



COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 22.12.1998  
COM(1998)778 final

**SECOND REPORT ON THE APPLICATION IN THE MEMBER STATES OF  
DIRECTIVE 92/3/EURATOM OF 3 FEBRUARY 1992 ON THE  
SUPERVISION AND CONTROL OF SHIPMENTS OF RADIOACTIVE  
WASTE BETWEEN MEMBER STATES AND INTO AND OUT OF THE  
COMMUNITY**

(presented by the Commission)

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## INTRODUCTION AND SUMMARY

Council Directive 92/3/Euratom of 3 February 1992<sup>1</sup>, on shipments of radioactive waste between Member States and into and out of the Community, introduced a system for the administrative supervision and control of such shipments, to supplement the requirements of the Directive laying down the basic safety standards for the health protection of the general public and workers against the dangers of ionising radiation<sup>2</sup>.

Article 18 of the Directive requires the Member States to forward to the Commission reports on the implementation of the Directive and to supplement these reports with information on the situation regarding shipments within their respective territories. On the basis of these reports from the Member States the Commission is required to prepare a summary report for the European Parliament, the Council and the Economic and Social Committee.

This is the second Commission report made under Article 18 of Directive 92/3/Euratom. It has been established on the basis of contributions from the Member States (including both the reports mentioned above and submissions made under Article 33 of the Euratom Treaty) and in consultation with the Advisory Committee established by Article 19 of the Directive. It includes information received by the Commission up early 1998. The first report was made in 1995<sup>3</sup>.

The general situation in the European Union as regards radioactive waste management and the transport of radioactive materials has been reviewed by the Commission in its Communications:

- Communication and third report on the present situation and prospects for radioactive waste management in the European Community<sup>4</sup>;
- Communication from the Commission to the Council and to the European Parliament on the safe transport of radioactive materials in the European Community<sup>5</sup>.

\*\*\*\*\*

The information received from the Member States indicates that:

- the Directive is applied in all Member States;
- the number of transfrontier shipments of radioactive waste is relatively small. In the period covered by the present report Member States reported the delivery of sixty authorisations; some authorisations are given for several shipments to be carried out over a time period that may exceed that covered by the present report;

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<sup>1</sup> OJ L-35 of 12.2.92

<sup>2</sup> Council Directive 96/29/Euratom, replacing Council Directive 80/836/Euratom (OJ L-246 of 17.09.80), as amended by 84/467/Euratom (OJ L-265 of 5.10.84). The new Directive has to be implemented not later than May 2000.

<sup>3</sup> COM (95) 192 final

<sup>4</sup> COM (93) 88 final.

<sup>5</sup> COM (98) 155 final.

- the Directive adequately ensures that transboundary shipments of radioactive waste take place only with the prior informed consent of the competent authorities of all the Member States involved;
- the difficulties anticipated by the Commission in its first report on the application of the Directive concerning national general bans on import of radioactive waste from Member States and reasons for refusals of individual shipments did not lead to practical problems. However, the issue still needs to be clarified;
- some practical problems have been identified by Member States;
- the implications of the entering into force of the 1997 Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management need to be analysed.

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As regards shipments within the territory of individual Member States, the Commission notes that the existing national provisions, notably those implementing the Directive laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionising radiation<sup>1</sup> allow the national competent authorities to monitor the movements of radioactive waste on their territory.

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Finally, no accidents leading to a significant release of radioactive substances to the environment and involving national or transboundary movements of radioactive waste were reported for the two years covered by the report.

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<sup>1</sup> Council Directive 96/29/Euratom, replacing Council Directive 80/836/Euratom (OJ L-246 of 17.09.80), as amended by 84/467/Euratom (OJ L-265 of 5.10.84). The new Directive has to be implemented not later than May 2000

## **PART A - INFORMATION ON THE IMPLEMENTATION OF DIRECTIVE 92/3/EURATOM (ARTICLE 18 FIRST PARAGRAPH)**

### **1. FORMAL IMPLEMENTATION OF THE DIRECTIVE**

Article 21 of the Directive requires the Member States to bring into force not later than 1 January 1994 the laws, regulations and administrative provisions necessary to comply with the Directive. The current situation in each Member State is outlined in this section.

#### **Belgium**

Implemented by the Arrêté Royal du 2 Octobre 1997 modifiant l'arrêté royal du 28 février 1963 portant règlement général de la protection de la population et des travailleurs contre le danger des radiations ionisantes et portant mise en vigueur partielle de la loi du 15 avril 1994 relative à la protection de la population et de l'environnement contre les dangers résultant des rayonnements ionisants et relative à l'Agence fédérale de Contrôle nucléaire, (Royal decree of 2 October 1997 modifying the royal decree of 28 February 1963 giving general rules for the protection of the population and of the workers against the dangers of ionizing radiation and partially implementing the law of 15 April 1994 on protection of the population and of the environment against the dangers resulting from ionizing radiation and on the Federal Agency for nuclear Control) published in the Moniteur Belge of 23 October 1997.

#### **Denmark**

Implemented by the publication of National Board of Health Order No. 969 of 13 December 1993, on international shipments of radioactive waste.

#### **Germany**

Implemented by the Atomrechtliche Abfallverbringungsverordnung (Decree on shipments of radioactive waste) of 27 July 1998, published in the BGBI I of 31 July 1998, brought into force on 1 August 1998.

#### **Greece**

Implemented by the Presidential Decree N°22 (Official Gazette N°20/A/26.02.1997) on "Surveillance and control of shipments of radioactive waste between Greece and the other Member States, also to and from the Community."

#### **Spain**

Implemented on 27 November 1994 by the Real Decreto (Royal Decree) 2088/1994 of 20 October, published in the Boletín Oficial del Estado (Official State Bulletin) of 26 November 1994.

#### **France**

Implemented on 1 December 1994 by Décrée 94-853 of 22 September 1994 and the Arrêté of the same date (published in the Journal Officiel of 2 October 1994).

## **Ireland**

Implemented on 15 September 1994 by the European Communities (Supervision and Control of Certain Shipments of Radioactive Waste) Regulations 1994 (Statutory Instrument No. 276 of 1994).

## **Italy**

Implemented by the Decreto legislativo (the legislative Decree) No. 230 of 17 March 1995, published in the Gazzetta ufficiale della Repubblica Italiana (Official Journal) No. 136 of 13 June 1995.

## **Luxembourg**

Implemented on 16 April 1994 by the règlement grand-ducal relatif au transfert transfrontalier de déchets radioactifs (regulation on transfrontier shipments of radioactive waste), published in the Official Journal (Mémorial) A-No. 31 of 25 April 1994.

## **The Netherlands**

Implemented by the Besluit in- uit- en doorvoer van radioactieve afvalstoffen, van 17 november 1993, Stb. 626 (Decree concerning the import, export and transit of radioactive waste), published in the Official Bulletin of Acts, Orders and Decrees No. 626 of 12 December 1993.

## **Austria**

The Directive is implemented by the Radioactive Abfälle - Verbringungsverordnung - Rabf - VV (Decree on shipments of radioactive waste), published in the Bundesgesetzblatt für die Republik Österreich (Federal law Gazette) N. 44/1997.

## **Portugal**

Implemented by Decreto-lei N°138/96 (Decree-Law N°138/96) of 14 August 1996, published in the Diário da República, N°188/96 of 14 August 1996 (Official Journal).

## **Finland**

The Directive is implemented through:

- (1) SÄTEILYLAKI (Radiation Act) 592/91 of 27.3.91, as amended by Act 1102/92 of 27.11.92 and by Act 1334/94 of 22.12.94
- (2) SÄTEILYASETUS (Radiation Decree) 1512/91 of 20.12.91, as amended by Decree 1598/94 of 31.12.94
- (3) YDINENERGIALAKI (Nuclear Energy Act) 990/87 of 11.12.87, as amended by Act 1420/94 of 29.11.94
- (4) YDINENERGIA-ASETUS (Nuclear Energy Decree) 161/88 of 12.2.88, as amended by Decree 278/93 of 26.3.93 and by Decree 473/96 of 20.6.96

## Sweden

### Implemented through

- (1) Ändringar i strålskyddslagen (1988:220) 20a och 24 §§ (amendments to the Radiation Protection Act), which entered into force on 1 July 1995
- (2) Ändring i lagen (1984:3) om kärnteknisk verksamhet (5 a§ andra stycket) (amendment to the Nuclear Activities Act), which entered into force on 1 July 1995,
- (3) Ändring i lagen (1991:34) om strategiska produkter (4§) (amendment to the Strategic Products Act), which entered into force on 1 July 1995,
- (4) Statens strålskyddsinstututs föreskrifter (SSI FS 1995:4) om kontroll vid in-och utförsel av radioaktivt avfall (regulations of the Swedish Radiation Protection Institute on the supervision and control of imports and exports of radioactive waste), which entered into force on 17 January 1996.

## United Kingdom

The Directive is implemented through the Statutory Instrument 1993 N°3031, ATOMIC ENERGY AND RADIOACTIVE SUBSTANCES, the Transfrontier Shipment of Radioactive Waste Regulations 1993 - Published on 2 December 1993.

## 2. DECLARATIONS BY THE MEMBER STATES

Article 17 of the Directive requires Member States to forward to the Commission:

- the names and addresses of the competent authorities empowered to implement the provisions of the Directive
- their possible non-acceptance of the automatic approval procedure referred to in Article 6(4) of the Directive (clause of silence-consent)

### 2.1 Competent authorities

#### Belgium

(FR) Ministère des Affaires Sociales, de la Santé publique et de l'Environnement  
Service de la Protection contre les Radiations Ionisantes  
CAE - Quartier Vésale V2/3  
1010 Bruxelles

(NL) Ministerie van Sociale Zaken, Volksgezondheid en Leefmilieu  
Dienst voor Bescherming tegen Ioniserende Stralingen R.A.C.  
Vesaliusgebouw, 2/3  
1010 Brussel

Tel: (32-2) 210 49 66 / 210 49 62

Fax: (32-2) 210 49 67

## **Denmark**

Institut for Strålehygiejne  
Frederikssundsvej 378  
2700 BRØNSHØJ

Tel.: (45) 44 88 91 19

Fax: (45) 44 53 27 73

E-mail: sis@sis.dk

## **Germany**

Bundesausfuhramt (BAFA)  
Postfach 51 60  
65726 ESCHBORN

Tel.: (49) 6196 908398 / 908564

Fax: (49) 6196 908888

## **Spain**

Dirección General de la Energía  
Paseo de la Castellana, 160  
28046 MADRID

Tel.: (34-1) 349 45 15

Fax: (34-1) 457 80 66

## **France**

Ministère de l'économie, des finances et de l'industrie  
Direction générale de l'énergie et des matières premières  
Service des affaires nucléaires  
101, rue de Grenelle  
75353 PARIS Cedex 07

Tel.: (33-1) 43.19.33.06

Fax: (33-1) 43.19.25.00

## **Greece**

Greek Atomic Energy Commission  
Aghia Paraskevi  
153 10 ATHENS

Tel.: (30-1) 651 51 94

Fax: (30-1) 654 45 20



## **Ireland**

Radiological Protection Institute of Ireland (RPII)  
3 Clonskeagh Square - Clonskeagh Road  
DUBLIN 14

Tel.: (353-1) 269 77 66

Fax: (353-1) 269 97 37

E-mail: rpii@rpii.ie

## **Italy**

- a) Ministero dell'industria, del Commercio e dell'Artigianato  
Direzione Generale Energia e Risorse Minerarie  
Divisione XIII  
Via Molise, 2  
00187 ROMA
- b) Prefect or mayor or other local authority, as competent authority in its area
- c) ANPA (Agenzia Nazionale per la Protezione dell'Ambiente)  
Via Vitaliano Brancati, 48  
00144 ROMA  
Tel.: (39-6) 50 07 1  
Fax: (39-6) 50 07 2941

## **Luxembourg**

Ministère de la Santé  
Direction de la Santé  
Division de la Radioprotection  
1'avenue des Archiducs  
L - 1135 LUXEMBOURG

Tel.: (352) 44 55 70 / 44 55 71 / 44 55 72

Fax: (352) 45 47 94

Telex: 69553 RADPR Lu

## **The Netherlands**

Ministerie van Volkshuisvesting, Ruimtelijke Ordening en Milieubeheer  
Directoraat-Generaal Milieubeheer  
Directie Stoffen, Veiligheid, Straling / IPC 655  
Afdeling Externe Veiligheid

(Ministry of Housing, Spatial Planning and the Environment  
Directorate-General for Environment Protection  
Directorate for Chemicals, External Safety and Radiation Protection / IPC 655  
External Safety Division)

Rijnstraat 8, postbus 30945  
NL-2500 GX DEN HAAG

Tel.: (31 70) 339 49 65  
Fax: (31 70) 339 12 97

### **Austria**

Under the division of responsibilities laid down in the Strahlenschutzgesetz (Austrian Radiation Protection Act) published in the Bundesgesetzblatt BGBl. (Federal Law Gazette) No. 227/1969, the respective areas of responsibility and the relevant competent authorities are as follows:

- medicine: the Bundeskanzleramt-Sektion VI (Federal Chancellery-department VI). By virtue of a "subsidiarity clause", this Ministry is also responsible for all matters which have not been expressly assigned to another department;
- trade and industry, mining: the Bundesministerium für wirtschaftliche Angelegenheiten (Federal Ministry for Economic Affairs);
- research and transport: the Bundesministerium für Wissenschaft und Verkehr (Federal Ministry for Science and Traffic);
- the education system: the Bundesministerium für Unterricht und kulturelle Angelegenheiten (Federal Ministry for Education and Culture);
- the testing of military equipment: the Bundesministerium für Landesverteidigung (Federal Ministry of Defence)

In addition, there is also a vertical distribution of responsibilities in which some responsibility for enforcing the Radiation Protection Act is assigned, through the delegation of federal authority, to relevant administrative bodies at district level (district authorities or municipal councils of towns/cities with their own statutes) and the heads of provincial governments. The specific responsibilities assigned to each authority are laid down in Section 41 of the Radiation Protection Act.

However, the **contact point** for applications concerning shipments into Austria which either deals with the applications itself where appropriate or forwards them directly to the competent authority is the:

Bundeskanzleramt  
Sektion VI  
Radetzkystraße 2  
A-1031 Wien

Tel: (43 1) 711 72 ext.4127  
Fax: (43 1) 718 65 95

## **Portugal**

Under the responsibilities laid down by the Decree-Law N°138/96 published in the Official Journal on 14 August 1996, that implements in Portugal the Directive 92/3/EURATOM, the competent authority is:

Direcção Geral do Ambiente  
Rua da Murgueira, Zambujal, Alfragide  
P-2720 AMADORA

Tel: (351 1) 47 28200

Fax: (351 1) 47 19074

## **Finland**

Säteilyturvakeskus (STUK)  
(Radiation and Nuclear Safety Authority – STUK)  
P.O. Box 14  
FIN – 00881 – HELSINKI

Tel.: (358 9) 759881

Fax: (358 9) 75988500

Telex: 122691 STUK FI

## **Sweden**

The Statens strålskyddsinstitut (Swedish Radiation Protection Institute) is the competent authority for the transport of radioactive waste excluding high-level nuclear waste from reprocessing and nuclear material for which no further use is foreseen.

Swedish Radiation Protection Institute  
SE-17116 STOCKHOLM

Tel.: (46 8) 729 7100

Fax: (46 8) 729 7108

The Statens Kärnkraftinspektion (Swedish Nuclear Power Inspectorate) is the competent authority for the transport of high-level radioactive waste from reprocessing and nuclear material for which no further use is foreseen.

Swedish Nuclear Power Inspectorate  
SE-10658 STOCKHOLM

Tel.: (46 8) 698 8400

Fax: (46 8) 661 9086

## **United Kingdom**

For England and Wales: The Environment Agency  
Rio House  
Aztec West  
Almondsbury  
Bristol  
UK-BS 32 4UD

Tel.: (44) 1454 624 098

Fax: (44) 1454 624 319

For Scotland: The Scottish Environment Protection Agency  
Erskim Court  
The Castle Business Park  
Stirling  
UK-FK9 4TR

Tel.: (44) 1786 45 77 00

Fax: (44) 1786 44 80 40

For Northern Ireland: The Alkali and Radiochemical Inspectorate of the  
Environment and Heritage Service (Northern Ireland)  
Calvert House  
23 Castle Place  
Belfast  
UK-BT1 1 FY

Tel.: (44) 1232 25 47 85

Fax: (44) 1232 25 47 00

### **2.2 Acceptance of the automatic approval procedure**

Belgium, Denmark, Greece, France, Italy, Luxembourg, the Netherlands, Austria, Portugal, Finland, Sweden and the United Kingdom informed the Commission that they do not accept the automatic procedure.

Germany, Spain and Ireland have indicated that they accept that procedure. Nevertheless, Spain shall suspend the periods laid down in Article 6 of the Directive if the Directorate-General for Energy is required to obtain a report from one or more other bodies before making its decision, in which case the European Commission and the applicant shall be informed of such a suspension.

### **3. INFORMATION ON SHIPMENTS OF RADIOACTIVE WASTE**

The following information covers the period 1994-1995. For Austria, Finland and Sweden, the information covers the year 1995.

Authorisation for shipments of radioactive waste were delivered by Belgium (14 authorisations), Germany (19 authorisations of which 15 were used), France (4

authorisations), Luxembourg (1 authorisation), Austria (1 authorisation in 1995), Finland (1 authorisations in 1995), Sweden (20 authorisations). Some authorisations are given for several shipments to be carried out over a time period that may exceed that covered by the present report.

Informations on such shipments are given in Table 1.

#### **4. INFORMATION ON SIGNIFICANT CONDITIONS REQUIRED BY THE MEMBER STATES**

Belgium requires that all those involved in a shipment of radioactive waste comply with the Belgian regulations as regards holding, transport, import and transit of radioactive substances.

The French Decree implementing the Directive specifies that compliance with the Decree itself is without prejudice to all other relevant French provisions, in particular as regards protection and control of nuclear materials, transport of dangerous goods and radiation protection.

As a condition for the shipment of combustible radioactive waste to Sweden, the Swedish Radiation Protection Institute has specified weight limits per establishment in agreement with those establishments, so as not to exceed the capacity of the incineration plant. Packages must also be consistent with the conditions of authorisation for incineration plant operation.

#### **5. INFORMATION ON SIGNIFICANT CASES OF REFUSAL TO GIVE AUTHORIZATION/CONSENT**

Belgium refused authorisation of two shipments to Italy, following information by the Italian authorities that the consignee was not authorised to hold the type of waste for which authorisation was requested. Belgium also refused approval of a shipment for which transport and transit authorisations had not been requested.

Germany was not in condition to authorise a shipment to the United Kingdom via the Netherlands and Belgium, as the procedure for obtaining the approval of the shipment by the three competent authorities proved to be time consuming and difficult to coordinate.

The United Kingdom refused approval of a shipment from Germany as the consignee was not authorised to hold the type of waste for which the approval was requested.

#### **6. PROBLEMS EXPERIENCED WHEN USING THE STANDARD DOCUMENT ESTABLISHED BY COMMISSION DECISION 93/552/EURATOM<sup>1</sup>**

Belgium indicates that the Dutch version of the standard document is not correct. In point 3 page 2 of Section 5, the word "hetzij" should be "waarbij" and the words "de laatste ontvangstbevestiging" should be "het definitieve ontvangstbericht".

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<sup>1</sup> Commission Decision of 1 October 1993 establishing the standard document for the supervision and control of shipments of radioactive waste referred to in Council Directive 92/3/Euratom (93/552/Euratom) (OJ L-268 of 29.10.93, pg. 83)

Germany indicates three problems:

- The language to be used to expedite the procedure. When States accept only their respective national languages, the procedure ends in a stalemate.
- Possibility for Member States to supply the detailed information foreseen by the Standard document before the procedure is worked.
- Consequences of the lack of reaction of Member States which refused the automatic procedure.

France points out that applicants have difficulties applying the complex procedure set up by the Directive. A significant example is the transmission of the acknowledgement of receipt of the waste that can take place in ways not foreseen by the Directive. In one case, the acknowledgement could not be obtained, in spite of repeated requests.

Sweden indicates that problems have occurred mainly in connection with the interpretation of what is intended to be covered by the concept of radioactive waste. One particular source of difficulties is the expression "for which no use is foreseen". In the case of metals for melting down, it is not always possible, before melting, sampling of the melted material and measuring, to decide whether some of the material can be re-used or not. Sweden normally regards this type of material as waste. If the melted product turns out to contain sufficiently low activity concentrations, the Swedish authorities may decide to exempt the material from classification as radioactive waste, thus authorising its re-use. This procedure has led to problems in respect of application of Directive 92/3, as other countries interpret the expression differently.

Sweden also feels that instructions are required as to how activity concentration should be calculated. What degree of homogeneity should be required? Does the limit value apply to the part of a consignment? How should activity concentration be determined in the case of superficially contaminated material when some parts are often much more contaminated than others?

In all cases Sweden feels that acknowledgement of receipt of the waste (sections 4 and 5) should preferably first be sent to the authorities of the country of destination, before being subsequently forwarded to the authorities of the country of origin. In other words the same procedure should be used both for single shipments and for multiple shipments under one authorisation. This makes it easier for the authorities of the country of destination to carry out their supervisory duties.

The United Kingdom points out the lack of provisions as regards the language to be used.

**TABLE 1: Information on shipments of radioactive waste within the scope of Directive 92/3/Euratom – (1994-1995)\***

Member State authorising the shipment	Type of shipment A <sup>1</sup> B <sup>2</sup> C <sup>3</sup> D <sup>4</sup>	Shipment authorised per multiple authorisation/number of shipments (M/n); shipment individually authorised (I)	Nature of the waste and physico-chemical characteristics of the waste	Total activity of the authorised shipment(s) <sup>5,6</sup> (GBq) a)alpha b)beta/gamma	Main radionuclides	Maximum activity per package <sup>6,7</sup> (GBq) a)alpha b)beta/gamma	Type of activity giving rise to the waste	Purpose of the shipment	Mode(s) of transport	Ordered list of countries involved
Belgium	A	M/20  13 shipments effected	Concentrate from evaporation. Liquid with salt and substances in suspension	a)2 b)3000	Co 60 Cs 134 Cs 137 Sb 125 Zn 65 Mn 54	a) 0.1 b) 150	Nuclear industry	Retour following interim storage	Road Rail	Belgium Germany
Belgium	A	M/4	Waste supercompacted	a)0.311 b)37.9	Co 60 Cs 137 Cs 134	a) 0.11 b) 11	Nuclear industry	Final disposal	Road Rail	Belgium Germany
Belgium	B	I	Secondary waste - slag	a)<0.400 kBq b)7MBq	Co 60 Cs 137	a) <0.400 kBq b)7 MBq		Retour following melting of contaminated metals	Road Sea	Sweden Belgium

\* Austria, Finland, Sweden 1995 only

<sup>1</sup> Shipments between Member States

<sup>2</sup> Import into the Community

<sup>3</sup> Export from the Community

<sup>4</sup> Transit through the Community

<sup>5</sup> Activities are estimated when the authorised shipments or the associated procedures have not been completed within the period covered by the report

<sup>6</sup> Activities are expressed in gigabequerel, unless otherwise indicated. The multiples of the bequerel, their prefixes and symbols utilised in the table are the following: kilobequerel, kBq = 10<sup>3</sup> Bq; megabequerel, MBq = 10<sup>6</sup> Bq; gigabequerel, GBq = 10<sup>9</sup> Bq; terabequerel, TBq = 10<sup>12</sup> Bq; petabequerel, PBq = 10<sup>15</sup>Bq

<sup>7</sup> "Package" in this table means package complying with the applicable transport regulations.

Member State authorising the shipment	Type of shipment A <sup>1</sup> B <sup>2</sup> C <sup>3</sup> D <sup>4</sup>	Shipment authorised per multiple authorisation/number of shipments (M/n); shipment individually authorised (I)	Nature of the waste and physico-chemical characteristics of the waste	Total activity of the authorised shipment(s) <sup>5,6</sup> (GBq) a)alpha b)beta/gamma	Main radionuclides	Maximum activity per package <sup>6,7</sup> (GBq) a)alpha b)beta/gamma	Type of activity giving raise to the waste	Purpose of the shipment	Mode(s) of transport	Ordered list of countries involved
Belgium	A	I	Metal scrap	Total a)+b) 37MBq	Co 60 Cs 137	Total a)+b) 37 MBq	Nuclear industry	Interim storage	Road Rail	Belgium Germany
Belgium	A	M/8	Dry salt blocks	a)0.448 b)512	Cs 134 Cs 137 Co 60 Ag 110 m Mn 54	a)56 MBq b) 64	Nuclear industry	Interim storage	Road Rail	Belgium Germany
Belgium	A	M/7	Liquid phosphoric acid	a)26 MBq b)38	Co 60 Cs 137 Nb 94 Cd 109	a)1.4 MBq b) 2	Nuclear industry	Interim storage	Road Rail	Belgium Germany
Belgium	A	M/6 4 shipments effected	Active charcoal	a)0.200 b)110	Co 60 Cs 134 Cs 137 Ra 226 Th 228 Th 232	a)33 MBq b)18.34	Nuclear industry	Final disposal	Road Rail	Belgium Germany
Belgium	A	I	Steel tubes contaminated with uranium	a)0.336 b)28 MBq	Enriched uranium Max 4.3% U 235	a)24 MBq b)2 MBq	Nuclear industry	Retour after disassembly of non irradiated fuel elements	Road	Belgium France
Belgium	A	M/2 1 shipment effected	Liquid organic solvents	b)2000	C 14 H 3	b)350	Radiochemical Research	Retour following interim storage	Road Rail	Belgium Germany



Member State authorising the shipment	Type of shipment A <sup>1</sup> B <sup>2</sup> C <sup>3</sup> D <sup>4</sup>	Shipment authorised per multiple authorisation/number of shipments (M/n); shipment individually authorised (I)	Nature of the waste and physico-chemical characteristics of the waste	Total activity of the authorised shipment(s) <sup>5,6</sup> (GBq) a)alpha b)beta/gamma	Main radionuclides	Maximum activity per package <sup>6,7</sup> (GBq) a)alpha b)beta/gamma	Type of activity giving raise to the waste	Purpose of the shipment	Mode(s) of transport	Ordered list of countries involved
Belgium	A	M/2  1 shipment effected	Liquid organic solvents	b)8000	C 14 H 3	b)3500		Retour following interim storage	Road	Belgium Germany
Belgium	A	I	Contaminated glass	b)21	C 14 H 3	b) 21	Radiochemical research	Retour following interim storage	Road Rail	Belgium Germany
Belgium	A	I	Solid Laboratory waste	b)182	H 3 C 14 Co 60 Cs 137 Pm 147	b)182	Radiochemical research	Retour following interim storage	Road Rail	Belgium Germany
Belgium	A	I	Organic solvents	b)2000	C 14 H 3	b) 300	Radiochemical research	Retour following interim storage	Road Rail	Belgium Germany
Belgium	A	I	Combustible waste. Wood, paper, glass	b)700	H 3	b) 212	Radiochemical research Production of H3 targets	Retour following interim storage	Road Rail	Belgium Germany
Germany*	C	I	Combustible waste	a) 0.007 b) 5.9 **	Co 60 Fe 55 Cs 137	a) 0.04 b) 40	Nuclear Industry	Incineration	Rail Road	Germany Sweden

\* The shipment was effected in 1994 when Sweden was not yet member of the European Union

\*\* Actual activities

Member State authorising the shipment	Type of shipment A <sup>1</sup> B <sup>2</sup> C <sup>3</sup> D <sup>4</sup>	Shipment authorised per multiple authorisation/number of shipments (M/n); shipment individually authorised (I)	Nature of the waste and physico-chemical characteristics of the waste	Total activity of the authorised shipment(s) <sup>5,6</sup> (GBq) a)alpha b)beta/gamma	Main radionuclides	Maximum activity per package <sup>6,7</sup> (GBq) a)alpha b)beta/gamma	Type of activity giving raise to the waste	Purpose of the shipment	Mode(s) of transport	Ordered list of countries involved
Germany*	C	M/2	Combustible waste	a) 39 kBq b) 4.47 **	Co 60 Fe 55 Ni 63	a) 0.04 b) 40	Nuclear Industry	Incineration	Rail Road	Germany Sweden
Germany*	C	I	Combustible waste	a) 130 kBq b) 3.3 **	Co 60	a) 0.04 b) 40	Nuclear Industry	Incineration	Rail Road	Germany Sweden
Germany*	C	M/2	Combustible waste	a) 480 kBq b) 17.03 **	Co 60 Cs 137	a) 0.04 b) 40	Nuclear Industry	Incineration	Road Rail Road	Germany Sweden
Germany*	C	I	Combustible waste	a) 560 kBq b) 11.7 **	Co 60	a) 0.,04 b) 40	Nuclear Industry	Incineration	Road Rail Road	Germany Sweden
Germany	B	I	Combustible waste	a) 170 kBq b) 10.6 **	Co 60	a) 0.04 b) 40	Nuclear Industry	Incineration	Rail Road	Germany Sweden
Germany*	C	M/2	Combustible waste	a) 551 kBq b) 9.98 **	Co 60 Cs 137 Cs 134 Mn 54 Zn 65 Cr 51	a) 0.04 b) 40	Nuclear Industry	Incineration	Rail Road	Germany Sweden

\* The shipment was effected in 1994 when Sweden was not yet member of the European Union

\*\* Actual activities

Member State authorising the shipment	Type of shipment A <sup>1</sup> B <sup>2</sup> C <sup>3</sup> D <sup>4</sup>	Shipment authorised per multiple authorisation/number of shipments (M/n); shipment individually authorised (I)	Nature of the waste and physico-chemical characteristics of the waste	Total activity of the authorised shipment(s) <sup>5,6</sup> (GBq) a)alpha b)beta/gamma	Main radionuclides	Maximum activity per package <sup>6,7</sup> (GBq) a)alpha b)beta/gamma	Type of activity giving raise to the waste	Purpose of the shipment	Mode(s) of transport	Ordered list of countries involved
Germany	B	M/3	Combustible waste	a) 1.108 MBq b) 10.8 **	Co 60	a) 0.001 b) 15	Nuclear Industry	Incineration	Rail Road	Germany Sweden
Germany*	C	I	Combustible waste	a) 33 MBq b) 40.7 **	Co 60 Cs 137	a) 0.1 b) 50	Nuclear Industry	Incineration	Rail Road	Germany Sweden
Germany	B	I	Combustible waste	a) 360 kBq b) 4.1 **	Co 60 Cs 137 Zn 65 Mn 54	a) 0.04 b) 40	Nuclear Industry	Incineration	Rail Road	Germany Sweden
Germany*	C	I	Combustible waste	a) 880 kBq b) 2.11 **	Co 60 Cs 137	a) 0.04 b) 40	Nuclear Industry	Incineration	Rail Road	Germany Sweden
Germany*	C	I	Combustible waste	a) 1.23 MBq b) 2.58 **	Co 60 Ag 110m Mn 54	a) 0.04 b) 40	Nuclear Industry	Incineration	Rail Road	Germany Sweden
Germany*	C	I	Combustible waste	a) 248 kBq b) 1.032 **	Co 60 Cs 137 Fe 55 Ni 63 Cd 113m Pu 241	a) 0.04 b) 40	Nuclear Industry	Incineration	Rail Road	Germany Sweden
Germany	B	I	Combustible waste	a) 150 kBq b) 24 **	Co 60	a) 0.04 b) 40	Nuclear Industry	Incineration	Road Rail Road	Germany Sweden

\* The shipment was effected in 1994 when Sweden was not yet member of the European Union

\*\* Actual activities

Member State authorising the shipment	Type of shipment A <sup>1</sup> B <sup>2</sup> C <sup>3</sup> D <sup>4</sup>	Shipment authorised per multiple authorisation/number of shipments (M/n); shipment individually authorised (I)	Nature of the waste and physico-chemical characteristics of the waste	Total activity of the authorised shipment(s) <sup>5,6</sup> (GBq) a)alpha b)beta/gamma	Main radionuclides	Maximum activity per package <sup>6,7</sup> (GBq) a)alpha b)beta/gamma	Type of activity giving raise to the waste	Purpose of the shipment	Mode(s) of transport	Ordered list of countries involved
Germany	C	I	Research laboratory waste	a) 0.850 **	H 3 C 14	a) 0.240	Marine Research	Final Disposal	Sea Road	South Africa Germany
France	A	I	Technological waste - Solid rejected parts	b) 9	Co 60 Co 58	a) 0 b) 9	Nuclear Industry	Return following reprocessing and conditioning	Road	France Belgium
France	A	M/8	Hulls (stainless steel tubes)	a) 700 b) 400 TBq	Isotopes U Isotopes Pu Am 241 Mn 54 Co 60 Sb 125 Cs 137 Cm 244	a) 515 b) 510	Nuclear Industry	Return of waste issued from reprocessing of irradiated fuel	Road	France Germany
France	A	M/21 <sup>***</sup>	Vitrified fission products (solid)	a) 83.10 PBq b) 16.51 PBq	Cm 244 Am 241 Sr 90 Ew 154 Ru 106 Ce 144 Cs 137	a) 3.94 PBq b) 787 PBq	Nuclear Industry	Return of waste issued from reprocessing of irradiated fuel	Road Rail Road	France Germany

\*\* Actual activities

\*\*\* To be carried out in three years (1995-1998)

Member State authorising the shipment	Type of shipment A <sup>1</sup> B <sup>2</sup> C <sup>3</sup> D <sup>4</sup>	Shipment authorised per multiple authorisation/number of shipments (M/n); shipment individually authorised (I)	Nature of the waste and physico-chemical characteristics of the waste	Total activity of the authorised shipment(s) <sup>5,6</sup> (GBq) a)alpha b)beta/gamma	Main radionuclides	Maximum activity per package <sup>6,7</sup> (GBq) a)alpha b)beta/gamma	Type of activity giving rise to the waste	Purpose of the shipment	Mode(s) of transport	Ordered list of countries involved
France	C	I	Vitrified fission products (solid)	a) 71.10 TBq b) 14.21 PBq	Cm Am Sr Eu Rs Ce Cs	a) 3.94 PBq b) 787 PBq	Nuclear Industry	Return of waste issued from reprocessing of irradiated fuel	Road Rail Sea Road	France Japan
Luxembourg	A	I	Disused equipment (lightning rods, medical and industrial low power sources)	a)15 b)277	H3 Am 241 Ra 226		Lightning rods Medical and industrial activities	Final disposal	Road	Luxembourg Belgium
Austria	A	I	Ash embedded in cement		Co 60 Cs 137	a)5 MBq b) 0.5		Return of waste after treatment	Road Rail	Austria Italy
Finland	A	I	Metal (Fe and Zr)	b) 3000	Co 60 Mn 54 Ni 63 Fe 55 Rh 106 Sb 125 Ce 144 Cs 134 Nb 95 Cs 137	a) 0 b) 1000	Material testing Nuclear industry	Return of sample to owner	Road	Finland Sweden
Sweden	A	I	Ash and non-combustible material following incineration	a)11.7 MBq b) 1.36	Co 60 Cs 137 Mn 54 Zn 65	Data not available	Nuclear industry	Return of waste following incineration	Road Rail Sea	Sweden Germany

Member State authorising the shipment	Type of shipment A <sup>1</sup> B <sup>2</sup> C <sup>3</sup> D <sup>4</sup>	Shipment authorised per multiple authorisation/number of shipments (M/n); shipment individually authorised (I)	Nature of the waste and physico-chemical characteristics of the waste	Total activity of the authorised shipment(s) <sup>5,6</sup> (GBq) a)alpha b)beta/gamma	Main radionuclides	Maximum activity per package <sup>6,7</sup> (GBq) a)alpha b)beta/gamma	Type of activity giving rise to the waste	Purpose of the shipment	Mode(s) of transport	Ordered list of countries involved
Sweden	A	I	Ash and non-combustible material following incineration	a) 14.8 MBq b) 4.02	Co 60 Cs 137 Mn 54 Zn 65	Data not available	Nuclear industry	Return of waste following incineration	Road Rail Sea	Sweden Germany
Sweden	A	I	Ash and non-combustible material following incineration	a)29.3 MBq b)2.422	Co 60 Cs 137 Mn 54 Zn 65	Data not available	Nuclear industry	Return of waste following incineration	Road Rail Sea	Sweden Germany
Sweden	A	I	Ash and non-combustible material following incineration	a)2.17 MBq b)1.25	Co 60 Cs 137 Mn 54 Zn 65	Data not available	Nuclear industry	Return of waste following incineration	Road Rail Sea	Sweden Germany
Sweden	A	I	Ash and non-combustible material following incineration	a)10.07 MBq b)2.48	Co 60 Cs 137 Mn 54 Zn 65	Data not available	Nuclear industry	Return of waste following incineration	Road Rail Sea	Sweden Germany
Sweden	A	I	Ash and non-combustible material following incineration	a)3.81 MBq b)1.14	Co 60 Cs 137 Mn 54 Zn 65	Data not available	Nuclear industry	Return of waste following incineration	Road Rail Sea	Sweden Germany
Sweden	A	I	Ash and non-combustible material following incineration	a)8.31 MBq b)2.09	Co 60 Cs 137 Mn 54 Zn 65	Data not available	Nuclear industry	Return of waste following incineration	Road Rail Sea	Sweden Germany
Sweden	A	I	Ash and non-combustible material following incineration	a)6.31 MBq b)2.22	Co 60 Cs 137 Mn 54 Zn 65	Data not available	Nuclear industry	Return of waste following incineration	Road Rail Sea	Sweden Germany

Member State authorising the shipment	Type of shipment A <sup>1</sup> B <sup>2</sup> C <sup>3</sup> D <sup>4</sup>	Shipment authorised per multiple authorisation/number of shipments (M/n); shipment individually authorised (I)	Nature of the waste and physico-chemical characteristics of the waste	Total activity of the authorised shipment(s) <sup>5,6</sup> (GBq) a)alpha b)beta/gamma	Main radionuclides	Maximum activity per package <sup>6,7</sup> (GBq) a)alpha b)beta/gamma	Type of activity giving raise to the waste	Purpose of the shipment	Mode(s) of transport	Ordered list of countries involved
Sweden	A	I	Ash and non-combustible material following incineration	a)3.01 MBq b)2.23	Co 60 Cs 137 Mn 54 Zn 65	Data not available	Nuclear industry	Return of waste following incineration	Road Rail Sea	Sweden Germany
Sweden	A	I	Ash and non-combustible material following incineration	a)32 MBq b)9.25	Co 60 Cs 137 Mn 54 Zn 65	Data not available	Nuclear industry	Return of waste following incineration	Road Rail Sea	Sweden Germany
Sweden	A	I	Ash and non-combustible material following incineration	a)17.0 MBq b)3.62	Co 60 Cs 137 Mn 54 Zn 65	Data not available	Nuclear industry	Return of waste following incineration	Road Rail Sea	Sweden Germany
Sweden	A	I	Ash and non-combustible material following incineration	a)28.3 MBq b)9.5	Co 60 Cs 137 Mn 54 Zn 65	Data not available	Nuclear industry	Return of waste following incineration	Road Rail Sea	Sweden Germany
Sweden	A	I	Ash and non-combustible material following incineration	a)3.33 MBq b)1.8	Co 60 Cs 137 Mn 54 Zn 65	Data not available	Nuclear industry	Return of waste following incineration	Road Rail Sea	Sweden Germany
Sweden	A	I	Ash and non-combustible material following incineration	a)6.53 MBq b)5.19	Co 60 Cs 137 Mn 54 Zn 65	Data not available	Nuclear industry	Return of waste following incineration	Road Rail Sea	Sweden Germany

Member State authorising the shipment	Type of shipment A <sup>1</sup> B <sup>2</sup> C <sup>3</sup> D <sup>4</sup>	Shipment authorised per multiple authorisation/number of shipments (M/n); shipment individually authorised (I)	Nature of the waste and physico-chemical characteristics of the waste	Total activity of the authorised shipment(s) <sup>5,6</sup> (GBq) a)alpha b)beta/gamma	Main radionuclides	Maximum activity per package <sup>6,7</sup> (GBq) a)alpha b)beta/gamma	Type of activity giving raise to the waste	Purpose of the shipment	Mode(s) of transport	Ordered list of countries involved
Sweden	A	I	Ash and non-combustible material following incineration	a)7.91 MBq b)7.44	Co 60 Cs 137 Mn 54 Zn 65	Data not available	Nuclear industry	Return of waste following incineration	Road Rail Sea	Sweden Germany
Sweden	A	I	Ash and non-combustible material following incineration	a)5.58 MBq b)3.19	Co 60 Cs 137 Mn 54 Zn 65	Data not available	Nuclear industry	Return of waste following incineration	Road Rail Sea	Sweden Germany
Sweden	A	I	Ash and non-combustible material following incineration	a)0.118 MBq b)22 MBq	Co 60 Cs 137 Mn 54 Zn 65	Data not available	Nuclear industry	Return of waste following incineration	Road Rail Sea	Sweden Germany
Sweden	A	I	Ash and non-combustible material following incineration	a)0.089 MBq b)56 MBq	Co 60 Cs 137 Mn 54 Zn 65	Data not available	Nuclear industry	Return of waste following incineration	Road Rail Sea	Sweden Germany
Sweden	A	I		a) b) 0.460	Co 60 Cs 137 Mn 54 Zn 65	Data not available	Nuclear industry	Return of waste following incineration	Road Rail Sea	Sweden Germany
Sweden	A	I	Metal	b) 300	Co 60 Co 58 Mn 54 Co 57	b) 150	Nuclear industry Material testing	Return of sample to the owner	Road Sea	Sweden Finland



## **PART B - INFORMATION ON THE SITUATION WITH REGARD TO SHIPMENTS WITHIN THE TERRITORY OF INDIVIDUAL MEMBER STATES (ARTICLE 18, SECOND PARAGRAPH OF DIRECTIVE 92/3/EURATOM)**

### **GENERAL**

Article 18 second paragraph of the Directive requires the Member States to supplement their reports on the implementation of the Directive with information on the situation with regard to shipments within their respective territories. The following information was provided by Member States for the preparation of the present report covering the period 1994-1995. For Austria, Finland and Sweden, the information covers only 1995. The information has been supplemented, where considered useful, with the information already given in the first report prepared by the Commission on the application of the Directive 92/3/Euratom (COM(95) 192/final).

In the period covered by the report there have not been any accidents involving shipments of radioactive waste that led to a significant release of radioactive substances to the environment.

### **BELGIUM**

#### **\* Authorities authorising internal shipments**

The Dienst voor Bescherming tegen Ioniserende Stralingen (DBIS) van het Ministerie van Sociale Zaken, Volksgezondheid en Leefmilieu/Service de Protection contre les rayonnements ionisants du Ministère des Affaires Sociales, de la Santé Publique et de l'Environnement (Service Protection against Ionising Radiation of the Ministry for Social Affairs, Public Health and Environment) delivers the authorisations for executing the transport. The authorisations for transport are delivered directly to the carrier.

The Organisme National des Déchets Radioactifs et des matières Fissiles/Nationale Instelling voor het Beheer van Radioactief Afval en Splijtstoffen ONDRAF/NIRAS (National Agency for Radioactive Waste and Enriched Fissile Materials) is responsible for the management of radioactive waste in Belgium. NIRAS/ONDRAF orders the carrier to carry out the shipments. Such shipments are carried out only with the expressed approval of NIRAS/ONDRAF.

#### **\* National regulatory laws or regulations governing internal shipments**

The shipments are regulated by the Royal Decree of 30 March 1981 on the establishment and operation of the National Agency for Radioactive Waste and Enriched Fissile Materials, as modified by a Royal Decree of 16 October 1991.

#### **\* Organisations carrying out the shipments**

According to the above-mentioned Royal Decree, NIRAS/ONDRAF is in charge of the organisation of transport of radioactive waste from the sites of the individual producers. The Royal Decree specifies that this duty can be carried out directly or by contractors. The transport of radioactive waste in 1994 and 1995 was commissioned to TRANSNUBEL and to TRANSRAD.

\* Modes of transport used

All transport operations were affected by road, most of them using 20 feet ISO-containers or 40 feet ISO-containers in combination with adequate packagings such as type A and type B.

Dedicated containers (TNB 167, TNB 178) were used for waste with high dose rate.

\* Nature of the waste transported internally

Non-conditioned waste

- Solid and liquid radioactive waste of low, medium and high activity (alpha, beta, gamma)
- Waste from dismantling
- Disused sources

Conditioned waste

- Waste arising from the conditioning of the above-mentioned non-conditioned waste; waste conditioned in the nuclear power stations of Doel and Tihange. Conditioned waste is enclosed in a bitumen or concrete matrix.

\* Information on internal shipments

In 1994, 349 shipments were carried out involving 2026 m<sup>3</sup> of waste with a total activity of 5.3 x 10<sup>5</sup> GBq.

In 1995, 420 shipments were carried out involving 2033 m<sup>3</sup> of waste with a total activity of 4.9 x 10<sup>5</sup> GBq.

## DENMARK

\* General information

Only waste from the medical, industrial and research related uses of radionuclides gives rise to national transfers of radioactive waste. The only place in Denmark where radioactive waste can be stored is at Risø National Laboratory, where an arrangement covering interim storage of low and intermediate level waste has been in operation since the late 1950s. This arrangement will be maintained until decisions are made concerning the final disposal of radioactive waste in Denmark. All waste that cannot be disposed of or left to decay where it is produced must thus be shipped to Risø for storage. (For sealed sources only the holder may also have the option of returning them to the manufacturer).

Danish regulations do not make such transfers of waste an activity requiring reporting by the producer of the waste. Risø is required to maintain records of all transfers of waste received, but only the yearly amounts need be reported to the authorities. In relation to the producers these operations are treated on a par with other procedures involving radionuclides, which in this context means that every person holding a licence to possess, use, store or transport radioactive substances is responsible for the safe handling and disposal of any radioactive waste arising from the licensed activity.

\* Information on internal shipments

In 1994 4.8 t of radioactive waste was transferred to Risø from off-site sources for storage. This amount corresponds to about twenty 200 liter storage-drums. This waste contained less than 70 GBq of radionuclides with half-lives greater than 1 year (Tritium not included). In addition to this less than 13160 GBq of Iridium-192 in used gamma-radiography-sources were received.

In 1995 4.4 t of radwaste was transferred to Risø from off-site sources for storage. This amount corresponds to about twenty 200 liter storage drums. This waste contained less than 720 GBq of radionuclides with half-lives longer than 1 year (Tritium not included). In addition to this less than 12100 GBq of Iridium-192 in used gamma-radiography-sources were received.

## GERMANY

\* General information

At present, radioactive waste in Germany comes under one of three categories:

- Waste from the operation of nuclear power stations and facilities of the nuclear fuel cycle
- Waste from major nuclear research institutions
- Waste from the use of radioactive materials in industry and nuclear medicine.

Radioactive waste arising from the operation of nuclear power stations and from nuclear fuel cycle facilities is mainly collected, pre-treated and conditioned on site. The conditioned radioactive waste is transported to intermediate storage facilities within the Federal Republic of Germany, at Gorleben and at the EVU (electricity supply industries) storage facility in Mitterteich. Since 13 January 1994, waste is transferred to the Morsleben disposal facility for radioactive waste (Endlager für radioactive Abfälle Morsleben-ERAM).

In the major nuclear research institutions, radioactive waste is treated and placed in intermediate storage on site and not transported.

Land-run collection centers are available for radioactive waste from industry and nuclear medicine. In 1994/1995 the amount of conditioned radioactive waste from industry and nuclear medicine was about 350 m<sup>3</sup>.

\* Organisations carrying out the shipments

Transport of radioactive waste from nuclear power stations and nuclear fuel cycle facilities was carried out exclusively by the Deutsche Bahn AG. Transport was mainly by rail, with recourse to road connections only in the case of facilities with no rail connection. Compliance with requirements for the transport of radioactive waste was monitored by the competent authorities, the Eisenbahn-Bundesamt/EBA (Federal Office for Railways) for rail transport, the Länder authorities for road transport. Packages of radioactive waste must undergo product assurance before being used for intermediate storage or disposal. This is carried out either by the competent technical inspection authorities on the basis of test schedules or of sample checks.

### \* Main disposal or storage sites

Intermediate storage facilities exist in Gorleben and in Mitterteich which are used for radioactive waste from the operation of installations of the nuclear fuel cycle.

The Endlager für radioactive Abfälle Morsleben – ERAM, that was in operation in the former German Democratic Republic, received the status of federal disposal facility. This facility ensures the final disposal in a deep geological salt formation of radioactive waste from the entire Federal Republic. According to the present authorisation, it is foreseen that in ERAM 40 000 m<sup>3</sup> of radioactive waste of low and medium activity will be received and disposed of up to June 2000. The figure of 40 000 m<sup>3</sup> includes about 10 000 m<sup>3</sup> of solid low activity radioactive waste and sources, with a beta/gamma activity of about 30 TBq already delivered to ERAM from January 1994 up to December 1996.

An analysis of the potential radiological impact of the transport of radioactive waste to ERAM has been performed by the Gesellschaft für Anlagen – und Reaktorsicherheit – GRS at the request of the Federal Ministry for Environment, Nature Protection and Nuclear Safety – BMU. The analysis includes the potential exposure to ionising radiation both of workers and of members of the public.

### \* Laws or regulations governing the shipments

The transport operations of radioactive waste must comply with the transport regulations as well as with the legal nuclear regulations. These include the “Gesetz über die Beförderung gefährlicher Güter” (law on the transport of dangerous goods), the Atomgesetz – AtG (nuclear law) and the derived regulations such as the Gefahrgutverordnung Strasse - GGVS (regulation on transport of dangerous goods by road), the Strahlenschutzverordnung – StrlSchV (regulation on radiation protection), etc.

### \* Information on internal shipments

In 1994/1995, the following shipments took place to interim facilities and to the disposal facility:

	shipments 1994	shipments 1995
Gorleben	35	26
Mitterteich	25	21
Morsleben	90	259

In 1994/1995 less than two hundred shipments of radioactive waste from industry and nuclear medicine to the collection points took place.

## SPAIN

### \* General information

Spent fuel from nuclear power stations is stored in their own on-site cooling ponds and is therefore not the subject of shipments, except in the case of Vandellós I, from where spent fuel is sent to France for reprocessing, and is therefore not a waste in terms of the Directive, the last shipment took place at the end of 1994.

As regards wastes of medium and low activity, the Empresa Nacional de Residuos Radioactivos, S.A. (National Agency for Radioactive Waste) ENRESA has established contracts with the producers in the nuclear installations and other facilities, which use radioactive substances. The producers must fulfil

certain acceptance criteria for waste established by ENRESA and approved by the government. Compliance with these criteria is verified by ENRESA itself.

As at 31 December 1995 there were more than 400 non-nuclear installations in Spain with contracts for the disposal of waste with ENRESA. These installations are distributed widely throughout the country. There are a total of 13 nuclear installations: 10 nuclear power stations, based at 7 separate sites, a plant for producing uranium concentrates, a research centre and a fuel fabrication facility.

\* Authority authorising internal shipments

Authorisations as regards shipments of radioactive waste within Spain are delivered by the Dirección General de la Energía (Directorate General for Energy).

\* National laws or regulations governing internal shipments

The shipments are governed by the Ley 25/1964 sobre Energía Nuclear (law 25/1964 on Nuclear Energy) and the Reglamento Nacional de Transporte de Mercancías Peligrosas por Carretera (National Regulation on Transport of Dangerous Goods by Road).

\* Organisations carrying out the shipments

Shipments of radioactive waste within Spain are carried out by ENRESA.

\* Modes of transport used

The transport of wastes within Spain is carried out by road, either by owned or contracted carriers, complying in all cases with the national Regulation on the Transport of Dangerous Goods by Road.

Wastes conditioned in accordance with the acceptance criteria already mentioned are transported to the El Cabril Centre for the conditioning of wastes of low and medium activity, which is situated in Córdoba province and is owned by ENRESA.

The government receives on a monthly basis a statement of the transfers to be effected with an indication of the dates, and the characteristics, origin and quantities of the wastes. Any incident which may occur during the transfer must also be communicated.

The wastes transferred from the non-nuclear installations to the storage centre are mixed solids, aqueous liquids, organic wastes and sealed sources.

\* Information on internal shipments

From non-nuclear installations there were 52 shipments with a total volume of 227 m<sup>3</sup> and an activity of 2 051 GBq in 1994. In 1995 there were 62 shipments, with a total volume of 224 m<sup>3</sup> and a total activity of 47 015 GBq. The reason for the increase in activity was the shipment of Cs-137 sources with a total activity of 45 800 GBq.

The wastes sent from the nuclear installations to the storage centre are mixed solids, concentrated resins in cement matrices and supercompacted slabs. In 1994 there was a total of 188 shipments, with a total volume of 1 991 m<sup>3</sup> and with a total activity of 9 900 GBq. In 1995 there were 251 shipments with a total volume of 2 092 m<sup>3</sup> with a total activity of 19 100 GBq.

## FRANCE

### \* General information

Responsibility for the transport of radioactive waste rests either with waste producers or with the Agence Nationale pour la Gestion des Déchets Radioactifs (the national agency for radioactive waste management) ANDRA, one of whose tasks is to operate surface storage installations.

There are two categories of producer:

- large producers (EDF, COGEMA, CEA and all the undertakings involved in the different stages of the nuclear fuel cycle). Every year approximately 40 000 packages are shipped, with a total volume of about 25 000 cubic metres. The waste is shipped either by road or rail, and
- small producers (hospitals, research centres), of which there are about 800. The annual volume of waste produced is about 700 cubic metres, which corresponds to 5 000 packages.

The low and intermediate-level waste shipped to the storage facilities consists of technological wastes (gloves, plastics, metal parts, etc.) or process wastes (ion exchange resins, filters, etc.). It is placed in metal drums, in concrete canisters or containers, or in metal containers. The packages are prepared by the producers in accordance with specifications which have to be drawn up by ANDRA. These specifications, which take into account the safety regulations for storage and plant management, are known to the national safety authority, which is the Ministry of Industry's Directorate for the Safety of Nuclear Installations.

In order to ensure that the packages meet the specifications, ANDRA carries out checks during manufacture and rigorous testing (destructive or non-destructive) after delivery to the storage facilities.

All waste shippers are subject to annual approval by ANDRA. This approval relates both to staff and to transport vehicles. In addition, random checks are regularly carried out in order to determine whether shippers are complying with all the regulations.

The main storage sites are at La Manche and L'Aube. The La Manche site ceased receiving radioactive waste in 1994.

### \* Information on internal shipments

Radioactive Waste shipments on the French territory involved in 1994 approximately 1300 road vehicles and 300 railway wagons, with an approximate volume of 23 000 cubic metres. In 1995 approximately 626 road vehicles and 410 railways wagons, with an approximate volume of 17 500 cubic metres.

## GREECE

Greece has no disposal sites for radioactive waste. No internal shipments took place during 1994 and 1995.

## **IRELAND**

### \* Authorities authorising internal shipments

Authorisation as regards shipments of radioactive waste within Ireland are delivered by the Radiological Protection Institute of Ireland (RPII).

### \* National laws or regulations governing internal shipments

The shipments are governed by the Radiological Protection Act, 1991 (General Control of Radioactive Substances, Nuclear Devices and Irradiating Apparatus) Order, 1993 (S.I. N. 151 of 1993).

### \* Organisations responsible for carrying out the shipments

Irish law provides for the control by licence, to be obtained from the RPII, of activities including the transportation of radioactive substances. It is the licensee who is responsible for carrying out these shipments. Shipments are carried out by road. The sites of storage belong to the holders of the radioactive waste. At present, Ireland does not have a national storage site for radioactive waste.

### \* Nature of the waste shipped

The waste shipped is made of laboratory disposables, very mildly contaminated with iodine-125 and tritium. In the period covered by the report, it included a disused industrial gauge incorporating a cesium-137 sealed source.

### \* Information on internal shipments

In the years 1994-1995 there have been three shipments of radioactive waste, with a total volume of 9 cubic metres and a total activity of 3.73 GBq.

## **ITALY**

### \* Authorities authorising internal shipments

Shipments of radioactive waste within the Italian territory are authorised either by the Ministero dell'Industria, del Commercio e dell'Artigianato, Direzione Generale Energia e Risorse Minerarie (Ministry of Industry, Trade and Craftsmanship, Directorate General Energy and Mines Resources), or by the local authorities according to the characteristics of the waste.

### \* National laws or regulations governing internal shipments

The shipments are governed by the Decreto legislativo (legislative Decree) of 17 March 1995 n° 230 and by the Guida Tecnica (Technical Guide) n° 26 issued by the Agenzia nazionale per le Protezione dell'Ambiente (National Agency for Environment Protection) ANPA.

### \* Organisations carrying out the shipments

The shipments are carried out by the organisations responsible for the management of the storage sites distributed on the national territory and by carriers licensed for the transport of radioactive materials.

### \* Nature of the waste shipped and information on internal shipments

Shipments within Italy mainly involve three types of waste:

- low level waste from the nuclear fuel cycle (cemented ashes). Of such waste, approximately 15.4 cubic metres with a total activity of 31 GBq have been shipped in 1994, and approximately 4.4 cubic metres with a total activity of 5.2 GBq have been shipped in 1995;
- disused sealed sources of cobalt-60 and cesium-137. Four packages with a total activity of 180200 GBq, and four packages with a total activity of 141 GBq were shipped in 1994 and 1995 respectively;
- low level waste from medical diagnostic, industrial or research practices. Approximately 1800 cubic metres with a total activity of 16000 GBq and 1380 cubic metres with a total activity of 7800 GBq have been shipped in 1994 and 1995 respectively.

\* Main disposal or storage sites

These wastes are in most cases transported to a few collection centres operated by companies such as Nucleco (Roma), Protex (Forli), Cemerad (Taranto) and Campoverde (Milano).

\* Modes of transport used

Shipments are normally carried out by road or rail for the waste from the nuclear fuel cycle and by road for the other waste.

## LUXEMBOURG

Luxembourg has no facilities for treatment, conditioning or final storage of radioactive waste. For this reason, no internal shipments took place during 1994 and 1995

## THE NETHERLANDS

\* Authority authorising internal shipments

Internal shipments are authorised by the Ministerie van Volkshuisvesting, Ruimtelijke Ordening en Milieubeheer (Ministry for Housing, Planning and the Environment).

\* National laws or regulations governing internal shipments

Shipments are governed by the Kernenergie-wet; Besluit vervoer splijtstoffen, ertsen en radioactieve stoffen Stb. 1969, 405 (Nuclear Energy Act; Decree on Transport of Fissile Materials, Ores and Radioactive substances); Decree of 31 August 1987 designating COVRA as a collection service, Staatscourant 176).

\* Organisation responsible for carrying out the shipments

The Centrale Organisatie voor Radioactief Afval (Central Organisation for Radioactive Waste) COVRA is responsible for carrying out the shipments.

\* Modes of transport used

Shipments are carried out by road.



\* Main disposal or storage sites

The main disposal and storage sites are: Spanjeweg 1 (Docknumber 8601), Industrierrein Vlissingen-Oost.

\* Nature of the waste shipped

Waste transported within the Netherlands are generally unconditioned waste from laboratories and hospitals and conditioned waste from nuclear facilities.

\* Information on internal shipments

In 1994, 133 shipments were carried out involving 270 m<sup>3</sup> of unconditioned waste and 280 m<sup>3</sup> of conditioned waste with a total activity of 172700 GBq.

In 1995, 105 shipments were carried out involving 280 m<sup>3</sup> of unconditioned waste and 100 m<sup>3</sup> of conditioned waste with a total activity of 73500 GBq.

## AUSTRIA

\* General information

According to Section 13(2) of the Strahlenschutzgesetz (Radiation Protection Act) "authorisation is not required for any handling involved in the transport of radioactive substances (including radioactive waste) on condition that such handling takes place in accordance with the relevant legal provisions and the transport is by road, rail, post, ship or air". When required under the relevant transport regulations (e.g. in the case of fissile materials), authorisation is given by the Bundesministerium für wissenschaft, Verkehr und Kunst (Federal Ministry of Science, Transport and the Arts) or by the head of the provincial government concerned.

Under a decree issued by the Gesundheitsressort (Ministry of Health) on 16 April 1982, the party giving rise to radioactive waste is instructed by the relevant approval body in each individual case by means of a decision as to how the radioactive waste should be managed and disposed of (allowing radioactivity to decay below the exemption levels followed by disposal as "non-active material", or shipment to the national research centre in Seibersdorf).

\* National laws or regulations governing internal shipments

Shipments are governed by:

- Federal Act of 23 February 1997 (BGBl. No 209) on the transport of dangerous goods by road amending the Motor Vehicle Act 1967 and the Traffic Regulations 1960 (GGst), last amended by a Federal Act (BGBl. No 430/1995);
- European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), BGBl. No 522/1973, last amended by a Federal Act (BGBl. No 357/1995);
- Regulations concerning the International Carriage of Dangerous Goods by Rail (RID), in Annex I to Appendix B (uniform rules concerning the Contract for International Carriage of Goods by Rail (CIM)) to the Convention concerning International Carriage by Rail (COTIF), BGBl. No 137/1969, last amended by a Federal Act (BGBl. No 357/1995)

\* Modes of transport used

Shipments are carried out by road or rail.

\* Main disposal or storage sites

The Österreichische Forschungszentrum Seibersdorf Ges. m.b.H (ÖFZS) (Seibersdorf national research centre) has incineration, water purification, (high-pressure) compaction and drum cementing equipment approved under radiation protection provisions. The interim storage facility, that has also been approved under radiation protection provisions, is able to store 15 000 drums of 200-litre capacity.

In addition, almost all large nuclear medicine departments in hospitals have storage facilities that enable liquid radioactive waste to decay.

Hospital wastes that cannot be disposed of as "non-active" waste are always taken to the ÖFZS for disposal.

\* Nature of the waste shipped

The wastes transported are low- to intermediate-level waste from the medical, research, trade and industry sectors.

\* Information on internal shipments

241 m<sup>3</sup> of waste were shipped to the ÖFZS in 1994, and 130 m<sup>3</sup> in 1995. The increased quantity recorded in 1994 resulted from decontamination work at the old general hospital in Vienna and does not represent a trend. In fact, arisings generally show a downward trend.

## PORTUGAL

\* Authority authorising internal shipments

For all shipments of radioactive waste the Competent Authority was the General Directorate for the Health of the Ministry of Health.

\* National laws or regulations governing internal shipments

The supervision and control is subject to the Decree Law n°348/89 of 12 October 1989, laying down the basic protection measures of all activities involving radiological risk comprising the transport of all radioactive materials, and the Regulatory Law n°9/90 of 19 April 1990, which is the transposition into the Portuguese Law of the Directive 80/836/Euratom.

\* Organisations carrying out the shipments

All shipments were carried out by the Department of Radiological Protection and Safety (DPSR) of the General Directorate for the Environment, except some small spent sources shipped by the users when authorised for that.

\* Modes of transport used

All shipments were made by road.

\* Main disposal or storage sites

Waste that could not be disposed, incinerated or left to decay where it was produced was shipped to DPSR where a central facility for interim storage of radioactive waste has been in operation since 1960's. This Interim Storage Facility is expected to be maintained in operation for the next 20 years.

\* Nature of the waste shipped

In Portugal only the utilisation of radioisotopes in industry, medicine and research gives rise to internal shipments of radioactive waste.

\* Information on internal shipments

- a) 62 internal shipments.
- b) 9 m<sup>3</sup> (of equivalent conditioned waste).
- c) 70 GBq

## FINLAND

\* Authority authorising internal shipments

The Radiation and Nuclear Safety Authority (STUK) authorises internal shipments of nuclear waste. Special authorisation is not required for other internal shipments of radioactive waste if the sender has a licence for the use and possession of radioactive materials. If this is not the case, approval can be sought from the Radiation and Nuclear Safety Authority.

\* National laws or regulations governing internal shipments

Shipments are governed by radiation and nuclear energy provisions. Transport must also comply with the provisions on the transport of dangerous substances.

\* Organisation responsible for carrying out the shipments

Shipments are the responsibility of the sender and the person responsible for transport.

\* Modes of transport used

Shipments are by road.

\* Main disposal or storage sites

In the case of small scale waste resulting from transformation for industrial and research purposes, there are government disposal or storage sites. Each nuclear power plant site has its own on-site facilities for the storage and final disposal of low and intermediate level waste and interim storage for spent fuel.

\* Nature of the waste shipped

The vast majority of wastes are sealed sources from industry and research.

\* Information on internal shipments

There were 23 shipments of waste (44 packages) to the disposal site of the Finnish Centre for Radiation and Nuclear Safety in 1994 and 18 shipments (32 packages) in 1995.

The volume of the waste was approximately 2 m<sup>3</sup> in 1994 and approximately 1 m<sup>3</sup> in 1995.

The activity of the waste shipped to the disposal site was approximately 3.6 TBq in 1994 and approximately 0.70 TBq in 1995.

There were no internal shipments of nuclear waste outside the area of the nuclear plant.

## SWEDEN

\* General information

The majority of shipments within Sweden are between nuclear power stations, Studsviks AB's treatment plants near Studsvik, the SFR disposal site for low-level and intermediate-level waste near Forsmark, and the CLAB interim storage site for spent nuclear fuel and certain intermediate-level and high-level waste in Oskarshamn, which are all on the coast. Most consignments use a special transport system consisting of purpose-built packagings, vehicles and a dedicated vessel (M/S Sigyn). Svensk Kärnbränslehantering AB (SKB), a company which is jointly owned by the Swedish nuclear power undertakings, is responsible for transport operations.

Conditioned waste from the Ringhals plant, the Barsebäck plant, the Oskarshamn plant and Studsvik is sent by ship (M/S Sigyn) to the SFR, Forsmark.

Core components with high specific activity are sent by ship from the nuclear power stations to the CLAB interim storage site in Oskarshamn.

Large components with low specific activity from nuclear power stations are sent to the melting plant in Studsvik either by ship (M/S Sigyn) or by road

Combustible waste from nuclear power stations and other sources (e.g. hospitals, universities) is sent to Studsvik by road.

\* Authority authorising internal shipments

The Swedish Radiation Protection Institute authorises shipments of radioactive waste which do not consist of high-level waste from reprocessing or nuclear fissile material.

The Swedish Nuclear Power Inspectorate authorises consignments of radioactive waste consisting of high-level waste from reprocessing or nuclear fissile material.

\* National laws or regulations governing internal shipments

Shipments are governed by the Radiation Protection Act (1988:229) and the Nuclear Activities Act (1984:3).

\* Main disposal or storage sites

The most important sites in Sweden for the storage of radioactive waste are the CLAB facility in Oskarshamn (for interim storage of spent nuclear fuel and certain medium-activity or high-activity

components) and the SFR in Forsmark (disposal site for conditioned low-level and intermediate-level waste from nuclear plants and medical and research installations).

In Studsvik, radioactive waste is stored before volume-reduction treatment (incineration or melting).

\* Nature of the waste shipped

Most waste transported within the country is conditioned radioactive waste from nuclear plants, which is being sent for final disposal.

In addition, combustible materials (protective clothing, protective footwear, gloves, rags, etc.) are sent for incineration, as well as equipment and components with induced or non-fixed activity for cleaning and/or melting.

Radioactive waste from medical, research or technical installations consists mainly of discarded radiation sources, but also includes combustible waste.

\* Information on internal shipments

During the years 1994 and 1995:

In 1995 there were 20 shipments of conditioned radioactive waste from Ringhals, Barsebäck, Oskarshamn and Studsvik to the SFR in Forsmark, by M/S Sigyn. Shipments from Forsmark to the SFR went by road. For a total volume of approximately 3 000 m<sup>3</sup> and a total activity of approximately 240 TBq.

In addition, spent control rods were transported from Ringhals to the CLAB (two shipments), combustible waste was sent from Barsebäck to Studsvik (two shipments), scrap for melting down was transported to Studsvik (three shipments) and in four cases radioactive residues were shipped back from the conditioning plant to the nuclear power stations.

Studsvik, received several types of radioactive waste for conditioning from hospitals, industry, etc. as well as radiation sources for scrapping. Most of these shipments went by road.

## UNITED KINGDOM

\* Authority authorising internal shipments

Within the UK the following authorities are currently empowered to authorise internal shipments of radioactive waste:

The Environment Agency for shipments in England and Wales.

The Scottish Environment Protection Agency for shipments in Scotland; and

The Alkali and Radiochemical Inspectorate of the Environment and Heritage Service (Northern Ireland).

For the period of this report the competent authorities were Her Majesty's Inspectorate of Pollution for England and Wales, Her Majesty's Industrial Pollution Inspectorate for Scotland and the Alkali and Radiochemical Inspectorate of the Department of the Environment for Northern Ireland.

#### \* National laws or regulations governing internal shipments

The accumulation and disposal of radioactive waste in the United Kingdom (UK) is regulated by the Radioactive Substances Act 1993 (RSA 93). For the purposes of RSA 93, the transfer of radioactive waste from any site (nuclear industry or other) is treated as a 'disposal' from that site. Such an authorisation may be specific to a particular disposal, or cover a number of disposals over a defined period of time.

Exemption Orders (secondary legislation) provide that the provisions of RSA 93 in relation to authorisation for disposal of radioactive waste do not apply to certain categories of radioactive waste of a very low activity. This is the case where the radioactive waste in question is (a) a solid, other than a closed source, which is substantially insoluble in water, the activity of which, when it becomes waste, does not exceed  $0.4 \text{ Bqg}^{-1}$ ; (b) an organic liquid which is radioactive solely because of the presence of carbon-14 or tritium (or both), the activity of which when it becomes waste does not exceed  $4 \text{ Bqml}^{-1}$ ; or (c) gas containing one or more radionuclides none of which have a half life greater than 100 seconds. In addition, certain other wastes are exempted from the need for authorisation under RSA 93 by exemption orders.

#### \* Organisations responsible for carrying out the shipments

Within the UK no single agency is responsible for the shipment of waste. Responsibility for the transport of the waste lies with the waste producer, who may use suitable contractors for this purpose.

Shipments of radioactive waste within the UK are required to comply with applicable national regulations and codes of practice for the transport of radioactive materials. Responsibility for ensuring compliance with these requirements rests with the Department of the Environment, Transport and the Regions (the Environment and Heritage Service in Northern Ireland).

#### \* Modes of transport used

Internal shipments of radioactive waste within the UK are undertaken by road transport or rail transport.

#### \* Main disposal or storage sites

The principal disposal site within the UK for low-level radioactive waste is operated by British Nuclear Fuels (BNFL) at Drigg in Cumbria.

Intermediate-level waste is normally stored at the point of generation or at a central storage facility operated by the United Kingdom Atomic Energy Authority (UKAEA) at Harwell, in Oxfordshire.

In addition a waste packaging facility is operated by Safeguard International at Harwell. This company packages radioactive waste from a number of producers, and sends these packages either to Drigg or to the UKAEA facility.

#### \* Nature of the waste shipped

The majority of radioactive waste transported internally within the UK comprises low-level waste from the nuclear industry. Smaller quantities of low-level waste are shipped from hospitals, universities, non-nuclear industry and research facilities. The waste is heterogeneous in nature, comprising contaminated protective clothing, building rubble, clinical waste, incinerator ash, etc.

The principal shipments of radioactive waste within the UK are from sites where the radioactive waste is produced to the disposal site operated by BNFL at Drigg in Cumbria. This site receives practically all UK disposals of low-level radioactive waste.

\* Information on internal shipments

The internal shipments effected in the UK during the years 1994 and 1995 are summarised in the following tables:

For England and Wales:

Year	1994	1995
No. of Consignments	2700	880
Volume (cubic metres)	26350	13400
Total Activity (GBq)	6900	6130

For Scotland:

Year	1994	1995
Volume (cubic metres)	880	860
Total Activity (GBq)	580	480
No. of Consignments (to Sellafield)	24	24
Volume (cubic metres)	7.3	7.6
Total Activity (TBq)	120	80

For Northern Ireland:

Year	1994	1995
No. of Consignments	16	13
Volume (cubic metres)	50	50
Total Activity (GBq)	3.5	3.5