 civilian nuclear sites, both inside and outside Russia. During FY 2004, the program completed system installations at 20 sites in Russia and four sites in Greece.
- Material Consolidation and Conversion: This program consolidates excess nuclear materials into fewer, more secure sites and converts highly enriched uranium into low enriched uranium. Through FY 2004, the program had converted 5.4 of the approximately 17 metric tons of HEU planned for conversion by the end of FY 2012.
- Second Line of Defense: This program seeks to discourage and prevent illicit trafficking in nuclear and other radioactive materials by setting up radiation detection equipment at border crossings and ports in Russia and elsewhere. In 2004, installed Russian sensors recorded 14,000 “hits” of radioactive material, of which 200 involved possible cases of smuggling. Through FY 2004, detection equipment had been installed at 66 sites both inside and outside Russia, out of a planned 330. In April 2005, the governments of the U.S. and the Ukraine signed an agreement to install radiation detection equipment at key Ukrainian ports.

### Global Threat Reduction Initiative

Former Energy Secretary Spencer Abraham announced the Global Threat Reduction Initiative (GTRI) on May 26, 2004. The purpose of GTRI is to identify, secure, and remove or destroy nuclear and other radioactive materials around the world in order to prevent terrorists from acquiring nuclear or dirty bomb material. The GTRI is made up of eight programs, four of which concern nuclear and radioactive materials of Russian origin.

- Reduced Enrichment for Research and Test Reactors (RERTR): This program supports the conversion of reactors that use weapons-usable highly enriched uranium into reactors that employ less sensitive low enriched uranium. In FY 2004, work continued on efforts to develop appropriate LEU fuels that will allow the conversion of all remaining HEU-fueled reactors. At present, the program targets 28 of these reactors, none of which have yet been converted and 21 of which await the development of new fuel types before conversion can take place.
- Russian Research Reactor Fuel Return (RRRFR): This program works to return HEU fuel to Russia from foreign research reactors that use Russian-origin fuel. In 2004, the United States and Russia jointly completed shipments of 17 kg of unused HEU from Libya, 11 kg from Uzbekistan, and 6 kg from the Czech Republic. In July 2004, the United States and Romania signed an implementing agreement under the GTRI to accelerate the removal of used HEU fuel from the Magurele research reactor.
- HEU Research Reactor Fuel Purchase: This program plans to purchase about 160 kg of Russian HEU per year to be used to manufacture fuel for four U.S. HEU-fueled research reactors. The use of HEU is currently required in these reactors, but will be discontinued once they are converted to use LEU. In FY 2004, the United States and Russia continued to negotiate agreements on price and transportation, seeking initial purchase and delivery of the HEU late in FY 2005.
- International Radiological Threat Reduction: This program seeks to reduce the risk of a dirty bomb attack by identifying and securing radiological sources worldwide, including in Russia. In FY 2004, the program disposed of 38 civilian radioisotope thermoelectric generators (RTGs), which use the heat from radioactive materials to power lighthouses and other remote installations, and completed security enhancements at 69 medical, industrial, and commercial facilities currently employing radioactive materials. 149 of these facilities were in the process of obtaining security upgrades.

### HEU Transparency Implementation

The goal of this program is to ensure that HEU purchased from Russia under the 1993 purchase agreement is derived from dismantled Russian nuclear weapons. Each year, about 30 metric tons of HEU is converted into 900 metric tons of LEU at four different Russian facilities. During FY 2004, the Department of Energy monitored this conversion with 24 Special Monitoring Visits to four Russian uranium conversion facilities and conducted 10 months of oversight at the Transparency Monitoring Office in Novouralsk. In addition, the program completed the successful installation of Blend Down Monitoring System (BDMS) equipment at the Siberian Chemical Enterprise and trained Russian staff on equipment operation and installation procedures. Two other sites in Novouralsk and Zheleznogorsk already have respective BDMS systems up and running.

### Elimination of Weapons Grade Plutonium Production (EWGPP)

This program helps Russia to eliminate its weapons-grade plutonium producing reactors by shutting them down and replacing them with fossil fuel power plants to provide cities dependent on these reactors with electricity and heat. FY 2004 accomplishments included:

- Seversk Plutonium Production Elimination Project: This project will shut down two plutonium production reactors and remodel an existing 1950s fossil-fuel facility to provide an alternative source of electricity for the surrounding community. Through the end of FY 2004, almost 13% of the refurbishment of this facility was complete. Preliminary designs were completed and contracts awarded for the construction of a turbine, a boiler, and a coal handling system, and the re-tubing of two boilers. In December 2004, the National Nuclear Security Administration and Washington Group International signed a contract to handle the refurbishment of the facility.
- Zheleznogorsk Plutonium Elimination Project: This project will shut down a plutonium production reactor and provide a replacement fossil fuel facility. In February 2004, the site was selected for the replacement facility, the Russian government procured the land, and access was granted. In April 2004, the conceptual design for the facility was completed, and through the end of FY 2004, 5% of construction was complete. In January 2005, the U.S. and the United Kingdom signed a Memorandum of Understanding (MOU), under which the U.K. will contribute \$20 million to the EWGPP to assist the shutting down of the Zheleznogorsk reactor. In March 2005, the U.S. and Canada signed an MOU for a \$7 million contribution from Canada to the EWGPP.

### Russian Fissile Materials Disposition

This program is part of a coordinated effort to eliminate 68 metric tons of U.S. and Russian surplus weapons-grade plutonium. The goal is to irradiate the excess plutonium in nuclear reactors as part of a mixed oxide (MOX) fuel mixture. This irradiation will convert the plutonium into a form that is less adaptable for use in nuclear weapons. Through FY 2004, the program had completed 15% of the design for the Russian MOX Fuel Fabrication facility. Finalizing an agreement on liability protections for American contractors working on construction at this Russian facility is crucial for this program's further progress.

## **DEPARTMENT OF STATE PROGRAMS**

### Nonproliferation and Disarmament Fund

The Nonproliferation and Disarmament Fund supports efforts to halt the spread of weapons of mass destruction, to limit the spread of advanced conventional weapons, and to enable the dismantling of existing weapons and their means of delivery. The fund finances and supports unforeseen nonproliferation projects that occur during a fiscal year, when the normal budgetary process proves too time consuming to meet the need to rapidly secure and remove proliferation sensitive weapons and materials.

Recent NDF accomplishments include:

- Assisted State and Energy officers with the packaging and shipping of more than 1,500 tons of centrifuge parts, nuclear material and related items from Libya, completely removing its uranium enrichment program.
- Supported the redirection of former Iraqi WMD scientists, technicians and engineers to civilian employment.

- Assisted with the ongoing dismantling of the BN-350 reactor in Kazakhstan.
- Provided for security upgrades of sensitive WMD sites in the Balkans, including the provision of \$555,000 for security site assistance for an Albanian chemical weapons stockpile.

### Nonproliferation of Weapons of Mass Destruction Expertise

The programs below are funded under this heading, and all broadly support the engagement and permanent redirection of former weapon scientists worldwide.

#### *Science Centers*

The International Science and Technology Center (ISTC) in Moscow and the Science and Technology Center in Ukraine (STCU), based in Kiev, are two multilateral organizations that provide scientists from the former Soviet Union with funding to pursue peaceful research opportunities. The centers also seek to help the former Soviet Union transition to market-based economies and encourage the integration of FSU scientists into the international scientific community. Financing is provided by the United States, the European Union, Canada, Japan, South Korea, and private industry. Scientists from all WMD categories – nuclear, chemical, biological, and missile – are targeted for assistance, although biotechnology and life science projects receive around 30% of ISTC’s annual funding. Recent accomplishments include:

- ISTC has provided more than 58,000 scientists and engineers with peaceful research opportunities in nearly 2,100 projects.
- In 2004, ISTC funded 193 new projects at a cost of nearly \$56 million. During the year, ISTC made grant payments to 27,104 scientists and their team members in the amount of \$47 million. The ISTC also added 43 new partner organizations during the year, which have provided nearly \$190 million in program funding.
- The STCU has engaged more than 13,000 experts through September 2004.

#### *Bio-Chem Redirection*

The Bio-Chem Redirect Program transitions biological and chemical weapons scientists and experts from the former Soviet Union to peaceful, civilian research projects. The program provides funds to the U.S. Departments of Health and Human Services and Agriculture, and the Environmental Protection Agency, who work through the ISTC and STCU to implement program projects.

Recently, the program gained access to the last closed bio-chemical facility in Kazakhstan, the Pavlodar Chemical Plant. It also established the Kirov Environmental Monitoring Lab, the first mechanism focused on engaging former BW scientists from the top priority Kirov-200 site, which remains closed. Finally, the program identified new priority bio-institutes in Tajikistan.

#### *Bio-Industry Initiative*

Created after the September 11<sup>th</sup> terrorist attacks, the Bio-Industry Initiative (BII) seeks to dismantle former biological weapons production facilities in the former Soviet Union and to accelerate drug and vaccine production to combat both regional and global disease.

During FY 2004, BII completed funding assessments on 12 biological research institutes. It also sponsored numerous matchmaking events with western pharmaceutical industry partners for sustainable commercial redirection, which helped to develop new partnerships between Russian biological institutes and US companies. 12 former biological weapons facilities also received extensive training on intellectual property, international regulatory standards, and commercialization to help their integration into the global bio-research industry.

#### Export Control and Border Security Program

The Export Control and Border Security Program (EXBS) assists governments in strengthening their export controls by improving their legal and regulatory capacity and border security capabilities. EXBS focuses particularly on proliferation-sensitive nations in Eurasia, where proliferation risks and potential transit networks are believed to be present.

During FY 2004, the program continued to strengthen export control systems in target countries such as Bulgaria, Romania, Latvia, Poland, Estonia, and Lithuania. Poland, Hungary, and the Czech Republic were graduated from the program based on their superior performance.

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