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SUMMARY

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Nuclear Weapons in Russia: Safety, Security, and Control Issues

When the Soviet Union collapsed in late 1991, it reportedly possessed more than 27,000 nuclear weapons, and these weapons were deployed on the territories of several of the former Soviet republics. All of the nuclear warheads have now been moved to Russia, but Russia still has around 5,500 strategic nuclear weapons and perhaps as many as 12,000 warheads for nonstrategic nuclear weapons.

Many analysts in the United States and Russia have expressed concerns about the safety, security, and control over these weapons. Some of these concerns focus on Russia's nuclear command and control structure. Financial constraints have slowed the modernization and replacement of many aging satellites and communications links, raising the possibility that Russia might not be able to identify a potential attack or communicate with troops in the field if an attack were underway. Some fear that the misinterpretation of an ambiguous event might lead to the launch of nuclear weapons. Some also expressed concern that the year 2000 computer bug could affect Russia's command and control system, but it did not.

Some concerns are also focused on the safety and security of nuclear warheads in storage facilities in Russia. Press reports and statements by Russian officials about possible missing warheads have added to these concerns. However, General Eugene Habiger, former Commander-in-Chief of the U.S. Strategic Command, stated that he had no major concerns about security at Russian nuclear storage facilities after he visited several storage sites in Oct. 1997 and June 1998.

The United States and Russia are cooperating in many fora to improve the safety, security, and control over Russia's nuclear weapons and materials. Through the Nunn-Lugar Cooperative Threat Reduction (CTR) Program, the U.S. Department of Defense has provided assistance worth nearly $2 billion to help Russia, Ukraine, Kazakhstan, and Belarus safely transport and store weapons and eliminate launchers under the START Treaties. The Department of Energy's Materials Protection, Control and Accounting Program is helping Russia and other former Soviet republics secure nuclear materials at research and other facilities in the former Soviet Union. The nations have also held bilateral meetings to identify ways in which they might cooperate to improve security and resolve concerns.

This report will not be updated. For current information on U.S. and Russian efforts to address concerns about the safety and security of Russian nuclear weapons and materials see CRS Report RL31957, *Nonproliferation and Threat Reduction Assistance: U.S. Programs in the Former Soviet Union*.

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Introduction

After the 1991 demise of the Soviet Union, many analysts grew concerned that nuclear weapons might be lost or stolen, or that some might be launched by accident or without authorization by responsible officials. Many of these weapons were located outside Russia, but have since been returned to storage areas in Russia. The United States has offered, through efforts such as the Nunn-Lugar Cooperative Threat Reduction Program, to enhance safety and security at nuclear facilities in Russia. Concerns about the long-term effects of economic hardship and the increasing age of Soviet-era systems continue to prompt questions about the security of Russia's nuclear weapons and materials.

This report provides background information on the location of nuclear weapons at the time of the demise of the Soviet Union and their subsequent relocation to storage and deployment areas in Russia. It also provides a description of the safety, security, and control issues raised in 1991 and in more recent years. It includes a brief listing of the cooperative programs and assistance the United States has provided to Russia and the other former Soviet states in an effort to address concerns about the safety and security of nuclear weapons and materials.[1]

Sources of Concern

Location of Nuclear Weapons in the Former Soviet Union

When the Soviet Union collapsed in late 1991, it possessed, according to most estimates, more than 27,000 nuclear weapons. These included more than 11,000 strategic nuclear weapons — warheads on land-based intercontinental ballistic missiles (ICBMs), submarine-launched ballistic missiles (SLBMs), and in bombers with the range needed to attack the continental United States — and over 15,000 warheads for nonstrategic tactical nuclear weapons (such as artillery shells, short-range missiles, nuclear air-defense and ballistic missile defense interceptors, nuclear torpedoes and sea-launched cruise missiles, and nuclear weapons for shorter-range aircraft).[2] By early 2003, after fully implementing the START I Treaty, Russia retained around 5,500 warheads on its strategic nuclear weapons.[3] According to some reports, Russia also still has between 7,000 and 12,000 warheads for nonstrategic nuclear weapons.[4]

In 1991, more than 80% of Soviet strategic nuclear weapons, including all ballistic missile submarines, were deployed at bases in Russia. The remaining strategic nuclear weapons were deployed in Ukraine, Belarus, and Kazakhstan. By the end of 1996, these states had all returned their nuclear warheads to Russia and begun to eliminate the launchers for strategic nuclear weapons under the terms of the START I Treaty. By the end of 1998, only Ukraine still had Soviet-era strategic missiles in silos on its territory, and it continued its efforts to eliminate these missiles and their silos. The last SS-19 ICBM was eliminated at the end of February 1999, and all

[1] For a more detailed description of many of these programs, see U.S. Library of Congress, Congressional Research Service. *Nonproliferation and Threat Reduction Assistance: U.S. Programs in the Former Soviet Union*. CRS Report RL31957, by Amy F. Woolf.

[2] Comparison of U.S. and Russian Nuclear Cuts. Arms Control Association Fact Sheet. March 6, 1992.

[3] U.S. Department of State. START Aggregate Numbers of Strategic Offensive Arms. Fact Sheet. Bureau of Arms Control. April 1, 2003.

[4] For a discussion of the range of estimates for Russian nonstrategic nuclear weapons see, Safranchuk, Ivan. *Tactical Nuclear Weapons in the Modern World: A Russian Perspective* in Alexander, Brian and Alistair Millar, editors. Tactical Nuclear Weapons. Brassey's Inc. 2003. p. 58.

SS-24 silos were eliminated by October, 2001. After lengthy and unsuccessful negotiations with Russia, Ukraine began to dismantle the Soviet-era bombers on its territory. However, in August 1999, Ukraine and Russia announced that Russia would take 8 of these aircraft as partial payment for Ukraine's debt for natural gas deliveries from Russia. In October 1999, the two nations completed the details of the transaction and noted that Russia would buy 11 of the strategic bombers from Ukraine. Table 1, below, depicts the number of nuclear weapons deployed in these states in late 1991 and their status today.

Many of the Soviet Union's tactical nuclear weapons were also stationed outside Russia, in Eastern Europe or in republics that were closer to prospective theaters of operation. The weapons in Eastern Europe had reportedly been returned to Russia by 1989. In late 1991, the majority of weapons outside Russia reportedly were in Belarus, Ukraine, and Kazakhstan, with perhaps less than 5% in Georgia and the Central Asian states (Kirghizia, Tajikistan, Turkmenistan, and Uzbekistan.) According to officials in Russia and these other states, all the weapons had been moved to storage areas in Russia by the end of 1992.

The command and control system for all Soviet strategic and tactical nuclear weapons was centered in Moscow. As the Soviet Union dissolved in December 1991, Russian President Boris Yeltsin replaced Soviet President Gorbachev at the top of the command authority, but the rest of the system remained the same.

Table 1. Strategic Nuclear Weapons in the Non-Russian Republics

State	Strategic Nuclear Weapons in 1991	Strategic Nuclear Weapons Today
Belarus	81 SS-25 single-warhead mobile ICBMs	All SS-25 single-warhead mobile ICBMs, with warheads and launchers, removed in Nov. 1996.
Kazakhstan	104 SS-18 10-warhead silo-based ICBMs (1,040 warheads) 40 Bear H bombers	All SS-18s removed from silos and silos destroyed; all warheads, bombers and cruise missiles returned to Russia.
Ukraine	130 SS-19 6-warhead silo-based ICBMs 46 SS-24 10-warhead silo-based ICBMs About 40 strategic bombers More than 500 air-launched cruise missiles	All SS-19 silos and SS-24 silos have been destroyed. Ukraine has completed dismantling of bombers, after transferring 11 to Russia, and transferred or dismantled all cruise missiles.

Source: U.S. Department of Defense.

Concerns about Command, Control, Safety, and Security

Many in the United States and Russia have voiced concerns about safety, security, and control over nuclear weapons in Russia. These concerns center on three general areas — concerns about weaknesses in Russia's command and control system; concerns about the possible loss of nuclear warheads due to lax security or accounting at nuclear weapons facilities; and concerns about the loss or theft of nuclear materials from the former Soviet Union's nuclear weapons facilities.

Russia's Nuclear Command and Control System

Russia's nuclear command and control system consists, generally speaking, of early warning satellites and sensors that would warn of an imminent attack on Russian territory; the senior political and military leaders who would assess the nature of the attack and, if necessary,

authorize a response using Russia's nuclear weapons; and the communications links that these commanders would use to consult with each other and to transmit messages authorizing the use of nuclear weapons to commanders in the field. These messages would contain the authorizing and enabling codes needed to "unlock" the permissive action links (PALs) and other technologies used to make sure that nuclear weapons could not be armed and launched without authorization from the central command authority.[5]

Analysts in the United States and Russia have pointed to the degradation of Russia's early warning network of satellites and radars to note that Russia may eventually lack the ability to monitor and react to strategic threats to its own territory. In early 1997, Russia's Defense Minister Rodionov stated that he feared a loss of control over Russian strategic nuclear forces in the future if additional funding were not available to maintain and modernize the communications links in the nuclear command and control structure. Furthermore, in June and July 1998, both of Russia's geostationary early warning satellites failed; leaving Russia to rely on older satellites and ground radar stations for early warning of ballistic missile attacks. These systems could not provide continuous coverage of U.S. missile launch sites. Furthermore, at the end of August, 1998, Latvia shut down the Skrunda radar, which had provided Russia with early warning of ballistic missile attacks. Russia has since replaced some of these assets, but concerns remain about potential gaps in coverage.

The U.S. Defense Department has downplayed concerns about a loss of control over Russia's nuclear weapons, noting that the central command structure remains in place. But some analysts fear that Russia could respond to the degradation of the system by disseminating codes needed to launch nuclear weapons to commanders in the field to make sure that these commanders could launch missiles in a conflict. This might increase the possibility of an accidental or unauthorized use of these weapons.

In addition, according to Russian press reports, strategic rocket forces personnel have faced serious financial hardship over the years. Some analysts fear that inadequate funding for training and maintenance, along with low morale, could lead to an eventual breakdown of authority. Although problems with the troops probably would not lead to the unauthorized use of nuclear weapons, they could make it difficult for Russia to remain confident in the reliability and effectiveness of its nuclear deterrent. The National Intelligence Council reported, in February 2002, that these concerns had eased somewhat in recent years, as the Russian economy had improved and wages were restored. Russia has also implemented several programs that screen troops responsible for nuclear weapons for psychological, drug, and alcohol problems.

Safety and Security of Stored Nuclear Warheads

In the early 1990s, Russia withdrew most nonstrategic nuclear weapons from deployment and placed them in secure storage areas. Russia has consolidated these weapons, reducing from several hundred to, perhaps, less than one hundred storage facilities. Russian officials also contend that they have begun to dismantle these warheads at a rate of around 2,000 per year. The United States does not have independent confirmation of this number, and some analysts suspect that Russia could still have 12,000 warheads for nonstrategic nuclear weapons in its storage facilities. Many in the United States remain concerned about the level of security at these facilities and some fear that, as a result of poor security and inadequate record-keeping, Russia may not be able to keep track of all its warheads.

[5] For a more detailed description of this command and control system, see *Russia's Nuclear Forces: Doctrine and Force Structure Issues*, CRS Report 97-586, by Amy F. Woolf.

In September 1997, former Russian Security Council head and national security advisor Alexander Lebed alleged that Russian authorities could not locate 100 out of 250 small portable nuclear demolition munitions. The Russian Defense Ministry responded by noting that "the Russian system of nuclear weapons safety keeps nuclear weapons under full control and makes any unauthorized transport of them impossible." It also stressed that all nuclear weapons had been withdrawn to Russia from the former Soviet republics. Other Russian observers also discounted Lebed's allegations. In early October 1997, Lebed appeared to withdraw his allegation, stating that he had investigated the matter and had found no evidence of missing nuclear weapons. Nevertheless, the debate in Russia continued, with some alleging that Russia never had such small munitions and others confirming that the munitions existed but denying that any are unaccounted for. The White House stressed that the United States had "no credible information that any [Russian] nuclear weapon ... has ever been available on the black market."

In late 1997, George Tenet, the Director of Central Intelligence indicated that the United States remained concerned about the possible loss or theft of nuclear weapons and materials in Russia due to declining social and economic conditions. He did not, however, offer any evidence that such losses had already occurred. But conditions continued to deteriorate, and some wages went unpaid for several months during the financial crisis that began in mid-1998. As a result, many analysts have continued to express concerns about the "human factor" and the possibility that low morale and poor living conditions may combine to weaken security and controls over nuclear weapons.

General Eugene Habiger, the former Commander-in-Chief of the U.S. Strategic Command, visited nuclear weapons storage facilities in Russia to observe safety and security procedures on two occasions, in October 1997 and June 1998. He stated that he was impressed with what he saw, although he acknowledged the tour only focused on strategic nuclear weapons and provided no information about security procedures at storage facilities for nonstrategic nuclear weapons. He also noted that Russia lacked many high-tech devices the United States used to maintain security at its nuclear bases and seemed to rely more heavily on added manpower. But he stated that he did not have any serious concerns about the security of Russia's nuclear weapons.

Some in Congress have also expressed concern about Russia's stockpile of nonstrategic nuclear weapons. The Senate added an amendment to the FY1999 Defense Authorization Act (P.L. 105-261) and the FY2000 Defense Authorization Bill (S. 1059) calling on the President to press Russia to reduce these weapons in accordance with its pledges from 1991 and 1992. The amendment also required that the Secretary of Defense submit a report detailing the numbers, types, strategic implications, and proliferation risks associated with Russia's nonstrategic nuclear weapons. A request for this report remained in the House and Senate versions of the FY2001 Defense Authorization Bill.

After the terrorist attacks in Washington and New York in September 2001, Russian officials reportedly increased security at nuclear weapons facilities. They also denied, on several occasions, that any Russian nuclear weapons were missing. They insisted that terrorists had not gained access to Russia's nuclear arsenal.

Former Soviet Nuclear Facilities and Materials

Concerns about the loss or theft of nuclear materials from Russia have grown since the September 11 attacks on the World Trade Center and Pentagon, although more because of growing concerns about the demand for those materials than new concerns about their security in Russia. For example, some analysts and government officials have noted that Osama bin Laden may have sought to acquire nuclear materials, possibly to construct a nuclear explosive device, but, more

likely, to construct a "dirty bomb." With this type of weapon, nuclear waste or other radioactive materials would be combined with conventional explosives and dispersed over a wide area.

Over the years, there have been numerous reports of nuclear materials from facilities in the former Soviet Union appearing on the black market in Europe. In most cases, the materials lacked the purity to be used to manufacture nuclear weapons. However, in several of the reported cases, the materials could have been useful to a nation seeking to develop nuclear weapons. In May 1999, the National Research Council, an arm of the U.S. National Academy of Sciences, issued a report stating that security at Russia's nuclear materials facilities was worse than previously reported.[6] The report argued for sustained cooperation between the United States and Russia to improve security and prevent the diversion of these materials. Officials from the Russian Atomic Energy Ministry disputed these reports and argued that some safeguards are Russian facilities were more stringent than those at U.S. facilities. The National Intelligence Council also highlighted the risks of theft or diversion from facilities housing nuclear materials in its report to Congress in February 2002.[7]

The U.S. Department of Energy (DOE) estimates that there may be enough weapons-usable nuclear materials to produce 40,000 nuclear weapons at facilities in 8 countries that were once a part of the Soviet Union. The Soviet Union secured most of these facilities by placing them in closed cities or by using gates and armed guards. But, according to DOE, budget cuts and political upheavals have eroded this system. Many facilities lacked fences, monitors, alarms, and comprehensive accounting systems to keep track of materials. Reports indicate that even those facilities with security and monitoring systems often disconnected them to save money on electric bills and to reduce false alarms. They also have been unable to pay the guards and officers charged with maintaining security at the facilities.

Deterioration of economic conditions and the decline in military spending displaced many scientists and engineers who worked in Soviet nuclear programs. Although reports of scientists moving to other countries have waned, the economic problems continue. For example, on July 23, 1998, several thousand staff members at Arzamas-16, one of Russia's premier nuclear research facilities, stopped work during a three-hour strike. They sought back payment for wages and budget allocations for 1997 and a pay increase for 1998. Nuclear workers from several of the closed cities participated in a strike in mid-September 1998, with many traveling to Moscow for protests at the Atomic Ministry (MINATOM).

Cooperative Programs to Address Concerns

The United States and the former Soviet states have cooperated in many ways over the years to address the concerns described above. The United States provides nearly $1 billion per year in assistance, through programs in the State Department, Energy Department, and Defense Department, to help the former Soviet states secure and eliminate nuclear, chemical, and biological weapons, to help secure and eliminate the materials used in these weapons, and to help provide alternative employment for the scientists and engineers who had been a part of the Soviet Union's weapons complex. These programs, which have provided nearly $7 billion in funding in the past 12 years, are designed to reduce the risk that weapons, materials, or scientists from the

[6] Protecting Nuclear Weapons Material in Russia. Office of International Affairs, National Research Council. Washington, D.C. 1999.

[7] National Intelligence Council. Annual Report to Congress on the Safety and Security of Russian Nuclear Facilities and Military Forces. Washington, D.C. February 2002.

former Soviet Union might provide useful to other nations seeking their own weapons of mass destruction. They have met with many challenges over the years, but most analysts agree that these cooperative efforts have helped reduce potential threats from former Soviet weapons of mass destruction. The following section briefly describes some of these programs.[8]

DOD's Cooperative Threat Reduction (CTR) Program

In November 1991, Congress allocated $400 million in Department of Defense funds to help the former Soviet republics secure their nuclear weapons. The funds were to provide Russia, Ukraine, Belarus, and Kazakhstan assistance in 1) the transportation, storage, safeguarding and destruction of nuclear, chemical and biological weapons and the dismantlement of missiles and launchers; 2) the prevention of the proliferation of weapons of mass destruction; and, 3) the prevention of diversion of weapons-related scientific expertise. Although some Members have questioned the benefits and administration CTR Program, Congress has consistently supported its central objectives, allocating between $300 and $475 million each year since the program's inception.

During its first decade, the CTR program allocated most of its funds to projects that were designed to help Russia, Ukraine, Belarus, and Kazakhstan eliminate strategic offensive nuclear weapons limited by the START Treaty. It has also helped improve the safety and security of nuclear warheads in transit and in storage. The program has also provided funding to help Russia build a facility to dispose of its chemical weapons; this project has proven far more controversial in Congress than projects aimed at the elimination of strategic offensive nuclear weapons. For example, Congress denied funding for this project in FY2000 and FY2001.

The Bush Administration conducted a wide-ranging review of U.S. threat reduction and nonproliferation programs in Russia during its first year in office. Many analysts expected this review to lead to reductions in funding and the elimination of some projects. The Administration, however, concluded that the programs did serve U.S. national security interests; it identified several efforts that would receive added funding. At the same, time, though, the Administration altered the stated objectives of the program. Past legislation had stated that the CTR program should provide Russia, Ukraine, Belarus, and Kazakhstan assistance in the transportation, storage, safeguarding and destruction of nuclear, chemical and biological weapons and the dismantlement of missiles and launchers, the prevention of the proliferation of weapons of mass destruction; and the prevention of diversion of weapons-related scientific expertise. The program's new objectives are to dismantle weapons of mass destruction and their associated infrastructure in the former Soviet Union; consolidate and secure weapons of mass destruction and related technologies and materials; increase transparency and encourage higher standards of conduct, and support defense and military cooperation with the objective of preventing proliferation. Although these new objectives may not alter CTR priorities in the near-term, the potential exists for significant changes in the future. In particular, funding may shift away from the transportation, storage, and elimination of nuclear weapons towards efforts to secure and eliminate chemical and biological weapons.

Furthermore, the new emphasis on encouraging "higher standards of conduct" confirms that Administration's added interest in conditioning U.S. assistance on policies and activities pursued by the recipient nations. This focus was evident in Bush Administration policies in early 2002 when the Administration stated that it would not certify that Russia was committed to its arms control obligations under the Chemical Weapons and Biological Weapons Conventions. The law states that this certification is necessary for a recipient nation to receive assistance under the CTR

[8] A more detailed description and history is available in CRS Report RL31957, *Nonproliferation and Threat Reduction Assistance: U.S. Programs in the Former Soviet Union*.

program or the State Department nonproliferation programs. The Administration indicated that Russia had not cooperated fully with the United States in sharing information relevant to the implementation of these treaties. It then asked Congress to waive the requirement for the certification, so that the United States could emphasize its concern with Russian compliance without interrupting funding for the CTR program. Some observers criticized the Administration's certification policy, noting that even the Administration agrees that these programs serve U.S. security interests, and that their suspension could undermine U.S. nonproliferation policy.

State Department Programs

The State Department funds several nonproliferation programs in Russia and the other former Soviet states. Several of these are designed to help with border and export controls, to reduce the risk that nuclear materials might be smuggled out of the former Soviet territory. The State Department also administers the International Science and Technology Center in Moscow and the Science and Technology Center in Ukraine. These centers are designed to provide research and peaceful employment opportunities for nuclear scientists and engineers. The Centers began operations in 1992 and have, thus far, funded around 450 projects at a cost of $145 million. More than 17,000 scientists and engineers have participated in ISTC projects. Many continue to work at their primary jobs in Russia's research facilities. But, because most have not received their full salaries at their primary jobs, the grants from the ISTC permit them to support their families without contemplating selling their knowledge to nations seeking nuclear weapons. The Bush Administration has recommended expanding the science centers, in part due to concerns about the potential risk that biological weapons scientists might be lured to programs in other nations. Its budget for FY2003 contained $52 million for a program that combines the Science Centers and the State Department's program for redirecting biological weapons scientists in the former Soviet Union.

Department of Energy Programs

Although the Nunn-Lugar CTR program, in its early years, focused on securing nuclear weapons, it did include some funding for materials control and protection. But government-to-government negotiations with Russia and the other republics proceeded slowly, so projects at facilities with these materials did not begin until 1994. In a parallel effort that sought to reduce these delays, experts from the U.S. nuclear laboratories also began, in 1994, less formal contacts with their counterparts in Russia to identify and solve safety and security problems at Russian facilities. Together, the government-to-government and lab-to-lab projects constitute the Material Protection, Control and Accounting (MPC&A) program, which is funded through the U.S. Department of Energy.

The MPC&A program began with less than $3 million in the FY1993 Nunn-Lugar budget; it had grown to more than $220 million per year by FY2003. These funds are used to help upgrade security and monitoring systems at facilities that house nuclear materials in Russia and the other former Soviet states, and to help secure naval nuclear weapons in Russia. By early 2003, DOE had helped upgrade security at buildings that contained about 38% of the 603 metric tons that DOE believed were at risk of theft. These upgrades include the installation of improved security systems that use modern technology and strict material control and accounting systems. The program has also provided security training for Russian nuclear specialists. DOE officials have noted that the program had has experienced some problems and results have been limited because most of the materials are in Russia's closed nuclear cities and nuclear weapons complex. MINATOM, which is responsible for these facilities, has been slow to provide DOE with

information about and access to these facilities because of the sensitive nature of the nuclear weapons complex.

The Department of Energy also implements two programs that are designed to discourage Russian nuclear weapons scientists from selling their knowledge to other nations. The first of these, the Initiatives for Proliferation Prevention (IPP) Program, funds projects with non-military applications that have commercial value for both the United States and the former Soviet republics. The program has coordinated lab-to-lab contacts that sought to identify technologies at former Soviet weapons facilities that might have commercial applications. It also matches U.S. government funds with funds provided by U.S. companies in projects that seek to commercialize these technologies. Congress has authorized approximately $20-$30 million for this program each year since FY1994.[9]

The second program, the Nuclear Cities Initiative (NCI) is designed to bring commercial enterprises to Russia's closed nuclear cities, so that scientists and engineers will not be tempted to sell their knowledge to nations seeking nuclear weapons. It seeks to promote nonproliferation goals by helping to redirect the work of nuclear weapons scientists, engineers, and technicians and to develop commercial opportunities in those cities. For example, it helped finance a computing center in Sarov, formerly known as Arzamas-16, that will produce software for sale around the world. The Clinton Administration had requested and received $30 million for NCI in FY2001. The Bush Administration, however, cut funding for the NCI program sharply, requesting $6.6 million for FY2002. With this low level of funding, the program would have to withdraw from two of the three nuclear cities that participate. The Administration has also indicated that it would like to eliminate the NCI program and merge its remaining projects into the IPP program. In the Conference Report on the FY2002 Defense Authorization Bill, Congress approved the merger of the two programs, into a new Russian Transition Initiative, but, at the Senate's insistence, required that DOE continue to plan for and fund the NCI programs separately. It also increased funding for the combined program from the President's request of $28.8 million to $42 million in the Energy and Water Appropriations Bill and an additional $15 million in the Emergency Supplemental Appropriations Bill. The Bush Administration has requested and received $39 million for this combined program in its budget for FY2003. It has requested approximately the same amount for FY2004, with $17 million allocated to NCI and $23 million allocated to IPP. However, the NCI program ended in late 2003 because the United States and Russia have been unable to complete a new implementing agreement. They remain at odds over liability protections.

Agreement on the Disposition of Weapons-grade Plutonium

In September 1998, Presidents Clinton and Yeltsin agreed that each nation would convert 50 metric tons of weapons-grade plutonium to a form that could not be returned to nuclear weapons. Clinton Administration officials estimated that this amount was approximately half of the U.S. stockpile and perhaps 25% of Russia's stockpile. The agreement highlighted two means for converting the plutonium — the parties could either convert it to fuel for nuclear power reactors or mix it with other nuclear wastes and dispose of it in a way that would preclude its use in nuclear weapons. This agreement is designed to ease concerns about the possible theft or diversion of weapons-grade plutonium by nations or others seeking to develop their own nuclear weapons. Congress allocated $200 million for this program in the Omnibus Appropriations Act passed at the end of the 105th Congress. After its review of U.S. nonproliferation programs with

[9] For a more detailed funding history, see U.S. Library of Congress, Congressional Research Service. *Nonproliferation and Threat Reduction Assistance: U.S. Programs in the Former Soviet Union*. CRS Report RL31957, by Amy F. Woolf.

Russia, the Bush Administration indicated that it would seek an alternative plan, that would be less costly and less complex, to address concerns with Russia's stockpile of weapons-grade plutonium. Under the new plan, the two nations will each convert plutonium to MOX fuel. But U.S. assistance to Russia for the construction of its MOX plant ended in late 2003 because the United States and Russia have been unable to complete a new implementing agreement. They remain at odds over liability protections for U.S. companies and individuals participating in the program.

Bilateral Meetings

During the 1990s, the United States and Russia also participated in bilateral discussions, in several fora, that sought to identify and resolve issues related to the potential loss of control over Russia's nuclear weapons and materials. The Bush Administration continues to pursue discussions among U.S. and Russian working groups, even though it has continued the specific high-level meetings on these issues.

The U.S.-Russian Commission on Economic and Technological Cooperation (The Gore-Chernomyrdin Commission)

In 1993, Presidents Clinton and Yeltsin established the U.S.-Russian Commission on Economic and Technological Cooperation, chaired by Vice President Gore and Russia's Prime Minister Chernomyrdin. Vice President Gore and Prime Minister Chernomyrdin often used their meetings to address issues, such as arms control and missile defense cooperation, on the agenda for upcoming Presidential summits. For example, in 1994, the commission announced that the two sides would cooperate in building a storage facility at Mayak (described above) for plutonium removed from Russia's nuclear weapons. Vice President Gore and Prime Minister Chernomyrdin also signed the agreement that established the program through which the United States will purchase 500 metric tons of uranium removed from Russian nuclear weapons for use in nuclear power reactors. The also signed an agreement requiring the shutdown of nuclear reactors that produce plutonium for nuclear weapons in Russia, beginning a process that evolved over the years, and remains on the agenda for U.S. and Russian cooperation. During their June 24, 1998 meeting, Vice President Gore and Prime Minister Kiriyenko signed two agreements on nuclear issues. The United States agreed to provide Russia with assistance in converting plutonium from nuclear weapons to fuel for nuclear reactors. In the second agreement, the United States pledged $3.1 million for 9 projects that are designed to help scientists in Russia's closed nuclear cities convert their efforts to peaceful civilian endeavors, a project known as the Nuclear Cities Initiative.

The Strategic Stability Working Group (SSWG)

In late 1993, the United States and Russia established an experts working group to discuss ways to improve strategic stability, increase mutual confidence, and relax the Cold War nuclear force postures. One of the first topics the SSWG addressed was ballistic missile "detargeting." In an agreement that took effect on May 30, 1994, the two nations agreed that no country would be targeted by any strategic forces on either side. Many observers praised this agreement as an overdue sign that the United States and Russia no longer consider each other enemies. Some also saw it as a move away from the nuclear hair-trigger and a concrete step to reduce the risk of accidental missile launches. Others, however, argued that its benefits were strictly symbolic because both sides could quickly retarget missiles during a crisis. Many also noted that the

measure was not verifiable, so neither side could be sure that the other's missiles were actually detargeted.

Sharing Early Warning Data

As was noted above, many analysts in the United States have expressed concerns about the possible inadvertent launch of Russian nuclear weapons resulting from Russia's weakened ballistic missile early warning system. In response to these concerns, Presidents Clinton and Yeltsin agreed in September1998 that the United States and Russia would share early warning data for all space launches and ballistic missile launches world wide. They agreed to share data on a continual basis, in real time (rather than providing it annually or biannually); they agreed that data would include information on strategic, theater, and intermediate range missiles, and on space launches; they agreed the data would be derived from early warning satellites and ground-based radars; and they agreed to establish a multilateral pre-launch notification system that would be open to all nations who agreed to share data prior to missile or space launches from their territories. The Clinton Administration emphasized that this agreement would strengthen stability and protect against the possibility of a nuclear launch triggered by false warning of an attack. Administration officials have also highlighted the cooperative nature of this endeavor; this Center will provide the first opportunity for U.S. and Russian military personnel to be permanently involved in a joint military operation.

In mid-December 2000, the United States and Russia signed an agreement outlining the types of information that would be exchanged in the newly-formed Joint Data Exchange Center (JDEC) near Moscow. This agreement establishes a pre-launch and post-launch notification system for ballistic missile and space launches and designed to reduce the risk that a test, experiment, or space launch, could be misread as a ballistic missile attack. Some critics of the planned center argued it would hinder U.S. access to space by requiring that notifications before launches, but the military space community reportedly reviewed all the provisions and approved of the plan because it allows for exceptions to the notification requirement in the interest of national security. Most experts hoped the center, which is to be based in an old school building near Moscow, would begin operations in 2001. However, the building's renovations have not yet begun. Disagreements between the United States and Russia about tax issues, along with a general cooling in the relationship between the two countries, have been cited as reasons for the delay. Congress authorized funding for the JDEC in 2002, but withheld 50% of the funds until Russia and the United States reach a cost-sharing agreement and an agreement on taxes and liability for U.S. participants. In a Joint Declaration signed during their summit meeting in Moscow in May 2002, Presidents Bush and Putin emphasized that they remain committed to opening the center. However, progress stopped in 2002 because the two sides remained at odds over taxation and liability issues.

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