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**Communication Received from Certain Member States  
Concerning their Policies Regarding  
the Management of Plutonium**

1. The Director General has received a note verbale, dated 12 December 1997, from the Permanent Mission to the IAEA of Switzerland. In keeping with Switzerland's commitment under the Guidelines for the Management of Plutonium (contained in INFCIRC/549 of 16 March 1998 and hereinafter referred to as the "Guidelines"), the government of Switzerland, in the enclosure of the note verbale of 12 December 1997, makes available a statement explaining its national strategy for nuclear power and the nuclear fuel cycle, and its general plans for managing national holdings of plutonium.

2. In light of the request expressed by Switzerland in its note verbale of 1 December 1997 concerning its policies regarding the management of plutonium (INFCIRC/549 of 16 March 1998), the text of the enclosure of the note verbale of 12 December 1997 is attached for the information of all Member States.

## The Swiss Policy on Nuclear Energy and Recycling of Plutonium

### Nuclear Power Plants

Today, five nuclear reactors are in operation in Switzerland. With a total net capacity of 3077 MWe, they generated in 1996 23719 GWh, about 44,5 % of Switzerland's total electricity production:

Power plant -----	Type -----	Commissioning -----	Net Power -----
Beznau I	PWR	1968	365 MWe
Beznau II	PWR	1971	357 MWe
Mühleberg	BWR	1972	355 MWe
Gösgen	PWR	1979	970 MWe
Leibstadt	BWR	1984	1030 MWe

### Fuel Cycle

Because of the limited size of the nuclear programme, there are no fuel cycle facilities in Switzerland. Thus, international cooperation is necessary. Responsibility for the planning and the decisions relative to the fuel cycle lies with the owners and operators of nuclear power plants. The activities of the government and its administration are of a subsidiary nature (e.g. negotiation of the necessary bilateral or international agreements for the exchange of nuclear material).

#### *Fuel supply and enrichment:*

Uranium fuel and/or enrichment for Swiss nuclear power plants is provided by DOE (USA), Eurodif (France), Urenco (Germany, M Netherlands) and Techsnabexport (Russia). Fuel elements are manufactured in Belgium, France, Germany, Italy, Spain, Sweden, UK and USA.

#### *Reprocessing:*

At the end of the sixties and in the early seventies, Swiss operators of power plants signed reprocessing contracts with COGEMA for 147 tons of heavy metal. At the end of the seventies, new contracts for a minimum of 880 tons of heavy metal have been signed by Swiss operators with COGEMA (La Hague) and BNFL (Sellafield). Out of these contracts, which will last until the year 2002, about 845 tons of reprocessed uranium and 5,7 tons of plutonium will result.

In the last years, political opposition against reprocessing has grown. Fuel element transports to reprocessing plants are increasingly the target of anti-nuclear activities by environmental organisations.

### *Use of MOX-elements:*

Experimental MOX-elements have been used in the Beznau power plant since 1978. Today, the use of MOX-elements is a standard operation procedure in the Beznau power plants. Since summer 1997, MOX fuel is also used in the reactor of the Gösgen power plant.

In that way, more than 2,2 tons of plutonium have been introduced in Swiss nuclear reactors for recycling.

### **Waste management and storage**

The Radiation Protection Law lays down that radioactive wastes generated in Switzerland must basically be disposed of in our country, although exceptions may be allowed by the Government. Despite the present waste management policy that provides for reprocessing of spent fuel elements and final disposal of the arising high level waste in vitrified form, the non-reprocessing option with final disposal of spent fuel-elements is still kept open.

### *Intermediate storage:*

Construction of a central facility for intermediate storage of high-level wastes and spent fuel as well as for storage, conditioning and incineration of low and intermediate-level wastes (Zentrales Zwischenlager Würenlingen ZZL) has started in August 1996. Commissioning of the facility is expected for the year 2000. Another facility for intermediate storage of high-level wastes and spent fuel is under construction at the site of the Beznau power plant.

### *Final disposal:*

By reason of our very densely populated country, all nuclear waste arising in Switzerland shall be disposed of in geologic repositories. Shallow land burial is not taken into consideration for any waste category. At present two types of geologic repositories are envisaged: A deep repository for high-level and long-lived alpha-bearing wastes and a repository at intermediate depth with horizontal access for low- and intermediate level wastes.

### **Research activities**

Advanced fuel cycle research is carried out at the Paul Scherrer Institute (PSI), a national research laboratory affiliated with the Board of the Swiss Federal Institutes of Technology. The evolutionary fuel cycle R&D work contributes to the safety and performance of the Swiss NPPs. In this context R&D in reactor physics and material technology is being directed towards recycling of plutonium aimed at increased Pu-consumption in LWRs (higher burnups, increased MOX loading fractions, possibility of developing a Pu-fuel free of uranium). At the same time, within the framework of existing national and international research contracts and co-operation agreements, work is being done on plutonium burning and minor actinides transmutation in advanced systems (fast reactors and accelerator-driven devices).

## **Controls and Transparency**

Although Switzerland is not a member of the United Nations Organization, it is a member of the IAEA. In 1969, Switzerland signed the Non-Proliferation Treaty (NPT) which was ratified by Parliament in March 1977. According to the safeguards agreement between Switzerland and the IAEA, all nuclear material within the territory of Switzerland is subject to full scope IAEA safeguards.

In order to meet the aims of non-proliferation and to guarantee transparency in its use of nuclear material, Switzerland has implemented a network of regulations, controls and surveillance. Together with other States parties to the NPT engaged in the supply of nuclear material and equipment, Switzerland participates in the work of the Zangger Committee and has adhered to the Guidelines of the Nuclear Suppliers' Group, which are incorporated in our legal regulations (Ordinance on Definitions and Authorizations in the Atomic Energy Field).

## **Main features on Plutonium**

- As a state party to the NPT, Switzerland is strongly committed to non-proliferation and has no intent to use plutonium for the manufacture of nuclear weapons or other nuclear explosive devices.
- Although Switzerland is a "reprocessing-country", there are no fuel cycle facilities in our country.
- Plutonium resulting from reprocessing abroad is refabricated to MOX-fuel and re-imported to Switzerland in form of fuel-elements.
- MOX-elements are used in the power plants of Beznau since 1978. Since summer 1997, MOX fuel is also used in the reactor of the Gösgen power plant.
- Swiss operators of power plants have signed reprocessing contracts with COGEMA and BNFL for a minimum of 1027 tons of heavy metal.
- Out of these contracts, about 5,7 tons of fissile plutonium for recycling in Switzerland will result.
- Until today, more than 2,2 tons of plutonium have been introduced in Swiss nuclear reactors for recycling.
- All nuclear material within the territory of Switzerland is subject to IAEA full scope safeguards.