

Information Circular

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Communication Received from the United States of America Concerning Its Policies Regarding the Management of Plutonium

1. The Secretariat has received a letter dated 6 April 2007 from the Permanent Mission of the United States of America to the IAEA in the enclosures of which the Government of the United States of America, in keeping with its commitment under the Guidelines for the Management of Plutonium (contained in INFCIRC/549 of 16 March 1998 and hereinafter referred to as the “Guidelines”), and in accordance with Annexes B and C of the Guidelines, has made available annual figures for holdings of civil unirradiated plutonium and the estimated amounts of plutonium contained in spent civil reactor fuel as of 31 December 2005. The Permanent Mission of the United States has also communicated in its letter that there have been changes in their plutonium and fuel cycle policy since their last statement was submitted, and have additionally included a policy statement in the enclosures of the letter.
2. In light of the request expressed by the United States of America in its Note Verbale of 1 December 1997 concerning its policies regarding the management of plutonium (INFCIRC/549 of 16 March 1998), the enclosures of the letter of 6 April 2007 are attached for the information of all Member States.

**ANNUAL FIGURES FOR HOLDINGS
OF CIVIL UNIRRADIATED PLUTONIUM**

(ANNEX B, INTERNATIONAL PLUTONIUM MANAGEMENT GUIDELINES)

<u>National Totals</u>	As of 31 December 2005 (Previous year's figures in brackets) Rounded to 100 kg plutonium quantities <50 kg reported as such	
1. Unirradiated separated plutonium in product stores at reprocessing plants.	0	[0]
2. Unirradiated separated plutonium in the course of manufacture or fabrication and plutonium contained in unirradiated semi-fabricated or unfinished products at fuel or other fabricating plants or elsewhere.	<0.05 MT	[<0.05 MT]
3. Plutonium contained in in unirradiated MOX fuel or other fabricated products at reactor sites or elsewhere.	4.7 MT	[4.6 MT]
4. Unirradiated separated plutonium held elsewhere.	40.3 MT	[40.3 MT]
(i) Plutonium in lines 1-4 belonging to foreign bodies.	0	[0]
(ii) Plutonium in lines 1-4 held in locations in other countries and therefore not included above.	0	[0.1 MT]
(iii) Plutonium in lines 1-4 which is in international shipment prior to its arrival in the recipient State.	0	[0]

Note: Lines 3 and 4 together list 45 metric tons of separated plutonium that has been declared as excess to national security needs. This, in addition to 7.5 metric tons of the plutonium included on line 3 of Annex C below, constitute the total of 52.5 metric tons of Government-owned plutonium that the United States has declared as excess to national security needs.

**ESTIMATED AMOUNTS OF PLUTONIUM CONTAINED IN
SPENT CIVIL REACTOR FUEL**

(Annex C, International Plutonium Management Guidelines)

National Totals

As of 31 December 2005
(Previous year's figures in brackets)
Rounded to 1000 kg plutonium
Quantities <500 kg reported as such

1. Plutonium contained in spent fuel at civil reactor sites.	441 MT	[420 MT]
2. Plutonium contained in spent fuel at reprocessing plants.	0	[0]
3. Plutonium contained in spent fuel held elsewhere.	12 MT	[12 MT]

Notes:

Line 3 includes 7.5 metric tons of government owned plutonium estimated to be remaining in spent fuel that has been declared as excess to national security needs. This, in addition to 45 metric tons of separated plutonium reported in lines 3 and 4 in Annex B above, constitutes the total of 52.5 metric tons of government owned plutonium that the United States has declared as excess to national security needs.

**Plutonium and Fuel Cycle Policy Statement of the United
States of America
September 2006**

Fuel Cycle Research and Development

Current civil uses of nuclear power in the United States are based on a once-through fuel cycle involving the irradiation of low enriched uranium fuel in light-water reactors and the subsequent storage and eventual disposal of spent nuclear fuel into U.S. repository. However, to enable continued and expanded use of nuclear power, the United States will pursue both technology solutions to better manage spent fuel, and changes to current legislative limits on the quantity of spent nuclear fuel that can be placed in the U.S. repository. The United States continues to seek to eliminate wherever possible the accumulation of stockpiles of separated civil plutonium and, where separated plutonium stocks exist, to ensure that they are subject to the highest standards of safety, security, and international accountability. The United States seeks to develop new technologies for recycle of spent fuel that do not separate plutonium, while at the same time significantly improve the proliferation-resistance and physical protection at all stages of the process and facilitate waste management.

In January 2006, President Bush announced the Advanced Energy Initiative, of which the Global Nuclear Energy Partnership (GNEP) is part. Under the partnership, the United States will work with nations that have advanced civilian nuclear energy programs to develop and deploy innovative advanced reactors and new methods to recycle spent fuel in a more proliferation-resistant manner than exist today. These new recycle methods will support and continue the U.S. policy to discourage the accumulation of separated plutonium worldwide. GNEP technologies will allow the world to produce more energy, while dramatically reducing the amount of nuclear waste and limiting the nuclear by-products that states of concern or terrorists could use to make a weapon.

The GNEP strategy includes seven elements: 1) Building of a new generation of nuclear power plants in the United States, 2) Developing and deploying new nuclear recycling technologies, 3) An aggressive plan to manage spent nuclear fuel in the United States, including permanent geologic disposal, 4) Designing Advanced Burner Reactors that would produce energy from recycled nuclear fuel, 5) Establishing a reliable fuel services program that would allow developing nations to acquire and use nuclear energy economically without any need for enrichment or reprocessing, thereby reducing the risk of nuclear proliferation, 6) Developing and constructing small scale reactors designed for the needs of developing countries, and 7) Improving nuclear safeguards to enhance the proliferation-resistance of expanded nuclear power.

Waste Management

The Nuclear Waste Policy Act of 1982, as amended in 1987, affirmed the Federal Government's responsibility for the disposal of high-level radioactive waste and established the scientific, regulatory, and funding framework supporting the development of a geologic repository.

President Bush signed the Joint Resolution of Congress in July 2002 designating Yucca Mountain in Nevada as the site for a proposed geologic repository. This action permitted the Department to move forward to prepare and submit a license application to the NRC. Yucca Mountain is located about 160 kilometers northwest of Las Vegas, Nevada, on unpopulated desert land owned by the Federal Government. Geological information indicates that the regional climate has changed little over the past million years, and the long-term average precipitation has been about 30 centimeters per year. The host rock proposed for the potential repository is a welded tuff unit located about 300 meters below the surface and 300 meters above the water.

DOE is continuing with its plans to submit a high-quality License Application (LA) to the NRC in June 2008 for construction authorization for a proposed geologic repository at Yucca Mountain and will also be fully factored in the final EPA Radiation Protection Standards.

The best achievable schedule for beginning to receive spent fuel and high-level radioactive waste at Yucca Mountain is March 2017.

In October 2005, DOE announced that it would devise a plan to operate the repository as a primarily "clean" or non-contaminated canister handling facility. The change in design means that most spent nuclear fuel would be sent to the repository in standardized canisters that would not require repetitive handling of spent fuel prior to disposal. Under the previous plan, the design was to construct large fuel-handling facilities to prepare fuel for repository emplacement once received from utilities. The new plan will utilize aspects of the current design to the extent practicable, and will maintain a phased construction approach.

DOE is also preparing a draft Environmental Impact Statement (EIS) to evaluate potential impacts of the construction, operation, and maintenance of the proposed Caliente rail corridor and alternative rail alignments. The final Nevada Rail Alignment EIS is scheduled for issue by June 2008. DOE will continue working with State Regional Groups and Indian Tribes, and will coordinate planning, route selection criteria, etc., with key stakeholders through a Transportation External Coordination Working Group.

Plutonium Declared Excess to National Security Needs

The United States has declared 52.5 metric tons of plutonium (as reported in Annexes B and C) as excess to national security needs. The majority of this plutonium was formerly part of the nuclear weapons production process. A small amount of the material will be disposed of at the Waste Isolation Pilot Plant (WIPP) located near Carlsbad, New Mexico, but the majority of the material will be disposed of as spent fuel through the irradiation of mixed oxide (MOX) fuel under the Plutonium Disposition Program. Of the plutonium declared excess to defense needs, the United States is proceeding with plans to dispose of 34 metric tons of separated plutonium. Under the plan, excess plutonium from disassembled nuclear weapons and other programs would be processed into MOX nuclear reactor fuel and then irradiated in commercial nuclear reactors. Subsequently, the fuel would be removed from the reactors and eventually disposed of in a geologic repository. This approach would achieve what is generally understood to be the "spent fuel standard," in which excess plutonium is made as inaccessible and unattractive for retrieval and use in nuclear weapons as the plutonium in spent nuclear fuel from commercial reactors.

The program will involve the construction of two facilities at the Department of Energy's Savannah River Site in South Carolina. One facility will convert plutonium from metallic components into a plutonium oxide powder. The second facility will fabricate nuclear fuel assemblies suitable for use in commercial reactors from plutonium-uranium oxide. This plutonium was separated long ago, and the United States is now seeking to convert the material back into the form of spent fuel to reduce the risk of its theft or re-use in nuclear weapons, thereby helping to ensure the irreversibility of the arms reduction process. The U.S. MOX-related facilities would be built and operated subject to the following conditions: construction would take place at a secure DOE site; operations would be limited exclusively to the disposition of excess weapons plutonium; and the MOX-related facilities would be shut down at the completion of the plutonium disposition mission.