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**The Secretary of Energy**
Washington, DC 20585

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OCT 09 2002

June 14, 2002

The Honorable J. Dennis Hastert
Speaker of the House of Representatives
Washington, D.C. 20515-6050

Dear Mr. Speaker:

In accordance with Section 3131(b) of the National Defense Authorization Act for Fiscal Year 1996 (22 U.S.C. 5952), I am submitting the enclosed report detailing the activities for which funds have been obligated for the first half of fiscal year 2002 in the area of material protection, control, and accounting of fissile materials in Russia.

The report addresses:

- The activities and forms of assistance for which the Department has obligated funds;
- The amount of obligations;
- The activities and forms of assistance for which the Department anticipates obligating funds during the next six months and the amount of each such anticipated obligation; and
- The projected involvement of any Department or agency other than the Department of Energy and of the private sector in these forms of assistance.

This report demonstrates the Department's significant progress in the implementation of these programs for the first half of fiscal year 2002. If you have any further questions, please contact me or Mr. Dan R. Brouillette, Assistant Secretary for Congressional and Intergovernmental Affairs, at (202) 586-5450.

Sincerely,

Spencer Abraham

Spencer Abraham

Enclosure

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# REPORT TO CONGRESS BY THE SECRETARY OF ENERGY REGARDING PROGRAMS FOR THE PROTECTION, CONTROL AND ACCOUNTING OF FISSILE MATERIALS IN THE COUNTRIES OF THE FORMER SOVIET UNION FIRST HALF OF FISCAL YEAR (FY) 2002

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This report was prepared to satisfy the requirement contained in the National Defense Authorization Act for Fiscal Year 1996 (P.L. 104 -106, Section 3131) for semi-annual reports to Congress by the Secretary of Energy. This report details obligations and activities related to the Department of Energy's (DOE) program for nuclear material protection, control, and accounting (MPC&A) of fissile materials in Russia for the first half of Fiscal Year 2002.

## PART A. ACTIVITIES FOR WHICH FUNDS HAVE BEEN OBLIGATED

### The MPC&A Program

Since 1994, the United States, the Russian Federation, and the Newly Independent States (NIS) have engaged in an historic partnership to prevent the theft or loss of nuclear material. Cooperation to improve MPC&A directly addresses a key threat to the security of the entire global community. MPC&A improvements designed to keep nuclear materials and weapons secured in authorized facilities are the first line of defense against nuclear smuggling that could lead to nuclear proliferation or nuclear terrorism.

This vital MPC&A cooperation has overcome many challenges, including mutual suspicion from four decades of Cold War confrontation, an initial lack of working relationships at the technical level, the closed nature of nuclear facilities, and language and cultural differences. It is a remarkable achievement that former rivals are now working together to improve the security of nuclear materials at 95 identified sites in Russia, the NIS, and the Baltics. The MPC&A program completes security upgrades at Russian facilities, which use or store weapons-usable nuclear material. It also is upgrading the security of Russian Navy sites holding nuclear warheads. The program seeks to foster the development of an indigenous safeguards culture and capability to maintain comprehensive MPC&A upgrades over the long term. To this end, the program has undertaken cooperative projects designed to help institute national standards for MPC&A and strengthen national nuclear regulatory systems.

In order to improve the security of nuclear weapons and nuclear materials that are usable in nuclear weapons, DOE, through the MPC&A program, is providing nuclear facilities in Russia with modern safeguards equipment and is assisting in the development of management systems to operate and maintain such equipment, ultimately without further U.S. support.

The MPC&A program provides security upgrades in two ways:

Rapid Upgrades, which include:

- Creating clear zones and establishing controlled, limited access areas containing nuclear material;
- Bricking up windows and hardening doors;
- Installing locks, delay blocks, steel cages, and personnel portal monitors;
- Implementing random guard patrols, the two-person rule, and daily administrative checks;
- Conducting baseline inventories; and,
- Installing tags, seals, and tamper indicating devices to prevent unauthorized removal of nuclear material.

Comprehensive Upgrades, which include rapid upgrades plus:

- Installing intrusion detection equipment, closed circuit television and alarm assessment systems;
- Installing electronic access controls and central alarm stations (CAS);
- Conducting advanced material measurement, hold up and inventory instrumentation;
- Implementing computerized material accounting systems; and,
- Supporting a wide range of MPC&A training programs.

The following are highlights of the MPC&A Program's activities for the first half of FY 2002:

**FY 2002 ACTIVITIES**

***Key Milestones and Performance Measures:***

In response to the events of September 11, the Program is accelerating key elements of its threat reduction work. By the middle of FY 2002, DOE will have completed rapid security upgrades on about 39 percent of the estimated 603 metric tons of Russian weapons-usable highly-enriched uranium (HEU) and plutonium. This progress has resulted in improved security for enough material to make over 15,000 nuclear devices. In addition, DOE has completed rapid security upgrades at sites containing approximately all of the estimated 4,000 nuclear warheads possessed by the Russian Navy.[1] To ensure that these upgrades will be sustained, the MPC&A program has trained over 3,300 Russian MPC&A operators, has initiated a comprehensive assessment of Russian-based MPC&A equipment, and has provided support for the development and deployment of a comprehensive national nuclear material accounting system. Additionally, the program has increased security of material in transit by hardening over 120 trucks and 33 railcars. Furthermore, almost 3 metric tons of weapons-grade HEU has been converted to low-enriched uranium (LEU).

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[1] These figures reflect a new approach to measuring MPC&A Program accomplishments. In prior reports required under P.L. 104 -106, Section 3131, Russian nuclear materials protected by U.S.-sponsored security upgrades were measured in their aggregate form, with the estimated amounts of nuclear material in protected Russian Navy nuclear weapons counted towards the total figure. In order to more accurately report program progress, the numbers of nuclear weapons and the amount of nuclear weapons-usable materials out of weapons will henceforth be tabulated separately.

The MPC&A program is divided into four offices, which are responsible for distinct program activities. For the first half of FY 2002, each office reported the following accomplishments:

**Office of Nuclear Warhead Protection:**
**(Navy Complex)**

- Initiated rapid upgrades at one Russian Federation Navy site and initiated comprehensive upgrades on three sites.
- Negotiated and signed assurance memorandum and procedures documents that facilitate access to Russian Ministry of Defense sites.
- Provided basic physical protection system training to Russian Federation Navy officers.
- Began construction on a Russian Ministry of Defense technical center to support MPC&A upgrades in the Kola region.
- Initiated conceptual design on a Russian Ministry of Defense technical center to support MPC&A upgrades in the Vladivostok region.
- Established a pilot program intended to streamline the purchase process for MPC&A equipment in order to take full advantage of short building seasons in the Russian North and Far East.
- Initiated the purchase of supplemental rapid upgrades to increase the level of security at Russian Navy sites where comprehensive upgrades are not planned to begin this year.

**Office of Nuclear Material Protection:**
**(MinAtom Weapons Complex)**

- Based on previously approved assurances the All-Russian Scientific Research Institute of Experimental Physics (VNIIEF) U.S. project team is preparing for a joint systems analysis review of the existing Physical Protection (PP) and Material Control and Accounting (MC&A) systems to identify needed MPC&A upgrades for Guarded Area Six. The U.S. project team is reviewing MinAtom's proposal to complete a partially constructed storage facility to centralize nuclear materials at VNIIEF to reduce the threat of theft.
- Gained access and assurances to the Research Technological Complex (RTC) pilot facility at the All-Russian Scientific Institute of Technical Physics (VNIITF). Successfully completed a vulnerability analysis at the RTC that will be used to establish a strategy for comprehensive upgrades.
- Completed the physical security upgrades at the Trial Production Plant #1, which processes the largest quantity of direct-use nuclear material at VNIITF.
- Began negotiating access, assurances and construction details for a central storage facility at VNIITF, which will consolidate 90% of all nuclear material at VNIITF in one building.
- Began construction on physical security upgrades at KPP #1 at the Urals Electrochemical Integrated Plant (UEIP). KPP #1 is the largest pedestrian entrance at UEIP (6,000 people pass through KPP #1 during rush hour).
- Upgrades are continuing in the material storage areas of the Mayak Production Association (MPA) Reprocessing Site. Physical protection upgrades are being implemented at the Central Alarm Station for the nuclear material storage area while MC&A upgrades are being installed in the Reprocessing Site analytical laboratory. Also, the rapid Physical Protection upgrades

initiated in 2001 at the HEU processing facilities located within two buildings at the Mayak Production Association's (MPA) Plant 20 are proceeding. The processing facilities have a working inventory of several 10s of kilograms of HEU, and have an annual throughput of several metric tons of HEU.

- Completed comprehensive Physical Protection upgrades at the Siberian Chemical Combine's Radiochemical Plant in December 2001; initiated comprehensive Physical Protection and Material Control and Accounting upgrades at the Conversion Plant and the Uranium Enrichment Plant.
- The Krasnoyarsk 45 Site was provided with, and started using, three vehicles for security escorting of nuclear materials movements and response to alarms and incidents.
- Approved assurances for upgrades at the new plutonium storage area (NPS) and CAS at the Scientific Technology Center-Mining and Chemical Combine (STC-MCC), Zheleznogorsk, Russia. Follow-on contracts for these areas have been provided to the Russian site.
- U.S. and Russian STC-MCC teams met during December 2001 and February 2002 to negotiate assurances for the implementation of access control for nuclear material control in and out of the mountain complex using portal monitors and a railroad transfer platform (for freight and personnel). They also negotiated assurances for the completion of an integrated surface and underground radio communication system to facilitate better communication between guard forces, enhancing their response capabilities between the mountain facility and the town.

**Office of Material Consolidation and Radiological Threat Response:**
**(Material Consolidation and Conversion/Civilian Sites)**

- The first round of negotiations were held with representatives from the Ministry of Atomic Energy on a Material Consolidation and Conversion (MCC) Agreement, an implementing arrangement under the MPC&A Agreement. The MCC Agreement identifies specific areas of cooperation between DOE and MinAtom, including consolidation and conversion activities related to non-weapons-origin high-enriched uranium and plutonium.
- A pilot project to implement MPC&A upgrades at two HEU buildings at the Elektrostal Machine Building Plant (MSZ) continues to advance. Contracts have been signed to install rapid MPC&A upgrades at Buildings 129 & 135. The early success of this cooperation has progressed to include expanding cooperation to other buildings where Special Nuclear Material (SNM) is located. Moreover, MSZ has indicated a strong willingness to support a site-wide material consolidation initiative.
- Final acceptance testing of the Alarm Communication and Display (AC&D) system was completed at the Institute of Physics and Power Engineering (IPPE). This is a major program milestone as IPPE is the first large civilian nuclear facility to have successfully designed, installed and placed into operation comprehensive physical protection upgrades at all buildings containing weapons-usable nuclear materials.
- The U.S. MPC&A Project Team for the A.A. Bochvar Institute for Inorganic Materials conducted a contracts symposium with site representatives and MinAtom in March 2002. The signed contracts support rapid upgrades at four facilities (A, E, I-1, V). The site also signed contracts to begin pre-design surveys for renovation of the Central Storage Facility and Alarm Station.

- The U.S. MPC&A Project Team for the All-Russia Institute for Atomic Reactors (RIAR) completed a rapid baseline inventory of all weapons-usable nuclear materials at Building 118/119. This important milestone will now enable the team to proceed with the installation of rapid upgrades and develop comprehensive MPC&A upgrade designs for the building.
- Contracts were signed at the Research Institute of Scientific Instruments (RISI), to relocate their Central Alarm Station to a more secure location that will be equipped with a new Alarm Communication and Display (AC&D) system.

**Office of National Programs:**
**(National Programs and Sustainability)**

- The Office of National Programs, building on the successful transition of an MC&A Inspection Exercise from Argonne National Laboratory - West to the Kurchatov Institute in Moscow, has completed planning for two additional exercises at Kurchatov to include the first fully sponsored Russian Physical Protection Inspection exercise. Planning is underway for an additional MC&A Inspection exercise at an additional Russian facility, furthering transition to greater Russian ownership of these necessary training tools.
- The Moscow State Engineering Physics Institute (MEPhI) Graduate Program, the Russian Methodological and Training Center, and the Interdepartmental Special Training Center continued successful operations, training over 400 staff and maintaining enrollment of eight continuing MPC&A masters degree students.
- Signed initial contracts to establish the strategic basis for training, deploying and equipping Departmental Protective Forces at MinAtom nuclear sites. This MPC&A initiative will assist the new MinAtom Departmental Protective Force to execute a phased replacement of on-site protective forces belonging to the Ministry of Internal Affairs over a five-year period.
- In response to the increased need to counter terrorist threats to acquire nuclear material, rapid equipment upgrades were provided to the protective forces at 16 Russian Federation MinAtom nuclear sites. These rapid upgrades increase protective force survivability and decrease response times at these sites, while protecting special nuclear material from theft and diversion.
- Accelerated the MPC&A Transportation Security Project, which supports material protection during inter- and intra-site transport in the Russian Federation, by assessing Russian Navy sites and MinAtom Weapons complex needs in view of an increased terrorist threat, and by assessing new production capabilities for secure truck and railcar transports, escort vehicles, and security overpacks.
- Completed Phase II of the MPC&A program's Exit Strategy effort. Phase II incorporated the analyses from Phase I and from the office's strategic plan, with information obtained from MPC&A Program offices involved with installing site system upgrades and assisting Russian sites with operations. With the completion of Phase II, the Office of National Programs is proceeding with drafting the Exit Strategy.
- Completed installation of the MPC&A Operations Monitoring (MOM) pilot system at the Moscow State Engineering Physics Institute (MEPhI). The MOM system uses proven off-the shelf equipment to allow Russian and U.S. officials to monitor the MPC&A systems installed by the program to ensure that nuclear warheads and materials are secure, MPC&A systems are properly staffed, and that personnel are vigilant in the enforcement of key security

procedures. Initiated on June 16, 2001, the MEPhI pilot was fully functional in only four months. The pilot system has received much interest from Russian government officials, demonstrating strong support for the system. By the end of FY 2002, the program anticipates having MOM systems deployed at seven to ten sites.

**Office of Nuclear Threat Assessment and Detection:**
**(Multilateral and Emergency Cooperation)**

- Pursuant to the Conference Report accompanying the FY 2002 Energy and Water Development Appropriations bill, funding for the Second Line of Defense sub-element was transferred from the Nonproliferation and National Security Program to the MPC&A Program under the Office of Nuclear Threat Assessment and Detection.
- Provided introductory nuclear material detection and weapons of mass destruction (WMD) recognition training for Ukrainian and border enforcement officials in conjunction with the Department of State and the US Customs Service.
- Initiated surveys of border sites in Kazakstan.
- Revised the Program threat assessment to include radioactive materials suitable for radiation dispersal devices.
- Provided assessments of illicit trafficking in nuclear materials.
- Provided special event assessment support to the FY 2002 Salt Lake City Olympics.
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**Newly Independent States (NIS) & Baltic Sites:** During FY 1999, activities at all 13 NIS and Baltics sites were transferred to the DOE's Office of International Safeguards. All comprehensive upgrades were completed at these 13 sites, and minimal financial support continues to ensure proper operation of security elements. As of March 1999, the MPC&A program's focus has been solely on Russia.

**Assurance System for the International Nuclear Material Protection, Control and Accounting Program**

As the lead agency for improving MPC&A in Russia, the NIS and the Baltic States, DOE has created an MPC&A assurance system to certify that all elements of the program are being executed in an effective and efficient manner, and that all of the material, equipment, funding, contracts, training and services provided to the recipients are accounted for and are being used for their intended purposes.

This assurance system is described in "DOE MPC&A Program Assurance Procedures, U.S. Department of Energy," September 19, 1997. This document was revised on March 15, 2000.

Assurances that MPC&A assistance is accounted for, executed in an effective and economic manner, and used for its intended purposes will be accomplished by the following evidence:

•*Visits:* DOE and DOE Laboratory teams conduct over 120 program visits per year to sites where MPC&A cooperation is underway. During these visits, they obtain extensive information on the status of equipment and other support provided through the MPC&A

program. This information is primarily acquired through direct visual observation and from trip reports, checklists, photographs, and videotapes. Additional supporting information may be obtained through technical discussions and presentations, reviews of technical reports, printouts and drawings, as well as from formal and informal discussions with U.S. personnel who have had direct access in order to observe provided equipment and other support. Visits planned primarily for collecting assurance information may be scheduled only if essential information cannot be acquired during normal agenda visits.

•*Documentation:* The following evidence is collected as supporting information: procurement and shipping documents, photographs, videotapes, technical reports, and signed "Official Acts" of the Russian Federation government.

•*Legal Contracts*: Compliance with standard DOE procurement requirements.

Certification of these assurances is provided by individual project managers at the national laboratories to DOE MPC&A program managers using a form called an assurance report. Upon completion of a specific work item, an assurance report is prepared to document all the work and associated deliverables for that work. The assurance report documents the objective evidence (for example, trip reports, inventory listings, photographs, videotapes, site visits, and inspection reports), which attests to proper implementation of U.S. MPC&A assistance, and notes the location and custodian of that evidence.

Of particular assistance in documenting evidence for the assurance report is the nuclear export control tracking processes. Once equipment, material or commodities have been identified to be exported for use on an MPC&A project, an MPC&A Export Request Form is transmitted electronically to DOE Headquarters from the National Laboratories and returned electronically with approvals, if the information in the request complies with the special export license terms. All of the transactions are logged into the MPC&A Export Control database. The export request form and the data logged into the database serve as valuable sources of evidence for the assurance report. Two other databases maintained by the National Laboratories (which serve as sources of information for assurance reports) are the MPC&A Special License database and MPC&A training database.

## PART B. AMOUNTS OF OBLIGATIONS

The MPC&A program obligated a total of $159,943,643 for the first half of FY 2002 (October 1, 2001 to March 31, 2002). This amount represents approximately fifty-five percent of the FY 2002 appropriation of $293,000,000. (Note: This amount includes the FY 2002 original appropriation of $173,000,000 plus the FY 2002 Emergency Supplemental funding of $120,000,000 contained in P.L. 107-117.)

| Program Element | Amount Obligated (Dollars)<br>First Half of FY 2002 |
|---|---|
| Navy Complex | 43,130,052 |
| MinAtom Weapons Complex | 26,864,256 |
| Material Consolidation and Conversion | 43,191,480 |
| National Programs and Sustainability | 26,084,100 |

| | |
|---|---|
| Multilateral and Emergency Cooperation | 20,673,755 |
| Total to be Obligated (First Half of FY 2002) | 159,943,643 |

**PART C. PLANNED OBLIGATIONS FOR NEXT SIX MONTHS**

The MPC&A program plans to obligate a total of $121,751,357 during the second half of FY 2002 (April 1, 2002 to September 30, 2002). This amount represents the remaining forty-five percent of the FY 2002 appropriation of $293,000,000, which includes an anticipated reprogramming of $11,305,000.

| Program Element | Amount to be Obligated (Dollars) Second Half of FY 2002 | Planned FY 2002 Obligations |
|---|---|---|
| Navy Complex | 21,869,948 | 65,000,000 |
| MinAtom Weapons Complex | 32,135,744 | 59,000,000 |
| Material Consolidation and Conversion | 28,808,520 | 72,000,000 |
| National Programs and Sustainability | 22,510,900 | 48,595,000 |
| Multilateral and Emergency Cooperation | 16,426,245 | 37,100,000* |
| Total to be Obligated | 121,751,357 | 281,695,000* |

*This total excludes a comparability adjustment of $1,100,000 from Multilateral and Emergency Cooperation to International Nuclear Safety Program.

**PART D. ADDITIONAL AGENCY AND PRIVATE SECTOR INVOLVEMENT**

Executive authority for the MPC&A program was transferred from the Department of Defense to the Department of Energy in 1995. Prior to the transfer of this authority, funds from the Department of Defense Cooperative Threat Reduction (CTR) program were allocated directly to various organizations, including National Laboratories, for work on various MPC&A program projects. In conjunction with transfer of executive authority for the MPC&A program, the Department of Defense transferred MPC&A funds to the DOE under Interagency Cost Reimbursement Order. All of the CTR funds have been expended and the MPC&A program expects no more CTR funds.

The DOE program of cooperation coordinates with the Department of Defense, the State Department, and with the U.S. Nuclear Regulatory Commission. The program communicates with various congressional committees, the Congressional Budget Office, the U.S. General Accounting Office, non-governmental organizations, and the general public. Contact is also maintained with European Union organizations such as the European Atomic Energy Community, as appropriate.

Private sector funding in the United States and in Russia for the MPC&A program is used principally for the purchase of MPC&A equipment installed in Russian facilities and for program-related efforts to create and strengthen the infrastructure required to maintain and sustain a Russian federal MPC&A system.

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