



**Annual Report to Congress**  
**on the Safety and Security of Russian**  
**Nuclear Facilities and Military Forces**

April 2006

## Scope Note

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Congress has directed the Director of National Intelligence (DNI) to submit to the Congressional leadership and intelligence committees an annual, unclassified report assessing the safety and security of the nuclear facilities and military nuclear forces in Russia. Congress has requested that each report include a discussion of the following:

- The ability of the Russian Government to maintain its nuclear military forces.
- The security arrangements at Russia's civilian and military nuclear facilities.
- The reliability of controls and safety systems at Russia's civilian nuclear facilities.
- The reliability of command and control systems and procedures of the nuclear military forces in Russia.

This report is the fifth responding to this Congressional request, and covers 2005 and 2006. The report addresses facilities and forces of the Russian Ministry of Defense, the Federal Agency for Atomic Energy (formerly the Ministry of Atomic Energy), and other Russian institutes. It updates the February 2005 report to Congress that covered 2004.

## Key Points

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The United States continues to work cooperatively with Russia to increase the safety and security of nuclear-related facilities, infrastructure, and personnel. Russia is upgrading its physical, procedural, and technical measures to secure its nuclear weapons against both external and internal threats. Russia's nuclear security has been slowly improving over the last several years, but we remain concerned about vulnerabilities to an insider who attempts unauthorized actions as well as to potential terrorist attacks.

- An unauthorized launch or accidental use of a Russian nuclear weapon is highly unlikely as long as current technical and procedural safeguards built into the command and control system remain in place and are effectively enforced. Our concerns about possible circumvention of the system would rise if central political authority broke down.

Since the September 2001 terrorist attacks in the United States, President Putin and other Russian officials have conducted a public campaign to provide assurances that terrorists have not acquired Russian nuclear weapons. Russian officials have reported, however, that terrorists have targeted Russian nuclear weapon storage sites. Russian authorities reportedly thwarted two terrorist attempts in 2002 and 2003 to gain access to Russian nuclear weapons storage facilities in the European part of Russia.

Russian facilities housing weapons-usable nuclear material vary from small research facilities and fuel cycle facilities to those involved with nuclear weapons research, development, and production. Small research facilities, although typically underfunded, usually have smaller, static inventories of weapons-usable nuclear material and are easier to secure. Large fuel cycle facilities have larger, varying inventories that are more difficult to account for and are much harder to secure.

Progress on security enhancements is most advanced at civilian institutes and Russian Navy sites. Progress is impeded at facilities within the Federal Agency for Atomic Energy (Rosatom) nuclear weapons complex, which contain large amounts of material of proliferation interest, because of counterintelligence concerns that have led Russia to prevent direct US access to sensitive materials. Russia's nuclear material protection, control, and accounting practices have been slowly improving over the last several years, but risks of undetected thefts remain.

**Undetected smuggling of weapons-usable nuclear material has likely occurred, and we are concerned about the total amount of material that could have been diverted or stolen in the last 15 years.** We find it highly unlikely that Russian or other authorities would have been able to recover all the material likely stolen.

The Russian Interior Ministry (MVD) continues to make protection of nuclear power plants a priority. Motivated in part by the security situation in the North Caucasus, Russia opened a new military garrison at the Volgodonsk nuclear power plant in January 2005 for MVD troops to guard the facility. Even with increased security, Russian nuclear power plants – like those in many countries – almost certainly will remain vulnerable to a well-planned and -executed terrorist attack.

## Discussion

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The United States is working cooperatively with Russia to increase the safety and security of nuclear-related facilities, infrastructure, and personnel. The Russian Ministry of Defense (MOD) is responsible for the nuclear military forces and their nuclear weapon storage system. The Federal Agency for Atomic Energy (Rosatom),<sup>a</sup> operates the national nuclear weapons complex, conducts weapons-related tests at the MOD nuclear test site, and controls most nuclear-related institutes and industrial facilities.

- Rosatom and Rosenergoatom, a state-owned nuclear power concern, operate Russia's nuclear power reactors.<sup>b</sup>

Increased US-Russia cooperation on security enhancements has followed the February 2005 Bratislava summit between Presidents Bush and Putin. In their Joint Statement following the summit, the presidents declared that the United States and Russia bear a special responsibility for the security of nuclear weapons and fissile material in order to ensure such weapons or materials do not fall into terrorists' hands.

- The US Department of Energy estimates that it will complete security upgrades on Russian Navy warhead sites in Fiscal Year 2006. They are scheduled to complete all remaining sites requested by the Russian

Defense Ministry's 12<sup>th</sup> Main Directorate (12<sup>th</sup> GUMO) and Strategic Rocket Forces sites by the end of 2008.

We are concerned that Russia may not sustain US-provided security upgrades of facilities over the long-term given the cost and technical sophistication of some of the equipment involved.

### Ministry of Defense

#### Nuclear Weapons Inventory

Russia is upgrading its physical, procedural, and technical measures to secure its weapons against both external and internal threats, and Russia's nuclear security has been slowly but unevenly improving over the last several years. Risks remain, however, and we continue to be concerned about vulnerabilities to an insider who attempts unauthorized actions as well as about potential terrorist attacks.

- An unauthorized launch or accidental use of a Russian nuclear weapon is highly unlikely as long as current technical and procedural safeguards built into the command and control system remain in place and are effectively enforced. Our concerns about possible circumvention of the system would rise if central political authority broke down.

Since the dissolution of the Soviet Union, Moscow has consolidated the former Soviet stockpile into storage sites in Russia. Russian officials have stated that thousands of nuclear warheads from the former Soviet stockpile have been dismantled since 1991; over 10,000 warheads reportedly have been eliminated. Moscow relies on nuclear weapons as its primary means of deterrence, however, and will continue to have thousands of nuclear

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<sup>a</sup> Formerly the Ministry of Atomic Energy (Minatom).

<sup>b</sup> In addition to the Russian Defense Ministry and Federal Agency for Atomic Energy, the United States Government works with the following Russian government organizations to improve nuclear warhead and material security: Rosenergoatom, the Russian Navy, the Russian Federal Service for Environmental, Technological, and Nuclear Oversight (Rostekhnadzor), and the Ministries of Interior, Education, and Economy.

warheads in its inventory for the foreseeable future.

The Russian Government has repeatedly indicated its determination to maintain a nuclear arsenal sufficient to deter a massive strategic nuclear attack, and non-strategic nuclear weapons together with dual-capable delivery systems to deter or respond to a large-scale conventional attack. Russian nuclear forces continue to benefit from increased overall defense spending, which has facilitated increases in training, stabilization of the personnel system, and continued slow but steady progress on modernization programs. Some problems remain, particularly rapidly rising procurement costs and a weakened defense industrial base, which may slow modernization efforts Moscow needs in order to avoid a steep decline in warhead levels.

- Russian officials maintain that Russian strategic nuclear forces will reach the Moscow Treaty range (1,700-2,200) of nuclear warheads in the next decade. Presently, Moscow maintains less than 3,500 deployed strategic nuclear warheads on its ICBMs, strategic submarines, and long-range bombers.
- In accordance with a 1991 unilateral pledge responding to a US presidential initiative, Moscow consolidated most of its nonstrategic nuclear warheads in central depots and eliminated a major portion of them. Russian authorities have provided no official figures for the size of their current nonstrategic nuclear weapon stockpile, assessed to be the largest in the world.

The 12<sup>th</sup> GUMO is responsible for the physical protection and safety of nuclear weapons. Specialists from the 12<sup>th</sup> GUMO

carry out all maintenance work in close collaboration with the warhead designers. The 12<sup>th</sup> GUMO also is responsible for nuclear warhead shipments throughout Russia.

- All nuclear weapons storage sites, except those subordinate to the strategic missile troops, fall under the 12<sup>th</sup> GUMO's responsibility, thus facilitating a uniform policy in matters of operation and physical security.
- In peacetime all nuclear munitions except those on ICBMs and SLBMs in alert status are stored in nuclear weapons storage sites.
- The Russians employ a multi-layered approach that includes physical, procedural, and technical measures to secure their weapons.

Since the September 2001 terrorist attacks in the United States, President Putin and other Russian officials have conducted a public campaign to provide assurances that terrorists have not acquired Russian nuclear weapons or material.

- In October 2002, former Minister of Atomic Energy Adamov stated, "Neither Bin Ladin nor anyone else could steal a nuclear warhead from anywhere in the former Soviet Union. During my time as minister, I carried out a comprehensive stock-taking of everything we had and had had, and traced the history of all the warheads ever produced. So, everything there was on the territories of the former USSR republics was returned to Russia. ...Nothing was stolen from us. So, neither Bin Ladin, nor Iraq nor Iran could make use of these explosive devices."

- In a September 2006 interview, 12<sup>th</sup> GUMO chief Vladimir Verkhovtsev enumerated the technical improvements and modernization efforts at Russian warhead sites, concluding that “On the whole, the state of security and protection of the Russian Ministry of Defense nuclear weapons storage bases provides reliable security of nuclear munitions.”

Russian officials previously reported that terrorists have targeted Russian nuclear weapon storage sites. According to then-chief of the 12<sup>th</sup> GUMO Valynkin, Russian authorities twice (in 2002 and 2003) thwarted terrorist efforts to gain access to nuclear weapon storage sites in the European part of Russia.

- In December 2005, however, Valynkin declared that there have been no attempts to enter Russian nuclear weapons storage facilities, adding “theft or leakage of arms from our facilities is impossible.”

## Federal Agency for Atomic Energy

### Nuclear Materials Security

Russian facilities housing *weapons-usable nuclear material* vary from small research facilities and fuel cycle facilities to those involved with nuclear weapons research, development, and production.

- Small research facilities, although typically underfunded, usually have smaller, static inventories of weapons-usable nuclear material and are easier to secure. Large fuel cycle facilities have larger, varying inventories that are more difficult to account for and much harder to secure.

### Weapons-Usable Nuclear Material

*Weapons-usable* nuclear material includes uranium enriched to 20 percent or greater in the uranium-235 or uranium-233 isotopes (highly enriched uranium, HEU) and any plutonium containing less than 80 percent of the isotope plutonium-238.

*Weapons-grade* material is typically defined as uranium enriched to about 90 percent or greater uranium-235 or uranium-233, or plutonium containing about 90 percent or greater plutonium-239.

The United States seeks to complete material protection, control, and accounting (MPC&A) upgrades at Russia’s nuclear material facilities by 2008. With US assistance, Russia’s MPC&A practices have been slowly improving over the last several years, but risks of undetected theft remain.

- Counterintelligence concerns that have led Russia to prevent direct US access to sensitive materials has impeded US efforts to improve the security of Rosatom’s nuclear weapons complex, where significant quantities of material are stored.
- Ministry of Internal Affairs (MVD) guards at Russian nuclear facilities have displayed vulnerabilities to discipline problems common to other Russian military units, including hazing, accidental shootings and suicides.
- An April 2006 Federal Service for Environmental, Technological, and Nuclear Oversight (Rostekhnadzor) report expressed concern at the number of minor safety violations at nuclear facilities in

2005, but concluded that nuclear safety had improved overall.

In November 2002, Yuri Vishnevskiy, then head of Gosatomnadzor<sup>c</sup>, told a news conference that there have been documented instances of nuclear materials, including grams of weapons-grade uranium, disappearing from Russian nuclear materials processing facilities. At the time, Rumyantsev, then head of Rosatom, acknowledged the missing material but claimed that, "Everything that was lost was subsequently traced and returned to the relevant arsenals."

- We assess that it is unlikely that Russian authorities or other governments would have been able to recover all the material likely stolen.
- In March 2005, Rumyantsev said that there have been no cases of theft of fissile materials from Russia's nuclear facilities, seemingly contradicting earlier statements.

***Detected Diversions.*** Russian institutes have lost weapons-usable nuclear materials in thefts in amounts greater than a few milligrams. In each known case, government authorities eventually seized the diverted material. For example:

- In 1992, 1.5 kilograms of 90-percent-enriched weapons-grade uranium were stolen from the Luch Production Association.

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<sup>c</sup> In March 2004, the Federal Nuclear Regulatory Service replaced Gosatomnadzor (GAN). Two months later, this service was merged into a larger regulatory body known as the Federal Service for Environmental, Technological, and Nuclear Oversight (Rostekhnadzor). We are concerned this reorganization may not provide for the same level of scrutiny as GAN did. For events that took place prior to March 2004, we continue to refer to GAN.

- In 1994, approximately 3.0 kilograms of 90-percent-enriched weapons-grade uranium were stolen in Moscow.
- In 1999, the US Government confirmed a seizure of weapons-usable nuclear material in Bulgaria. The material—approximately four grams of HEU—probably originated in Russia.
- In 2003, a Russian/Armenian citizen carrying approximately 160 grams of HEU was arrested on Georgian territory. The origin of the material is being investigated.

There have been other press reports about materials seized in Russia about which we have no further information because Russia typically does not reveal the results of its investigations. Press reports generally overstate the impact of stolen material, often incorrectly referring to or implying that depleted, natural, or low-enriched uranium are weapons-usable material.<sup>d</sup>

The number of seizures of stolen material and reported theft attempts over the last several years has declined, apparently as a result of several possible factors: US assistance to improve security at Russian facilities, a possible decrease in smuggling, or smugglers becoming more knowledgeable about evading detection. Nevertheless, it is likely that undetected smuggling has occurred, and we

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<sup>d</sup> In contrast, non-weapons-usable nuclear material thefts, particularly containers of such radionuclides as cesium-137, cobalt-60, or strontium-90, have been frequent and well documented. Although terrorists could use these radionuclides to build a radiological dispersal device—designed to disperse radioactive material to cause injury and contamination by means of the radiation—we assess that in the majority of these cases thieves were seeking the metal used in the container shielding rather than the radioisotope.

are concerned about the total amount of material that could have been diverted over the last 15 years.

### **Safety and Security at Russian Civilian Nuclear Power Plants**

Rosatom has announced ambitious plans to begin construction of new reactors with enhanced safety features. In July 2006, the Russian Government adopted the concept for a Federal Targeted Program aimed at the development of Russia's nuclear energy industry complex through 2015, which would provide approximately 25 billion dollars for domestic nuclear expansion.

- The proposed program would bring 10 new reactors on line by 2016 with two additional reactors commissioned each year thereafter.

Western assistance has been improving the safety systems and operating procedures at Soviet-designed nuclear reactors. However, inherent design deficiencies in RBMK and older-model VVER reactors will prevent them from ever meeting Western safety standards.

- The most notable design flaw in these reactors is the lack of a Western-style containment structure to prevent the release of fission products in the event of a serious accident

Rosatom head Kiriyyenko stated in July 2006 that all Russian nuclear power plants are safely guarded by military and technical means. He added that Rosatom had conducted 364 training exercises in 2005, including antiterrorist drills.

- Even with increased security, however, Russian nuclear power plants – like those in many countries – almost certainly will

remain vulnerable to a well-planned and -executed terrorist attack, which could cause significant damage or even a radiological release.

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