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

1. The Secretariat of the IAEA has received a note verbale, dated 23 December 1997, from the Permanent Mission to the IAEA of France in the enclosure of which the government of France, in keeping with France'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"), makes available information on its national holdings of plutonium, as of 31 December 1996, in accordance with Annexes B and C of the Guidelines. In addition, in the enclosure of the same letter, the government of France, in accordance with its commitment under the Guidelines, makes available information on the situation in France with respect to nuclear energy and on the strategy of France for the use of plutonium for civil purposes.
2. In light of the request expressed by France in its note verbale of 28 November 1997 concerning its policies regarding the management of plutonium (INFCIRC/549 of 16 March 1998), the texts of the enclosures of the note verbale of 23 December 1997 are attached for the information of all Member States.

* Document INFCIRC/549/Add. 5 contains the original French texts of the enclosures of the note verbale of 23 December 1997. The English translation is attached hereto.

Annual Figures for Holdings of Civil Unirradiated Plutonium

National totals

as of 31 December 1996

Previous year's figures in
brackets)
Rounded to 100 kg
plutonium with quantities
less than 50 kg reported as
such.

1. Unirradiated separated plutonium in product stores at reprocessing plants	43.6	(36.1)
2. Unirradiated separated plutonium in the course of fabrication and plutonium contained in unirradiated semi-fabricated or unfinished products at fuel or other fabricating plants or elsewhere	11.3	(10.1)
3. Plutonium contained in unirradiated MOX fuel or other fabricated products at reactor sites or elsewhere	5.0	(3.6)
4. Unirradiated separated plutonium held elsewhere	5.5	(5.5)

Notes:

(i) Plutonium included in lines 1-4 above belonging to foreign bodies	30.0	(25.7)
(ii) Plutonium in any of the forms in lines 1-4 above held in locations in other countries and therefore not included above	0.2	(0.2)
(iii) Plutonium included in lines 1-4 above which is in international shipment prior to its arrival in the recipient State	0	(0)

Estimated amounts of Plutonium contained in Spent Civil Reactor Fuel

National totals

as of 31 December 1996

Previous year's figures in
brackets)
Rounded to 1000 kg
plutonium with quantities
less than 500 kg reported as
such.

1.	Plutonium contained in spent fuel at civil reactor sites	65	(64)
2.	Plutonium contained in spent fuel at reprocessing	88	(87)
3.	Plutonium contained in spent fuel held elsewhere	0	(0)

Notes:

Definitions:

Line 1: Covers estimated amounts of plutonium contained in fuel discharged from civil reactors;

Line 2: Covers estimated amounts of plutonium contained in fuel received at reprocessing plants but not yet reprocessed.

The Nuclear Power Situation in France and France's Strategy for using Plutonium for Civil Purposes

I. Nuclear power reactors in 1996

Nuclear power is today one of the mainstays of France's energy policy.

The installed nuclear capacity of Electricité de France (EDF) was 59 795 MW in December 1996 (compared to 58 340 MW at the end of 1995). It was accounted for by: 34 PWRs of 900 MW (30 770 MW); 20 PWRs of 1300 MW (26 370 MW); one N4 PWR (1 455 MW); and one fast reactor (1200 MW). In addition, the PHENIX prototype fast reactor has a capacity of 230 MW(e).

In 1996, PWRs produced 374.8 TWh of electrical power, out of an EDF total of 457.8 TWh and a national total of 488.9 TWh. Nuclear power thus accounted for 77% of the electricity produced in France.

II. The back-end strategy

EDF discharges just over 1200 tonnes of spent fuel from its reactors each year. This fuel is stored temporarily in ponds at the power stations, then transferred to ponds at the reprocessing plant at La Hague.

EDF has stated that its strategic preference is reprocessing and recycling, which means that fuel is reprocessed and the plutonium separated from it is available for recycling in the short term. It pursues a policy of "equal flows", which means that the plutonium is recycled as a function of the number of reactors capable of operating with MOX fuel and the excess spent fuel is stored temporarily. EDF will reprocess conventional uranium oxide fuel as a priority. Beyond that, all decisions concerning the future have been deferred pending the choices which the French Parliament is to make in 2006 pursuant to the law of 30 December 1991 on the management of long-lived high-level radioactive waste.

The reprocessing plant at La Hague, which has a capacity of 1600 tonnes (for fuel with a burnup of 33 000 MWd/t), of which half is currently devoted to the reprocessing of foreign spent fuel, was designed for reprocessing spent fuel in accordance with the following specifications: separation of the plutonium with a yield of over 99.9%; vitrification of the fission products and minor actinides in the same glass matrix; compacting by the year 2000 of the hulls and end sections (i.e. the metallic structural parts of the fuel assemblies) in packages having the same geometry as the packages with vitrified material; separation of the uranium in the form of uranyl nitrate before it is either used for fuel fabrication or oxidized to stable U₃O₈ at the TU5 plant in Pierrelatte so that it can be stored.

The twenty-eight 900-MW PWRs of the CP1-CP2 series were designed from the outset, through certain minor modifications such as the addition of extra control rod clusters, to recycle plutonium in MOX accounting for 30% of the core. At the moment, 16 reactors

of the CP I-CP2 series are licensed to use MOX fuel, and 14 of them had been loaded with MOX fuel by 20 October 1997. EDF is planning a gradual increase in the number of reactors of the CP1-CP2 series loaded with MOX.

EDF's programme for the introduction of MOX during the period until 2006 means that approximately 120 tonnes of MOX a year will be needed. Given the principle of "equal flows" in the spent fuel reprocessing programme, that implies a working stock of separated plutonium of some 20 tonnes.

The management of the long-lived high-level radioactive waste is covered by the law of 30 December 1991, which calls for research over a period of 15 years in three areas:

- the separation and transmutation of long-lived radionuclides;
- the possibility of reversible or irreversible storage in deep geological formations, with the construction of underground laboratories;
- long-term surface storage.

At the end of the 15-year research period, i.e. in 2006 at the latest, the Government will be in a position to put before Parliament a draft law authorizing the construction of a final storage centre when needed.

Lastly, the short-lived low- and medium-level radioactive waste was put and is being put into surface storage at the Centre de la Manche (until 1994) and the Centre de l'Aube (since 1992), which are operated by the National Agency for the Management of Radioactive Waste (ANDRA). Centre de l'Aube has a capacity of 1 million cubic metres and an estimated lifetime of at least 50 years.