Memorandum

Civil Nuclear Discharges into North European Waters

Report of Working Group I of CEC Project MARINA

N P McColl, A W van Weers and J R Cooper

NRPB-M173

National Radiological Protection Board

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Units

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Quantity	Unit and symbol	In other SI units	Old unit and symbol	Conversion factor
Exposure	-	$C\ kg^{-1}$	röntgen (R)	$1\ C\ kg^{-1} \sim 3876\ R$
Absorbed dose	gray (Gy)	$J\ kg^{-1}$	rad (rad)	1 Gy = 100 rad
Dose equivalent	sievert (Sv)	$J\ kg^{-1}$	rem (rem)	1 Sv = 100 rem
Activity	becquerel (Bq)	s^{-1}	curie (Ci)	$1\ Bq \sim 2.7\ 10^{-11}\ Ci$

CIVIL NUCLEAR DISCHARGES INTO NORTH EUROPEAN WATERS. REPORT OF WORKING GROUP I OF CEC PROJECT MARINA

N P McColl, A W van Weers* and J R Cooper

ABSTRACT

Project MARINA was a CEC initiative with the objective of evaluating the radiological impact of radionuclides in north European marine waters. The purpose of Working Group I of project MARINA was to compile data on routine releases of radionuclides from civil nuclear sites into these waters. Working Group I has collected and collated discharge data from a total of 72 sites which discharge either directly or indirectly into north European waters. The period covered is from the start of operations up to the end of 1984 for all sites and up to the end of 1986 for reprocessing plants. The sites comprise: 57 nuclear power stations, 3 nuclear fuel reprocessing plants, 2 fuel production plants, 2 uranium enrichment plants and 8 research establishments. Overall, this database consists of approximately 16,000 non-zero annual discharge figures for 44 radionuclides. The discharge data are presented in this report in tabular form, together with a description of how the database was assembled.

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FOREWORD

In February 1985, the Commission of the European Communities (CEC) Directorate General for Employment, Social Affairs and Education invited member states to participate in a new project to evaluate the radiological impact of radioactivity in northern European marine waters. The project was intended to provide regulatory authorities and other interested bodies with a perspective of the overall situation in these waters.

Member states nominated experts to participate in what then became known as project MARINA. In order to achieve its objective the Committee set up the following four working groups:

Working Group I	Civil nuclear site discharges
Working Group II	Environmental measurements and individual doses
Working Group III	Fisheries statistics
Working Group IV	Collective doses

The progress of the Committee was hampered by the diversion of a considerable amount of effort into work related to the Chernobyl accident in 1986. Nevertheless, the project MARINA Committee, through its working groups, has now assembled a considerable amount of information on the levels of radionuclides in northern European waters and has calculated the corresponding radiological impacts. The detailed results and conclusions of project MARINA's investigations are given in four working group reports, the present report and three others[1-3], and in papers presented at the project MARINA symposium in Bruges, in June 1989. This report is the one produced by Working Group I and has been compiled by N P McColl, A W van Weers, and J R Cooper for the group. The membership of Working Group I was as follows:

A W van Weers	The Netherlands (Rapporteur)
D Bachner	Federal Republic of Germany
L Baekelandt	Belgium
J R Cooper	UK
H Dahlgaard	Denmark
G Lopez-Perez	Spain
I McCaulay	Eire
N P McColl	UK
E Monard	Belgium

REFERENCES

1 Camplin, W C, and Aarkrog, A, Radioactivity in north European waters: Report of Working Group II of CEC project MARINA. Lowestoft, Ministry of Agriculture, Fisheries and Food, Directorate of Fisheries, Fisheries Research Data Report No. 16 (1989).

2 Hagel, P, Fish catches in north European Waters: Report of Working III of CEC project MARINA (to be published).

3 Charles, D, Jones, M, and Cooper, J R, The radiological impact on EC member states of routine liquid discharges into north European waters. Report of Working Group IV of CEC project MARINA. Chilton, NRPB-M172 (1989).

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1 INTRODUCTION AND TERMS OF REFERENCE FOR WORKING GROUP I

The objective of project MARINA was to estimate the radiological impact on the populations of member states of the European Community (CEC) of radionuclides in northern European waters. The sources of radionuclides considered include: liquid discharges from civil nuclear sites, solid waste disposals into northern European waters, natural radionuclides, fallout from Chernobyl and fallout from the atmospheric testing of nuclear weapons. The project was organised into four working groups. Working Group I was concerned with assembling a database of liquid discharges from nuclear sites which discharge either directly or indirectly into northern European waters. The information presented in this report is the discharge data used by Working Group IV in calculating the collective exposure of the EC population from civil nuclear discharges.

The terms of reference for Working Group I were agreed at the project MARINA meeting in Luxembourg in April 1986 and were as follows.

(1) Information will be gathered on discharges from all nuclear sites which discharge either directly or indirectly into northern European waters.

(2) Data will be collected on all such discharges up to and including those in 1984.

(3) Information on discharges from hospitals, radiopharmaceutical companies and military/defence establishments will not be specifically collected as these are likely to be difficult to quantify and, in any case, insignificant compared to other sources.

(4) Data on discharges of natural radionuclides from non-nuclear industry sites (eg, fertilizer plants) will not be collected.

Each member of the working group was asked to provide data on discharges from sites in their country. Information on discharges from other EC countries and non-EC countries was to be gathered from available sources including previously published compilations of discharge data (eg, reports of the Paris Commission).

At the June 1988 project MARINA meeting in Risø these terms of reference were amended slightly when it was agreed to include discharges from reprocessing plants up until the end of 1986. This decision was taken so that the most up to date data for the sites making the most significant discharges could be included in this report.

The discharge data are given in the appendix to this report and are held on computer file by the National Radiological Protection Board, UK.

2 SOURCES OF DISCHARGE INFORMATION

The principal source of discharge information was tabulated data provided by working group members[1]. This information covered discharges from forty-four nuclear sites in five of the EC countries and limited data relating to six nuclear power stations in Finland and Sweden. The data were drawn from reports produced either by the site operator (eg, annual discharge and monitoring reports

published by British Nuclear Fuels plc and the Central Electricity Generating Board in the United Kingdom) or by governmental bodies such as the State Institute of Public Health and Environmental Hygiene in the Netherlands and international organisations such as the United Nations Scientific Committee on the Effects of Atomic Radiation. Discharge data for five sites in Switzerland, together with a few data relating to releases from nuclear power stations in Spain which discharge via rivers into the northeast Atlantic, were provided by CEC. In the notes which accompany the tables of discharge data, reference is made to the original source of data where this information has been reported by working group members.

Since France did not participate in project MARINA, most discharge data for its nuclear power stations and the La Hague reprocessing plant were drawn directly from published reports. Details of discharges from La Hague up to 1982 were taken from a publication by the International Atomic Energy Agency[2]. CEC has published a series of reports which include discharges from French nuclear power stations in the period 1969–1980[3]. A report of the Paris Commission[4] details discharges in 1985 from a number of nuclear power stations not operational in the period covered by the CEC publications. These publications were used to compile a database of French discharges to the English Channel and the northeast Atlantic.

No data are available on discharges from nuclear power stations in the German Democratic Republic or the USSR. These sites are the Nord and Rheinsberg PWR power stations in the GDR and the Leningrad and Ignalia light water cooled graphite moderated reactors in the USSR. The effect of these omissions is considered to be minimal.

3 PROBLEMS ENCOUNTERED WITH DISCHARGE DATA

This section describes the problems encountered during the compilation of the discharge database. In the main these problems concerned an absence of nuclide specific information for some sites, particularly in the earlier years covered by this study. The measures taken to overcome these problems are described below. More details are given in the annotations to the discharge tables (see the appendix).

3.1 Belgium

Data for the nuclear power stations at Doel and Tihange were supplied complete in tabular form by the Belgium representatives to Working Group I. Estimates were required for early discharges from the nuclear research centre at Mol and these were based on published data for later years.

3.2 Federal Republic of Germany

The tabular data cover fourteen nuclear power stations, two nuclear research centres at Karlsruhe and Jülich and the NUKEM nuclear fuel production plant. The nuclear power station data provided to Working Group I were complete, with the exceptions of data on the early years of operation of Kahl, Lingen and Obrigheim,

which were either lacking or in the form of total activity discharged. However, a reference radionuclide composition which is used for site licensing purposes was provided to Working Group I by the Federal Republic of Germany's representative. This reference composition was applied to the total activity figure for the three sites where necessary. Where no data were available, the earliest data were taken to represent discharges in previous years.

The reference radionuclide composition was also used to represent the quantity 'fission and activation products' provided in the data for the Karlsruhe research centre. The start of discharges at Karlsruhe was estimated to coincide with the commissioning of an early research reactor at the site.

Discharges of total alpha emitters from the NUKEM nuclear fuel production plant (estimated to be mainly ^{234}U) were not provided for years prior to 1975. Discharges before 1975 were taken to be the same as those in 1975 and were estimated to begin in 1960 when the first German nuclear power station at Kahl commenced operation.

3.3 France

French data were drawn from a number of sources. La Hague discharge information was mainly taken from an IAEA publication or was provided by CEC but estimates were required for ^{14}C, ^{99}Tc, and ^{241}Pu releases. The estimated ^{14}C discharge rate was based on the expected concentration of ^{14}C in spent metal alloy (Magnox type) and oxide (PWR) fuel and estimates of fuel throughput, coupled with a comparison between the calculated ^{14}C throughput at Sellafield and observed ^{14}C discharges at Sellafield. The ^{99}Tc discharges given in the appendix include a published value for 1983 and estimates of discharges in earlier years based on historical environmental monitoring data and published discharges of other nuclides. The environmental monitoring data consist of ^{99}Tc concentrations measured in *fucus* seaweed close to the site over a number of years. The results show a distinct sustained increase in the concentration over the period from the mid-1970s up to 1983. Discharges of technetium before the mid-1970s are estimated from the overall trend in discharges observed for Cap de la Hague.

Discharges of ^{241}Pu were estimated from the data available on $^{238,239}Pu$* discharges combined with expected isotopic ratios of plutonium isotopes in spent oxide metal fuel.

Less data were available for the French nuclear power stations. Total activity discharges in the period 1969–1980 were taken from CEC publications which also reported radionuclide compositions for a few years. Average site specific compositions were derived and applied to years where only the total figures were available.

Information relating to a number of power stations operational only since 1980 (eg, Le Blayais) was only available in a report of the Paris Commission

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*The isotopes ^{239}Pu and ^{240}Pu are indistinguishable by alpha spectrometry and the ^{239}Pu totals may include a contribution from ^{240}Pu.

which details 1985 discharges. These values were taken to represent earlier discharges in the absence of other data.

3.4 The Netherlands

Four sites have been considered: two nuclear power stations at Dodewaard and Borssele, the research centre at Petten and the uranium enrichment plant at Almelo.

Discharge data for the nuclear power stations were taken from national reports and CEC publications. The radionuclide composition of discharges in early years was estimated from more recent data. It is noted that this might lead to some underestimation of the proportion of fission products in the waste because of improved fuel integrity in the more recent years.

Discharges of uranium from Almelo in years prior to 1979 were taken to be the annual average figures for the years for which data were available (1979–1985). The first discharges were assumed to occur in 1972 when the current authorisation came into effect.

3.5 Scandinavia (Denmark, Sweden and Finland)

The majority of data for the six Scandinavian nuclear power stations and the two research centres (Risø in Denmark and Studsvik in Sweden) were provided in tabular form by the Danish representative. Some estimates were required for the radionuclide composition of early power station discharges and of discharges of beta emitters* from Risø. These estimates were based on data available for later years supplemented by information provided by working group members.

3.6 Switzerland

Data were supplied on discharges from three nuclear power stations at Gösgen, Muhleberg and Beznau, and the EIR research centre at Würenlingen. The radionuclide compositions of early discharges were estimated from data for later years.

3.7 United Kingdom

Information covers discharges from sixteen nuclear power stations, (including the Winfrith site where a heavy water reactor is presently operated in addition to research laboratories); Dounreay and Sellafield, both fuel reprocessing and reactor operation sites; the research laboratories at Harwell; the uranium enrichment and fabrication facilities at Capenhurst and Springfields, respectively.

The majority of the nuclear power stations are operated by the Central Electricity Generating Board and published data are available for discharges since the early 1970s. Radionuclide composition estimates were applied to earlier discharges which were reported only as total activities released.

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*The terms total activity and total beta activity exclude the contribution from ^{3}H. Levels of ^{3}H are given separately.

Discharges from the reprocessing plant at Sellafield were mainly taken from published reports, with estimates being made for some early releases of some actinides and certain long-lived beta-emitting radionuclides (^{3}H, ^{14}C, ^{99}Tc and ^{129}I). The estimates of the early releases of isotopes of uranium, neptunium and curium were obtained by scaling to known discharges of plutonium and americium. Estimates of the early discharges of the above beta-emitting nuclides were agreed with the site operator and were based on lower plant throughput and fuel irradiation in early years, and changes in plant performance.

Discharges of some activation and fission products in early years were not known and a suitable basis for estimating these releases was not established. These nuclides are, however, included in the database to the extent of existing published data.

4 TRENDS IN DISCHARGES

4.1 General

Reprocessing plants are by far the main source of radionuclide releases. With the exception of ^{3}H discharges from nuclear plants, discharges from all other types of facilities are comparatively minor. Discharges of ^{3}H from power plants account for around 20% of the total ^{3}H discharges from all sites (Table 1).

4.2 Fuel reprocessing*

4.2.1 General

Nearly all of the alpha activity discharged up until the end of 1984 arises from reprocessing plants, and in particular from the reprocessing plant at Sellafield (Table 1). Important contributors to the total alpha activity are ^{239}Pu and ^{241}Am (Figure 1). Discharges from reprocessing plants also account for over 90% of the total beta activity discharged and nearly 90% of these reprocessing plant discharges are from Sellafield. Caesium radionuclides and ^{106}Ru are among the main contributors to the total beta discharges (Figure 1).

4.2.2 Sellafield

Sellafield has discharged a total of around 130 PBq of activity (excluding ^{3}H) from 1952 (the start of discharges) to 1986. The biggest contributor is ^{137}Cs, which represents 40.6% of this total. Discharges of ^{106}Ru, ^{241}Pu and $^{95}Zr/Nb$ contribute, respectively, 20.5%, 15.8% and 17.7%. The total alpha discharges from Sellafield up until the end of 1986 were around 1.3 PBq, of which ^{239}Pu contributes 52.5% and ^{241}Am contributes 41.3%.

Releases from Sellafield have not been constant over the years. Annual discharges of alpha activity peaked at around 170 TBq in 1973 but have since decreased (Figure 2). Annual discharges of total beta activity peaked in the mid-1970s but have also since declined (Figure 3). The changes in discharges of total beta activity are largely related to changes in the discharges of caesium

*Discharges from reprocessing plants up until the end of 1986 are considered, for all other sites only discharges up until the end of 1984 are taken into account.

radionuclides. Discharges of total alpha activity in 1986 were around 2.5% of their peak, 1973, value and discharges of total beta activity were around 1.3% of their peak, 1975, value.

4.2.3 La Hague

Reprocessing started at La Hague in 1965 and total discharges from this site (~8 PBq, excluding ^{3}H) up until the end of 1986 are considerably lower than those from Sellafield. Annual discharges of alpha emitters increased from 1965 onwards until they reached fairly constant levels in the early 1980s (Figure 4). Annual discharges of total beta emitters also increased until they reached fairly constant levels in the late 1970s (Figure 5). The information on the radionuclide composition of La Hague discharges is generally less detailed than that for Sellafield discharges. However, enough information is available to show that discharges from La Hague are dominated by ^{106}Ru which represents over half (55%) of the total discharges. This is in contrast to Sellafield where releases in the 1970s and early 1980s are dominated by ^{137}Cs.

It is worth noting with respect to the total alpha-emitter discharges that the presence of ^{241}Am has not been reported in the literature.

4.2.4 Dounreay

Discharges of both total alpha and total beta activity from Dounreay up to 1986 are much smaller than those from Sellafield (Table 1) and amounted to around 10 PBq. Discharges of $^{95}Zr/Nb$ represent 55% of this total, with ^{144}Ce contributing a further 17% and ^{106}Ru, 10%.

The composition of the alpha-emitter discharges from Dounreay has changed over the years. In 1970 alpha-emitter discharges peaked (Figure 6) due to reprocessing activities and both ^{239}Pu and ^{241}Am were discharged. Discharges fell during 1971 and 1972 and remained low until 1980 while major plant modifications were in progress. During the 1970s alpha-emitter discharges were mostly due to isotopes of uranium and plutonium. In 1980 reprocessing of plutonium-based fuel from the Prototype Fast Reactor commenced and the much higher throughput of plutonium gave rise to increased alpha-emitter discharges composed mainly of $^{238,239}Pu$ and ^{241}Am. Discharges of total beta activity were at their highest during the 1960s and early 1970s (Figure 7). The peaks in 1968 and 1973 arise from plant washout and decontamination procedures.

4.3 Power plants

The number of nuclear power stations contributing to discharges into northern European waters has increased steadily over the time period 1961–1984: Figure 8 illustrates this by showing the annual electricity production from nuclear power. Total annual ^{3}H discharges from power stations mirror the time course of the electricity production (Figure 9), the ^{3}H being largely derived from boron in the primary coolant of pressurised water reactors. Total discharges of alpha activity from power stations up to 1984 are insignificant when compared with those from reprocessing plants (Table 1). Total discharges of

beta activity excluding ^{3}H are similarly small. The time course of total beta-emitter discharges is shown in Figure 10 and the composition of these discharges up to 1984 is shown in Figure 11. The discharges of ^{60}Co and ^{55}Fe arise mainly from the steam generating heavy water reactor at Winfrith. This site is also responsible for the peak in discharges in 1980–1981.

On the basis of past experience and the character of the liquid waste streams the ^{3}H releases can be expected to follow the annual nuclear power electricity production in the future as long as the same type of power plants are being utilised.

4.4 Research facilities

Discharges of alpha emitters and all beta emitters except ^{3}H from research centres are negligible when compared with those from other facilities (Table 1). However, ^{3}H releases from research facilities up to 1984 amount to around 11% of the total from all facilities (Table 1). The nuclide composition of the beta-emitter discharges is shown in Figure 11. These discharges are dominated by ^{60}Co and ^{137}Cs. There is comparatively little information on the composition of the alpha-emitter discharges and, in most cases, these were assumed to be ^{239}Pu. However, the year by year radionuclide composition and levels of discharges from these sites will have varied because of changes either in the type of nuclear research being undertaken or in the waste treatment methods adopted.

4.5 Other fuel cycle facilities

These sites mainly comprise ones which handle uranium, such as uranium enrichment plants and fuel fabrication plants. Discharges from these sites are mainly of alpha emitters and are dominated by natural uranium isotopes and their daughters. The time course of alpha-emitter discharges from these sites is shown in Figure 12.

5 CONCLUSIONS

Discharge data from a total of 72 sites which discharge either directly or indirectly into northern European waters have been collected and collated. The period covered is from the start of discharges up to the end of 1984 for all sites and up to the end of 1986 for reprocessing plants. The sites comprise: 57 nuclear power stations, 3 nuclear reprocessing plants, 2 fuel production plants, 2 uranium enrichment plants and 8 research establishments. The nuclear stations included in this study represent an installed capacity around 220 GW(e) years. The power generation in 1984 was 35 GW(e).

Overall, this discharge database consists of approximately 16,000 non-zero annual discharge figures for 44 radionuclides.

6 REFERENCES

1 Information supplied by representatives for project MARINA.

2 Calmet, D, and Guegueniat, P, Les rejets d'effluents liquides radioactifs du centre du traitement des combustibles irradies de la Hague (France) et l'evolution radiologique du domaine marin. IN Behaviour of radionuclides released into coastal waters. Vienna, IAEA-TECDOC-329, Annex 2 (1985).

3 Luykx, F, and Fraser, G, Radioactive effluents from nuclear power stations and nuclear fuel reprocessing plants in the European community. Discharge data 1976-1980, radiological aspects. Luxembourg, CEC, DOC V/3267/83 (1983).

4 Paris Commission, Ninth annual report of the Paris Commission. London, Paris Commission (1987).

Table 1

Site contributions to total discharges*

	Contribution to discharge‡ (%)		
	Alpha emitter	Beta emitter	^{3}H
Type of facility			
Reprocessing	97.4	98.6	69.7
Power station	0.2	0.5	19.6
Research	0.01	0.02	10.8
Other	2.4	0.9	0
Individual sites			
Sellafield	95.2	86.9	52.9
La Hague	0.52	5.3	16.4
Dounreay	1.8	6.7	0.33

*Total discharges from the start of operations until the end of 1984 are considered.

‡Total discharges to the end of 1984 were as follows:

non-^{3}H beta	$1.5\ 10^{17}$ Bq
^{3}H	$4.6\ 10^{16}$ Bq
alpha	$1.4\ 10^{15}$ Bq

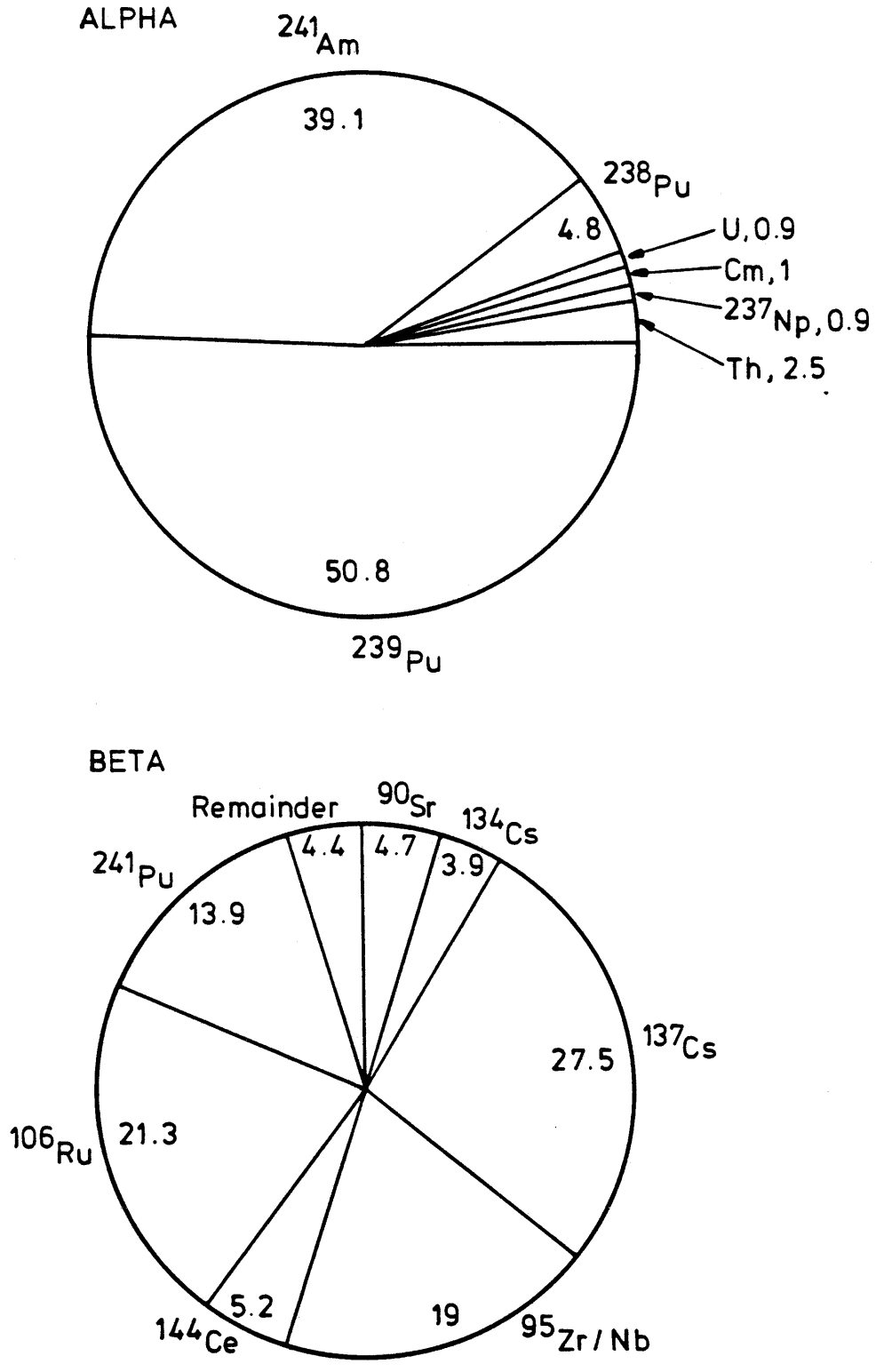

Figure 1 Total liquid discharges of alpha and beta emitters from all sites (% by radionuclide)

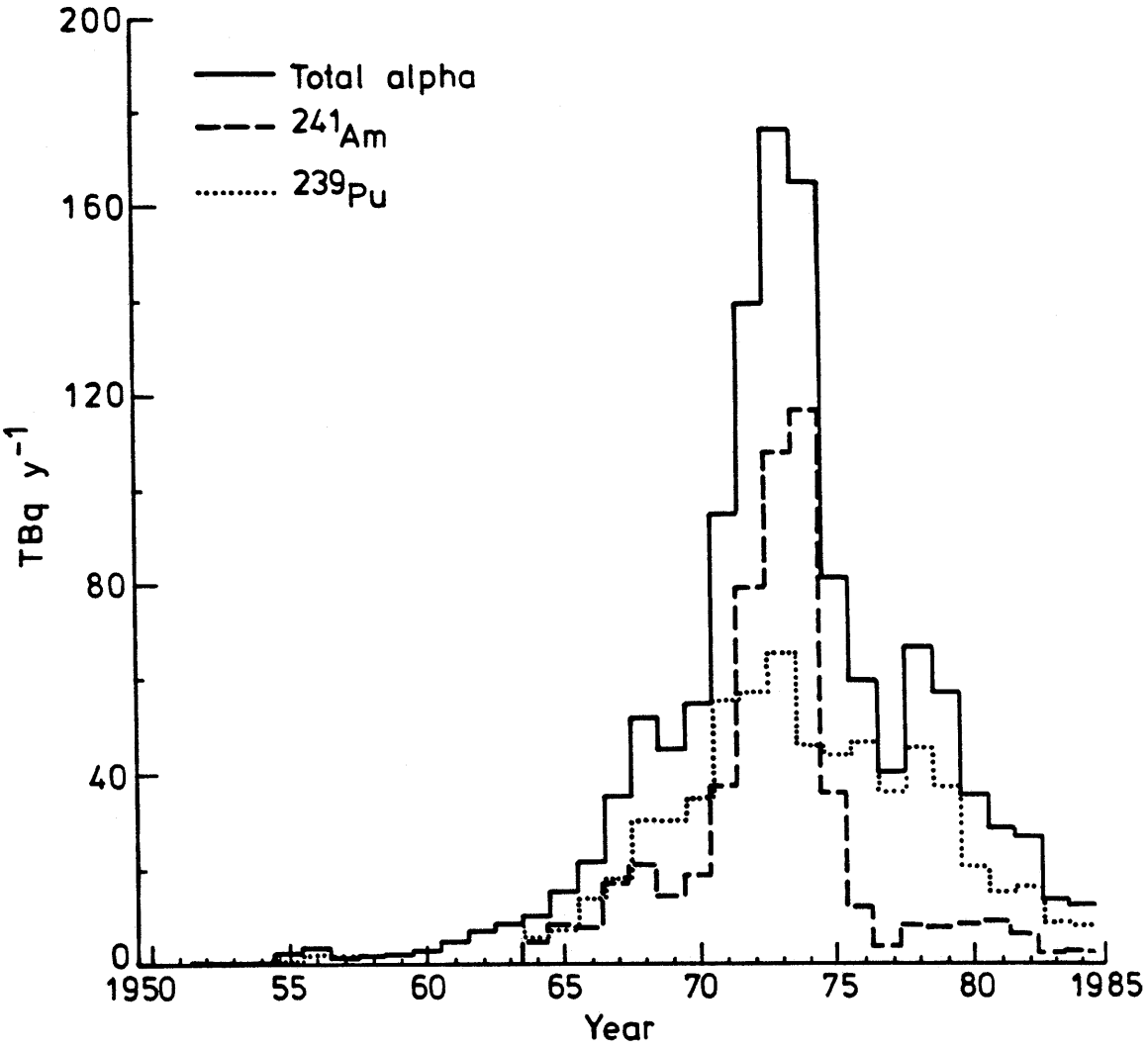

Figure 2 Liquid discharges of alpha emitters from Sellafield

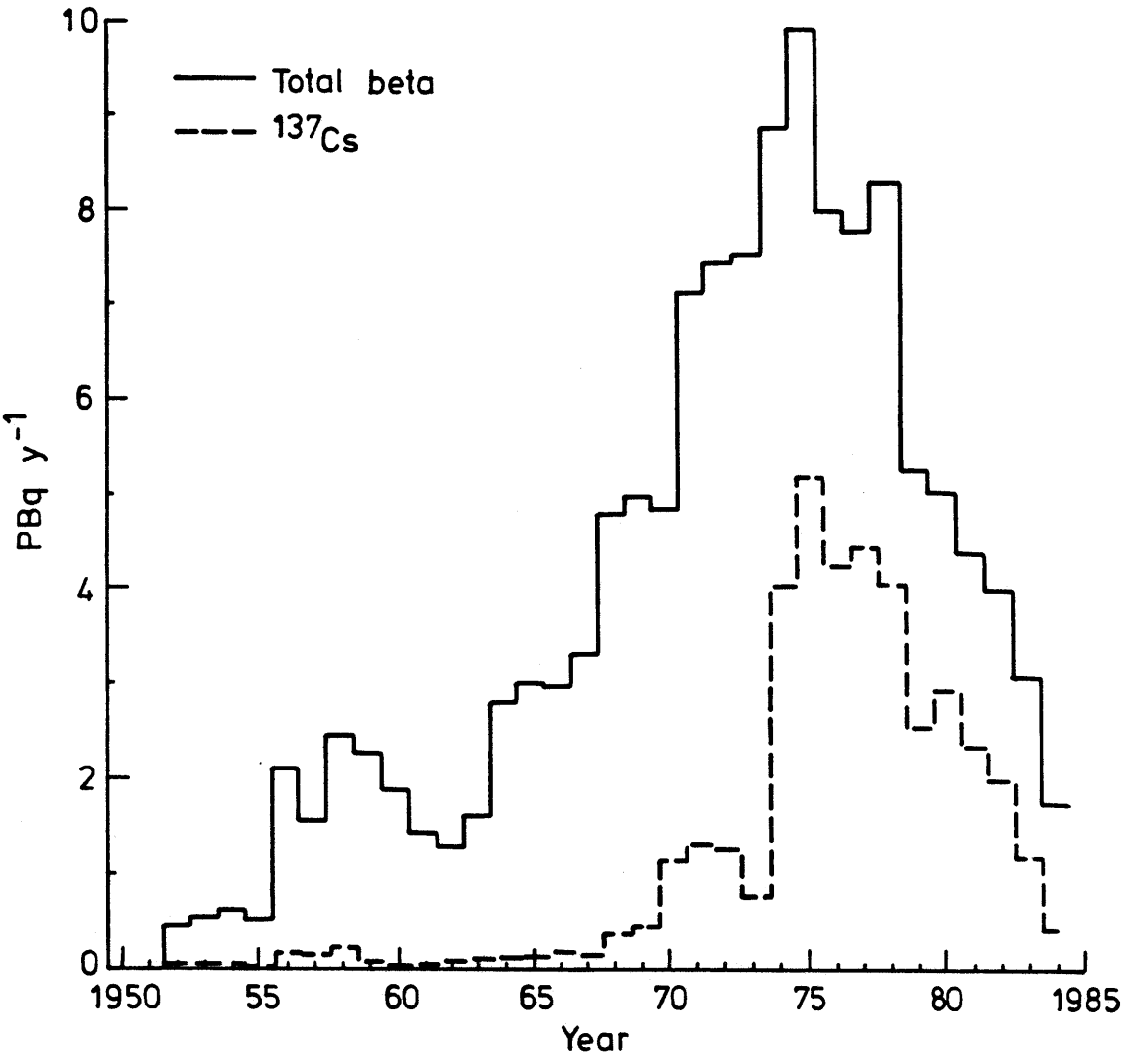

Figure 3 Liquid discharges of beta emitters from Sellafield

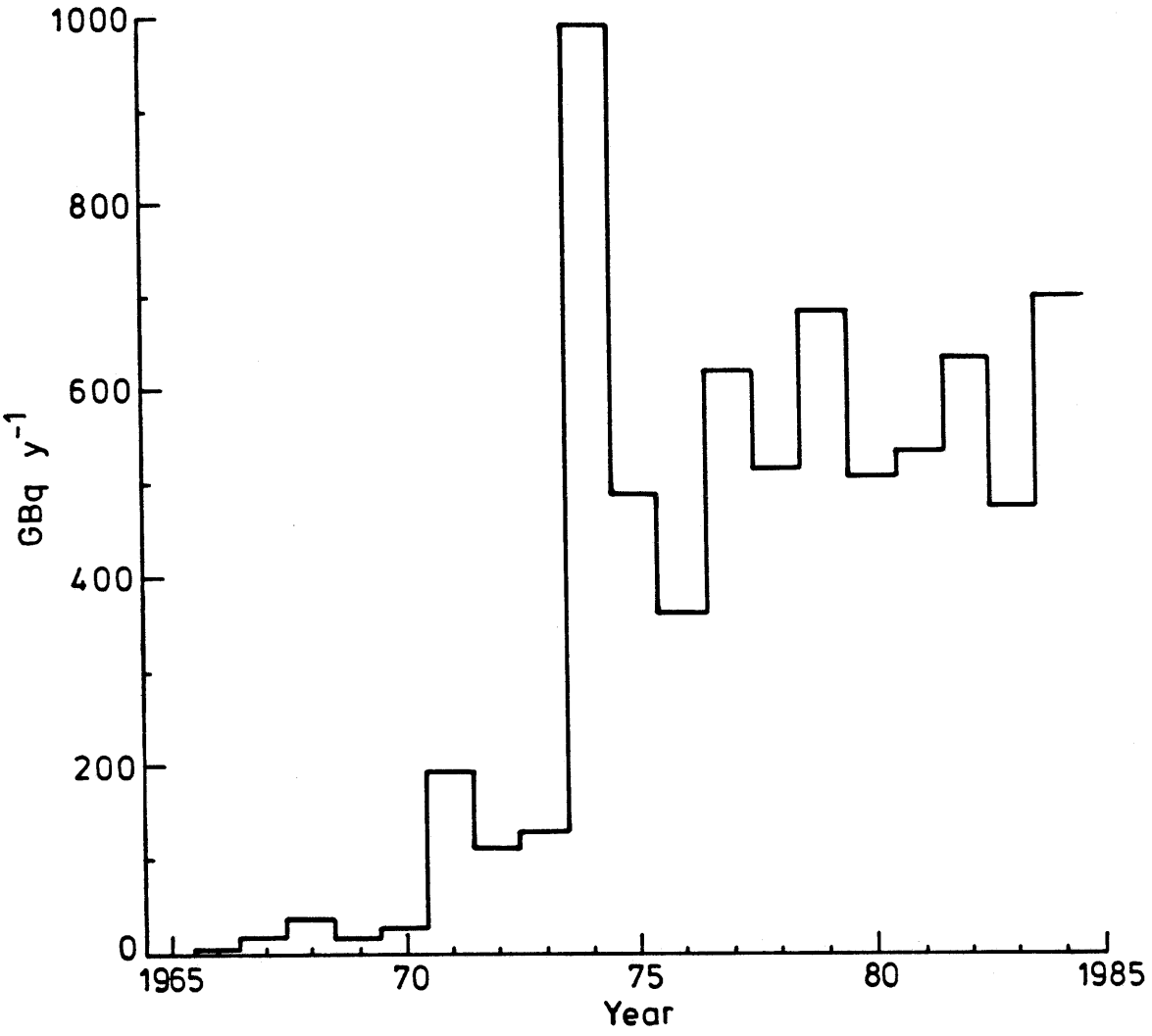

Figure 4 Liquid discharges of alpha emitters from Cap de la Hague

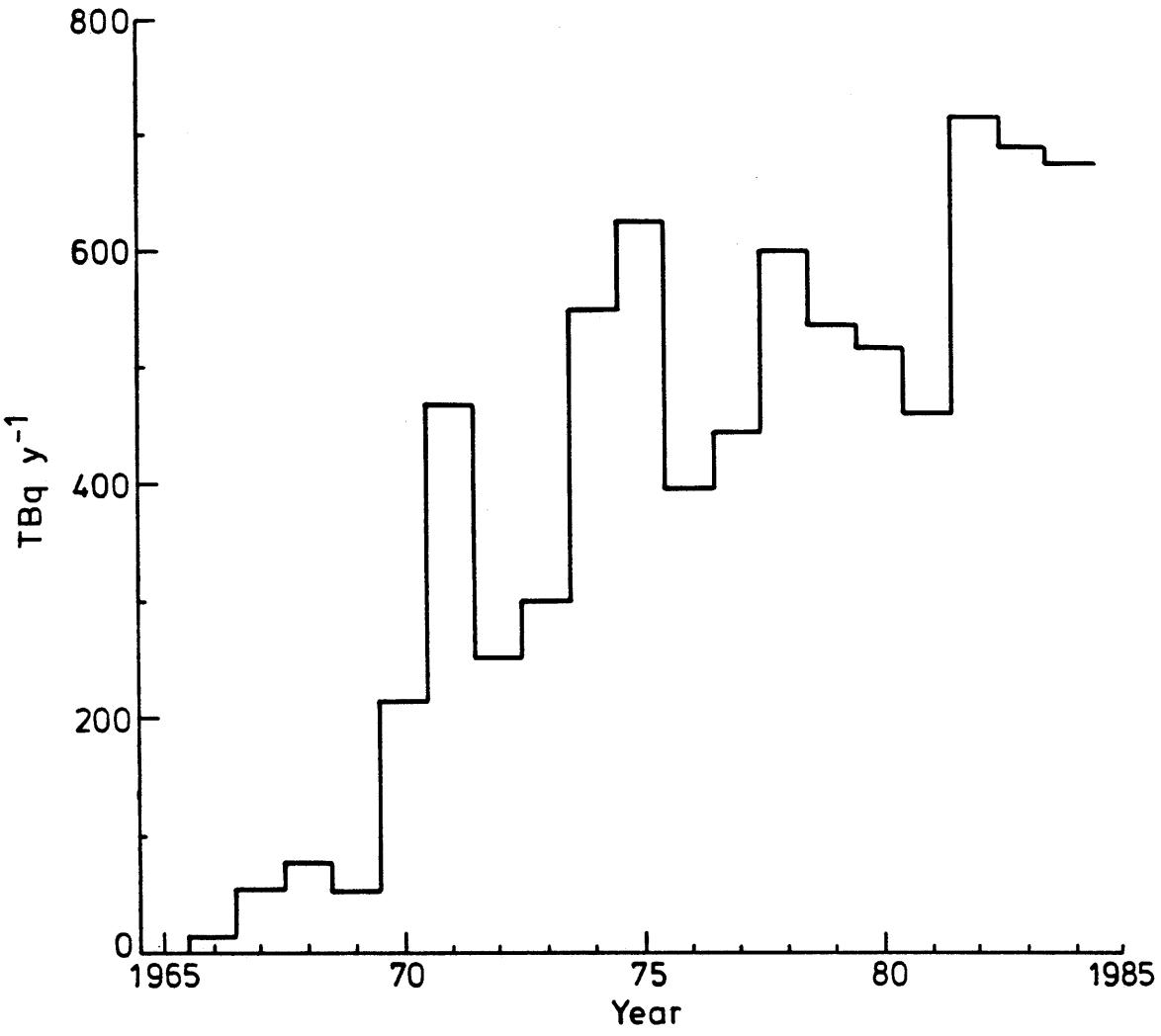

Figure 5 Liquid discharges of beta emitters from Cap de la Hague

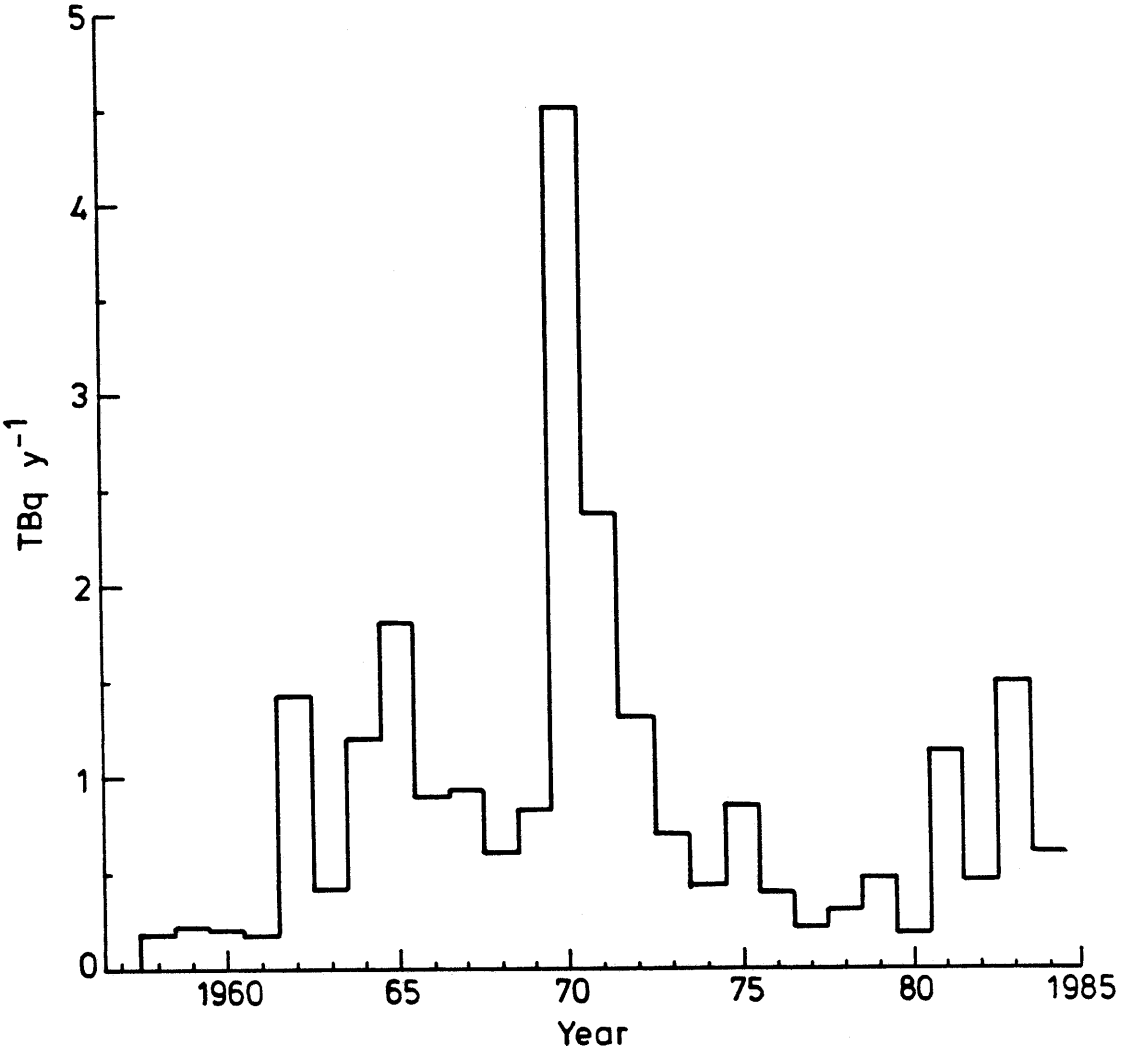

Figure 6 Liquid discharges of alpha emitters from Dounreay

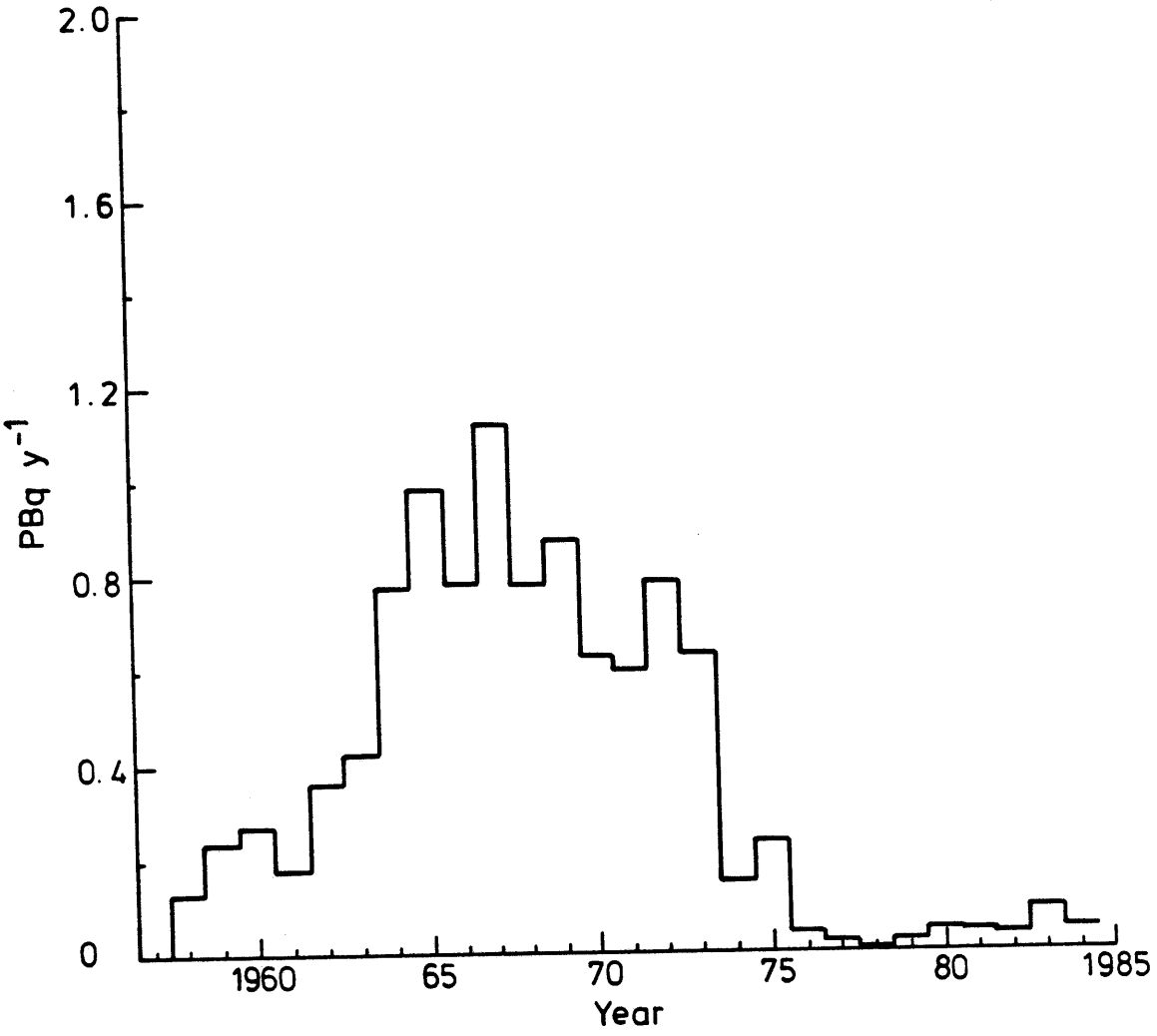

Figure 7 Liquid discharges of beta emitters from Dounreay

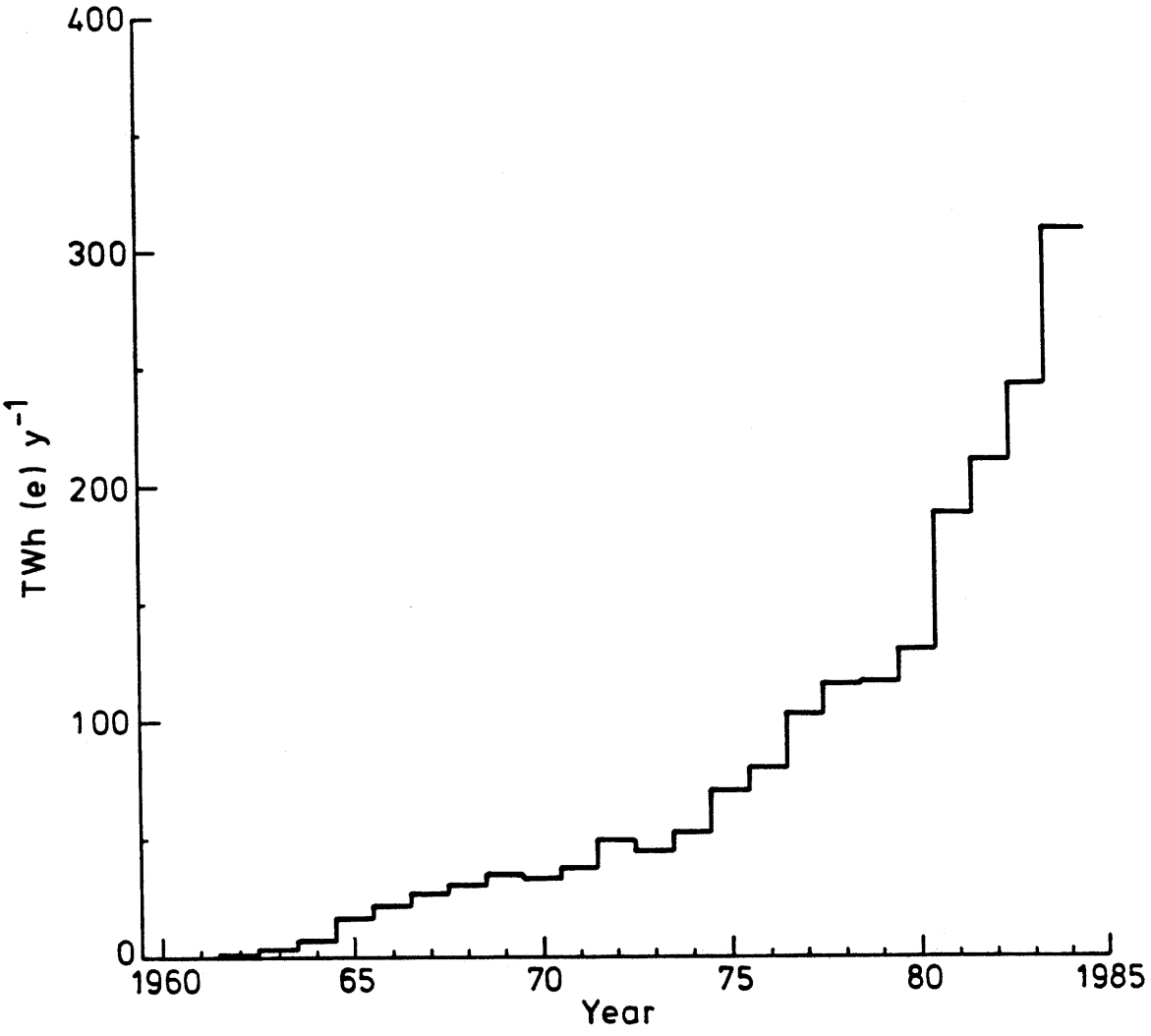

Figure 8 Electricity produced by European nuclear power stations

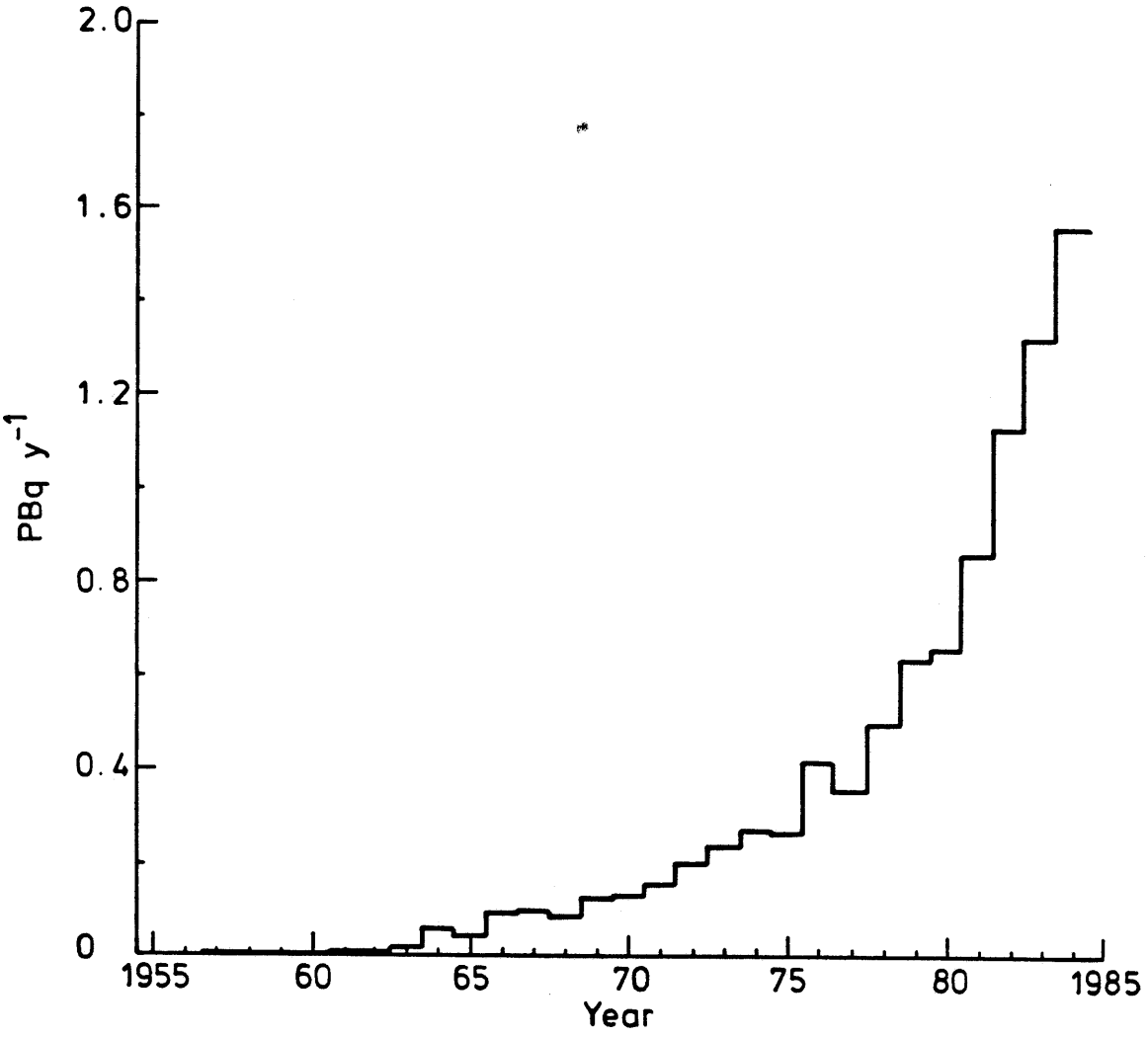

Figure 9 Liquid discharges of tritium from European nuclear power stations

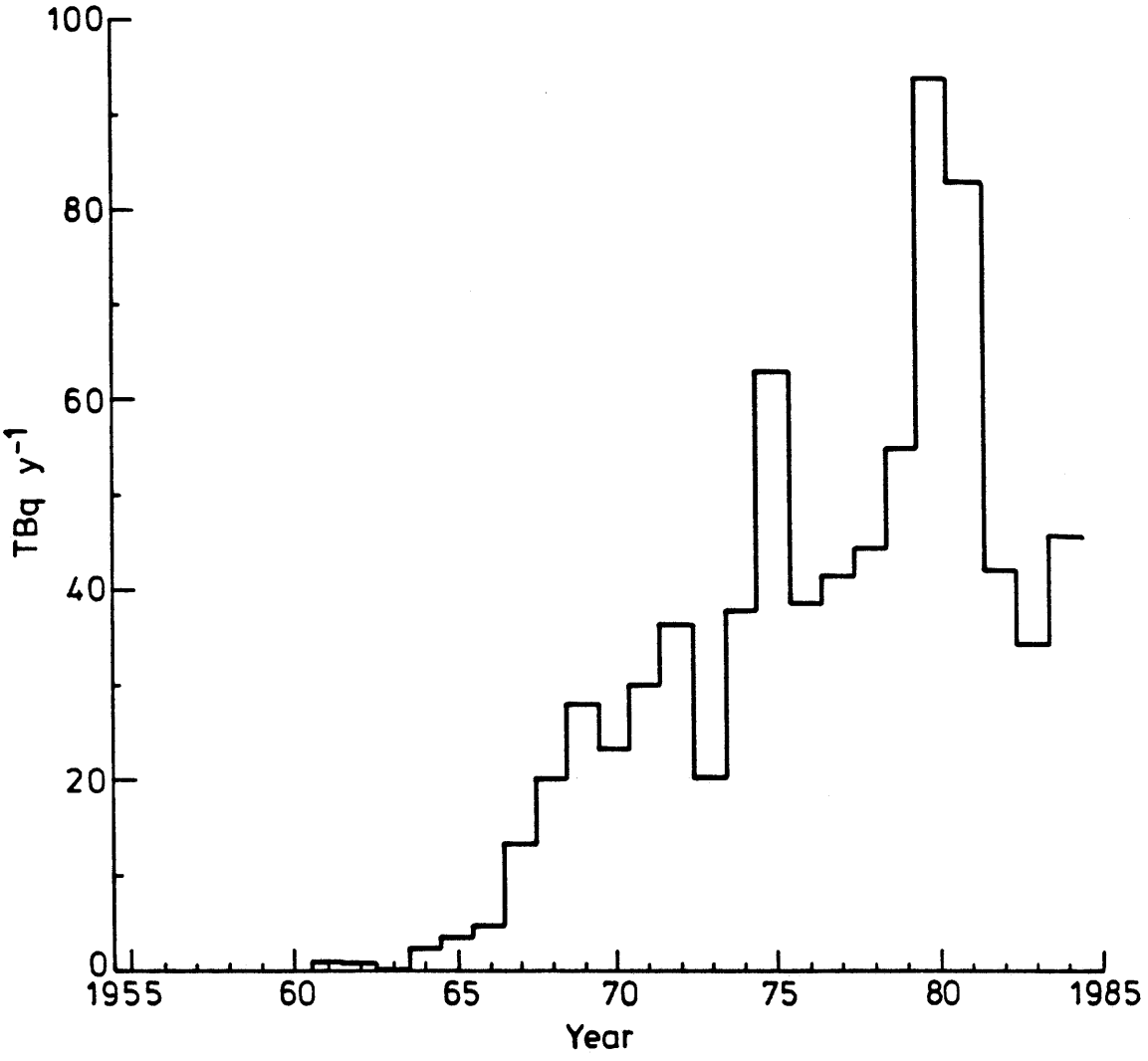

Figure 10 Liquid discharges of beta emitters from European nuclear power stations

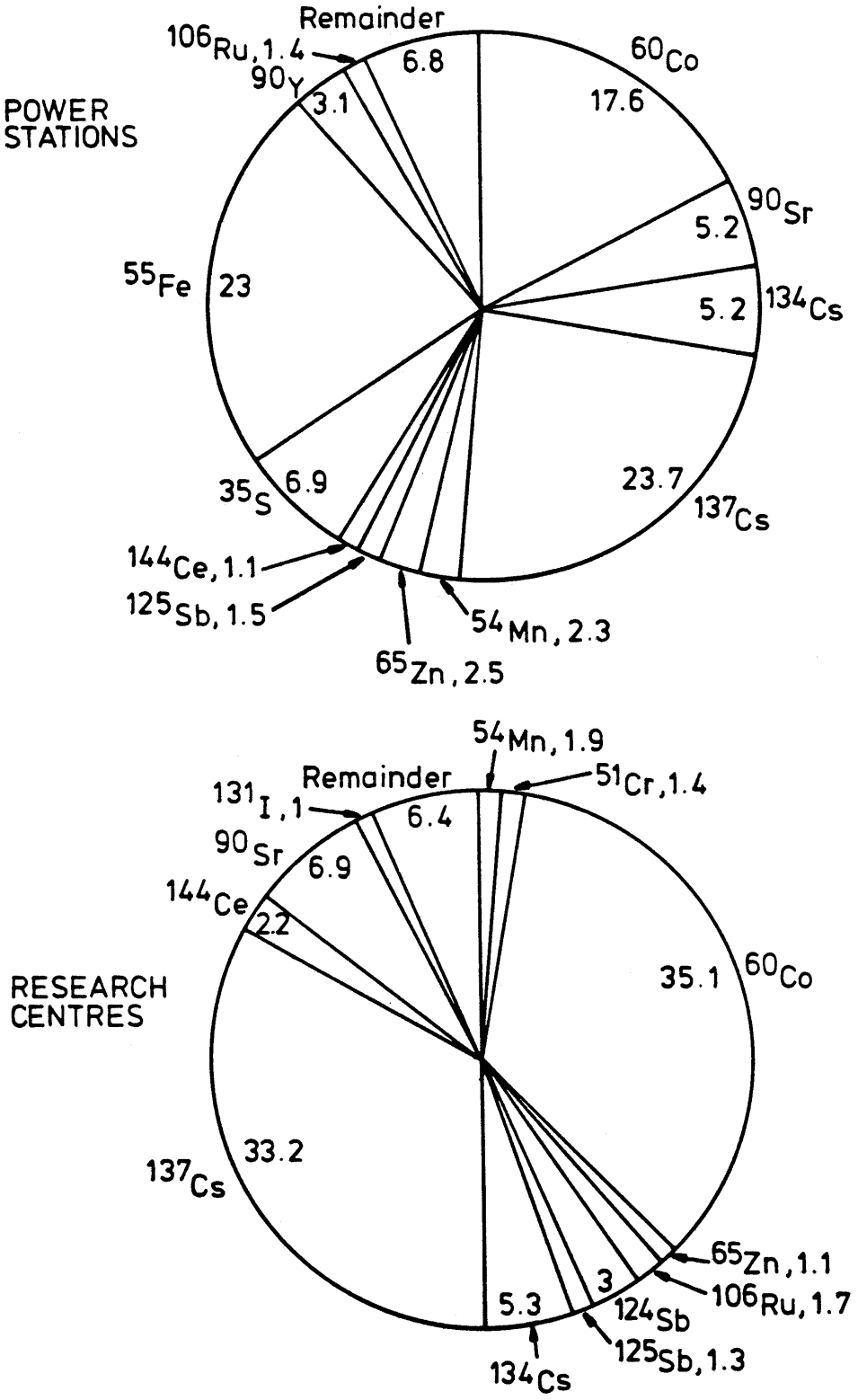

Figure 11 Total liquid discharges of beta emitters from power stations and research centres (% by radionuclide)

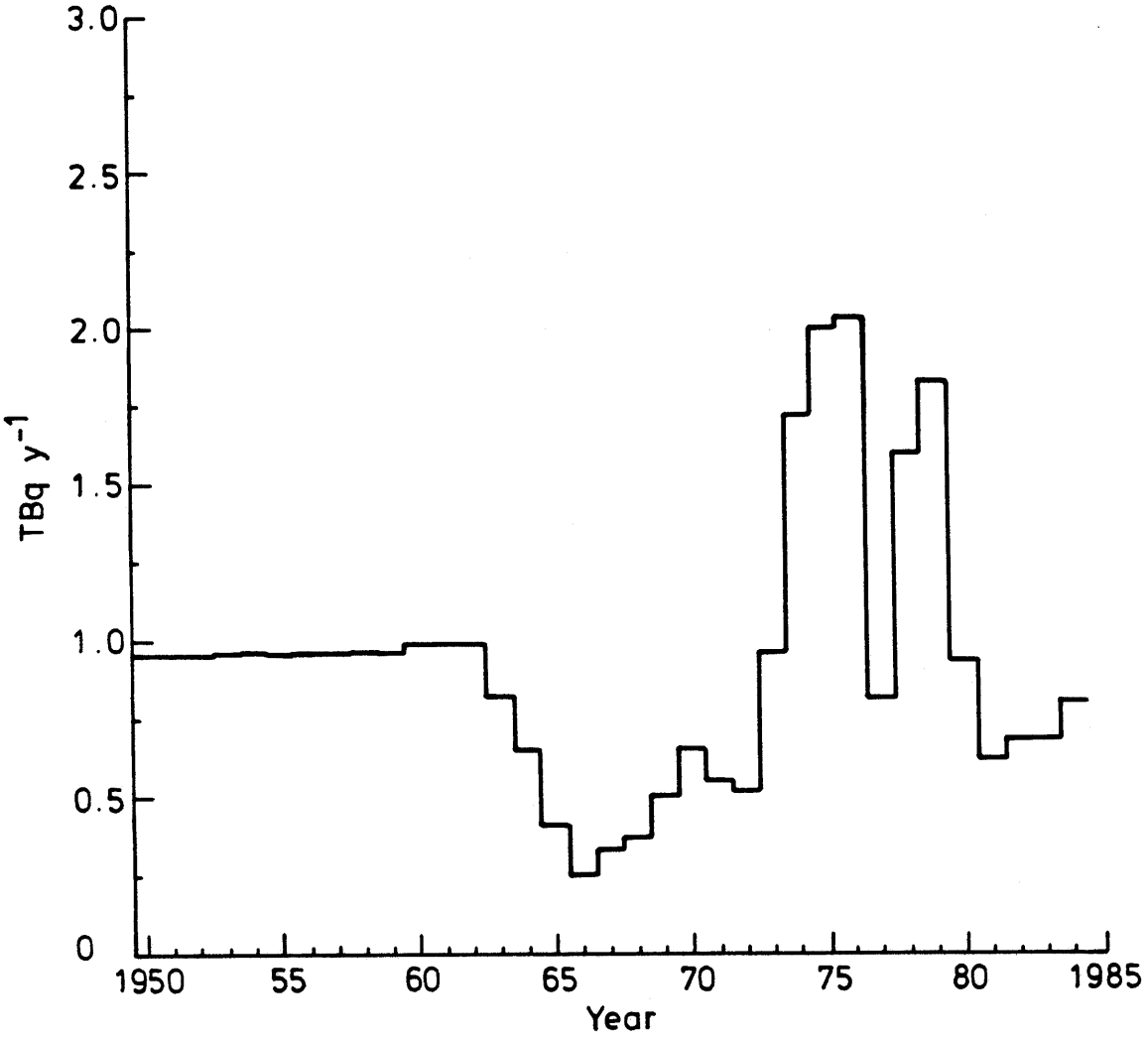

Figure 12 Total liquid discharges of alpha emitters from "other" fuel cycle facilities

APPENDIX

Discharge Data

This appendix contains tables of the annual discharges, in Bq, for each of the 72 sites which release activity into north European waters. The annotations to the tables, together with the references, are given separately at the beginning of the appendix.

Table	Discharging site	Country
1	Almaraz	Spain
2	Almelo	The Netherlands
3	Barsebäck	Sweden
4	Berkeley	United Kingdom
5	Beznau	Switzerland
6	Biblis A	Federal Republic of Germany
7	Biblis B	Federal Republic of Germany
8	Borssele	The Netherlands
9	Bradwell	United Kingdom
10	Brünsbuttel	Federal Republic of Germany
11	Cap de la Hague	France
12	Capenhurst	United Kingdom
13	Chapelcross	United Kingdom
14	Chinon GCR	France
15	Chinon PWR	France
16	Chooz	France
17	Dampierre	France
18	Dodewaard	The Netherlands
19	Doel	Belgium
20	Dounreay	United Kingdom
21	Dungeness A	United Kingdom
22	Dungeness B	United Kingdom
23	ECN Petten	The Netherlands
24	EIR Würenlingen	Switzerland
25	Fessenheim	France
26	Forsmark	Sweden
27	Gösgen	Switzerland
28	Grafenrheinfeld	Federal Republic of Germany
29	Gravelines	France
30	Grohnde	Federal Republic of Germany
31	Hartlepool	United Kingdom
32	Harwell	United Kingdom
33	Heysham A	United Kingdom
34	Hinkley Point A	United Kingdom

Table	Discharging site	Country
35	Hinkley Point B	United Kingdom
36	Hunterston A	United Kingdom
37	Hunterston B	United Kingdom
38	Jose Cabrera	Spain
39	Jülich	Federal Republic of Germany
40	Kahl	Federal Republic of Germany
41	Karlsruhe	Federal Republic of Germany
42	Krümmel	Federal Republic of Germany
43	Le Blayais	France
44	Leibstadt	Switzerland
45	Lingen	Federal Republic of Germany
46	Loviisa	Finland
47	Mol	Belgium
48	Monts d'Arrée	France
49	Muhleberg	Switzerland
50	Neckarwestheim	Federal Republic of Germany
51	Nukem	Federal Republic of Germany
52	Obrigheim	Federal Republic of Germany
53	Oldbury	United Kingdom
54	Olkiluoto	Finland
55	Oskarshamn	Sweden
56	Paluel	France
57	Philippsburg	Federal Republic of Germany
58	Ringhals	Sweden
59	Risø	Denmark
60	Sellafield	United Kingdom
61	Sizewell	United Kingdom
62	Springfields	United Kingdom
63	St. Laurent GCR	France
64	St. Laurent PWR	France
65	Stade	Federal Republic of Germany
66	Studsvik	Sweden
67	Tihange	Belgium
68	Trawsfynydd	United Kingdom
69	Unterweser	Federal Republic of Germany
70	Winfrith	United Kingdom
71	Würgassen	Federal Republic of Germany
72	Wylfa	United Kingdom

Annotation of the MARINA discharge database

1 Almaraz (1981, PWR, Spain)
Data on ^{3}H and total non-^{3}H discharges during 1981–1984 were provided by the Spanish representative to MARINA[1] through the CEC Secretariat. As a simple means of estimating the radionuclide composition of these discharges, the reference composition used in the Federal Republic of Germany was applied. This composition is described in the notes to discharges from Kahl.

2 Almelo (1972, enrichment plant, the Netherlands)
The average annual discharge of uranium during 1979–1985 was 2.5 10^{6} Bq[1]. This average value, taken to be ^{234}U and ^{238}U in secular equilibrium, is used for each year of operation. The plant is believed to have begun operation in 1972 when the current discharge authorisation became effective[1].

3 Barsebäck (1975, BWR, Sweden)
Discharges were supplied in tabular form for project MARINA[1]. These data formed part of a Swedish submission to the Helsinki Commission. Total alpha figures were, for assessment purposes, assumed to be ^{239}Pu.

4 Berkeley (1962, GCR, UK)
Discharges of ^{3}H are from published CEGB reports[2] and additional information supplied by the operator[3]. Discharges of other nuclides in 1972–1984 are taken from CEGB reports[2] or a CEC discharge review[4], or estimated as described below. The total non-^{3}H discharges in the years 1962 1968 were supplied by the operator[3]. The contribution of individual radionuclides to these early discharges is taken to be equal to the mean percentage contribution during the first three years for which that radionuclide is reported. The contribution of some radionuclides is not reported for the whole 1972–1984 period. In these circumstances the percentage contribution of the radionuclide to the total discharges is taken to be equal to the average of the percentage values for that nuclide reported in the three years closest to the unknown values.

5 Beznau (1969, PWR, Switzerland)
The CEC Secretariat provided copies of tables from annual reports of the Swiss Federal Commission during the period 1974–1984[1]. The discharges of total non-^{3}H activity and ^{3}H activity were reported for all years in this period. Radionuclide compositions were available for the years 1974, 1976 1980 and 1982–1984. The following simple schemes have been used to estimate the discharges of specific radionuclides in 1975 and 1981.
1975: the radionuclide composition for 1974 was applied to the total discharge in 1975.
1981: the averages of non-^{3}H discharges in 1980 and 1982–1984 were taken to represent discharges in 1981.
Discharges in 1969–1973 are taken to be equal to the 1974 discharges.

6 Biblis A (1974, PWR, Federal Republic of Germany)
Data were supplied in tabular form for project MARINA[1].

7 Biblis B (1976, PWR, Federal Republic of Germany)
Data were supplied in tabular form for project MARINA[1].

8 Borssele (1973, PWR, the Netherlands)
Discharge data were supplied in tabular form for project MARINA[1]. For the years 1982–1984, data on waste composition were obtained from reports from the State Institute of Public Health and Environmental Hygiene to the Ministry of Housing, Physical Planning and Environment. The average composition for these years and the total activities (reported to CEC) discharged in previous years were used to derive the radionuclide composition in earlier years. This approach may lead to some underestimation of fission product releases in earlier years.

9 Bradwell (1962, GCR, UK)
Discharges of ^{3}H are from published CEGB reports[2] and additional information supplied by the operator[3]. Discharges of other nuclides in 1972–1984 are taken from CEGB reports[2] or a CEC discharge review[4], or estimated as described below. The total non-^{3}H discharges in the years 1962–1968 were supplied by the operator[3]. The contribution of individual radionuclides to these early discharges is estimated to be equal to the mean percentage contribution during the first three years for which that radionuclide is reported. The contribution of some radionuclides is not reported for the whole 1972–1984 period. In these circumstances the percentage contribution of the radionuclide to the total discharges is taken to be equal to the average of the percentage values for that nuclide reported in the three years closest to the unknown values.

10 Brünsbuttel (1976, BWR, Federal Republic of Germany)
Data were supplied in tabular form for project MARINA[1].

11 Cap de la Hague (1966, reprocessing plant, France)
Most discharges (1966–1982) are taken from reference 5. Discharges of ^{14}C were estimated by Working Group I[1] and were based on plant throughput and experience as well as experience at BNFL Sellafield. Discharges of ^{99}Tc in 1983[6] and historical environmental monitoring data[6] were used by Working Group I[1] to estimate earlier ^{99}Tc releases. Discharge of ^{99}Tc in 1984–1986 are taken to be equal to the 1983 release. Discharges of ^{241}Pu were estimated[1] from the data available on plutonium alpha discharges and from activity ratios of ^{241}Pu to Pu(α) in spent oxide fuel[7]. The annual rate of discharge of ^{129}I was estimated from graphical information supplied by CEC[1]. Discharges in 1983–1986 were taken from reference 8. The item 'autreradionuclides' is, pessimistically, taken to be ^{137}Cs.

12 Capenhurst (1953, enrichment plant, UK)
Discharges of ^{234}Th, ^{234}U and ^{238}U in 1963–1984 are from published reports[9,10,11] supplemented by information supplied by the operators[12]: ^{234}U and ^{238}U in secular equilibrium are taken to represent all of the alpha discharges; ^{234}Th is taken to be present in equilibrium with the ^{238}U. Discharges in the years 1953–1962 are taken to be equal to the mean discharge in 1963–1965 inclusive.

13 Chapelcross (1959, GCR, UK)
Discharges in recent years are taken from published reports[9]. Discharges of individual radionuclides other than ^{90}Sr have only been reported since the middle 1970s. Earlier discharges are estimated from the total activity discharge data available for years prior to the first radionuclide specific data[11,12]. The first years of data for specific radionuclides are shown below:
1976: ^{35}S, ^{134}Cs, ^{137}Cs, alpha, ^{90}Sr
1978: ^{65}Zn, ^{144}Ce
1979: ^{60}Co, ^{106}Ru, ^{125}Sb
1980: ^{154}Eu
Note: ^{90}Sr data are available for 1959–1966.
Alpha discharges are taken to be composed of ^{238}Pu, ^{239}Pu and ^{241}Am in the ratio 1 : 3 : 1[13]. Early ^{3}H discharges (1959–1966) were not reported. These are estimated from early reported discharge levels and variations in the total activity discharge in the first few years of operation.

14 Chinon (1965, GCR, France)
CEC discharge reviews[4,14,15,16,17] report ^{3}H discharges for the years 1976–1980 and discharges of activity other than ^{3}H for the years 1969–1980. Discharges of ^{3}H in 1965–1975 are taken to be equal to the 1976 discharge and 1981–1984 discharges are taken to be equal to that in 1980. Similarly, for non-^{3}H releases, the earliest reported value (1969) is used back to the start of operation and the most recent value (1980) is used up to 1984. The CEC reviews provide radionuclide compositions of these non-^{3}H discharges for

two years of operations, 1976 and 1978. For other years, a typical composition was determined by Working Group I[1] based on these available data and applied to reported and estimated total activity discharges.

15 Chinon (1982, PWR, France)
Discharges during 1985 are reported in the ninth report of the Paris Commission[18]. These data are taken to represent discharges in previous years.

16 Chooz (1967, PWR, France)
CEC discharge reviews[4,14,15,16,17] provide data on ^3H discharges in the years 1970–1980 (inclusive), and data on non-^3H discharges in the years 1969–1980. Discharges before and after these years are estimated to be equal to discharges in the nearest year of available data. The radionuclide composition of discharges (other than ^3H) is given by CEC for the years 1972, 1974, 1976 and 1978. These compositions are used for the appropriate years. For other years, a radionuclide composition has been estimated from the four sets of data. The radionuclides in the estimated composition represent those which are present in the majority of the reported data. The relative amounts of each of these radionuclides were determined from the averages of the available data.

17 Dampierre (1980, PWR, France)
Discharges during 1985 are reported in the ninth report of the Paris Commission[18]. These data are taken to represent discharges in previous years.

18 Dodewaard (1969, BWR, the Netherlands)
Discharges in 1982–1984[1] were taken from reports of the Netherlands State Institute of Public Health and Environmental Hygiene. The average composition of these discharges was applied to CEC published data[4,14,15,16,17] on the total activities discharged in earlier years. This approach leads to some underestimation of fission product releases in early years mainly because fuel integrity has improved in recent years[1].

19 Doel (1974, PWR, Belgium)
All data were supplied in tabular form[1] for project MARINA.

20 Dounreay (1958, research and reprocessing centre, UK)
Discharges are taken from reference 19, in which the data were derived from published reports[11,20,21] supplemented by information supplied by the site operator[22]. Discharge data for 1985 and 1986 were taken from reference 23, and were taken to have the same radionuclide composition as 1984 discharges.

21 Dungeness A (1965, GCR, UK)
Discharges of ^3H are from published CEGB reports[2] and additional information supplied by the operator[3]. Discharges of other radionuclides in 1972–1984 are taken from CEGB reports[2] or a CEC discharge review[4], or estimated as described below. The total annual non-^3H discharges in the years 1965–1968 were supplied by the operator[3]. The contributions of individual radionuclides to these early discharges are taken to be equal to the mean percentage contribution during the first three years for which that radionuclide is reported. The contribution of some radionuclides is not reported for the whole 1972–1984 period. In these circumstances the percentage contribution of the radionuclide to the total discharges is taken to be equal to the average of the percentage values for that nuclide reported in the three years closest to the unknown values.

22 Dungeness B (1983, GCR, UK)
Discharges of ^3H and total activity excluding ^3H are taken from CEGB reports[2]. The radionuclide composition of the non-^3H discharges is based on reported compositions for the AGR B station at Hinkley Point.

23 ECN Petten (1963, research centre, the Netherlands)
Discharges in 1969–1984 were derived from gamma spectrometry records[1]. Total activity discharges in 1962–1968 were provided for MARINA, together with a recommended radionuclide composition (the average one from discharges in 1970–1972)[1]. Data on radionuclides relating only to medical procedures have not been included in the database (eg, ^{203}Hg)[1].

24 EIR Würenlingen (1957?, research centre and reactor, Switzerland)
Data were supplied in tabular form for project MARINA. These data consisted of total activity and ^{3}H discharges in the years 1974–1984 and radionuclide compositions of discharges in the years 1977–1980 and 1982–1984. The radionuclide composition of discharges in 1981 is estimated from the nuclides present in 1980 and 1982–1984 discharges. The sum of the individual estimated radionuclide discharges in 1981 is scaled to equal the reported total. The 1977 radionuclide breakdown is applied to total discharges in 1974–1976 and the 1974 discharges are taken to represent discharges in all years back to the start of operation. The first year of operation is taken to coincide with the commissioning of the 10 MW SAPHIR pool type research reactor in 1957[24].

25 Fessenheim (1977, PWR, France)
Discharges of ^{3}H and total activity (excluding ^{3}H) are reported for the years 1977–1980 by CEC[16,17]. The radionuclide composition of discharges is reported for 1978 only[16]. The 1978 radionuclide breakdown is used for all years of operation and discharges in 1981–1984 are taken to be equal to those in 1980.

26 Forsmark (1980, BWR, Sweden)
Discharges data were taken from the Swedish submission to the Helsinki Commission and provided in tabular form for project MARINA[1].

27 Gösgen (1979, PWR, Switzerland)
Total discharges and ^{3}H releases are available for all years of operation[1]. Radionuclide compositions of non-^{3}H discharges are available for 1980, 1982, 1983 and 1984[1]. The composition in 1979 and 1981 is estimated from the average composition of discharges in 1980 and 1982–1984, scaled to the total discharges reported for the two years.

28 Grafenrheinfeld (1982, PWR, Federal Republic of Germany)
All discharge data were provided in tabular form for project MARINA[1].

29 Gravelines (1980, PWR, France)
Discharges during 1985 are reported in the ninth report of the Paris Commission[18]. These data are taken to represent discharges in previous years.

30 Grohnde (1984, PWR, Federal Republic of Germany)
Discharge data for 1984 were supplied in tabular form[1].

31 Hartlepool (1983, GCR, UK)
Discharges of ^{3}H and total non-^{3}H activity are taken from CEGB reports[2]. The radionuclide composition of the non-^{3}H discharges is based on reported compositions of the non-^{3}H discharges reported for the AGR B station at Hinkley Point.

32 Harwell (1948, research centre, UK)
Discharges are taken from published reports[11,20] supplemented by information supplied by the operator[22].

33 Heysham A (1983, GCR, UK)
Discharges of ^{3}H and total non-^{3}H activity are taken from CEGB reports[2]. The radionuclide composition of the non-^{3}H discharges is based on reported compositions of the non-^{3}H discharges reported for the AGR B station at Hinkley Point.

34 Hinkley Point A (1965, GCR, UK)
Discharges of ^{3}H are from published CEGB reports[2] and additional information supplied by the operator[3] for early years (1965–1968). Discharges of other radionuclides in 1972–1984 are taken from CEGB annual reports[2] or a CEC discharge review[4], or are estimated as described below. Total annual non-^{3}H discharges in the years 1965–1968 were supplied by the operator[3]. The contributions of individual radionuclides to these earlier discharges are taken to be equal to the mean percentage contribution during the first three years for which that radionuclide is reported. The contribution of some radionuclides is not reported for the whole 1972–1984 period. In these circumstances the percentage contribution of the radionuclide to the total discharges is taken to be equal to the average of the percentage values for that nuclide reported in the three years closest to the unknown value.

35 Hinkley Point B (1976, GCR, UK)
CEGB reports[2] contain ^{3}H discharges and total discharges other than ^{3}H for each year of operation (1976–1984). Radionuclide compositions are given[2] for each of the discharge years 1980–1984. The mean composition for these years is applied to the discharges in earlier years.

36 Hunterston A (1964, GCR, UK)
Discharges of ^{3}H are available for the years 1966, 1969, 1972–1973 and 1974–1984[21,23,25]. Discharges in the years between 1969 and 1972 for which no data are available are taken to be equal to the mean of discharges in 1969 and 1972–1973. Earlier discharges are taken to be the mean of 1966 and 1969 discharges. Non-^{3}H discharges are reported for the years 1966, 1969 and 1972–1973 onwards. An averaging scheme similar to that used for ^{3}H discharges is used for other discharges. The radionuclide composition of discharges is available[21,25] for the years 1976–1984. The percentage contribution of each radionuclide to the total discharge in early years is taken to be equal to the mean of the earliest three percentage contribution figures for that radionuclide.

37 Hunterston B (1976, GCR, UK)
Data on ^{3}H and non-^{3}H discharges are available for each year of operation[21,23,25]. The radionuclide compositions of discharges in the years 1978–1984 are reported[21,25]. Discharges in 1976 and 1977 are taken to be of the same radionuclide composition as discharges in 1978.

38 Jose Cabrera (1968, PWR, Spain)
Data on ^{3}H and total non-^{3}H discharges during 1981–1984 have been reported[1]. The reference discharge radionuclide composition used by the Federal Republic of Germany has been used here for assessment purposes. This composition is described in the notes to discharges from Kahl. Discharges in the period 1968-1980 are taken to be the average of 1981–1984 levels.

39 Jülich (1965, research centre, Federal Republic of Germany)
All data were supplied in tabular form for project MARINA[1].

40 Kahl (1961, BWR, Federal Republic of Germany)
Discharge data for the years 1970–1984 have been supplied in tabular form for project MARINA[8]. Radionuclide compositions of these releases are available for 1972 onwards. Releases in 1970 and 1971 are taken to have the reference composition used in the FRG for licensing procedure[1]. This composition is as follows: ^{58}Co, 19%; ^{60}Co, 20%; ^{90}Sr, 1%; ^{131}I, 10%; ^{134}Cs, 20%; ^{137}Cs, 30%. Discharges in the period 1961-1969 are taken to be the same as 1970 values.

41 Karlsruhe (1961, research centre, Federal Republic of Germany)
Discharges of ^{3}H and total fission plus activation products during 1968–1984 were supplied[1]. The quantity 'fission plus activation products' is taken

to be the radionuclides ^{58}Co, ^{60}Co, ^{131}I, ^{90}Sr, ^{134}Cs and ^{137}Cs in the generic composition supplied in reference 1. Discharges are taken to have started in 1961 when the FR-1 research reactor achieved criticality[24]. Discharges during 1961–1967 were not available so 1968 releases were taken as estimates of these discharges. Improved data for Karlsruhe were provided[1], but these were too late for inclusion in the calculations for project MARINA. The revised data are presented in Table 41a.

42 Krümmel (1983, BWR, Federal Republic of Germany)
Discharge data were provided in tabular form for project MARINA[1].

43 Le Blayais (1981, PWR, France)
Discharges during 1985 are reported in the ninth report of the Paris Commission[18]. These data are taken to represent discharges in previous years 1981–1984.

44 Leibstadt (1984, BWR, Switzerland)
Discharge data were provided in tabular form for project MARINA[1].

45 Lingen (1968, BWR, Federal Republic of Germany)
Discharges of ^{3}H and non-^{3}H activity during 1969–1984 and the radionuclide composition of discharges during 1972–1984 were provided[1]. The radionuclide composition of discharges during 1969–1971 is taken to be the reference composition described on the notes on Kahl discharges[1]. Discharges in 1968 are taken to be equal to 1969 discharges.

46 Loviisa (1977, PWR, Finland)
Discharges for the years 1980-1984 were supplied[1]. Earlier data on ^{3}H and non-^{3}H releases are taken from the 1982 UNSCEAR report[26]. The mean radionuclide composition of 1980–1982 discharges is taken to represent the composition of earlier discharges.

47 Mol (1956, research centre, Belgium)
Discharges in the years 1976–1984 were determined by gamma spectrometry and alpha analysis and a complete radionuclide composition was supplied[1]. Only discharges of total beta, total alpha, ^{90}Sr, ^{226}Ra and ^{3}H are also reported for the years 1969–1975[1]. The radionuclide composition of total alpha and total beta discharges before 1975 was taken to be equal to the average composition of discharges in 1976–1978. No data are available for the earlier years of operation (1956–1968). Discharges in these years are taken to be equal to the average of discharges those in the period 1969–1971. Americium is taken to be all ^{241}Am and plutonium alpha activity is represented by ^{239}Pu. Uranium is taken to be ^{238}U.

48 Monts d'Arrée (1967, HWGCR, France)
CEC discharge reviews[4,14,15,16,17] report discharges of ^{3}H for the years 1972–1980 and non-^{3}H activity for the years 1969–1978. Discharges in other years are taken to be equal to the value in the nearest year for which data are available. The radionuclide composition is only available for discharges in 1976. This composition has been applied to the non-^{3}H discharges in each year of operation.

49 Muhleberg (1971, BWR, Switzerland)
Total activity and ^{3}H discharges are reported for all years since 1974. Radionuclide compositions of discharges are available for 1976–1980 and 1982–1984. The radionuclide composition of the 1981 discharge is estimated from the compositions of 1980 and 1982–1984 discharges. The composition of discharges in the years 1974 and 1975 is taken to be the same as that reported for 1976. Discharges in 1971–1973 are taken to be the same as in 1974.

50 Neckarwestheim (1976, PWR, Federal Republic of Germany)
Data were supplied in tabular form for project MARINA[1].

51 HANAU (NUKEM 1960; ALKEM, 1964; RBU, 1969; HOBEG, 1971; fuel production plants, Federal Republic of Germany)
Total alpha discharges from these fuel production plants in the years since 1975 were supplied[1]. The radionuclide composition is estimated[1] to be 75% ^{234}U, 2% ^{235}U and 23% ^{238}U. This composition is applied to all years of operation. The earliest year of discharge is not known. As an estimate, the first available annual discharge (that in 1975) is used as an estimate of earlier discharges back to 1960 when the first FRG power reactor at Kahl achieved criticality[27].

52 Obrigheim (1968, PWR, Federal Republic of Germany)
The discharges of total activity and ^{3}H during 1969–1984 and radionuclide compositions of discharges in 1972–1984 were supplied[1]. The total activity and ^{3}H discharges in 1968 are taken to be the same as the corresponding discharges in 1969. The radionuclide composition of discharges before 1972 is taken to be the reference composition detailed in the notes to Kahl discharges.

53 Oldbury (1967, GCR, UK)
Discharges of ^{3}H are from published CEGB reports[2] and additional information (1967, 1968) supplied by the operator[3]. Discharges of individual non-^{3}H radionuclides in 1972–1984 are taken from CEGB reports[2] or estimated as described below. The radionuclide composition of discharges before 1972 is determined by taking the percentage contribution of each radionuclide to be equal to the mean of the first three reported contributions for that radionuclide. The contribution of some radionuclides is not reported for the whole 1972–1984 period. In these circumstances the percentage contribution of the radionuclide to the total discharges is taken to be equal to the average of the percentage for that nuclide reported in the three years closest to the unknown values.

54 Olkiluoto (1978, BWR, Finland)
Data for 1980–1984 were supplied[1]. Total ^{3}H discharges in 1978–1979 are taken from an UNSCEAR review[26]. The radionuclide composition of these early discharges is estimated from the data for 1980–1984.

55 Oskarshamn (1970, BWR, Sweden)
Data for 1974–1984 were supplied[1]. Data on ^{3}H, total beta and total alpha discharges for the earlier years of operation (1970–1973) were also supplied[1]. The total beta discharges are represented by ^{51}Cr, ^{54}Mn, ^{58}Co, ^{60}Co and ^{65}Zn. These radionuclides are consistently present in the discharges during 1974–1976 and are taken to be present in earlier discharges at the average 1974–1976 composition. The total alpha discharges reported for 1970–1980 are taken to be all ^{239}Pu; where discharges are reported as less than '<' a given value then that value is taken to be the quantity discharged.

56 Paluel (1984, PWR, France)
Discharges during 1985 are reported in the ninth report of the Paris Commission[18]. These data are taken to represent discharges in previous years.

57 Philippsburg (1979, BWR, Federal Republic of Germany)
All data were supplied in tabular form[1].

58 Ringhals (1974, PWR, BWR, Sweden)
All data were supplied in tabular form[1].

59 Risø (1957, research centre, Denmark)
All discharge data (^{3}H and total beta) were supplied[3]. Discharges of ^{3}H are reported to be zero before 1960 and are estimated to have risen linearly between 1960 and 1978[1]. Total beta discharges before 1978 (1957–1977) are estimated[1] to be 0.2 GBq y^{-1}. All total beta discharges are, for the

purposes of this assessment, taken to be equal activities of ^{90}Sr and ^{137}Cs.

60 Sellafield (1951, reprocessing plant, UK)
Discharges of ^{90}Sr, $^{95}Zr/Nb$, ^{106}Ru, ^{134}Cs, ^{137}Cs, ^{144}Ce, ^{238}Pu, ^{239}Pu, ^{241}Pu and ^{241}Am during 1951–1982 are from reference 28. Discharges of these radionuclides in 1983–1986 are taken from published reports[9]. Discharges of other radionuclides are taken from BNFL reports[9]. These radionuclides are listed below with the period for which data are available:
1976–1986: ^{3}H, ^{129}I
1978–1986: ^{35}S, ^{54}Mn, ^{55}Fe, ^{60}Co, ^{63}Ni, ^{65}Zn, ^{99}Tc, ^{237}Np, U, ^{242}Cm, $^{243/244}Cm$
1984–1986: ^{14}C
Discharges of uranium are recorded as mass discharged. Discharges of ^{234}U, ^{237}Np, ^{238}U, ^{242}Cm and $^{243/244}Cm$ in earlier years have been estimated from radionuclide specific scaling factors which relate discharges of these radionuclides to discharges of Pu and Am, which have been reported for all years of operation. Therefore lower discharges of Pu and Am in early years of operation are taken to imply lower releases of Np, U and Cm isotopes. Early discharges of short-lived and radiologically less significant nuclides have not been estimated because of the great uncertainty involved. Early discharges of ^{3}H, ^{14}C, ^{99}Tc and ^{129}I are from reference 12.

61 Sizewell (1966, GCR, UK)
Discharges of ^{3}H are taken from published CEGB reports[2] and additional information was supplied by the operator[3] for early years (1965–1968). Discharges of other radionuclides in 1972–1984 are taken from CEGB annual reports[2] or a CEC discharge review[4], or estimated as described below. Total annual non-^{3}H discharges in the years 1965–1968 were supplied by the operator[3]. The contribution of individual radionuclides to these earlier discharges is taken to be equal to the mean percentage contribution during the first three years for which that radionuclide is reported. The contribution of some radionuclides is not reported for the whole 1972–1984 period. In these circumstances the percentage contribution of the radionuclide to the total discharges is taken to be equal to the average of the percentage values for that nuclide reported in the three years closest to the unknown values.

62 Springfields (1947, uranium conversion and fuel fabrication plant, UK)
Discharges during the period 1964–1984 are reported[9,11,29] as total alpha and total beta. Annual total alpha and total beta discharges in earlier years of operation (1947–1963) are taken to be equal to the 1962 value. It is assumed that in all years of discharge, the alpha discharges are composed of the following isotopes of uranium and thorium: ^{234}U, 4.9%; ^{235}U, 0.2%; ^{235}U, 4.9%; ^{228}Th, 15%; ^{230}Th, 60%; ^{232}Th, 15%. Total beta is taken to be equal activities of ^{234}Th and ^{234m}Pa. This second radionuclide has a very short half-life (1.18 minute) and is not included separately in the database.

63 Saint Laurent des Eaux (1969, GCR, France)
CEC discharge reviews[4,14,15,16,17] provide data on ^{3}H discharges in the years 1976–1980 and total non-^{3}H discharges in the years 1969–1980. Discharges of ^{3}H in 1969–1975 are taken to be equal to the 1976 reported value. Similarly, 1981–1984 discharges are taken to be equal to the 1980 discharge (15.5 TBq y^{-1}). The radionuclide breakdown of non-^{3}H discharges is only reported for two years, 1976 and 1978. These compositions are used for the two years and an average composition is estimated for other years. In calculating discharges for other years the average percentage contribution of each radionuclide was normalised such that activity is conserved.

64 Saint Laurent des Eaux (1981, PWR, France)
Discharges during 1985 have been reported in the ninth report of the Paris

Commission[18]. These data are taken to represent discharges in previous years.

65 Stade (1972, PWR, Federal Republic of Germany)
Data were supplied in tabular form for project MARINA[1].

66 Studsvik (1960, research establishment, Sweden)
Data on discharges in 1970–1984 were supplied[1]. These data give a complete radionuclide composition for discharges in 1977–1984 and details of ^{3}H, Sr, total beta and total alpha discharges in the preceding years (1970–1976). The discharges of individual radionuclides in the years 1970–1976 were estimated from the total beta figures and the radionuclide composition of 1977 discharges. For 1970–1977, ^{89}Sr and ^{90}Sr are taken to be ^{90}Sr. Total alpha is taken to be ^{239}Pu. Releases from Studsvik are assumed to have started in 1960 when the R-2 and R2-0 research reactors achieved criticality[24]. Discharges in the period 1960–1969 are taken to be at the 1970 level.

67 Tihange (1975, PWR, Belgium)
All data were supplied for project MARINA[1].

68 Trawsfynydd (1965, GCR, UK)
Discharges of ^{3}H are from published CEGB reports[2] and additional information supplied by the operator[3]. Discharges of other radionuclides in 1972–1984 are taken from CEGB reports[2] or a CEC discharge review[4], or estimated as described below. The total annual non-^{3}H discharges in the years 1965–1968 were supplied by the operator[3]. The contribution of individual radionuclides to these early discharges is taken to be equal to the mean percentage contribution during the first three years for which that radionuclide is reported. The contribution of some radionuclides is not reported for the whole 1972–1884 period. In these circumstances the percentage contribution of the radionuclide to the total discharges is taken to be equal to the average of the percentage values for that nuclide reported in the three years closest to the unknown values.

69 Unterweser (1978, PWR, Federal Republic of Germany)
All data were supplied for project MARINA[1].

70 Winfrith (1960, research centre and SGHWR, UK)
Discharges are taken from published reports[11,20] supplemented by information supplied by the operator[22]. Discharges of the activation product ^{55}Fe in a number of years (1969–1977, 1980–1981, 1984) are estimated from known ^{55}Fe : ^{60}Co discharge ratios in other years. All alpha discharges are taken to be ^{239}Pu.

71 Würgassen (1972, BWR, Federal Republic of Germany)
All data were supplied for project MARINA[1].

72 Wylfa (1970, GCR, UK)
Discharges of ^{3}H are from published CEGB reports[2]. Discharges of other radionuclides in 1972–1984 are taken from CEGB reports[2] or a CEC discharge review[4], or estimated as described below. The contributions of individual radionuclides to early discharges are taken to be equal to the mean percentage contribution during the first three years for which that radionuclide is reported. The contribution of some radionuclides is not reported for the whole 1972–1984 period. In these circumstances the unknown percentage contribution of the radionuclide to the total discharges is taken to be equal to the average of the percentage values for that nuclide reported in the three years closest to the unknown values.

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Table 1

Discharges from Almaraz, Spain

Nuclide	1981	1982	1983	1984
^{3}H	$1.4\ 10^{12}$	$7.5\ 10^{12}$	$1.0\ 10^{13}$	$2.6\ 10^{13}$
^{58}Co	$1.4\ 10^{10}$	$7.2\ 10^{9}$	$3.0\ 10^{9}$	$3.6\ 10^{9}$
^{60}Co	$1.5\ 10^{10}$	$7.6\ 10^{9}$	$3.1\ 10^{9}$	$3.8\ 10^{9}$
^{90}Sr	$7.8\ 10^{8}$	$3.8\ 10^{8}$	$1.5\ 10^{8}$	$1.9\ 10^{8}$
^{131}I	$7.8\ 10^{9}$	$3.8\ 10^{9}$	$1.5\ 10^{9}$	$1.9\ 10^{9}$
^{134}Cs	$1.5\ 10^{10}$	$7.6\ 10^{9}$	$3.1\ 10^{9}$	$3.8\ 10^{9}$
^{137}Cs	$2.3\ 10^{10}$	$1.1\ 10^{10}$	$4.7\ 10^{9}$	$5.7\ 10^{9}$
Total	$7.8\ 10^{10}$	$3.8\ 10^{10}$	$1.5\ 10^{10}$	$1.9\ 10^{10}$

Table 2

Discharges from Almelo, the Netherlands

Nuclide	1972	1973	1974	1975	1976	1977
^{234}U	$1.2\ 10^{6}$	$1.2\ 10^{6}$	$1.2\ 10^{6}$	$1.2\ 10^{6}$	$1.2\ 10^{6}$	$1.2\ 10^{6}$
^{238}U	$1.2\ 10^{6}$	$1.2\ 10^{6}$	$1.2\ 10^{6}$	$1.2\ 10^{6}$	$1.2\ 10^{6}$	$1.2\ 10^{6}$

Nuclide	1978	1979	1980	1981	1982	1983	1984
^{234}U	$1.2\ 10^{6}$	$1.2\ 10^{6}$	$1.2\ 10^{6}$	$1.2\ 10^{6}$	$1.2\ 10^{6}$	$1.2\ 10^{6}$	$1.2\ 10^{6}$
^{238}U	$1.2\ 10^{6}$	$1.2\ 10^{6}$	$1.2\ 10^{6}$	$1.2\ 10^{6}$	$1.2\ 10^{6}$	$1.2\ 10^{6}$	$1.2\ 10^{6}$

Table 3

Discharges from Barsebäck, Sweden

Nuclide	1975	1976	1977	1978	1979
^{3}H	$3.5\ 10^{11}$	$5.1\ 10^{11}$	$7.4\ 10^{11}$	$1.2\ 10^{12}$	$1.0\ 10^{12}$
^{22}Na	0	0	0	0	0
^{51}Cr	$1.0\ 10^{10}$	$1.6\ 10^{10}$	$1.3\ 10^{10}$	$3.2\ 10^{10}$	$2.0\ 10^{10}$
^{54}Mn	$1.0\ 10^{8}$	$2.0\ 10^{9}$	$2.1\ 10^{9}$	$3.9\ 10^{9}$	$1.9\ 10^{9}$
^{57}Co	0	0	0	0	0
^{58}Co	$3.3\ 10^{9}$	$2.4\ 10^{10}$	$1.3\ 10^{10}$	$3.3\ 10^{10}$	$7.8\ 10^{9}$
^{59}Fe	0	0	0	$7.0\ 10^{8}$	$2.0\ 10^{8}$
^{60}Co	$3.0\ 10^{8}$	$1.2\ 10^{10}$	$2.7\ 10^{10}$	$5.3\ 10^{10}$	$2.2\ 10^{10}$
^{65}Zn	$4.0\ 10^{7}$	$2.9\ 10^{9}$	$7.0\ 10^{9}$	$1.0\ 10^{10}$	$5.6\ 10^{9}$
^{95}Nb	0	0	$7.0\ 10^{8}$	$1.9\ 10^{9}$	$7.0\ 10^{8}$
^{95}Zr	0	$2.6\ 10^{9}$	$2.0\ 10^{8}$	$6.0\ 10^{8}$	$2.0\ 10^{8}$
^{99m}Tc	0	0	0	0	0
^{103}Ru	0	0	0	0	0
^{110m}Ag	0	$1.4\ 10^{9}$	$1.9\ 10^{9}$	$3.6\ 10^{9}$	$7.0\ 10^{8}$
^{113}Sn	0	0	0	0	0
^{124}Sb	0	$1.3\ 10^{9}$	$1.0\ 10^{9}$	$1.8\ 10^{9}$	0
^{125}Sb	0	0	$2.0\ 10^{8}$	$2.0\ 10^{8}$	$2.0\ 10^{7}$
^{131}Ba	0	0	$1.0\ 10^{8}$	0	0
^{131}I	0	0	0	0	0
^{133}I	0	0	0	0	0
^{134}Cs	0	0	0	0	0
^{136}Cs	0	0	0	0	0
^{137}Cs	0	0	$7.0\ 10^{8}$	$2.0\ 10^{7}$	0
^{140}Ba	0	0	0	0	0
^{140}La	0	0	0	0	0
^{141}Ce	0	0	0	0	0
^{144}Ce	0	0	0	0	0
^{239}Np	0	0	0	0	0
^{239}Pu	$1.0\ 10^{8}$	$4.0\ 10^{6}$	$4.0\ 10^{6}$	$4.0\ 10^{6}$	$4.0\ 10^{6}$

Table 3 (continued)

Nuclide	1980	1981	1982	1983	1984
^{3}H	$7.8\ 10^{11}$	$7.5\ 10^{11}$	$5.2\ 10^{11}$	$6.8\ 10^{11}$	$1.0\ 10^{12}$
^{22}Na	0	0	0	0	0
^{51}Cr	$4.4\ 10^{9}$	$2.7\ 10^{10}$	$6.8\ 10^{9}$	$9.3\ 10^{10}$	$4.8\ 10^{9}$
^{54}Mn	$1.7\ 10^{9}$	$2.0\ 10^{9}$	$3.3\ 10^{9}$	$3.8\ 10^{9}$	$3.8\ 10^{9}$
^{57}Co	0	0	0	0	0
^{58}Co	$7.3\ 10^{9}$	$6.3\ 10^{9}$	$4.0\ 10^{9}$	$2.6\ 10^{9}$	$4.8\ 10^{9}$
^{59}Fe	$1.0\ 10^{8}$	$1.5\ 10^{8}$	$1.2\ 10^{8}$	$2.4\ 10^{8}$	$5.4\ 10^{8}$
^{60}Co	$3.7\ 10^{10}$	$4.4\ 10^{10}$	$7.3\ 10^{10}$	$4.4\ 10^{10}$	$5.1\ 10^{10}$
^{65}Zn	$5.8\ 10^{9}$	$5.5\ 10^{9}$	$7.8\ 10^{9}$	$2.4\ 10^{9}$	$1.2\ 10^{9}$
^{95}Nb	$2.0\ 10^{8}$	$1.4\ 10^{9}$	$2.9\ 10^{8}$	$5.4\ 10^{8}$	$1.6\ 10^{8}$
^{95}Zr	$2.0\ 10^{7}$	$6.1\ 10^{8}$	$3.0\ 10^{7}$	$2.5\ 10^{8}$	$9.0\ 10^{7}$
^{99m}Tc	0	0	0	0	0
^{103}Ru	0	0	0	0	0
^{110m}Ag	$3.0\ 10^{8}$	$2.4\ 10^{8}$	$1.3\ 10^{8}$	$7.0\ 10^{7}$	$6.0\ 10^{7}$
^{113}Sn	0	0	$1.0\ 10^{7}$	$7.0\ 10^{6}$	0
^{124}Sb	$5.0\ 10^{8}$	$4.0\ 10^{9}$	$3.5\ 10^{9}$	$1.3\ 10^{8}$	$9.9\ 10^{8}$
^{125}Sb	$1.0\ 10^{8}$	$4.0\ 10^{7}$	$1.6\ 10^{8}$	$1.2\ 10^{8}$	$3.3\ 10^{8}$
^{131}Ba	0	0	0	0	0
^{131}I	0	$2.9\ 10^{9}$	$8.2\ 10^{9}$	$7.2\ 10^{8}$	$2.2\ 10^{8}$
^{133}I	0	0	0	0	0
^{134}Cs	0	$4.6\ 10^{9}$	$1.9\ 10^{10}$	$6.3\ 10^{9}$	$4.1\ 10^{9}$
^{136}Cs	0	0	0	0	0
^{137}Cs	0	$6.1\ 10^{9}$	$2.5\ 10^{10}$	$1.1\ 10^{10}$	$9.2\ 10^{9}$
^{140}Ba	0	0	0	0	0
^{140}La	0	0	0	0	0
^{141}Ce	0	0	0	0	0
^{144}Ce	0	0	0	0	0
^{239}Np	0	0	0	0	0
^{239}Pu	$4.0\ 10^{6}$	0	0	0	0

Table 4

Discharges from Berkeley, UK

Nuclide	1963	1964	1965	1966	1967	1968	1969
^{3}H	$2.4\ 10^{12}$	$3.9\ 10^{13}$	$1.1\ 10^{13}$	$8.3\ 10^{12}$	$1.2\ 10^{13}$	$2.3\ 10^{12}$	$2.2\ 10^{12}$
^{14}C	$4.1\ 10^{7}$	$6.5\ 10^{7}$	$3.6\ 10^{8}$	$1.8\ 10^{9}$	$5.6\ 10^{9}$	$8.6\ 10^{9}$	$4.3\ 10^{9}$
^{32}P	$9.5\ 10^{7}$	$1.5\ 10^{8}$	$8.5\ 10^{8}$	$4.2\ 10^{9}$	$1.3\ 10^{10}$	$2.0\ 10^{10}$	$1.0\ 10^{10}$
^{35}S	$3.5\ 10^{9}$	$5.5\ 10^{9}$	$3.1\ 10^{10}$	$1.5\ 10^{11}$	$4.7\ 10^{11}$	$7.3\ 10^{11}$	$3.6\ 10^{11}$
^{45}Ca	$6.9\ 10^{8}$	$1.0\ 10^{9}$	$6.1\ 10^{9}$	$3.0\ 10^{10}$	$9.4\ 10^{10}$	$1.4\ 10^{11}$	$7.2\ 10^{10}$
^{51}Cr	$1.5\ 10^{8}$	$2.5\ 10^{8}$	$1.4\ 10^{9}$	$7.0\ 10^{9}$	$2.1\ 10^{10}$	$3.3\ 10^{10}$	$1.6\ 10^{10}$
^{54}Mn	$1.2\ 10^{7}$	$2.0\ 10^{7}$	$1.1\ 10^{8}$	$5.6\ 10^{8}$	$1.7\ 10^{9}$	$2.6\ 10^{9}$	$1.3\ 10^{9}$
^{55}Fe	$6.9\ 10^{7}$	$1.1\ 10^{8}$	$6.2\ 10^{8}$	$3.1\ 10^{9}$	$9.5\ 10^{9}$	$1.4\ 10^{10}$	$7.3\ 10^{9}$
^{58}Co	$1.5\ 10^{7}$	$2.5\ 10^{7}$	$1.4\ 10^{8}$	$7.0\ 10^{8}$	$2.1\ 10^{9}$	$3.3\ 10^{9}$	$1.6\ 10^{9}$
^{59}Fe	$1.2\ 10^{7}$	$2.0\ 10^{7}$	$1.1\ 10^{8}$	$5.6\ 10^{8}$	$1.7\ 10^{9}$	$2.6\ 10^{9}$	$1.3\ 10^{9}$
^{60}Co	$1.9\ 10^{7}$	$3.0\ 10^{7}$	$1.7\ 10^{8}$	$8.5\ 10^{8}$	$2.6\ 10^{9}$	$4.0\ 10^{9}$	$2.0\ 10^{9}$
^{63}Ni	$1.5\ 10^{7}$	$2.5\ 10^{7}$	$1.4\ 10^{8}$	$7.0\ 10^{8}$	$2.1\ 10^{9}$	$3.3\ 10^{9}$	$1.6\ 10^{9}$
^{65}Zn	$1.5\ 10^{7}$	$2.5\ 10^{7}$	$1.4\ 10^{8}$	$7.0\ 10^{8}$	$2.1\ 10^{9}$	$3.3\ 10^{9}$	$1.6\ 10^{9}$
^{89}Sr	$5.5\ 10^{8}$	$8.8\ 10^{8}$	$4.9\ 10^{9}$	$2.4\ 10^{10}$	$7.6\ 10^{10}$	$1.1\ 10^{11}$	$5.8\ 10^{10}$
^{90}Sr	$1.5\ 10^{9}$	$2.3\ 10^{9}$	$1.3\ 10^{10}$	$6.7\ 10^{10}$	$2.0\ 10^{11}$	$3.1\ 10^{11}$	$1.5\ 10^{11}$
^{90}Y	$1.5\ 10^{9}$	$2.3\ 10^{9}$	$1.3\ 10^{10}$	$6.7\ 10^{10}$	$2.0\ 10^{11}$	$3.1\ 10^{11}$	$1.5\ 10^{11}$
^{91}Y	$2.5\ 10^{7}$	$4.0\ 10^{7}$	$2.2\ 10^{8}$	$1.1\ 10^{9}$	$3.4\ 10^{9}$	$5.3\ 10^{9}$	$2.6\ 10^{9}$
^{95}Zr	$1.5\ 10^{7}$	$2.5\ 10^{7}$	$1.4\ 10^{8}$	$7.0\ 10^{8}$	$2.1\ 10^{9}$	$3.3\ 10^{9}$	$1.6\ 10^{9}$
^{95}Nb	$2.5\ 10^{7}$	$4.0\ 10^{7}$	$2.2\ 10^{8}$	$1.1\ 10^{9}$	$3.4\ 10^{9}$	$5.3\ 10^{9}$	$2.6\ 10^{9}$
^{106}Ru	$9.5\ 10^{7}$	$1.5\ 10^{8}$	$8.5\ 10^{8}$	$4.2\ 10^{9}$	$1.3\ 10^{10}$	$2.0\ 10^{10}$	$1.0\ 10^{10}$
^{106}Rh	$9.5\ 10^{7}$	$1.5\ 10^{8}$	$8.5\ 10^{8}$	$4.2\ 10^{9}$	$1.3\ 10^{10}$	$2.0\ 10^{10}$	$1.0\ 10^{10}$
^{110m}Ag	$1.2\ 10^{7}$	$2.0\ 10^{7}$	$1.1\ 10^{8}$	$5.6\ 10^{8}$	$1.7\ 10^{9}$	$2.6\ 10^{9}$	$1.3\ 10^{9}$
^{124}Sb	$1.5\ 10^{7}$	$2.5\ 10^{7}$	$1.4\ 10^{8}$	$7.0\ 10^{8}$	$2.1\ 10^{9}$	$3.3\ 10^{9}$	$1.6\ 10^{9}$
^{125}Sb	$8.2\ 10^{7}$	$1.3\ 10^{8}$	$7.3\ 10^{8}$	$3.6\ 10^{9}$	$1.1\ 10^{10}$	$1.7\ 10^{10}$	$8.6\ 10^{9}$
^{125m}Te	$1.5\ 10^{7}$	$2.5\ 10^{7}$	$1.4\ 10^{8}$	$7.0\ 10^{8}$	$2.1\ 10^{9}$	$3.3\ 10^{9}$	$1.6\ 10^{9}$
^{134}Cs	$1.5\ 10^{9}$	$2.4\ 10^{9}$	$1.4\ 10^{10}$	$7.0\ 10^{10}$	$2.1\ 10^{11}$	$3.3\ 10^{11}$	$1.6\ 10^{11}$
^{137}Cs	$8.5\ 10^{9}$	$1.3\ 10^{10}$	$7.6\ 10^{10}$	$3.8\ 10^{11}$	$1.1\ 10^{12}$	$1.7\ 10^{12}$	$8.9\ 10^{11}$
^{144}Ce	$1.0\ 10^{8}$	$1.7\ 10^{8}$	$9.6\ 10^{8}$	$4.8\ 10^{9}$	$1.4\ 10^{10}$	$2.2\ 10^{10}$	$1.1\ 10^{10}$
^{144}Pr	$1.0\ 10^{8}$	$1.7\ 10^{8}$	$9.6\ 10^{8}$	$4.8\ 10^{9}$	$1.4\ 10^{10}$	$2.2\ 10^{10}$	$1.1\ 10^{10}$
^{147}Pm	$2.0\ 10^{8}$	$3.3\ 10^{8}$	$1.8\ 10^{9}$	$9.3\ 10^{9}$	$2.8\ 10^{10}$	$4.4\ 10^{10}$	$2.2\ 10^{10}$
^{154}Eu	$1.2\ 10^{7}$	$2.0\ 10^{7}$	$1.1\ 10^{8}$	$5.6\ 10^{8}$	$1.7\ 10^{9}$	$2.6\ 10^{9}$	$1.3\ 10^{9}$
^{155}Eu	$9.5\ 10^{6}$	$1.5\ 10^{7}$	$8.5\ 10^{7}$	$4.2\ 10^{8}$	$1.3\ 10^{9}$	$2.0\ 10^{9}$	$1.0\ 10^{9}$
^{239}Pu	$1.2\ 10^{7}$	$2.0\ 10^{7}$	$1.1\ 10^{8}$	$5.6\ 10^{8}$	$1.7\ 10^{9}$	$2.6\ 10^{9}$	$1.3\ 10^{9}$

Table 4 (continued)

Nuclide	1970	1971	1972	1973	1974	1975	1976
^{3}H	$2.2\ 10^{12}$	$1.6\ 10^{12}$	$1.6\ 10^{12}$	$7.4\ 10^{12}$	$2.1\ 10^{12}$	$2.6\ 10^{12}$	$1.1\ 10^{12}$
^{14}C	$1.8\ 10^{9}$	$1.2\ 10^{9}$	$1.8\ 10^{9}$	$3.0\ 10^{9}$	$1.7\ 10^{9}$	$1.0\ 10^{9}$	$2.0\ 10^{9}$
^{32}P	$4.3\ 10^{9}$	$2.8\ 10^{9}$	$6.8\ 10^{9}$	$3.0\ 10^{9}$	$2.5\ 10^{9}$	$4.8\ 10^{10}$	$1.6\ 10^{10}$
^{35}S	$1.5\ 10^{11}$	$1.0\ 10^{11}$	$1.7\ 10^{11}$	$1.6\ 10^{11}$	$1.2\ 10^{11}$	$1.4\ 10^{11}$	$2.5\ 10^{11}$
^{45}Ca	$3.1\ 10^{10}$	$2.0\ 10^{10}$	$1.3\ 10^{10}$	$4.3\ 10^{10}$	$3.1\ 10^{10}$	$1.1\ 10^{11}$	$3.6\ 10^{10}$
^{51}Cr	$7.1\ 10^{9}$	$4.6\ 10^{9}$	$7.1\ 10^{9}$	$3.8\ 10^{9}$	$5.9\ 10^{9}$	$2.6\ 10^{10}$	$2.0\ 10^{10}$
^{54}Mn	$5.7\ 10^{8}$	$3.7\ 10^{8}$	$5.7\ 10^{8}$	$7.7\ 10^{8}$	$4.2\ 10^{8}$	$1.0\ 10^{9}$	$2.0\ 10^{9}$
^{55}Fe	$3.1\ 10^{9}$	$2.0\ 10^{9}$	$1.7\ 10^{9}$	$3.0\ 10^{9}$	$4.2\ 10^{9}$	$1.2\ 10^{10}$	$4.1\ 10^{9}$
^{58}Co	$7.1\ 10^{8}$	$4.6\ 10^{8}$	$8.6\ 10^{8}$	$7.7\ 10^{8}$	$4.2\ 10^{8}$	$1.0\ 10^{9}$	$2.0\ 10^{9}$
^{59}Fe	$5.7\ 10^{8}$	$3.7\ 10^{8}$	$5.7\ 10^{8}$	$7.7\ 10^{8}$	$4.2\ 10^{8}$	$1.0\ 10^{9}$	$2.0\ 10^{9}$
^{60}Co	$8.6\ 10^{8}$	$5.6\ 10^{8}$	$8.6\ 10^{8}$	$7.7\ 10^{8}$	$8.5\ 10^{8}$	$2.0\ 10^{9}$	$2.0\ 10^{9}$
^{63}Ni	$7.1\ 10^{8}$	$4.6\ 10^{8}$	$7.1\ 10^{8}$	$7.7\ 10^{8}$	$4.2\ 10^{8}$	$2.0\ 10^{9}$	$2.0\ 10^{9}$
^{65}Zn	$7.1\ 10^{8}$	$4.6\ 10^{8}$	$7.1\ 10^{8}$	$7.7\ 10^{8}$	$4.2\ 10^{8}$	$2.0\ 10^{9}$	$2.0\ 10^{9}$
^{89}Sr	$2.5\ 10^{10}$	$1.6\ 10^{10}$	$4.3\ 10^{10}$	$2.0\ 10^{10}$	$1.0\ 10^{10}$	$1.8\ 10^{10}$	$8.2\ 10^{9}$
^{90}Sr	$6.7\ 10^{10}$	$4.4\ 10^{10}$	$5.2\ 10^{10}$	$6.9\ 10^{10}$	$7.3\ 10^{10}$	$9.0\ 10^{10}$	$4.1\ 10^{10}$
^{90}Y	$6.7\ 10^{10}$	$4.4\ 10^{10}$	$5.2\ 10^{10}$	$6.9\ 10^{10}$	$7.3\ 10^{10}$	$9.0\ 10^{10}$	$4.1\ 10^{10}$
^{91}Y	$1.1\ 10^{9}$	$7.4\ 10^{8}$	$1.1\ 10^{9}$	$7.7\ 10^{8}$	$1.7\ 10^{9}$	$2.0\ 10^{9}$	$4.1\ 10^{9}$
^{95}Zr	$7.1\ 10^{8}$	$4.6\ 10^{8}$	$7.1\ 10^{8}$	$7.7\ 10^{8}$	$4.2\ 10^{8}$	$2.0\ 10^{9}$	$2.0\ 10^{9}$
^{95}Nb	$1.1\ 10^{9}$	$7.4\ 10^{8}$	$1.1\ 10^{9}$	$7.7\ 10^{8}$	$8.5\ 10^{8}$	$4.0\ 10^{9}$	$8.2\ 10^{9}$
^{106}Ru	$4.3\ 10^{9}$	$2.8\ 10^{9}$	$6.8\ 10^{9}$	$2.3\ 10^{9}$	$3.4\ 10^{9}$	$2.0\ 10^{9}$	$1.2\ 10^{10}$
^{106}Rh	$4.3\ 10^{9}$	$2.8\ 10^{9}$	$6.8\ 10^{9}$	$2.3\ 10^{9}$	$3.4\ 10^{9}$	$2.0\ 10^{9}$	$1.2\ 10^{10}$
^{110m}Ag	$5.7\ 10^{8}$	$3.7\ 10^{8}$	$5.7\ 10^{8}$	$7.7\ 10^{8}$	$4.2\ 10^{8}$	$1.0\ 10^{9}$	$2.0\ 10^{9}$
^{124}Sb	$7.1\ 10^{8}$	$4.6\ 10^{8}$	$7.1\ 10^{8}$	$6.4\ 10^{8}$	$7.0\ 10^{8}$	$1.6\ 10^{9}$	$3.4\ 10^{9}$
^{125}Sb	$3.7\ 10^{9}$	$2.4\ 10^{9}$	$5.1\ 10^{9}$	$2.3\ 10^{9}$	$3.4\ 10^{9}$	$2.0\ 10^{9}$	$4.1\ 10^{9}$
^{125m}Te	$7.1\ 10^{8}$	$4.6\ 10^{8}$	$7.1\ 10^{8}$	$7.7\ 10^{8}$	$8.5\ 10^{8}$	$1.0\ 10^{9}$	$2.0\ 10^{9}$
^{134}Cs	$7.1\ 10^{10}$	$4.6\ 10^{10}$	$7.4\ 10^{10}$	$5.2\ 10^{10}$	$8.0\ 10^{10}$	$2.8\ 10^{11}$	$8.6\ 10^{11}$
^{137}Cs	$3.8\ 10^{11}$	$2.5\ 10^{11}$	$3.7\ 10^{11}$	$3.1\ 10^{11}$	$4.1\ 10^{11}$	$1.1\ 10^{12}$	$2.7\ 10^{12}$
^{144}Ce	$4.8\ 10^{9}$	$3.1\ 10^{9}$	$1.0\ 10^{10}$	$1.5\ 10^{9}$	$2.5\ 10^{9}$	$6.0\ 10^{9}$	$8.2\ 10^{9}$
^{144}Pr	$4.8\ 10^{9}$	$3.1\ 10^{9}$	$1.0\ 10^{10}$	$1.5\ 10^{9}$	$2.5\ 10^{9}$	$6.0\ 10^{9}$	$8.2\ 10^{9}$
^{147}Pm	$9.4\ 10^{9}$	$6.1\ 10^{9}$	$1.3\ 10^{10}$	$4.6\ 10^{9}$	$9.3\ 10^{9}$	$3.4\ 10^{10}$	$1.2\ 10^{10}$
^{154}Eu	$5.7\ 10^{8}$	$3.7\ 10^{8}$	$5.7\ 10^{8}$	$7.7\ 10^{8}$	$4.2\ 10^{8}$	$1.0\ 10^{9}$	$2.0\ 10^{9}$
^{155}Eu	$4.3\ 10^{8}$	$2.8\ 10^{8}$	$4.3\ 10^{8}$	$3.8\ 10^{8}$	$4.2\ 10^{8}$	$1.0\ 10^{9}$	$2.0\ 10^{9}$
^{239}Pu	$5.7\ 10^{8}$	$3.7\ 10^{8}$	$5.7\ 10^{8}$	$5.1\ 10^{8}$	$5.6\ 10^{8}$	$2.0\ 10^{9}$	$2.0\ 10^{9}$

Table 4 (continued)

Nuclide	1977	1978	1979	1980	1981	1982	1983	1984
^{3}H	$1.9\ 10^{12}$	$5.9\ 10^{11}$	$1.6\ 10^{12}$	$2.8\ 10^{12}$	$3.0\ 10^{12}$	$1.7\ 10^{12}$	$7.4\ 10^{10}$	$1.3\ 10^{12}$
^{14}C	$2.7\ 10^{9}$	$6.0\ 10^{8}$	$8.5\ 10^{8}$	$1.0\ 10^{9}$	$6.5\ 10^{8}$	$3.3\ 10^{8}$	$3.4\ 10^{8}$	$1.8\ 10^{8}$
^{32}P	$5.5\ 10^{9}$	$6.0\ 10^{8}$	$8.5\ 10^{8}$	$1.0\ 10^{9}$	$6.5\ 10^{8}$	$3.3\ 10^{8}$	$3.4\ 10^{8}$	$1.8\ 10^{8}$
^{35}S	$5.1\ 10^{11}$	$1.4\ 10^{11}$	$3.6\ 10^{11}$	$3.0\ 10^{11}$	$9.4\ 10^{10}$	$1.9\ 10^{10}$	$1.3\ 10^{10}$	$1.1\ 10^{10}$
^{45}Ca	$3.3\ 10^{10}$	$6.0\ 10^{9}$	$2.7\ 10^{10}$	$6.3\ 10^{10}$	$4.5\ 10^{10}$	$1.3\ 10^{10}$	$1.3\ 10^{10}$	$3.7\ 10^{9}$
^{51}Cr	$8.8\ 10^{10}$	$6.0\ 10^{8}$	$8.5\ 10^{8}$	$1.0\ 10^{9}$	$2.1\ 10^{8}$	$1.1\ 10^{8}$	0	0
^{54}Mn	$2.7\ 10^{9}$	$6.0\ 10^{8}$	$8.5\ 10^{8}$	$1.0\ 10^{9}$	$6.5\ 10^{8}$	$3.3\ 10^{8}$	0	0
^{55}Fe	$5.5\ 10^{9}$	$2.4\ 10^{9}$	$1.7\ 10^{9}$	$2.1\ 10^{9}$	$1.3\ 10^{9}$	$3.3\ 10^{9}$	$3.4\ 10^{9}$	$1.8\ 10^{9}$
^{58}Co	$2.7\ 10^{9}$	$6.0\ 10^{8}$	$8.5\ 10^{8}$	$1.0\ 10^{9}$	$6.5\ 10^{8}$	$3.3\ 10^{8}$	0	0
^{59}Fe	$5.5\ 10^{9}$	$6.0\ 10^{8}$	$8.5\ 10^{8}$	$1.0\ 10^{9}$	$6.5\ 10^{8}$	$3.3\ 10^{9}$	0	0
^{60}Co	$2.7\ 10^{9}$	$1.2\ 10^{9}$	$1.7\ 10^{9}$	$2.1\ 10^{9}$	$1.3\ 10^{9}$	$3.3\ 10^{9}$	$3.4\ 10^{9}$	$1.8\ 10^{9}$
^{63}Ni	$2.7\ 10^{9}$	$6.0\ 10^{8}$	$8.5\ 10^{8}$	$1.0\ 10^{9}$	$6.5\ 10^{8}$	$3.3\ 10^{8}$	$3.4\ 10^{8}$	$1.8\ 10^{8}$
^{65}Zn	$2.7\ 10^{9}$	$6.0\ 10^{8}$	$8.5\ 10^{8}$	$1.0\ 10^{9}$	$1.3\ 10^{9}$	$3.3\ 10^{8}$	$3.4\ 10^{8}$	$1.8\ 10^{8}$
^{89}Sr	$1.1\ 10^{10}$	$1.2\ 10^{9}$	$1.7\ 10^{9}$	$1.0\ 10^{10}$	$9.1\ 10^{9}$	0	0	0
^{90}Sr	$3.3\ 10^{10}$	$1.6\ 10^{10}$	$7.8\ 10^{10}$	$2.6\ 10^{11}$	$1.8\ 10^{11}$	$1.1\ 10^{11}$	$1.3\ 10^{11}$	$8.1\ 10^{10}$
^{90}Y	$3.3\ 10^{10}$	$1.6\ 10^{10}$	$7.8\ 10^{10}$	$2.6\ 10^{11}$	$1.8\ 10^{11}$	$1.1\ 10^{11}$	$1.3\ 10^{11}$	$8.1\ 10^{10}$
^{91}Y	$1.1\ 10^{10}$	$2.4\ 10^{9}$	$1.0\ 10^{10}$	$2.1\ 10^{9}$	$6.5\ 10^{8}$	$3.3\ 10^{9}$	0	0
^{95}Zr	$1.1\ 10^{10}$	$1.2\ 10^{9}$	$8.5\ 10^{8}$	$1.0\ 10^{9}$	$1.3\ 10^{9}$	$3.3\ 10^{9}$	$3.4\ 10^{9}$	$1.8\ 10^{8}$
^{95}Nb	$4.4\ 10^{10}$	$1.5\ 10^{10}$	$1.7\ 10^{9}$	$1.0\ 10^{9}$	$6.5\ 10^{8}$	$3.3\ 10^{8}$	$6.8\ 10^{9}$	0
^{106}Ru	$1.1\ 10^{10}$	$6.0\ 10^{9}$	$1.7\ 10^{9}$	$1.0\ 10^{9}$	$1.3\ 10^{9}$	$3.3\ 10^{9}$	$6.8\ 10^{9}$	$3.7\ 10^{9}$
^{106}Rh	$1.1\ 10^{10}$	$6.0\ 10^{9}$	$1.7\ 10^{9}$	$1.0\ 10^{9}$	$1.3\ 10^{9}$	$3.3\ 10^{9}$	$6.8\ 10^{9}$	$3.7\ 10^{9}$
^{110m}Ag	$2.7\ 10^{9}$	$6.0\ 10^{8}$	$8.5\ 10^{8}$	$1.0\ 10^{9}$	$6.5\ 10^{8}$	$3.3\ 10^{8}$	0	0
^{124}Sb	$4.5\ 10^{9}$	$1.0\ 10^{9}$	$1.7\ 10^{9}$	$2.1\ 10^{9}$	$6.5\ 10^{8}$	$3.3\ 10^{8}$	0	0
^{125}Sb	$5.5\ 10^{9}$	$6.0\ 10^{9}$	$3.0\ 10^{10}$	$1.0\ 10^{10}$	$5.2\ 10^{9}$	$3.3\ 10^{9}$	$3.4\ 10^{9}$	$3.7\ 10^{9}$
^{125m}Te	$2.7\ 10^{9}$	$1.2\ 10^{9}$	$6.8\ 10^{9}$	$2.1\ 10^{9}$	$1.3\ 10^{9}$	$3.3\ 10^{9}$	$3.4\ 10^{9}$	$1.8\ 10^{9}$
^{134}Cs	$9.4\ 10^{11}$	$1.7\ 10^{11}$	$1.9\ 10^{11}$	$1.9\ 10^{11}$	$1.1\ 10^{11}$	$3.9\ 10^{10}$	$2.7\ 10^{10}$	$1.1\ 10^{10}$
^{137}Cs	$3.6\ 10^{12}$	$7.1\ 10^{11}$	$8.6\ 10^{11}$	$9.6\ 10^{11}$	$6.5\ 10^{11}$	$3.6\ 10^{11}$	$3.0\ 10^{11}$	$1.6\ 10^{11}$
^{144}Ce	$1.1\ 10^{10}$	$3.3\ 10^{10}$	$1.5\ 10^{10}$	$2.1\ 10^{9}$	$1.3\ 10^{9}$	$3.3\ 10^{9}$	$6.8\ 10^{9}$	$1.8\ 10^{9}$
^{144}Pr	$1.1\ 10^{10}$	$3.3\ 10^{10}$	$1.5\ 10^{10}$	$2.1\ 10^{9}$	$1.3\ 10^{9}$	$3.3\ 10^{9}$	$6.8\ 10^{9}$	$1.8\ 10^{9}$
^{147}Pm	$1.6\ 10^{10}$	$1.9\ 10^{10}$	$6.8\ 10^{9}$	$4.2\ 10^{9}$	$6.5\ 10^{9}$	$3.3\ 10^{9}$	$1.3\ 10^{10}$	$7.4\ 10^{9}$
^{154}Eu	$2.7\ 10^{9}$	$6.0\ 10^{8}$	$8.5\ 10^{8}$	$1.0\ 10^{9}$	$6.5\ 10^{8}$	$3.3\ 10^{8}$	$3.4\ 10^{9}$	$1.8\ 10^{9}$
^{155}Eu	$2.7\ 10^{9}$	$6.0\ 10^{8}$	$8.5\ 10^{8}$	$1.0\ 10^{9}$	$6.5\ 10^{8}$	$3.3\ 10^{8}$	$3.4\ 10^{8}$	$1.8\ 10^{9}$
^{239}Pu	$2.7\ 10^{9}$	$6.0\ 10^{8}$	$8.5\ 10^{8}$	$1.0\ 10^{9}$	$6.5\ 10^{8}$	$3.3\ 10^{8}$	$3.4\ 10^{9}$	$1.8\ 10^{9}$

Table 5

Discharges from Beznau, Switzerland

Nuclide	1969	1970	1971	1972	1973	1974	1975	1976
^{3}H	$3.1\ 10^{13}$	$3.1\ 10^{13}$	$3.1\ 10^{13}$	$3.1\ 10^{13}$	$3.1\ 10^{13}$	$3.1\ 10^{13}$	$3.0\ 10^{13}$	$2.6\ 10^{13}$
^{51}Cr	$3.7\ 10^{10}$	$3.7\ 10^{10}$	$3.7\ 10^{10}$	$3.7\ 10^{10}$	$3.7\ 10^{10}$	$3.7\ 10^{10}$	$8.6\ 10^{8}$	$1.9\ 10^{10}$
^{54}Mn	$4.8\ 10^{9}$	$4.8\ 10^{9}$	$4.8\ 10^{9}$	$4.8\ 10^{9}$	$4.8\ 10^{9}$	$4.8\ 10^{9}$	$1.1\ 10^{8}$	$6.1\ 10^{9}$
^{59}Fe	0	0	0	0	0	0	0	0
^{57}Co	0	0	0	0	0	0	0	0
^{58}Co	$1.4\ 10^{11}$	$1.4\ 10^{11}$	$1.4\ 10^{11}$	$1.4\ 10^{11}$	$1.4\ 10^{11}$	$1.4\ 10^{11}$	$3.3\ 10^{9}$	$5.9\ 10^{10}$
^{60}Co	$4.5\ 10^{10}$	$4.5\ 10^{10}$	$4.5\ 10^{10}$	$4.5\ 10^{10}$	$4.5\ 10^{10}$	$4.5\ 10^{10}$	$1.0\ 10^{9}$	$3.1\ 10^{10}$
^{90}Sr	0	0	0	0	0	0	0	0
^{95}Zr	$8.5\ 10^{9}$	$8.5\ 10^{9}$	$8.5\ 10^{9}$	$8.5\ 10^{9}$	$8.5\ 10^{9}$	$8.5\ 10^{9}$	$1.9\ 10^{8}$	$6.8\ 10^{9}$
^{97}Zr	0	0	0	0	0	0	0	0
^{95}Nb	0	0	0	0	0	0	0	0
^{99}Mo	0	0	0	0	0	0	0	0
^{103}Ru	0	0	0	0	0	0	0	0
^{110m}Ag	0	0	0	0	0	0	0	0
^{122}Sb	0	0	0	0	0	0	0	0
^{124}Sb	0	0	0	0	0	0	0	0
^{125}Sb	0	0	0	0	0	0	0	0
^{131}I	$7.4\ 10^{9}$	$7.4\ 10^{9}$	$7.4\ 10^{9}$	$7.4\ 10^{9}$	$7.4\ 10^{9}$	$7.4\ 10^{9}$	$1.7\ 10^{8}$	$1.1\ 10^{10}$
^{133}I	0	0	0	0	0	0	0	0
^{134}Cs	$1.4\ 10^{10}$	$1.4\ 10^{10}$	$1.4\ 10^{10}$	$1.4\ 10^{10}$	$1.4\ 10^{10}$	$1.4\ 10^{10}$	$3.3\ 10^{8}$	$1.9\ 10^{10}$
^{136}Cs	0	0	0	0	0	0	0	0
^{137}Cs	$9.9\ 10^{10}$	$9.9\ 10^{10}$	$9.9\ 10^{10}$	$9.9\ 10^{10}$	$9.9\ 10^{10}$	$9.9\ 10^{10}$	$2.3\ 10^{9}$	$4.4\ 10^{10}$
^{140}Ba	0	0	0	0	0	0	0	0
^{140}La	0	0	0	0	0	0	0	0
^{141}Ce	$1.4\ 10^{9}$	$1.4\ 10^{9}$	$1.4\ 10^{9}$	$1.4\ 10^{9}$	$1.4\ 10^{9}$	$1.4\ 10^{9}$	$3.4\ 10^{7}$	$6.6\ 10^{8}$
^{143}Ce	$5.1\ 10^{9}$	$5.1\ 10^{9}$	$5.1\ 10^{9}$	$5.1\ 10^{9}$	$5.1\ 10^{9}$	$5.1\ 10^{9}$	$1.2\ 10^{8}$	$3.0\ 10^{9}$
^{144}Ce	0	0	0	0	0	0	0	0

Table 5 (continued)

Nuclide	1977	1978	1979	1980	1981	1982	1983	1984
^{3}H	$1.8\ 10^{13}$	$1.1\ 10^{13}$	$2.1\ 10^{12}$	$2.3\ 10^{13}$	$1.8\ 10^{13}$	$2.7\ 10^{13}$	$2.7\ 10^{13}$	$2.8\ 10^{13}$
^{51}Cr	$1.1\ 10^{10}$	$4.4\ 10^{9}$	$9.6\ 10^{9}$	$4.0\ 10^{9}$	$5.8\ 10^{9}$	$1.2\ 10^{10}$	$2.2\ 10^{9}$	$4.0\ 10^{9}$
^{54}Mn	$4.0\ 10^{9}$	$3.3\ 10^{9}$	$3.2\ 10^{9}$	$2.5\ 10^{9}$	$2.1\ 10^{9}$	$3.2\ 10^{9}$	$1.1\ 10^{9}$	$1.4\ 10^{9}$
^{59}Fe	0	0	0	$2.9\ 10^{9}$	$9.7\ 10^{8}$	$6.2\ 10^{8}$	$1.4\ 10^{8}$	$1.4\ 10^{8}$
^{57}Co	0	0	0	$3.7\ 10^{8}$	$1.9\ 10^{8}$	$1.8\ 10^{8}$	$1.1\ 10^{8}$	$1.1\ 10^{8}$
^{58}Co	$3.1\ 10^{10}$	$2.3\ 10^{10}$	$1.7\ 10^{10}$	$3.5\ 10^{10}$	$2.2\ 10^{10}$	$2.1\ 10^{10}$	$1.4\ 10^{10}$	$1.9\ 10^{10}$
^{60}Co	$1.8\ 10^{10}$	$2.1\ 10^{10}$	$3.2\ 10^{10}$	$4.0\ 10^{10}$	$4.5\ 10^{10}$	$6.2\ 10^{10}$	$4.4\ 10^{10}$	$3.4\ 10^{10}$
^{90}Sr	0	$3.7\ 10^{8}$	$2.9\ 10^{8}$	$1.8\ 10^{8}$	$7.4\ 10^{7}$	$3.7\ 10^{7}$	$3.7\ 10^{7}$	$3.7\ 10^{7}$
^{95}Zr	$1.8\ 10^{9}$	$1.8\ 10^{9}$	$3.4\ 10^{9}$	$3.7\ 10^{8}$	$7.9\ 10^{8}$	$2.2\ 10^{9}$	$2.9\ 10^{8}$	$2.9\ 10^{8}$
^{97}Zr	0	0	0	$3.7\ 10^{7}$	$9.2\ 10^{6}$	0	0	0
^{95}Nb	0	0	0	$6.6\ 10^{8}$	$1.2\ 10^{9}$	$2.9\ 10^{9}$	$7.4\ 10^{8}$	$4.8\ 10^{8}$
^{99}Mo	0	0	0	0	$9.2\ 10^{5}$	0	$3.7\ 10^{6}$	0
^{103}Ru	0	0	0	$3.3\ 10^{8}$	$2.1\ 10^{8}$	$3.3\ 10^{8}$	$7.4\ 10^{7}$	$1.1\ 10^{8}$
^{110m}Ag	0	0	0	$1.4\ 10^{9}$	$4.3\ 10^{8}$	$3.7\ 10^{7}$	$1.4\ 10^{7}$	$2.9\ 10^{8}$
^{122}Sb	0	0	0	0	$4.6\ 10^{7}$	0	0	$1.8\ 10^{8}$
^{124}Sb	0	0	0	$5.9\ 10^{9}$	$3.3\ 10^{9}$	$3.2\ 10^{9}$	$2.2\ 10^{9}$	$1.8\ 10^{9}$
^{125}Sb	0	0	0	$2.0\ 10^{9}$	$2.4\ 10^{9}$	$3.4\ 10^{9}$	$1.8\ 10^{9}$	$2.2\ 10^{9}$
^{131}I	$3.8\ 10^{9}$	$5.5\ 10^{9}$	$8.1\ 10^{8}$	$3.3\ 10^{9}$	$1.7\ 10^{9}$	$7.4\ 10^{8}$	$7.4\ 10^{7}$	$2.9\ 10^{9}$
^{133}I	0	0	0	$2.2\ 10^{9}$	$1.8\ 10^{9}$	$1.8\ 10^{9}$	$7.4\ 10^{6}$	$3.3\ 10^{9}$
^{134}Cs	$1.5\ 10^{10}$	$9.6\ 10^{9}$	0	$7.0\ 10^{9}$	$3.4\ 10^{9}$	$2.4\ 10^{9}$	$1.4\ 10^{9}$	$2.5\ 10^{9}$
^{136}Cs	0	0	$4.4\ 10^{9}$	0	$2.9\ 10^{7}$	$3.7\ 10^{7}$	$7.4\ 10^{6}$	$7.4\ 10^{7}$
^{137}Cs	$4.3\ 10^{10}$	$2.8\ 10^{10}$	$1.3\ 10^{10}$	$1.9\ 10^{10}$	$1.4\ 10^{10}$	$1.7\ 10^{10}$	$1.1\ 10^{10}$	$1.1\ 10^{10}$
^{140}Ba	0	0	0	$1.8\ 10^{8}$	$1.0\ 10^{8}$	$3.7\ 10^{7}$	$7.4\ 10^{6}$	$1.8\ 10^{8}$
^{140}La	0	0	0	$1.8\ 10^{8}$	$1.0\ 10^{8}$	$7.4\ 10^{7}$	$2.9\ 10^{7}$	$1.4\ 10^{8}$
^{141}Ce	$1.4\ 10^{8}$	0	$1.8\ 10^{8}$	$7.4\ 10^{7}$	$5.5\ 10^{7}$	$1.4\ 10^{8}$	0	0
^{143}Ce	$2.1\ 10^{9}$	$1.1\ 10^{9}$	$1.2\ 10^{9}$	$3.7\ 10^{7}$	$9.2\ 10^{6}$	0	0	0
^{144}Ce	0	0	0	$4.8\ 10^{7}$	$1.6\ 10^{8}$	$3.7\ 10^{8}$	$1.4\ 10^{8}$	$1.1\ 10^{8}$

Table 6

Discharges from Biblis A. FRG

Nuclide	1974	1975	1976	1977	1978
^{58}Co	$1.5\ 10^{9}$	$1.4\ 10^{9}$	$7.1\ 10^{8}$	$7.3\ 10^{8}$	$3.8\ 10^{8}$
^{60}Co	$1.2\ 10^{8}$	$2.9\ 10^{8}$	$1.4\ 10^{9}$	$4.6\ 10^{8}$	$1.4\ 10^{9}$
^{51}Cr	0	0	0	0	0
^{54}Mn	$1.3\ 10^{8}$	0	0	0	$7.0\ 10^{7}$
^{124}Sb	$1.0\ 10^{10}$	$1.1\ 10^{10}$	$3.6\ 10^{9}$	$2.3\ 10^{9}$	0
^{131}I	0	$5.9\ 10^{8}$	0	0	$1.4\ 10^{8}$
^{134}Cs	0	0	$4.5\ 10^{8}$	$2.9\ 10^{8}$	$1.6\ 10^{8}$
^{137}Cs	0	$4.1\ 10^{8}$	$1.0\ 10^{9}$	$8.4\ 10^{8}$	$5.1\ 10^{8}$
^{89}Sr	0	0	0	0	$2.0\ 10^{7}$
^{95}Nb	0	0	0	0	$1.3\ 10^{8}$
^{110m}Ag	0	0	0	0	$1.5\ 10^{7}$
^{123m}Te	0	0	0	0	$9.3\ 10^{7}$
^{144}Ce	0	0	0	0	0
^{140}La	0	0	0	0	0
Total	$1.5\ 10^{10}$	$1.4\ 10^{10}$	$7.4\ 10^{9}$	$4.8\ 10^{9}$	$3.7\ 10^{9}$
^{3}H	$3.0\ 10^{11}$	$4.1\ 10^{12}$	$1.2\ 10^{13}$	$6.7\ 10^{12}$	$1.3\ 10^{13}$

Nuclide	1979	1980	1981	1982	1983	1984
^{58}Co	$4.1\ 10^{7}$	$1.1\ 10^{8}$	$5.2\ 10^{7}$	$9.1\ 10^{7}$	$2.7\ 10^{7}$	$5.5\ 10^{7}$
^{60}Co	$1.4\ 10^{9}$	$1.5\ 10^{9}$	$1.2\ 10^{9}$	$1.4\ 10^{9}$	$9.3\ 10^{8}$	$4.7\ 10^{8}$
^{51}Cr	0	0	0	0	0	0
^{54}Mn	0	$4.4\ 10^{7}$	$1.6\ 10^{7}$	$2.7\ 10^{7}$	0	$2.6\ 10^{7}$
^{124}Sb	$2.0\ 10^{8}$	$3.2\ 10^{8}$	$5.3\ 10^{7}$	$2.9\ 10^{8}$	$2.2\ 10^{8}$	$9.0\ 10^{8}$
^{131}I	0	0	$2.8\ 10^{7}$	0	$3.3\ 10^{7}$	0
^{134}Cs	$3.3\ 10^{7}$	$2.5\ 10^{7}$	$2.9\ 10^{7}$	$1.9\ 10^{8}$	$2.9\ 10^{8}$	$1.2\ 10^{8}$
^{137}Cs	$1.0\ 10^{8}$	$1.1\ 10^{8}$	$1.5\ 10^{8}$	$4.0\ 10^{8}$	$5.7\ 10^{8}$	$2.2\ 10^{8}$
^{89}Sr	0	0	0	0	0	$1.2\ 10^{7}$
^{95}Nb	$1.9\ 10^{7}$	$7.8\ 10^{7}$	0	0	0	0
^{110m}Ag	0	0	0	0	0	0
^{123m}Te	$1.5\ 10^{8}$	$2.0\ 10^{8}$	0	0	$5.6\ 10^{7}$	$3.5\ 10^{8}$
^{144}Ce	0	$1.8\ 10^{8}$	0	0	0	$1.8\ 10^{7}$
^{140}La	0	0	0	0	$1.2\ 10^{8}$	$1.8\ 10^{7}$
Total	$1.9\ 10^{9}$	$2.6\ 10^{9}$	$1.5\ 10^{9}$	$2.4\ 10^{9}$	$2.3\ 10^{9}$	$2.3\ 10^{9}$
^{3}H	$6.2\ 10^{12}$	$1.5\ 10^{13}$	$7.9\ 10^{12}$	$1.7\ 10^{13}$	$2.1\ 10^{13}$	$1.0\ 10^{13}$

Table 7

Discharges from Biblis B, FRG

Nuclide	1976	1977	1978	1979
^{58}Co	$9.7\ 10^{8}$	$5.0\ 10^{7}$	$1.1\ 10^{8}$	$3.1\ 10^{8}$
^{60}Co	$1.0\ 10^{8}$	$2.5\ 10^{7}$	$6.8\ 10^{7}$	$9.6\ 10^{8}$
^{134}Cs	0	$4.0\ 10^{7}$	$6.4\ 10^{8}$	$8.8\ 10^{8}$
^{137}Cs	$9.3\ 10^{7}$	$1.0\ 10^{8}$	$1.6\ 10^{9}$	$2.6\ 10^{9}$
^{124}Sb	$4.5\ 10^{9}$	$8.3\ 10^{8}$	$9.8\ 10^{8}$	$2.7\ 10^{9}$
^{131}I	$3.5\ 10^{8}$	$1.9\ 10^{8}$	$9.4\ 10^{7}$	$6.7\ 10^{7}$
^{95}Nb	0	0	$2.3\ 10^{8}$	0
^{123m}Te	0	0	$9.7\ 10^{7}$	0
^{144}Ce	0	0	$1.1\ 10^{8}$	$8.1\ 10^{7}$
^{54}Mn	0	0	0	$1.0\ 10^{8}$
^{51}Cr	0	0	0	0
^{140}La	0	0	0	0
Total	$9.6\ 10^{9}$	$1.1\ 10^{9}$	$4.4\ 10^{9}$	$7.8\ 10^{9}$
^{3}H	$8.1\ 10^{11}$	$5.7\ 10^{12}$	$1.5\ 10^{13}$	$1.2\ 10^{13}$

Nuclide	1980	1981	1982	1983	1984
^{58}Co	$3.9\ 10^{8}$	$7.2\ 10^{7}$	$5.7\ 10^{7}$	$6.7\ 10^{7}$	$1.6\ 10^{7}$
^{60}Co	$2.6\ 10^{9}$	$1.8\ 10^{9}$	$9.6\ 10^{8}$	$6.4\ 10^{8}$	$3.3\ 10^{8}$
^{134}Cs	$6.3\ 10^{8}$	$2.7\ 10^{8}$	$6.1\ 10^{7}$	$1.8\ 10^{7}$	$4.2\ 10^{7}$
^{137}Cs	$2.1\ 10^{9}$	$1.3\ 10^{9}$	$6.3\ 10^{8}$	$1.3\ 10^{8}$	$7.1\ 10^{7}$
^{124}Sb	$1.6\ 10^{9}$	$1.2\ 10^{8}$	$2.3\ 10^{8}$	$8.6\ 10^{7}$	$9.3\ 10^{8}$
^{131}I	$8.1\ 10^{7}$	$5.9\ 10^{7}$	$4.5\ 10^{7}$	$3.3\ 10^{7}$	$7.3\ 10^{7}$
^{95}Nb	$1.3\ 10^{8}$	0	0	0	0
^{123m}Te	$2.1\ 10^{8}$	0	0	$2.0\ 10^{7}$	$4.7\ 10^{7}$
^{144}Ce	0	0	$9.8\ 10^{8}$	0	0
^{54}Mn	$1.3\ 10^{8}$	$5.7\ 10^{7}$	0	0	0
^{51}Cr	$2.3\ 10^{8}$	$5.4\ 10^{8}$	0	0	0
^{140}La	$3.1\ 10^{8}$	$5.0\ 10^{7}$	0	0	$2.4\ 10^{8}$
Total	$8.6\ 10^{9}$	$4.3\ 10^{9}$	$3.1\ 10^{9}$	$9.9\ 10^{8}$	$1.4\ 10^{9}$
^{3}H	$2.0\ 10^{13}$	$2.0\ 10^{9}$	$1.1\ 10^{13}$	$1.5\ 10^{13}$	$1.5\ 10^{13}$

Table 8

Discharges from Borssele, the Netherlands

Nuclide	1973	1974	1975	1976	1977	1978
^{3}H	$6.1\ 10^{11}$	$6.3\ 10^{12}$	$2.1\ 10^{12}$	$1.5\ 10^{12}$	$1.5\ 10^{12}$	$8.4\ 10^{12}$
^{14}C	0	0	0	0	0	0
^{51}Cr	$2.2\ 10^{8}$	$7.3\ 10^{8}$	$2.2\ 10^{9}$	$1.2\ 10^{9}$	$6.1\ 10^{8}$	$4.1\ 10^{8}$
^{54}Mn	$4.8\ 10^{7}$	$1.5\ 10^{8}$	$4.9\ 10^{8}$	$2.6\ 10^{8}$	$1.3\ 10^{8}$	$8.8\ 10^{7}$
^{59}Fe	$4.9\ 10^{7}$	$1.6\ 10^{8}$	$5.0\ 10^{8}$	$2.6\ 10^{8}$	$1.3\ 10^{8}$	$8.9\ 10^{7}$
^{57}Co	$1.6\ 10^{7}$	$5.2\ 10^{7}$	$1.6\ 10^{8}$	$8.5\ 10^{7}$	$4.3\ 10^{7}$	$2.9\ 10^{7}$
^{58}Co	$4.5\ 10^{8}$	$1.4\ 10^{9}$	$4.5\ 10^{9}$	$2.4\ 10^{9}$	$1.2\ 10^{9}$	$8.1\ 10^{8}$
^{60}Co	$3.6\ 10^{9}$	$1.2\ 10^{10}$	$3.7\ 10^{10}$	$1.9\ 10^{10}$	$9.8\ 10^{9}$	$6.6\ 10^{9}$
^{65}Zn	$4.9\ 10^{7}$	$1.6\ 10^{8}$	$5.0\ 10^{8}$	$2.6\ 10^{8}$	$1.3\ 10^{8}$	$8.9\ 10^{7}$
^{89}Sr	$8.5\ 10^{6}$	$2.7\ 10^{7}$	$8.6\ 10^{7}$	$4.5\ 10^{7}$	$2.3\ 10^{7}$	$1.5\ 10^{7}$
^{90}Sr	$2.4\ 10^{6}$	$8.0\ 10^{6}$	$2.5\ 10^{7}$	$1.3\ 10^{7}$	$6.6\ 10^{6}$	$4.5\ 10^{6}$
^{90}Zr	$4.5\ 10^{7}$	$1.4\ 10^{8}$	$4.6\ 10^{8}$	$2.4\ 10^{8}$	$1.2\ 10^{8}$	$8.3\ 10^{7}$
^{95}Nb	$5.7\ 10^{7}$	$1.8\ 10^{8}$	$5.8\ 10^{8}$	$3.0\ 10^{8}$	$1.5\ 10^{8}$	$1.0\ 10^{8}$
^{103}Ru	$2.4\ 10^{7}$	$7.8\ 10^{7}$	$2.4\ 10^{8}$	$1.2\ 10^{8}$	$6.4\ 10^{7}$	$4.3\ 10^{7}$
^{106}Ru	$2.1\ 10^{8}$	$6.9\ 10^{8}$	$2.1\ 10^{9}$	$1.1\ 10^{9}$	$5.7\ 10^{8}$	$3.8\ 10^{8}$
^{110m}Ag	$1.1\ 10^{8}$	$3.5\ 10^{8}$	$1.1\ 10^{9}$	$5.8\ 10^{8}$	$2.9\ 10^{8}$	$1.9\ 10^{8}$
^{123m}Te	$1.6\ 10^{7}$	$5.2\ 10^{7}$	$1.6\ 10^{8}$	$8.5\ 10^{7}$	$4.3\ 10^{7}$	$2.9\ 10^{7}$
^{124}Sb	$2.8\ 10^{8}$	$9.0\ 10^{8}$	$2.8\ 10^{9}$	$1.4\ 10^{9}$	$7.5\ 10^{8}$	$5.0\ 10^{8}$
^{125}Sb	$6.6\ 10^{7}$	$2.1\ 10^{8}$	$6.7\ 10^{8}$	$3.5\ 10^{8}$	$1.8\ 10^{8}$	$1.2\ 10^{8}$
^{134}Cs	$3.5\ 10^{7}$	$1.1\ 10^{8}$	$3.5\ 10^{8}$	$1.8\ 10^{8}$	$9.3\ 10^{7}$	$6.3\ 10^{7}$
^{137}Cs	$2.1\ 10^{8}$	$6.9\ 10^{8}$	$2.1\ 10^{9}$	$1.1\ 10^{9}$	$5.7\ 10^{8}$	$3.9\ 10^{8}$
^{140}Ba	$4.1\ 10^{7}$	$1.3\ 10^{8}$	$4.1\ 10^{8}$	$2.2\ 10^{8}$	$1.1\ 10^{8}$	$7.5\ 10^{7}$
^{140}La	$2.4\ 10^{7}$	$7.8\ 10^{7}$	$2.4\ 10^{8}$	$1.2\ 10^{8}$	$6.4\ 10^{7}$	$4.3\ 10^{7}$
^{140}Ce	$2.4\ 10^{7}$	$7.8\ 10^{7}$	$2.4\ 10^{8}$	$1.2\ 10^{8}$	$6.4\ 10^{7}$	$4.3\ 10^{7}$
^{144}Ce	$1.0\ 10^{8}$	$3.5\ 10^{8}$	$1.0\ 10^{9}$	$5.7\ 10^{8}$	$2.9\ 10^{8}$	$1.9\ 10^{8}$

Table 8 (continued)

Nuclide	1979	1980	1981	1982	1983	1984
^{3}H	$8.3\ 10^{12}$	$6.3\ 10^{12}$	$6.0\ 10^{12}$	$7.5\ 10^{12}$	$6.2\ 10^{12}$	$4.6\ 10^{12}$
^{14}C	0	0	0	0	0	0
^{51}Cr	$4.2\ 10^{8}$	$1.7\ 10^{8}$	$4.8\ 10^{8}$	$4.4\ 10^{8}$	$2.7\ 10^{8}$	$3.8\ 10^{8}$
^{54}Mn	$9.1\ 10^{7}$	$3.6\ 10^{7}$	$1.0\ 10^{8}$	$8.0\ 10^{7}$	$4.0\ 10^{7}$	$9.0\ 10^{7}$
^{59}Fe	$9.3\ 10^{7}$	$3.7\ 10^{7}$	$1.0\ 10^{8}$	$6.0\ 10^{7}$	$6.0\ 10^{7}$	$7.0\ 10^{7}$
^{57}Co	$3.0\ 10^{7}$	$1.2\ 10^{7}$	$3.4\ 10^{7}$	$2.0\ 10^{7}$	$2.0\ 10^{7}$	$2.0\ 10^{7}$
^{58}Co	$8.4\ 10^{8}$	$3.3\ 10^{8}$	$9.5\ 10^{8}$	$5.8\ 10^{8}$	$3.4\ 10^{8}$	$1.2\ 10^{9}$
^{60}Co	$6.8\ 10^{9}$	$2.7\ 10^{9}$	$7.7\ 10^{9}$	$5.2\ 10^{9}$	$2.3\ 10^{9}$	$1.0\ 10^{10}$
^{65}Zn	$9.3\ 10^{7}$	$3.7\ 10^{7}$	$1.0\ 10^{8}$	$6.0\ 10^{7}$	$6.0\ 10^{7}$	$7.0\ 10^{7}$
^{89}Sr	$1.6\ 10^{7}$	$6.4\ 10^{6}$	$1.8\ 10^{7}$	0	$8.0\ 10^{5}$	$2.0\ 10^{6}$
^{90}Sr	$4.6\ 10^{6}$	$1.8\ 10^{6}$	$5.2\ 10^{6}$	$3.5\ 10^{6}$	$1.3\ 10^{6}$	$7.9\ 10^{6}$
^{90}Zr	$8.6\ 10^{7}$	$3.4\ 10^{7}$	$9.6\ 10^{7}$	$5.0\ 10^{7}$	$6.0\ 10^{7}$	$6.0\ 10^{7}$
^{95}Nb	$1.0\ 10^{8}$	$4.3\ 10^{7}$	$1.2\ 10^{8}$	$3.0\ 10^{7}$	$9.0\ 10^{7}$	$9.0\ 10^{7}$
^{103}Ru	$4.5\ 10^{7}$	$1.8\ 10^{7}$	$5.1\ 10^{7}$	$3.0\ 10^{7}$	$3.0\ 10^{7}$	$3.0\ 10^{7}$
^{106}Ru	$4.0\ 10^{8}$	$1.6\ 10^{8}$	$4.5\ 10^{8}$	$2.6\ 10^{8}$	$2.6\ 10^{8}$	$2.9\ 10^{8}$
^{110m}Ag	$2.0\ 10^{8}$	$8.2\ 10^{7}$	$2.3\ 10^{8}$	$1.8\ 10^{8}$	$1.2\ 10^{8}$	$1.1\ 10^{8}$
^{123m}Te	$3.0\ 10^{7}$	$1.2\ 10^{7}$	$3.4\ 10^{7}$	$2.0\ 10^{7}$	$2.0\ 10^{7}$	$2.0\ 10^{7}$
^{124}Sb	$5.2\ 10^{8}$	$2.1\ 10^{8}$	$5.9\ 10^{8}$	$3.3\ 10^{8}$	$2.2\ 10^{8}$	$7.7\ 10^{8}$
^{125}Sb	$1.2\ 10^{8}$	$5.0\ 10^{7}$	$1.4\ 10^{8}$	$9.0\ 10^{7}$	$8.0\ 10^{7}$	$8.0\ 10^{7}$
^{134}Cs	$6.5\ 10^{7}$	$2.6\ 10^{7}$	$7.3\ 10^{7}$	$4.0\ 10^{7}$	$4.0\ 10^{7}$	$6.0\ 10^{7}$
^{137}Cs	$4.0\ 10^{8}$	$1.6\ 10^{8}$	$4.5\ 10^{8}$	$2.0\ 10^{8}$	$1.6\ 10^{8}$	$7.2\ 10^{8}$
^{140}Ba	$7.8\ 10^{7}$	$3.1\ 10^{7}$	$8.8\ 10^{7}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$	$1.2\ 10^{8}$
^{140}La	$4.5\ 10^{7}$	$1.8\ 10^{7}$	$5.1\ 10^{7}$	$5.0\ 10^{7}$	$5.0\ 10^{7}$	$6.0\ 10^{7}$
^{140}Ce	$4.5\ 10^{7}$	$1.8\ 10^{7}$	$5.1\ 10^{7}$	$3.0\ 10^{7}$	$3.0\ 10^{7}$	$3.0\ 10^{7}$
^{144}Ce	$2.0\ 10^{8}$	$8.1\ 10^{7}$	$2.2\ 10^{8}$	$1.4\ 10^{8}$	$1.3\ 10^{8}$	$1.4\ 10^{8}$

Table 9

Discharges from Bradwell, UK

Nuclide	1962	1963	1964	1965	1966	1967	1968
^{3}H	0	$7.9\ 10^{12}$	$1.4\ 10^{12}$	$1.7\ 10^{12}$	$2.2\ 10^{13}$	$1.8\ 10^{13}$	$1.3\ 10^{13}$
^{14}C	$1.3\ 10^{5}$	$4.6\ 10^{6}$	$1.0\ 10^{8}$	$4.6\ 10^{8}$	$7.3\ 10^{8}$	$2.4\ 10^{9}$	$1.5\ 10^{9}$
^{32}P	$1.4\ 10^{6}$	$4.9\ 10^{7}$	$1.0\ 10^{9}$	$4.9\ 10^{9}$	$7.7\ 10^{9}$	$2.5\ 10^{10}$	$1.6\ 10^{10}$
^{35}S	$1.5\ 10^{7}$	$5.2\ 10^{8}$	$1.1\ 10^{10}$	$5.2\ 10^{10}$	$8.2\ 10^{10}$	$2.7\ 10^{11}$	$1.7\ 10^{11}$
^{45}Ca	$8.6\ 10^{5}$	$3.0\ 10^{7}$	$6.5\ 10^{8}$	$3.0\ 10^{9}$	$4.7\ 10^{9}$	$1.6\ 10^{10}$	$9.9\ 10^{9}$
^{51}Cr	$1.3\ 10^{5}$	$4.6\ 10^{6}$	$1.0\ 10^{8}$	$4.6\ 10^{8}$	$7.3\ 10^{8}$	$2.4\ 10^{9}$	$1.5\ 10^{9}$
^{54}Mn	$1.6\ 10^{5}$	$5.8\ 10^{6}$	$1.2\ 10^{8}$	$5.8\ 10^{8}$	$9.1\ 10^{8}$	$3.0\ 10^{9}$	$1.9\ 10^{9}$
^{55}Fe	$4.8\ 10^{6}$	$1.7\ 10^{8}$	$3.6\ 10^{9}$	$1.7\ 10^{10}$	$2.6\ 10^{10}$	$9.0\ 10^{10}$	$5.6\ 10^{10}$
^{58}Co	$1.6\ 10^{5}$	$5.8\ 10^{6}$	$1.2\ 10^{8}$	$5.8\ 10^{8}$	$9.1\ 10^{8}$	$3.0\ 10^{9}$	$1.9\ 10^{9}$
^{59}Fe	$1.3\ 10^{5}$	$4.6\ 10^{6}$	$1.0\ 10^{8}$	$4.6\ 10^{8}$	$7.3\ 10^{8}$	$2.4\ 10^{9}$	$1.5\ 10^{9}$
^{60}Co	$1.6\ 10^{6}$	$5.8\ 10^{7}$	$1.2\ 10^{9}$	$5.8\ 10^{9}$	$9.1\ 10^{9}$	$3.0\ 10^{10}$	$1.9\ 10^{10}$
^{63}Ni	$1.3\ 10^{5}$	$4.6\ 10^{6}$	$1.0\ 10^{8}$	$4.6\ 10^{8}$	$7.3\ 10^{8}$	$2.4\ 10^{9}$	$1.5\ 10^{9}$
^{65}Zn	$2.6\ 10^{5}$	$9.3\ 10^{6}$	$2.0\ 10^{8}$	$9.3\ 10^{8}$	$1.4\ 10^{9}$	$4.9\ 10^{9}$	$3.0\ 10^{9}$
^{89}Sr	$1.6\ 10^{5}$	$5.8\ 10^{6}$	$1.2\ 10^{8}$	$5.8\ 10^{8}$	$9.1\ 10^{8}$	$3.0\ 10^{9}$	$1.9\ 10^{9}$
^{90}Sr	$3.6\ 10^{7}$	$1.2\ 10^{9}$	$2.7\ 10^{10}$	$1.2\ 10^{11}$	$2.0\ 10^{11}$	$6.7\ 10^{11}$	$4.1\ 10^{11}$
^{90}Y	$3.6\ 10^{7}$	$1.2\ 10^{9}$	$2.7\ 10^{10}$	$1.2\ 10^{11}$	$2.0\ 10^{11}$	$6.7\ 10^{11}$	$4.1\ 10^{11}$
^{91}Y	$1.3\ 10^{5}$	$4.6\ 10^{6}$	$1.0\ 10^{8}$	$4.6\ 10^{8}$	$7.3\ 10^{8}$	$2.4\ 10^{9}$	$1.5\ 10^{9}$
^{95}Zr	$1.3\ 10^{5}$	$4.6\ 10^{6}$	$1.0\ 10^{8}$	$4.6\ 10^{8}$	$7.3\ 10^{8}$	$2.4\ 10^{9}$	$1.5\ 10^{9}$
^{95}Nb	$1.3\ 10^{5}$	$4.6\ 10^{6}$	$1.0\ 10^{8}$	$4.6\ 10^{8}$	$7.3\ 10^{8}$	$2.4\ 10^{9}$	$1.5\ 10^{9}$
^{106}Ru	$5.9\ 10^{6}$	$2.0\ 10^{8}$	$4.4\ 10^{9}$	$2.0\ 10^{10}$	$3.2\ 10^{10}$	$1.1\ 10^{11}$	$6.8\ 10^{10}$
^{106}Rh	$5.9\ 10^{6}$	$2.0\ 10^{8}$	$4.4\ 10^{9}$	$2.0\ 10^{10}$	$3.2\ 10^{10}$	$1.1\ 10^{11}$	$6.8\ 10^{10}$
^{110m}Ag	$1.3\ 10^{5}$	$4.6\ 10^{6}$	$1.0\ 10^{8}$	$4.6\ 10^{8}$	$7.3\ 10^{8}$	$2.4\ 10^{9}$	$1.5\ 10^{9}$
^{124}Sb	$2.0\ 10^{5}$	$7.0\ 10^{6}$	$1.5\ 10^{8}$	$7.0\ 10^{8}$	$1.1\ 10^{9}$	$3.7\ 10^{9}$	$2.3\ 10^{9}$
^{125}Sb	$5.1\ 10^{6}$	$1.8\ 10^{8}$	$3.8\ 10^{9}$	$1.8\ 10^{10}$	$2.8\ 10^{10}$	$9.5\ 10^{10}$	$5.9\ 10^{10}$
^{125m}Te	$3.3\ 10^{5}$	$1.1\ 10^{7}$	$2.5\ 10^{8}$	$1.1\ 10^{9}$	$1.8\ 10^{9}$	$6.1\ 10^{9}$	$3.8\ 10^{9}$
^{134}Cs	$9.4\ 10^{6}$	$3.2\ 10^{8}$	$7.0\ 10^{9}$	$3.2\ 10^{10}$	$5.1\ 10^{10}$	$1.7\ 10^{11}$	$1.0\ 10^{11}$
^{137}Cs	$5.4\ 10^{7}$	$1.9\ 10^{9}$	$4.0\ 10^{10}$	$1.9\ 10^{11}$	$3.0\ 10^{11}$	$1.0\ 10^{12}$	$6.2\ 10^{11}$
^{144}Ce	$4.4\ 10^{6}$	$1.5\ 10^{8}$	$3.3\ 10^{9}$	$1.5\ 10^{10}$	$2.4\ 10^{10}$	$8.2\ 10^{10}$	$5.1\ 10^{10}$
^{144}Pr	$4.4\ 10^{6}$	$1.5\ 10^{8}$	$3.3\ 10^{9}$	$1.5\ 10^{10}$	$2.4\ 10^{10}$	$8.2\ 10^{10}$	$5.1\ 10^{10}$
^{147}Pm	$1.0\ 10^{7}$	$3.5\ 10^{8}$	$7.5\ 10^{9}$	$3.5\ 10^{10}$	$5.5\ 10^{10}$	$1.8\ 10^{11}$	$1.1\ 10^{11}$
^{154}Eu	$3.3\ 10^{5}$	$1.1\ 10^{7}$	$2.5\ 10^{8}$	$1.1\ 10^{9}$	$1.8\ 10^{9}$	$6.1\ 10^{9}$	$3.8\ 10^{9}$
^{155}Eu	$1.0\ 10^{5}$	$3.5\ 10^{6}$	$7.5\ 10^{7}$	$3.5\ 10^{8}$	$5.5\ 10^{8}$	$1.8\ 10^{9}$	$1.1\ 10^{9}$
^{239}Pu	$2.3\ 10^{5}$	$8.1\ 10^{6}$	$1.7\ 10^{8}$	$8.1\ 10^{8}$	$1.2\ 10^{9}$	$4.3\ 10^{9}$	$2.6\ 10^{9}$

Table 9 (continued)

Nuclide	1969	1970	1971	1972	1973	1974	1975	1976
^{3}H	$6.8\ 10^{12}$	$3.5\ 10^{12}$	$3.8\ 10^{12}$	$9.3\ 10^{12}$	$7.3\ 10^{12}$	$4.3\ 10^{12}$	$3.3\ 10^{12}$	$1.1\ 10^{13}$
^{14}C	$2.8\ 10^{9}$	$3.2\ 10^{9}$	$2.0\ 10^{9}$	$2.9\ 10^{9}$	$2.0\ 10^{9}$	$1.6\ 10^{9}$	$2.1\ 10^{9}$	$1.2\ 10^{9}$
^{32}P	$2.9\ 10^{10}$	$3.3\ 10^{10}$	$2.1\ 10^{10}$	$2.2\ 10^{10}$	$1.6\ 10^{10}$	$2.6\ 10^{10}$	$3.8\ 10^{10}$	$3.1\ 10^{10}$
^{35}S	$3.1\ 10^{11}$	$3.6\ 10^{11}$	$2.3\ 10^{11}$	$2.7\ 10^{11}$	$1.6\ 10^{11}$	$2.6\ 10^{11}$	$3.7\ 10^{11}$	$2.0\ 10^{11}$
^{45}Ca	$1.8\ 10^{10}$	$2.0\ 10^{10}$	$1.3\ 10^{10}$	$8.8\ 10^{9}$	$8.0\ 10^{9}$	$2.3\ 10^{10}$	$2.5\ 10^{10}$	$1.9\ 10^{10}$
^{51}Cr	$2.8\ 10^{9}$	$3.2\ 10^{9}$	$2.0\ 10^{9}$	$2.9\ 10^{9}$	$2.0\ 10^{9}$	$1.6\ 10^{9}$	$2.1\ 10^{9}$	$7.2\ 10^{9}$
^{54}Mn	$3.5\ 10^{9}$	$4.0\ 10^{9}$	$2.5\ 10^{9}$	$3.6\ 10^{9}$	$2.0\ 10^{9}$	$3.3\ 10^{9}$	$2.1\ 10^{9}$	$4.8\ 10^{9}$
^{55}Fe	$1.0\ 10^{11}$	$1.1\ 10^{11}$	$7.5\ 10^{10}$	$4.4\ 10^{9}$	$3.6\ 10^{10}$	$1.7\ 10^{11}$	$1.0\ 10^{11}$	$5.5\ 10^{10}$
^{58}Co	$3.5\ 10^{9}$	$4.0\ 10^{9}$	$2.5\ 10^{9}$	$4.4\ 10^{9}$	$2.0\ 10^{9}$	$1.6\ 10^{9}$	$2.1\ 10^{9}$	$1.2\ 10^{9}$
^{59}Fe	$2.8\ 10^{9}$	$3.2\ 10^{9}$	$2.0\ 10^{9}$	$2.9\ 10^{9}$	$2.0\ 10^{9}$	$1.6\ 10^{9}$	$2.1\ 10^{9}$	$2.4\ 10^{9}$
^{60}Co	$3.5\ 10^{10}$	$4.0\ 10^{10}$	$2.5\ 10^{10}$	$1.3\ 10^{10}$	$1.0\ 10^{10}$	$5.6\ 10^{10}$	$2.5\ 10^{10}$	$1.2\ 10^{10}$
^{63}Ni	$2.8\ 10^{9}$	$3.2\ 10^{9}$	$2.0\ 10^{9}$	$2.9\ 10^{9}$	$2.0\ 10^{9}$	$1.6\ 10^{9}$	$2.1\ 10^{9}$	$1.2\ 10^{9}$
^{65}Zn	$5.6\ 10^{9}$	$6.4\ 10^{9}$	$4.1\ 10^{9}$	$5.8\ 10^{9}$	$2.0\ 10^{9}$	$6.6\ 10^{9}$	$4.3\ 10^{9}$	$7.2\ 10^{9}$
^{89}Sr	$3.5\ 10^{9}$	$4.0\ 10^{9}$	$2.5\ 10^{9}$	$4.4\ 10^{9}$	$2.0\ 10^{9}$	$1.6\ 10^{9}$	$2.1\ 10^{9}$	$2.4\ 10^{9}$
^{90}Sr	$7.6\ 10^{11}$	$8.7\ 10^{11}$	$5.6\ 10^{11}$	$7.0\ 10^{11}$	$4.0\ 10^{11}$	$6.0\ 10^{11}$	$5.3\ 10^{11}$	$2.7\ 10^{11}$
^{90}Y	$7.6\ 10^{11}$	$8.7\ 10^{11}$	$5.6\ 10^{11}$	$7.0\ 10^{11}$	$4.0\ 10^{11}$	$6.0\ 10^{11}$	$5.3\ 10^{11}$	$2.7\ 10^{11}$
^{91}Y	$2.8\ 10^{9}$	$3.2\ 10^{9}$	$2.0\ 10^{9}$	$2.9\ 10^{9}$	$2.0\ 10^{9}$	$1.6\ 10^{9}$	$2.1\ 10^{9}$	$2.4\ 10^{9}$
^{95}Zr	$2.8\ 10^{9}$	$3.2\ 10^{9}$	$2.0\ 10^{9}$	$2.9\ 10^{9}$	$1.0\ 10^{9}$	$1.6\ 10^{9}$	$4.3\ 10^{9}$	$2.4\ 10^{9}$
^{95}Nb	$2.8\ 10^{9}$	$3.2\ 10^{9}$	$2.0\ 10^{9}$	$2.9\ 10^{9}$	$1.0\ 10^{9}$	$1.6\ 10^{9}$	$4.3\ 10^{9}$	$7.2\ 10^{9}$
^{106}Ru	$1.2\ 10^{11}$	$1.4\ 10^{11}$	$9.2\ 10^{10}$	$2.0\ 10^{11}$	$4.8\ 10^{10}$	$6.2\ 10^{10}$	$1.7\ 10^{10}$	$1.4\ 10^{10}$
^{106}Rh	$1.2\ 10^{11}$	$1.4\ 10^{11}$	$9.2\ 10^{10}$	$2.0\ 10^{11}$	$4.8\ 10^{10}$	$6.2\ 10^{10}$	$1.7\ 10^{10}$	$1.4\ 10^{10}$
^{110m}Ag	$2.8\ 10^{9}$	$3.2\ 10^{9}$	$2.0\ 10^{9}$	$2.9\ 10^{9}$	$2.0\ 10^{9}$	$1.6\ 10^{9}$	$2.1\ 10^{9}$	$1.2\ 10^{9}$
^{124}Sb	$4.2\ 10^{9}$	$4.8\ 10^{9}$	$3.1\ 10^{9}$	$4.4\ 10^{9}$	$2.0\ 10^{9}$	$3.3\ 10^{9}$	$4.3\ 10^{9}$	$2.4\ 10^{9}$
^{125}Sb	$1.0\ 10^{11}$	$1.2\ 10^{11}$	$7.9\ 10^{10}$	$2.6\ 10^{11}$	$2.4\ 10^{10}$	$1.3\ 10^{10}$	$1.2\ 10^{10}$	$7.2\ 10^{9}$
^{125m}Te	$7.0\ 10^{9}$	$8.0\ 10^{9}$	$5.1\ 10^{9}$	$7.3\ 10^{9}$	$6.0\ 10^{9}$	$3.3\ 10^{9}$	$4.3\ 10^{9}$	$2.4\ 10^{9}$
^{134}Cs	$1.9\ 10^{11}$	$2.2\ 10^{11}$	$1.4\ 10^{11}$	$2.7\ 10^{11}$	$8.2\ 10^{10}$	$1.2\ 10^{11}$	$3.9\ 10^{11}$	$2.7\ 10^{11}$
^{137}Cs	$1.1\ 10^{12}$	$1.3\ 10^{12}$	$8.4\ 10^{11}$	$1.1\ 10^{12}$	$5.2\ 10^{11}$	$1.0\ 10^{12}$	$2.0\ 10^{12}$	$1.0\ 10^{12}$
^{144}Ce	$9.3\ 10^{10}$	$1.0\ 10^{11}$	$6.9\ 10^{10}$	$1.8\ 10^{11}$	$2.4\ 10^{10}$	$3.9\ 10^{10}$	$8.6\ 10^{9}$	$2.4\ 10^{10}$
^{144}Pr	$9.3\ 10^{10}$	$1.0\ 10^{11}$	$6.9\ 10^{10}$	$1.8\ 10^{11}$	$2.4\ 10^{10}$	$3.9\ 10^{10}$	$8.6\ 10^{9}$	$2.4\ 10^{10}$
^{147}Pm	$2.1\ 10^{11}$	$2.4\ 10^{11}$	$1.5\ 10^{11}$	$7.9\ 10^{10}$	$1.6\ 10^{11}$	$1.6\ 10^{11}$	$1.0\ 10^{11}$	$4.0\ 10^{10}$
^{154}Eu	$7.0\ 10^{9}$	$8.0\ 10^{9}$	$5.1\ 10^{9}$	$7.3\ 10^{9}$	$2.0\ 10^{9}$	$9.9\ 10^{9}$	$4.3\ 10^{9}$	$2.4\ 10^{9}$
^{155}Eu	$2.1\ 10^{9}$	$2.4\ 10^{9}$	$1.5\ 10^{9}$	$2.2\ 10^{9}$	$1.0\ 10^{9}$	$1.6\ 10^{9}$	$2.1\ 10^{9}$	$1.2\ 10^{9}$
^{239}Pu	$4.9\ 10^{9}$	$5.6\ 10^{9}$	$3.6\ 10^{9}$	$5.1\ 10^{9}$	$2.3\ 10^{9}$	$3.8\ 10^{9}$	$2.1\ 10^{9}$	$2.4\ 10^{9}$

Table 9 (continued)

Nuclide	1977	1978	1979	1980	1981	1982	1983	1984
^{3}H	$7.4\ 10^{12}$	$3.8\ 10^{12}$	$4.4\ 10^{12}$	$2.3\ 10^{12}$	$3.1\ 10^{12}$	$2.0\ 10^{12}$	$1.0\ 10^{12}$	$8.0\ 10^{12}$
^{14}C	$1.2\ 10^{9}$	$1.0\ 10^{9}$	$8.0\ 10^{8}$	$7.5\ 10^{8}$	$8.5\ 10^{8}$	$4.9\ 10^{8}$	$4.8\ 10^{8}$	$4.1\ 10^{8}$
^{32}P	$4.7\ 10^{10}$	$1.0\ 10^{9}$	$8.0\ 10^{8}$	$7.5\ 10^{8}$	$8.5\ 10^{8}$	$4.9\ 10^{8}$	$4.8\ 10^{8}$	$4.1\ 10^{8}$
^{35}S	$2.6\ 10^{11}$	$2.2\ 10^{11}$	$2.5\ 10^{11}$	$3.1\ 10^{10}$	$8.5\ 10^{8}$	$9.8\ 10^{9}$	$8.6\ 10^{10}$	$1.1\ 10^{11}$
^{45}Ca	$1.2\ 10^{10}$	$2.8\ 10^{10}$	$4.3\ 10^{10}$	$1.3\ 10^{10}$	$8.5\ 10^{8}$	$4.9\ 10^{9}$	$9.6\ 10^{9}$	$2.4\ 10^{10}$
^{51}Cr	$1.2\ 10^{9}$	$1.0\ 10^{9}$	$8.0\ 10^{8}$	$7.5\ 10^{8}$	$2.8\ 10^{8}$	$1.6\ 10^{8}$	0	0
^{54}Mn	$1.2\ 10^{9}$	$2.0\ 10^{9}$	$1.6\ 10^{9}$	$7.5\ 10^{8}$	$8.5\ 10^{8}$	$4.9\ 10^{8}$	$4.8\ 10^{9}$	$4.1\ 10^{9}$
^{55}Fe	$5.2\ 10^{10}$	$6.4\ 10^{10}$	$8.0\ 10^{10}$	$2.5\ 10^{10}$	$1.8\ 10^{10}$	$2.9\ 10^{10}$	$3.8\ 10^{10}$	$2.4\ 10^{10}$
^{58}Co	$1.2\ 10^{9}$	$1.0\ 10^{9}$	$8.0\ 10^{8}$	$7.5\ 10^{8}$	$8.5\ 10^{8}$	$4.9\ 10^{8}$	0	0
^{59}Fe	$2.5\ 10^{9}$	$2.0\ 10^{9}$	$1.6\ 10^{9}$	$7.5\ 10^{8}$	$1.7\ 10^{9}$	$9.8\ 10^{9}$	$4.8\ 10^{9}$	$4.1\ 10^{9}$
^{60}Co	$1.0\ 10^{10}$	$1.8\ 10^{10}$	$1.4\ 10^{10}$	$7.5\ 10^{9}$	$5.1\ 10^{9}$	$4.9\ 10^{9}$	$9.6\ 10^{9}$	$4.1\ 10^{9}$
^{63}Ni	$1.2\ 10^{9}$	$1.0\ 10^{9}$	$8.0\ 10^{8}$	$7.5\ 10^{8}$	$8.5\ 10^{8}$	$4.9\ 10^{8}$	$4.8\ 10^{8}$	$4.1\ 10^{8}$
^{65}Zn	$5.0\ 10^{9}$	$6.0\ 10^{9}$	$6.4\ 10^{9}$	$1.5\ 10^{9}$	$8.5\ 10^{8}$	$4.9\ 10^{8}$	$4.8\ 10^{8}$	0
^{89}Sr	$1.2\ 10^{9}$	$8.0\ 10^{9}$	$1.4\ 10^{10}$	$6.0\ 10^{9}$	$5.1\ 10^{9}$	0	0	0
^{90}Sr	$1.5\ 10^{11}$	$2.1\ 10^{11}$	$1.4\ 10^{11}$	$9.7\ 10^{10}$	$7.4\ 10^{10}$	$9.8\ 10^{10}$	$1.5\ 10^{11}$	$1.3\ 10^{11}$
^{90}Y	$1.5\ 10^{11}$	$2.1\ 10^{11}$	$1.4\ 10^{11}$	$9.7\ 10^{10}$	$7.4\ 10^{10}$	$9.8\ 10^{10}$	$1.5\ 10^{11}$	$1.3\ 10^{11}$
^{91}Y	$1.2\ 10^{9}$	$2.0\ 10^{9}$	$6.4\ 10^{9}$	$1.5\ 10^{9}$	0	0	0	0
^{95}Zr	$2.5\ 10^{9}$	$2.0\ 10^{9}$	$1.6\ 10^{9}$	$7.5\ 10^{8}$	$1.7\ 10^{9}$	$4.9\ 10^{9}$	0	0
^{95}Nb	$1.0\ 10^{10}$	$2.0\ 10^{9}$	$1.6\ 10^{9}$	$7.5\ 10^{8}$	$1.7\ 10^{9}$	$4.9\ 10^{8}$	0	0
^{106}Ru	$5.0\ 10^{9}$	$8.0\ 10^{9}$	$1.6\ 10^{9}$	$1.5\ 10^{9}$	$1.7\ 10^{9}$	$4.9\ 10^{9}$	0	0
^{106}Rh	$5.0\ 10^{9}$	$8.0\ 10^{9}$	$1.6\ 10^{9}$	$1.5\ 10^{9}$	$1.7\ 10^{9}$	$4.9\ 10^{9}$	0	0
^{110m}Ag	$1.2\ 10^{9}$	$1.0\ 10^{9}$	$8.0\ 10^{8}$	$7.5\ 10^{8}$	$8.5\ 10^{8}$	$4.9\ 10^{8}$	0	0
^{124}Sb	$2.5\ 10^{9}$	$2.0\ 10^{9}$	$3.2\ 10^{9}$	$7.5\ 10^{8}$	$8.5\ 10^{8}$	$4.9\ 10^{9}$	$4.8\ 10^{9}$	$4.1\ 10^{9}$
^{125}Sb	$5.0\ 10^{9}$	$6.0\ 10^{9}$	$1.6\ 10^{9}$	$1.5\ 10^{9}$	$8.5\ 10^{8}$	$4.9\ 10^{9}$	$4.8\ 10^{9}$	0
^{125m}Te	$1.2\ 10^{9}$	$2.0\ 10^{9}$	$8.0\ 10^{8}$	$7.5\ 10^{8}$	$8.5\ 10^{8}$	$4.9\ 10^{8}$	$4.8\ 10^{8}$	0
^{134}Cs	$4.0\ 10^{11}$	$1.9\ 10^{11}$	$1.2\ 10^{11}$	$2.2\ 10^{11}$	$3.3\ 10^{11}$	$9.8\ 10^{10}$	$1.9\ 10^{10}$	$1.6\ 10^{10}$
^{137}Cs	$1.2\ 10^{12}$	$9.1\ 10^{11}$	$6.8\ 10^{11}$	$9.4\ 10^{11}$	$1.1\ 10^{12}$	$6.3\ 10^{11}$	$4.8\ 10^{11}$	$3.2\ 10^{11}$
^{144}Ce	$1.7\ 10^{10}$	$2.2\ 10^{10}$	$1.7\ 10^{10}$	$1.5\ 10^{9}$	$1.7\ 10^{9}$	$4.9\ 10^{9}$	$4.8\ 10^{8}$	0
^{144}Pr	$1.7\ 10^{10}$	$2.2\ 10^{10}$	$1.7\ 10^{10}$	$1.5\ 10^{9}$	$1.7\ 10^{9}$	$4.9\ 10^{9}$	$4.8\ 10^{8}$	0
^{147}Pm	$3.2\ 10^{10}$	$3.4\ 10^{10}$	$1.9\ 10^{10}$	$3.9\ 10^{10}$	$1.5\ 10^{10}$	$4.9\ 10^{9}$	$9.6\ 10^{9}$	$3.2\ 10^{10}$
^{154}Eu	$2.5\ 10^{9}$	$2.0\ 10^{9}$	$8.0\ 10^{8}$	$1.5\ 10^{9}$	$1.7\ 10^{9}$	$4.9\ 10^{9}$	$4.8\ 10^{8}$	0
^{155}Eu	$1.2\ 10^{9}$	$1.0\ 10^{9}$	$8.0\ 10^{8}$	$7.5\ 10^{8}$	$1.7\ 10^{9}$	$4.9\ 10^{8}$	$4.8\ 10^{8}$	0
^{239}Pu	$5.0\ 10^{9}$	$4.0\ 10^{9}$	$4.8\ 10^{9}$	$7.5\ 10^{9}$	$5.1\ 10^{9}$	$4.9\ 10^{9}$	$4.8\ 10^{9}$	$4.1\ 10^{9}$

Table 10

Discharges from Brünsbuttel, FRG

Nuclide	1976	1977	1978	1979
^{51}Cr	$3.2\ 10^{9}$	$1.1\ 10^{10}$	$4.1\ 10^{9}$	0
^{54}Mn	$1.9\ 10^{9}$	$1.9\ 10^{9}$	$9.4\ 10^{8}$	$4.4\ 10^{8}$
^{58}Co	$1.7\ 10^{10}$	$1.2\ 10^{10}$	$1.4\ 10^{9}$	0
^{60}Co	$4.7\ 10^{8}$	$3.0\ 10^{9}$	$3.0\ 10^{9}$	$2.8\ 10^{9}$
^{110m}Ag	0	$6.3\ 10^{8}$	$8.8\ 10^{8}$	0
^{124}Sb	$2.5\ 10^{8}$	$6.5\ 10^{8}$	0	0
^{134}Cs	0	$1.4\ 10^{9}$	$8.7\ 10^{9}$	$2.6\ 10^{9}$
^{137}Cs	0	$3.4\ 10^{9}$	$1.9\ 10^{10}$	$7.1\ 10^{9}$
^{65}Zn	$6.1\ 10^{8}$	$4.6\ 10^{9}$	$5.0\ 10^{9}$	$1.5\ 10^{9}$
^{131}I	0	$4.4\ 10^{9}$	$5.8\ 10^{9}$	0
Total	$2.3\ 10^{10}$	$4.3\ 10^{10}$	$5.3\ 10^{10}$	$1.4\ 10^{10}$
^{3}H	$7.4\ 10^{10}$	$3.4\ 10^{11}$	$7.0\ 10^{11}$	$8.5\ 10^{10}$

Nuclide	1980	1981	1982	1983	1984
^{51}Cr	0	$2.5\ 10^{8}$	$4.1\ 10^{7}$	0	$3.4\ 10^{7}$
^{54}Mn	$1.1\ 10^{8}$	$3.5\ 10^{7}$	$1.9\ 10^{7}$	$1.9\ 10^{7}$	0
^{58}Co	0	$6.2\ 10^{7}$	$1.8\ 10^{7}$	0	0
^{60}Co	$1.9\ 10^{9}$	$5.7\ 10^{8}$	$2.4\ 10^{8}$	$1.9\ 10^{8}$	$1.1\ 10^{8}$
^{110m}Ag	0	$8.5\ 10^{7}$	$5.4\ 10^{7}$	0	0
^{124}Sb	0	0	0	0	0
^{134}Cs	$1.5\ 10^{9}$	$1.5\ 10^{8}$	$1.8\ 10^{8}$	$1.9\ 10^{8}$	$1.4\ 10^{8}$
^{137}Cs	$5.4\ 10^{9}$	$6.2\ 10^{8}$	$4.5\ 10^{8}$	$4.0\ 10^{8}$	$4.0\ 10^{8}$
^{65}Zn	$7.5\ 10^{8}$	$2.4\ 10^{8}$	$1.6\ 10^{8}$	$9.9\ 10^{7}$	$3.8\ 10^{7}$
^{131}I	0	$1.1\ 10^{8}$	$3.1\ 10^{8}$	0	$2.1\ 10^{7}$
Total	$9.7\ 10^{9}$	$2.1\ 10^{9}$	$1.5\ 10^{9}$	$9.1\ 10^{8}$	$7.7\ 10^{8}$
^{3}H	$8.9\ 10^{10}$	$7.8\ 10^{11}$	$1.9\ 10^{12}$	$1.1\ 10^{12}$	$2.6\ 10^{12}$

Table 11

Discharges from La Hague, France

Nuclide	1966	1967	1968	1969	1970	1971	1972
^{3}H	0	0	0	0	$6.1\ 10^{13}$	$7.8\ 10^{13}$	$8.4\ 10^{13}$
^{14}C	$7.0\ 10^{11}$	$7.0\ 10^{11}$	$7.0\ 10^{11}$	$7.0\ 10^{11}$	$7.0\ 10^{11}$	$7.0\ 10^{11}$	$7.0\ 10^{11}$
^{60}Co	0	0	0	0	0	0	0
^{65}Zn	0	0	0	0	0	0	0
^{89}Sr	$1.0\ 10^{12}$	$6.2\ 10^{11}$	$7.7\ 10^{11}$	$2.5\ 10^{11}$	$3.7\ 10^{11}$	$7.7\ 10^{11}$	$2.5\ 10^{12}$
^{90}Sr	$5.2\ 10^{11}$	$2.0\ 10^{11}$	$6.8\ 10^{11}$	$3.5\ 10^{11}$	$1.9\ 10^{12}$	$8.2\ 10^{12}$	$1.6\ 10^{13}$
^{95}Zr	0	$1.0\ 10^{12}$	$2.5\ 10^{12}$	$2.1\ 10^{11}$	$2.7\ 10^{12}$	$2.6\ 10^{12}$	$1.1\ 10^{13}$
^{95}Nb	0	$1.6\ 10^{12}$	$4.1\ 10^{12}$	$3.7\ 10^{11}$	$1.7\ 10^{12}$	$1.6\ 10^{12}$	$7.3\ 10^{12}$
^{99}Tc	$2.0\ 10^{10}$	$2.0\ 10^{10}$	$2.0\ 10^{10}$	$2.0\ 10^{10}$	$2.0\ 10^{11}$	$2.0\ 10^{11}$	$2.0\ 10^{11}$
^{103}Ru	$2.7\ 10^{12}$	$6.1\ 10^{12}$	$3.0\ 10^{12}$	$3.3\ 10^{11}$	$1.7\ 10^{12}$	$3.4\ 10^{12}$	$8.3\ 10^{12}$
^{106}Ru	$5.0\ 10^{11}$	$2.4\ 10^{13}$	$3.0\ 10^{13}$	$2.6\ 10^{13}$	$1.0\ 10^{14}$	$1.4\ 10^{14}$	$1.4\ 10^{14}$
^{110m}Ag	0	0	0	0	0	0	$1.1\ 10^{10}$
^{125}Sb	$8.1\ 10^{10}$	$1.9\ 10^{11}$	0	$7.4\ 10^{11}$	$9.2\ 10^{11}$	$2.5\ 10^{12}$	$1.8\ 10^{13}$
^{129}I	$1.3\ 10^{11}$	$1.3\ 10^{11}$	$1.3\ 10^{11}$	$1.3\ 10^{11}$	$1.3\ 10^{11}$	$1.3\ 10^{11}$	$1.3\ 10^{11}$
^{134}Cs	$2.8\ 10^{11}$	$1.6\ 10^{12}$	$3.0\ 10^{12}$	$1.3\ 10^{12}$	$1.3\ 10^{13}$	$4.8\ 10^{13}$	$6.1\ 10^{12}$
^{137}Cs	$7.2\ 10^{12}$	$1.6\ 10^{13}$	$2.8\ 10^{13}$	$2.0\ 10^{13}$	$8.9\ 10^{13}$	$2.4\ 10^{14}$	$3.2\ 10^{13}$
^{144}Ce	0	$1.5\ 10^{11}$	$2.2\ 10^{12}$	$2.5\ 10^{11}$	$4.6\ 10^{11}$	$6.5\ 10^{12}$	$2.6\ 10^{12}$
Others	$5.2\ 10^{12}$	$3.1\ 10^{12}$	$3.1\ 10^{13}$	$2.9\ 10^{12}$	$1.5\ 10^{13}$	$4.4\ 10^{13}$	$2.2\ 10^{13}$
^{239}Pu	$1.1\ 10^{9}$	$1.1\ 10^{10}$	$3.1\ 10^{10}$	$1.3\ 10^{10}$	$2.3\ 10^{10}$	$1.4\ 10^{11}$	$6.6\ 10^{10}$
^{241}Pu	$6.7\ 10^{10}$	$7.1\ 10^{11}$	$1.9\ 10^{12}$	$8.0\ 10^{11}$	$1.4\ 10^{12}$	$8.7\ 10^{12}$	$4.0\ 10^{12}$
^{234}U	$2.0\ 10^{9}$	$3.4\ 10^{9}$	$3.1\ 10^{9}$	$1.8\ 10^{9}$	$2.3\ 10^{9}$	$2.5\ 10^{10}$	$2.4\ 10^{10}$
^{238}U	$2.0\ 10^{9}$	$3.4\ 10^{9}$	$3.1\ 10^{9}$	$1.8\ 10^{9}$	$2.3\ 10^{9}$	$2.5\ 10^{10}$	$2.4\ 10^{10}$
Total	$2.4\ 10^{13}$	$6.7\ 10^{13}$	$9.1\ 10^{13}$	$7.4\ 10^{13}$	$3.9\ 10^{14}$	$7.4\ 10^{14}$	$5.1\ 10^{14}$

Table 11 (continued)

Nuclide	1973	1974	1975	1976	1977	1978	1979
^{3}H	$1.1\ 10^{14}$	$2.8\ 10^{14}$	$4.1\ 10^{14}$	$2.6\ 10^{14}$	$3.3\ 10^{14}$	$7.2\ 10^{14}$	$5.7\ 10^{14}$
^{14}C	$7.0\ 10^{11}$	$7.0\ 10^{11}$	$7.0\ 10^{11}$	$7.0\ 10^{11}$	$7.0\ 10^{11}$	$7.0\ 10^{11}$	$7.0\ 10^{11}$
^{60}Co	$4.1\ 10^{11}$	$1.1\ 10^{10}$	$2.1\ 10^{11}$	$2.0\ 10^{11}$	$2.2\ 10^{11}$	$3.5\ 10^{11}$	$1.1\ 10^{12}$
^{65}Zn	0	$5.4\ 10^{10}$	$1.4\ 10^{9}$	$7.7\ 10^{9}$	$2.2\ 10^{11}$	$1.1\ 10^{10}$	0
^{89}Sr	$1.2\ 10^{12}$	$8.6\ 10^{12}$	$8.6\ 10^{12}$	$7.7\ 10^{11}$	$2.7\ 10^{12}$	$7.8\ 10^{11}$	$1.0\ 10^{12}$
^{90}Sr	$9.4\ 10^{12}$	$5.2\ 10^{13}$	$3.7\ 10^{13}$	$1.9\ 10^{13}$	$3.6\ 10^{13}$	$7.0\ 10^{13}$	$5.8\ 10^{13}$
^{95}Zr	$8.5\ 10^{11}$	$1.5\ 10^{13}$	$1.1\ 10^{13}$	$3.4\ 10^{12}$	$7.4\ 10^{11}$	$9.2\ 10^{10}$	$3.4\ 10^{11}$
^{95}Nb	$1.4\ 10^{12}$	$1.3\ 10^{13}$	$9.9\ 10^{12}$	$1.9\ 10^{12}$	$1.3\ 10^{12}$	$3.3\ 10^{11}$	$5.0\ 10^{11}$
^{99}Tc	$2.0\ 10^{11}$	$4.1\ 10^{11}$	$5.8\ 10^{11}$	$8.4\ 10^{11}$	$1.2\ 10^{12}$	$1.7\ 10^{12}$	$2.5\ 10^{12}$
^{103}Ru	$2.1\ 10^{12}$	$4.4\ 10^{12}$	$7.5\ 10^{12}$	$1.1\ 10^{12}$	$5.7\ 10^{11}$	$4.8\ 10^{10}$	$1.0\ 10^{11}$
^{106}Ru	$1.3\ 10^{14}$	$2.6\ 10^{14}$	$4.1\ 10^{14}$	$2.7\ 10^{14}$	$2.7\ 10^{14}$	$4.0\ 10^{14}$	$3.7\ 10^{14}$
^{110m}Ag	$4.8\ 10^{10}$	$1.8\ 10^{10}$	$1.8\ 10^{10}$	$2.5\ 10^{10}$	$2.2\ 10^{10}$	$1.6\ 10^{11}$	0
^{125}Sb	$6.6\ 10^{13}$	$6.8\ 10^{13}$	$7.1\ 10^{13}$	$3.5\ 10^{13}$	$5.4\ 10^{13}$	$6.2\ 10^{13}$	$5.3\ 10^{13}$
^{129}I	$1.3\ 10^{11}$	$1.3\ 10^{11}$	$1.3\ 10^{11}$	$1.3\ 10^{11}$	$1.3\ 10^{11}$	$1.3\ 10^{11}$	$1.3\ 10^{11}$
^{134}Cs	$8.4\ 10^{12}$	$9.0\ 10^{12}$	$4.2\ 10^{12}$	$6.5\ 10^{12}$	$9.5\ 10^{12}$	$7.8\ 10^{12}$	$3.5\ 10^{12}$
^{137}Cs	$6.9\ 10^{13}$	$5.6\ 10^{13}$	$3.4\ 10^{13}$	$3.4\ 10^{13}$	$5.0\ 10^{13}$	$3.9\ 10^{13}$	$2.2\ 10^{13}$
^{144}Ce	$3.2\ 10^{12}$	$2.0\ 10^{13}$	$1.0\ 10^{13}$	$2.9\ 10^{12}$	$2.5\ 10^{12}$	$5.2\ 10^{12}$	$6.6\ 10^{12}$
Others	$4.7\ 10^{13}$	$7.1\ 10^{13}$	$9.9\ 10^{13}$	$2.7\ 10^{13}$	0	$7.8\ 10^{10}$	$6.3\ 10^{10}$
^{239}Pu	$8.1\ 10^{10}$	$5.5\ 10^{11}$	$2.6\ 10^{11}$	$1.5\ 10^{11}$	$2.3\ 10^{11}$	$2.1\ 10^{11}$	$2.3\ 10^{11}$
^{241}Pu	$4.9\ 10^{12}$	$3.3\ 10^{13}$	$1.5\ 10^{13}$	$9.4\ 10^{12}$	$1.4\ 10^{13}$	$1.3\ 10^{13}$	$1.4\ 10^{13}$
^{234}U	$2.5\ 10^{10}$	$2.2\ 10^{11}$	$1.1\ 10^{11}$	$1.0\ 10^{11}$	$1.9\ 10^{11}$	$1.5\ 10^{11}$	$2.2\ 10^{11}$
^{238}U	$2.5\ 10^{10}$	$2.2\ 10^{11}$	$1.1\ 10^{11}$	$1.0\ 10^{11}$	$1.9\ 10^{11}$	$1.5\ 10^{11}$	$2.2\ 10^{11}$
Total	$5.9\ 10^{14}$	$1.2\ 10^{15}$	$1.5\ 10^{15}$	$9.7\ 10^{14}$	$1.0\ 10^{15}$	$1.0\ 10^{15}$	$9.9\ 10^{14}$

Table 11 (continued)

Nuclide	1980	1981	1982	1983	1984	1985	1986
^{3}H	$5.3\ 10^{14}$	$7.0\ 10^{14}$	$8.1\ 10^{14}$	$1.1\ 10^{15}$	$1.4\ 10^{15}$	$2.5\ 10^{15}$	$2.5\ 10^{15}$
^{14}C	$7.0\ 10^{11}$	$7.0\ 10^{11}$	$7.0\ 10^{11}$	$7.0\ 10^{11}$	$7.0\ 10^{11}$	$7.0\ 10^{11}$	$7.0\ 10^{11}$
^{60}Co	$2.2\ 10^{12}$	$3.9\ 10^{12}$	$3.1\ 10^{12}$	$1.3\ 10^{13}$	$2.4\ 10^{13}$	$1.5\ 10^{13}$	$1.5\ 10^{13}$
^{65}Zn	$1.1\ 10^{10}$	0	0	$7.2\ 10^{10}$	$2.7\ 10^{11}$	$2.1\ 10^{11}$	$2.1\ 10^{11}$
^{89}Sr	$2.7\ 10^{11}$	$3.1\ 10^{11}$	$4.7\ 10^{11}$	$8.2\ 10^{11}$	$1.0\ 10^{12}$	$2.8\ 10^{11}$	$2.8\ 10^{11}$
^{90}Sr	$2.9\ 10^{13}$	$2.7\ 10^{13}$	$8.6\ 10^{13}$	$1.4\ 10^{14}$	$1.1\ 10^{14}$	$4.6\ 10^{13}$	$4.6\ 10^{13}$
^{95}Zr	$6.7\ 10^{10}$	$9.2\ 10^{10}$	$4.9\ 10^{11}$	$1.0\ 10^{12}$	$8.6\ 10^{10}$	$8.9\ 10^{9}$	$8.9\ 10^{9}$
^{95}Nb	$5.3\ 10^{10}$	$2.7\ 10^{10}$	$4.7\ 10^{10}$	$1.3\ 10^{11}$	$2.5\ 10^{10}$	$2.0\ 10^{6}$	$2.0\ 10^{6}$
^{99}Tc	$3.6\ 10^{12}$	$5.1\ 10^{12}$	$7.4\ 10^{12}$	$1.1\ 10^{13}$	$1.1\ 10^{13}$	$1.1\ 10^{13}$	$1.1\ 10^{13}$
^{103}Ru	$6.3\ 10^{10}$	$5.9\ 10^{10}$	0	$5.0\ 10^{9}$	0	$1.0\ 10^{10}$	$1.0\ 10^{10}$
^{106}Ru	$3.8\ 10^{14}$	$3.1\ 10^{14}$	$4.6\ 10^{14}$	$3.3\ 10^{14}$	$3.5\ 10^{14}$	$4.3\ 10^{14}$	$4.7\ 10^{14}$
^{110m}Ag	$1.4\ 10^{9}$	$2.0\ 10^{9}$	0	0	0	$4.0\ 10^{6}$	$4.0\ 10^{6}$
^{125}Sb	$5.0\ 10^{13}$	$4.7\ 10^{13}$	$7.5\ 10^{13}$	$1.4\ 10^{14}$	$1.3\ 10^{14}$	$1.0\ 10^{14}$	$1.6\ 10^{14}$
^{129}I	$1.3\ 10^{11}$	$1.3\ 10^{11}$	$1.3\ 10^{11}$	$1.3\ 10^{11}$	$1.3\ 10^{11}$	$1.3\ 10^{11}$	$1.3\ 10^{11}$
^{134}Cs	$3.9\ 10^{12}$	$5.9\ 10^{12}$	$8.4\ 10^{12}$	$4.9\ 10^{12}$	$4.8\ 10^{12}$	$8.1\ 10^{12}$	$8.1\ 10^{12}$
^{137}Cs	$2.6\ 10^{13}$	$3.8\ 10^{13}$	$5.0\ 10^{13}$	$2.3\ 10^{13}$	$2.9\ 10^{13}$	$2.9\ 10^{13}$	$2.9\ 10^{13}$
^{144}Ce	$2.7\ 10^{12}$	$4.0\ 10^{12}$	$3.1\ 10^{12}$	$2.3\ 10^{12}$	$3.1\ 10^{12}$	$2.1\ 10^{12}$	$2.1\ 10^{12}$
Others	$9.8\ 10^{10}$	$5.2\ 10^{10}$	$1.0\ 10^{11}$	$3.6\ 10^{11}$	$3.7\ 10^{13}$	$1.0\ 10^{14}$	$1.0\ 10^{14}$
^{239}Pu	$1.8\ 10^{11}$	$1.6\ 10^{11}$	$1.9\ 10^{11}$	$8.4\ 10^{10}$	$1.3\ 10^{11}$	$1.4\ 10^{11}$	$1.4\ 10^{11}$
^{241}Pu	$1.1\ 10^{13}$	$9.9\ 10^{12}$	$1.1\ 10^{13}$	$5.0\ 10^{12}$	$8.2\ 10^{12}$	$8.4\ 10^{12}$	$8.4\ 10^{12}$
^{234}U	$1.6\ 10^{11}$	$1.8\ 10^{11}$	$2.2\ 10^{11}$	$1.9\ 10^{11}$	$2.8\ 10^{11}$	$2.9\ 10^{11}$	$2.9\ 10^{11}$
^{238}U	$1.6\ 10^{11}$	$1.8\ 10^{11}$	$2.2\ 10^{11}$	$1.9\ 10^{11}$	$2.8\ 10^{11}$	$2.9\ 10^{11}$	$2.9\ 10^{11}$
Total	$9.3\ 10^{14}$	$8.3\ 10^{14}$	$1.2\ 10^{15}$	$1.1\ 10^{15}$	$1.1\ 10^{15}$	$1.2\ 10^{15}$	0

Table 12

Discharges from Capenhurst, UK

Nuclide	1953	1954	1955	1956	1957	1958	1959	1960
^{99}Tc	0	0	0	0	0	0	0	0
^{234}Th	$3.1\ 10^{9}$	$3.1\ 10^{9}$	$3.1\ 10^{9}$	$3.1\ 10^{9}$	$3.1\ 10^{9}$	$3.1\ 10^{9}$	$3.1\ 10^{9}$	$3.1\ 10^{9}$
^{234}U	$3.1\ 10^{9}$	$3.1\ 10^{9}$	$3.1\ 10^{9}$	$3.1\ 10^{9}$	$3.1\ 10^{9}$	$3.1\ 10^{9}$	$3.1\ 10^{9}$	$3.1\ 10^{9}$
^{238}U	$3.1\ 10^{9}$	$3.1\ 10^{9}$	$3.1\ 10^{9}$	$3.1\ 10^{9}$	$3.1\ 10^{9}$	$3.1\ 10^{9}$	$3.1\ 10^{9}$	$3.1\ 10^{9}$

Nuclide	1961	1962	1963	1964	1965	1966	1967	1968
^{99}Tc	0	0	0	0	0	0	0	0
^{234}Th	$3.1\ 10^{9}$	$3.1\ 10^{9}$	$3.9\ 10^{9}$	$3.3\ 10^{9}$	$2.1\ 10^{9}$	$3.0\ 10^{9}$	$2.5\ 10^{9}$	$3.6\ 10^{9}$
^{234}U	$3.1\ 10^{9}$	$3.1\ 10^{9}$	$3.9\ 10^{9}$	$3.3\ 10^{9}$	$2.1\ 10^{9}$	$3.0\ 10^{9}$	$2.5\ 10^{9}$	$3.6\ 10^{9}$
^{238}U	$3.1\ 10^{9}$	$3.1\ 10^{9}$	$3.9\ 10^{9}$	$3.3\ 10^{9}$	$2.1\ 10^{9}$	$3.0\ 10^{9}$	$2.5\ 10^{9}$	$3.6\ 10^{9}$

Nuclide	1969	1970	1971	1972	1973	1974	1975	1976
^{99}Tc	0	0	0	0	0	$1.4\ 10^{9}$	$6.6\ 10^{8}$	$2.9\ 10^{8}$
^{234}Th	$4.1\ 10^{9}$	$5.3\ 10^{9}$	$3.2\ 10^{9}$	$3.5\ 10^{9}$	$2.2\ 10^{9}$	$1.8\ 10^{9}$	$1.5\ 10^{9}$	$1.1\ 10^{9}$
^{234}U	$4.1\ 10^{9}$	$5.3\ 10^{9}$	$3.2\ 10^{9}$	$3.5\ 10^{9}$	$2.2\ 10^{9}$	$1.8\ 10^{9}$	$1.5\ 10^{9}$	$1.1\ 10^{9}$
^{238}U	$4.1\ 10^{9}$	$5.3\ 10^{9}$	$3.2\ 10^{9}$	$3.5\ 10^{9}$	$2.2\ 10^{9}$	$1.8\ 10^{9}$	$1.5\ 10^{9}$	$1.1\ 10^{9}$

Nuclide	1977	1978	1979	1980	1981	1982	1983	1984
^{99}Tc	$7.4\ 10^{8}$	$2.5\ 10^{9}$	$1.2\ 10^{10}$	$1.1\ 10^{10}$	$6.9\ 10^{9}$	$2.0\ 10^{10}$	$3.7\ 10^{9}$	$2.1\ 10^{9}$
^{234}Th	$7.4\ 10^{8}$	$5.6\ 10^{8}$	$5.9\ 10^{8}$	$6.5\ 10^{8}$	$9.5\ 10^{8}$	$5.4\ 10^{8}$	$2.6\ 10^{8}$	$5.2\ 10^{8}$
^{234}U	$7.4\ 10^{8}$	$5.6\ 10^{8}$	$5.9\ 10^{8}$	$6.5\ 10^{8}$	$9.5\ 10^{8}$	$5.4\ 10^{8}$	$2.6\ 10^{8}$	$5.2\ 10^{8}$
^{238}U	$7.4\ 10^{8}$	$5.6\ 10^{8}$	$5.9\ 10^{8}$	$6.5\ 10^{8}$	$9.5\ 10^{8}$	$5.4\ 10^{8}$	$2.6\ 10^{8}$	$5.2\ 10^{8}$

Table 13

Discharges from Chapelcross, UK

Nuclide	1959	1960	1961	1962	1963	1964
^{3}H	$3.7\ 10^{10}$	$6.6\ 10^{10}$	$4.5\ 10^{11}$	$3.5\ 10^{11}$	$4.9\ 10^{10}$	$5.3\ 10^{10}$
^{35}S	$5.0\ 10^{9}$	$8.9\ 10^{9}$	$6.1\ 10^{10}$	$4.7\ 10^{10}$	$6.7\ 10^{9}$	$7.2\ 10^{9}$
^{60}Co	$1.2\ 10^{8}$	$2.2\ 10^{8}$	$1.5\ 10^{9}$	$1.1\ 10^{9}$	$1.6\ 10^{8}$	$1.8\ 10^{8}$
^{65}Zn	$2.8\ 10^{7}$	$5.1\ 10^{7}$	$3.5\ 10^{8}$	$2.7\ 10^{8}$	$3.8\ 10^{7}$	$4.2\ 10^{7}$
^{90}Sr	$2.7\ 10^{6}$	$3.0\ 10^{8}$	$4.9\ 10^{9}$	$1.1\ 10^{10}$	$9.2\ 10^{9}$	$4.7\ 10^{9}$
^{106}Ru	$3.9\ 10^{9}$	$7.0\ 10^{9}$	$4.8\ 10^{10}$	$3.7\ 10^{10}$	$5.2\ 10^{9}$	$5.7\ 10^{9}$
^{125}Sb	$4.5\ 10^{9}$	$8.0\ 10^{9}$	$5.5\ 10^{10}$	$4.3\ 10^{10}$	$6.0\ 10^{9}$	$6.5\ 10^{9}$
^{134}Cs	$7.6\ 10^{9}$	$1.4\ 10^{10}$	$9.3\ 10^{10}$	$7.2\ 10^{10}$	$1.0\ 10^{10}$	$1.1\ 10^{10}$
^{137}Cs	$4.6\ 10^{10}$	$8.3\ 10^{10}$	$5.7\ 10^{11}$	$4.4\ 10^{11}$	$6.2\ 10^{10}$	$6.7\ 10^{10}$
^{144}Ce	$5.2\ 10^{9}$	$9.3\ 10^{9}$	$6.4\ 10^{10}$	$4.9\ 10^{10}$	$7.0\ 10^{9}$	$7.6\ 10^{9}$
^{154}Eu	$8.4\ 10^{7}$	$1.5\ 10^{8}$	$1.0\ 10^{9}$	$8.0\ 10^{8}$	$1.1\ 10^{8}$	$1.2\ 10^{8}$
^{238}Pu	$3.9\ 10^{7}$	$7.0\ 10^{7}$	$4.8\ 10^{8}$	$3.7\ 10^{8}$	$5.3\ 10^{7}$	$5.7\ 10^{7}$
^{239}Pu	$1.2\ 10^{8}$	$2.1\ 10^{8}$	$1.5\ 10^{9}$	$1.1\ 10^{9}$	$1.6\ 10^{8}$	$1.7\ 10^{8}$
^{241}Am	$3.9\ 10^{7}$	$7.0\ 10^{7}$	$4.8\ 10^{8}$	$3.7\ 10^{8}$	$5.3\ 10^{7}$	$5.7\ 10^{7}$

Nuclide	1965	1966	1967	1968	1969	1970
^{3}H	$7.4\ 10^{10}$	$4.2\ 10^{11}$	$6.8\ 10^{11}$	$2.7\ 10^{11}$	$5.7\ 10^{11}$	$2.2\ 10^{11}$
^{35}S	$1.0\ 10^{10}$	$5.7\ 10^{10}$	$1.4\ 10^{11}$	$3.8\ 10^{11}$	$4.1\ 10^{10}$	$2.5\ 10^{10}$
^{60}Co	$2.4\ 10^{8}$	$1.4\ 10^{9}$	$3.3\ 10^{9}$	$9.1\ 10^{9}$	$9.9\ 10^{8}$	$6.0\ 10^{8}$
^{65}Zn	$5.8\ 10^{7}$	$3.3\ 10^{8}$	$7.9\ 10^{8}$	$2.2\ 10^{9}$	$2.3\ 10^{8}$	$1.4\ 10^{8}$
^{90}Sr	$8.6\ 10^{9}$	$4.7\ 10^{9}$	$2.0\ 10^{11}$	$8.0\ 10^{11}$	$8.6\ 10^{10}$	$5.2\ 10^{10}$
^{106}Ru	$7.9\ 10^{9}$	$4.5\ 10^{10}$	$1.1\ 10^{11}$	$3.0\ 10^{11}$	$3.2\ 10^{10}$	$1.9\ 10^{10}$
^{125}Sb	$9.0\ 10^{9}$	$5.2\ 10^{10}$	$1.2\ 10^{11}$	$3.4\ 10^{11}$	$3.7\ 10^{10}$	$2.2\ 10^{10}$
^{134}Cs	$1.5\ 10^{10}$	$8.7\ 10^{10}$	$2.1\ 10^{11}$	$5.7\ 10^{11}$	$6.2\ 10^{10}$	$3.8\ 10^{10}$
^{137}Cs	$9.3\ 10^{10}$	$5.3\ 10^{11}$	$1.3\ 10^{12}$	$3.5\ 10^{12}$	$3.8\ 10^{11}$	$2.3\ 10^{11}$
^{144}Ce	$1.0\ 10^{10}$	$6.0\ 10^{10}$	$1.4\ 10^{11}$	$3.9\ 10^{11}$	$4.2\ 10^{10}$	$2.6\ 10^{10}$
^{154}Eu	$1.7\ 10^{8}$	$9.7\ 10^{8}$	$2.3\ 10^{9}$	$6.4\ 10^{9}$	$6.9\ 10^{8}$	$4.2\ 10^{8}$
^{238}Pu	$7.9\ 10^{7}$	$4.5\ 10^{8}$	$1.1\ 10^{9}$	$3.0\ 10^{9}$	$3.2\ 10^{8}$	$2.0\ 10^{8}$
^{239}Pu	$2.4\ 10^{8}$	$1.4\ 10^{9}$	$3.3\ 10^{9}$	$8.9\ 10^{9}$	$9.6\ 10^{8}$	$5.9\ 10^{8}$
^{241}Am	$7.9\ 10^{7}$	$4.5\ 10^{8}$	$1.1\ 10^{9}$	$3.0\ 10^{9}$	$3.2\ 10^{8}$	$2.0\ 10^{8}$

Table 13 (continued)

Nuclide	1971	1972	1973	1974	1975	1976	1977
^{3}H	$5.1\ 10^{11}$	$3.4\ 10^{11}$	$4.3\ 10^{11}$	$4.4\ 10^{10}$	$2.6\ 10^{11}$	$3.3\ 10^{11}$	$6.7\ 10^{10}$
^{35}S	$4.9\ 10^{10}$	$2.0\ 10^{10}$	$1.8\ 10^{10}$	$2.5\ 10^{9}$	$3.6\ 10^{10}$	$6.3\ 10^{10}$	$1.5\ 10^{10}$
^{60}Co	$1.2\ 10^{9}$	$4.8\ 10^{8}$	$4.3\ 10^{8}$	$6.0\ 10^{7}$	$8.6\ 10^{8}$	$1.6\ 10^{9}$	$4.5\ 10^{8}$
^{65}Zn	$2.8\ 10^{8}$	$1.1\ 10^{8}$	$1.0\ 10^{8}$	$1.4\ 10^{7}$	$2.0\ 10^{8}$	$3.8\ 10^{8}$	$1.1\ 10^{8}$
^{90}Sr	$1.0\ 10^{11}$	$4.1\ 10^{10}$	$3.7\ 10^{10}$	$5.2\ 10^{9}$	$7.5\ 10^{10}$	$1.3\ 10^{11}$	$4.4\ 10^{10}$
^{106}Ru	$3.9\ 10^{10}$	$1.5\ 10^{10}$	$1.4\ 10^{10}$	$1.9\ 10^{9}$	$2.8\ 10^{10}$	$5.2\ 10^{10}$	$1.5\ 10^{10}$
^{125}Sb	$4.4\ 10^{10}$	$1.8\ 10^{10}$	$1.6\ 10^{10}$	$2.2\ 10^{9}$	$3.2\ 10^{10}$	$6.0\ 10^{10}$	$1.7\ 10^{10}$
^{134}Cs	$7.5\ 10^{10}$	$3.0\ 10^{10}$	$2.7\ 10^{10}$	$3.8\ 10^{9}$	$5.4\ 10^{10}$	$8.5\ 10^{10}$	$1.5\ 10^{10}$
^{137}Cs	$4.6\ 10^{11}$	$1.8\ 10^{11}$	$1.6\ 10^{11}$	$2.3\ 10^{10}$	$3.3\ 10^{11}$	$6.0\ 10^{11}$	$1.2\ 10^{11}$
^{144}Ce	$5.1\ 10^{10}$	$2.0\ 10^{10}$	$1.9\ 10^{10}$	$2.6\ 10^{9}$	$3.7\ 10^{10}$	$7.0\ 10^{10}$	$2.0\ 10^{10}$
^{154}Eu	$8.3\ 10^{8}$	$3.3\ 10^{8}$	$3.0\ 10^{8}$	$4.2\ 10^{7}$	$6.0\ 10^{8}$	$1.1\ 10^{9}$	$3.2\ 10^{8}$
^{238}Pu	$3.9\ 10^{8}$	$1.5\ 10^{8}$	$1.4\ 10^{8}$	$2.0\ 10^{7}$	$2.8\ 10^{8}$	$2.7\ 10^{8}$	$1.0\ 10^{8}$
^{239}Pu	$1.2\ 10^{9}$	$4.6\ 10^{8}$	$4.2\ 10^{8}$	$5.9\ 10^{7}$	$8.4\ 10^{8}$	$8.2\ 10^{8}$	$3.1\ 10^{8}$
^{241}Am	$3.9\ 10^{8}$	$1.5\ 10^{8}$	$1.4\ 10^{8}$	$2.0\ 10^{7}$	$2.8\ 10^{8}$	$2.7\ 10^{8}$	$1.0\ 10^{8}$

Nuclide	1978	1979	1980	1981	1982	1983	1984
^{3}H	$1.1\ 10^{12}$	$2.8\ 10^{12}$	$9.0\ 10^{10}$	$1.3\ 10^{12}$	$7.0\ 10^{11}$	$6.0\ 10^{11}$	$2.4\ 10^{11}$
^{35}S	$2.0\ 10^{11}$	$7.0\ 10^{10}$	$3.0\ 10^{10}$	$3.7\ 10^{10}$	$4.4\ 10^{10}$	$7.8\ 10^{10}$	$2.0\ 10^{10}$
^{60}Co	$3.8\ 10^{9}$	$4.0\ 10^{9}$	$1.0\ 10^{9}$	$4.0\ 10^{8}$	$7.0\ 10^{8}$	$7.0\ 10^{8}$	$4.0\ 10^{8}$
^{65}Zn	$5.6\ 10^{8}$	$7.0\ 10^{8}$	$2.0\ 10^{8}$	$3.0\ 10^{8}$	$1.0\ 10^{7}$	$4.0\ 10^{8}$	$4.0\ 10^{8}$
^{90}Sr	$3.1\ 10^{11}$	$3.3\ 10^{12}$	$8.0\ 10^{10}$	$4.1\ 10^{11}$	$9.4\ 10^{11}$	$9.4\ 10^{11}$	$1.5\ 10^{11}$
^{106}Ru	$1.2\ 10^{11}$	$6.0\ 10^{11}$	$2.0\ 10^{10}$	$2.0\ 10^{9}$	$8.0\ 10^{9}$	$2.0\ 10^{9}$	$1.0\ 10^{9}$
^{125}Sb	$1.4\ 10^{11}$	$3.0\ 10^{11}$	$5.0\ 10^{9}$	$1.4\ 10^{11}$	$4.1\ 10^{9}$	$9.0\ 10^{9}$	$2.0\ 10^{9}$
^{134}Cs	$4.0\ 10^{11}$	$6.0\ 10^{11}$	$2.0\ 10^{10}$	$7.8\ 10^{10}$	$8.9\ 10^{10}$	$5.9\ 10^{10}$	$3.0\ 10^{9}$
^{137}Cs	$1.9\ 10^{12}$	$3.7\ 10^{12}$	$1.3\ 10^{11}$	$7.0\ 10^{11}$	$1.1\ 10^{12}$	$7.9\ 10^{11}$	$8.1\ 10^{10}$
^{144}Ce	$7.4\ 10^{10}$	$5.0\ 10^{11}$	$3.0\ 10^{10}$	$1.0\ 10^{9}$	$5.0\ 10^{9}$	$1.0\ 10^{9}$	$4.0\ 10^{8}$
^{154}Eu	$2.7\ 10^{9}$	$8.6\ 10^{9}$	$6.0\ 10^{8}$	$3.0\ 10^{8}$	$1.0\ 10^{9}$	$4.0\ 10^{8}$	$4.0\ 10^{8}$
^{238}Pu	$2.2\ 10^{9}$	$4.4\ 10^{9}$	$2.2\ 10^{8}$	$6.0\ 10^{7}$	$6.0\ 10^{8}$	$1.4\ 10^{8}$	$8.0\ 10^{7}$
^{239}Pu	$6.7\ 10^{9}$	$1.3\ 10^{10}$	$6.7\ 10^{8}$	$1.8\ 10^{8}$	$1.8\ 10^{9}$	$4.2\ 10^{8}$	$2.4\ 10^{8}$
^{241}Am	$2.2\ 10^{9}$	$4.4\ 10^{9}$	$2.2\ 10^{8}$	$6.0\ 10^{7}$	$6.0\ 10^{8}$	$1.4\ 10^{8}$	$8.0\ 10^{7}$

Table 14

Discharges from Chinon GCR, France

Nuclide	1965	1966	1967	1968	1969	1970
^{3}H	$3.9\ 10^{12}$	$3.9\ 10^{12}$	$3.9\ 10^{12}$	$3.9\ 10^{12}$	$3.9\ 10^{12}$	$3.9\ 10^{12}$
^{35}S	$1.5\ 10^{11}$	$1.5\ 10^{11}$	$1.5\ 10^{11}$	$1.5\ 10^{11}$	$1.5\ 10^{11}$	$4.6\ 10^{10}$
^{54}Mn	$4.9\ 10^{9}$	$4.9\ 10^{9}$	$4.9\ 10^{9}$	$4.9\ 10^{9}$	$4.9\ 10^{9}$	$1.5\ 10^{9}$
^{58}Co	$2.7\ 10^{8}$	$2.7\ 10^{8}$	$2.7\ 10^{8}$	$2.7\ 10^{8}$	$2.7\ 10^{8}$	$8.3\ 10^{7}$
^{59}Fe	$2.7\ 10^{8}$	$2.7\ 10^{8}$	$2.7\ 10^{8}$	$2.7\ 10^{8}$	$2.7\ 10^{8}$	$8.3\ 10^{7}$
^{60}Co	$3.0\ 10^{10}$	$3.0\ 10^{10}$	$3.0\ 10^{10}$	$3.0\ 10^{10}$	$3.0\ 10^{10}$	$9.2\ 10^{9}$
^{65}Zn	$2.7\ 10^{8}$	$2.7\ 10^{8}$	$2.7\ 10^{8}$	$2.7\ 10^{8}$	$2.7\ 10^{8}$	$8.3\ 10^{7}$
^{90}Sr	$1.4\ 10^{10}$	$1.4\ 10^{10}$	$1.4\ 10^{10}$	$1.4\ 10^{10}$	$1.4\ 10^{10}$	$4.3\ 10^{9}$
^{106}Ru	$1.6\ 10^{10}$	$1.6\ 10^{10}$	$1.6\ 10^{10}$	$1.6\ 10^{10}$	$1.6\ 10^{10}$	$5.0\ 10^{9}$
^{134}Cs	$8.2\ 10^{9}$	$8.2\ 10^{9}$	$8.2\ 10^{9}$	$8.2\ 10^{9}$	$8.2\ 10^{9}$	$2.5\ 10^{9}$
^{137}Cs	$4.7\ 10^{10}$	$4.7\ 10^{10}$	$4.7\ 10^{10}$	$4.7\ 10^{10}$	$4.7\ 10^{10}$	$1.4\ 10^{10}$

Nuclide	1971	1972	1973	1974	1975	1976	1977
^{3}H	$3.9\ 10^{12}$	$3.9\ 10^{12}$	$3.9\ 10^{12}$	$3.9\ 10^{12}$	$3.9\ 10^{12}$	$3.9\ 10^{12}$	$4.0\ 10^{12}$
^{35}S	$4.1\ 10^{10}$	$6.1\ 10^{10}$	$6.7\ 10^{10}$	$8.2\ 10^{9}$	$1.3\ 10^{10}$	$7.6\ 10^{9}$	$4.7\ 10^{9}$
^{54}Mn	$1.3\ 10^{9}$	$2.0\ 10^{9}$	$2.1\ 10^{9}$	$2.6\ 10^{8}$	$4.3\ 10^{8}$	0	$1.5\ 10^{8}$
^{58}Co	$7.4\ 10^{7}$	$1.1\ 10^{8}$	$1.2\ 10^{8}$	$1.4\ 10^{7}$	$2.4\ 10^{7}$	0	$8.5\ 10^{6}$
^{59}Fe	$7.4\ 10^{7}$	$1.1\ 10^{8}$	$1.2\ 10^{8}$	$1.4\ 10^{7}$	$2.4\ 10^{7}$	0	$8.5\ 10^{6}$
^{60}Co	$8.2\ 10^{9}$	$1.2\ 10^{10}$	$1.3\ 10^{10}$	$1.6\ 10^{9}$	$2.6\ 10^{9}$	$2.6\ 10^{9}$	$9.4\ 10^{8}$
^{65}Zn	$7.4\ 10^{7}$	$1.1\ 10^{8}$	$1.2\ 10^{8}$	$1.4\ 10^{7}$	$2.4\ 10^{7}$	0	$8.5\ 10^{6}$
^{90}Sr	$3.8\ 10^{9}$	$5.7\ 10^{9}$	$6.2\ 10^{9}$	$7.7\ 10^{8}$	$1.2\ 10^{9}$	$1.5\ 10^{9}$	$4.4\ 10^{8}$
^{106}Ru	$4.4\ 10^{9}$	$6.6\ 10^{9}$	$7.2\ 10^{9}$	$8.8\ 10^{8}$	$1.4\ 10^{9}$	$1.4\ 10^{9}$	$5.1\ 10^{8}$
^{134}Cs	$2.2\ 10^{9}$	$3.3\ 10^{9}$	$3.6\ 10^{9}$	$4.4\ 10^{8}$	$7.2\ 10^{8}$	$7.1\ 10^{8}$	$2.5\ 10^{8}$
^{137}Cs	$1.2\ 10^{10}$	$1.9\ 10^{10}$	$2.0\ 10^{10}$	$2.5\ 10^{9}$	$4.1\ 10^{9}$	$7.1\ 10^{9}$	$1.4\ 10^{9}$

Nuclide	1978	1979	1980	1981	1982	1983	1984
^{3}H	$4.8\ 10^{12}$	$5.1\ 10^{12}$	$4.4\ 10^{12}$	$4.4\ 10^{12}$	$4.4\ 10^{12}$	$4.4\ 10^{12}$	$4.4\ 10^{12}$
^{35}S	$1.1\ 10^{10}$	$1.9\ 10^{10}$	$2.1\ 10^{10}$	$2.1\ 10^{10}$	$2.1\ 10^{10}$	$2.1\ 10^{10}$	$2.1\ 10^{10}$
^{54}Mn	$2.5\ 10^{8}$	$6.3\ 10^{8}$	$6.8\ 10^{8}$	$6.8\ 10^{8}$	$6.8\ 10^{8}$	$6.8\ 10^{8}$	$6.8\ 10^{8}$
^{58}Co	$1.6\ 10^{7}$	$3.5\ 10^{7}$	$3.8\ 10^{7}$	$3.8\ 10^{7}$	$3.8\ 10^{7}$	$3.8\ 10^{7}$	$3.8\ 10^{7}$
^{59}Fe	$1.5\ 10^{7}$	$3.5\ 10^{7}$	$3.8\ 10^{7}$	$3.8\ 10^{7}$	$3.8\ 10^{7}$	$3.8\ 10^{7}$	$3.8\ 10^{7}$
^{60}Co	0	$3.9\ 10^{9}$	$4.2\ 10^{9}$	$4.2\ 10^{9}$	$4.2\ 10^{9}$	$4.2\ 10^{9}$	$4.2\ 10^{9}$
^{65}Zn	$1.2\ 10^{7}$	$3.5\ 10^{7}$	$3.8\ 10^{7}$	$3.8\ 10^{7}$	$3.8\ 10^{7}$	$3.8\ 10^{7}$	$3.8\ 10^{7}$
^{90}Sr	$5.5\ 10^{8}$	$1.8\ 10^{9}$	$1.9\ 10^{9}$	$1.9\ 10^{9}$	$1.9\ 10^{9}$	$1.9\ 10^{9}$	$1.9\ 10^{9}$
^{106}Ru	0	$2.1\ 10^{9}$	$2.2\ 10^{9}$	$2.2\ 10^{9}$	$2.2\ 10^{9}$	$2.2\ 10^{9}$	$2.2\ 10^{9}$
^{134}Cs	0	$1.0\ 10^{9}$	$1.1\ 10^{9}$	$1.1\ 10^{9}$	$1.1\ 10^{9}$	$1.1\ 10^{9}$	$1.1\ 10^{9}$
^{137}Cs	$5.5\ 10^{8}$	$6.0\ 10^{9}$	$6.5\ 10^{9}$	$6.5\ 10^{9}$	$6.5\ 10^{9}$	$6.5\ 10^{9}$	$6.5\ 10^{9}$

Table 15

Discharges from Chinon PWR, France

Nuclide	1982	1983	1984
^{3}H	$2.2\ 10^{13}$	$2.2\ 10^{13}$	$2.2\ 10^{13}$
^{54}Mn	$7.1\ 10^{9}$	$7.1\ 10^{9}$	$7.1\ 10^{9}$
^{58}Co	$1.1\ 10^{11}$	$1.1\ 10^{11}$	$1.1\ 10^{11}$
^{60}Co	$1.5\ 10^{10}$	$1.5\ 10^{10}$	$1.5\ 10^{10}$
^{110m}Ag	$1.1\ 10^{10}$	$1.1\ 10^{10}$	$1.1\ 10^{10}$
^{124}Sb	$8.7\ 10^{9}$	$8.7\ 10^{9}$	$8.7\ 10^{9}$
^{131}I	$2.8\ 10^{9}$	$2.8\ 10^{9}$	$2.8\ 10^{9}$
^{134}Cs	$2.7\ 10^{9}$	$2.7\ 10^{9}$	$2.7\ 10^{9}$
^{137}Cs	$4.4\ 10^{9}$	$4.4\ 10^{9}$	$4.4\ 10^{9}$

Table 16

Discharges from Chooz, France

Nuclide	1967	1968	1969	1970	1971	1972
^{3}H	$1.2\ 10^{13}$	$1.2\ 10^{13}$	$1.2\ 10^{13}$	$1.2\ 10^{13}$	$2.6\ 10^{13}$	$6.5\ 10^{13}$
^{51}Cr	0	0	0	0	0	0
^{54}Mn	$1.9\ 10^{10}$	$1.9\ 10^{10}$	$1.9\ 10^{10}$	$3.2\ 10^{10}$	$1.7\ 10^{11}$	$1.5\ 10^{9}$
^{58}Co	$5.5\ 10^{9}$	$5.5\ 10^{9}$	$5.5\ 10^{9}$	$9.2\ 10^{9}$	$4.9\ 10^{10}$	$2.6\ 10^{9}$
^{59}Fe	0	0	0	0	$1.5\ 10^{9}$	$6.0\ 10^{9}$
^{60}Co	$2.7\ 10^{10}$	$2.7\ 10^{10}$	$2.7\ 10^{10}$	$4.6\ 10^{10}$	$2.4\ 10^{11}$	$6.6\ 10^{10}$
^{90}Sr	$5.2\ 10^{9}$	$5.2\ 10^{9}$	$5.2\ 10^{9}$	$8.8\ 10^{9}$	$4.7\ 10^{10}$	$5.8\ 10^{9}$
^{95}Zr	$9.4\ 10^{8}$	$9.4\ 10^{8}$	$9.4\ 10^{8}$	$1.5\ 10^{9}$	$8.5\ 10^{9}$	$8.7\ 10^{8}$
^{106}Ru	0	0	0	0	0	0
^{124}Sb	0	0	0	0	0	0
^{131}I	$9.2\ 10^{9}$	$9.2\ 10^{9}$	$9.2\ 10^{9}$	$1.5\ 10^{10}$	$8.4\ 10^{10}$	$1.0\ 10^{11}$
^{134}Cs	$2.7\ 10^{10}$	$2.7\ 10^{10}$	$2.7\ 10^{10}$	$4.7\ 10^{10}$	$2.5\ 10^{11}$	$1.4\ 10^{11}$
^{137}Cs	$4.4\ 10^{10}$	$4.4\ 10^{10}$	$4.4\ 10^{10}$	$7.5\ 10^{10}$	$4.0\ 10^{11}$	$1.3\ 10^{11}$
^{140}La	0	0	0	0	0	0
^{141}Ce	0	0	0	0	0	0
^{144}Ce	0	0	0	0	0	0
^{239}Pu	0	0	0	0	0	$2.7\ 10^{7}$

Nuclide	1973	1974	1975	1976	1977	1978
^{3}H	$6.8\ 10^{13}$	$1.2\ 10^{14}$	$9.2\ 10^{13}$	$7.1\ 10^{13}$	$9.7\ 10^{13}$	$6.6\ 10^{13}$
^{51}Cr	0	0	0	0	0	$9.1\ 10^{9}$
^{54}Mn	$4.2\ 10^{10}$	$3.0\ 10^{10}$	$4.4\ 10^{10}$	$3.0\ 10^{10}$	$9.5\ 10^{9}$	0
^{58}Co	$1.1\ 10^{10}$	$5.1\ 10^{9}$	$1.2\ 10^{10}$	$4.2\ 10^{9}$	$1.3\ 10^{9}$	$6.0\ 10^{8}$
^{59}Fe	0	0	0	0	$4.9\ 10^{7}$	0
^{60}Co	$5.9\ 10^{10}$	$4.0\ 10^{10}$	$6.2\ 10^{10}$	$2.0\ 10^{10}$	$6.9\ 10^{9}$	$3.8\ 10^{9}$
^{90}Sr	$1.1\ 10^{10}$	$2.2\ 10^{9}$	$1.1\ 10^{10}$	$8.7\ 10^{9}$	$2.3\ 10^{9}$	$3.4\ 10^{8}$
^{95}Zr	$2.0\ 10^{9}$	$7.3\ 10^{9}$	$2.1\ 10^{9}$	$3.8\ 10^{8}$	$2.5\ 10^{8}$	0
^{106}Ru	0	$2.0\ 10^{10}$	0	0	0	0
^{124}Sb	0	0	0	0	0	0
^{131}I	$2.0\ 10^{10}$	0	$2.1\ 10^{10}$	$5.2\ 10^{9}$	$2.2\ 10^{9}$	$1.4\ 10^{8}$
^{134}Cs	$6.0\ 10^{10}$	$7.3\ 10^{10}$	$6.3\ 10^{10}$	$1.6\ 10^{10}$	$8.8\ 10^{9}$	0
^{137}Cs	$9.6\ 10^{10}$	$1.0\ 10^{11}$	$1.0\ 10^{11}$	$2.3\ 10^{10}$	$1.5\ 10^{10}$	$3.6\ 10^{9}$
^{140}La	0	0	0	$1.7\ 10^{9}$	0	0
^{141}Ce	0	0	0	0	0	0
^{144}Ce	0	$5.1\ 10^{10}$	0	0	0	$2.1\ 10^{9}$
^{239}Pu	0	0	0	0	0	0

Table 16 (continued)

Nuclide	1979	1980	1981	1982	1983	1984
^{3}H	$1.0\ 10^{14}$	$1.0\ 10^{14}$	$1.0\ 10^{14}$	$1.0\ 10^{14}$	$1.0\ 10^{14}$	$1.0\ 10^{14}$
^{51}Cr	0	0	0	0	0	0
^{54}Mn	$3.8\ 10^{9}$	$1.3\ 10^{9}$	$1.3\ 10^{9}$	$1.3\ 10^{9}$	$1.3\ 10^{9}$	$1.3\ 10^{9}$
^{58}Co	$1.7\ 10^{9}$	$3.7\ 10^{8}$	$3.7\ 10^{8}$	$3.7\ 10^{8}$	$3.7\ 10^{8}$	$3.7\ 10^{8}$
^{59}Fe	0	0	0	0	0	0
^{60}Co	$4.1\ 10^{9}$	$1.8\ 10^{9}$	$1.8\ 10^{9}$	$1.8\ 10^{9}$	$1.8\ 10^{9}$	$1.8\ 10^{9}$
^{90}Sr	$4.7\ 10^{8}$	$3.6\ 10^{8}$	$3.6\ 10^{8}$	$3.6\ 10^{8}$	$3.6\ 10^{8}$	$3.6\ 10^{8}$
^{95}Zr	0	$6.4\ 10^{7}$	$6.4\ 10^{7}$	$6.4\ 10^{7}$	$6.4\ 10^{7}$	$6.4\ 10^{7}$
^{106}Ru	0	0	0	0	0	0
^{124}Sb	0	0	0	0	0	0
^{131}I	$2.6\ 10^{8}$	$6.3\ 10^{8}$	$6.3\ 10^{8}$	$6.3\ 10^{8}$	$6.3\ 10^{8}$	$6.3\ 10^{8}$
^{134}Cs	$3.1\ 10^{9}$	$1.9\ 10^{9}$	$1.9\ 10^{9}$	$1.9\ 10^{9}$	$1.9\ 10^{9}$	$1.9\ 10^{9}$
^{137}Cs	$6.3\ 10^{9}$	$3.0\ 10^{9}$	$3.0\ 10^{9}$	$3.0\ 10^{9}$	$3.0\ 10^{9}$	$3.0\ 10^{9}$
^{140}La	0	0	0	0	0	0
^{141}Ce	0	0	0	0	0	0
^{144}Ce	0	0	0	0	0	0
^{239}Pu	0	0	0	0	0	0

Table 17

Discharges from Dampierre, France

Nuclide	1980	1981	1982	1983	1984
^{3}H	$7.5\ 10^{12}$	$5.1\ 10^{13}$	$4.7\ 10^{13}$	$6.4\ 10^{13}$	$7.2\ 10^{13}$
^{54}Mn	$4.4\ 10^{9}$	$4.4\ 10^{9}$	$4.4\ 10^{9}$	$4.4\ 10^{9}$	$4.4\ 10^{9}$
^{58}Co	$1.3\ 10^{11}$	$1.3\ 10^{11}$	$1.3\ 10^{11}$	$1.3\ 10^{11}$	$1.3\ 10^{11}$
^{60}Co	$2.4\ 10^{10}$	$2.4\ 10^{10}$	$2.4\ 10^{10}$	$2.4\ 10^{10}$	$2.4\ 10^{10}$
^{110m}Ag	$1.1\ 10^{11}$	$1.1\ 10^{11}$	$1.1\ 10^{11}$	$1.1\ 10^{11}$	$1.1\ 10^{11}$
^{124}Sb	$6.1\ 10^{10}$	$6.1\ 10^{10}$	$6.1\ 10^{10}$	$6.1\ 10^{10}$	$6.1\ 10^{10}$
^{131}I	$1.6\ 10^{10}$	$1.6\ 10^{10}$	$1.6\ 10^{10}$	$1.6\ 10^{10}$	$1.6\ 10^{10}$
^{134}Cs	$1.1\ 10^{10}$	$1.1\ 10^{10}$	$1.1\ 10^{10}$	$1.1\ 10^{10}$	$1.1\ 10^{10}$
^{137}Cs	$2.4\ 10^{10}$	$2.4\ 10^{10}$	$2.4\ 10^{10}$	$2.4\ 10^{10}$	$2.4\ 10^{10}$

Table 18

Discharges from Dodewaard, the Netherlands

Nuclide	1969	1970	1971	1972	1973	1974	1975	1976
^{3}H	0	$8.8\ 10^{10}$	0	$9.3\ 10^{10}$	$2.2\ 10^{11}$	$3.4\ 10^{11}$	$6.3\ 10^{11}$	$8.5\ 10^{11}$
^{14}C	0	0	0	0	0	0	0	0
^{51}Cr	$7.7\ 10^{8}$	$3.6\ 10^{9}$	$2.4\ 10^{9}$	$3.1\ 10^{9}$	$2.4\ 10^{9}$	$3.3\ 10^{9}$	$1.9\ 10^{9}$	$5.2\ 10^{8}$
^{54}Mn	$1.7\ 10^{9}$	$7.9\ 10^{9}$	$5.4\ 10^{9}$	$6.9\ 10^{9}$	$5.3\ 10^{9}$	$7.4\ 10^{9}$	$4.2\ 10^{9}$	$1.1\ 10^{9}$
^{59}Fe	$2.9\ 10^{8}$	$1.3\ 10^{9}$	$9.4\ 10^{8}$	$1.2\ 10^{9}$	$9.2\ 10^{8}$	$1.2\ 10^{9}$	$7.4\ 10^{8}$	$2.0\ 10^{8}$
^{57}Co	$2.0\ 10^{7}$	$9.5\ 10^{7}$	$6.5\ 10^{7}$	$8.2\ 10^{7}$	$6.3\ 10^{7}$	$8.8\ 10^{7}$	$5.1\ 10^{7}$	$1.3\ 10^{7}$
^{58}Co	$2.2\ 10^{8}$	$1.0\ 10^{9}$	$7.1\ 10^{8}$	$9.0\ 10^{8}$	$6.9\ 10^{8}$	$9.6\ 10^{8}$	$5.6\ 10^{8}$	$1.5\ 10^{8}$
^{60}Co	$7.0\ 10^{9}$	$3.3\ 10^{10}$	$2.0\ 10^{10}$	$2.0\ 10^{10}$	$2.2\ 10^{10}$	$3.1\ 10^{10}$	$1.8\ 10^{10}$	$4.8\ 10^{9}$
^{65}Zn	$8.3\ 10^{7}$	$3.8\ 10^{8}$	$2.6\ 10^{8}$	$3.3\ 10^{8}$	$2.5\ 10^{8}$	$3.5\ 10^{8}$	$2.0\ 10^{8}$	$5.6\ 10^{7}$
^{89}Sr	$3.2\ 10^{6}$	$1.5\ 10^{7}$	$1.0\ 10^{7}$	$1.3\ 10^{7}$	$1.0\ 10^{7}$	$1.4\ 10^{7}$	$8.1\ 10^{6}$	$2.2\ 10^{6}$
^{90}Sr	$2.3\ 10^{6}$	$1.0\ 10^{7}$	$7.4\ 10^{6}$	$9.4\ 10^{6}$	$7.2\ 10^{6}$	$1.0\ 10^{7}$	$5.8\ 10^{6}$	$1.5\ 10^{6}$
^{95}Zr	$6.1\ 10^{7}$	$2.8\ 10^{8}$	$1.9\ 10^{8}$	$2.4\ 10^{8}$	$1.9\ 10^{8}$	$2.6\ 10^{8}$	$1.5\ 10^{8}$	$4.1\ 10^{7}$
^{95}Nb	$3.9\ 10^{7}$	$1.8\ 10^{8}$	$1.2\ 10^{8}$	$1.6\ 10^{8}$	$1.2\ 10^{8}$	$1.7\ 10^{8}$	$9.8\ 10^{7}$	$2.6\ 10^{7}$
^{103}Ru	$3.4\ 10^{7}$	$1.6\ 10^{8}$	$1.1\ 10^{8}$	$1.3\ 10^{8}$	$1.0\ 10^{8}$	$1.4\ 10^{8}$	$8.5\ 10^{7}$	$2.3\ 10^{7}$
^{106}Ru	$3.1\ 10^{8}$	$1.4\ 10^{9}$	$9.9\ 10^{8}$	$1.2\ 10^{9}$	$9.6\ 10^{8}$	$1.3\ 10^{9}$	$7.7\ 10^{8}$	$2.1\ 10^{8}$
^{110m}Ag	$6.1\ 10^{7}$	$2.8\ 10^{8}$	$1.9\ 10^{8}$	$2.4\ 10^{8}$	$1.9\ 10^{8}$	$2.6\ 10^{8}$	$1.5\ 10^{8}$	$4.1\ 10^{7}$
^{123m}Te	$1.9\ 10^{7}$	$8.9\ 10^{7}$	$6.1\ 10^{7}$	$7.8\ 10^{7}$	$6.0\ 10^{7}$	$8.3\ 10^{7}$	$4.8\ 10^{7}$	$1.3\ 10^{7}$
^{124}Sb	$1.9\ 10^{8}$	$9.0\ 10^{8}$	$6.2\ 10^{8}$	$7.9\ 10^{8}$	$6.0\ 10^{8}$	$8.4\ 10^{8}$	$4.8\ 10^{8}$	$1.3\ 10^{8}$
^{125}Sb	$9.1\ 10^{7}$	$4.2\ 10^{8}$	$2.9\ 10^{8}$	$3.7\ 10^{8}$	$2.8\ 10^{8}$	$3.9\ 10^{8}$	$2.2\ 10^{8}$	$6.2\ 10^{7}$
^{134}Cs	$1.0\ 10^{9}$	$4.6\ 10^{9}$	$3.2\ 10^{9}$	$4.0\ 10^{9}$	$3.1\ 10^{9}$	$4.3\ 10^{9}$	$2.5\ 10^{9}$	$6.8\ 10^{8}$
^{137}Cs	$6.0\ 10^{9}$	$2.8\ 10^{10}$	$1.0\ 10^{10}$	$2.0\ 10^{10}$	$1.9\ 10^{10}$	$2.6\ 10^{10}$	$1.5\ 10^{10}$	$4.1\ 10^{9}$
^{140}Ba	$6.1\ 10^{7}$	$2.8\ 10^{8}$	$1.9\ 10^{8}$	$2.4\ 10^{8}$	$1.9\ 10^{8}$	$2.6\ 10^{8}$	$1.5\ 10^{8}$	$4.1\ 10^{7}$
^{140}La	$3.4\ 10^{7}$	$1.6\ 10^{8}$	$1.1\ 10^{8}$	$1.3\ 10^{8}$	$1.0\ 10^{8}$	$1.4\ 10^{8}$	$8.5\ 10^{7}$	$2.3\ 10^{7}$
^{141}Ce	$3.4\ 10^{7}$	$1.6\ 10^{8}$	$1.1\ 10^{8}$	$1.3\ 10^{8}$	$1.0\ 10^{8}$	$1.4\ 10^{8}$	$8.5\ 10^{7}$	$2.3\ 10^{7}$
^{144}Ce	$1.5\ 10^{8}$	$7.0\ 10^{8}$	$4.8\ 10^{8}$	$6.1\ 10^{8}$	$4.6\ 10^{8}$	$6.4\ 10^{8}$	$3.7\ 10^{8}$	$1.0\ 10^{8}$

Table 18 (continued)

Nuclide	1977	1978	1979	1980	1981	1982	1983	1984
^{3}H	$7.8\ 10^{11}$	$1.7\ 10^{12}$	$1.1\ 10^{12}$	$5.6\ 10^{11}$	$4.7\ 10^{11}$	$3.1\ 10^{11}$	$2.2\ 10^{11}$	$1.2\ 10^{11}$
^{14}C	0	0	0	0	0	0	0	0
^{51}Cr	$1.7\ 10^{9}$	$6.5\ 10^{8}$	$7.7\ 10^{8}$	$1.8\ 10^{8}$	$9.4\ 10^{8}$	$2.3\ 10^{8}$	$3.2\ 10^{8}$	$8.0\ 10^{8}$
^{54}Mn	$3.7\ 10^{9}$	$1.4\ 10^{9}$	$1.7\ 10^{9}$	$4.1\ 10^{8}$	$2.8\ 10^{9}$	$2.8\ 10^{9}$	$1.8\ 10^{9}$	$6.0\ 10^{8}$
^{59}Fe	$6.5\ 10^{8}$	$2.4\ 10^{8}$	$2.9\ 10^{8}$	$7.0\ 10^{7}$	$3.6\ 10^{8}$	$4.5\ 10^{8}$	$2.5\ 10^{8}$	$1.1\ 10^{8}$
^{57}Co	$4.4\ 10^{7}$	$1.7\ 10^{7}$	$2.0\ 10^{7}$	$4.9\ 10^{6}$	$2.4\ 10^{7}$	$2.0\ 10^{7}$	$2.0\ 10^{7}$	$1.0\ 10^{7}$
^{58}Co	$4.9\ 10^{8}$	$1.8\ 10^{8}$	$2.2\ 10^{8}$	$5.3\ 10^{7}$	$2.7\ 10^{8}$	$1.2\ 10^{8}$	$3.2\ 10^{8}$	$9.0\ 10^{7}$
^{60}Co	$1.6\ 10^{10}$	$5.9\ 10^{9}$	$7.0\ 10^{9}$	$1.7\ 10^{9}$	$8.6\ 10^{9}$	$8.3\ 10^{9}$	$5.8\ 10^{9}$	$3.5\ 10^{9}$
^{65}Zn	$1.8\ 10^{8}$	$6.9\ 10^{7}$	$8.3\ 10^{7}$	$1.9\ 10^{7}$	$1.1\ 10^{8}$	$7.0\ 10^{7}$	$9.0\ 10^{7}$	$4.0\ 10^{7}$
^{89}Sr	$7.1\ 10^{6}$	$2.7\ 10^{6}$	$3.2\ 10^{6}$	$7.8\ 10^{5}$	$3.9\ 10^{6}$	0	$2.1\ 10^{6}$	$3.3\ 10^{6}$
^{90}Sr	$5.1\ 10^{6}$	$1.9\ 10^{6}$	$2.3\ 10^{6}$	$5.6\ 10^{5}$	$2.8\ 10^{6}$	$1.8\ 10^{6}$	$2.5\ 10^{6}$	$1.2\ 10^{6}$
^{95}Zr	$1.3\ 10^{8}$	$5.1\ 10^{7}$	$6.1\ 10^{7}$	$1.4\ 10^{7}$	$7.4\ 10^{7}$	$6.0\ 10^{7}$	$6.0\ 10^{6}$	$3.0\ 10^{7}$
^{95}Nb	$8.6\ 10^{7}$	$3.3\ 10^{7}$	$3.9\ 10^{7}$	$9.4\ 10^{6}$	$4.8\ 10^{7}$	$5.0\ 10^{7}$	$3.0\ 10^{7}$	$2.0\ 10^{7}$
^{103}Ru	$7.5\ 10^{7}$	$2.8\ 10^{7}$	$3.4\ 10^{7}$	$8.2\ 10^{6}$	$4.1\ 10^{7}$	$3.0\ 10^{7}$	$3.0\ 10^{7}$	$2.0\ 10^{7}$
^{106}Ru	$6.8\ 10^{9}$	$2.6\ 10^{9}$	$3.1\ 10^{9}$	$7.4\ 10^{7}$	$3.7\ 10^{8}$	$2.9\ 10^{8}$	$2.8\ 10^{8}$	$1.7\ 10^{8}$
^{110m}Ag	$1.3\ 10^{8}$	$5.1\ 10^{7}$	$6.1\ 10^{7}$	$1.4\ 10^{7}$	$7.4\ 10^{7}$	$6.0\ 10^{7}$	$6.0\ 10^{7}$	$3.0\ 10^{7}$
^{123m}Te	$4.2\ 10^{7}$	$1.1\ 10^{7}$	$1.9\ 10^{7}$	$4.6\ 10^{6}$	$2.3\ 10^{7}$	$2.0\ 10^{7}$	$3.0\ 10^{7}$	$1.0\ 10^{7}$
^{124}Sb	$4.2\ 10^{8}$	$1.6\ 10^{8}$	$1.9\ 10^{8}$	$4.6\ 10^{7}$	$2.3\ 10^{8}$	$5.8\ 10^{8}$	$6.0\ 10^{7}$	$3.0\ 10^{7}$
^{125}Sb	$2.0\ 10^{8}$	$7.6\ 10^{7}$	$9.1\ 10^{7}$	$2.2\ 10^{7}$	$1.1\ 10^{8}$	$9.0\ 10^{7}$	$8.0\ 10^{7}$	$5.0\ 10^{7}$
^{134}Cs	$2.2\ 10^{9}$	$8.3\ 10^{8}$	$1.0\ 10^{9}$	$2.4\ 10^{8}$	$1.2\ 10^{9}$	$1.8\ 10^{9}$	$8.0\ 10^{8}$	$2.8\ 10^{8}$
^{137}Cs	$1.3\ 10^{10}$	$5.0\ 10^{9}$	$6.0\ 10^{9}$	$1.4\ 10^{9}$	$7.3\ 10^{9}$	$9.2\ 10^{9}$	$5.1\ 10^{9}$	$2.2\ 10^{9}$
^{140}Ba	$1.3\ 10^{8}$	$5.1\ 10^{7}$	$6.1\ 10^{7}$	$1.4\ 10^{7}$	$7.4\ 10^{7}$	$1.1\ 10^{8}$	$1.1\ 10^{8}$	$7.0\ 10^{7}$
^{140}La	$7.5\ 10^{7}$	$2.8\ 10^{7}$	$3.4\ 10^{7}$	$8.2\ 10^{6}$	$4.1\ 10^{7}$	$6.0\ 10^{7}$	$6.0\ 10^{7}$	$3.0\ 10^{7}$
^{141}Ce	$7.5\ 10^{7}$	$2.8\ 10^{7}$	$3.4\ 10^{7}$	$8.2\ 10^{6}$	$4.1\ 10^{7}$	$3.0\ 10^{7}$	$3.0\ 10^{7}$	$2.0\ 10^{7}$
^{144}Ce	$3.3\ 10^{8}$	$1.2\ 10^{8}$	$1.5\ 10^{8}$	$3.6\ 10^{7}$	$1.8\ 10^{8}$	$1.4\ 10^{8}$	$1.4\ 10^{8}$	$8.0\ 10^{7}$

Table 19

Discharges from Doel, Belgium

Nuclide	1974	1975	1976	1977	1978
^{3}H	$1.0\ 10^{13}$	$1.3\ 10^{13}$	$1.2\ 10^{13}$	$1.7\ 10^{13}$	$2.3\ 10^{13}$
^{51}Cr	$2.5\ 10^{10}$	$1.1\ 10^{9}$	$1.7\ 10^{11}$	$4.4\ 10^{10}$	$1.3\ 10^{10}$
^{54}Mn	$2.5\ 10^{9}$	$2.5\ 10^{10}$	$3.9\ 10^{7}$	$2.5\ 10^{10}$	$2.2\ 10^{10}$
^{57}Co	0	0	$4.0\ 10^{9}$	$3.8\ 10^{8}$	$3.4\ 10^{8}$
^{58}Co	$3.2\ 10^{10}$	$2.1\ 10^{11}$	$1.3\ 10^{12}$	$4.6\ 10^{11}$	$5.6\ 10^{11}$
^{59}Fe	0	$2.1\ 10^{9}$	$1.6\ 10^{10}$	$3.3\ 10^{9}$	$1.1\ 10^{9}$
^{60}Co	$3.1\ 10^{9}$	$3.3\ 10^{10}$	$1.2\ 10^{11}$	$7.9\ 10^{10}$	$1.0\ 10^{11}$
^{90}Sr	0	0	$8.1\ 10^{7}$	$1.5\ 10^{8}$	$1.1\ 10^{8}$
^{95}Zr	$5.0\ 10^{9}$	0	$4.0\ 10^{9}$	$2.9\ 10^{8}$	0
^{95}Nb	$3.1\ 10^{9}$	0	$9.6\ 10^{9}$	$2.6\ 10^{9}$	$8.0\ 10^{8}$
^{110m}Ag	0	0	$4.1\ 10^{8}$	$1.5\ 10^{9}$	0
^{124}Sb	0	$2.1\ 10^{8}$	$2.7\ 10^{9}$	$1.6\ 10^{9}$	$7.4\ 10^{8}$
^{134}Cs	0	0	$7.4\ 10^{8}$	$8.1\ 10^{7}$	0
^{137}Cs	0	$1.2\ 10^{9}$	$3.3\ 10^{9}$	$2.1\ 10^{8}$	$6.6\ 10^{7}$

Nuclide	1979	1980	1981	1982	1983	1984
^{3}H	$2.3\ 10^{13}$	$2.4\ 10^{13}$	$2.2\ 10^{13}$	$2.0\ 10^{13}$	$3.5\ 10^{13}$	$3.0\ 10^{13}$
^{51}Cr	$1.5\ 10^{9}$	$4.2\ 10^{9}$	$1.1\ 10^{9}$	$2.4\ 10^{9}$	$4.6\ 10^{9}$	$2.7\ 10^{8}$
^{54}Mn	$8.1\ 10^{9}$	$1.3\ 10^{9}$	$9.9\ 10^{8}$	$8.4\ 10^{8}$	$1.4\ 10^{10}$	$2.4\ 10^{8}$
^{57}Co	$7.0\ 10^{7}$	$1.8\ 10^{7}$	$4.1\ 10^{7}$	0	0	0
^{58}Co	$7.2\ 10^{10}$	$2.2\ 10^{10}$	$1.0\ 10^{10}$	$1.6\ 10^{10}$	$3.4\ 10^{10}$	$4.2\ 10^{9}$
^{59}Fe	$1.4\ 10^{8}$	0	$3.8\ 10^{8}$	$2.0\ 10^{9}$	0	0
^{60}Co	$6.1\ 10^{10}$	$2.1\ 10^{10}$	$2.6\ 10^{10}$	$6.4\ 10^{9}$	$9.7\ 10^{10}$	$4.1\ 10^{9}$
^{90}Sr	$2.7\ 10^{8}$	$4.0\ 10^{8}$	$1.1\ 10^{8}$	$8.8\ 10^{7}$	$4.4\ 10^{7}$	0
^{95}Zr	$2.4\ 10^{8}$	$5.9\ 10^{7}$	0	$1.1\ 10^{8}$	$1.0\ 10^{9}$	$4.8\ 10^{7}$
^{95}Nb	$8.5\ 10^{8}$	$3.6\ 10^{8}$	$2.5\ 10^{8}$	$4.5\ 10^{8}$	$4.9\ 10^{9}$	$1.4\ 10^{8}$
^{110m}Ag	0	0	0	$1.1\ 10^{8}$	$4.1\ 10^{8}$	$1.0\ 10^{8}$
^{124}Sb	0	0	$2.5\ 10^{8}$	$5.5\ 10^{7}$	$9.5\ 10^{8}$	0
^{134}Cs	$4.6\ 10^{9}$	$2.1\ 10^{10}$	$2.6\ 10^{9}$	$8.6\ 10^{8}$	$3.9\ 10^{8}$	$4.3\ 10^{7}$
^{137}Cs	$4.1\ 10^{9}$	$2.3\ 10^{10}$	$3.5\ 10^{9}$	$2.5\ 10^{9}$	$1.5\ 10^{9}$	$2.2\ 10^{8}$

Table 20

Discharges from Dounreay, UK

Nuclide	1958	1959	1960	1961	1962	1963	1964
^{3}H	$6.0\ 10^{12}$	$6.0\ 10^{12}$	$6.0\ 10^{12}$	$6.0\ 10^{12}$	$6.0\ 10^{12}$	$6.0\ 10^{12}$	$6.0\ 10^{12}$
^{89}Sr	$2.3\ 10^{13}$	$2.3\ 10^{13}$	$2.3\ 10^{13}$	$2.3\ 10^{13}$	$2.3\ 10^{13}$	$2.3\ 10^{13}$	$2.3\ 10^{13}$
^{90}Sr	$4.8\ 10^{10}$	$5.1\ 10^{11}$	$7.5\ 10^{11}$	$3.0\ 10^{11}$	$5.1\ 10^{12}$	$2.8\ 10^{12}$	$3.4\ 10^{12}$
^{95}Nb	$3.3\ 10^{13}$	$7.4\ 10^{13}$	$8.8\ 10^{13}$	$5.3\ 10^{13}$	$1.0\ 10^{14}$	$1.5\ 10^{14}$	$2.9\ 10^{14}$
^{95}Zr	$2.6\ 10^{13}$	$5.7\ 10^{13}$	$6.9\ 10^{13}$	$4.1\ 10^{13}$	$8.1\ 10^{13}$	$1.1\ 10^{14}$	$2.2\ 10^{14}$
^{103}Ru	$1.1\ 10^{13}$	$1.1\ 10^{13}$	$1.1\ 10^{13}$	$1.1\ 10^{13}$	$1.1\ 10^{13}$	$1.1\ 10^{13}$	$1.1\ 10^{13}$
^{106}Ru	$1.2\ 10^{13}$	$2.7\ 10^{13}$	$3.2\ 10^{13}$	$1.9\ 10^{13}$	$3.8\ 10^{13}$	$5.3\ 10^{13}$	$1.0\ 10^{14}$
^{125}Sb	$3.0\ 10^{12}$	$3.0\ 10^{12}$	$3.0\ 10^{12}$	$3.0\ 10^{12}$	$3.0\ 10^{12}$	$3.0\ 10^{12}$	$3.0\ 10^{12}$
^{131}I	$3.0\ 10^{11}$	$3.0\ 10^{11}$	$3.0\ 10^{11}$	$3.0\ 10^{11}$	$3.0\ 10^{11}$	$3.0\ 10^{11}$	$3.0\ 10^{11}$
^{134}Cs	$7.7\ 10^{9}$	$8.2\ 10^{10}$	$1.2\ 10^{11}$	$4.8\ 10^{11}$	$8.2\ 10^{11}$	$4.5\ 10^{11}$	$5.4\ 10^{11}$
^{137}Cs	$7.7\ 10^{10}$	$8.2\ 10^{11}$	$1.2\ 10^{12}$	$4.8\ 10^{11}$	$8.2\ 10^{12}$	$4.5\ 10^{12}$	$5.4\ 10^{12}$
^{141}Ce	$8.1\ 10^{12}$	$8.1\ 10^{12}$	$8.1\ 10^{12}$	$8.1\ 10^{12}$	$8.1\ 10^{12}$	$8.1\ 10^{12}$	$8.1\ 10^{12}$
^{144}Ce	$1.3\ 10^{13}$	$2.9\ 10^{13}$	$3.5\ 10^{13}$	$2.1\ 10^{13}$	$4.1\ 10^{13}$	$5.8\ 10^{13}$	$1.1\ 10^{14}$
^{234}U	$5.1\ 10^{8}$	$5.1\ 10^{8}$	$7.4\ 10^{8}$	$2.8\ 10^{8}$	$2.4\ 10^{10}$	$1.9\ 10^{10}$	$1.0\ 10^{10}$
^{235}U	$1.7\ 10^{7}$	$1.7\ 10^{7}$	$2.4\ 10^{7}$	$9.6\ 10^{6}$	$7.7\ 10^{8}$	$5.9\ 10^{8}$	$3.1\ 10^{8}$
^{238}U	$4.6\ 10^{8}$	$4.6\ 10^{8}$	$6.7\ 10^{8}$	$2.6\ 10^{8}$	$3.7\ 10^{8}$	$2.9\ 10^{8}$	$1.2\ 10^{8}$
^{239}Pu	$1.8\ 10^{11}$	$2.2\ 10^{11}$	$2.1\ 10^{11}$	$1.8\ 10^{11}$	$1.4\ 10^{12}$	$4.0\ 10^{11}$	$1.2\ 10^{12}$
^{241}Am	0	0	0	0	0	0	0
^{241}Pu	0	0	0	0	$4.2\ 10^{13}$	0	0

Nuclide	1965	1966	1967	1968	1969	1970	1971
^{3}H	$6.0\ 10^{12}$	$6.0\ 10^{12}$	$6.0\ 10^{12}$	$6.0\ 10^{12}$	$6.0\ 10^{12}$	$6.0\ 10^{12}$	$6.0\ 10^{12}$
^{89}Sr	$2.3\ 10^{13}$	$2.3\ 10^{13}$	$2.3\ 10^{13}$	$2.3\ 10^{13}$	$2.3\ 10^{13}$	$2.3\ 10^{13}$	$2.5\ 10^{13}$
^{90}Sr	$6.8\ 10^{12}$	$1.1\ 10^{13}$	$3.5\ 10^{13}$	$5.4\ 10^{13}$	$3.8\ 10^{13}$	$1.5\ 10^{13}$	$2.9\ 10^{13}$
^{95}Nb	$3.7\ 10^{14}$	$3.0\ 10^{14}$	$3.4\ 10^{14}$	$1.8\ 10^{14}$	$3.0\ 10^{14}$	$2.0\ 10^{14}$	$2.5\ 10^{14}$
^{95}Zr	$2.9\ 10^{14}$	$2.3\ 10^{14}$	$2.7\ 10^{14}$	$1.4\ 10^{14}$	$2.4\ 10^{14}$	$1.5\ 10^{14}$	$5.1\ 10^{13}$
^{103}Ru	$1.1\ 10^{13}$	$1.1\ 10^{13}$	$1.1\ 10^{13}$	$1.1\ 10^{13}$	$1.1\ 10^{13}$	$1.1\ 10^{13}$	$1.3\ 10^{13}$
^{106}Ru	$1.5\ 10^{14}$	$7.7\ 10^{13}$	$1.6\ 10^{14}$	$7.3\ 10^{13}$	$6.9\ 10^{13}$	$2.9\ 10^{13}$	$3.1\ 10^{13}$
^{125}Sb	$3.0\ 10^{12}$	$3.0\ 10^{12}$	$3.0\ 10^{12}$	$3.0\ 10^{12}$	$3.0\ 10^{12}$	$3.0\ 10^{12}$	$1.6\ 10^{12}$
^{131}I	$3.0\ 10^{11}$	$3.0\ 10^{11}$	$3.0\ 10^{11}$	$3.0\ 10^{11}$	$3.0\ 10^{11}$	$3.0\ 10^{11}$	0
^{134}Cs	$1.1\ 10^{12}$	$1.8\ 10^{12}$	$5.3\ 10^{12}$	$7.0\ 10^{12}$	$5.8\ 10^{12}$	$2.8\ 10^{12}$	$6.4\ 10^{11}$
^{137}Cs	$1.1\ 10^{13}$	$1.8\ 10^{13}$	$5.3\ 10^{13}$	$7.0\ 10^{13}$	$5.8\ 10^{13}$	$2.8\ 10^{13}$	$3.8\ 10^{13}$
^{141}Ce	$8.1\ 10^{12}$	$8.1\ 10^{12}$	$8.1\ 10^{12}$	$8.1\ 10^{12}$	$8.1\ 10^{12}$	$8.1\ 10^{12}$	$9.3\ 10^{12}$
^{144}Ce	$1.1\ 10^{14}$	$1.0\ 10^{14}$	$2.1\ 10^{14}$	$2.1\ 10^{14}$	$1.2\ 10^{14}$	$1.2\ 10^{14}$	$1.5\ 10^{14}$
^{234}U	$1.6\ 10^{10}$	$7.6\ 10^{9}$	$2.5\ 10^{10}$	$1.4\ 10^{10}$	$2.9\ 10^{10}$	$2.5\ 10^{10}$	$3.0\ 10^{10}$
^{235}U	$4.9\ 10^{8}$	$2.4\ 10^{8}$	$7.2\ 10^{8}$	$4.4\ 10^{8}$	$6.4\ 10^{8}$	$7.4\ 10^{8}$	$9.2\ 10^{8}$
^{238}U	$2.9\ 10^{8}$	$1.5\ 10^{8}$	$1.7\ 10^{8}$	$7.5\ 10^{7}$	$1.7\ 10^{9}$	$2.3\ 10^{9}$	$2.5\ 10^{8}$
^{239}Pu	$1.8\ 10^{12}$	$9.0\ 10^{11}$	$9.2\ 10^{11}$	$6.0\ 10^{11}$	$8.1\ 10^{11}$	$1.3\ 10^{12}$	$1.8\ 10^{12}$
^{241}Am	0	0	0	0	0	$3.2\ 10^{12}$	$5.6\ 10^{11}$
^{241}Pu	0	0	0	0	0	$3.9\ 10^{13}$	0

Table 20 (continued)

Nuclide	1972	1973	1974	1975	1976	1977	1978
^{3}H	$6.0\ 10^{12}$	$6.0\ 10^{12}$	$6.0\ 10^{12}$	$6.0\ 10^{12}$	$3.8\ 10^{12}$	$1.1\ 10^{12}$	$1.3\ 10^{13}$
^{89}Sr	$2.8\ 10^{13}$	$1.6\ 10^{13}$	$3.2\ 10^{12}$	$2.1\ 10^{12}$	$1.1\ 10^{12}$	$5.0\ 10^{11}$	$4.8\ 10^{11}$
^{90}Sr	$2.1\ 10^{13}$	$6.7\ 10^{13}$	$4.3\ 10^{13}$	$2.0\ 10^{13}$	$6.8\ 10^{12}$	$7.8\ 10^{12}$	$3.0\ 10^{12}$
^{95}Nb	$3.7\ 10^{14}$	$2.4\ 10^{14}$	$1.3\ 10^{13}$	$6.7\ 10^{13}$	$3.4\ 10^{12}$	$3.0\ 10^{11}$	$1.0\ 10^{10}$
^{95}Zr	$8.6\ 10^{13}$	$7.3\ 10^{13}$	$1.1\ 10^{13}$	$5.1\ 10^{13}$	$1.7\ 10^{12}$	$5.6\ 10^{10}$	$2.2\ 10^{10}$
^{103}Ru	$1.3\ 10^{13}$	$5.6\ 10^{12}$	$4.4\ 10^{11}$	$4.4\ 10^{11}$	$3.6\ 10^{11}$	$4.1\ 10^{9}$	$1.8\ 10^{10}$
^{106}Ru	$3.4\ 10^{13}$	$2.1\ 10^{13}$	$5.6\ 10^{12}$	$5.2\ 10^{12}$	$1.3\ 10^{12}$	$1.2\ 10^{12}$	$1.1\ 10^{11}$
^{125}Sb	$5.1\ 10^{12}$	$2.3\ 10^{12}$	$3.7\ 10^{11}$	$4.1\ 10^{12}$	$7.3\ 10^{11}$	$9.9\ 10^{11}$	$6.2\ 10^{10}$
^{131}I	$2.3\ 10^{11}$	$6.7\ 10^{11}$	0	0	$3.7\ 10^{9}$	0	$1.5\ 10^{10}$
^{134}Cs	$2.6\ 10^{12}$	$4.7\ 10^{12}$	$1.4\ 10^{12}$	$5.6\ 10^{11}$	$5.6\ 10^{11}$	$7.2\ 10^{10}$	$2.3\ 10^{10}$
^{137}Cs	$3.4\ 10^{13}$	$8.9\ 10^{13}$	$3.5\ 10^{13}$	$2.6\ 10^{13}$	$1.3\ 10^{13}$	$5.8\ 10^{12}$	$3.1\ 10^{12}$
^{141}Ce	$1.1\ 10^{13}$	$4.4\ 10^{12}$	$4.4\ 10^{11}$	$1.5\ 10^{11}$	$1.5\ 10^{10}$	$3.9\ 10^{10}$	$1.4\ 10^{10}$
^{144}Ce	$1.8\ 10^{14}$	$1.1\ 10^{14}$	$3.6\ 10^{13}$	$6.0\ 10^{13}$	$1.2\ 10^{13}$	$1.3\ 10^{12}$	$3.0\ 10^{11}$
^{234}U	$2.5\ 10^{10}$	$2.3\ 10^{10}$	$1.2\ 10^{10}$	$1.2\ 10^{10}$	$8.8\ 10^{9}$	$4.4\ 10^{9}$	$2.5\ 10^{10}$
^{235}U	$8.3\ 10^{8}$	$7.2\ 10^{8}$	$4.8\ 10^{8}$	$4.0\ 10^{8}$	$2.8\ 10^{8}$	$1.4\ 10^{8}$	$7.7\ 10^{8}$
^{238}U	$1.2\ 10^{9}$	$1.5\ 10^{8}$	$9.7\ 10^{7}$	$5.3\ 10^{8}$	$1.0\ 10^{8}$	$7.3\ 10^{7}$	$1.1\ 10^{8}$
^{239}Pu	$1.3\ 10^{12}$	$7.0\ 10^{11}$	$4.4\ 10^{11}$	$8.6\ 10^{11}$	$4.1\ 10^{11}$	$2.3\ 10^{11}$	$3.0\ 10^{11}$
^{241}Am	0	0	0	0	0	0	0
^{241}Pu	0	0	0	0	0	0	0

Nuclide	1979	1980	1981	1982	1983	1984	1985	1986
^{3}H	$1.1\ 10^{12}$	$1.3\ 10^{13}$	$2.8\ 10^{12}$	$6.7\ 10^{12}$	$2.3\ 10^{12}$	$7.8\ 10^{11}$	$8.9\ 10^{11}$	$9.9\ 10^{12}$
^{89}Sr	$3.7\ 10^{11}$	$2.3\ 10^{11}$	$2.6\ 10^{11}$	$1.7\ 10^{11}$	$1.9\ 10^{11}$	$2.3\ 10^{11}$	$1.1\ 10^{11}$	$6.9\ 10^{10}$
^{90}Sr	$7.9\ 10^{12}$	$1.3\ 10^{13}$	$8.5\ 10^{12}$	$5.7\ 10^{12}$	$1.6\ 10^{13}$	$1.3\ 10^{13}$	$4.0\ 10^{12}$	$2.0\ 10^{12}$
^{95}Nb	$9.2\ 10^{10}$	$2.4\ 10^{10}$	$1.9\ 10^{11}$	$9.7\ 10^{11}$	$3.7\ 10^{11}$	$2.1\ 10^{10}$	$2.1\ 10^{11}$	$1.1\ 10^{11}$
^{95}Zr	$6.0\ 10^{10}$	$3.6\ 10^{10}$	$1.3\ 10^{11}$	$1.4\ 10^{12}$	$1.7\ 10^{11}$	$1.6\ 10^{10}$	$1.8\ 10^{11}$	$1.3\ 10^{11}$
^{103}Ru	$4.4\ 10^{10}$	0	0	0	0	0	0	0
^{106}Ru	$1.0\ 10^{12}$	$7.4\ 10^{11}$	$3.3\ 10^{12}$	$4.1\ 10^{12}$	$2.4\ 10^{13}$	$4.7\ 10^{12}$	$2.3\ 10^{12}$	$9.6\ 10^{11}$
^{125}Sb	$4.9\ 10^{11}$	$3.2\ 10^{12}$	$6.1\ 10^{11}$	$1.4\ 10^{12}$	$3.6\ 10^{12}$	$5.3\ 10^{11}$	$1.5\ 10^{11}$	$1.7\ 10^{11}$
^{131}I	$2.0\ 10^{10}$	0	0	0	0	0	0	0
^{134}Cs	$2.0\ 10^{11}$	$5.1\ 10^{11}$	$9.2\ 10^{11}$	$8.4\ 10^{11}$	$4.8\ 10^{11}$	$4.8\ 10^{11}$	$1.6\ 10^{11}$	$1.2\ 10^{11}$
^{137}Cs	$8.6\ 10^{12}$	$2.1\ 10^{13}$	$2.0\ 10^{13}$	$1.2\ 10^{13}$	$2.1\ 10^{13}$	$2.3\ 10^{13}$	$1.2\ 10^{13}$	$6.1\ 10^{12}$
^{141}Ce	$1.8\ 10^{10}$	0	0	0	0	0	0	0
^{144}Ce	$4.3\ 10^{12}$	$4.2\ 10^{12}$	$5.4\ 10^{12}$	$2.7\ 10^{12}$	$2.3\ 10^{12}$	$1.2\ 10^{12}$	$1.2\ 10^{12}$	$4.5\ 10^{11}$
^{234}U	$1.3\ 10^{10}$	$1.5\ 10^{10}$	$3.7\ 10^{9}$	$3.1\ 10^{9}$	$3.9\ 10^{9}$	$6.0\ 10^{9}$	$3.5\ 10^{9}$	$4.4\ 10^{9}$
^{235}U	$4.2\ 10^{8}$	$4.9\ 10^{8}$	$1.1\ 10^{8}$	$1.0\ 10^{8}$	$1.3\ 10^{8}$	$1.9\ 10^{8}$	$1.1\ 10^{8}$	$1.4\ 10^{8}$
^{238}U	$2.3\ 10^{9}$	$4.9\ 10^{9}$	$2.7\ 10^{8}$	$4.5\ 10^{8}$	$9.6\ 10^{8}$	$3.0\ 10^{8}$	$1.8\ 10^{8}$	$2.2\ 10^{8}$
^{239}Pu	$4.8\ 10^{11}$	$9.3\ 10^{10}$	$1.6\ 10^{11}$	$2.1\ 10^{11}$	$7.4\ 10^{11}$	$1.5\ 10^{11}$	$8.8\ 10^{10}$	$1.1\ 10^{11}$
^{241}Am	0	$9.3\ 10^{10}$	$1.0\ 10^{12}$	$2.7\ 10^{11}$	$7.9\ 10^{11}$	$4.8\ 10^{11}$	$2.8\ 10^{11}$	$3.5\ 10^{11}$
^{241}Pu	0	$2.7\ 10^{12}$	$4.8\ 10^{12}$	$6.3\ 10^{12}$	$2.2\ 10^{13}$	$4.5\ 10^{12}$	$2.6\ 10^{12}$	$3.3\ 10^{12}$

Table 21

Discharges from Dungeness A, UK

Nuclide	1965	1966	1967	1968	1969	1970
^{3}H	$2.2\ 10^{11}$	$2.1\ 10^{13}$	$2.0\ 10^{13}$	$8.0\ 10^{12}$	$2.7\ 10^{12}$	$6.9\ 10^{11}$
^{14}C	$2.6\ 10^{6}$	$5.6\ 10^{7}$	$1.0\ 10^{9}$	$9.3\ 10^{8}$	$4.4\ 10^{9}$	$2.0\ 10^{9}$
^{32}P	$1.2\ 10^{7}$	$2.5\ 10^{8}$	$4.5\ 10^{9}$	$4.2\ 10^{9}$	$2.0\ 10^{10}$	$9.3\ 10^{9}$
^{35}S	$5.9\ 10^{8}$	$1.2\ 10^{10}$	$2.2\ 10^{11}$	$2.0\ 10^{11}$	$1.0\ 10^{12}$	$4.6\ 10^{11}$
^{45}Ca	$4.6\ 10^{7}$	$9.8\ 10^{8}$	$1.7\ 10^{10}$	$1.6\ 10^{10}$	$7.8\ 10^{10}$	$3.6\ 10^{10}$
^{51}Cr	$1.8\ 10^{7}$	$3.9\ 10^{8}$	$7.0\ 10^{9}$	$6.5\ 10^{9}$	$3.1\ 10^{10}$	$1.4\ 10^{10}$
^{54}Mn	$2.6\ 10^{6}$	$5.6\ 10^{7}$	$1.0\ 10^{9}$	$9.3\ 10^{8}$	$4.4\ 10^{9}$	$2.0\ 10^{9}$
^{55}Fe	$1.1\ 10^{8}$	$2.4\ 10^{9}$	$4.3\ 10^{10}$	$4.0\ 10^{10}$	$1.9\ 10^{11}$	$8.9\ 10^{10}$
^{58}Co	$3.3\ 10^{6}$	$7.0\ 10^{7}$	$1.2\ 10^{9}$	$1.1\ 10^{9}$	$5.5\ 10^{9}$	$2.5\ 10^{9}$
^{59}Fe	$2.6\ 10^{6}$	$5.6\ 10^{7}$	$1.0\ 10^{9}$	$9.3\ 10^{8}$	$4.4\ 10^{9}$	$2.0\ 10^{9}$
^{60}Co	$6.6\ 10^{6}$	$1.4\ 10^{8}$	$2.5\ 10^{9}$	$2.3\ 10^{9}$	$1.1\ 10^{10}$	$5.1\ 10^{9}$
^{63}Ni	$2.6\ 10^{6}$	$5.6\ 10^{7}$	$1.0\ 10^{9}$	$9.3\ 10^{8}$	$4.4\ 10^{9}$	$2.0\ 10^{9}$
^{65}Zn	$2.6\ 10^{6}$	$5.6\ 10^{7}$	$1.0\ 10^{9}$	$9.3\ 10^{8}$	$4.4\ 10^{9}$	$2.0\ 10^{9}$
^{89}Sr	$4.5\ 10^{7}$	$9.5\ 10^{8}$	$1.7\ 10^{10}$	$1.5\ 10^{10}$	$7.5\ 10^{10}$	$3.5\ 10^{10}$
^{90}Sr	$2.1\ 10^{8}$	$4.4\ 10^{9}$	$8.0\ 10^{10}$	$7.4\ 10^{10}$	$3.5\ 10^{11}$	$1.6\ 10^{11}$
^{90}Y	$2.1\ 10^{8}$	$4.4\ 10^{9}$	$8.0\ 10^{10}$	$7.4\ 10^{10}$	$3.5\ 10^{11}$	$1.6\ 10^{11}$
^{91}Y	$2.6\ 10^{6}$	$5.6\ 10^{7}$	$1.0\ 10^{9}$	$9.3\ 10^{8}$	$4.4\ 10^{9}$	$2.0\ 10^{9}$
^{95}Zr	$2.0\ 10^{6}$	$4.2\ 10^{7}$	$7.5\ 10^{8}$	$7.0\ 10^{8}$	$3.3\ 10^{9}$	$1.5\ 10^{9}$
^{95}Nb	$2.6\ 10^{6}$	$5.6\ 10^{7}$	$1.0\ 10^{9}$	$9.3\ 10^{8}$	$4.4\ 10^{9}$	$2.0\ 10^{9}$
^{106}Ru	$1.0\ 10^{7}$	$2.1\ 10^{8}$	$3.7\ 10^{9}$	$3.5\ 10^{9}$	$1.6\ 10^{10}$	$7.7\ 10^{9}$
^{106}Rh	$1.0\ 10^{7}$	$2.1\ 10^{8}$	$3.7\ 10^{9}$	$3.5\ 10^{9}$	$1.6\ 10^{10}$	$7.7\ 10^{9}$
^{110m}Ag	$2.6\ 10^{6}$	$5.6\ 10^{7}$	$1.0\ 10^{9}$	$9.3\ 10^{8}$	$4.4\ 10^{9}$	$2.0\ 10^{9}$
^{124}Sb	$2.6\ 10^{6}$	$5.6\ 10^{7}$	$1.0\ 10^{9}$	$9.3\ 10^{8}$	$4.4\ 10^{9}$	$2.0\ 10^{9}$
^{125}Sb	$1.4\ 10^{7}$	$3.0\ 10^{8}$	$5.5\ 10^{9}$	$5.1\ 10^{9}$	$2.4\ 10^{10}$	$1.1\ 10^{10}$
^{125m}Te	$2.6\ 10^{6}$	$5.6\ 10^{7}$	$1.0\ 10^{9}$	$9.3\ 10^{8}$	$4.4\ 10^{9}$	$2.0\ 10^{9}$
^{134}Cs	$4.8\ 10^{8}$	$1.0\ 10^{10}$	$1.8\ 10^{11}$	$1.7\ 10^{11}$	$8.1\ 10^{11}$	$3.7\ 10^{11}$
^{137}Cs	$2.1\ 10^{9}$	$4.4\ 10^{10}$	$8.0\ 10^{11}$	$7.4\ 10^{11}$	$3.5\ 10^{12}$	$1.6\ 10^{12}$
^{144}Ce	$8.0\ 10^{6}$	$1.6\ 10^{8}$	$3.0\ 10^{9}$	$2.8\ 10^{9}$	$1.3\ 10^{10}$	$6.2\ 10^{9}$
^{144}Pr	$8.0\ 10^{6}$	$1.6\ 10^{8}$	$3.0\ 10^{9}$	$2.8\ 10^{9}$	$1.3\ 10^{10}$	$6.2\ 10^{9}$
^{147}Pm	$2.1\ 10^{7}$	$4.4\ 10^{8}$	$8.0\ 10^{9}$	$7.4\ 10^{9}$	$3.5\ 10^{10}$	$1.6\ 10^{10}$
^{154}Eu	$2.6\ 10^{6}$	$5.6\ 10^{7}$	$1.0\ 10^{9}$	$9.3\ 10^{8}$	$4.4\ 10^{9}$	$2.0\ 10^{9}$
^{155}Eu	$2.0\ 10^{6}$	$4.2\ 10^{7}$	$7.5\ 10^{8}$	$7.0\ 10^{8}$	$3.3\ 10^{9}$	$1.5\ 10^{9}$
^{239}Pu	$2.0\ 10^{6}$	$4.2\ 10^{7}$	$7.5\ 10^{8}$	$7.0\ 10^{8}$	$3.3\ 10^{9}$	$1.5\ 10^{9}$

Table 21 (continued)

Nuclide	1971	1972	1973	1974	1975	1976	1977
^{3}H	$1.3\ 10^{12}$	$1.1\ 10^{12}$	$1.1\ 10^{12}$	$7.4\ 10^{11}$	$9.1\ 10^{11}$	$1.3\ 10^{12}$	$1.5\ 10^{11}$
^{14}C	$7.3\ 10^{8}$	$7.3\ 10^{8}$	$8.2\ 10^{8}$	$1.3\ 10^{9}$	$1.4\ 10^{9}$	$8.5\ 10^{8}$	$8.5\ 10^{8}$
^{32}P	$3.3\ 10^{9}$	$2.2\ 10^{9}$	$3.2\ 10^{9}$	$7.8\ 10^{9}$	$8.7\ 10^{9}$	$5.1\ 10^{9}$	$1.7\ 10^{9}$
^{35}S	$1.6\ 10^{11}$	$2.5\ 10^{11}$	$1.0\ 10^{11}$	$2.2\ 10^{11}$	$2.0\ 10^{11}$	$3.0\ 10^{11}$	$1.6\ 10^{11}$
^{45}Ca	$1.2\ 10^{10}$	$1.1\ 10^{10}$	$1.3\ 10^{10}$	$2.3\ 10^{10}$	$1.7\ 10^{10}$	$1.1\ 10^{10}$	$6.8\ 10^{9}$
^{51}Cr	$5.1\ 10^{9}$	$5.1\ 10^{9}$	$4.1\ 10^{9}$	$1.3\ 10^{10}$	$1.1\ 10^{10}$	$6.8\ 10^{9}$	$5.1\ 10^{9}$
^{54}Mn	$7.3\ 10^{8}$	$7.3\ 10^{8}$	$8.2\ 10^{8}$	$1.3\ 10^{9}$	$1.4\ 10^{9}$	$8.5\ 10^{8}$	$8.5\ 10^{8}$
^{55}Fe	$3.1\ 10^{10}$	$2.0\ 10^{10}$	$3.3\ 10^{10}$	$7.0\ 10^{10}$	$1.7\ 10^{10}$	$1.5\ 10^{10}$	$1.1\ 10^{10}$
^{58}Co	$9.1\ 10^{8}$	$1.1\ 10^{9}$	$8.2\ 10^{8}$	$1.3\ 10^{9}$	$1.4\ 10^{9}$	$8.5\ 10^{8}$	$8.5\ 10^{8}$
^{59}Fe	$7.3\ 10^{8}$	$7.3\ 10^{8}$	$8.2\ 10^{8}$	$1.3\ 10^{9}$	$1.4\ 10^{9}$	$8.5\ 10^{8}$	$8.5\ 10^{8}$
^{60}Co	$1.8\ 10^{9}$	$1.1\ 10^{9}$	$2.4\ 10^{9}$	$2.6\ 10^{9}$	$5.8\ 10^{9}$	$1.7\ 10^{9}$	$1.7\ 10^{9}$
^{63}Ni	$7.3\ 10^{8}$	$7.3\ 10^{8}$	$8.2\ 10^{8}$	$1.3\ 10^{9}$	$1.4\ 10^{9}$	$8.5\ 10^{8}$	$8.5\ 10^{8}$
^{65}Zn	$7.3\ 10^{8}$	$7.3\ 10^{8}$	$8.2\ 10^{8}$	$1.3\ 10^{9}$	$1.4\ 10^{9}$	$8.5\ 10^{8}$	$8.5\ 10^{8}$
^{89}Sr	$1.2\ 10^{10}$	$1.3\ 10^{10}$	$1.5\ 10^{10}$	$7.8\ 10^{9}$	$3.1\ 10^{10}$	$1.7\ 10^{10}$	$1.0\ 10^{10}$
^{90}Sr	$5.8\ 10^{10}$	$4.7\ 10^{10}$	$7.8\ 10^{10}$	$5.4\ 10^{10}$	$1.0\ 10^{11}$	$1.1\ 10^{11}$	$1.1\ 10^{11}$
^{90}Y	$5.8\ 10^{10}$	$4.7\ 10^{10}$	$7.8\ 10^{10}$	$5.4\ 10^{10}$	$1.0\ 10^{11}$	$1.1\ 10^{11}$	$1.1\ 10^{11}$
^{91}Y	$7.3\ 10^{8}$	$7.3\ 10^{8}$	$8.2\ 10^{8}$	$1.3\ 10^{9}$	$1.4\ 10^{9}$	$1.7\ 10^{9}$	$1.7\ 10^{9}$
^{95}Zr	$5.5\ 10^{8}$	$5.5\ 10^{8}$	$4.1\ 10^{8}$	$1.3\ 10^{9}$	$1.4\ 10^{9}$	$8.5\ 10^{8}$	$8.5\ 10^{8}$
^{95}Nb	$7.3\ 10^{8}$	$7.3\ 10^{8}$	$4.1\ 10^{8}$	$2.6\ 10^{9}$	$1.4\ 10^{9}$	$8.5\ 10^{8}$	$8.5\ 10^{8}$
^{106}Ru	$2.7\ 10^{9}$	$3.3\ 10^{9}$	$3.2\ 10^{9}$	$1.3\ 10^{9}$	$1.4\ 10^{9}$	$1.7\ 10^{9}$	$1.7\ 10^{9}$
^{106}Rh	$2.7\ 10^{9}$	$3.3\ 10^{9}$	$3.2\ 10^{9}$	$1.3\ 10^{9}$	$1.4\ 10^{9}$	$1.7\ 10^{9}$	$1.7\ 10^{9}$
^{110m}Ag	$7.3\ 10^{8}$	$7.3\ 10^{8}$	$8.2\ 10^{8}$	$1.3\ 10^{9}$	$1.4\ 10^{9}$	$8.5\ 10^{8}$	$8.5\ 10^{8}$
^{124}Sb	$7.3\ 10^{8}$	$7.3\ 10^{8}$	$5.4\ 10^{8}$	$1.7\ 10^{9}$	$1.9\ 10^{9}$	$1.1\ 10^{9}$	$1.1\ 10^{9}$
^{125}Sb	$4.0\ 10^{9}$	$8.8\ 10^{9}$	$1.6\ 10^{9}$	$2.6\ 10^{9}$	$5.8\ 10^{9}$	$6.8\ 10^{9}$	$5.1\ 10^{9}$
^{125m}Te	$7.3\ 10^{8}$	$7.3\ 10^{8}$	$8.2\ 10^{8}$	$1.3\ 10^{9}$	$1.4\ 10^{9}$	$1.7\ 10^{9}$	$1.7\ 10^{9}$
^{134}Cs	$1.3\ 10^{11}$	$1.1\ 10^{11}$	$6.1\ 10^{10}$	$4.8\ 10^{11}$	$4.8\ 10^{11}$	$1.8\ 10^{11}$	$2.1\ 10^{11}$
^{137}Cs	$5.8\ 10^{11}$	$5.4\ 10^{11}$	$3.9\ 10^{11}$	$1.6\ 10^{12}$	$1.8\ 10^{12}$	$9.0\ 10^{11}$	$1.0\ 10^{12}$
^{144}Ce	$2.2\ 10^{9}$	$3.3\ 10^{9}$	$1.6\ 10^{9}$	$2.6\ 10^{9}$	$2.9\ 10^{9}$	$1.7\ 10^{9}$	$8.5\ 10^{8}$
^{144}Pr	$2.2\ 10^{9}$	$3.3\ 10^{9}$	$1.6\ 10^{9}$	$2.6\ 10^{9}$	$2.9\ 10^{9}$	$1.7\ 10^{9}$	$8.5\ 10^{8}$
^{147}Pm	$5.8\ 10^{9}$	$5.5\ 10^{9}$	$7.3\ 10^{9}$	$5.2\ 10^{9}$	$2.9\ 10^{9}$	$1.7\ 10^{9}$	$1.3\ 10^{10}$
^{154}Eu	$7.3\ 10^{8}$	$7.3\ 10^{8}$	$8.2\ 10^{8}$	$1.3\ 10^{9}$	$1.4\ 10^{9}$	$8.5\ 10^{8}$	$8.5\ 10^{8}$
^{155}Eu	$5.5\ 10^{8}$	$5.5\ 10^{8}$	$4.1\ 10^{8}$	$1.3\ 10^{9}$	$1.4\ 10^{9}$	$8.5\ 10^{8}$	$8.5\ 10^{8}$
^{239}Pu	$5.5\ 10^{8}$	$5.5\ 10^{8}$	$4.1\ 10^{8}$	$1.3\ 10^{9}$	$1.4\ 10^{9}$	$8.5\ 10^{8}$	$8.5\ 10^{8}$

Table 21 (continued)

Nuclide	1978	1979	1980	1981	1982	1983	1984
^{3}H	$1.2\ 10^{12}$	$7.7\ 10^{11}$	$3.0\ 10^{11}$	$1.5\ 10^{11}$	$7.4\ 10^{11}$	$1.3\ 10^{12}$	$3.7\ 10^{11}$
^{14}C	$7.0\ 10^{8}$	$5.5\ 10^{8}$	$4.4\ 10^{8}$	$6.0\ 10^{8}$	$6.0\ 10^{8}$	$5.5\ 10^{8}$	$9.0\ 10^{8}$
^{32}P	$7.0\ 10^{8}$	$5.5\ 10^{8}$	$4.4\ 10^{8}$	$6.0\ 10^{8}$	$6.0\ 10^{8}$	$5.5\ 10^{8}$	$9.0\ 10^{8}$
^{35}S	$9.2\ 10^{10}$	$4.5\ 10^{10}$	$2.1\ 10^{10}$	$2.4\ 10^{9}$	$2.4\ 10^{10}$	$1.2\ 10^{11}$	$1.9\ 10^{11}$
^{45}Ca	$2.2\ 10^{10}$	$3.3\ 10^{9}$	$5.3\ 10^{9}$	$6.0\ 10^{8}$	$6.0\ 10^{9}$	$1.1\ 10^{10}$	$1.8\ 10^{10}$
^{51}Cr	$7.0\ 10^{8}$	$5.5\ 10^{8}$	$4.4\ 10^{8}$	$2.0\ 10^{8}$	$2.0\ 10^{8}$	0	0
^{54}Mn	$7.0\ 10^{8}$	$5.5\ 10^{8}$	$4.4\ 10^{8}$	$6.0\ 10^{8}$	$6.0\ 10^{8}$	$5.5\ 10^{8}$	$9.0\ 10^{8}$
^{55}Fe	$1.1\ 10^{10}$	$4.4\ 10^{9}$	$5.3\ 10^{9}$	$4.8\ 10^{9}$	$6.0\ 10^{9}$	$1.1\ 10^{10}$	$3.6\ 10^{10}$
^{58}Co	$7.0\ 10^{8}$	$5.5\ 10^{8}$	$4.4\ 10^{8}$	$6.0\ 10^{8}$	$6.0\ 10^{8}$	0	0
^{59}Fe	$7.0\ 10^{8}$	$5.5\ 10^{8}$	$4.4\ 10^{8}$	$1.2\ 10^{9}$	$6.0\ 10^{9}$	0	0
^{60}Co	$1.4\ 10^{9}$	$5.5\ 10^{8}$	$8.9\ 10^{8}$	$6.0\ 10^{8}$	$6.0\ 10^{8}$	$5.5\ 10^{9}$	$9.0\ 10^{9}$
^{63}Ni	$7.0\ 10^{8}$	$5.5\ 10^{8}$	$4.4\ 10^{8}$	$6.0\ 10^{8}$	$6.0\ 10^{8}$	$5.5\ 10^{8}$	$9.0\ 10^{8}$
^{65}Zn	$7.0\ 10^{8}$	$5.5\ 10^{8}$	$4.4\ 10^{8}$	$6.0\ 10^{8}$	$6.0\ 10^{8}$	$5.5\ 10^{8}$	$9.0\ 10^{9}$
^{89}Sr	$5.6\ 10^{9}$	$3.3\ 10^{9}$	$2.6\ 10^{9}$	0	$6.0\ 10^{9}$	0	0
^{90}Sr	$9.9\ 10^{10}$	$9.4\ 10^{10}$	$8.0\ 10^{10}$	$1.4\ 10^{11}$	$2.4\ 10^{11}$	$1.6\ 10^{11}$	$2.7\ 10^{11}$
^{90}Y	$9.9\ 10^{10}$	$9.4\ 10^{10}$	$8.0\ 10^{10}$	$1.4\ 10^{11}$	$2.4\ 10^{11}$	$1.6\ 10^{11}$	$2.7\ 10^{11}$
^{91}Y	$1.4\ 10^{9}$	$1.1\ 10^{9}$	$4.4\ 10^{8}$	0	0	0	0
^{95}Zr	$7.0\ 10^{8}$	$5.5\ 10^{8}$	$4.4\ 10^{8}$	$1.2\ 10^{9}$	$6.0\ 10^{9}$	$5.5\ 10^{9}$	0
^{95}Nb	$7.0\ 10^{8}$	$5.5\ 10^{8}$	$4.4\ 10^{8}$	$2.4\ 10^{9}$	$6.0\ 10^{9}$	$5.5\ 10^{9}$	0
^{106}Ru	$1.4\ 10^{9}$	$1.1\ 10^{9}$	$4.4\ 10^{8}$	$1.2\ 10^{9}$	$6.0\ 10^{8}$	$5.5\ 10^{9}$	$9.0\ 10^{9}$
^{106}Rh	$1.4\ 10^{9}$	$1.1\ 10^{9}$	$4.4\ 10^{8}$	$1.2\ 10^{9}$	$6.0\ 10^{8}$	$5.5\ 10^{9}$	$9.0\ 10^{9}$
^{110m}Ag	$7.0\ 10^{8}$	$5.5\ 10^{8}$	$4.4\ 10^{8}$	$6.0\ 10^{8}$	$6.0\ 10^{8}$	$5.5\ 10^{8}$	0
^{124}Sb	$9.3\ 10^{8}$	$1.1\ 10^{9}$	$4.4\ 10^{8}$	$6.0\ 10^{8}$	$1.2\ 10^{10}$	$1.1\ 10^{10}$	$1.8\ 10^{10}$
^{125}Sb	$1.4\ 10^{9}$	$2.2\ 10^{9}$	$8.9\ 10^{8}$	$4.8\ 10^{9}$	$1.2\ 10^{10}$	$5.5\ 10^{9}$	$9.0\ 10^{9}$
^{125m}Te	$7.0\ 10^{8}$	$5.5\ 10^{8}$	$4.4\ 10^{8}$	$1.2\ 10^{9}$	$6.0\ 10^{9}$	$5.5\ 10^{9}$	$9.0\ 10^{8}$
^{134}Cs	$1.7\ 10^{11}$	$1.1\ 10^{11}$	$8.4\ 10^{10}$	$7.2\ 10^{10}$	$3.6\ 10^{10}$	$3.3\ 10^{10}$	$3.6\ 10^{10}$
^{137}Cs	$8.6\ 10^{11}$	$7.2\ 10^{11}$	$5.9\ 10^{11}$	$8.1\ 10^{11}$	$6.3\ 10^{11}$	$5.7\ 10^{11}$	$9.1\ 10^{11}$
^{144}Ce	$1.4\ 10^{9}$	$2.2\ 10^{9}$	$8.9\ 10^{8}$	$1.2\ 10^{9}$	$6.0\ 10^{8}$	$5.5\ 10^{8}$	0
^{144}Pr	$1.4\ 10^{9}$	$2.2\ 10^{9}$	$8.9\ 10^{8}$	$1.2\ 10^{9}$	$6.0\ 10^{8}$	$5.5\ 10^{8}$	0
^{147}Pm	$1.1\ 10^{10}$	$2.2\ 10^{9}$	$8.9\ 10^{9}$	$1.2\ 10^{9}$	$6.0\ 10^{9}$	$1.1\ 10^{10}$	$3.6\ 10^{10}$
^{154}Eu	$7.0\ 10^{8}$	$5.5\ 10^{8}$	$4.4\ 10^{8}$	$6.0\ 10^{8}$	$6.0\ 10^{8}$	$5.5\ 10^{8}$	$9.0\ 10^{8}$
^{155}Eu	$7.0\ 10^{8}$	$5.5\ 10^{8}$	$4.4\ 10^{8}$	$6.0\ 10^{8}$	$6.0\ 10^{8}$	$5.5\ 10^{8}$	0
^{239}Pu	$7.0\ 10^{8}$	$5.5\ 10^{8}$	$4.4\ 10^{8}$	$6.0\ 10^{8}$	$6.0\ 10^{8}$	$5.5\ 10^{8}$	$9.0\ 10^{9}$

Table 22

Discharges from Dungeness B. UK

Nuclide	1983	1984
^{3}H	$1.1\ 10^{11}$	$5.6\ 10^{12}$
^{14}C	$1.9\ 10^{6}$	$5.6\ 10^{6}$
^{32}P	$9.6\ 10^{7}$	$2.9\ 10^{8}$
^{35}S	$3.7\ 10^{9}$	$4.1\ 10^{10}$
^{45}Ca	$1.2\ 10^{9}$	$3.7\ 10^{9}$
^{51}Cr	$1.8\ 10^{8}$	$5.3\ 10^{8}$
^{54}Mn	$1.4\ 10^{8}$	$4.3\ 10^{8}$
^{55}Fe	$5.1\ 10^{8}$	$1.5\ 10^{9}$
^{58}Co	$3.6\ 10^{7}$	$1.1\ 10^{8}$
^{59}Fe	$2.0\ 10^{8}$	$6.0\ 10^{8}$
^{60}Co	$2.2\ 10^{8}$	$6.7\ 10^{8}$
^{63}Ni	$3.7\ 10^{7}$	$1.1\ 10^{8}$
^{65}Zn	$6.8\ 10^{7}$	$2.0\ 10^{8}$
^{89}Sr	$3.8\ 10^{7}$	$1.2\ 10^{8}$
^{90}Sr	$1.8\ 10^{7}$	$5.3\ 10^{7}$
^{90}Y	$1.8\ 10^{7}$	$5.3\ 10^{7}$
^{91}Y	$1.5\ 10^{6}$	$4.4\ 10^{6}$
^{95}Zr	$1.0\ 10^{8}$	$3.1\ 10^{8}$
^{95}Nb	$8.1\ 10^{7}$	$2.4\ 10^{8}$
^{106}Ru	$3.6\ 10^{7}$	$1.1\ 10^{8}$
^{106}Rh	$3.6\ 10^{7}$	$1.1\ 10^{8}$
^{110m}Ag	$1.0\ 10^{7}$	$3.1\ 10^{7}$
^{124}Sb	$2.3\ 10^{8}$	$6.9\ 10^{8}$
^{125}Sb	$1.1\ 10^{7}$	$3.3\ 10^{7}$
^{125m}Te	$5.2\ 10^{6}$	$1.6\ 10^{7}$
^{134}Cs	$1.1\ 10^{8}$	$3.4\ 10^{8}$
^{137}Cs	$9.4\ 10^{7}$	$2.8\ 10^{8}$
^{144}Ce	$6.9\ 10^{7}$	$2.1\ 10^{8}$
^{144}Pr	$6.9\ 10^{7}$	$2.1\ 10^{8}$
^{147}Pm	$1.0\ 10^{8}$	$3.1\ 10^{8}$
^{154}Eu	$9.6\ 10^{6}$	$2.9\ 10^{7}$
^{155}Eu	$2.0\ 10^{7}$	$6.1\ 10^{7}$
^{182}Ta	$1.1\ 10^{8}$	$3.3\ 10^{8}$
^{239}Pu	$1.2\ 10^{7}$	$3.7\ 10^{7}$

Table 23

Discharges from ECN, the Netherlands

Nuclide	1963	1964	1965	1966	1967	1968	1969
^{3}H	0	0	0	0	0	0	0
^{54}Mn	$1.3\ 10^{8}$	$2.2\ 10^{8}$	$9.7\ 10^{8}$	$5.4\ 10^{8}$	$1.0\ 10^{9}$	$7.6\ 10^{9}$	$2.1\ 10^{10}$
^{51}Cr	$1.0\ 10^{8}$	$1.6\ 10^{8}$	$7.4\ 10^{8}$	$4.1\ 10^{8}$	$1.0\ 10^{9}$	$5.7\ 10^{9}$	$1.6\ 10^{10}$
^{57}Co	0	0	0	0	0	0	0
^{58}Co	$1.1\ 10^{7}$	$1.8\ 10^{7}$	$7.9\ 10^{7}$	$4.4\ 10^{7}$	$1.1\ 10^{8}$	$6.2\ 10^{8}$	$1.7\ 10^{9}$
^{60}Co	$2.7\ 10^{8}$	$4.4\ 10^{8}$	$1.9\ 10^{9}$	$1.0\ 10^{9}$	$2.7\ 10^{9}$	$1.5\ 10^{10}$	$4.2\ 10^{10}$
^{65}Zn	$3.2\ 10^{8}$	$5.3\ 10^{8}$	$2.3\ 10^{9}$	$1.3\ 10^{9}$	$3.2\ 10^{9}$	$1.8\ 10^{10}$	$5.1\ 10^{10}$
^{88}Y	$4.9\ 10^{6}$	$8.1\ 10^{6}$	$3.5\ 10^{7}$	$1.9\ 10^{7}$	$4.9\ 10^{7}$	$1.7\ 10^{8}$	$7.7\ 10^{8}$
^{95}Zr	$1.6\ 10^{6}$	$2.6\ 10^{6}$	$1.1\ 10^{7}$	$6.4\ 10^{6}$	$1.6\ 10^{6}$	$8.9\ 10^{7}$	$2.5\ 10^{6}$
^{99}Mo	$6.4\ 10^{6}$	$1.0\ 10^{7}$	$4.6\ 10^{7}$	$2.5\ 10^{7}$	$6.4\ 10^{7}$	$3.6\ 10^{8}$	$1.0\ 10^{9}$
^{106}Ru	$1.1\ 10^{7}$	$1.8\ 10^{7}$	$8.1\ 10^{7}$	$4.5\ 10^{7}$	$1.1\ 10^{8}$	$6.3\ 10^{8}$	$1.7\ 10^{9}$
^{106}Cd	$1.3\ 10^{7}$	$2.3\ 10^{7}$	$9.9\ 10^{7}$	$5.5\ 10^{7}$	$1.3\ 10^{8}$	$7.7\ 10^{8}$	$2.1\ 10^{9}$
^{110m}Ag	$2.8\ 10^{7}$	$4.6\ 10^{7}$	$2.0\ 10^{8}$	$1.1\ 10^{8}$	$2.8\ 10^{8}$	$1.6\ 10^{9}$	$4.4\ 10^{9}$
^{123m}Te	$3.2\ 10^{7}$	$5.3\ 10^{7}$	$1.3\ 10^{6}$	$1.3\ 10^{8}$	$3.2\ 10^{8}$	$1.8\ 10^{9}$	$5.1\ 10^{9}$
^{124}Sb	$5.5\ 10^{8}$	$9.0\ 10^{8}$	$3.9\ 10^{9}$	$2.2\ 10^{9}$	$5.5\ 10^{9}$	$3.0\ 10^{10}$	$8.5\ 10^{10}$
^{125}Sb	$5.8\ 10^{6}$	$9.5\ 10^{6}$	$4.2\ 10^{7}$	$2.3\ 10^{7}$	$5.8\ 10^{7}$	$3.2\ 10^{6}$	$9.1\ 10^{6}$
^{134}Cs	$2.6\ 10^{8}$	$4.2\ 10^{8}$	$1.8\ 10^{9}$	$1.0\ 10^{9}$	$2.6\ 10^{9}$	$1.4\ 10^{10}$	$4.0\ 10^{10}$
^{137}Cs	$3.9\ 10^{8}$	$6.5\ 10^{8}$	$2.8\ 10^{9}$	$1.5\ 10^{9}$	$3.9\ 10^{9}$	$2.2\ 10^{10}$	$6.2\ 10^{10}$
^{141}Ce	$3.1\ 10^{6}$	$5.0\ 10^{6}$	$2.2\ 10^{7}$	$1.2\ 10^{7}$	$3.1\ 10^{7}$	$1.7\ 10^{8}$	$4.8\ 10^{8}$
^{144}Ce	$1.5\ 10^{8}$	$2.5\ 10^{8}$	$1.1\ 10^{9}$	$6.1\ 10^{8}$	$1.5\ 10^{9}$	$8.5\ 10^{9}$	$2.3\ 10^{10}$

Nuclide	1970	1971	1972	1973	1974	1975	1976
^{3}H	0	0	0	0	$7.3\ 10^{11}$	$9.3\ 10^{11}$	$1.5\ 10^{12}$
^{54}Mn	0	$1.2\ 10^{9}$	$2.8\ 10^{10}$	$1.7\ 10^{10}$	$9.9\ 10^{9}$	$1.4\ 10^{8}$	$4.5\ 10^{10}$
^{51}Cr	$1.9\ 10^{10}$	0	$3.1\ 10^{10}$	$3.5\ 10^{8}$	$1.0\ 10^{9}$	$9.2\ 10^{7}$	$1.0\ 10^{9}$
^{57}Co	0	0	0	0	$4.7\ 10^{9}$	$1.2\ 10^{9}$	$1.6\ 10^{9}$
^{58}Co	$2.2\ 10^{9}$	$1.8\ 10^{8}$	0	$9.2\ 10^{7}$	$5.2\ 10^{8}$	$1.5\ 10^{8}$	$1.8\ 10^{9}$
^{60}Co	$8.6\ 10^{9}$	$4.4\ 10^{9}$	$4.5\ 10^{10}$	$9.6\ 10^{9}$	$1.4\ 10^{10}$	$6.0\ 10^{9}$	$3.6\ 10^{10}$
^{65}Zn	$6.5\ 10^{9}$	$1.8\ 10^{10}$	$4.6\ 10^{10}$	$2.1\ 10^{10}$	$5.2\ 10^{9}$	$1.1\ 10^{8}$	$2.5\ 10^{8}$
^{88}Y	$9.9\ 10^{7}$	$4.5\ 10^{8}$	$5.1\ 10^{8}$	$1.2\ 10^{9}$	$1.4\ 10^{8}$	0	0
^{95}Zr	$1.8\ 10^{8}$	$1.6\ 10^{8}$	0	0	$1.0\ 10^{8}$	$8.8\ 10^{8}$	$3.8\ 10^{8}$
^{99}Mo	$3.0\ 10^{8}$	$6.1\ 10^{8}$	$4.8\ 10^{8}$	$6.5\ 10^{9}$	$2.5\ 10^{9}$	$1.2\ 10^{8}$	$5.6\ 10^{9}$
^{106}Ru	$1.0\ 10^{9}$	$2.4\ 10^{8}$	$1.1\ 10^{9}$	0	0	0	0
^{106}Cd	0	0	$2.9\ 10^{9}$	$1.2\ 10^{10}$	$3.7\ 10^{7}$	$2.2\ 10^{9}$	$3.4\ 10^{9}$
^{110m}Ag	$9.2\ 10^{8}$	$5.1\ 10^{9}$	$6.6\ 10^{7}$	$5.6\ 10^{8}$	$8.5\ 10^{8}$	$9.2\ 10^{7}$	$8.8\ 10^{8}$
^{123m}Te	$1.4\ 10^{9}$	$1.3\ 10^{8}$	$5.4\ 10^{9}$	$1.6\ 10^{10}$	$9.2\ 10^{7}$	$2.2\ 10^{8}$	0
^{124}Sb	$2.6\ 10^{9}$	$7.7\ 10^{10}$	$3.9\ 10^{10}$	$6.7\ 10^{9}$	$6.6\ 10^{9}$	$6.3\ 10^{9}$	$1.7\ 10^{9}$
^{125}Sb	0	$1.0\ 10^{9}$	$1.3\ 10^{8}$	$5.3\ 10^{9}$	$4.3\ 10^{9}$	0	$1.1\ 10^{8}$
^{134}Cs	0	$2.8\ 10^{10}$	$2.8\ 10^{10}$	$2.0\ 10^{9}$	$3.0\ 10^{9}$	$1.8\ 10^{10}$	$1.5\ 10^{9}$
^{137}Cs	$5.8\ 10^{9}$	$4.0\ 10^{10}$	$4.0\ 10^{10}$	$5.0\ 10^{9}$	$2.2\ 10^{10}$	$3.8\ 10^{10}$	$6.7\ 10^{9}$
^{141}Ce	$6.7\ 10^{8}$	0	0	0	$2.1\ 10^{9}$	0	0
^{144}Ce	$7.4\ 10^{9}$	$3.6\ 10^{9}$	$2.2\ 10^{10}$	0	$2.9\ 10^{9}$	0	0

Table 23 (continued)

Nuclide	1977	1978	1979	1980	1981	1982	1983	1984
^{3}H	$1.5\ 10^{12}$	$2.2\ 10^{12}$	$1.3\ 10^{12}$	$1.4\ 10^{12}$	$8.5\ 10^{11}$	$4.9\ 10^{11}$	$7.3\ 10^{11}$	$1.7\ 10^{12}$
^{54}Mn	$2.3\ 10^{9}$	$2.4\ 10^{8}$	$1.0\ 10^{9}$	$6.4\ 10^{8}$	$1.2\ 10^{9}$	$7.7\ 10^{8}$	$1.9\ 10^{9}$	$2.7\ 10^{9}$
^{51}Cr	$4.5\ 10^{8}$	$3.5\ 10^{8}$	$6.4\ 10^{8}$	$5.6\ 10^{8}$	$2.4\ 10^{8}$	$1.6\ 10^{8}$	$3.2\ 10^{8}$	$3.3\ 10^{8}$
^{57}Co	$5.0\ 10^{9}$	$3.9\ 10^{9}$	$6.7\ 10^{9}$	$4.8\ 10^{9}$	$8.4\ 10^{9}$	$3.7\ 10^{9}$	$6.5\ 10^{9}$	$5.5\ 10^{9}$
^{58}Co	$7.4\ 10^{8}$	$5.9\ 10^{9}$	$3.1\ 10^{8}$	$6.2\ 10^{8}$	$3.3\ 10^{8}$	$1.3\ 10^{8}$	0	0
^{60}Co	$1.2\ 10^{10}$	$1.9\ 10^{10}$	$1.0\ 10^{10}$	$1.6\ 10^{10}$	$8.1\ 10^{9}$	$3.4\ 10^{9}$	$4.9\ 10^{9}$	$2.1\ 10^{10}$
^{65}Zn	$7.3\ 10^{8}$	$6.5\ 10^{8}$	$1.7\ 10^{9}$	$1.8\ 10^{9}$	$1.0\ 10^{9}$	$6.6\ 10^{7}$	$1.0\ 10^{8}$	$5.2\ 10^{8}$
^{88}Y	0	0	0	$1.7\ 10^{7}$	0	0	0	0
^{95}Zr	$1.5\ 10^{8}$	0	0	$1.0\ 10^{7}$	0	0	0	0
^{99}Mo	$1.8\ 10^{9}$	$1.7\ 10^{9}$	$6.8\ 10^{9}$	$6.5\ 10^{9}$	$5.2\ 10^{9}$	$2.5\ 10^{9}$	$1.6\ 10^{8}$	0
^{106}Ru	0	0	0	0	0	0	0	0
^{106}Cd	$2.9\ 10^{10}$	$1.8\ 10^{10}$	$1.8\ 10^{10}$	$1.0\ 10^{10}$	$6.7\ 10^{9}$	$1.8\ 10^{9}$	$3.1\ 10^{8}$	$1.3\ 10^{9}$
^{110m}Ag	$2.2\ 10^{9}$	$6.1\ 10^{8}$	$2.8\ 10^{8}$	$3.7\ 10^{7}$	0	0	0	0
^{123m}Te	0	$1.8\ 10^{7}$	0	$3.7\ 10^{8}$	0	0	0	0
^{124}Sb	$2.3\ 10^{9}$	$1.3\ 10^{9}$	$2.4\ 10^{9}$	$6.8\ 10^{9}$	$1.8\ 10^{9}$	$4.0\ 10^{9}$	$1.4\ 10^{7}$	0
^{125}Sb	0	$1.8\ 10^{8}$	$4.2\ 10^{8}$	$3.0\ 10^{8}$	$3.3\ 10^{8}$	$1.0\ 10^{8}$	0	0
^{134}Cs	$3.5\ 10^{9}$	$1.8\ 10^{9}$	$2.3\ 10^{9}$	$8.6\ 10^{9}$	$1.7\ 10^{9}$	$1.1\ 10^{10}$	$1.0\ 10^{10}$	$7.4\ 10^{9}$
^{137}Cs	$9.9\ 10^{9}$	$7.3\ 10^{9}$	$1.6\ 10^{10}$	$3.1\ 10^{10}$	$7.2\ 10^{9}$	$2.1\ 10^{10}$	$3.5\ 10^{10}$	$2.9\ 10^{10}$
^{141}Ce	0	0	0	0	0	0	0	0
^{144}Ce	0	0	0	0	0	0	0	0

Table 24

Discharges from EIR, Switzerland

Nuclide	1957	1958	1959	1960	1961	1962	1963
^{3}H	$7.4\ 10^{12}$	$7.4\ 10^{12}$	$7.4\ 10^{12}$	$7.4\ 10^{12}$	$7.4\ 10^{12}$	$7.4\ 10^{12}$	$7.4\ 10^{12}$
^{22}Na	$1.6\ 10^{8}$	$1.6\ 10^{8}$	$1.6\ 10^{8}$	$1.6\ 10^{8}$	$1.6\ 10^{8}$	$1.6\ 10^{8}$	$1.6\ 10^{8}$
^{35}S	$2.0\ 10^{8}$	$2.0\ 10^{8}$	$2.0\ 10^{8}$	$2.0\ 10^{8}$	$2.0\ 10^{8}$	$2.0\ 10^{8}$	$2.0\ 10^{8}$
^{54}Mn	$1.0\ 10^{6}$	$1.0\ 10^{6}$	$1.0\ 10^{6}$	$1.0\ 10^{6}$	$1.0\ 10^{6}$	$1.0\ 10^{6}$	$1.0\ 10^{6}$
^{58}Co	$1.3\ 10^{6}$	$1.3\ 10^{6}$	$1.3\ 10^{6}$	$1.3\ 10^{6}$	$1.3\ 10^{6}$	$1.3\ 10^{6}$	$1.3\ 10^{6}$
^{60}Co	$1.4\ 10^{8}$	$1.4\ 10^{8}$	$1.4\ 10^{8}$	$1.4\ 10^{8}$	$1.4\ 10^{8}$	$1.4\ 10^{8}$	$1.4\ 10^{8}$
^{65}Zn	$5.4\ 10^{6}$	$5.4\ 10^{6}$	$5.4\ 10^{6}$	$5.4\ 10^{6}$	$5.4\ 10^{6}$	$5.4\ 10^{6}$	$5.4\ 10^{6}$
^{90}Sr	$1.5\ 10^{7}$	$1.5\ 10^{7}$	$1.5\ 10^{7}$	$1.5\ 10^{7}$	$1.5\ 10^{7}$	$1.5\ 10^{7}$	$1.5\ 10^{7}$
^{99}Mo	$1.5\ 10^{8}$	$1.5\ 10^{8}$	$1.5\ 10^{8}$	$1.5\ 10^{8}$	$1.5\ 10^{8}$	$1.5\ 10^{8}$	$1.5\ 10^{8}$
^{99m}Tc	$8.8\ 10^{7}$	$8.8\ 10^{7}$	$8.8\ 10^{7}$	$8.8\ 10^{7}$	$8.8\ 10^{7}$	$8.8\ 10^{7}$	$8.8\ 10^{7}$
^{111}In	$1.1\ 10^{7}$	$1.1\ 10^{7}$	$1.1\ 10^{7}$	$1.1\ 10^{7}$	$1.1\ 10^{7}$	$1.1\ 10^{7}$	$1.1\ 10^{7}$
^{124}Sb	$3.5\ 10^{7}$	$3.5\ 10^{7}$	$3.5\ 10^{7}$	$3.5\ 10^{7}$	$3.5\ 10^{7}$	$3.5\ 10^{7}$	$3.5\ 10^{7}$
^{125}Sb	$2.9\ 10^{6}$	$2.9\ 10^{6}$	$2.9\ 10^{6}$	$2.9\ 10^{6}$	$2.9\ 10^{6}$	$2.9\ 10^{6}$	$2.9\ 10^{6}$
^{121}Te	$2.0\ 10^{6}$	$2.0\ 10^{6}$	$2.0\ 10^{6}$	$2.0\ 10^{6}$	$2.0\ 10^{6}$	$2.0\ 10^{6}$	$2.0\ 10^{6}$
^{123m}Te	$8.6\ 10^{7}$	$8.6\ 10^{7}$	$8.6\ 10^{7}$	$8.6\ 10^{7}$	$8.6\ 10^{7}$	$8.6\ 10^{7}$	$8.6\ 10^{7}$
^{132}Te	$2.7\ 10^{6}$	$2.7\ 10^{6}$	$2.7\ 10^{6}$	$2.7\ 10^{6}$	$2.7\ 10^{6}$	$2.7\ 10^{6}$	$2.7\ 10^{6}$
^{125}I	$9.6\ 10^{8}$	$9.6\ 10^{8}$	$9.6\ 10^{8}$	$9.6\ 10^{8}$	$9.6\ 10^{8}$	$9.6\ 10^{8}$	$9.6\ 10^{8}$
^{131}I	$1.1\ 10^{9}$	$1.1\ 10^{9}$	$1.1\ 10^{9}$	$1.1\ 10^{9}$	$1.1\ 10^{9}$	$1.1\ 10^{9}$	$1.1\ 10^{9}$
^{134}Cs	$1.8\ 10^{7}$	$1.8\ 10^{7}$	$1.8\ 10^{7}$	$1.8\ 10^{7}$	$1.8\ 10^{7}$	$1.8\ 10^{7}$	$1.8\ 10^{7}$
^{137}Cs	$2.0\ 10^{8}$	$2.0\ 10^{8}$	$2.0\ 10^{8}$	$2.0\ 10^{8}$	$2.0\ 10^{8}$	$2.0\ 10^{8}$	$2.0\ 10^{8}$
^{133}Ba	$7.3\ 10^{5}$	$7.3\ 10^{5}$	$7.3\ 10^{5}$	$7.3\ 10^{5}$	$7.3\ 10^{5}$	$7.3\ 10^{5}$	$7.3\ 10^{5}$
^{239}Pu	$3.1\ 10^{7}$	$3.1\ 10^{7}$	$3.1\ 10^{7}$	$3.1\ 10^{7}$	$3.1\ 10^{7}$	$3.1\ 10^{7}$	$3.1\ 10^{7}$

Table 24 (continued)

Nuclide	1964	1965	1966	1967	1968	1969	1970
^{3}H	$7.4\ 10^{12}$	$7.4\ 10^{12}$	$7.4\ 10^{12}$	$7.4\ 10^{12}$	$7.4\ 10^{12}$	$7.4\ 10^{12}$	$7.4\ 10^{12}$
^{22}Na	$1.6\ 10^{8}$	$1.6\ 10^{8}$	$1.6\ 10^{8}$	$1.6\ 10^{8}$	$1.6\ 10^{8}$	$1.6\ 10^{8}$	$1.6\ 10^{8}$
^{35}S	$2.0\ 10^{8}$	$2.0\ 10^{8}$	$2.0\ 10^{8}$	$2.0\ 10^{8}$	$2.0\ 10^{8}$	$2.0\ 10^{8}$	$2.0\ 10^{8}$
^{54}Mn	$1.0\ 10^{6}$	$1.0\ 10^{6}$	$1.0\ 10^{6}$	$1.0\ 10^{6}$	$1.0\ 10^{6}$	$1.0\ 10^{6}$	$1.0\ 10^{6}$
^{58}Co	$1.3\ 10^{6}$	$1.3\ 10^{6}$	$1.3\ 10^{6}$	$1.3\ 10^{6}$	$1.3\ 10^{6}$	$1.3\ 10^{6}$	$1.3\ 10^{6}$
^{60}Co	$1.4\ 10^{8}$	$1.4\ 10^{8}$	$1.4\ 10^{8}$	$1.4\ 10^{8}$	$1.4\ 10^{8}$	$1.4\ 10^{8}$	$1.4\ 10^{8}$
^{65}Zn	$5.4\ 10^{6}$	$5.4\ 10^{6}$	$5.4\ 10^{6}$	$5.4\ 10^{6}$	$5.4\ 10^{6}$	$5.4\ 10^{6}$	$5.4\ 10^{6}$
^{90}Sr	$1.5\ 10^{7}$	$1.5\ 10^{7}$	$1.5\ 10^{7}$	$1.5\ 10^{7}$	$1.5\ 10^{7}$	$1.5\ 10^{7}$	$1.5\ 10^{7}$
^{99}Mo	$1.5\ 10^{8}$	$1.5\ 10^{8}$	$1.5\ 10^{8}$	$1.5\ 10^{8}$	$1.5\ 10^{8}$	$1.5\ 10^{8}$	$1.5\ 10^{8}$
^{99m}Tc	$8.8\ 10^{7}$	$8.8\ 10^{7}$	$8.8\ 10^{7}$	$8.8\ 10^{7}$	$8.8\ 10^{7}$	$8.8\ 10^{7}$	$8.8\ 10^{7}$
^{111}In	$1.1\ 10^{7}$	$1.1\ 10^{7}$	$1.1\ 10^{7}$	$1.1\ 10^{7}$	$1.1\ 10^{7}$	$1.1\ 10^{7}$	$1.1\ 10^{7}$
^{124}Sb	$3.5\ 10^{7}$	$3.5\ 10^{7}$	$3.5\ 10^{7}$	$3.5\ 10^{7}$	$3.5\ 10^{7}$	$3.5\ 10^{7}$	$3.5\ 10^{7}$
^{125}Sb	$2.9\ 10^{6}$	$2.9\ 10^{6}$	$2.9\ 10^{6}$	$2.9\ 10^{6}$	$2.9\ 10^{6}$	$2.9\ 10^{6}$	$2.9\ 10^{6}$
^{121}Te	$2.0\ 10^{6}$	$2.0\ 10^{6}$	$2.0\ 10^{6}$	$2.0\ 10^{6}$	$2.0\ 10^{6}$	$2.0\ 10^{6}$	$2.0\ 10^{6}$
^{123m}Te	$8.6\ 10^{7}$	$8.6\ 10^{7}$	$8.6\ 10^{7}$	$8.6\ 10^{7}$	$8.6\ 10^{7}$	$8.6\ 10^{7}$	$8.6\ 10^{7}$
^{132}Te	$2.7\ 10^{6}$	$2.7\ 10^{6}$	$2.7\ 10^{6}$	$2.7\ 10^{6}$	$2.7\ 10^{6}$	$2.7\ 10^{6}$	$2.7\ 10^{6}$
^{125}I	$9.6\ 10^{8}$	$9.6\ 10^{8}$	$9.6\ 10^{8}$	$9.6\ 10^{8}$	$9.6\ 10^{8}$	$9.6\ 10^{8}$	$9.6\ 10^{8}$
^{131}I	$1.1\ 10^{9}$	$1.1\ 10^{9}$	$1.1\ 10^{9}$	$1.1\ 10^{9}$	$1.1\ 10^{9}$	$1.1\ 10^{9}$	$1.1\ 10^{9}$
^{134}Cs	$1.8\ 10^{7}$	$1.8\ 10^{7}$	$1.8\ 10^{7}$	$1.8\ 10^{7}$	$1.8\ 10^{7}$	$1.8\ 10^{7}$	$1.8\ 10^{7}$
^{137}Cs	$2.0\ 10^{8}$	$2.0\ 10^{8}$	$2.0\ 10^{8}$	$2.0\ 10^{8}$	$2.0\ 10^{8}$	$2.0\ 10^{8}$	$2.0\ 10^{8}$
^{133}Ba	$7.3\ 10^{5}$	$7.3\ 10^{5}$	$7.3\ 10^{5}$	$7.3\ 10^{5}$	$7.3\ 10^{5}$	$7.3\ 10^{5}$	$7.3\ 10^{5}$
^{239}Pu	$3.1\ 10^{7}$	$3.1\ 10^{7}$	$3.1\ 10^{7}$	$3.1\ 10^{7}$	$3.1\ 10^{7}$	$3.1\ 10^{7}$	$3.1\ 10^{7}$

Table 24 (continued)

Nuclide	1971	1972	1973	1974	1975	1976	1977
^{3}H	$7.4\ 10^{12}$	$7.4\ 10^{12}$	$7.4\ 10^{12}$	$7.4\ 10^{12}$	$7.4\ 10^{12}$	$7.4\ 10^{12}$	$7.4\ 10^{12}$
^{22}Na	$1.6\ 10^{8}$	$1.6\ 10^{8}$	$1.6\ 10^{8}$	$1.6\ 10^{8}$	$1.6\ 10^{8}$	$1.2\ 10^{8}$	$7.1\ 10^{7}$
^{35}S	$2.0\ 10^{8}$	$2.0\ 10^{8}$	$2.0\ 10^{8}$	$2.0\ 10^{8}$	$2.0\ 10^{8}$	$1.5\ 10^{8}$	$8.6\ 10^{7}$
^{54}Mn	$1.0\ 10^{6}$	$1.0\ 10^{6}$	$1.0\ 10^{6}$	$1.0\ 10^{6}$	$1.0\ 10^{6}$	$7.8\ 10^{5}$	$4.5\ 10^{5}$
^{58}Co	$1.3\ 10^{6}$	$1.3\ 10^{6}$	$1.3\ 10^{6}$	$1.3\ 10^{6}$	$1.3\ 10^{6}$	$1.0\ 10^{6}$	$5.8\ 10^{5}$
^{60}Co	$1.4\ 10^{8}$	$1.4\ 10^{8}$	$1.4\ 10^{8}$	$1.4\ 10^{8}$	$1.4\ 10^{8}$	$1.1\ 10^{8}$	$6.4\ 10^{7}$
^{65}Zn	$5.4\ 10^{6}$	$5.4\ 10^{6}$	$5.4\ 10^{6}$	$5.4\ 10^{6}$	$5.4\ 10^{6}$	$4.1\ 10^{6}$	$2.3\ 10^{6}$
^{90}Sr	$1.5\ 10^{7}$	$1.5\ 10^{7}$	$1.5\ 10^{7}$	$1.5\ 10^{7}$	$1.5\ 10^{7}$	$1.1\ 10^{7}$	$6.6\ 10^{6}$
^{99}Mb	$1.5\ 10^{8}$	$1.5\ 10^{8}$	$1.5\ 10^{8}$	$1.5\ 10^{8}$	$1.5\ 10^{8}$	$1.1\ 10^{8}$	$6.6\ 10^{7}$
^{99m}Tc	$8.8\ 10^{7}$	$8.8\ 10^{7}$	$8.8\ 10^{7}$	$8.8\ 10^{7}$	$8.8\ 10^{7}$	$6.6\ 10^{7}$	$3.8\ 10^{7}$
^{111}In	$1.1\ 10^{7}$	$1.1\ 10^{7}$	$1.1\ 10^{7}$	$1.1\ 10^{7}$	$1.1\ 10^{7}$	$8.8\ 10^{6}$	$5.1\ 10^{6}$
^{124}Sb	$3.5\ 10^{7}$	$3.5\ 10^{7}$	$3.5\ 10^{7}$	$3.5\ 10^{7}$	$3.5\ 10^{7}$	$2.6\ 10^{7}$	$1.5\ 10^{7}$
^{125}Sb	$2.9\ 10^{6}$	$2.9\ 10^{6}$	$2.9\ 10^{6}$	$2.9\ 10^{6}$	$2.9\ 10^{6}$	$2.2\ 10^{6}$	$1.2\ 10^{6}$
^{121}Te	$2.0\ 10^{6}$	$2.0\ 10^{6}$	$2.0\ 10^{6}$	$2.0\ 10^{6}$	$2.0\ 10^{6}$	$1.5\ 10^{6}$	$9.0\ 10^{5}$
^{123m}Te	$8.6\ 10^{7}$	$8.6\ 10^{7}$	$8.6\ 10^{7}$	$8.6\ 10^{7}$	$8.6\ 10^{7}$	$6.5\ 10^{7}$	$3.7\ 10^{7}$
^{132}Te	$2.7\ 10^{6}$	$2.7\ 10^{6}$	$2.7\ 10^{6}$	$2.7\ 10^{6}$	$2.7\ 10^{6}$	$2.0\ 10^{6}$	$1.1\ 10^{6}$
^{125}I	$9.6\ 10^{8}$	$9.6\ 10^{8}$	$9.6\ 10^{8}$	$9.6\ 10^{8}$	$9.6\ 10^{8}$	$7.2\ 10^{8}$	$4.1\ 10^{8}$
^{131}I	$1.1\ 10^{9}$	$1.1\ 10^{9}$	$1.1\ 10^{9}$	$1.1\ 10^{9}$	$1.1\ 10^{9}$	$8.4\ 10^{8}$	$4.8\ 10^{8}$
^{134}Cs	$1.8\ 10^{7}$	$1.8\ 10^{7}$	$1.8\ 10^{7}$	$1.8\ 10^{7}$	$1.8\ 10^{7}$	$1.4\ 10^{7}$	$8.1\ 10^{6}$
^{137}Cs	$2.0\ 10^{8}$	$2.0\ 10^{8}$	$2.0\ 10^{8}$	$2.0\ 10^{8}$	$2.0\ 10^{8}$	$1.5\ 10^{8}$	$8.8\ 10^{7}$
^{133}Ba	$7.3\ 10^{5}$	$7.3\ 10^{5}$	$7.3\ 10^{5}$	$7.3\ 10^{5}$	$7.3\ 10^{5}$	$5.5\ 10^{5}$	$3.1\ 10^{5}$
^{239}Pu	$3.1\ 10^{7}$	$3.1\ 10^{7}$	$3.1\ 10^{7}$	$3.1\ 10^{7}$	$3.1\ 10^{7}$	$2.3\ 10^{7}$	$1.3\ 10^{7}$

Table 24 (continued)

Nuclide	1978	1979	1980	1981	1982	1983	1984
^{3}H	1.1 10^{10}	4.8 10^{8}	2.0 10^{8}	4.8 10^{9}	2.2 10^{10}	4.8 10^{8}	4.4 10^{10}
^{22}Na	7.1 10^{7}	4.7 10^{7}	7.0 10^{7}	9.4 10^{7}	0	4.0 10^{8}	0
^{35}S	8.6 10^{7}	5.7 10^{7}	1.9 10^{8}	1.1 10^{8}	4.0 10^{8}	2.7 10^{8}	1.0 10^{8}
^{54}Mn	4.5 10^{5}	3.0 10^{5}	3.7 10^{6}	6.0 10^{5}	0	0	3.7 10^{6}
^{58}Co	5.8 10^{5}	3.8 10^{5}	3.7 10^{6}	7.7 10^{5}	0	0	7.4 10^{6}
^{60}Co	6.4 10^{7}	4.3 10^{7}	3.5 10^{8}	8.6 10^{7}	1.3 10^{8}	1.3 10^{8}	1.2 10^{8}
^{65}Zn	2.3 10^{6}	1.5 10^{6}	3.7 10^{5}	3.1 10^{6}	4.0 10^{7}	0	0
^{90}Sr	6.6 10^{6}	4.4 10^{6}	4.0 10^{6}	8.8 10^{6}	3.7 10^{6}	3.7 10^{7}	3.7 10^{6}
^{99}Mo	6.6 10^{7}	4.4 10^{7}	0	8.8 10^{7}	1.0 10^{9}	0	1.1 10^{8}
^{99m}Tc	3.8 10^{7}	2.5 10^{7}	0	5.1 10^{7}	6.6 10^{8}	0	3.7 10^{6}
^{111}In	5.1 10^{6}	3.4 10^{6}	7.4 10^{6}	6.8 10^{6}	7.7 10^{7}	0	0
^{124}Sb	1.5 10^{7}	1.0 10^{7}	0	2.0 10^{7}	2.6 10^{8}	0	3.7 10^{6}
^{125}Sb	1.2 10^{6}	8.5 10^{5}	0	1.7 10^{6}	2.2 10^{7}	0	0
^{121}Te	9.0 10^{5}	6.0 10^{5}	3.7 10^{6}	1.2 10^{6}	0	3.7 10^{6}	0
^{123m}Te	3.7 10^{7}	2.5 10^{7}	2.2 10^{8}	5.0 10^{7}	1.8 10^{8}	4.0 10^{7}	3.3 10^{7}
^{132}Te	1.1 10^{6}	7.8 10^{5}	0	1.5 10^{6}	0	7.4 10^{6}	0
^{125}I	4.1 10^{8}	2.7 10^{8}	2.2 10^{9}	5.5 10^{8}	1.3 10^{9}	8.1 10^{8}	4.8 10^{8}
^{131}I	4.8 10^{8}	3.2 10^{8}	1.4 10^{7}	6.5 10^{8}	1.7 10^{9}	1.5 10^{9}	4.0 10^{9}
^{134}Cs	8.1 10^{6}	5.4 10^{6}	1.1 10^{7}	1.0 10^{7}	1.8 10^{7}	3.7 10^{7}	7.4 10^{6}
^{137}Cs	8.8 10^{7}	5.9 10^{7}	1.6 10^{8}	1.1 10^{8}	2.3 10^{8}	2.5 10^{8}	5.5 10^{8}
^{133}Ba	3.1 10^{5}	2.1 10^{5}	3.7 10^{6}	4.2 10^{5}	0	0	0
^{239}Pu	1.3 10^{7}	9.1 10^{6}	1.0 10^{8}	1.8 10^{7}	1.9 10^{7}	1.4 10^{7}	2.5 10^{7}

Table 25

Discharges from Fessenheim France

Nuclide	1977	1978	1979	1980	1981	1982	1983	1984
^{3}H	3.0 10^{12}	3.0 10^{13}	2.4 10^{13}	2.8 10^{13}	2.8 10^{13}	2.8 10^{13}	2.8 10^{13}	2.8 10^{13}
^{18}F	1.0 10^{8}	6.9 10^{7}	1.8 10^{8}	2.4 10^{8}	2.4 10^{8}	2.4 10^{8}	2.4 10^{8}	2.4 10^{8}
^{24}Na	1.4 10^{10}	9.9 10^{9}	2.6 10^{10}	3.5 10^{10}	3.5 10^{10}	3.5 10^{10}	3.5 10^{10}	3.5 10^{10}
^{51}Cr	4.8 10^{9}	3.2 10^{9}	8.8 10^{9}	1.1 10^{10}	1.1 10^{10}	1.1 10^{10}	1.1 10^{10}	1.1 10^{10}
^{54}Mn	1.6 10^{10}	1.1 10^{10}	3.0 10^{10}	4.0 10^{10}	4.0 10^{10}	4.0 10^{10}	4.0 10^{10}	4.0 10^{10}
^{58}Co	1.9 10^{11}	1.3 10^{11}	3.5 10^{11}	4.6 10^{11}	4.6 10^{11}	4.6 10^{11}	4.6 10^{11}	4.6 10^{11}
^{59}Fe	2.2 10^{9}	1.5 10^{9}	4.0 10^{9}	5.4 10^{9}	5.4 10^{9}	5.4 10^{9}	5.4 10^{9}	5.4 10^{9}
^{60}Co	2.0 10^{10}	1.4 10^{10}	3.7 10^{10}	4.9 10^{10}	4.9 10^{10}	4.9 10^{10}	4.9 10^{10}	4.9 10^{10}
^{95}Zr	3.3 10^{8}	2.2 10^{8}	6.1 10^{8}	7.9 10^{8}	7.9 10^{8}	7.9 10^{8}	7.9 10^{8}	7.9 10^{8}
^{99m}Tc	2.5 10^{7}	1.7 10^{7}	4.7 10^{7}	6.1 10^{7}	6.1 10^{7}	6.1 10^{7}	6.1 10^{7}	6.1 10^{7}
^{124}Sb	7.5 10^{6}	5.2 10^{6}	1.4 10^{7}	1.8 10^{7}	1.8 10^{7}	1.8 10^{7}	1.8 10^{7}	1.8 10^{7}
^{131}I	3.3 10^{9}	2.2 10^{9}	6.1 10^{9}	7.9 10^{9}	7.9 10^{9}	7.9 10^{9}	7.9 10^{9}	7.9 10^{9}
^{137}Cs	1.5 10^{8}	1.0 10^{8}	2.8 10^{8}	3.6 10^{8}	3.6 10^{8}	3.6 10^{8}	3.6 10^{8}	3.6 10^{8}

Table 26

Discharges from Forsmark, Sweden

Nuclide	1980	1981	1982	1983	1984
^{3}H	$1.4\ 10^{11}$	$1.2\ 10^{12}$	$1.7\ 10^{12}$	$1.0\ 10^{12}$	$1.2\ 10^{12}$
^{51}Cr	$1.0\ 10^{8}$	$1.4\ 10^{10}$	$1.7\ 10^{11}$	$2.8\ 10^{11}$	$4.9\ 10^{11}$
^{54}Mn	$7.0\ 10^{6}$	$2.9\ 10^{8}$	$3.4\ 10^{9}$	$4.2\ 10^{9}$	$4.7\ 10^{9}$
^{57}Co	0	$3.0\ 10^{6}$	$8.0\ 10^{7}$	$1.4\ 10^{8}$	$9.0\ 10^{8}$
^{58}Co	$1.3\ 10^{8}$	$2.0\ 10^{9}$	$1.8\ 10^{10}$	$2.3\ 10^{10}$	$3.8\ 10^{10}$
^{59}Fe	0	$3.0\ 10^{7}$	$5.0\ 10^{7}$	0	$5.0\ 10^{7}$
^{60}Co	$2.0\ 10^{6}$	$6.1\ 10^{8}$	$2.3\ 10^{10}$	$6.9\ 10^{10}$	$9.2\ 10^{10}$
^{65}Zn	$2.0\ 10^{6}$	$1.1\ 10^{9}$	$1.4\ 10^{10}$	$2.1\ 10^{10}$	$2.4\ 10^{10}$
^{95}Nb	0	$4.0\ 10^{8}$	$2.3\ 10^{9}$	$5.1\ 10^{8}$	$5.3\ 10^{8}$
^{95}Zr	0	$3.4\ 10^{8}$	$1.3\ 10^{9}$	$2.7\ 10^{8}$	$1.8\ 10^{8}$
^{110m}Ag	0	$4.2\ 10^{8}$	$1.0\ 10^{10}$	$6.8\ 10^{9}$	$5.6\ 10^{9}$
^{124}Sb	0	$3.0\ 10^{7}$	$3.2\ 10^{9}$	$7.3\ 10^{8}$	$8.1\ 10^{9}$
^{125}Sb	0	0	0	0	$1.4\ 10^{9}$
^{131}I	0	$1.0\ 10^{8}$	$1.3\ 10^{9}$	$7.1\ 10^{9}$	$1.7\ 10^{10}$
^{134}Cs	0	$9.0\ 10^{6}$	$9.0\ 10^{7}$	0	$9.0\ 10^{7}$
^{137}Cs	0	$2.0\ 10^{7}$	$2.0\ 10^{8}$	$5.0\ 10^{7}$	$3.7\ 10^{8}$
^{140}Ba	0	0	$2.0\ 10^{8}$	0	$5.2\ 10^{9}$
^{140}La	$3.0\ 10^{7}$	$2.0\ 10^{7}$	$7.5\ 10^{8}$	$1.6\ 10^{8}$	$4.8\ 10^{9}$
^{141}Ce	$3.0\ 10^{7}$	$2.0\ 10^{7}$	$1.4\ 10^{8}$	$6.0\ 10^{7}$	0
^{144}Ce	0	0	0	0	0
^{239}Np	0	0	0	0	0

Table 27

Discharges from Gösgen, Switzerland

Nuclide	1979	1980	1981	1982	1983	1984
^{3}H	$3.3\ 10^{12}$	$2.9\ 10^{12}$	$5.9\ 10^{12}$	$1.0\ 10^{13}$	$5.1\ 10^{12}$	$1.5\ 10^{13}$
^{51}Cr	$1.5\ 10^{5}$	0	$7.9\ 10^{5}$	$2.9\ 10^{6}$	$1.8\ 10^{6}$	$2.9\ 10^{5}$
^{54}Mn	$1.1\ 10^{5}$	$2.9\ 10^{5}$	$5.7\ 10^{5}$	$1.7\ 10^{6}$	$1.4\ 10^{6}$	$3.7\ 10^{5}$
^{59}Fe	$2.8\ 10^{5}$	0	$1.4\ 10^{6}$	$7.4\ 10^{6}$	0	0
^{58}Co	$5.6\ 10^{6}$	$1.9\ 10^{6}$	$2.8\ 10^{7}$	$5.5\ 10^{6}$	$3.3\ 10^{8}$	$1.1\ 10^{6}$
^{60}Co	$5.6\ 10^{6}$	$1.4\ 10^{7}$	$2.8\ 10^{7}$	$4.8\ 10^{7}$	$1.1\ 10^{8}$	$3.1\ 10^{7}$
^{65}Zn	$5.6\ 10^{3}$	0	$2.8\ 10^{4}$	$1.4\ 10^{5}$	0	0
^{89}Sr	$4.1\ 10^{3}$	0	$2.1\ 10^{4}$	0	0	$7.4\ 10^{4}$
^{90}Sr	$1.0\ 10^{3}$	0	$5.2\ 10^{3}$	0	0	$1.8\ 10^{4}$
^{95}Zr	$2.3\ 10^{4}$	$1.4\ 10^{6}$	$1.1\ 10^{5}$	$4.0\ 10^{4}$	0	$1.1\ 10^{4}$
^{97}Zr	$2.7\ 10^{5}$	$3.2\ 10^{6}$	$1.3\ 10^{6}$	$2.5\ 10^{6}$	$7.4\ 10^{6}$	$2.5\ 10^{5}$
^{95}Nb	$2.6\ 10^{5}$	$1.6\ 10^{7}$	$1.3\ 10^{6}$	$3.3\ 10^{5}$	$7.4\ 10^{5}$	$1.4\ 10^{5}$
^{99m}Tc	$4.7\ 10^{4}$	$4.8\ 10^{5}$	$2.3\ 10^{5}$	$9.6\ 10^{5}$	$2.2\ 10^{5}$	0
^{103}Ru	$3.1\ 10^{3}$	$2.2\ 10^{5}$	$1.5\ 10^{4}$	0	0	0
^{110m}Ag	$1.4\ 10^{5}$	0	$7.3\ 10^{5}$	$3.1\ 10^{6}$	$7.4\ 10^{5}$	$2.5\ 10^{5}$
^{122}Sb	$3.8\ 10^{4}$	$4.4\ 10^{5}$	$1.9\ 10^{5}$	$1.8\ 10^{5}$	$2.5\ 10^{5}$	$3.7\ 10^{5}$
^{124}Sb	$4.9\ 10^{5}$	$7.0\ 10^{6}$	$2.4\ 10^{6}$	$8.5\ 10^{6}$	$3.7\ 10^{6}$	$2.2\ 10^{5}$
^{125}Sb	$4.6\ 10^{4}$	$1.1\ 10^{6}$	$2.3\ 10^{5}$	$5.1\ 10^{5}$	$3.7\ 10^{5}$	$7.4\ 10^{4}$
^{132}Te	$8.4\ 10^{4}$	$1.4\ 10^{5}$	$4.2\ 10^{5}$	$1.9\ 10^{6}$	$2.2\ 10^{5}$	$7.4\ 10^{4}$
^{131}I	$1.9\ 10^{5}$	$1.2\ 10^{7}$	$9.6\ 10^{5}$	$1.0\ 10^{5}$	$1.1\ 10^{5}$	$1.4\ 10^{5}$
^{133}I	$3.5\ 10^{5}$	$7.4\ 10^{6}$	$1.7\ 10^{6}$	$3.0\ 10^{6}$	$7.4\ 10^{5}$	$2.2\ 10^{6}$
^{134}Cs	$1.6\ 10^{4}$	0	$8.2\ 10^{4}$	$2.7\ 10^{5}$	$3.7\ 10^{5}$	0
^{137}Cs	$3.2\ 10^{5}$	$8.1\ 10^{5}$	$1.6\ 10^{6}$	$9.2\ 10^{5}$	$8.1\ 10^{6}$	$2.5\ 10^{6}$
^{140}Ba	$2.5\ 10^{5}$	$1.1\ 10^{7}$	$1.2\ 10^{6}$	$1.6\ 10^{6}$	$7.4\ 10^{5}$	$1.8\ 10^{5}$
^{140}La	$6.8\ 10^{3}$	$4.8\ 10^{5}$	$3.4\ 10^{4}$	0	0	0
^{141}Ce	$9.8\ 10^{4}$	$1.3\ 10^{6}$	$4.9\ 10^{5}$	$1.7\ 10^{6}$	$1.8\ 10^{5}$	$2.2\ 10^{5}$
^{144}Ce	$2.2\ 10^{5}$	0	$1.1\ 10^{6}$	$4.8\ 10^{6}$	$7.4\ 10^{5}$	$4.8\ 10^{5}$
^{239}Pu	$1.8\ 10^{3}$	0	$8.9\ 10^{3}$	0	$1.1\ 10^{5}$	0

Table 28

Discharges from Grafenrheinfeld, FRG

Nuclide	1982	1983	1984
^{58}Co	$1.4\ 10^{7}$	$3.6\ 10^{7}$	$1.7\ 10^{7}$
^{60}Co	$7.1\ 10^{5}$	$2.6\ 10^{7}$	$2.1\ 10^{7}$
^{51}Cr	$5.1\ 10^{6}$	0	$1.1\ 10^{6}$
^{124}Sb	$2.8\ 10^{7}$	$1.3\ 10^{7}$	$3.1\ 10^{6}$
^{123m}Te	0	$1.9\ 10^{7}$	$2.2\ 10^{7}$
^{90}Sr	0	$1.7\ 10^{6}$	0
^{131}I	0	$1.8\ 10^{6}$	0
Total	$4.8\ 10^{7}$	$1.0\ 10^{7}$	$6.5\ 10^{7}$
^{3}H	$6.9\ 10^{12}$	$1.9\ 10^{13}$	$2.1\ 10^{13}$

Table 29

Discharges from Gravelines, France

Nuclide	1980	1981	1982	1983	1984
^{3}H	$4.1\ 10^{12}$	$2.9\ 10^{13}$	$3.2\ 10^{13}$	$5.1\ 10^{13}$	$7.8\ 10^{13}$
^{54}Mn	$1.2\ 10^{10}$	$1.2\ 10^{10}$	$1.2\ 10^{10}$	$1.2\ 10^{10}$	$1.2\ 10^{10}$
^{58}Co	$1.7\ 10^{11}$	$1.7\ 10^{11}$	$1.7\ 10^{11}$	$1.7\ 10^{11}$	$1.7\ 10^{11}$
^{60}Co	$7.1\ 10^{10}$	$7.1\ 10^{10}$	$7.1\ 10^{10}$	$7.1\ 10^{10}$	$7.1\ 10^{10}$
^{110m}Ag	$1.4\ 10^{10}$	$1.4\ 10^{10}$	$1.4\ 10^{10}$	$1.4\ 10^{10}$	$1.4\ 10^{10}$
^{124}Sb	$3.6\ 10^{10}$	$3.6\ 10^{10}$	$3.6\ 10^{10}$	$3.6\ 10^{10}$	$3.6\ 10^{10}$
^{131}I	$2.5\ 10^{10}$	$2.5\ 10^{10}$	$2.5\ 10^{10}$	$2.5\ 10^{10}$	$2.5\ 10^{10}$
^{134}Cs	$1.5\ 10^{10}$	$1.5\ 10^{10}$	$1.5\ 10^{10}$	$1.5\ 10^{10}$	$1.5\ 10^{10}$
^{137}Cs	$1.9\ 10^{10}$	$1.9\ 10^{10}$	$1.9\ 10^{10}$	$1.9\ 10^{10}$	$1.9\ 10^{10}$

Table 30

Discharges from Grohnde, FRG

Nuclide	1984
^{54}Mn	$1.5\ 10^{6}$
^{58}Co	$1.6\ 10^{7}$
^{124}Sb	$3.7\ 10^{7}$
Total	$5.4\ 10^{7}$
^{3}H	$9.1\ 10^{10}$

Table 31

Discharges from Hartlepool, UK

Nuclide	1983	1984
^{3}H	$3.7\ 10^{10}$	$1.9\ 10^{13}$
^{14}C	$1.9\ 10^{6}$	$7.4\ 10^{6}$
^{32}P	$9.6\ 10^{7}$	$3.8\ 10^{8}$
^{35}S	$3.7\ 10^{9}$	$1.0\ 10^{11}$
^{45}Ca	$1.2\ 10^{9}$	$4.9\ 10^{9}$
^{51}Cr	$1.8\ 10^{8}$	$7.1\ 10^{8}$
^{54}Mn	$1.4\ 10^{8}$	$5.8\ 10^{8}$
^{55}Fe	$5.1\ 10^{8}$	$2.1\ 10^{9}$
^{58}Co	$3.6\ 10^{7}$	$1.4\ 10^{8}$
^{59}Fe	$2.0\ 10^{8}$	$8.0\ 10^{8}$
^{60}Co	$2.2\ 10^{8}$	$8.9\ 10^{8}$
^{63}Ni	$3.7\ 10^{7}$	$1.5\ 10^{8}$
^{65}Zn	$6.8\ 10^{7}$	$2.7\ 10^{8}$
^{89}Sr	$3.8\ 10^{7}$	$1.5\ 10^{8}$
^{90}Sr	$1.8\ 10^{7}$	$7.1\ 10^{7}$
^{90}Y	$1.8\ 10^{7}$	$7.1\ 10^{7}$
^{91}Y	$1.5\ 10^{6}$	$5.9\ 10^{6}$
^{95}Zr	$1.0\ 10^{8}$	$4.2\ 10^{8}$
^{95}Nb	$8.1\ 10^{7}$	$3.2\ 10^{8}$
^{106}Ru	$3.6\ 10^{7}$	$1.4\ 10^{8}$
^{106}Rh	$3.6\ 10^{7}$	$1.4\ 10^{8}$
^{110m}Ag	$1.0\ 10^{7}$	$4.1\ 10^{7}$
^{124}Sb	$2.3\ 10^{8}$	$9.1\ 10^{8}$
^{125}Sb	$1.1\ 10^{7}$	$4.4\ 10^{7}$
^{125m}Te	$5.2\ 10^{6}$	$2.1\ 10^{7}$
^{134}Cs	$1.1\ 10^{8}$	$4.5\ 10^{8}$
^{137}Cs	$9.4\ 10^{7}$	$3.8\ 10^{8}$
^{144}Ce	$6.9\ 10^{7}$	$2.8\ 10^{8}$
^{144}Pr	$6.9\ 10^{7}$	$2.8\ 10^{8}$
^{147}Pm	$1.0\ 10^{8}$	$4.1\ 10^{8}$
^{154}Eu	$9.6\ 10^{6}$	$3.8\ 10^{7}$
^{155}Eu	$2.0\ 10^{7}$	$8.1\ 10^{7}$
^{182}Ta	$1.1\ 10^{8}$	$4.4\ 10^{8}$
^{239}Pu	$1.2\ 10^{7}$	$4.9\ 10^{7}$

Table 32

Discharges from Harwell, UK

Nuclide	1948	1949	1950	1951	1952	1953	1954
^{3}H	$4.3\ 10^{12}$	$4.3\ 10^{12}$	$4.3\ 10^{12}$	$4.3\ 10^{12}$	$4.3\ 10^{12}$	$4.3\ 10^{12}$	$4.3\ 10^{12}$
^{90}Sr	$2.3\ 10^{7}$	$1.0\ 10^{9}$	$2.3\ 10^{9}$	$3.8\ 10^{9}$	$8.2\ 10^{9}$	$1.2\ 10^{10}$	$1.9\ 10^{10}$
^{137}Cs	$5.0\ 10^{7}$	$2.2\ 10^{9}$	$5.0\ 10^{9}$	$8.2\ 10^{9}$	$1.7\ 10^{10}$	$2.7\ 10^{10}$	$4.2\ 10^{10}$
^{239}Pu	$2.5\ 10^{7}$	$2.4\ 10^{8}$	$2.8\ 10^{8}$	$8.4\ 10^{8}$	$1.3\ 10^{9}$	$9.5\ 10^{8}$	$1.2\ 10^{9}$

Nuclide	1955	1956	1957	1958	1959	1960	1961
^{3}H	$4.3\ 10^{12}$	$4.3\ 10^{12}$	$4.3\ 10^{12}$	$4.3\ 10^{12}$	$4.3\ 10^{12}$	$4.3\ 10^{12}$	$4.3\ 10^{12}$
^{90}Sr	$3.2\ 10^{10}$	$3.5\ 10^{10}$	$5.5\ 10^{10}$	$1.3\ 10^{11}$	$2.7\ 10^{11}$	$1.0\ 10^{11}$	$4.4\ 10^{10}$
^{137}Cs	$6.8\ 10^{10}$	$7.6\ 10^{10}$	$1.1\ 10^{11}$	$2.8\ 10^{11}$	$5.7\ 10^{11}$	$2.3\ 10^{11}$	$9.6\ 10^{10}$
^{239}Pu	$8.2\ 10^{8}$	$8.9\ 10^{8}$	$5.8\ 10^{8}$	$8.2\ 10^{8}$	$9.0\ 10^{8}$	$6.5\ 10^{8}$	$7.4\ 10^{8}$

Nuclide	1962	1963	1964	1965	1966	1967	1968
^{3}H	$4.3\ 10^{12}$	$4.3\ 10^{12}$	$4.3\ 10^{12}$	$5.6\ 10^{12}$	$4.2\ 10^{12}$	$3.0\ 10^{12}$	$1.7\ 10^{12}$
^{90}Sr	$1.8\ 10^{10}$	$1.0\ 10^{10}$	$1.4\ 10^{10}$	$1.6\ 10^{10}$	$1.1\ 10^{10}$	$2.6\ 10^{10}$	$5.0\ 10^{10}$
^{137}Cs	$3.8\ 10^{10}$	$2.3\ 10^{10}$	$3.0\ 10^{10}$	$3.4\ 10^{10}$	$2.5\ 10^{10}$	$5.5\ 10^{10}$	$1.0\ 10^{11}$
^{239}Pu	$9.5\ 10^{8}$	$1.0\ 10^{9}$	$8.7\ 10^{8}$	$9.3\ 10^{8}$	$9.4\ 10^{8}$	$4.6\ 10^{8}$	$4.5\ 10^{8}$

Nuclide	1969	1970	1971	1972	1973	1974	1975	1976
^{3}H	$2.8\ 10^{12}$	$2.3\ 10^{12}$	$3.0\ 10^{12}$	$1.7\ 10^{12}$	$3.2\ 10^{12}$	$2.6\ 10^{12}$	$3.6\ 10^{12}$	$3.1\ 10^{12}$
^{90}Sr	$5.1\ 10^{10}$	$2.3\ 10^{10}$	$5.4\ 10^{10}$	$5.9\ 10^{10}$	$1.3\ 10^{10}$	$5.6\ 10^{9}$	$4.6\ 10^{9}$	$5.3\ 10^{9}$
^{137}Cs	$1.1\ 10^{11}$	$9.8\ 10^{10}$	$9.4\ 10^{10}$	$1.0\ 10^{11}$	$9.5\ 10^{10}$	$4.1\ 10^{10}$	$7.5\ 10^{10}$	$3.6\ 10^{10}$
^{239}Pu	$7.9\ 10^{8}$	$9.8\ 10^{8}$	$9.0\ 10^{8}$	$7.5\ 10^{8}$	$4.8\ 10^{8}$	$3.3\ 10^{8}$	$5.7\ 10^{8}$	$7.0\ 10^{8}$

Nuclide	1977	1978	1979	1980	1981	1982	1983	1984
^{3}H	$3.5\ 10^{12}$	$1.8\ 10^{12}$	$1.7\ 10^{12}$	$1.2\ 10^{12}$	$8.5\ 10^{11}$	$1.3\ 10^{12}$	$3.2\ 10^{12}$	$1.7\ 10^{12}$
^{90}Sr	$5.7\ 10^{9}$	$3.7\ 10^{9}$	$4.7\ 10^{9}$	$5.7\ 10^{9}$	$3.3\ 10^{9}$	$2.8\ 10^{9}$	$2.2\ 10^{9}$	$1.8\ 10^{9}$
^{137}Cs	$7.8\ 10^{10}$	$2.6\ 10^{10}$	$3.2\ 10^{10}$	$3.7\ 10^{10}$	$1.6\ 10^{10}$	$9.7\ 10^{9}$	$1.1\ 10^{10}$	$7.1\ 10^{9}$
^{239}Pu	$6.5\ 10^{8}$	$6.2\ 10^{8}$	$1.2\ 10^{9}$	$2.1\ 10^{9}$	$8.9\ 10^{8}$	$7.5\ 10^{8}$	$7.0\ 10^{8}$	$8.1\ 10^{8}$

Table 33

Discharges from Heysham A. UK

Nuclide	1983	1984
^{3}H	$3.7\ 10^{10}$	$1.7\ 10^{13}$
^{14}C	$1.9\ 10^{6}$	$1.9\ 10^{6}$
^{32}P	$9.6\ 10^{7}$	$9.6\ 10^{7}$
^{35}S	$3.7\ 10^{9}$	$5.6\ 10^{10}$
^{45}Ca	$1.2\ 10^{9}$	$1.2\ 10^{9}$
^{51}Cr	$1.8\ 10^{8}$	$1.8\ 10^{8}$
^{54}Mn	$1.4\ 10^{8}$	$1.4\ 10^{8}$
^{55}Fe	$5.1\ 10^{8}$	$5.1\ 10^{8}$
^{58}Co	$3.6\ 10^{7}$	$3.6\ 10^{7}$
^{59}Fe	$2.0\ 10^{8}$	$2.0\ 10^{8}$
^{60}Co	$2.2\ 10^{8}$	$2.2\ 10^{8}$
^{63}Ni	$3.7\ 10^{7}$	$3.7\ 10^{7}$
^{65}Zn	$6.8\ 10^{7}$	$6.8\ 10^{7}$
^{89}Sr	$3.8\ 10^{7}$	$3.8\ 10^{7}$
^{90}Sr	$1.8\ 10^{7}$	$1.8\ 10^{7}$
^{90}Y	$1.8\ 10^{7}$	$1.8\ 10^{7}$
^{91}Y	$1.5\ 10^{6}$	$1.5\ 10^{6}$
^{95}Zr	$1.0\ 10^{8}$	$1.0\ 10^{8}$
^{95}Nb	$8.1\ 10^{7}$	$8.1\ 10^{7}$
^{106}Ru	$3.6\ 10^{7}$	$3.6\ 10^{7}$
^{106}Rh	$3.6\ 10^{7}$	$3.6\ 10^{7}$
^{110m}Ag	$1.0\ 10^{7}$	$1.0\ 10^{7}$
^{124}Sb	$2.3\ 10^{8}$	$2.3\ 10^{8}$
^{125}Sb	$1.1\ 10^{7}$	$1.1\ 10^{7}$
^{125m}Te	$5.2\ 10^{6}$	$5.2\ 10^{6}$
^{134}Cs	$1.1\ 10^{8}$	$1.1\ 10^{8}$
^{137}Cs	$9.4\ 10^{7}$	$9.4\ 10^{7}$
^{144}Ce	$6.9\ 10^{7}$	$6.9\ 10^{7}$
^{144}Pr	$6.9\ 10^{7}$	$6.9\ 10^{7}$
^{147}Pm	$1.0\ 10^{8}$	$1.0\ 10^{8}$
^{154}Eu	$9.6\ 10^{6}$	$9.6\ 10^{6}$
^{155}Eu	$2.0\ 10^{7}$	$2.0\ 10^{7}$
^{182}Ta	$1.1\ 10^{8}$	$1.1\ 10^{8}$
^{239}Pu	$1.2\ 10^{7}$	$1.2\ 10^{7}$

Table 34

Discharges from Hinkley Pt A. UK

Nuclide	1965	1966	1967	1968	1969	1970
^{3}H	$6.4\ 10^{12}$	$1.2\ 10^{12}$	0	$1.7\ 10^{12}$	$1.3\ 10^{12}$	$6.9\ 10^{11}$
^{14}C	$7.0\ 10^{7}$	$6.6\ 10^{8}$	$2.9\ 10^{8}$	$1.1\ 10^{9}$	$7.2\ 10^{9}$	$4.7\ 10^{9}$
^{32}P	$9.3\ 10^{7}$	$8.8\ 10^{8}$	$3.8\ 10^{8}$	$1.4\ 10^{9}$	$9.6\ 10^{9}$	$6.2\ 10^{9}$
^{35}S	$2.3\ 10^{9}$	$2.2\ 10^{10}$	$9.7\ 10^{9}$	$3.7\ 10^{10}$	$2.4\ 10^{11}$	$1.5\ 10^{11}$
^{45}Ca	$1.1\ 10^{8}$	$1.1\ 10^{9}$	$4.8\ 10^{8}$	$1.8\ 10^{9}$	$1.2\ 10^{10}$	$7.8\ 10^{9}$
^{51}Cr	$3.7\ 10^{8}$	$3.5\ 10^{9}$	$1.5\ 10^{9}$	$5.8\ 10^{9}$	$3.8\ 10^{10}$	$2.5\ 10^{10}$
^{54}Mn	$4.6\ 10^{7}$	$4.4\ 10^{8}$	$1.9\ 10^{8}$	$7.3\ 10^{8}$	$4.8\ 10^{9}$	$3.1\ 10^{9}$
^{55}Fe	$6.3\ 10^{8}$	$5.9\ 10^{9}$	$2.6\ 10^{9}$	$9.9\ 10^{9}$	$6.4\ 10^{10}$	$4.2\ 10^{10}$
^{58}Co	$5.8\ 10^{7}$	$5.5\ 10^{8}$	$2.4\ 10^{8}$	$9.1\ 10^{8}$	$6.0\ 10^{9}$	$3.9\ 10^{9}$
^{59}Fe	$4.6\ 10^{7}$	$4.4\ 10^{8}$	$1.9\ 10^{8}$	$7.3\ 10^{8}$	$4.8\ 10^{9}$	$3.1\ 10^{9}$
^{60}Co	$7.0\ 10^{7}$	$6.6\ 10^{8}$	$2.9\ 10^{8}$	$1.1\ 10^{9}$	$7.2\ 10^{9}$	$4.7\ 10^{9}$
^{63}Ni	$4.6\ 10^{7}$	$4.4\ 10^{8}$	$1.9\ 10^{8}$	$7.3\ 10^{8}$	$4.8\ 10^{9}$	$3.1\ 10^{9}$
^{65}Zn	$4.6\ 10^{7}$	$4.4\ 10^{8}$	$1.9\ 10^{8}$	$7.3\ 10^{8}$	$4.8\ 10^{9}$	$3.1\ 10^{9}$
^{89}Sr	$1.6\ 10^{9}$	$1.5\ 10^{10}$	$6.8\ 10^{9}$	$2.6\ 10^{10}$	$1.7\ 10^{11}$	$1.1\ 10^{11}$
^{90}Sr	$9.3\ 10^{9}$	$8.8\ 10^{10}$	$3.8\ 10^{10}$	$1.4\ 10^{11}$	$9.6\ 10^{11}$	$6.2\ 10^{11}$
^{90}Y	$9.3\ 10^{9}$	$8.8\ 10^{10}$	$3.8\ 10^{10}$	$1.4\ 10^{11}$	$9.6\ 10^{11}$	$6.2\ 10^{11}$
^{91}Y	$3.2\ 10^{8}$	$3.0\ 10^{9}$	$1.3\ 10^{9}$	$5.1\ 10^{9}$	$3.3\ 10^{10}$	$2.1\ 10^{10}$
^{95}Zr	$4.6\ 10^{7}$	$4.4\ 10^{8}$	$1.9\ 10^{8}$	$7.3\ 10^{8}$	$4.8\ 10^{9}$	$3.1\ 10^{9}$
^{95}Nb	$5.8\ 10^{7}$	$5.5\ 10^{8}$	$2.4\ 10^{8}$	$9.1\ 10^{8}$	$6.0\ 10^{9}$	$3.9\ 10^{9}$
^{106}Ru	$3.0\ 10^{9}$	$2.9\ 10^{10}$	$1.2\ 10^{10}$	$4.8\ 10^{10}$	$3.1\ 10^{11}$	$2.0\ 10^{11}$
^{106}Rh	$3.0\ 10^{9}$	$2.9\ 10^{10}$	$1.2\ 10^{10}$	$4.8\ 10^{10}$	$3.1\ 10^{11}$	$2.0\ 10^{11}$
^{110m}Ag	$4.6\ 10^{7}$	$4.4\ 10^{8}$	$1.9\ 10^{8}$	$7.3\ 10^{8}$	$4.8\ 10^{9}$	$3.1\ 10^{9}$
^{124}Sb	$8.1\ 10^{7}$	$7.7\ 10^{8}$	$3.3\ 10^{8}$	$1.2\ 10^{9}$	$8.4\ 10^{9}$	$5.4\ 10^{9}$
^{125}Sb	$9.5\ 10^{9}$	$8.9\ 10^{10}$	$3.9\ 10^{10}$	$1.5\ 10^{11}$	$9.7\ 10^{11}$	$6.3\ 10^{11}$
^{125m}Te	$2.2\ 10^{9}$	$2.1\ 10^{10}$	$9.3\ 10^{9}$	$3.5\ 10^{10}$	$2.3\ 10^{11}$	$1.5\ 10^{11}$
^{134}Cs	$2.1\ 10^{9}$	$2.0\ 10^{10}$	$9.0\ 10^{9}$	$3.4\ 10^{10}$	$2.2\ 10^{11}$	$1.4\ 10^{11}$
^{137}Cs	$1.9\ 10^{10}$	$1.8\ 10^{11}$	$7.9\ 10^{10}$	$3.0\ 10^{11}$	$1.9\ 10^{12}$	$1.2\ 10^{12}$
^{144}Ce	$1.8\ 10^{9}$	$1.7\ 10^{10}$	$7.5\ 10^{9}$	$2.8\ 10^{10}$	$1.8\ 10^{11}$	$1.2\ 10^{11}$
^{144}Pr	$1.8\ 10^{9}$	$1.7\ 10^{10}$	$7.5\ 10^{9}$	$2.8\ 10^{10}$	$1.8\ 10^{11}$	$1.2\ 10^{11}$
^{147}Pm	$2.8\ 10^{9}$	$2.6\ 10^{10}$	$1.1\ 10^{10}$	$4.4\ 10^{10}$	$2.8\ 10^{11}$	$1.8\ 10^{11}$
^{154}Eu	$7.0\ 10^{7}$	$6.6\ 10^{8}$	$2.9\ 10^{8}$	$1.1\ 10^{9}$	$7.2\ 10^{9}$	$4.7\ 10^{9}$
^{155}Eu	$3.5\ 10^{7}$	$3.3\ 10^{8}$	$1.4\ 10^{8}$	$5.5\ 10^{8}$	$3.6\ 10^{9}$	$2.3\ 10^{9}$
^{239}Pu	$2.1\ 10^{8}$	$1.9\ 10^{9}$	$8.7\ 10^{8}$	$3.3\ 10^{9}$	$2.1\ 10^{10}$	$1.4\ 10^{10}$

Table 34 (continued)

Nuclide	1971	1972	1973	1974	1975	1976	1977
^{3}H	$9.2\ 10^{11}$	$1.4\ 10^{12}$	$1.3\ 10^{12}$	$1.4\ 10^{12}$	$2.0\ 10^{12}$	$8.8\ 10^{11}$	$1.2\ 10^{12}$
^{14}C	$6.0\ 10^{9}$	$5.4\ 10^{9}$	$4.2\ 10^{9}$	$4.6\ 10^{9}$	$5.9\ 10^{9}$	$2.5\ 10^{9}$	$2.2\ 10^{9}$
^{32}P	$8.0\ 10^{9}$	$5.4\ 10^{9}$	$4.2\ 10^{9}$	$9.2\ 10^{9}$	$5.9\ 10^{10}$	$1.0\ 10^{10}$	$4.4\ 10^{9}$
^{35}S	$2.0\ 10^{11}$	$1.0\ 10^{10}$	$2.7\ 10^{11}$	$1.5\ 10^{11}$	$3.8\ 10^{11}$	$1.1\ 10^{11}$	$3.5\ 10^{11}$
^{45}Ca	$1.0\ 10^{10}$	$5.4\ 10^{9}$	$8.4\ 10^{9}$	$9.2\ 10^{9}$	$1.1\ 10^{10}$	$2.5\ 10^{10}$	$1.7\ 10^{10}$
^{51}Cr	$3.2\ 10^{10}$	$2.8\ 10^{10}$	$2.5\ 10^{10}$	$3.6\ 10^{10}$	$1.1\ 10^{10}$	$4.5\ 10^{10}$	$6.6\ 10^{10}$
^{54}Mn	$4.0\ 10^{9}$	$3.6\ 10^{9}$	$4.2\ 10^{9}$	$2.3\ 10^{9}$	$2.9\ 10^{9}$	$2.5\ 10^{9}$	$2.2\ 10^{9}$
^{55}Fe	$5.4\ 10^{10}$	$4.3\ 10^{10}$	$8.4\ 10^{9}$	$7.8\ 10^{10}$	$1.1\ 10^{10}$	$5.1\ 10^{9}$	$8.8\ 10^{9}$
^{58}Co	$5.0\ 10^{9}$	$5.4\ 10^{9}$	$4.2\ 10^{9}$	$2.3\ 10^{9}$	$2.9\ 10^{9}$	$2.5\ 10^{9}$	$2.2\ 10^{9}$
^{59}Fe	$4.0\ 10^{9}$	$3.6\ 10^{9}$	$4.2\ 10^{9}$	$2.3\ 10^{9}$	$2.9\ 10^{9}$	$2.5\ 10^{9}$	$2.2\ 10^{9}$
^{60}Co	$6.0\ 10^{9}$	$5.4\ 10^{9}$	$4.2\ 10^{9}$	$4.6\ 10^{9}$	$5.9\ 10^{9}$	$2.5\ 10^{9}$	$4.4\ 10^{9}$
^{63}Ni	$4.0\ 10^{9}$	$3.6\ 10^{9}$	$4.2\ 10^{9}$	$2.3\ 10^{9}$	$2.9\ 10^{9}$	$2.5\ 10^{9}$	$2.2\ 10^{9}$
^{65}Zn	$4.0\ 10^{9}$	$3.6\ 10^{9}$	$4.2\ 10^{9}$	$2.3\ 10^{9}$	$2.9\ 10^{9}$	$2.5\ 10^{9}$	$2.2\ 10^{9}$
^{89}Sr	$1.4\ 10^{11}$	$2.3\ 10^{11}$	$1.0\ 10^{11}$	$1.3\ 10^{10}$	$6.4\ 10^{10}$	$2.6\ 10^{11}$	$6.1\ 10^{10}$
^{90}Sr	$8.0\ 10^{11}$	$9.9\ 10^{11}$	$6.9\ 10^{11}$	$2.3\ 10^{11}$	$3.0\ 10^{11}$	$1.1\ 10^{12}$	$4.0\ 10^{11}$
^{90}Y	$8.0\ 10^{11}$	$9.9\ 10^{11}$	$6.9\ 10^{11}$	$2.3\ 10^{11}$	$3.0\ 10^{11}$	$1.1\ 10^{12}$	$4.0\ 10^{11}$
^{91}Y	$2.8\ 10^{10}$	$2.5\ 10^{10}$	$4.2\ 10^{9}$	$3.2\ 10^{10}$	$3.5\ 10^{10}$	$3.0\ 10^{10}$	$5.7\ 10^{10}$
^{95}Zr	$4.0\ 10^{9}$	$3.6\ 10^{9}$	$2.1\ 10^{9}$	$2.3\ 10^{9}$	$5.9\ 10^{9}$	$5.1\ 10^{9}$	$8.8\ 10^{9}$
^{95}Nb	$5.0\ 10^{9}$	$4.5\ 10^{9}$	$2.1\ 10^{9}$	$4.6\ 10^{9}$	$5.9\ 10^{9}$	$2.0\ 10^{10}$	$6.6\ 10^{10}$
^{106}Ru	$2.6\ 10^{11}$	$3.3\ 10^{11}$	$1.6\ 10^{11}$	$1.4\ 10^{11}$	$1.0\ 10^{11}$	$8.1\ 10^{10}$	$2.1\ 10^{11}$
^{106}Rh	$2.6\ 10^{11}$	$3.3\ 10^{11}$	$1.6\ 10^{11}$	$1.4\ 10^{11}$	$1.0\ 10^{11}$	$8.1\ 10^{10}$	$2.1\ 10^{11}$
^{110m}Ag	$4.0\ 10^{9}$	$3.6\ 10^{9}$	$4.2\ 10^{9}$	$2.3\ 10^{9}$	$2.9\ 10^{9}$	$2.5\ 10^{9}$	$2.2\ 10^{9}$
^{124}Sb	$7.0\ 10^{9}$	$6.3\ 10^{9}$	$4.9\ 10^{9}$	$5.3\ 10^{9}$	$6.8\ 10^{9}$	$5.9\ 10^{9}$	$5.1\ 10^{9}$
^{125}Sb	$8.1\ 10^{11}$	$4.8\ 10^{11}$	$8.0\ 10^{11}$	$5.8\ 10^{11}$	$4.3\ 10^{11}$	$1.5\ 10^{11}$	$1.3\ 10^{11}$
^{125m}Te	$1.9\ 10^{11}$	$1.7\ 10^{11}$	$1.9\ 10^{11}$	$1.5\ 10^{11}$	$1.0\ 10^{11}$	$3.5\ 10^{10}$	$3.0\ 10^{10}$
^{134}Cs	$1.8\ 10^{11}$	$1.3\ 10^{11}$	$1.0\ 10^{11}$	$2.0\ 10^{11}$	$3.7\ 10^{11}$	$3.3\ 10^{11}$	$2.4\ 10^{11}$
^{137}Cs	$1.6\ 10^{12}$	$7.3\ 10^{11}$	$7.9\ 10^{11}$	$2.2\ 10^{12}$	$3.2\ 10^{12}$	$1.4\ 10^{12}$	$1.0\ 10^{12}$
^{144}Ce	$1.5\ 10^{11}$	$3.0\ 10^{11}$	$4.6\ 10^{10}$	$4.6\ 10^{10}$	$4.7\ 10^{10}$	$4.0\ 10^{10}$	$3.6\ 10^{11}$
^{144}Pr	$1.5\ 10^{11}$	$3.0\ 10^{11}$	$4.6\ 10^{10}$	$4.6\ 10^{10}$	$4.7\ 10^{10}$	$4.0\ 10^{10}$	$3.6\ 10^{11}$
^{147}Pm	$2.4\ 10^{11}$	$3.4\ 10^{11}$	$7.9\ 10^{10}$	$1.7\ 10^{11}$	$2.3\ 10^{11}$	$9.1\ 10^{10}$	$3.2\ 10^{11}$
^{154}Eu	$6.0\ 10^{9}$	$5.4\ 10^{9}$	$4.2\ 10^{9}$	$4.6\ 10^{9}$	$5.9\ 10^{9}$	$2.5\ 10^{9}$	$4.4\ 10^{9}$
^{155}Eu	$3.0\ 10^{9}$	$2.7\ 10^{9}$	$2.1\ 10^{9}$	$2.3\ 10^{9}$	$2.9\ 10^{9}$	$2.5\ 10^{9}$	$2.2\ 10^{9}$
^{239}Pu	$1.8\ 10^{10}$	$1.6\ 10^{10}$	$1.2\ 10^{10}$	$1.3\ 10^{10}$	$1.1\ 10^{10}$	$1.0\ 10^{10}$	$2.2\ 10^{10}$

Table 34 (continued)

Nuclide	1978	1979	1980	1981	1982	1983	1984
^{3}H	$2.0\ 10^{12}$	$3.6\ 10^{12}$	$2.0\ 10^{12}$	$2.0\ 10^{12}$	$6.7\ 10^{11}$	$7.0\ 10^{11}$	$5.2\ 10^{11}$
^{14}C	$2.0\ 10^{9}$	$1.1\ 10^{9}$	$2.5\ 10^{9}$	$1.7\ 10^{9}$	$1.3\ 10^{9}$	$6.5\ 10^{8}$	$1.1\ 10^{9}$
^{32}P	$2.0\ 10^{9}$	$1.1\ 10^{9}$	$2.5\ 10^{9}$	$1.7\ 10^{9}$	$1.3\ 10^{9}$	$6.5\ 10^{8}$	$1.1\ 10^{9}$
^{35}S	$2.7\ 10^{11}$	$1.7\ 10^{11}$	$5.8\ 10^{11}$	$2.0\ 10^{11}$	$2.1\ 10^{11}$	$2.2\ 10^{11}$	$2.8\ 10^{11}$
^{45}Ca	$4.1\ 10^{9}$	$1.6\ 10^{10}$	$5.1\ 10^{9}$	$3.4\ 10^{9}$	$1.3\ 10^{10}$	$6.5\ 10^{9}$	$1.1\ 10^{10}$
^{51}Cr	$2.0\ 10^{9}$	$1.1\ 10^{9}$	$2.5\ 10^{9}$	$5.6\ 10^{8}$	$4.5\ 10^{8}$	0	0
^{54}Mn	$2.0\ 10^{9}$	$1.1\ 10^{9}$	$2.5\ 10^{9}$	$1.7\ 10^{9}$	$1.3\ 10^{9}$	0	$1.1\ 10^{9}$
^{55}Fe	$8.2\ 10^{9}$	$6.9\ 10^{9}$	$5.1\ 10^{9}$	$6.8\ 10^{9}$	$1.3\ 10^{10}$	$6.5\ 10^{9}$	$1.1\ 10^{10}$
^{58}Co	$2.0\ 10^{9}$	$1.1\ 10^{9}$	$2.5\ 10^{9}$	$1.7\ 10^{9}$	$1.3\ 10^{9}$	0	0
^{59}Fe	$2.0\ 10^{9}$	$1.1\ 10^{9}$	$2.5\ 10^{9}$	$3.4\ 10^{9}$	$1.3\ 10^{10}$	0	0
^{60}Co	$2.0\ 10^{9}$	$1.1\ 10^{9}$	$2.5\ 10^{9}$	$3.4\ 10^{9}$	$1.3\ 10^{10}$	$6.5\ 10^{9}$	$1.1\ 10^{10}$
^{63}Ni	$2.0\ 10^{9}$	$1.1\ 10^{9}$	$2.5\ 10^{9}$	$1.7\ 10^{9}$	$1.3\ 10^{9}$	$6.5\ 10^{8}$	$1.1\ 10^{9}$
^{65}Zn	$2.0\ 10^{9}$	$1.1\ 10^{9}$	$2.5\ 10^{9}$	$1.7\ 10^{9}$	$1.3\ 10^{9}$	$6.5\ 10^{8}$	$1.1\ 10^{10}$
^{89}Sr	$4.1\ 10^{9}$	$9.2\ 10^{9}$	$2.0\ 10^{10}$	$3.4\ 10^{10}$	0	0	0
^{90}Sr	$3.1\ 10^{11}$	$2.8\ 10^{11}$	$4.0\ 10^{11}$	$3.3\ 10^{11}$	$2.9\ 10^{11}$	$1.8\ 10^{11}$	$3.3\ 10^{11}$
^{90}Y	$3.1\ 10^{11}$	$2.8\ 10^{11}$	$4.0\ 10^{11}$	$3.3\ 10^{11}$	$2.9\ 10^{11}$	$1.8\ 10^{11}$	$3.3\ 10^{11}$
^{91}Y	$8.2\ 10^{9}$	$1.1\ 10^{10}$	$2.5\ 10^{9}$	0	0	0	0
^{95}Zr	$4.1\ 10^{9}$	$1.1\ 10^{9}$	$1.5\ 10^{10}$	$1.3\ 10^{10}$	$2.7\ 10^{10}$	0	0
^{95}Nb	$2.0\ 10^{10}$	$2.3\ 10^{9}$	$2.0\ 10^{10}$	$3.0\ 10^{10}$	$5.4\ 10^{10}$	$6.5\ 10^{9}$	0
^{106}Ru	$1.4\ 10^{11}$	$5.5\ 10^{10}$	$7.6\ 10^{10}$	$1.2\ 10^{11}$	$1.3\ 10^{11}$	$2.6\ 10^{10}$	$2.2\ 10^{10}$
^{106}Rh	$1.4\ 10^{11}$	$5.5\ 10^{10}$	$7.6\ 10^{10}$	$1.2\ 10^{11}$	$1.3\ 10^{11}$	$2.6\ 10^{10}$	$2.2\ 10^{10}$
^{110m}Ag	$2.0\ 10^{9}$	$1.1\ 10^{9}$	$2.5\ 10^{9}$	$1.7\ 10^{9}$	$1.3\ 10^{9}$	0	0
^{124}Sb	$4.7\ 10^{9}$	$1.1\ 10^{9}$	$5.1\ 10^{9}$	$6.8\ 10^{9}$	$1.3\ 10^{10}$	$6.5\ 10^{9}$	$1.1\ 10^{10}$
^{125}Sb	$3.3\ 10^{11}$	$1.1\ 10^{11}$	$1.7\ 10^{11}$	$1.9\ 10^{11}$	$8.1\ 10^{10}$	$2.6\ 10^{10}$	$2.2\ 10^{10}$
^{125m}Te	$8.2\ 10^{10}$	$2.7\ 10^{10}$	$4.5\ 10^{10}$	$4.7\ 10^{10}$	$2.7\ 10^{10}$	$6.5\ 10^{9}$	$1.1\ 10^{10}$
^{134}Cs	$2.3\ 10^{11}$	$1.2\ 10^{11}$	$4.0\ 10^{11}$	$2.1\ 10^{11}$	$1.0\ 10^{11}$	$3.9\ 10^{10}$	$8.8\ 10^{10}$
^{137}Cs	$1.3\ 10^{12}$	$9.4\ 10^{11}$	$2.5\ 10^{12}$	$1.0\ 10^{12}$	$6.7\ 10^{11}$	$4.8\ 10^{11}$	$1.0\ 10^{12}$
^{144}Ce	$3.8\ 10^{11}$	$5.5\ 10^{10}$	$9.6\ 10^{10}$	$1.8\ 10^{11}$	$1.8\ 10^{11}$	$2.6\ 10^{10}$	$1.1\ 10^{10}$
^{144}Pr	$3.8\ 10^{11}$	$5.5\ 10^{10}$	$9.6\ 10^{10}$	$1.8\ 10^{11}$	$1.8\ 10^{11}$	$2.6\ 10^{10}$	$1.1\ 10^{10}$
^{147}Pm	$1.3\ 10^{11}$	$7.1\ 10^{10}$	$5.1\ 10^{10}$	$2.8\ 10^{11}$	$2.1\ 10^{11}$	$5.2\ 10^{10}$	$2.2\ 10^{10}$
^{154}Eu	$4.1\ 10^{9}$	$2.3\ 10^{9}$	$1.0\ 10^{10}$	$1.0\ 10^{10}$	$1.3\ 10^{10}$	$6.5\ 10^{9}$	$1.1\ 10^{10}$
^{155}Eu	$2.0\ 10^{9}$	$2.3\ 10^{9}$	$5.1\ 10^{9}$	$1.0\ 10^{10}$	$1.3\ 10^{10}$	$6.5\ 10^{9}$	$1.1\ 10^{10}$
^{239}Pu	$8.2\ 10^{9}$	$4.6\ 10^{9}$	$1.0\ 10^{10}$	$3.4\ 10^{10}$	$5.4\ 10^{10}$	$1.3\ 10^{10}$	$1.1\ 10^{10}$

Table 35

Discharges from Hinkley Pt B, UK

Nuclide	1976	1977	1978	1979
^{3}H	$9.3\ 10^{10}$	$2.6\ 10^{13}$	$5.9\ 10^{13}$	$1.6\ 10^{14}$
^{14}C	$2.0\ 10^{7}$	$2.2\ 10^{7}$	$9.5\ 10^{7}$	$2.6\ 10^{8}$
^{32}P	$1.1\ 10^{9}$	$1.2\ 10^{9}$	$4.9\ 10^{9}$	$1.3\ 10^{10}$
^{35}S	$4.1\ 10^{10}$	$4.8\ 10^{10}$	$4.8\ 10^{10}$	$8.1\ 10^{10}$
^{45}Ca	$1.6\ 10^{10}$	$1.7\ 10^{10}$	$7.3\ 10^{10}$	$2.0\ 10^{11}$
^{51}Cr	$5.9\ 10^{9}$	$6.4\ 10^{9}$	$2.7\ 10^{10}$	$7.5\ 10^{10}$
^{54}Mn	$2.0\ 10^{8}$	$2.2\ 10^{8}$	$9.5\ 10^{8}$	$2.6\ 10^{9}$
^{55}Fe	$6.9\ 10^{8}$	$7.5\ 10^{8}$	$3.2\ 10^{9}$	$8.8\ 10^{9}$
^{58}Co	$2.0\ 10^{7}$	$2.2\ 10^{7}$	$9.5\ 10^{7}$	$2.6\ 10^{8}$
^{59}Fe	$8.1\ 10^{7}$	$8.9\ 10^{7}$	$3.8\ 10^{8}$	$1.0\ 10^{9}$
^{60}Co	$3.9\ 10^{9}$	$4.3\ 10^{9}$	$1.8\ 10^{10}$	$5.0\ 10^{10}$
^{63}Ni	$4.1\ 10^{8}$	$4.4\ 10^{8}$	$1.9\ 10^{9}$	$5.2\ 10^{9}$
^{65}Zn	$3.3\ 10^{9}$	$3.6\ 10^{9}$	$1.5\ 10^{10}$	$4.2\ 10^{10}$
^{89}Sr	$2.1\ 10^{9}$	$2.3\ 10^{9}$	$9.8\ 10^{9}$	$2.7\ 10^{10}$
^{90}Sr	$4.1\ 10^{7}$	$4.4\ 10^{7}$	$1.9\ 10^{8}$	$5.2\ 10^{8}$
^{90}Y	$4.1\ 10^{7}$	$4.4\ 10^{7}$	$1.9\ 10^{8}$	$5.2\ 10^{8}$
^{91}Y	$8.1\ 10^{7}$	$8.9\ 10^{7}$	$3.8\ 10^{8}$	$1.0\ 10^{9}$
^{95}Zr	$1.6\ 10^{8}$	$1.8\ 10^{8}$	$7.6\ 10^{8}$	$2.1\ 10^{9}$
^{95}Nb	$4.1\ 10^{8}$	$4.4\ 10^{8}$	$1.9\ 10^{9}$	$5.2\ 10^{9}$
^{106}Ru	$8.1\ 10^{7}$	$8.9\ 10^{7}$	$3.8\ 10^{8}$	$1.0\ 10^{9}$
^{106}Rh	$8.1\ 10^{7}$	$8.9\ 10^{7}$	$3.8\ 10^{8}$	$1.0\ 10^{9}$
^{110m}Ag	$4.1\ 10^{7}$	$4.4\ 10^{7}$	$1.9\ 10^{8}$	$5.2\ 10^{8}$
^{124}Sb	$1.9\ 10^{9}$	$2.1\ 10^{9}$	$8.9\ 10^{9}$	$2.4\ 10^{10}$
^{125}Sb	$8.1\ 10^{7}$	$8.9\ 10^{7}$	$3.8\ 10^{8}$	$1.0\ 10^{9}$
^{125m}Te	$4.1\ 10^{7}$	$4.4\ 10^{7}$	$1.9\ 10^{8}$	$5.2\ 10^{8}$
^{134}Cs	$5.3\ 10^{8}$	$5.8\ 10^{8}$	$2.5\ 10^{9}$	$6.7\ 10^{9}$
^{137}Cs	$4.9\ 10^{8}$	$5.3\ 10^{8}$	$2.3\ 10^{9}$	$6.2\ 10^{9}$
^{144}Ce	$1.5\ 10^{9}$	$1.6\ 10^{9}$	$6.8\ 10^{9}$	$1.9\ 10^{10}$
^{144}Pr	$1.5\ 10^{9}$	$1.6\ 10^{9}$	$6.8\ 10^{9}$	$1.9\ 10^{10}$
^{147}Pm	$4.1\ 10^{8}$	$4.4\ 10^{8}$	$1.9\ 10^{9}$	$5.2\ 10^{9}$
^{154}Eu	$4.1\ 10^{7}$	$4.4\ 10^{7}$	$1.9\ 10^{8}$	$5.2\ 10^{8}$
^{155}Eu	$2.0\ 10^{7}$	$2.2\ 10^{7}$	$9.5\ 10^{7}$	$2.6\ 10^{8}$
^{182}Ta	$1.2\ 10^{9}$	$1.3\ 10^{9}$	$5.6\ 10^{9}$	$1.5\ 10^{10}$
^{239}Pu	$2.0\ 10^{7}$	$2.2\ 10^{7}$	$9.5\ 10^{7}$	$2.6\ 10^{8}$

Table 35 (continued)

Nuclide	1980	1981	1982	1983	1984
^{3}H	$1.6\ 10^{14}$	$2.0\ 10^{14}$	$2.3\ 10^{14}$	$3.1\ 10^{14}$	$3.4\ 10^{14}$
^{14}C	$7.1\ 10^{7}$	$5.0\ 10^{7}$	$2.2\ 10^{7}$	$2.0\ 10^{7}$	$2.2\ 10^{7}$
^{32}P	$3.7\ 10^{9}$	$2.6\ 10^{9}$	$1.2\ 10^{9}$	$1.1\ 10^{9}$	$1.2\ 10^{9}$
^{35}S	$6.3\ 10^{11}$	$7.1\ 10^{11}$	$8.4\ 10^{11}$	$9.9\ 10^{11}$	$8.8\ 10^{11}$
^{45}Ca	$5.4\ 10^{10}$	$1.3\ 10^{10}$	$1.2\ 10^{10}$	$1.8\ 10^{10}$	$2.0\ 10^{10}$
^{51}Cr	$2.0\ 10^{10}$	$4.8\ 10^{9}$	$2.1\ 10^{9}$	0	0
^{54}Mn	$7.1\ 10^{8}$	$5.0\ 10^{8}$	$2.2\ 10^{8}$	$1.2\ 10^{9}$	$6.7\ 10^{9}$
^{55}Fe	$2.4\ 10^{9}$	$1.1\ 10^{10}$	$4.4\ 10^{9}$	$9.0\ 10^{9}$	$1.1\ 10^{10}$
^{58}Co	$7.1\ 10^{7}$	$1.8\ 10^{9}$	$8.9\ 10^{8}$	0	$4.4\ 10^{8}$
^{59}Fe	$2.8\ 10^{8}$	$1.8\ 10^{10}$	$4.0\ 10^{9}$	0	0
^{60}Co	$1.4\ 10^{10}$	$3.6\ 10^{9}$	$2.2\ 10^{9}$	$2.4\ 10^{9}$	$2.7\ 10^{9}$
^{63}Ni	$1.4\ 10^{9}$	$1.0\ 10^{9}$	$4.4\ 10^{8}$	$4.1\ 10^{8}$	$4.4\ 10^{8}$
^{65}Zn	$1.2\ 10^{10}$	0	$4.4\ 10^{8}$	0	0
^{89}Sr	$7.3\ 10^{9}$	0	0	0	0
^{90}Sr	$1.4\ 10^{8}$	$3.0\ 10^{8}$	0	$8.1\ 10^{8}$	0
^{90}Y	$1.4\ 10^{8}$	$3.0\ 10^{8}$	0	$8.1\ 10^{8}$	0
^{91}Y	$2.8\ 10^{8}$	0	0	0	0
^{95}Zr	$5.6\ 10^{8}$	$1.1\ 10^{10}$	$1.3\ 10^{9}$	0	0
^{95}Nb	$1.4\ 10^{9}$	$2.9\ 10^{9}$	$3.1\ 10^{9}$	0	0
^{106}Ru	$2.8\ 10^{8}$	$1.6\ 10^{9}$	$1.3\ 10^{9}$	0	0
^{106}Rh	$2.8\ 10^{8}$	$1.6\ 10^{9}$	$1.3\ 10^{9}$	0	0
^{110m}Ag	$1.4\ 10^{8}$	$3.0\ 10^{8}$	$4.4\ 10^{8}$	0	0
^{124}Sb	$6.6\ 10^{9}$	$1.9\ 10^{10}$	$1.8\ 10^{9}$	$1.2\ 10^{9}$	0
^{125}Sb	$2.8\ 10^{8}$	$3.0\ 10^{8}$	$4.4\ 10^{8}$	0	0
^{125m}Te	$1.4\ 10^{8}$	$1.0\ 10^{8}$	$2.2\ 10^{8}$	0	0
^{134}Cs	$1.8\ 10^{9}$	$1.9\ 10^{9}$	$8.9\ 10^{8}$	$2.0\ 10^{9}$	$2.2\ 10^{9}$
^{137}Cs	$1.7\ 10^{9}$	$1.5\ 10^{9}$	$1.3\ 10^{9}$	$1.6\ 10^{9}$	$1.3\ 10^{9}$
^{144}Ce	$5.1\ 10^{9}$	$1.7\ 10^{9}$	$1.8\ 10^{9}$	0	0
^{144}Pr	$5.1\ 10^{9}$	$1.7\ 10^{9}$	$1.8\ 10^{9}$	0	0
^{147}Pm	$1.4\ 10^{9}$	$2.4\ 10^{9}$	$8.9\ 10^{8}$	$3.3\ 10^{9}$	$2.2\ 10^{8}$
^{154}Eu	$1.4\ 10^{8}$	$2.0\ 10^{8}$	$4.4\ 10^{8}$	0	0
^{155}Eu	$7.1\ 10^{7}$	$7.0\ 10^{8}$	$8.9\ 10^{8}$	0	0
^{182}Ta	$4.2\ 10^{9}$	$4.8\ 10^{9}$	$3.1\ 10^{9}$	0	0
^{239}Pu	$7.1\ 10^{7}$	$1.0\ 10^{8}$	$2.2\ 10^{8}$	$2.0\ 10^{8}$	$2.2\ 10^{8}$

Table 36

Discharges from Hunterston A. UK

Nuclide	1964	1965	1966	1967	1968	1969	1970
^{3}H	$9.9\ 10^{12}$	$9.9\ 10^{12}$	$1.8\ 10^{13}$	$9.9\ 10^{12}$	$9.9\ 10^{12}$	$8.9\ 10^{12}$	$5.8\ 10^{12}$
^{35}S	$7.9\ 10^{10}$	$7.9\ 10^{10}$	$2.5\ 10^{10}$	$7.9\ 10^{10}$	$7.9\ 10^{10}$	$1.3\ 10^{11}$	$8.6\ 10^{10}$
^{51}Cr	$8.1\ 10^{10}$	$8.1\ 10^{10}$	$2.6\ 10^{10}$	$8.1\ 10^{10}$	$8.1\ 10^{10}$	$1.3\ 10^{11}$	$8.9\ 10^{10}$
^{60}Co	$4.4\ 10^{9}$	$4.4\ 10^{9}$	$1.4\ 10^{9}$	$4.4\ 10^{9}$	$4.4\ 10^{9}$	$7.2\ 10^{9}$	$4.8\ 10^{9}$
^{90}Sr	$1.3\ 10^{11}$	$1.3\ 10^{11}$	$4.3\ 10^{10}$	$1.3\ 10^{11}$	$1.3\ 10^{11}$	$2.2\ 10^{11}$	$1.5\ 10^{11}$
^{95}Zr	$8.8\ 10^{9}$	$8.8\ 10^{9}$	$2.8\ 10^{9}$	$8.8\ 10^{9}$	$8.8\ 10^{9}$	$1.4\ 10^{10}$	$9.6\ 10^{9}$
^{95}Nb	$4.6\ 10^{10}$	$4.6\ 10^{10}$	$1.5\ 10^{10}$	$4.6\ 10^{10}$	$4.6\ 10^{10}$	$7.6\ 10^{10}$	$5.0\ 10^{10}$
^{106}Ru	$3.7\ 10^{10}$	$3.7\ 10^{10}$	$1.2\ 10^{10}$	$3.7\ 10^{10}$	$3.7\ 10^{10}$	$6.1\ 10^{10}$	$4.1\ 10^{10}$
^{134}Cs	$3.7\ 10^{11}$	$3.7\ 10^{11}$	$1.2\ 10^{11}$	$3.7\ 10^{11}$	$3.7\ 10^{11}$	$6.1\ 10^{11}$	$4.1\ 10^{11}$
^{137}Cs	$1.2\ 10^{12}$	$1.2\ 10^{12}$	$3.9\ 10^{11}$	$1.2\ 10^{12}$	$1.2\ 10^{12}$	$2.0\ 10^{12}$	$1.3\ 10^{12}$
^{144}Ce	$7.5\ 10^{10}$	$7.5\ 10^{10}$	$2.4\ 10^{10}$	$7.5\ 10^{10}$	$7.5\ 10^{10}$	$1.2\ 10^{11}$	$8.2\ 10^{10}$
^{239}Pu	$4.4\ 10^{9}$	$4.4\ 10^{9}$	$1.4\ 10^{9}$	$4.4\ 10^{9}$	$4.4\ 10^{9}$	$7.2\ 10^{9}$	$4.8\ 10^{9}$

Nuclide	1971	1972	1973	1974	1975	1976	1977
^{3}H	$5.8\ 10^{12}$	$2.2\ 10^{12}$	$2.2\ 10^{12}$	$2.7\ 10^{12}$	$2.0\ 10^{12}$	$2.4\ 10^{12}$	$2.1\ 10^{12}$
^{35}S	$2.9\ 10^{10}$	$3.6\ 10^{10}$	$3.6\ 10^{10}$	$9.3\ 10^{10}$	$1.5\ 10^{11}$	$2.1\ 10^{11}$	$2.0\ 10^{11}$
^{51}Cr	$3.0\ 10^{10}$	$3.7\ 10^{10}$	$3.7\ 10^{10}$	$9.6\ 10^{10}$	$1.6\ 10^{11}$	$2.2\ 10^{11}$	$2.0\ 10^{11}$
^{60}Co	$1.6\ 10^{9}$	$2.0\ 10^{9}$	$2.0\ 10^{9}$	$5.2\ 10^{9}$	$8.6\ 10^{9}$	$1.2\ 10^{10}$	$1.1\ 10^{10}$
^{90}Sr	$4.9\ 10^{10}$	$6.1\ 10^{10}$	$6.1\ 10^{10}$	$1.6\ 10^{11}$	$2.6\ 10^{11}$	$3.6\ 10^{11}$	$3.3\ 10^{11}$
^{95}Zr	$3.2\ 10^{9}$	$4.0\ 10^{9}$	$4.0\ 10^{9}$	$1.0\ 10^{10}$	$1.7\ 10^{10}$	$2.4\ 10^{10}$	$2.2\ 10^{10}$
^{95}Nb	$1.7\ 10^{10}$	$2.1\ 10^{10}$	$2.1\ 10^{10}$	$5.4\ 10^{10}$	$9.0\ 10^{10}$	$1.2\ 10^{11}$	$1.1\ 10^{11}$
^{106}Ru	$1.4\ 10^{10}$	$1.7\ 10^{10}$	$1.7\ 10^{10}$	$4.4\ 10^{10}$	$7.3\ 10^{10}$	$1.0\ 10^{11}$	$9.2\ 10^{10}$
^{134}Cs	$1.4\ 10^{11}$	$1.7\ 10^{11}$	$1.7\ 10^{11}$	$4.4\ 10^{11}$	$7.3\ 10^{11}$	$1.0\ 10^{12}$	$9.2\ 10^{11}$
^{137}Cs	$4.5\ 10^{11}$	$5.5\ 10^{11}$	$5.5\ 10^{11}$	$1.4\ 10^{12}$	$2.4\ 10^{12}$	$3.3\ 10^{12}$	$3.0\ 10^{12}$
^{144}Ce	$2.8\ 10^{10}$	$3.4\ 10^{10}$	$3.4\ 10^{10}$	$8.8\ 10^{10}$	$1.5\ 10^{11}$	$2.0\ 10^{11}$	$1.8\ 10^{11}$
^{239}Pu	$1.6\ 10^{9}$	$2.0\ 10^{9}$	$2.0\ 10^{9}$	$5.2\ 10^{9}$	$8.6\ 10^{9}$	$1.2\ 10^{10}$	$1.1\ 10^{10}$

Nuclide	1978	1979	1980	1981	1982	1983	1984
^{3}H	$2.0\ 10^{12}$	$3.3\ 10^{12}$	$7.8\ 10^{11}$	$2.2\ 10^{12}$	$1.5\ 10^{12}$	$2.2\ 10^{12}$	$1.2\ 10^{12}$
^{35}S	$2.2\ 10^{11}$	$3.7\ 10^{11}$	$2.3\ 10^{11}$	$1.5\ 10^{11}$	$1.8\ 10^{11}$	$1.1\ 10^{11}$	$1.6\ 10^{11}$
^{51}Cr	$8.2\ 10^{10}$	$1.5\ 10^{11}$	$2.6\ 10^{11}$	$6.5\ 10^{11}$	$4.1\ 10^{11}$	0	0
^{60}Co	$4.4\ 10^{9}$	$8.4\ 10^{9}$	$2.6\ 10^{10}$	$7.4\ 10^{9}$	$7.4\ 10^{9}$	$1.1\ 10^{10}$	$1.5\ 10^{10}$
^{90}Sr	$2.7\ 10^{11}$	$4.4\ 10^{11}$	$6.2\ 10^{11}$	$2.9\ 10^{11}$	$3.8\ 10^{11}$	$3.0\ 10^{11}$	$3.7\ 10^{11}$
^{95}Zr	$8.9\ 10^{9}$	$1.7\ 10^{10}$	$2.6\ 10^{10}$	$7.4\ 10^{10}$	$2.6\ 10^{10}$	$1.1\ 10^{10}$	$1.5\ 10^{10}$
^{95}Nb	$4.7\ 10^{10}$	$8.8\ 10^{10}$	$1.4\ 10^{11}$	$5.1\ 10^{11}$	$9.3\ 10^{10}$	$3.7\ 10^{9}$	$1.5\ 10^{10}$
^{106}Ru	$3.8\ 10^{10}$	$7.1\ 10^{10}$	$5.6\ 10^{10}$	$4.6\ 10^{11}$	$7.4\ 10^{9}$	$7.8\ 10^{10}$	$1.5\ 10^{10}$
^{134}Cs	$2.2\ 10^{11}$	$7.0\ 10^{11}$	$3.0\ 10^{12}$	$1.1\ 10^{12}$	$1.5\ 10^{12}$	$1.8\ 10^{11}$	$3.6\ 10^{11}$
^{137}Cs	$1.3\ 10^{12}$	$2.6\ 10^{12}$	$8.4\ 10^{12}$	$3.3\ 10^{12}$	$4.6\ 10^{12}$	$1.0\ 10^{12}$	$1.6\ 10^{12}$
^{144}Ce	$7.5\ 10^{10}$	$1.4\ 10^{11}$	$1.2\ 10^{11}$	$4.6\ 10^{11}$	$3.0\ 10^{11}$	$3.0\ 10^{11}$	$1.9\ 10^{10}$
^{239}Pu	$4.4\ 10^{9}$	$8.4\ 10^{9}$	$1.5\ 10^{10}$	$3.3\ 10^{10}$	$1.9\ 10^{10}$	$1.5\ 10^{10}$	$1.3\ 10^{9}$

Table 37

Discharges from Hunterston B, UK

Nuclide	1976	1977	1978	1979
^{3}H	$1.6\ 10^{12}$	$2.0\ 10^{12}$	$8.5\ 10^{13}$	$7.6\ 10^{13}$
^{35}S	$2.2\ 10^{10}$	$4.4\ 10^{10}$	$4.4\ 10^{10}$	$1.8\ 10^{10}$
^{45}Ca	$1.1\ 10^{10}$	$2.2\ 10^{10}$	$1.1\ 10^{11}$	$2.1\ 10^{10}$
^{54}Mn	0	0	0	$3.7\ 10^{9}$
^{60}Co	$1.1\ 10^{10}$	$2.2\ 10^{10}$	$1.1\ 10^{11}$	$3.1\ 10^{10}$
^{90}Sr	0	0	0	$3.7\ 10^{9}$
^{106}Ru	0	0	0	$3.7\ 10^{9}$
^{134}Cs	0	0	0	$3.7\ 10^{9}$
^{137}Cs	0	0	0	$3.7\ 10^{9}$
^{239}Pu	0	0	0	$3.7\ 10^{9}$

Nuclide	1980	1981	1982	1983	1984
^{3}H	$1.1\ 10^{14}$	$1.4\ 10^{14}$	$2.6\ 10^{14}$	$2.6\ 10^{14}$	$3.0\ 10^{14}$
^{35}S	$1.6\ 10^{12}$	$2.1\ 10^{12}$	$3.0\ 10^{12}$	$2.5\ 10^{12}$	$3.2\ 10^{12}$
^{45}Ca	$7.4\ 10^{9}$	$3.3\ 10^{10}$	$5.2\ 10^{10}$	$5.6\ 10^{10}$	$3.1\ 10^{10}$
^{54}Mn	$3.7\ 10^{9}$	$3.7\ 10^{10}$	$3.7\ 10^{9}$	$3.7\ 10^{9}$	$3.8\ 10^{9}$
^{60}Co	$1.8\ 10^{10}$	$5.9\ 10^{10}$	$2.2\ 10^{10}$	$3.3\ 10^{10}$	$2.8\ 10^{10}$
^{90}Sr	$3.7\ 10^{9}$	$2.2\ 10^{10}$	$1.8\ 10^{10}$	$3.7\ 10^{9}$	$8.8\ 10^{9}$
^{106}Ru	$3.7\ 10^{9}$	$3.7\ 10^{9}$	$7.4\ 10^{9}$	$3.7\ 10^{9}$	$4.0\ 10^{9}$
^{134}Cs	$3.7\ 10^{9}$	$3.7\ 10^{9}$	$7.4\ 10^{9}$	$7.4\ 10^{9}$	$5.0\ 10^{9}$
^{137}Cs	$3.7\ 10^{9}$	$3.7\ 10^{9}$	$7.4\ 10^{9}$	$1.1\ 10^{10}$	$6.0\ 10^{9}$
^{239}Pu	$3.7\ 10^{9}$	$3.7\ 10^{9}$	$3.7\ 10^{9}$	$3.7\ 10^{9}$	$3.7\ 10^{9}$

Table 38

Discharges from Jose Cabrera, Spain

Nuclide	1968	1969	1970	1971	1972
^{3}H	$3.6\ 10^{12}$	$3.6\ 10^{12}$	$3.6\ 10^{12}$	$3.6\ 10^{12}$	$3.6\ 10^{12}$
^{58}Co	$4.0\ 10^{9}$	$4.0\ 10^{9}$	$4.0\ 10^{9}$	$4.0\ 10^{9}$	$4.0\ 10^{9}$
^{60}Co	$4.2\ 10^{9}$	$4.2\ 10^{9}$	$4.2\ 10^{9}$	$4.2\ 10^{9}$	$4.2\ 10^{9}$
^{90}Sr	$2.1\ 10^{8}$	$2.1\ 10^{8}$	$2.1\ 10^{8}$	$2.1\ 10^{8}$	$2.1\ 10^{8}$
^{131}I	$2.1\ 10^{9}$	$2.1\ 10^{9}$	$2.1\ 10^{9}$	$2.1\ 10^{9}$	$2.1\ 10^{9}$
^{134}Cs	$4.2\ 10^{9}$	$4.2\ 10^{9}$	$4.2\ 10^{9}$	$4.2\ 10^{9}$	$4.2\ 10^{9}$
^{137}Cs	$6.3\ 10^{9}$	$6.3\ 10^{9}$	$6.3\ 10^{9}$	$6.3\ 10^{9}$	$6.3\ 10^{9}$
Total	$2.1\ 10^{10}$	$2.1\ 10^{10}$	$2.1\ 10^{10}$	$2.1\ 10^{10}$	$2.1\ 10^{10}$

Nuclide	1973	1974	1975	1976	1977	1978
^{3}H	$3.6\ 10^{12}$	$3.6\ 10^{12}$	$3.6\ 10^{12}$	$3.6\ 10^{12}$	$3.6\ 10^{12}$	$3.6\ 10^{12}$
^{58}Co	$4.0\ 10^{9}$	$4.0\ 10^{9}$	$4.0\ 10^{9}$	$4.0\ 10^{9}$	$4.0\ 10^{9}$	$4.0\ 10^{9}$
^{60}Co	$4.2\ 10^{9}$	$4.2\ 10^{9}$	$4.2\ 10^{9}$	$4.2\ 10^{9}$	$4.2\ 10^{9}$	$4.2\ 10^{9}$
^{90}Sr	$2.1\ 10^{8}$	$2.1\ 10^{8}$	$2.1\ 10^{8}$	$2.1\ 10^{8}$	$2.1\ 10^{8}$	$2.1\ 10^{8}$
^{131}I	$2.1\ 10^{9}$	$2.1\ 10^{9}$	$2.1\ 10^{9}$	$2.1\ 10^{9}$	$2.1\ 10^{9}$	$2.1\ 10^{9}$
^{134}Cs	$4.2\ 10^{9}$	$4.2\ 10^{9}$	$4.2\ 10^{9}$	$4.2\ 10^{9}$	$4.2\ 10^{9}$	$4.2\ 10^{9}$
^{137}Cs	$6.3\ 10^{9}$	$6.3\ 10^{9}$	$6.3\ 10^{9}$	$6.3\ 10^{9}$	$6.3\ 10^{9}$	$6.3\ 10^{9}$
Total	$2.1\ 10^{10}$	$2.1\ 10^{10}$	$2.1\ 10^{10}$	$2.1\ 10^{10}$	$2.1\ 10^{10}$	$2.1\ 10^{10}$

Nuclide	1979	1980	1981	1982	1983	1984
^{3}H	$3.6\ 10^{12}$	$3.6\ 10^{12}$	$6.1\ 10^{12}$	$3.6\ 10^{12}$	$5.4\ 10^{11}$	$4.3\ 10^{12}$
^{58}Co	$4.0\ 10^{9}$	$4.0\ 10^{9}$	$4.7\ 10^{9}$	$7.6\ 10^{9}$	$3.1\ 10^{9}$	$6.3\ 10^{8}$
^{60}Co	$4.2\ 10^{9}$	$4.2\ 10^{9}$	$5.0\ 10^{9}$	$8.0\ 10^{9}$	$3.3\ 10^{9}$	$6.6\ 10^{8}$
^{90}Sr	$2.1\ 10^{8}$	$2.1\ 10^{8}$	$2.5\ 10^{8}$	$4.0\ 10^{8}$	$1.6\ 10^{8}$	$3.3\ 10^{7}$
^{131}I	$2.1\ 10^{9}$	$2.1\ 10^{9}$	$2.5\ 10^{9}$	$4.0\ 10^{9}$	$1.6\ 10^{9}$	$3.3\ 10^{8}$
^{134}Cs	$4.2\ 10^{9}$	$4.2\ 10^{9}$	$5.0\ 10^{9}$	$8.0\ 10^{9}$	$3.3\ 10^{9}$	$6.6\ 10^{8}$
^{137}Cs	$6.3\ 10^{9}$	$6.3\ 10^{9}$	$7.5\ 10^{9}$	$1.2\ 10^{10}$	$4.9\ 10^{9}$	$9.9\ 10^{8}$
Total	$2.1\ 10^{10}$	$2.1\ 10^{10}$	$2.5\ 10^{10}$	$4.0\ 10^{10}$	$1.6\ 10^{10}$	$3.3\ 10^{9}$

Table 39

Discharges from Jülich, FRG

Nuclide	1965	1966	1967	1968	1969	1970
Alpha	0	0	$5.0\ 10^{7}$	$2.7\ 10^{8}$	$1.0\ 10^{8}$	$2.1\ 10^{8}$
^{3}H	$3.0\ 10^{8}$	$2.6\ 10^{10}$	$4.2\ 10^{11}$	$8.6\ 10^{11}$	$3.6\ 10^{12}$	$8.5\ 10^{13}$
Beta	$7.4\ 10^{8}$	$8.0\ 10^{9}$	$1.1\ 10^{10}$	$7.1\ 10^{9}$	$9.8\ 10^{9}$	$7.9\ 10^{9}$
^{24}Na	0	0	0	0	$1.1\ 10^{9}$	$2.3\ 10^{8}$
^{35}S	0	0	0	$1.6\ 10^{9}$	$1.3\ 10^{9}$	0
^{51}Cr	0	0	0	0	0	0
^{59}Fe	0	0	0	0	0	0
^{60}Co	0	0	0	0	0	0
^{65}Zn	0	0	0	0	0	0
^{90}Sr	0	0	0	0	$1.5\ 10^{8}$	$2.0\ 10^{6}$
^{95}Zr	0	0	0	0	0	$5.0\ 10^{7}$
^{103}Ru	0	0	0	0	0	0
^{125}I	0	0	0	0	0	$1.2\ 10^{8}$
^{131}I	0	0	0	$2.9\ 10^{9}$	$4.2\ 10^{9}$	$3.8\ 10^{9}$

Nuclide	1971	1972	1973	1974	1975	1976	1977
Alpha	$2.0\ 10^{8}$	$1.0\ 10^{8}$	$2.0\ 10^{8}$	$3.0\ 10^{8}$	$2.0\ 10^{8}$	$7.0\ 10^{7}$	$6.0\ 10^{7}$
^{3}H	$1.6\ 10^{12}$	$1.8\ 10^{12}$	$1.3\ 10^{13}$	$8.7\ 10^{12}$	$1.3\ 10^{13}$	$3.6\ 10^{12}$	$5.9\ 10^{12}$
Beta	$1.6\ 10^{10}$	$1.5\ 10^{10}$	$1.6\ 10^{10}$	$1.7\ 10^{10}$	$1.6\ 10^{10}$	$6.9\ 10^{9}$	$7.1\ 10^{9}$
^{24}Na	$1.0\ 10^{9}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$	$1.7\ 10^{9}$	$2.5\ 10^{9}$	$1.2\ 10^{9}$	$1.6\ 10^{9}$
^{35}S	0	$2.0\ 10^{8}$	$2.0\ 10^{7}$	0	$4.0\ 10^{7}$	$1.0\ 10^{7}$	$6.0\ 10^{8}$
^{51}Cr	0	$3.0\ 10^{8}$	0	0	$3.0\ 10^{7}$	0	0
^{59}Fe	$1.4\ 10^{9}$	$1.1\ 10^{9}$	$1.0\ 10^{8}$	$3.0\ 10^{7}$	$4.0\ 10^{7}$	$2.0\ 10^{7}$	$4.0\ 10^{8}$
^{60}Co	$5.0\ 10^{8}$	$5.0\ 10^{8}$	$1.0\ 10^{8}$	$2.0\ 10^{8}$	$7.0\ 10^{7}$	$5.0\ 10^{8}$	$8.0\ 10^{8}$
^{65}Zn	$2.1\ 10^{9}$	$7.0\ 10^{8}$	0	$4.0\ 10^{8}$	$3.0\ 10^{7}$	$4.0\ 10^{7}$	$1.0\ 10^{8}$
^{90}Sr	$4.0\ 10^{7}$	$5.0\ 10^{8}$	0	0	$5.0\ 10^{8}$	$8.0\ 10^{7}$	0
^{95}Zr	$2.0\ 10^{7}$	$3.0\ 10^{8}$	$7.0\ 10^{8}$	$2.0\ 10^{9}$	$3.0\ 10^{8}$	$2.0\ 10^{8}$	$7.0\ 10^{6}$
^{103}Ru	0	0	$8.0\ 10^{8}$	$5.0\ 10^{8}$	$3.0\ 10^{7}$	$3.0\ 10^{7}$	0
^{125}I	$9.0\ 10^{7}$	0	$2.0\ 10^{7}$	$1.0\ 10^{8}$	$4.0\ 10^{8}$	$3.0\ 10^{8}$	$4.0\ 10^{7}$
^{131}I	$6.8\ 10^{9}$	$6.3\ 10^{9}$	$7.0\ 10^{9}$	$5.3\ 10^{9}$	$6.4\ 10^{9}$	$1.7\ 10^{9}$	$6.0\ 10^{8}$

Table 39 (continued)

Nuclide	1978	1979	1980	1981	1982	1983	1984
Alpha	$4.0\ 10^{7}$	$8.0\ 10^{7}$	$7.0\ 10^{7}$	$5.0\ 10^{7}$	$5.0\ 10^{7}$	$3.0\ 10^{7}$	$3.0\ 10^{7}$
^{3}H	$7.8\ 10^{12}$	$8.3\ 10^{12}$	$1.3\ 10^{13}$	$1.3\ 10^{12}$	$1.1\ 10^{12}$	$3.1\ 10^{12}$	$1.3\ 10^{12}$
Beta	$4.0\ 10^{9}$	$4.3\ 10^{9}$	$3.6\ 10^{9}$	$3.6\ 10^{9}$	$2.0\ 10^{9}$	$2.0\ 10^{9}$	$2.3\ 10^{9}$
^{24}Na	$1.0\ 10^{8}$	$3.0\ 10^{8}$	$8.0\ 10^{7}$	$9.0\ 10^{7}$	$1.0\ 10^{7}$	$3.0\ 10^{7}$	$3.0\ 10^{7}$
^{35}S	0	0	0	0	0	0	0
^{51}Cr	0	0	0	0	0	0	0
^{59}Fe	$1.0\ 10^{7}$	0	0	0	0	0	$4.0\ 10^{7}$
^{60}Co	$3.0\ 10^{8}$	$3.0\ 10^{8}$	$3.0\ 10^{8}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$	$9.0\ 10^{7}$	$1.4\ 10^{8}$
^{65}Zn	$5.0\ 10^{7}$	$2.0\ 10^{7}$	$6.0\ 10^{6}$	$2.0\ 10^{7}$	0	0	$5.0\ 10^{7}$
^{90}Sr	$1.1\ 10^{9}$	$4.0\ 10^{8}$	$1.8\ 10^{9}$	$1.2\ 10^{9}$	$7.0\ 10^{8}$	$1.0\ 10^{9}$	$4.1\ 10^{8}$
^{95}Zr	$9.0\ 10^{6}$	$7.0\ 10^{6}$	0	0	0	0	0
^{103}Ru	0	0	0	0	0	0	0
^{125}I	0	0	0	0	0	0	$1.0\ 10^{6}$
^{131}I	$4.0\ 10^{8}$	$6.0\ 10^{8}$	$7.0\ 10^{8}$	$7.0\ 10^{8}$	$5.0\ 10^{8}$	$3.0\ 10^{8}$	$5.8\ 10^{8}$

Table 40

Discharges from Kahl. FRG

Nuclide	1960	1961	1962	1963	1964	1965
^{58}Co	$4.9\ 10^{8}$	$4.9\ 10^{8}$	$4.9\ 10^{8}$	$4.9\ 10^{8}$	$4.9\ 10^{8}$	$4.9\ 10^{8}$
^{60}Co	$5.2\ 10^{8}$	$5.2\ 10^{8}$	$5.2\ 10^{8}$	$5.2\ 10^{8}$	$5.2\ 10^{8}$	$5.2\ 10^{8}$
^{90}Sr	$2.6\ 10^{7}$	$2.6\ 10^{7}$	$2.6\ 10^{7}$	$2.6\ 10^{7}$	$2.6\ 10^{7}$	$2.6\ 10^{7}$
^{134}Cs	$5.2\ 10^{8}$	$5.2\ 10^{8}$	$5.2\ 10^{8}$	$5.2\ 10^{8}$	$5.2\ 10^{8}$	$5.2\ 10^{8}$
^{137}Cs	$7.8\ 10^{8}$	$7.8\ 10^{8}$	$7.8\ 10^{8}$	$7.8\ 10^{8}$	$7.8\ 10^{8}$	$7.8\ 10^{8}$
^{131}I	$2.6\ 10^{8}$	$2.6\ 10^{8}$	$2.6\ 10^{8}$	$2.6\ 10^{8}$	$2.6\ 10^{8}$	$2.6\ 10^{8}$
^{144}Ce	0	0	0	0	0	0
^{89}Sr	0	0	0	0	0	0
Total	$2.6\ 10^{9}$	$2.6\ 10^{9}$	$2.6\ 10^{9}$	$2.6\ 10^{9}$	$2.6\ 10^{9}$	$2.6\ 10^{9}$
^{3}H	$5.2\ 10^{10}$	$5.2\ 10^{10}$	$5.2\ 10^{10}$	$5.2\ 10^{10}$	$5.2\ 10^{10}$	$5.2\ 10^{10}$

Nuclide	1966	1967	1968	1969	1970	1971
^{58}Co	$4.9\ 10^{8}$	$4.9\ 10^{8}$	$4.9\ 10^{8}$	$4.9\ 10^{8}$	$4.9\ 10^{8}$	$4.1\ 10^{8}$
^{60}Co	$5.2\ 10^{8}$	$5.2\ 10^{8}$	$5.2\ 10^{8}$	$5.2\ 10^{8}$	$5.2\ 10^{8}$	$4.4\ 10^{9}$
^{90}Sr	$2.6\ 10^{7}$	$2.6\ 10^{7}$	$2.6\ 10^{7}$	$2.6\ 10^{7}$	$2.6\ 10^{7}$	$2.2\ 10^{7}$
^{134}Cs	$5.2\ 10^{8}$	$5.2\ 10^{8}$	$5.2\ 10^{8}$	$5.2\ 10^{8}$	$5.2\ 10^{8}$	$4.4\ 10^{8}$
^{137}Cs	$7.8\ 10^{8}$	$7.8\ 10^{8}$	$7.8\ 10^{8}$	$7.8\ 10^{8}$	$7.8\ 10^{8}$	$6.6\ 10^{8}$
^{131}I	$2.6\ 10^{8}$	$2.6\ 10^{8}$	$2.6\ 10^{8}$	$2.6\ 10^{8}$	$2.6\ 10^{8}$	$2.2\ 10^{8}$
^{144}Ce	0	0	0	0	0	0
^{89}Sr	0	0	0	0	0	0
Total	$2.6\ 10^{9}$	$2.6\ 10^{9}$	$2.6\ 10^{9}$	$2.6\ 10^{9}$	$2.6\ 10^{9}$	$2.2\ 10^{9}$
^{3}H	$5.2\ 10^{10}$	$5.2\ 10^{10}$	$5.2\ 10^{10}$	$5.2\ 10^{10}$	$5.2\ 10^{10}$	$5.9\ 10^{9}$

Nuclide	1972	1973	1974	1975	1976	1977
^{58}Co	0	0	0	0	0	0
^{60}Co	$8.3\ 10^{7}$	$1.1\ 10^{8}$	$1.0\ 10^{8}$	$7.8\ 10^{7}$	$5.6\ 10^{7}$	$1.3\ 10^{8}$
^{90}Sr	$5.5\ 10^{8}$	$1.7\ 10^{8}$	$3.5\ 10^{7}$	$1.0\ 10^{7}$	$2.5\ 10^{7}$	$3.6\ 10^{7}$
^{134}Cs	0	$7.8\ 10^{6}$	$5.9\ 10^{6}$	$7.0\ 10^{6}$	$2.3\ 10^{8}$	$2.9\ 10^{7}$
^{137}Cs	$3.5\ 10^{8}$	$8.5\ 10^{7}$	$6.3\ 10^{7}$	$1.4\ 10^{8}$	0	$5.4\ 10^{8}$
^{131}I	0	$5.9\ 10^{6}$	$8.1\ 10^{6}$	0	0	$4.1\ 10^{7}$
^{144}Ce	$3.5\ 10^{7}$	0	0	0	$1.3\ 10^{7}$	0
^{89}Sr	$1.6\ 10^{8}$	0	0	0	0	0
Total	$1.2\ 10^{9}$	$3.7\ 10^{8}$	$2.2\ 10^{8}$	$2.6\ 10^{8}$	$3.3\ 10^{8}$	$7.8\ 10^{8}$
^{3}H	$4.4\ 10^{10}$	$6.3\ 10^{10}$	$2.9\ 10^{11}$	$2.9\ 10^{11}$	$9.9\ 10^{11}$	$7.0\ 10^{11}$

Table 40 (continued)

Nuclide	1978	1979	1980	1981	1982	1983	1984
^{58}Co	0	0	0	0	0	0	0
^{60}Co	$4.8\ 10^{7}$	$3.0\ 10^{7}$	$4.6\ 10^{7}$	$4.9\ 10^{7}$	$5.4\ 10^{7}$	$4.8\ 10^{7}$	$3.8\ 10^{7}$
^{90}Sr	$2.4\ 10^{7}$	$1.1\ 10^{7}$	0	$5.8\ 10^{6}$	$3.9\ 10^{6}$	$3.2\ 10^{6}$	$1.5\ 10^{6}$
^{134}Cs	$7.0\ 10^{6}$	$7.4\ 10^{6}$	$3.7\ 10^{6}$	$3.5\ 10^{6}$	$3.6\ 10^{6}$	$1.9\ 10^{6}$	$9.4\ 10^{5}$
^{137}Cs	$2.8\ 10^{8}$	$2.2\ 10^{8}$	$1.3\ 10^{8}$	$6.3\ 10^{7}$	$7.4\ 10^{7}$	$5.4\ 10^{7}$	$2.3\ 10^{7}$
^{131}I	0	0	$3.3\ 10^{6}$	0	0	0	0
^{144}Ce	0	0	0	0	0	0	0
^{89}Sr	0	0	0	0	0	0	0
Total	$4.8\ 10^{8}$	$2.6\ 10^{8}$	$1.9\ 10^{8}$	$1.2\ 10^{8}$	$1.3\ 10^{8}$	$1.1\ 10^{8}$	$6.4\ 10^{7}$
^{3}H	$4.5\ 10^{11}$	$1.2\ 10^{11}$	$1.8\ 10^{10}$	$5.4\ 10^{10}$	$5.7\ 10^{10}$	$5.5\ 10^{10}$	$7.2\ 10^{10}$

Table 41

Discharges from Karlsruhe, FRG

Nuclide	1961	1962	1963	1964	1965	1966	1967	1968
F + A	$2.3\ 10^{9}$	$2.3\ 10^{9}$	$2.3\ 10^{9}$	$2.3\ 10^{9}$	$2.3\ 10^{9}$	$2.3\ 10^{9}$	$2.3\ 10^{9}$	$2.3\ 10^{9}$
^{3}H	$7.5\ 10^{12}$	$7.5\ 10^{12}$	$7.5\ 10^{12}$	$7.5\ 10^{12}$	$7.5\ 10^{12}$	$7.5\ 10^{12}$	$7.5\ 10^{12}$	$7.5\ 10^{12}$
^{58}Co	$4.3\ 10^{8}$	$4.3\ 10^{8}$	$4.3\ 10^{8}$	$4.3\ 10^{8}$	$4.3\ 10^{8}$	$4.3\ 10^{8}$	$4.3\ 10^{8}$	$4.3\ 10^{8}$
^{60}Co	$4.6\ 10^{8}$	$4.6\ 10^{8}$	$4.6\ 10^{8}$	$4.6\ 10^{8}$	$4.6\ 10^{8}$	$4.6\ 10^{8}$	$4.6\ 10^{8}$	$4.6\ 10^{8}$
^{90}Sr	$2.3\ 10^{7}$	$2.3\ 10^{7}$	$2.3\ 10^{7}$	$2.3\ 10^{7}$	$2.3\ 10^{7}$	$2.3\ 10^{7}$	$2.3\ 10^{7}$	$2.3\ 10^{7}$
^{131}I	$2.3\ 10^{8}$	$2.3\ 10^{8}$	$2.3\ 10^{8}$	$2.3\ 10^{8}$	$2.3\ 10^{8}$	$2.3\ 10^{8}$	$2.3\ 10^{8}$	$2.3\ 10^{8}$
^{134}Cs	$4.6\ 10^{8}$	$4.6\ 10^{8}$	$4.6\ 10^{8}$	$4.6\ 10^{8}$	$4.6\ 10^{8}$	$4.6\ 10^{8}$	$4.6\ 10^{8}$	$4.6\ 10^{8}$
^{137}Cs	$6.9\ 10^{8}$	$6.9\ 10^{8}$	$6.9\ 10^{8}$	$6.9\ 10^{8}$	$6.9\ 10^{8}$	$6.9\ 10^{8}$	$6.9\ 10^{8}$	$6.9\ 10^{8}$

Nuclide	1969	1970	1971	1972	1973	1974	1975	1976
F + A	$1.4\ 10^{9}$	$1.6\ 10^{9}$	$2.2\ 10^{9}$	$6.4\ 10^{9}$	$6.3\ 10^{9}$	$8.8\ 10^{9}$	$3.3\ 10^{9}$	$1.4\ 10^{9}$
^{3}H	$1.6\ 10^{13}$	$2.2\ 10^{13}$	$2.7\ 10^{13}$	$8.2\ 10^{13}$	$5.8\ 10^{13}$	$2.8\ 10^{13}$	$1.1\ 10^{14}$	$1.5\ 10^{14}$
^{58}Co	$2.6\ 10^{8}$	$3.0\ 10^{8}$	$4.1\ 10^{8}$	$1.2\ 10^{9}$	$1.2\ 10^{9}$	$1.6\ 10^{9}$	$6.2\ 10^{8}$	$2.6\ 10^{8}$
^{60}Co	$2.8\ 10^{8}$	$3.2\ 10^{8}$	$4.4\ 10^{8}$	$1.2\ 10^{9}$	$1.2\ 10^{9}$	$1.7\ 10^{9}$	$6.6\ 10^{8}$	$2.8\ 10^{8}$
^{90}Sr	$1.4\ 10^{7}$	$1.6\ 10^{7}$	$2.2\ 10^{7}$	$6.4\ 10^{7}$	$6.3\ 10^{7}$	$8.8\ 10^{7}$	$3.3\ 10^{7}$	$1.4\ 10^{7}$
^{131}I	$1.4\ 10^{8}$	$1.6\ 10^{8}$	$2.2\ 10^{8}$	$6.4\ 10^{8}$	$6.3\ 10^{8}$	$8.8\ 10^{8}$	$3.3\ 10^{8}$	$1.4\ 10^{8}$
^{134}Cs	$2.8\ 10^{8}$	$3.2\ 10^{8}$	$4.4\ 10^{8}$	$1.2\ 10^{9}$	$1.2\ 10^{9}$	$1.7\ 10^{9}$	$6.6\ 10^{8}$	$2.8\ 10^{8}$
^{137}Cs	$4.2\ 10^{8}$	$4.8\ 10^{8}$	$6.6\ 10^{8}$	$1.9\ 10^{9}$	$1.8\ 10^{9}$	$2.6\ 10^{9}$	$9.9\ 10^{8}$	$4.2\ 10^{8}$

Nuclide	1977	1978	1979	1980	1981	1982	1983	1984
F + A	$6.3\ 10^{9}$	$5.2\ 10^{8}$	$6.3\ 10^{8}$	$8.1\ 10^{8}$	$3.0\ 10^{9}$	$2.5\ 10^{9}$	$2.3\ 10^{9}$	$1.7\ 10^{9}$
^{3}H	$1.5\ 10^{14}$	$8.5\ 10^{13}$	$1.2\ 10^{14}$	$6.7\ 10^{13}$	$4.4\ 10^{13}$	$6.9\ 10^{13}$	$1.3\ 10^{14}$	$1.0\ 10^{14}$
^{58}Co	$1.2\ 10^{9}$	$9.8\ 10^{7}$	$1.2\ 10^{8}$	$1.5\ 10^{8}$	$5.7\ 10^{8}$	$4.7\ 10^{8}$	$4.3\ 10^{8}$	$3.2\ 10^{8}$
^{60}Co	$1.2\ 10^{9}$	$1.0\ 10^{8}$	$1.2\ 10^{8}$	$1.6\ 10^{8}$	$6.0\ 10^{8}$	$5.0\ 10^{8}$	$4.6\ 10^{8}$	$3.4\ 10^{8}$
^{90}Sr	$6.3\ 10^{7}$	$5.2\ 10^{6}$	$6.3\ 10^{6}$	$8.1\ 10^{6}$	$3.0\ 10^{7}$	$2.5\ 10^{7}$	$2.3\ 10^{7}$	$1.7\ 10^{7}$
^{131}I	$6.3\ 10^{8}$	$5.2\ 10^{7}$	$6.3\ 10^{7}$	$8.1\ 10^{7}$	$3.0\ 10^{8}$	$2.5\ 10^{8}$	$2.3\ 10^{8}$	$1.7\ 10^{8}$
^{134}Cs	$1.2\ 10^{9}$	$1.0\ 10^{8}$	$1.2\ 10^{8}$	$1.6\ 10^{8}$	$6.0\ 10^{8}$	$5.0\ 10^{8}$	$4.6\ 10^{8}$	$3.4\ 10^{8}$
^{137}Cs	$1.8\ 10^{9}$	$1.5\ 10^{8}$	$1.8\ 10^{8}$	$2.4\ 10^{8}$	$9.0\ 10^{8}$	$7.5\ 10^{8}$	$6.9\ 10^{8}$	$5.1\ 10^{8}$

Table 41a

Discharges from Karlsruhe, FRG

Nuclide	1968	1969	1970	1971	1972
Alpha	$1.3\ 10^{8}$	$4.1\ 10^{7}$	$8.5\ 10^{6}$	$1.5\ 10^{6}$	$4.8\ 10^{7}$
^{241}Am	0	0	0	0	0
^{238}Pu	0	0	0	0	0
^{239}Pu	0	0	0	0	0
Beta	$2.2\ 10^{9}$	$1.3\ 10^{9}$	$1.6\ 10^{9}$	$2.2\ 10^{9}$	$6.3\ 10^{9}$
^{144}Ce	0	0	0	0	0
^{56}Co	0	0	0	0	0
^{60}Co	0	0	0	0	0
^{134}Cs	0	0	0	0	0
^{137}Cs	0	0	0	0	0
^{54}Mn	0	0	0	0	0
^{106}Ru	0	0	0	0	0
^{125}Sb	0	0	0	0	0
^{75}Se	0	0	0	0	0
^{89}Sr	0	0	0	0	0
^{90}Sr	0	0	0	0	0
$^{89,9}Sr$	0	0	0	0	0
^{3}H	$7.5\ 10^{12}$	$1.6\ 10^{13}$	$2.3\ 10^{13}$	$2.7\ 10^{13}$	$8.3\ 10^{13}$

Nuclide	1973	1974	1975	1976	1977	1978
Alpha	$7.4\ 10^{6}$	0	0	0	0	$5.6\ 10^{7}$
^{241}Am	0	0	0	0	0	0
^{238}Pu	0	$5.2\ 10^{6}$	$3.7\ 10^{6}$	$1.9\ 10^{7}$	$7.4\ 10^{7}$	$1.9\ 10^{6}$
^{239}Pu	0	$1.1\ 10^{6}$	$7.4\ 10^{6}$	$1.5\ 10^{7}$	$7.4\ 10^{7}$	$2.6\ 10^{6}$
Beta	$6.3\ 10^{9}$	$8.8\ 10^{9}$	$3.3\ 10^{9}$	$1.4\ 10^{9}$	$6.3\ 10^{9}$	$5.3\ 10^{8}$
^{144}Ce	0	0	0	0	0	0
^{56}Co	0	0	0	0	0	0
^{60}Co	0	0	0	0	0	0
^{134}Cs	0	$1.3\ 10^{9}$	$7.8\ 10^{7}$	0	0	0
^{137}Cs	0	$5.5\ 10^{9}$	$7.3\ 10^{8}$	$2.0\ 10^{8}$	$1.9\ 10^{7}$	$4.5\ 10^{7}$
^{54}Mn	0	0	0	0	0	0
^{106}Ru	0	$3.7\ 10^{8}$	$7.8\ 10^{7}$	0	0	0
^{125}Sb	0	0	0	0	0	0
^{75}Se	0	0	0	0	0	0
^{89}Sr	0	0	0	$8.9\ 10^{7}$	0	0
^{90}Sr	0	0	0	$2.3\ 10^{8}$	0	0
$^{89,9}Sr$	0	$4.2\ 10^{8}$	$8.8\ 10^{8}$	0	$1.4\ 10^{8}$	$1.1\ 10^{8}$
^{3}H	$5.9\ 10^{13}$	$2.9\ 10^{13}$	$1.1\ 10^{14}$	$1.2\ 10^{14}$	$1.5\ 10^{14}$	$8.5\ 10^{13}$

Table 41a (continued)

Nuclide	1979	1980	1981	1982	1983	1984
Alpha	$8.5\ 10^{7}$	$6.7\ 10^{7}$	$4.4\ 10^{7}$	$4.7\ 10^{7}$	$1.1\ 10^{7}$	$8.6\ 10^{7}$
^{241}Am	0	0	0	0	$3.7\ 10^{7}$	0
^{238}Pu	$4.4\ 10^{6}$	$9.6\ 10^{6}$	$5.9\ 10^{6}$	$7.7\ 10^{6}$	$1.7\ 10^{7}$	$5.0\ 10^{6}$
^{239}Pu	$5.2\ 10^{6}$	$9.3\ 10^{6}$	$1.3\ 10^{7}$	$4.6\ 10^{6}$	$2.7\ 10^{7}$	$5.9\ 10^{6}$
Beta	$6.4\ 10^{8}$	$8.1\ 10^{8}$	$3.0\ 10^{9}$	$2.5\ 10^{9}$	$2.1\ 10^{9}$	$1.7\ 10^{9}$
^{144}Ce	0	0	$1.1\ 10^{7}$	0	0	0
^{56}Co	0	0	0	0	0	$3.1\ 10^{6}$
^{60}Co	0	$3.7\ 10^{6}$	$1.1\ 10^{7}$	$9.6\ 10^{6}$	$2.8\ 10^{7}$	0
^{134}Cs	0	0	$2.2\ 10^{7}$	$5.9\ 10^{6}$	0	0
^{137}Cs	$2.6\ 10^{7}$	$6.3\ 10^{7}$	$2.7\ 10^{8}$	$1.4\ 10^{8}$	$7.1\ 10^{7}$	$9.2\ 10^{7}$
^{54}Mn	0	0	0	$3.7\ 10^{6}$	0	0
^{106}Ru	0	0	$9.6\ 10^{7}$	0	0	0
^{125}Sb	0	0	$1.5\ 10^{8}$	0	$1.4\ 10^{7}$	$2.0\ 10^{7}$
^{75}Se	0	0	0	0	0	$6.9\ 10^{6}$
^{89}Sr	$2.2\ 10^{7}$	$2.2\ 10^{7}$	$8.9\ 10^{7}$	$1.7\ 10^{7}$	$1.8\ 10^{7}$	$5.2\ 10^{7}$
^{90}Sr	$1.3\ 10^{8}$	$5.6\ 10^{7}$	$1.6\ 10^{8}$	$3.5\ 10^{7}$	$8.9\ 10^{7}$	$2.2\ 10^{8}$
$^{89.9}Sr$	0	0	0	0	0	0
^{3}H	$1.2\ 10^{14}$	$6.7\ 10^{13}$	$4.4\ 10^{13}$	$6.9\ 10^{13}$	$1.3\ 10^{14}$	$1.0\ 10^{14}$

Table 42

Discharges from Krümmel, FRG

Nuclide	1983	1984
^{51}Cr	$4.8\ 10^{8}$	$6.2\ 10^{8}$
^{54}Mn	$5.6\ 10^{7}$	$1.1\ 10^{8}$
^{59}Fe	$9.3\ 10^{7}$	$1.2\ 10^{8}$
^{58}Co	$1.1\ 10^{8}$	$1.2\ 10^{8}$
^{60}Co	$3.4\ 10^{7}$	$6.9\ 10^{7}$
^{65}Zn	$2.4\ 10^{8}$	$4.6\ 10^{8}$
^{124}Sb	$2.1\ 10^{7}$	$1.2\ 10^{7}$
^{137}Cs	$2.1\ 10^{7}$	0
^{32}P	$2.1\ 10^{8}$	0
Total	$1.3\ 10^{9}$	$1.5\ 10^{9}$
^{3}H	$4.3\ 10^{10}$	$5.9\ 10^{11}$

Table 43

Discharges from Le Blayais, France

Nuclide	1981	1982	1983	1984
^{3}H	$4.0\ 10^{12}$	$2.3\ 10^{13}$	$3.5\ 10^{13}$	$7.8\ 10^{13}$
^{54}Mn	$7.8\ 10^{9}$	$7.8\ 10^{9}$	$7.8\ 10^{9}$	$7.8\ 10^{9}$
^{58}Co	$9.3\ 10^{10}$	$9.3\ 10^{10}$	$9.3\ 10^{10}$	$9.3\ 10^{10}$
^{60}Co	$2.4\ 10^{10}$	$2.4\ 10^{10}$	$2.4\ 10^{10}$	$2.4\ 10^{10}$
^{110m}Ag	$3.1\ 10^{10}$	$3.1\ 10^{10}$	$3.1\ 10^{10}$	$3.1\ 10^{10}$
^{124}Sb	$1.6\ 10^{10}$	$1.6\ 10^{10}$	$1.6\ 10^{10}$	$1.6\ 10^{10}$
^{131}I	$8.1\ 10^{9}$	$8.1\ 10^{9}$	$8.1\ 10^{9}$	$8.1\ 10^{9}$
^{134}Cs	$8.8\ 10^{9}$	$8.8\ 10^{9}$	$8.8\ 10^{9}$	$8.8\ 10^{9}$
^{137}Cs	$1.1\ 10^{10}$	$1.1\ 10^{10}$	$1.1\ 10^{10}$	$1.1\ 10^{10}$

Table 44

Discharges from Leibstadt, Switzerland

Nuclide	1984
^{3}H	$1.1\ 10^{11}$
^{51}Cr	$1.1\ 10^{8}$
^{54}Mn	$1.5\ 10^{7}$
^{59}Fe	$2.9\ 10^{6}$
^{58}Co	$9.6\ 10^{7}$
^{60}Co	$9.2\ 10^{6}$
^{89}Sr	$2.8\ 10^{7}$
^{90}Sr	$4.0\ 10^{7}$

Table 45

Discharges from Lingen, FRG

Nuclide	1968	1969	1970	1971	1972
^{58}Co	$4.5\ 10^{9}$	$4.5\ 10^{9}$	$4.3\ 10^{9}$	$2.6\ 10^{9}$	0
^{60}Co	$4.8\ 10^{9}$	$4.8\ 10^{9}$	$4.6\ 10^{9}$	$2.8\ 10^{0}$	$4.1\ 10^{8}$
^{89}Sr	0	0	0	0	0
^{90}Sr	$2.4\ 10^{8}$	$2.4\ 10^{8}$	$2.3\ 10^{8}$	$1.4\ 10^{8}$	0
^{134}Cs	$4.8\ 10^{9}$	$4.8\ 10^{9}$	$4.6\ 10^{9}$	$2.8\ 10^{9}$	$2.6\ 10^{8}$
^{137}Cs	$7.2\ 10^{9}$	$7.2\ 10^{9}$	$6.9\ 10^{9}$	$4.2\ 10^{9}$	$5.6\ 10^{8}$
^{95}Nb	0	0	0	0	$2.5\ 10^{7}$
^{131}I	$2.4\ 10^{9}$	$2.4\ 10^{9}$	$2.3\ 10^{9}$	$1.4\ 10^{9}$	$1.9\ 10^{8}$
^{141}Ce	0	0	0	0	$6.3\ 10^{7}$
^{144}Ce	0	0	0	0	0
^{140}La	0	0	0	0	0
^{95}Zr	0	0	0	0	0
Total	$2.4\ 10^{10}$	$2.4\ 10^{10}$	$2.3\ 10^{10}$	$1.4\ 10^{10}$	$1.7\ 10^{9}$
^{3}H	0	$9.6\ 10^{11}$	$1.2\ 10^{12}$	$1.7\ 10^{12}$	$8.9\ 10^{11}$

Nuclide	1973	1974	1975	1976	1977	1978
^{58}Co	0	0	$1.8\ 10^{7}$	0	0	0
^{60}Co	$3.3\ 10^{8}$	$2.1\ 10^{8}$	$4.8\ 10^{8}$	$3.9\ 10^{8}$	$1.7\ 10^{8}$	$3.7\ 10^{7}$
^{89}Sr	0	$7.8\ 10^{7}$	$3.7\ 10^{7}$	$2.9\ 10^{7}$	0	0
^{90}Sr	$1.0\ 10^{7}$	0	0	0	0	0
^{134}Cs	$7.0\ 10^{7}$	$1.3\ 10^{7}$	$1.5\ 10^{8}$	$1.7\ 10^{8}$	$3.9\ 10^{7}$	$8.5\ 10^{7}$
^{137}Cs	$1.9\ 10^{8}$	$1.6\ 10^{8}$	$3.4\ 10^{8}$	$5.1\ 10^{8}$	$1.2\ 10^{8}$	$3.0\ 10^{8}$
^{95}Nb	$3.0\ 10^{7}$	0	$7.4\ 10^{7}$	0	0	0
^{131}I	$4.8\ 10^{7}$	0	$4.4\ 10^{8}$	0	$9.3\ 10^{6}$	0
^{141}Ce	0	0	$4.1\ 10^{7}$	0	0	0
^{144}Ce	$1.3\ 10^{8}$	0	0	0	0	0
^{140}La	0	$1.3\ 10^{7}$	0	0	0	0
^{95}Zr	0	0	$3.7\ 10^{7}$	0	0	0
Total	$8.9\ 10^{8}$	$5.2\ 10^{8}$	$1.7\ 10^{9}$	$1.1\ 10^{9}$	$3.7\ 10^{8}$	$4.1\ 10^{8}$
^{3}H	$5.6\ 10^{11}$	$3.3\ 10^{11}$	$5.9\ 10^{11}$	$5.7\ 10^{11}$	$9.3\ 10^{10}$	$7.0\ 10^{10}$

Table 45 (continued)

Nuclide	1979	1980	1981	1982	1983	1984
^{58}Co	0	0	0	0	0	0
^{60}Co	$5.6\ 10^{8}$	$2.7\ 10^{8}$	$1.4\ 10^{8}$	$2.0\ 10^{8}$	$1.8\ 10^{7}$	$4.3\ 10^{7}$
^{89}Sr	0	0	0	0	0	0
^{90}Sr	0	0	$3.0\ 10^{6}$	0	0	0
^{134}Cs	$5.2\ 10^{7}$	$1.4\ 10^{7}$	$2.0\ 10^{6}$	0	$3.3\ 10^{6}$	$1.9\ 10^{6}$
^{137}Cs	$3.1\ 10^{8}$	$1.9\ 10^{8}$	$3.0\ 10^{7}$	$1.4\ 10^{8}$	$7.1\ 10^{7}$	$5.7\ 10^{7}$
^{95}Nb	0	0	0	0	0	0
^{131}I	0	0	0	0	0	0
^{141}Ce	0	0	0	0	0	0
^{144}Ce	0	0	0	0	0	0
^{140}La	0	0	0	0	0	0
^{95}Zr	0	0	0	0	0	0
Total	$9.3\ 10^{8}$	$4.7\ 10^{8}$	$1.8\ 10^{8}$	$3.5\ 10^{8}$	$9.2\ 10^{7}$	$1.0\ 10^{8}$
^{3}H	$3.0\ 10^{10}$	$8.5\ 10^{9}$	$1.7\ 10^{10}$	$1.5\ 10^{10}$	$1.8\ 10^{10}$	$6.7\ 10^{10}$

Table 46

Discharges from Loviisa, Finland

Nuclide	1977	1978	1979	1980	1981	1982	1983	1984
^{3}H	$1.2\ 10^{12}$	$5.0\ 10^{12}$	$2.3\ 10^{12}$	$3.7\ 10^{12}$	$1.1\ 10^{13}$	$9.7\ 10^{12}$	$9.5\ 10^{12}$	$7.1\ 10^{12}$
^{51}Cr	$4.1\ 10^{6}$	$1.8\ 10^{7}$	$1.5\ 10^{7}$	$2.9\ 10^{7}$	$3.4\ 10^{6}$	$3.2\ 10^{4}$	$5.2\ 10^{6}$	0
^{54}Mn	$5.3\ 10^{7}$	$2.4\ 10^{8}$	$2.0\ 10^{8}$	$1.6\ 10^{8}$	$6.2\ 10^{7}$	$1.2\ 10^{8}$	$5.4\ 10^{8}$	$1.4\ 10^{8}$
^{59}Fe	0	0	0	0	0	0	0	0
^{57}Co	0	0	0	$1.9\ 10^{6}$	0	0	0	0
^{58}Co	$3.4\ 10^{8}$	$1.5\ 10^{9}$	$1.3\ 10^{9}$	$6.2\ 10^{8}$	$4.6\ 10^{8}$	$8.2\ 10^{8}$	$1.6\ 10^{9}$	$2.4\ 10^{8}$
^{60}Co	$5.6\ 10^{8}$	$2.5\ 10^{9}$	$2.1\ 10^{9}$	$4.4\ 10^{9}$	$3.9\ 10^{8}$	$5.2\ 10^{8}$	$4.0\ 10^{9}$	$1.6\ 10^{9}$
^{75}Se	0	0	0	$4.7\ 10^{7}$	0	0	0	0
^{89}Sr	0	0	0	0	0	0	$4.2\ 10^{6}$	$2.1\ 10^{6}$
^{90}Sr	0	0	0	0	0	0	$2.0\ 10^{6}$	$1.1\ 10^{6}$
^{95}Zr	0	0	0	0	0	$1.1\ 10^{2}$	$2.3\ 10^{7}$	0
^{110m}Ag	$3.9\ 10^{8}$	$1.7\ 10^{9}$	$1.4\ 10^{9}$	$1.6\ 10^{9}$	$4.5\ 10^{8}$	$6.0\ 10^{8}$	$6.2\ 10^{9}$	$6.8\ 10^{8}$
^{122}Sb	$2.3\ 10^{7}$	$1.0\ 10^{8}$	$8.7\ 10^{7}$	$1.9\ 10^{6}$	$4.5\ 10^{7}$	$1.4\ 10^{7}$	$5.3\ 10^{7}$	0
^{124}Sb	$1.4\ 10^{9}$	$6.5\ 10^{9}$	$5.4\ 10^{9}$	$9.7\ 10^{9}$	$1.3\ 10^{9}$	$1.0\ 10^{9}$	$3.8\ 10^{9}$	$2.6\ 10^{9}$
^{125}Sb	0	0	0	$1.1\ 10^{9}$	0	0	0	0
^{131}I	0	0	0	0	$1.3\ 10^{5}$	$2.6\ 10^{3}$	$3.9\ 10^{8}$	0
^{134}Cs	$5.1\ 10^{8}$	$2.3\ 10^{9}$	$1.9\ 10^{9}$	0	$2.0\ 10^{7}$	$5.2\ 10^{9}$	$2.8\ 10^{9}$	$5.9\ 10^{9}$
^{137}Cs	$5.6\ 10^{8}$	$2.3\ 10^{9}$	$1.9\ 10^{9}$	$1.6\ 10^{8}$	$2.1\ 10^{7}$	$5.2\ 10^{9}$	$2.9\ 10^{9}$	$9.3\ 10^{9}$

Table 47

Discharges from Mol, Belgium

Nuclide	1956	1957	1958	1959	1960	1961	1962
Beta	$5.4\ 10^{11}$	$5.4\ 10^{11}$	$5.4\ 10^{11}$	$5.4\ 10^{11}$	$5.4\ 10^{11}$	$5.4\ 10^{11}$	$5.4\ 10^{11}$
Alpha	$7.2\ 10^{8}$	$7.2\ 10^{8}$	$7.2\ 10^{8}$	$7.2\ 10^{8}$	$7.2\ 10^{8}$	$7.2\ 10^{8}$	$7.2\ 10^{8}$
^{3}H	$9.1\ 10^{13}$	$9.1\ 10^{13}$	$9.1\ 10^{13}$	$9.1\ 10^{13}$	$9.1\ 10^{13}$	$9.1\ 10^{13}$	$9.1\ 10^{13}$
^{51}Cr	$5.8\ 10^{9}$	$5.8\ 10^{9}$	$5.8\ 10^{9}$	$5.8\ 10^{9}$	$5.8\ 10^{9}$	$5.8\ 10^{9}$	$5.8\ 10^{9}$
^{54}Mn	$4.4\ 10^{9}$	$4.4\ 10^{9}$	$4.4\ 10^{9}$	$4.4\ 10^{9}$	$4.4\ 10^{9}$	$4.4\ 10^{9}$	$4.4\ 10^{9}$
^{58}Co	$4.4\ 10^{9}$	$4.4\ 10^{9}$	$4.4\ 10^{9}$	$4.4\ 10^{9}$	$4.4\ 10^{9}$	$4.4\ 10^{9}$	$4.4\ 10^{9}$
^{60}Co	$3.0\ 10^{11}$	$3.0\ 10^{11}$	$3.0\ 10^{11}$	$3.0\ 10^{11}$	$3.0\ 10^{11}$	$3.0\ 10^{11}$	$3.0\ 10^{11}$
^{65}Zn	0	0	0	0	0	0	0
^{90}Sr	$7.2\ 10^{9}$	$7.2\ 10^{9}$	$7.2\ 10^{9}$	$7.2\ 10^{9}$	$7.2\ 10^{9}$	$7.2\ 10^{9}$	$7.2\ 10^{9}$
^{103}Ru	$6.0\ 10^{8}$	$6.0\ 10^{8}$	$6.0\ 10^{8}$	$6.0\ 10^{8}$	$6.0\ 10^{8}$	$6.0\ 10^{8}$	$6.0\ 10^{8}$
^{106}Ru	$1.5\ 10^{10}$	$1.5\ 10^{10}$	$1.5\ 10^{10}$	$1.5\ 10^{10}$	$1.5\ 10^{10}$	$1.5\ 10^{10}$	$1.5\ 10^{10}$
^{124}Sb	$8.5\ 10^{9}$	$8.5\ 10^{9}$	$8.5\ 10^{9}$	$8.5\ 10^{9}$	$8.5\ 10^{9}$	$8.5\ 10^{9}$	$8.5\ 10^{9}$
^{125}Sb	$1.0\ 10^{10}$	$1.0\ 10^{10}$	$1.0\ 10^{10}$	$1.0\ 10^{10}$	$1.0\ 10^{10}$	$1.0\ 10^{10}$	$1.0\ 10^{10}$
^{125}I	$4.1\ 10^{9}$	$4.1\ 10^{9}$	$4.1\ 10^{9}$	$4.1\ 10^{9}$	$4.1\ 10^{9}$	$4.1\ 10^{9}$	$4.1\ 10^{9}$
^{134}Cs	$9.2\ 10^{9}$	$9.2\ 10^{9}$	$9.2\ 10^{9}$	$9.2\ 10^{9}$	$9.2\ 10^{9}$	$9.2\ 10^{9}$	$9.2\ 10^{9}$
^{137}Cs	$7.0\ 10^{10}$	$7.0\ 10^{10}$	$7.0\ 10^{10}$	$7.0\ 10^{10}$	$7.0\ 10^{10}$	$7.0\ 10^{10}$	$7.0\ 10^{10}$
^{144}Ce	$1.8\ 10^{9}$	$1.8\ 10^{9}$	$1.8\ 10^{9}$	$1.8\ 10^{9}$	$1.8\ 10^{9}$	$1.8\ 10^{9}$	$1.8\ 10^{9}$
^{226}Ra	$1.9\ 10^{7}$	$1.9\ 10^{7}$	$1.9\ 10^{7}$	$1.9\ 10^{7}$	$1.9\ 10^{7}$	$1.9\ 10^{7}$	$1.9\ 10^{7}$
^{239}Pu	$4.1\ 10^{8}$	$4.1\ 10^{8}$	$4.1\ 10^{8}$	$4.1\ 10^{8}$	$4.1\ 10^{8}$	$4.1\ 10^{8}$	$4.1\ 10^{8}$
^{241}Am	$2.1\ 10^{8}$	$2.1\ 10^{8}$	$2.1\ 10^{8}$	$2.1\ 10^{8}$	$2.1\ 10^{8}$	$2.1\ 10^{8}$	$2.1\ 10^{8}$
^{238}U	$4.9\ 10^{7}$	$4.9\ 10^{7}$	$4.9\ 10^{7}$	$4.9\ 10^{7}$	$4.9\ 10^{7}$	$4.9\ 10^{7}$	$4.9\ 10^{7}$

Nuclide	1963	1964	1965	1966	1967	1968	1969
Beta	$5.4\ 10^{11}$	$5.4\ 10^{11}$	$5.4\ 10^{11}$	$5.4\ 10^{11}$	$5.4\ 10^{11}$	$5.4\ 10^{11}$	$3.3\ 10^{11}$
Alpha	$7.2\ 10^{8}$	$7.2\ 10^{8}$	$7.2\ 10^{8}$	$7.2\ 10^{8}$	$7.2\ 10^{8}$	$7.2\ 10^{8}$	$4.4\ 10^{8}$
^{3}H	$9.1\ 10^{13}$	$9.1\ 10^{13}$	$9.1\ 10^{13}$	$9.1\ 10^{13}$	$9.1\ 10^{13}$	$9.1\ 10^{13}$	$1.0\ 10^{14}$
^{51}Cr	$5.8\ 10^{9}$	$5.8\ 10^{9}$	$5.8\ 10^{9}$	$5.8\ 10^{9}$	$5.8\ 10^{9}$	$5.8\ 10^{9}$	$3.6\ 10^{9}$
^{54}Mn	$4.4\ 10^{9}$	$4.4\ 10^{9}$	$4.4\ 10^{9}$	$4.4\ 10^{9}$	$4.4\ 10^{9}$	$4.4\ 10^{9}$	$2.7\ 10^{9}$
^{58}Co	$4.4\ 10^{9}$	$4.4\ 10^{9}$	$4.4\ 10^{9}$	$4.4\ 10^{9}$	$4.4\ 10^{9}$	$4.4\ 10^{9}$	$2.7\ 10^{9}$
^{60}Co	$3.0\ 10^{11}$	$3.0\ 10^{11}$	$3.0\ 10^{11}$	$3.0\ 10^{11}$	$3.0\ 10^{11}$	$3.0\ 10^{11}$	$1.8\ 10^{11}$
^{65}Zn	0	0	0	0	0	0	0
^{90}Sr	$7.2\ 10^{9}$	$7.2\ 10^{9}$	$7.2\ 10^{9}$	$7.2\ 10^{9}$	$7.2\ 10^{9}$	$7.2\ 10^{9}$	$1.0\ 10^{10}$
^{103}Ru	$6.0\ 10^{8}$	$6.0\ 10^{8}$	$6.0\ 10^{8}$	$6.0\ 10^{8}$	$6.0\ 10^{8}$	$6.0\ 10^{8}$	$3.7\ 10^{8}$
^{106}Ru	$1.5\ 10^{10}$	$1.5\ 10^{10}$	$1.5\ 10^{10}$	$1.5\ 10^{10}$	$1.5\ 10^{10}$	$1.5\ 10^{10}$	$9.6\ 10^{9}$
^{124}Sb	$8.5\ 10^{9}$	$8.5\ 10^{9}$	$8.5\ 10^{9}$	$8.5\ 10^{9}$	$8.5\ 10^{9}$	$8.5\ 10^{9}$	$5.2\ 10^{9}$
^{125}Sb	$1.0\ 10^{10}$	$1.0\ 10^{10}$	$1.0\ 10^{10}$	$1.0\ 10^{10}$	$1.0\ 10^{10}$	$1.0\ 10^{10}$	$6.2\ 10^{9}$
^{125}I	$4.1\ 10^{9}$	$4.1\ 10^{9}$	$4.1\ 10^{9}$	$4.1\ 10^{9}$	$4.1\ 10^{9}$	$4.1\ 10^{9}$	$2.5\ 10^{9}$
^{134}Cs	$9.2\ 10^{9}$	$9.2\ 10^{9}$	$9.2\ 10^{9}$	$9.2\ 10^{9}$	$9.2\ 10^{9}$	$9.2\ 10^{9}$	$5.7\ 10^{9}$
^{137}Cs	$7.0\ 10^{10}$	$7.0\ 10^{10}$	$7.0\ 10^{10}$	$7.0\ 10^{10}$	$7.0\ 10^{10}$	$7.0\ 10^{10}$	$4.3\ 10^{10}$
^{144}Ce	$1.8\ 10^{9}$	$1.8\ 10^{9}$	$1.8\ 10^{9}$	$1.8\ 10^{9}$	$1.8\ 10^{9}$	$1.8\ 10^{9}$	$1.1\ 10^{9}$
^{226}Ra	$1.9\ 10^{7}$	$1.9\ 10^{7}$	$1.9\ 10^{7}$	$1.9\ 10^{7}$	$1.9\ 10^{7}$	$1.9\ 10^{7}$	$4.9\ 10^{6}$
^{239}Pu	$4.1\ 10^{8}$	$4.1\ 10^{8}$	$4.1\ 10^{8}$	$4.1\ 10^{8}$	$4.1\ 10^{8}$	$4.1\ 10^{8}$	$2.5\ 10^{8}$
^{241}Am	$2.1\ 10^{8}$	$2.1\ 10^{8}$	$2.1\ 10^{8}$	$2.1\ 10^{8}$	$2.1\ 10^{8}$	$2.1\ 10^{8}$	$1.3\ 10^{8}$
^{238}U	$4.9\ 10^{7}$	$4.9\ 10^{7}$	$4.9\ 10^{7}$	$4.9\ 10^{7}$	$4.9\ 10^{7}$	$4.9\ 10^{7}$	$3.0\ 10^{7}$

Table 47 (continued)

Nuclide	1970	1971	1972	1973	1974	1975	1976
Beta	$7.2\ 10^{11}$	$5.7\ 10^{11}$	$4.4\ 10^{11}$	$5.7\ 10^{11}$	$4.7\ 10^{11}$	$4.8\ 10^{11}$	$3.8\ 10^{11}$
Alpha	$1.0\ 10^{9}$	$6.6\ 10^{8}$	$5.9\ 10^{8}$	$3.7\ 10^{9}$	$6.6\ 10^{9}$	$1.1\ 10^{10}$	$1.6\ 10^{10}$
^{3}H	$8.5\ 10^{13}$	$8.5\ 10^{13}$	$1.2\ 10^{14}$	$2.8\ 10^{14}$	$9.2\ 10^{13}$	$1.9\ 10^{13}$	$2.0\ 10^{13}$
^{51}Cr	$7.8\ 10^{9}$	$6.2\ 10^{9}$	$4.8\ 10^{9}$	$6.2\ 10^{9}$	$5.1\ 10^{9}$	$5.2\ 10^{9}$	$1.1\ 10^{10}$
^{54}Mn	$5.8\ 10^{9}$	$4.7\ 10^{9}$	$3.6\ 10^{9}$	$4.7\ 10^{9}$	$3.8\ 10^{9}$	$3.9\ 10^{9}$	$5.4\ 10^{9}$
^{58}Co	$5.9\ 10^{9}$	$4.7\ 10^{9}$	$3.6\ 10^{9}$	$4.7\ 10^{9}$	$3.9\ 10^{9}$	$4.0\ 10^{9}$	$5.5\ 10^{9}$
^{60}Co	$4.1\ 10^{11}$	$3.2\ 10^{11}$	$2.5\ 10^{11}$	$3.2\ 10^{11}$	$2.7\ 10^{11}$	$2.7\ 10^{11}$	$2.3\ 10^{11}$
^{65}Zn	0	0	0	0	0	0	0
^{90}Sr	$1.0\ 10^{10}$	$6.6\ 10^{8}$	$5.9\ 10^{8}$	$3.7\ 10^{9}$	$1.7\ 10^{10}$	$6.9\ 10^{9}$	$1.1\ 10^{10}$
^{103}Ru	$8.0\ 10^{8}$	$6.4\ 10^{8}$	$4.9\ 10^{8}$	$6.4\ 10^{8}$	$5.3\ 10^{8}$	$5.4\ 10^{8}$	$6.2\ 10^{8}$
^{106}Ru	$2.0\ 10^{10}$	$1.6\ 10^{10}$	$1.3\ 10^{10}$	$1.6\ 10^{10}$	$1.3\ 10^{10}$	$1.4\ 10^{10}$	$2.1\ 10^{10}$
^{124}Sb	$1.1\ 10^{10}$	$9.1\ 10^{9}$	$7.1\ 10^{9}$	$9.1\ 10^{9}$	$7.5\ 10^{9}$	$7.7\ 10^{9}$	$1.3\ 10^{10}$
^{125}Sb	$1.3\ 10^{10}$	$1.0\ 10^{10}$	$8.3\ 10^{9}$	$1.0\ 10^{10}$	$8.9\ 10^{9}$	$9.1\ 10^{9}$	$6.3\ 10^{9}$
^{125}I	$5.4\ 10^{9}$	$4.3\ 10^{9}$	$3.4\ 10^{9}$	$4.3\ 10^{9}$	$3.6\ 10^{9}$	$3.7\ 10^{9}$	0
^{134}Cs	$1.2\ 10^{10}$	$9.9\ 10^{9}$	$7.6\ 10^{9}$	$9.9\ 10^{9}$	$8.1\ 10^{9}$	$8.3\ 10^{9}$	$8.8\ 10^{9}$
^{137}Cs	$9.3\ 10^{10}$	$7.5\ 10^{10}$	$5.8\ 10^{10}$	$7.5\ 10^{10}$	$6.2\ 10^{10}$	$6.3\ 10^{10}$	$6.7\ 10^{10}$
^{144}Ce	$2.4\ 10^{9}$	$1.9\ 10^{9}$	$1.5\ 10^{9}$	$1.9\ 10^{9}$	$1.6\ 10^{9}$	$1.6\ 10^{9}$	$2.0\ 10^{9}$
^{226}Ra	$4.9\ 10^{6}$	$1.4\ 10^{7}$	$7.4\ 10^{6}$	$1.3\ 10^{7}$	$8.6\ 10^{6}$	$1.1\ 10^{7}$	$1.1\ 10^{7}$
^{239}Pu	$5.9\ 10^{8}$	$3.7\ 10^{8}$	$3.3\ 10^{8}$	$2.1\ 10^{9}$	$3.7\ 10^{9}$	$6.3\ 10^{9}$	$9.4\ 10^{9}$
^{241}Am	$3.0\ 10^{8}$	$1.9\ 10^{8}$	$1.7\ 10^{8}$	$1.0\ 10^{9}$	$1.9\ 10^{9}$	$3.2\ 10^{9}$	$5.2\ 10^{9}$
^{238}U	$7.1\ 10^{7}$	$4.5\ 10^{7}$	$4.0\ 10^{7}$	$2.5\ 10^{8}$	$4.5\ 10^{8}$	$7.5\ 10^{8}$	$5.5\ 10^{8}$

Nuclide	1977	1978	1979	1980	1981	1982	1983	1984
Beta	$2.5\ 10^{11}$	$2.0\ 10^{11}$	$1.9\ 10^{11}$	$2.1\ 10^{11}$	$2.9\ 10^{11}$	$2.9\ 10^{11}$	$2.0\ 10^{11}$	$1.1\ 10^{11}$
Alpha	$1.0\ 10^{10}$	$2.2\ 10^{9}$	$2.3\ 10^{9}$	$1.4\ 10^{9}$	$1.0\ 10^{9}$	$1.4\ 10^{9}$	$3.0\ 10^{8}$	$2.9\ 10^{8}$
^{3}H	$2.8\ 10^{13}$	$2.7\ 10^{13}$	$1.7\ 10^{13}$	$8.1\ 10^{12}$	$1.3\ 10^{13}$	$1.7\ 10^{13}$	$1.2\ 10^{13}$	$2.2\ 10^{13}$
^{51}Cr	$8.5\ 10^{8}$	0	$1.5\ 10^{9}$	$3.1\ 10^{8}$	$4.4\ 10^{8}$	$1.8\ 10^{9}$	$3.7\ 10^{9}$	$2.9\ 10^{9}$
^{54}Mn	$1.5\ 10^{9}$	$8.1\ 10^{8}$	$5.5\ 10^{8}$	$2.0\ 10^{9}$	$4.1\ 10^{9}$	$1.5\ 10^{9}$	$2.5\ 10^{9}$	$2.0\ 10^{9}$
^{58}Co	$2.9\ 10^{8}$	$1.8\ 10^{9}$	0	$4.3\ 10^{9}$	$1.7\ 10^{9}$	$5.2\ 10^{9}$	$2.5\ 10^{10}$	$1.0\ 10^{10}$
^{60}Co	$1.4\ 10^{11}$	$1.0\ 10^{11}$	$9.2\ 10^{10}$	$2.0\ 10^{11}$	$2.5\ 10^{11}$	$1.8\ 10^{11}$	$1.4\ 10^{11}$	$4.5\ 10^{10}$
^{65}Zn	0	0	$5.9\ 10^{8}$	$1.0\ 10^{8}$	$2.1\ 10^{9}$	$1.8\ 10^{9}$	$3.1\ 10^{9}$	$7.7\ 10^{7}$
^{90}Sr	$3.4\ 10^{9}$	$3.8\ 10^{9}$	$1.3\ 10^{10}$	$7.5\ 10^{9}$	$6.6\ 10^{9}$	$6.6\ 10^{9}$	$9.2\ 10^{9}$	$4.7\ 10^{9}$
^{103}Ru	$2.3\ 10^{8}$	$1.5\ 10^{8}$	0	$1.5\ 10^{8}$	$1.1\ 10^{9}$	$1.1\ 10^{10}$	$1.2\ 10^{9}$	0
^{106}Ru	$3.8\ 10^{9}$	$2.9\ 10^{9}$	$1.5\ 10^{10}$	$1.7\ 10^{10}$	$1.6\ 10^{9}$	$1.3\ 10^{10}$	$6.9\ 10^{9}$	$1.5\ 10^{10}$
^{124}Sb	$5.5\ 10^{8}$	$1.8\ 10^{9}$	$1.2\ 10^{9}$	$5.1\ 10^{9}$	$1.7\ 10^{9}$	$1.3\ 10^{9}$	$5.9\ 10^{9}$	$3.6\ 10^{9}$
^{125}Sb	$1.7\ 10^{9}$	$6.5\ 10^{9}$	$3.6\ 10^{10}$	$2.0\ 10^{10}$	$7.3\ 10^{9}$	$1.5\ 10^{10}$	$1.1\ 10^{10}$	$4.1\ 10^{9}$
^{125}I	$2.8\ 10^{9}$	$2.3\ 10^{9}$	$1.7\ 10^{9}$	0	0	0	0	0
^{134}Cs	$3.7\ 10^{9}$	$2.7\ 10^{9}$	$5.7\ 10^{9}$	$3.7\ 10^{9}$	$1.5\ 10^{10}$	$7.7\ 10^{9}$	$7.8\ 10^{9}$	$2.1\ 10^{9}$
^{137}Cs	$2.4\ 10^{10}$	$2.3\ 10^{10}$	$4.6\ 10^{10}$	$2.9\ 10^{10}$	$1.0\ 10^{11}$	$6.4\ 10^{10}$	$5.2\ 10^{10}$	$8.3\ 10^{9}$
^{144}Ce	$5.5\ 10^{8}$	$5.5\ 10^{8}$	$6.2\ 10^{8}$	$7.4\ 10^{8}$	$7.4\ 10^{8}$	$1.4\ 10^{9}$	$4.4\ 10^{8}$	0
^{226}Ra	$1.9\ 10^{7}$	$1.5\ 10^{7}$	$1.3\ 10^{7}$	$6.6\ 10^{6}$	$1.4\ 10^{7}$	$6.6\ 10^{6}$	$3.3\ 10^{6}$	$1.8\ 10^{6}$
^{239}Pu	$6.4\ 10^{9}$	$1.1\ 10^{9}$	$1.4\ 10^{9}$	$9.6\ 10^{8}$	$8.1\ 10^{8}$	$5.9\ 10^{8}$	$1.0\ 10^{8}$	0
^{241}Am	$2.9\ 10^{9}$	$6.2\ 10^{8}$	$8.1\ 10^{8}$	$2.4\ 10^{8}$	$1.6\ 10^{8}$	$4.4\ 10^{8}$	$5.9\ 10^{7}$	0
^{238}U	$2.4\ 10^{8}$	$3.3\ 10^{8}$	$1.7\ 10^{8}$	$4.0\ 10^{8}$	$9.2\ 10^{7}$	$1.4\ 10^{8}$	$4.0\ 10^{7}$	0

Table 48

Discharges from Monts D'Arrée. France

Nuclide	1967	1968	1969	1970	1971	1972
^{3}H	$1.8\ 10^{11}$	$1.8\ 10^{11}$	$1.8\ 10^{11}$	$1.8\ 10^{11}$	$1.8\ 10^{11}$	$1.8\ 10^{11}$
^{51}Cr	$2.4\ 10^{7}$	$2.4\ 10^{7}$	$2.4\ 10^{7}$	$8.8\ 10^{6}$	$8.8\ 10^{7}$	$1.9\ 10^{8}$
^{54}Mn	$5.9\ 10^{6}$	$5.9\ 10^{6}$	$5.9\ 10^{6}$	$2.2\ 10^{6}$	$2.2\ 10^{7}$	$4.8\ 10^{7}$
^{58}Co	$5.0\ 10^{6}$	$5.0\ 10^{6}$	$5.0\ 10^{6}$	$1.8\ 10^{6}$	$1.8\ 10^{7}$	$4.0\ 10^{7}$
^{60}Co	$2.1\ 10^{8}$	$2.1\ 10^{8}$	$2.1\ 10^{8}$	$7.9\ 10^{7}$	$7.9\ 10^{8}$	$1.7\ 10^{9}$
^{90}Sr	$9.1\ 10^{7}$	$9.1\ 10^{7}$	$9.1\ 10^{7}$	$3.4\ 10^{7}$	$3.4\ 10^{8}$	$7.4\ 10^{8}$
^{134}Cs	$2.3\ 10^{8}$	$2.3\ 10^{8}$	$2.3\ 10^{8}$	$8.8\ 10^{7}$	$8.8\ 10^{8}$	$1.9\ 10^{9}$
^{137}Cs	$4.1\ 10^{8}$	$4.1\ 10^{8}$	$4.1\ 10^{8}$	$1.5\ 10^{8}$	$1.5\ 10^{9}$	$3.4\ 10^{9}$

Nuclide	1973	1974	1975	1976	1977	1978
^{3}H	$1.5\ 10^{12}$	$4.2\ 10^{12}$	$5.1\ 10^{11}$	$9.9\ 10^{11}$	$1.5\ 10^{12}$	$1.0\ 10^{12}$
^{51}Cr	$3.5\ 10^{7}$	$4.4\ 10^{7}$	$4.4\ 10^{7}$	$2.6\ 10^{7}$	$3.5\ 10^{7}$	$2.6\ 10^{7}$
^{54}Mn	$8.8\ 10^{6}$	$1.1\ 10^{7}$	$1.1\ 10^{7}$	$6.6\ 10^{6}$	$8.8\ 10^{6}$	$6.6\ 10^{6}$
^{58}Co	$7.4\ 10^{6}$	$9.2\ 10^{6}$	$9.2\ 10^{6}$	$5.5\ 10^{6}$	$7.4\ 10^{6}$	$5.5\ 10^{6}$
^{60}Co	$3.2\ 10^{8}$	$4.0\ 10^{8}$	$4.0\ 10^{8}$	$2.4\ 10^{8}$	$3.2\ 10^{8}$	$2.4\ 10^{8}$
^{90}Sr	$1.3\ 10^{8}$	$1.7\ 10^{8}$	$1.7\ 10^{8}$	$1.0\ 10^{8}$	$1.3\ 10^{8}$	$1.0\ 10^{8}$
^{134}Cs	$3.5\ 10^{8}$	$4.4\ 10^{8}$	$4.4\ 10^{8}$	$2.6\ 10^{8}$	$3.5\ 10^{8}$	$2.6\ 10^{8}$
^{137}Cs	$6.1\ 10^{8}$	$7.7\ 10^{8}$	$7.7\ 10^{8}$	$4.6\ 10^{8}$	$6.1\ 10^{8}$	$4.6\ 10^{8}$

Nuclide	1979	1980	1981	1982	1983	1984
^{3}H	$4.2\ 10^{12}$	$5.1\ 10^{11}$	$5.1\ 10^{11}$	$5.1\ 10^{11}$	$5.1\ 10^{11}$	$5.1\ 10^{11}$
^{51}Cr	$2.6\ 10^{7}$	$2.6\ 10^{7}$	$2.6\ 10^{7}$	$2.6\ 10^{7}$	$2.6\ 10^{7}$	$2.6\ 10^{7}$
^{54}Mn	$6.6\ 10^{6}$	$6.6\ 10^{6}$	$6.6\ 10^{6}$	$6.6\ 10^{6}$	$6.6\ 10^{6}$	$6.6\ 10^{6}$
^{58}Co	$5.5\ 10^{6}$	$5.5\ 10^{6}$	$5.5\ 10^{6}$	$5.5\ 10^{6}$	$5.5\ 10^{6}$	$5.5\ 10^{6}$
^{60}Co	$2.4\ 10^{8}$	$2.4\ 10^{8}$	$2.4\ 10^{8}$	$2.4\ 10^{8}$	$2.4\ 10^{8}$	$2.4\ 10^{8}$
^{90}Sr	$1.0\ 10^{8}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$
^{134}Cs	$2.6\ 10^{8}$	$2.6\ 10^{8}$	$2.6\ 10^{8}$	$2.6\ 10^{8}$	$2.6\ 10^{8}$	$2.6\ 10^{8}$
^{137}Cs	$4.6\ 10^{8}$	$4.6\ 10^{8}$	$4.6\ 10^{8}$	$4.6\ 10^{8}$	$4.6\ 10^{8}$	$4.6\ 10^{8}$

Table 49

Discharges from Muhleberg, Switzerland

Nuclide	1971	1972	1973	1974	1975	1976	1977
^{3}H	$5.2\ 10^{11}$	$5.2\ 10^{11}$	$5.2\ 10^{11}$	$5.2\ 10^{11}$	$5.2\ 10^{11}$	$2.7\ 10^{11}$	$3.4\ 10^{11}$
^{51}Cr	0	0	0	0	0	0	0
^{54}Mn	$7.4\ 10^{8}$	$7.4\ 10^{8}$	$7.4\ 10^{8}$	$7.4\ 10^{8}$	$7.4\ 10^{8}$	$1.7\ 10^{9}$	$3.7\ 10^{8}$
^{59}Fe	0	0	0	0	0	0	0
^{58}Co	$1.4\ 10^{8}$	$1.4\ 10^{8}$	$1.4\ 10^{8}$	$1.4\ 10^{8}$	$1.4\ 10^{8}$	$5.9\ 10^{8}$	0
^{60}Co	$3.9\ 10^{9}$	$3.9\ 10^{9}$	$3.9\ 10^{9}$	$3.9\ 10^{9}$	$3.9\ 10^{9}$	$6.4\ 10^{9}$	$4.0\ 10^{9}$
^{64}Zn	$3.0\ 10^{8}$	$3.0\ 10^{8}$	$3.0\ 10^{8}$	$3.0\ 10^{8}$	$3.0\ 10^{8}$	0	0
^{65}Zn	$6.6\ 10^{8}$	$6.6\ 10^{8}$	$6.6\ 10^{8}$	$6.6\ 10^{8}$	$6.6\ 10^{8}$	$1.5\ 10^{9}$	$7.4\ 10^{8}$
^{89}Sr	$4.5\ 10^{9}$	$4.5\ 10^{9}$	$4.5\ 10^{9}$	$4.5\ 10^{9}$	$4.5\ 10^{9}$	$1.3\ 10^{10}$	$2.2\ 10^{9}$
^{90}Sr	$2.2\ 10^{9}$	$2.2\ 10^{9}$	$2.2\ 10^{9}$	$2.2\ 10^{9}$	$2.2\ 10^{9}$	$6.7\ 10^{9}$	$7.4\ 10^{8}$
^{90}Y	$5.3\ 10^{8}$	$5.3\ 10^{8}$	$5.3\ 10^{8}$	$5.3\ 10^{8}$	$5.3\ 10^{8}$	0	$7.4\ 10^{8}$
^{95}Zr	$1.1\ 10^{8}$	$1.1\ 10^{8}$	$1.1\ 10^{8}$	$1.1\ 10^{8}$	$1.1\ 10^{8}$	$4.4\ 10^{8}$	0
^{95}Nb	0	0	0	0	0	0	0
^{103}Ru	0	0	0	0	0	0	0
^{110m}Ag	0	0	0	0	0	0	0
^{124}Sb	0	0	0	0	0	0	0
^{125}Sb	0	0	0	0	0	0	0
^{131}I	$2.0\ 10^{10}$	$2.0\ 10^{10}$	$2.0\ 10^{10}$	$2.0\ 10^{10}$	$2.0\ 10^{10}$	$8.1\ 10^{10}$	0
^{133}I	0	0	0	0	0	0	0
^{134}Cs	$2.3\ 10^{10}$	$2.3\ 10^{10}$	$2.3\ 10^{10}$	$2.3\ 10^{10}$	$2.3\ 10^{10}$	$5.4\ 10^{10}$	$2.6\ 10^{10}$
^{137}Cs	$3.5\ 10^{10}$	$3.5\ 10^{10}$	$3.5\ 10^{10}$	$3.5\ 10^{10}$	$3.5\ 10^{10}$	$5.7\ 10^{10}$	$4.1\ 10^{10}$
^{140}Ba	0	0	0	0	0	0	0
^{140}La	$3.1\ 10^{8}$	$3.1\ 10^{8}$	$3.1\ 10^{8}$	$3.1\ 10^{8}$	$3.1\ 10^{8}$	$1.2\ 10^{9}$	0
^{141}Ce	$6.3\ 10^{8}$	$6.3\ 10^{8}$	$6.3\ 10^{8}$	$6.3\ 10^{8}$	$6.3\ 10^{8}$	$2.5\ 10^{9}$	0
^{144}Ce	$1.7\ 10^{8}$	$1.7\ 10^{8}$	$1.7\ 10^{8}$	$1.7\ 10^{8}$	$1.7\ 10^{8}$	$7.0\ 10^{8}$	0
^{239}Np	$1.0\ 10^{9}$	$1.0\ 10^{9}$	$1.0\ 10^{9}$	$1.0\ 10^{9}$	$1.0\ 10^{9}$	$4.1\ 10^{9}$	0

Table 49 (continued)

Nuclide	1978	1979	1980	1981	1982	1983	1984
^{3}H	$1.0\ 10^{12}$	$4.4\ 10^{11}$	$4.8\ 10^{11}$	$4.5\ 10^{11}$	$8.1\ 10^{11}$	$2.8\ 10^{11}$	$2.5\ 10^{11}$
^{51}Cr	0	0	$1.1\ 10^{8}$	$1.2\ 10^{9}$	$9.9\ 10^{8}$	$2.2\ 10^{9}$	$1.8\ 10^{9}$
^{54}Mn	0	$8.1\ 10^{8}$	$2.2\ 10^{8}$	$1.1\ 10^{9}$	$7.7\ 10^{8}$	$2.9\ 10^{9}$	$5.5\ 10^{8}$
^{59}Fe	0	0	0	$1.2\ 10^{6}$	$4.8\ 10^{6}$	0	0
^{58}Co	0	0	$3.3\ 10^{8}$	$2.4\ 10^{9}$	$4.0\ 10^{8}$	$7.4\ 10^{9}$	$1.4\ 10^{9}$
^{60}Co	$4.4\ 10^{9}$	$7.4\ 10^{8}$	$3.4\ 10^{9}$	$1.2\ 10^{10}$	$5.9\ 10^{9}$	$2.9\ 10^{10}$	$9.2\ 10^{9}$
^{64}Zn	0	$1.2\ 10^{9}$	0	0	0	0	0
^{65}Zn	$3.7\ 10^{8}$	0	$1.1\ 10^{9}$	$5.5\ 10^{9}$	$1.8\ 10^{9}$	$1.4\ 10^{10}$	$4.4\ 10^{9}$
^{89}Sr	$7.4\ 10^{8}$	$1.2\ 10^{9}$	$7.0\ 10^{8}$	$5.9\ 10^{8}$	$8.1\ 10^{8}$	$2.9\ 10^{8}$	$5.5\ 10^{8}$
^{90}Sr	$3.7\ 10^{8}$	$1.0\ 10^{9}$	$3.7\ 10^{8}$	$2.2\ 10^{8}$	$7.0\ 10^{7}$	$3.7\ 10^{8}$	$7.4\ 10^{7}$
^{90}Y	$3.7\ 10^{8}$	$1.0\ 10^{9}$	$3.7\ 10^{8}$	$2.2\ 10^{8}$	$7.0\ 10^{7}$	$3.7\ 10^{8}$	$7.4\ 10^{7}$
^{95}Zr	0	0	0	$5.1\ 10^{6}$	$2.0\ 10^{7}$	0	0
^{95}Nb	0	0	0	$1.5\ 10^{7}$	$2.5\ 10^{7}$	$2.9\ 10^{7}$	$7.4\ 10^{6}$
^{103}Ru	0	0	0	$4.3\ 10^{7}$	$5.1\ 10^{6}$	$1.4\ 10^{8}$	$2.2\ 10^{7}$
^{110m}Ag	0	0	0	$1.1\ 10^{7}$	$1.7\ 10^{7}$	$2.2\ 10^{7}$	$7.4\ 10^{6}$
^{124}Sb	0	0	0	$1.8\ 10^{7}$	$4.0\ 10^{6}$	$3.3\ 10^{7}$	$3.7\ 10^{7}$
^{125}Sb	0	0	0	$2.7\ 10^{5}$	0	$1.1\ 10^{6}$	0
^{131}I	$3.7\ 10^{8}$	$2.5\ 10^{8}$	$7.4\ 10^{8}$	$2.3\ 10^{8}$	$4.8\ 10^{7}$	$7.4\ 10^{7}$	$7.4\ 10^{7}$
^{133}I	0	0	0	$1.7\ 10^{7}$	$7.4\ 10^{6}$	$2.5\ 10^{7}$	$3.7\ 10^{7}$
^{134}Cs	$2.9\ 10^{9}$	$1.0\ 10^{10}$	$1.8\ 10^{9}$	$2.0\ 10^{9}$	$5.1\ 10^{9}$	$1.1\ 10^{9}$	$2.2\ 10^{8}$
^{137}Cs	$7.4\ 10^{9}$	$3.4\ 10^{10}$	$7.4\ 10^{9}$	$1.4\ 10^{10}$	$3.4\ 10^{10}$	$1.1\ 10^{10}$	$3.3\ 10^{9}$
^{140}Ba	0	0	0	$3.1\ 10^{8}$	$3.7\ 10^{8}$	$7.4\ 10^{8}$	$1.4\ 10^{8}$
^{140}La	0	0	$3.7\ 10^{7}$	$1.9\ 10^{9}$	$2.5\ 10^{8}$	$7.4\ 10^{9}$	$7.4\ 10^{7}$
^{141}Ce	0	0	0	$3.9\ 10^{6}$	$1.2\ 10^{7}$	0	$3.7\ 10^{6}$
^{144}Ce	0	0	0	0	0	0	0
^{239}Np	0	0	0	0	0	0	0

Table 50

Discharges from Neckarwestheim, FRG

Nuclide	1976	1977	1978	1979
^{58}Co	$3.9\ 10^{8}$	$5.1\ 10^{8}$	$2.2\ 10^{8}$	$3.3\ 10^{8}$
^{60}Co	0	$1.1\ 10^{8}$	$1.7\ 10^{7}$	$8.3\ 10^{8}$
^{134}Cs	0	$2.8\ 10^{8}$	$1.6\ 10^{7}$	0
^{137}Cs	0	$4.0\ 10^{8}$	$2.6\ 10^{7}$	$2.6\ 10^{7}$
^{51}Cr	0	0	$1.1\ 10^{8}$	$2.6\ 10^{8}$
^{110m}Ag	0	0	0	$1.1\ 10^{8}$
^{54}Mn	0	0	$5.8\ 10^{7}$	$8.1\ 10^{7}$
^{141}Ce	0	0	0	0
^{144}Ce	0	0	0	0
^{124}Sb	$7.2\ 10^{9}$	$4.1\ 10^{9}$	$5.6\ 10^{8}$	$2.3\ 10^{8}$
^{131}I	$1.8\ 10^{8}$	$1.4\ 10^{8}$	0	0
^{123m}Te	0	0	$5.5\ 10^{7}$	$7.4\ 10^{7}$
^{95}Nb	0	0	$1.4\ 10^{8}$	0
Total	$7.8\ 10^{9}$	$5.9\ 10^{9}$	$1.3\ 10^{9}$	$2.1\ 10^{9}$
^{3}H	$1.9\ 10^{11}$	$3.1\ 10^{12}$	$5.0\ 10^{12}$	$3.8\ 10^{12}$

Nuclide	1980	1981	1982	1983	1984
^{58}Co	$1.8\ 10^{7}$	$2.8\ 10^{7}$	$4.3\ 10^{6}$	$6.2\ 10^{6}$	$1.5\ 10^{7}$
^{60}Co	$1.2\ 10^{8}$	$1.3\ 10^{8}$	$2.8\ 10^{7}$	$5.4\ 10^{7}$	$4.8\ 10^{7}$
^{134}Cs	$2.0\ 10^{7}$	$5.0\ 10^{6}$	$2.0\ 10^{6}$	$4.9\ 10^{6}$	$3.7\ 10^{6}$
^{137}Cs	$3.0\ 10^{7}$	$8.3\ 10^{6}$	$2.8\ 10^{6}$	$3.5\ 10^{6}$	$2.8\ 10^{6}$
^{51}Cr	0	$2.6\ 10^{7}$	0	$1.2\ 10^{7}$	$2.2\ 10^{7}$
^{110m}Ag	$4.0\ 10^{7}$	$1.7\ 10^{7}$	$5.0\ 10^{6}$	$8.0\ 10^{6}$	$1.2\ 10^{7}$
^{54}Mn	$8.9\ 10^{6}$	$4.3\ 10^{6}$	$7.0\ 10^{5}$	0	0
^{141}Ce	0	0	0	0	0
^{144}Ce	0	$1.0\ 10^{7}$	0	0	0
^{124}Sb	$3.8\ 10^{7}$	$1.0\ 10^{8}$	$8.3\ 10^{6}$	$8.4\ 10^{6}$	$1.8\ 10^{7}$
^{131}I	$1.7\ 10^{7}$	0	$9.7\ 10^{5}$	$1.7\ 10^{6}$	0
^{123m}Te	0	$1.0\ 10^{7}$	$1.7\ 10^{6}$	$6.5\ 10^{6}$	0
^{95}Nb	0	$4.8\ 10^{6}$	$1.1\ 10^{6}$	0	0
Total	$3.0\ 10^{8}$	$3.6\ 10^{8}$	$5.7\ 10^{7}$	$1.2\ 10^{8}$	$1.3\ 10^{8}$
^{3}H	$3.0\ 10^{12}$	$2.9\ 10^{12}$	$6.5\ 10^{12}$	$1.2\ 10^{13}$	$1.1\ 10^{13}$

Table 51

Discharges from Nukem FRG

Nuclide	1960	1961	1962	1963	1964	1965
^{234}U	$2.1\ 10^{10}$	$2.1\ 10^{10}$	$2.1\ 10^{10}$	$2.1\ 10^{10}$	$2.1\ 10^{10}$	$2.1\ 10^{10}$
^{235}U	$5.6\ 10^{8}$	$5.6\ 10^{8}$	$5.6\ 10^{8}$	$5.6\ 10^{8}$	$5.6\ 10^{8}$	$5.6\ 10^{8}$
^{238}U	$6.4\ 10^{9}$	$6.4\ 10^{9}$	$6.4\ 10^{9}$	$6.4\ 10^{9}$	$6.4\ 10^{9}$	$6.4\ 10^{9}$

Nuclide	1966	1967	1968	1969	1970	1971
^{234}U	$2.1\ 10^{10}$	$2.1\ 10^{10}$	$2.1\ 10^{10}$	$2.1\ 10^{10}$	$2.1\ 10^{10}$	$2.1\ 10^{10}$
^{235}U	$5.6\ 10^{8}$	$5.6\ 10^{8}$	$5.6\ 10^{8}$	$5.6\ 10^{8}$	$5.6\ 10^{8}$	$5.6\ 10^{8}$
^{238}U	$6.4\ 10^{9}$	$6.4\ 10^{9}$	$6.4\ 10^{9}$	$6.4\ 10^{9}$	$6.4\ 10^{9}$	$6.4\ 10^{9}$

Nuclide	1972	1973	1974	1975	1976	1977
^{234}U	$2.1\ 10^{10}$	$2.1\ 10^{10}$	$2.1\ 10^{10}$	$2.1\ 10^{10}$	$3.9\ 10^{10}$	$1.8\ 10^{10}$
^{235}U	$5.6\ 10^{8}$	$5.6\ 10^{8}$	$5.6\ 10^{8}$	$5.6\ 10^{8}$	$1.0\ 10^{9}$	$4.8\ 10^{8}$
^{238}U	$6.4\ 10^{9}$	$6.4\ 10^{9}$	$6.4\ 10^{9}$	$6.4\ 10^{9}$	$1.2\ 10^{10}$	$5.5\ 10^{9}$

Nuclide	1978	1979	1980	1981	1982	1983	1984
^{234}U	$9.7\ 10^{9}$	$1.0\ 10^{10}$	$4.3\ 10^{9}$	$3.4\ 10^{9}$	$3.3\ 10^{9}$	$4.9\ 10^{9}$	$3.9\ 10^{9}$
^{235}U	$2.6\ 10^{8}$	$2.8\ 10^{8}$	$1.1\ 10^{8}$	$9.2\ 10^{7}$	$9.0\ 10^{7}$	$1.3\ 10^{8}$	$1.0\ 10^{8}$
^{238}U	$2.9\ 10^{9}$	$3.2\ 10^{9}$	$1.3\ 10^{9}$	$1.0\ 10^{9}$	$1.0\ 10^{9}$	$1.5\ 10^{9}$	$1.2\ 10^{9}$

Table 52

Discharges from Obrigheim, FRG

Nuclide	1969	1970	1971	1972	1973	1974	1975	1976
^{58}Co	0	0	0	$4.1\ 10^{10}$	$1.4\ 10^{10}$	$2.4\ 10^{10}$	$3.1\ 10^{9}$	$2.7\ 10^{9}$
^{60}Co	0	0	0	$3.5\ 10^{10}$	0	$1.0\ 10^{10}$	$9.4\ 10^{9}$	$1.1\ 10^{10}$
^{90}Sr	0	0	0	0	0	0	0	0
^{106}Ru	0	0	0	0	0	0	0	0
^{134}Cs	0	0	0	$2.4\ 10^{10}$	$1.3\ 10^{10}$	$1.5\ 10^{10}$	$1.7\ 10^{10}$	$1.3\ 10^{10}$
^{137}Cs	0	0	0	$4.7\ 10^{10}$	$1.8\ 10^{10}$	$2.3\ 10^{10}$	$1.9\ 10^{10}$	$1.6\ 10^{10}$
^{131}I	0	0	0	$4.4\ 10^{9}$	$3.0\ 10^{9}$	$3.0\ 10^{9}$	0	0
^{133}Xe	0	0	0	0	0	0	0	0
^{51}Cr	0	0	0	$9.6\ 10^{9}$	0	0	0	$6.9\ 10^{8}$
^{110m}Ag	0	0	0	0	0	0	0	$9.9\ 10^{8}$
^{54}Mn	0	0	0	$3.7\ 10^{9}$	$1.7\ 10^{9}$	$2.7\ 10^{9}$	0	$5.3\ 10^{8}$
^{140}Ba	0	0	0	0	0	0	$8.0\ 10^{9}$	0
^{140}La	0	0	0	0	0	0	$7.1\ 10^{9}$	0
^{124}Sb	0	0	0	$2.5\ 10^{9}$	$1.7\ 10^{9}$	0	0	0
^{141}Ce	0	0	0	0	$2.3\ 10^{9}$	0	0	0
^{144}Ce	0	0	0	0	$1.5\ 10^{9}$	0	0	0
Total	$3.9\ 10^{11}$	$1.2\ 10^{11}$	$1.6\ 10^{11}$	$1.7\ 10^{11}$	$7.4\ 10^{10}$	$7.8\ 10^{10}$	$6.7\ 10^{10}$	$4.4\ 10^{10}$
^{3}H	$8.9\ 10^{12}$	$1.4\ 10^{13}$	$9.4\ 10^{12}$	$8.9\ 10^{12}$	$1.2\ 10^{13}$	$5.6\ 10^{12}$	$5.6\ 10^{12}$	$5.3\ 10^{12}$

Nuclide	1977	1978	1979	1980	1981	1982	1983	1984
^{58}Co	$5.5\ 10^{8}$	$3.0\ 10^{8}$	$8.4\ 10^{8}$	$3.0\ 10^{8}$	$3.3\ 10^{8}$	$1.9\ 10^{8}$	$4.0\ 10^{8}$	$1.5\ 10^{8}$
^{60}Co	$3.3\ 10^{9}$	$3.2\ 10^{9}$	$3.6\ 10^{9}$	$1.7\ 10^{9}$	$7.0\ 10^{8}$	$9.7\ 10^{8}$	$1.4\ 10^{9}$	$1.1\ 10^{9}$
^{90}Sr	0	0	0	0	0	0	0	0
^{106}Ru	0	0	0	0	0	0	0	0
^{134}Cs	$9.2\ 10^{8}$	$4.3\ 10^{8}$	$1.3\ 10^{8}$	$1.6\ 10^{8}$	$4.7\ 10^{7}$	$2.0\ 10^{7}$	$5.1\ 10^{7}$	$2.9\ 10^{7}$
^{137}Cs	$2.2\ 10^{9}$	$1.6\ 10^{9}$	$9.9\ 10^{8}$	$6.3\ 10^{8}$	$2.5\ 10^{8}$	$1.6\ 10^{8}$	$4.1\ 10^{8}$	$3.7\ 10^{8}$
^{131}I	$2.0\ 10^{8}$	$7.1\ 10^{7}$	0	0	0	$1.9\ 10^{7}$	$2.0\ 10^{8}$	0
^{133}Xe	0	$4.5\ 10^{8}$	$9.6\ 10^{7}$	0	$2.4\ 10^{8}$	0	$3.3\ 10^{8}$	0
^{51}Cr	0	$1.2\ 10^{8}$	$4.1\ 10^{8}$	$6.7\ 10^{7}$	$1.7\ 10^{8}$	$1.8\ 10^{7}$	$3.1\ 10^{7}$	$2.8\ 10^{7}$
^{110m}Ag	$6.4\ 10^{7}$	$5.5\ 10^{7}$	0	$1.1\ 10^{8}$	$3.4\ 10^{7}$	$7.1\ 10^{7}$	$8.1\ 10^{7}$	$8.8\ 10^{7}$
^{54}Mn	0	$8.3\ 10^{7}$	0	$4.1\ 10^{7}$	$3.3\ 10^{7}$	$3.6\ 10^{7}$	$4.1\ 10^{7}$	$1.5\ 10^{7}$
^{140}Ba	0	0	0	0	0	0	0	0
^{140}La	0	0	0	0	0	0	0	0
^{124}Sb	0	0	0	0	0	0	0	0
^{141}Ce	0	0	0	0	0	0	0	0
^{144}Ce	0	0	0	0	0	0	0	0
Total	$7.4\ 10^{9}$	$7.4\ 10^{9}$	$6.3\ 10^{9}$	$3.0\ 10^{9}$	$1.9\ 10^{9}$	$1.5\ 10^{9}$	$2.9\ 10^{9}$	$2.9\ 10^{9}$
^{3}H	$4.3\ 10^{12}$	$4.8\ 10^{12}$	$5.0\ 10^{12}$	$3.1\ 10^{12}$	$4.5\ 10^{12}$	$4.7\ 10^{12}$	$3.2\ 10^{12}$	$5.0\ 10^{12}$

Table 53

Discharges from Oldbury, UK

Nuclide	1967	1968	1969	1970	1971	1972
^{3}H	$1.4\ 10^{11}$	$1.3\ 10^{12}$	$6.1\ 10^{11}$	$6.4\ 10^{11}$	$2.4\ 10^{12}$	$5.6\ 10^{11}$
^{14}C	$1.0\ 10^{6}$	$6.2\ 10^{7}$	$1.7\ 10^{8}$	$5.6\ 10^{8}$	$1.8\ 10^{8}$	$3.8\ 10^{8}$
^{32}P	$1.5\ 10^{6}$	$9.3\ 10^{7}$	$2.5\ 10^{8}$	$8.4\ 10^{8}$	$2.7\ 10^{8}$	$1.9\ 10^{8}$
^{35}S	$1.3\ 10^{8}$	$8.2\ 10^{9}$	$2.2\ 10^{10}$	$7.4\ 10^{10}$	$2.4\ 10^{10}$	$5.6\ 10^{10}$
^{45}Ca	$6.6\ 10^{6}$	$4.1\ 10^{8}$	$1.1\ 10^{9}$	$3.7\ 10^{9}$	$1.2\ 10^{9}$	$2.2\ 10^{9}$
^{51}Cr	$3.0\ 10^{6}$	$1.8\ 10^{8}$	$5.1\ 10^{8}$	$1.6\ 10^{9}$	$5.5\ 10^{8}$	$1.1\ 10^{9}$
^{54}Mn	$3.3\ 10^{5}$	$2.0\ 10^{7}$	$5.7\ 10^{7}$	$1.8\ 10^{8}$	$6.2\ 10^{7}$	$1.2\ 10^{8}$
^{55}Fe	$3.3\ 10^{6}$	$2.0\ 10^{8}$	$5.7\ 10^{8}$	$1.8\ 10^{9}$	$6.2\ 10^{8}$	$1.9\ 10^{8}$
^{58}Co	$4.1\ 10^{5}$	$2.5\ 10^{7}$	$7.1\ 10^{7}$	$2.3\ 10^{8}$	$7.7\ 10^{7}$	$1.9\ 10^{8}$
^{59}Fe	$5.0\ 10^{5}$	$3.1\ 10^{7}$	$8.6\ 10^{7}$	$2.8\ 10^{8}$	$9.3\ 10^{7}$	$1.9\ 10^{8}$
^{60}Co	$5.0\ 10^{5}$	$3.1\ 10^{7}$	$8.6\ 10^{7}$	$2.8\ 10^{8}$	$9.3\ 10^{7}$	$1.9\ 10^{8}$
^{63}Ni	$4.1\ 10^{5}$	$2.5\ 10^{7}$	$7.1\ 10^{7}$	$2.3\ 10^{8}$	$7.7\ 10^{7}$	$1.5\ 10^{8}$
^{65}Zn	$5.8\ 10^{5}$	$3.6\ 10^{7}$	$1.0\ 10^{8}$	$3.2\ 10^{8}$	$1.0\ 10^{8}$	$2.2\ 10^{8}$
^{89}Sr	$1.4\ 10^{7}$	$8.6\ 10^{8}$	$2.4\ 10^{9}$	$7.8\ 10^{9}$	$2.6\ 10^{9}$	$4.5\ 10^{9}$
^{90}Sr	$5.5\ 10^{7}$	$3.4\ 10^{9}$	$9.6\ 10^{9}$	$3.1\ 10^{10}$	$1.0\ 10^{10}$	$1.9\ 10^{10}$
^{90}Y	$5.5\ 10^{7}$	$3.4\ 10^{9}$	$9.6\ 10^{9}$	$3.1\ 10^{10}$	$1.0\ 10^{10}$	$1.9\ 10^{10}$
^{91}Y	$5.0\ 10^{5}$	$3.1\ 10^{7}$	$8.6\ 10^{7}$	$2.8\ 10^{8}$	$9.3\ 10^{7}$	$1.9\ 10^{8}$
^{95}Zr	$4.1\ 10^{5}$	$2.5\ 10^{7}$	$7.1\ 10^{7}$	$2.3\ 10^{8}$	$7.7\ 10^{7}$	$1.5\ 10^{8}$
^{95}Nb	$6.6\ 10^{5}$	$4.1\ 10^{7}$	$1.1\ 10^{8}$	$3.7\ 10^{8}$	$1.2\ 10^{8}$	$2.5\ 10^{8}$
^{106}Ru	$6.6\ 10^{5}$	$4.1\ 10^{7}$	$1.1\ 10^{8}$	$3.7\ 10^{8}$	$1.2\ 10^{8}$	$1.9\ 10^{8}$
^{106}Rh	$6.6\ 10^{5}$	$4.1\ 10^{7}$	$1.1\ 10^{8}$	$3.7\ 10^{8}$	$1.2\ 10^{8}$	$1.9\ 10^{8}$
^{110m}Ag	$4.1\ 10^{5}$	$2.5\ 10^{7}$	$7.1\ 10^{7}$	$2.3\ 10^{8}$	$7.7\ 10^{7}$	$1.5\ 10^{8}$
^{124}Sb	$1.6\ 10^{6}$	$1.0\ 10^{8}$	$2.8\ 10^{8}$	$9.3\ 10^{8}$	$3.1\ 10^{8}$	$6.3\ 10^{8}$
^{125}Sb	$3.6\ 10^{6}$	$2.2\ 10^{8}$	$6.3\ 10^{8}$	$2.0\ 10^{9}$	$6.8\ 10^{8}$	$9.5\ 10^{8}$
^{125m}Te	$8.3\ 10^{5}$	$5.1\ 10^{7}$	$1.4\ 10^{8}$	$4.6\ 10^{8}$	$1.5\ 10^{8}$	$3.1\ 10^{8}$
^{134}Cs	$3.0\ 10^{7}$	$1.8\ 10^{9}$	$5.2\ 10^{9}$	$1.7\ 10^{10}$	$5.6\ 10^{9}$	$1.2\ 10^{10}$
^{137}Cs	$1.8\ 10^{8}$	$1.1\ 10^{10}$	$3.2\ 10^{10}$	$1.0\ 10^{11}$	$3.4\ 10^{10}$	$7.2\ 10^{10}$
^{144}Ce	$5.0\ 10^{5}$	$3.1\ 10^{7}$	$8.6\ 10^{7}$	$2.8\ 10^{8}$	$9.3\ 10^{7}$	$1.9\ 10^{8}$
^{144}Pr	$5.0\ 10^{5}$	$3.1\ 10^{7}$	$8.6\ 10^{7}$	$2.8\ 10^{8}$	$9.3\ 10^{7}$	$1.9\ 10^{8}$
^{147}Pm	$1.3\ 10^{6}$	$8.2\ 10^{7}$	$2.2\ 10^{8}$	$7.4\ 10^{8}$	$2.4\ 10^{8}$	$5.7\ 10^{8}$
^{154}Eu	$3.3\ 10^{5}$	$2.0\ 10^{7}$	$5.7\ 10^{7}$	$1.8\ 10^{8}$	$6.2\ 10^{7}$	$1.2\ 10^{8}$
^{155}Eu	$2.5\ 10^{5}$	$1.5\ 10^{7}$	$4.3\ 10^{7}$	$1.4\ 10^{8}$	$4.6\ 10^{7}$	$9.5\ 10^{7}$
^{239}Pu	$4.1\ 10^{5}$	$2.5\ 10^{7}$	$7.1\ 10^{7}$	$2.3\ 10^{8}$	$7.7\ 10^{7}$	$1.5\ 10^{8}$

Table 53 (continued)

Nuclide	1973	1974	1975	1976	1977	1978
^{3}H	$5.0\ 10^{11}$	$1.4\ 10^{12}$	$5.2\ 10^{11}$	$7.2\ 10^{11}$	$5.4\ 10^{11}$	$2.7\ 10^{11}$
^{14}C	$3.0\ 10^{8}$	$2.4\ 10^{9}$	$2.0\ 10^{9}$	$3.8\ 10^{9}$	$2.4\ 10^{9}$	$5.5\ 10^{8}$
^{32}P	$6.0\ 10^{8}$	$4.8\ 10^{9}$	$7.0\ 10^{9}$	$1.9\ 10^{9}$	$1.2\ 10^{10}$	$5.5\ 10^{8}$
^{35}S	$4.3\ 10^{10}$	$2.4\ 10^{11}$	$1.4\ 10^{11}$	$3.1\ 10^{11}$	$6.0\ 10^{11}$	$2.7\ 10^{11}$
^{45}Ca	$1.8\ 10^{9}$	$1.9\ 10^{10}$	$8.0\ 10^{9}$	$2.4\ 10^{10}$	$2.6\ 10^{10}$	$1.2\ 10^{10}$
^{51}Cr	$9.0\ 10^{8}$	$4.8\ 10^{9}$	$8.0\ 10^{9}$	$1.5\ 10^{10}$	$3.8\ 10^{10}$	$5.5\ 10^{8}$
^{54}Mn	$1.5\ 10^{8}$	$6.0\ 10^{8}$	$5.0\ 10^{8}$	$9.5\ 10^{8}$	$2.4\ 10^{9}$	$5.5\ 10^{8}$
^{55}Fe	$1.9\ 10^{9}$	$7.2\ 10^{9}$	$5.0\ 10^{9}$	$2.2\ 10^{10}$	$7.2\ 10^{10}$	$1.1\ 10^{11}$
^{58}Co	$1.5\ 10^{8}$	$6.0\ 10^{8}$	$5.0\ 10^{8}$	$9.5\ 10^{8}$	$1.2\ 10^{9}$	$5.5\ 10^{8}$
^{59}Fe	$1.5\ 10^{8}$	$1.2\ 10^{9}$	$1.0\ 10^{9}$	$9.5\ 10^{8}$	$1.2\ 10^{9}$	$5.5\ 10^{8}$
^{60}Co	$1.5\ 10^{8}$	$1.2\ 10^{9}$	$3.0\ 10^{9}$	$3.8\ 10^{9}$	$2.8\ 10^{10}$	$1.5\ 10^{10}$
^{63}Ni	$1.5\ 10^{8}$	$6.0\ 10^{8}$	$1.0\ 10^{9}$	$1.9\ 10^{9}$	$4.8\ 10^{9}$	$5.5\ 10^{8}$
^{65}Zn	$1.5\ 10^{8}$	$6.0\ 10^{8}$	$2.0\ 10^{9}$	$1.9\ 10^{9}$	$2.1\ 10^{10}$	$5.5\ 10^{9}$
^{89}Sr	$5.1\ 10^{9}$	$3.1\ 10^{10}$	$2.3\ 10^{10}$	$1.5\ 10^{10}$	$4.3\ 10^{10}$	$1.1\ 10^{9}$
^{90}Sr	$1.5\ 10^{10}$	$1.5\ 10^{11}$	$1.0\ 10^{11}$	$2.8\ 10^{11}$	$3.3\ 10^{11}$	$6.7\ 10^{10}$
^{90}Y	$1.5\ 10^{10}$	$1.5\ 10^{11}$	$1.0\ 10^{11}$	$2.8\ 10^{11}$	$3.3\ 10^{11}$	$6.7\ 10^{10}$
^{91}Y	$1.5\ 10^{8}$	$1.2\ 10^{9}$	$1.0\ 10^{9}$	$3.8\ 10^{9}$	$1.2\ 10^{10}$	$3.0\ 10^{10}$
^{95}Zr	$1.5\ 10^{8}$	$6.0\ 10^{8}$	$1.0\ 10^{9}$	$1.9\ 10^{9}$	$7.2\ 10^{9}$	$1.1\ 10^{9}$
^{95}Nb	$3.0\ 10^{8}$	$1.2\ 10^{9}$	$1.0\ 10^{9}$	$5.7\ 10^{9}$	$1.2\ 10^{10}$	$1.1\ 10^{9}$
^{106}Ru	$3.0\ 10^{8}$	$1.2\ 10^{9}$	$4.0\ 10^{9}$	$5.7\ 10^{9}$	$2.8\ 10^{10}$	$4.5\ 10^{10}$
^{106}Rh	$3.0\ 10^{8}$	$1.2\ 10^{9}$	$4.0\ 10^{9}$	$5.7\ 10^{9}$	$2.8\ 10^{10}$	$4.5\ 10^{10}$
^{110m}Ag	$1.5\ 10^{8}$	$6.0\ 10^{8}$	$1.0\ 10^{9}$	$9.5\ 10^{8}$	$1.2\ 10^{9}$	$5.5\ 10^{8}$
^{124}Sb	$5.0\ 10^{8}$	$4.0\ 10^{9}$	$3.3\ 10^{9}$	$6.3\ 10^{9}$	$8.0\ 10^{9}$	$3.6\ 10^{9}$
^{125}Sb	$1.8\ 10^{9}$	$6.0\ 10^{9}$	$4.0\ 10^{9}$	$1.1\ 10^{10}$	$1.2\ 10^{10}$	$3.3\ 10^{9}$
^{125m}Te	$4.5\ 10^{8}$	$1.2\ 10^{9}$	$1.0\ 10^{9}$	$1.9\ 10^{9}$	$2.4\ 10^{9}$	$1.1\ 10^{9}$
^{134}Cs	$7.0\ 10^{9}$	$8.4\ 10^{10}$	$9.0\ 10^{10}$	$1.5\ 10^{11}$	$9.8\ 10^{10}$	$1.8\ 10^{10}$
^{137}Cs	$5.2\ 10^{10}$	$4.6\ 10^{11}$	$4.7\ 10^{11}$	$6.9\ 10^{11}$	$5.4\ 10^{11}$	$1.3\ 10^{11}$
^{144}Ce	$1.5\ 10^{8}$	$1.2\ 10^{9}$	$2.0\ 10^{9}$	$5.7\ 10^{9}$	$3.1\ 10^{10}$	$7.4\ 10^{10}$
^{144}Pr	$1.5\ 10^{8}$	$1.2\ 10^{9}$	$2.0\ 10^{9}$	$5.7\ 10^{9}$	$3.1\ 10^{10}$	$7.4\ 10^{10}$
^{147}Pm	$3.0\ 10^{8}$	$3.6\ 10^{9}$	$5.0\ 10^{9}$	$9.5\ 10^{9}$	$5.0\ 10^{10}$	$9.7\ 10^{10}$
^{154}Eu	$1.5\ 10^{8}$	$6.0\ 10^{8}$	$5.0\ 10^{8}$	$9.5\ 10^{8}$	$2.4\ 10^{9}$	$3.3\ 10^{9}$
^{155}Eu	$7.5\ 10^{7}$	$6.0\ 10^{8}$	$5.0\ 10^{8}$	$9.5\ 10^{8}$	$1.2\ 10^{9}$	$2.2\ 10^{9}$
^{239}Pu	$1.2\ 10^{8}$	$1.0\ 10^{9}$	$5.0\ 10^{8}$	$1.9\ 10^{9}$	$2.4\ 10^{9}$	$5.5\ 10^{9}$

Table 53 (continued)

Nuclide	1979	1980	1981	1982	1983	1984
^{3}H	$2.2\ 10^{11}$	$3.0\ 10^{11}$	$5.2\ 10^{11}$	$9.6\ 10^{11}$	$1.1\ 10^{12}$	$1.0\ 10^{12}$
^{14}C	$3.5\ 10^{8}$	$7.0\ 10^{8}$	$1.1\ 10^{9}$	$1.0\ 10^{9}$	$1.3\ 10^{9}$	$8.5\ 10^{8}$
^{32}P	$3.5\ 10^{8}$	$7.0\ 10^{8}$	$1.1\ 10^{9}$	$1.0\ 10^{9}$	$1.3\ 10^{9}$	$8.5\ 10^{8}$
^{35}S	$2.6\ 10^{11}$	$7.0\ 10^{11}$	$1.1\ 10^{12}$	$7.0\ 10^{11}$	$7.0\ 10^{11}$	$4.9\ 10^{11}$
^{45}Ca	$2.2\ 10^{10}$	$1.4\ 10^{10}$	$6.9\ 10^{9}$	$1.0\ 10^{10}$	$7.8\ 10^{10}$	$1.7\ 10^{10}$
^{51}Cr	$3.5\ 10^{8}$	$7.0\ 10^{8}$	$3.8\ 10^{8}$	$3.3\ 10^{8}$	0	0
^{54}Mn	$3.5\ 10^{8}$	$7.0\ 10^{8}$	$1.1\ 10^{9}$	$1.0\ 10^{9}$	$1.3\ 10^{9}$	$8.5\ 10^{8}$
^{55}Fe	$1.7\ 10^{10}$	$1.1\ 10^{10}$	$9.2\ 10^{9}$	$4.0\ 10^{10}$	$1.3\ 10^{10}$	$1.7\ 10^{10}$
^{58}Co	$3.5\ 10^{8}$	$7.0\ 10^{8}$	$1.1\ 10^{9}$	$1.0\ 10^{9}$	0	0
^{59}Fe	$7.1\ 10^{8}$	$7.0\ 10^{8}$	$2.3\ 10^{9}$	$2.0\ 10^{10}$	0	0
^{60}Co	$2.8\ 10^{9}$	$2.8\ 10^{9}$	$2.3\ 10^{9}$	$1.0\ 10^{10}$	$1.3\ 10^{10}$	$8.5\ 10^{9}$
^{63}Ni	$3.5\ 10^{8}$	$7.0\ 10^{8}$	$1.1\ 10^{9}$	$1.0\ 10^{9}$	$1.3\ 10^{9}$	$8.5\ 10^{8}$
^{65}Zn	$7.1\ 10^{8}$	$1.4\ 10^{9}$	$2.3\ 10^{9}$	$1.0\ 10^{10}$	$1.3\ 10^{9}$	$8.5\ 10^{9}$
^{89}Sr	$7.8\ 10^{9}$	$8.4\ 10^{9}$	$2.7\ 10^{10}$	0	0	0
^{90}Sr	$5.1\ 10^{10}$	$9.3\ 10^{10}$	$9.4\ 10^{10}$	$2.0\ 10^{10}$	$7.8\ 10^{10}$	$1.5\ 10^{11}$
^{90}Y	$5.1\ 10^{10}$	$9.3\ 10^{10}$	$9.4\ 10^{10}$	$2.0\ 10^{10}$	$7.8\ 10^{10}$	$1.5\ 10^{11}$
^{91}Y	$1.0\ 10^{10}$	$7.0\ 10^{8}$	$1.1\ 10^{9}$	$2.0\ 10^{10}$	0	0
^{95}Zr	$7.1\ 10^{8}$	$7.0\ 10^{8}$	$1.1\ 10^{9}$	$1.0\ 10^{10}$	$1.3\ 10^{9}$	0
^{95}Nb	$1.4\ 10^{9}$	$7.0\ 10^{8}$	$2.3\ 10^{9}$	$2.0\ 10^{10}$	$1.3\ 10^{10}$	0
^{106}Ru	$4.2\ 10^{9}$	$1.4\ 10^{9}$	$4.6\ 10^{9}$	$1.0\ 10^{10}$	$1.3\ 10^{10}$	0
^{106}Rh	$4.2\ 10^{9}$	$1.4\ 10^{9}$	$4.6\ 10^{9}$	$1.0\ 10^{10}$	$1.3\ 10^{10}$	0
^{110m}Ag	$3.5\ 10^{8}$	$7.0\ 10^{8}$	$1.1\ 10^{9}$	$1.0\ 10^{9}$	0	0
^{124}Sb	$2.1\ 10^{9}$	$7.0\ 10^{9}$	$4.6\ 10^{9}$	$2.0\ 10^{10}$	$1.3\ 10^{10}$	$8.5\ 10^{9}$
^{125}Sb	$7.1\ 10^{9}$	$4.2\ 10^{9}$	$9.2\ 10^{9}$	$1.0\ 10^{10}$	$1.3\ 10^{10}$	$8.5\ 10^{9}$
^{125m}Te	$2.1\ 10^{9}$	$1.4\ 10^{9}$	$2.3\ 10^{9}$	$1.0\ 10^{10}$	$1.3\ 10^{10}$	$8.5\ 10^{9}$
^{134}Cs	$1.8\ 10^{10}$	$2.8\ 10^{10}$	$5.2\ 10^{10}$	$6.0\ 10^{10}$	$7.8\ 10^{10}$	$3.4\ 10^{10}$
^{137}Cs	$2.0\ 10^{11}$	$4.1\ 10^{11}$	$8.6\ 10^{11}$	$1.0\ 10^{12}$	$1.5\ 10^{12}$	$7.9\ 10^{11}$
^{144}Ce	$7.8\ 10^{9}$	$1.4\ 10^{9}$	$2.3\ 10^{9}$	$1.0\ 10^{10}$	$1.3\ 10^{10}$	0
^{144}Pr	$7.8\ 10^{9}$	$1.4\ 10^{9}$	$2.3\ 10^{9}$	$1.0\ 10^{10}$	$1.3\ 10^{10}$	0
^{147}Pm	$2.0\ 10^{10}$	$1.2\ 10^{10}$	$6.9\ 10^{9}$	$1.0\ 10^{9}$	$5.2\ 10^{10}$	$3.4\ 10^{10}$
^{154}Eu	$7.1\ 10^{8}$	$7.0\ 10^{8}$	$1.1\ 10^{9}$	$1.0\ 10^{9}$	$1.3\ 10^{9}$	$8.5\ 10^{8}$
^{155}Eu	$3.5\ 10^{8}$	$7.0\ 10^{8}$	0	$1.0\ 10^{10}$	$1.3\ 10^{9}$	0
^{239}Pu	$1.4\ 10^{9}$	$1.4\ 10^{9}$	$2.3\ 10^{9}$	$1.0\ 10^{10}$	$1.3\ 10^{10}$	$8.5\ 10^{9}$

Table 54

Discharges from Olkiluoto, Finland

Nuclide	1978	1979	1980	1981	1982	1983	1984
^{3}H	$8.6\ 10^{9}$	$4.6\ 10^{11}$	$5.8\ 10^{11}$	$8.4\ 10^{11}$	$7.7\ 10^{11}$	$8.2\ 10^{11}$	$1.0\ 10^{12}$
^{24}Na	$5.8\ 10^{6}$	$3.8\ 10^{7}$	$1.6\ 10^{7}$	0	$1.3\ 10^{8}$	$1.1\ 10^{7}$	$1.7\ 10^{7}$
^{51}Cr	$5.8\ 10^{8}$	$3.7\ 10^{9}$	$3.3\ 10^{9}$	$1.0\ 10^{10}$	$5.7\ 10^{9}$	$1.7\ 10^{9}$	$2.6\ 10^{9}$
^{54}Mn	$1.2\ 10^{8}$	$7.5\ 10^{8}$	$1.1\ 10^{9}$	$1.9\ 10^{9}$	$8.4\ 10^{8}$	$1.1\ 10^{9}$	$1.8\ 10^{9}$
^{59}Fe	$2.8\ 10^{6}$	$1.8\ 10^{7}$	$6.3\ 10^{7}$	$1.3\ 10^{7}$	$7.3\ 10^{6}$	$3.7\ 10^{7}$	$6.1\ 10^{7}$
^{57}Co	0	0	0	0	0	0	$1.2\ 10^{7}$
^{58}Co	$2.8\ 10^{8}$	$1.8\ 10^{9}$	$4.3\ 10^{9}$	$3.0\ 10^{9}$	$1.4\ 10^{9}$	$1.2\ 10^{9}$	$2.8\ 10^{9}$
^{60}Co	$1.8\ 10^{8}$	$1.2\ 10^{9}$	$2.3\ 10^{9}$	$1.4\ 10^{9}$	$1.7\ 10^{9}$	$4.2\ 10^{9}$	$5.7\ 10^{9}$
^{65}Zn	$7.2\ 10^{6}$	$4.6\ 10^{7}$	$7.5\ 10^{7}$	$2.9\ 10^{7}$	$9.5\ 10^{7}$	$2.2\ 10^{8}$	$1.6\ 10^{8}$
^{89}Sr	0	0	0	$1.0\ 10^{7}$	0	$9.8\ 10^{7}$	$8.6\ 10^{8}$
^{90}Sr	0	0	0	0	0	0	$2.5\ 10^{6}$
^{95}Zr	0	0	0	0	0	0	$1.9\ 10^{8}$
^{95}Nb	0	0	0	0	0	$2.5\ 10^{7}$	$2.0\ 10^{7}$
^{110m}Ag	$2.6\ 10^{7}$	$1.7\ 10^{8}$	$2.5\ 10^{8}$	$7.1\ 10^{8}$	$1.4\ 10^{7}$	$1.2\ 10^{8}$	$5.1\ 10^{8}$
^{122}Sb	0	0	$7.0\ 10^{6}$	0	0	0	0
^{124}Sb	0	0	0	0	0	$4.7\ 10^{6}$	$1.2\ 10^{7}$
^{125}Sb	0	0	0	0	0	$3.3\ 10^{7}$	$3.5\ 10^{7}$
^{131}I	0	0	0	0	$1.3\ 10^{6}$	$5.0\ 10^{5}$	0
^{134}Cs	0	0	0	0	0	$1.2\ 10^{7}$	0
^{137}Cs	0	0	0	0	0	$6.0\ 10^{7}$	$2.3\ 10^{6}$

Table 55

Discharges from Oskarshamn, Sweden

Nuclide	1970	1971	1972	1973	1974	1975	1976
^{3}H	$4.0\ 10^{8}$	$3.3\ 10^{10}$	$3.0\ 10^{11}$	$3.3\ 10^{11}$	$4.0\ 10^{11}$	$1.0\ 10^{12}$	$1.3\ 10^{12}$
^{51}Cr	$4.0\ 10^{7}$	$3.4\ 10^{8}$	$8.4\ 10^{8}$	$1.8\ 10^{10}$	$8.2\ 10^{10}$	$2.4\ 10^{10}$	$1.3\ 10^{10}$
^{54}Mn	$8.0\ 10^{6}$	$6.8\ 10^{7}$	$1.7\ 10^{9}$	$3.6\ 10^{9}$	$7.5\ 10^{9}$	$7.0\ 10^{9}$	$9.6\ 10^{9}$
^{57}Co	0	0	0	0	0	0	0
^{58}Co	$1.1\ 10^{7}$	$9.4\ 10^{7}$	$2.3\ 10^{8}$	$4.9\ 10^{9}$	$9.6\ 10^{9}$	$1.1\ 10^{10}$	$1.1\ 10^{10}$
^{59}Fe	0	0	0	0	0	0	0
^{60}Co	$3.4\ 10^{7}$	$2.9\ 10^{8}$	$7.2\ 10^{8}$	$1.5\ 10^{10}$	$2.1\ 10^{10}$	$3.3\ 10^{10}$	$4.7\ 10^{10}$
^{65}Zn	$1.0\ 10^{8}$	$9.8\ 10^{8}$	$2.2\ 10^{9}$	$4.6\ 10^{10}$	$1.0\ 10^{11}$	$5.6\ 10^{10}$	$1.5\ 10^{11}$
^{95}Nb	0	0	0	0	0	0	0
^{95}Zr	0	0	0	0	0	0	0
^{99m}Tc	0	0	0	0	0	0	0
^{103}Ru	0	0	0	0	0	0	0
^{110m}Ag	0	0	0	0	$5.2\ 10^{9}$	0	$1.0\ 10^{10}$
^{113}Sn	0	0	0	0	0	0	0
^{124}Sb	0	0	0	0	$5.0\ 10^{8}$	0	$8.0\ 10^{8}$
^{125}Sb	0	0	0	0	0	0	0
^{131}Ba	0	0	0	0	0	0	0
^{131}I	0	0	0	0	0	0	$3.1\ 10^{10}$
^{133}I	0	0	0	0	0	0	0
^{134}Cs	0	0	0	0	0	0	$1.9\ 10^{11}$
^{136}Cs	0	0	0	0	0	0	$2.0\ 10^{9}$
^{137}Cs	0	0	0	0	$2.1\ 10^{9}$	0	$3.2\ 10^{11}$
^{140}Ba	0	0	0	0	0	0	0
^{140}La	0	0	0	0	0	0	0
^{141}Ce	0	0	0	0	0	0	0
^{144}Ce	0	0	0	0	0	0	0
^{239}Np	0	0	0	0	0	0	0
^{239}Pu	$2.0\ 10^{8}$	$1.7\ 10^{9}$	$1.5\ 10^{9}$	$2.0\ 10^{8}$	$2.0\ 10^{8}$	$4.0\ 10^{6}$	$3.0\ 10^{7}$

Table 55 (continued)

Nuclide	1977	1978	1979	1980	1981	1982	1983	1984
^{3}H	$1.3\ 10^{12}$	$1.5\ 10^{12}$	$2.8\ 10^{12}$	$9.6\ 10^{11}$	$6.0\ 10^{11}$	$5.6\ 10^{11}$	$7.1\ 10^{11}$	$5.4\ 10^{11}$
^{51}Cr	$1.1\ 10^{10}$	$4.4\ 10^{9}$	$3.1\ 10^{10}$	$9.4\ 10^{9}$	$2.9\ 10^{10}$	$1.4\ 10^{10}$	$2.8\ 10^{9}$	$7.2\ 10^{9}$
^{54}Mn	$1.1\ 10^{10}$	$1.5\ 10^{9}$	$3.7\ 10^{9}$	$5.2\ 10^{9}$	$5.0\ 10^{9}$	$8.7\ 10^{9}$	$3.0\ 10^{9}$	$4.1\ 10^{9}$
^{57}Co	0	0	0	0	0	0	0	0
^{58}Co	$1.0\ 10^{10}$	$5.7\ 10^{9}$	$5.9\ 10^{9}$	$2.5\ 10^{9}$	$3.3\ 10^{9}$	$1.4\ 10^{10}$	$3.9\ 10^{9}$	$4.4\ 10^{9}$
^{59}Fe	0	0	0	$5.0\ 10^{8}$	$1.3\ 10^{8}$	0	$2.0\ 10^{7}$	$1.0\ 10^{8}$
^{60}Co	$9.6\ 10^{10}$	$1.7\ 10^{10}$	$2.7\ 10^{10}$	$2.7\ 10^{10}$	$3.1\ 10^{10}$	$6.2\ 10^{10}$	$2.7\ 10^{10}$	$3.5\ 10^{10}$
^{65}Zn	$1.1\ 10^{11}$	$4.3\ 10^{10}$	$3.8\ 10^{10}$	$2.2\ 10^{10}$	$1.9\ 10^{10}$	$4.1\ 10^{10}$	$1.6\ 10^{10}$	$1.7\ 10^{10}$
^{95}Nb	$5.5\ 10^{9}$	$8.0\ 10^{8}$	$1.5\ 10^{9}$	$4.0\ 10^{8}$	$3.0\ 10^{8}$	$2.0\ 10^{8}$	$3.5\ 10^{8}$	$1.4\ 10^{9}$
^{95}Zr	$4.5\ 10^{9}$	$5.0\ 10^{8}$	$8.0\ 10^{8}$	$2.0\ 10^{8}$	$1.0\ 10^{8}$	$5.0\ 10^{7}$	$5.0\ 10^{7}$	$7.1\ 10^{8}$
^{99m}Tc	0	0	0	$3.3\ 10^{9}$	0	0	$3.3\ 10^{9}$	$5.7\ 10^{8}$
^{103}Ru	0	0	0	$6.0\ 10^{7}$	$3.0\ 10^{7}$	0	0	$1.0\ 10^{7}$
^{110m}Ag	$2.0\ 10^{9}$	$8.0\ 10^{8}$	$2.6\ 10^{9}$	$8.0\ 10^{8}$	$2.1\ 10^{9}$	$2.0\ 10^{9}$	$3.2\ 10^{8}$	$2.0\ 10^{8}$
^{113}Sn	0	0	0	$6.0\ 10^{6}$	$5.0\ 10^{6}$	0	$1.0\ 10^{7}$	$6.0\ 10^{7}$
^{124}Sb	$6.0\ 10^{8}$	$3.0\ 10^{8}$	$3.0\ 10^{8}$	$7.0\ 10^{8}$	$3.7\ 10^{8}$	$1.3\ 10^{9}$	$7.1\ 10^{8}$	$9.6\ 10^{8}$
^{125}Sb	0	0	0	$4.0\ 10^{8}$	$4.2\ 10^{8}$	$4.0\ 10^{8}$	$5.5\ 10^{8}$	$3.0\ 10^{7}$
^{131}Ba	0	0	0	0	0	0	0	0
^{131}I	$4.4\ 10^{10}$	$1.3\ 10^{10}$	$6.7\ 10^{9}$	$1.6\ 10^{9}$	$2.6\ 10^{9}$	$2.6\ 10^{9}$	$2.7\ 10^{9}$	$2.2\ 10^{8}$
^{133}I	$6.0\ 10^{8}$	0	0	$4.0\ 10^{8}$	0	0	0	0
^{134}Cs	$6.9\ 10^{10}$	$2.0\ 10^{10}$	$9.3\ 10^{9}$	$5.1\ 10^{9}$	$6.4\ 10^{9}$	$4.3\ 10^{9}$	$5.8\ 10^{9}$	$1.1\ 10^{9}$
^{136}Cs	$2.0\ 10^{9}$	0	0	$3.0\ 10^{7}$	$1.4\ 10^{8}$	0	$2.1\ 10^{8}$	0
^{137}Cs	$9.9\ 10^{10}$	$3.5\ 10^{10}$	$1.5\ 10^{10}$	$1.2\ 10^{10}$	$1.5\ 10^{10}$	$1.1\ 10^{10}$	$1.2\ 10^{10}$	$8.7\ 10^{9}$
^{140}Ba	$9.0\ 10^{8}$	$4.0\ 10^{9}$	$3.0\ 10^{9}$	$1.3\ 10^{9}$	$3.5\ 10^{9}$	$2.4\ 10^{9}$	$2.9\ 10^{8}$	0
^{140}La	$1.0\ 10^{10}$	$1.4\ 10^{10}$	$1.3\ 10^{10}$	$3.0\ 10^{9}$	$3.1\ 10^{9}$	$5.4\ 10^{9}$	0	$1.5\ 10^{8}$
^{141}Ce	$2.0\ 10^{8}$	$1.0\ 10^{8}$	$8.0\ 10^{8}$	$2.0\ 10^{8}$	$3.2\ 10^{8}$	$1.3\ 10^{8}$	$8.0\ 10^{7}$	$2.0\ 10^{7}$
^{144}Ce	$1.2\ 10^{9}$	0	$8.0\ 10^{8}$	$7.0\ 10^{8}$	$1.0\ 10^{8}$	0	0	0
^{239}Np	0	0	0	$9.0\ 10^{8}$	0	0	0	0
^{239}Pu	$8.0\ 10^{7}$	$4.0\ 10^{6}$	$1.3\ 10^{7}$	$1.4\ 10^{7}$	0	0	0	0

Table 56

Discharges from Paluel, France

Nuclide	1984
^{3}H	$3.1\ 10^{13}$
^{54}Mn	$1.1\ 10^{10}$
^{58}Co	$3.5\ 10^{11}$
^{60}Co	$1.8\ 10^{10}$
^{110m}Ag	$1.5\ 10^{10}$
^{124}Sb	$3.8\ 10^{10}$
^{131}I	$1.5\ 10^{10}$
^{134}Cs	$1.1\ 10^{10}$
^{137}Cs	$1.3\ 10^{10}$

Table 57

Discharges from Philippsburg, FRG

Nuclide	1979	1980	1981	1982	1983	1984
^{51}Cr	$5.9\ 10^{9}$	$1.1\ 10^{9}$	$2.1\ 10^{7}$	$2.3\ 10^{8}$	$2.0\ 10^{8}$	$2.1\ 10^{9}$
^{54}Mn	$3.5\ 10^{8}$	$4.4\ 10^{8}$	$6.7\ 10^{7}$	$2.6\ 10^{8}$	$9.3\ 10^{7}$	$1.1\ 10^{8}$
^{58}Co	$6.3\ 10^{9}$	$1.8\ 10^{9}$	$2.8\ 10^{7}$	$4.1\ 10^{8}$	$2.1\ 10^{8}$	$1.5\ 10^{8}$
^{60}Co	$1.8\ 10^{8}$	$3.3\ 10^{8}$	$2.4\ 10^{8}$	$4.3\ 10^{8}$	$1.9\ 10^{8}$	$4.2\ 10^{8}$
^{65}Zn	$8.5\ 10^{8}$	$6.2\ 10^{8}$	$7.8\ 10^{7}$	$1.4\ 10^{8}$	$1.5\ 10^{8}$	$3.3\ 10^{8}$
^{124}Sb	$1.5\ 10^{8}$	0	0	$4.8\ 10^{7}$	0	$8.2\ 10^{7}$
^{134}Cs	0	0	0	0	$5.7\ 10^{8}$	$4.3\ 10^{8}$
^{137}Cs	0	0	0	$1.9\ 10^{7}$	$7.0\ 10^{8}$	$6.5\ 10^{8}$
^{131}I	0	0	0	0	$1.2\ 10^{9}$	$1.9\ 10^{7}$
Total	$1.4\ 10^{10}$	$4.3\ 10^{9}$	$4.4\ 10^{8}$	$1.6\ 10^{9}$	$3.3\ 10^{9}$	$4.7\ 10^{9}$
^{3}H	$7.8\ 10^{10}$	$3.8\ 10^{11}$	$5.2\ 10^{10}$	$8.3\ 10^{11}$	$1.7\ 10^{12}$	$2.0\ 10^{12}$

Table 58

Discharges from Ringhals. Sweden

Nuclide	1974	1975	1976	1977	1978
^{3}H	$3.0\ 10^{11}$	$6.9\ 10^{12}$	$1.1\ 10^{13}$	$9.4\ 10^{12}$	$1.1\ 10^{13}$
^{22}Na	0	0	0	0	0
^{51}Cr	0	$7.0\ 10^{8}$	$5.5\ 10^{10}$	$1.3\ 10^{11}$	$3.9\ 10^{10}$
^{54}Mn	$3.0\ 10^{8}$	$7.4\ 10^{9}$	$2.1\ 10^{10}$	$3.3\ 10^{10}$	$1.1\ 10^{10}$
^{57}Co	0	0	0	$1.0\ 10^{8}$	$2.0\ 10^{8}$
^{58}Co	$1.6\ 10^{9}$	$3.2\ 10^{11}$	$1.3\ 10^{11}$	$3.0\ 10^{11}$	$5.0\ 10^{10}$
^{59}Fe	0	0	$1.1\ 10^{9}$	$1.1\ 10^{9}$	$1.1\ 10^{10}$
^{60}Co	$4.0\ 10^{8}$	$8.6\ 10^{10}$	$6.0\ 10^{10}$	$1.0\ 10^{11}$	$9.7\ 10^{10}$
^{65}Zn	0	$2.5\ 10^{9}$	$2.4\ 10^{10}$	$3.8\ 10^{10}$	$3.9\ 10^{10}$
^{95}Nb	0	0	$2.4\ 10^{9}$	$9.7\ 10^{9}$	$6.2\ 10^{9}$
^{95}Zr	0	0	$1.7\ 10^{9}$	$4.3\ 10^{9}$	$2.5\ 10^{9}$
^{99m}Tc	0	0	0	0	0
^{103}Ru	0	0	0	0	$9.0\ 10^{8}$
^{110m}Ag	0	0	$3.0\ 10^{8}$	$9.0\ 10^{8}$	$4.0\ 10^{9}$
^{113}Sn	0	0	$4.0\ 10^{7}$	$7.0\ 10^{7}$	$1.3\ 10^{9}$
^{124}Sb	0	$1.0\ 10^{10}$	$1.4\ 10^{10}$	$3.1\ 10^{10}$	$5.0\ 10^{10}$
^{125}Sb	0	0	0	$3.0\ 10^{8}$	$1.3\ 10^{9}$
^{131}Ba	0	0	0	0	0
^{133}Ba	0	0	0	0	0
^{131}I	0	$2.0\ 10^{8}$	$4.7\ 10^{10}$	0	$1.9\ 10^{10}$
^{133}I	0	0	0	0	0
^{134}Cs	0	0	$7.0\ 10^{8}$	$6.8\ 10^{9}$	$1.1\ 10^{10}$
^{136}Cs	0	0	0	0	0
^{137}Cs	0	$2.0\ 10^{8}$	$1.2\ 10^{10}$	$7.4\ 10^{9}$	$2.0\ 10^{10}$
^{140}Ba	0	0	0	0	0
^{140}La	0	0	0	0	0
^{141}Ce	0	0	0	0	$5.0\ 10^{8}$
^{144}Ce	0	0	0	0	$1.3\ 10^{9}$
^{239}Np	0	0	0	0	0
^{239}Pu	$2.0\ 10^{8}$	$2.0\ 10^{8}$	$2.0\ 10^{8}$	$4.0\ 10^{6}$	$4.0\ 10^{6}$

Table 58 (continued)

Nuclide	1979	1980	1981	1982	1983	1984
^{3}H	$1.0\ 10^{13}$	$1.6\ 10^{13}$	$2.3\ 10^{13}$	$1.9\ 10^{13}$	$2.6\ 10^{13}$	$4.6\ 10^{13}$
^{22}Na	$4.0\ 10^{7}$	0	0	0	$1.0\ 10^{6}$	0
^{51}Cr	$7.4\ 10^{9}$	$6.0\ 10^{9}$	$1.6\ 10^{10}$	$5.5\ 10^{9}$	$1.4\ 10^{10}$	$8.1\ 10^{9}$
^{54}Mn	$5.2\ 10^{9}$	$5.3\ 10^{9}$	$4.1\ 10^{9}$	$2.2\ 10^{9}$	$7.7\ 10^{9}$	$8.1\ 10^{9}$
^{57}Co	$5.0\ 10^{7}$	$2.0\ 10^{8}$	$1.0\ 10^{8}$	$2.0\ 10^{7}$	$5.0\ 10^{7}$	$1.1\ 10^{8}$
^{58}Co	$2.7\ 10^{10}$	$1.8\ 10^{10}$	$2.6\ 10^{10}$	$1.8\ 10^{10}$	$5.8\ 10^{10}$	$1.3\ 10^{11}$
^{59}Fe	$1.3\ 10^{9}$	$1.0\ 10^{9}$	$1.1\ 10^{9}$	$1.1\ 10^{8}$	$6.5\ 10^{8}$	$6.7\ 10^{9}$
^{60}Co	$5.2\ 10^{10}$	$9.2\ 10^{10}$	$6.6\ 10^{10}$	$3.3\ 10^{10}$	$7.8\ 10^{10}$	$1.2\ 10^{11}$
^{65}Zn	$8.5\ 10^{10}$	$4.2\ 10^{10}$	$8.8\ 10^{10}$	$2.3\ 10^{10}$	$1.9\ 10^{10}$	$9.8\ 10^{9}$
^{95}Nb	$3.5\ 10^{9}$	$1.7\ 10^{9}$	$3.5\ 10^{9}$	$4.2\ 10^{8}$	$3.9\ 10^{9}$	$7.4\ 10^{8}$
^{95}Zr	$4.0\ 10^{9}$	$1.5\ 10^{9}$	$2.6\ 10^{9}$	$2.0\ 10^{9}$	$3.2\ 10^{9}$	$2.1\ 10^{9}$
^{99m}Tc	0	0	0	0	0	0
^{103}Ru	$7.0\ 10^{7}$	$5.0\ 10^{7}$	$1.0\ 10^{7}$	$2.0\ 10^{6}$	$9.0\ 10^{6}$	$6.0\ 10^{7}$
^{110m}Ag	$1.1\ 10^{9}$	$1.0\ 10^{9}$	$9.8\ 10^{8}$	$6.0\ 10^{8}$	$5.2\ 10^{8}$	$5.1\ 10^{8}$
^{113}Sn	$2.0\ 10^{8}$	$1.0\ 10^{8}$	$9.0\ 10^{7}$	$2.0\ 10^{7}$	$1.1\ 10^{8}$	$9.0\ 10^{7}$
^{124}Sb	$1.7\ 10^{10}$	$9.4\ 10^{9}$	$7.5\ 10^{9}$	$1.2\ 10^{10}$	$2.5\ 10^{10}$	$6.0\ 10^{10}$
^{125}Sb	$3.7\ 10^{9}$	$2.0\ 10^{9}$	$1.6\ 10^{9}$	$1.8\ 10^{9}$	$1.6\ 10^{9}$	$4.0\ 10^{9}$
^{131}Ba	$1.0\ 10^{8}$	$2.0\ 10^{8}$	$5.0\ 10^{7}$	0	$3.0\ 10^{7}$	$4.0\ 10^{7}$
^{133}Ba	0	$3.0\ 10^{6}$	0	0	0	0
^{131}I	$2.8\ 10^{10}$	$2.4\ 10^{9}$	$1.9\ 10^{9}$	$3.0\ 10^{9}$	$3.4\ 10^{9}$	$4.8\ 10^{8}$
^{133}I	0	0	0	0	0	0
^{134}Cs	$5.0\ 10^{10}$	$1.5\ 10^{10}$	$1.5\ 10^{10}$	$2.5\ 10^{10}$	$8.8\ 10^{9}$	$2.8\ 10^{9}$
^{136}Cs	$1.6\ 10^{9}$	0	0	0	0	0
^{137}Cs	$6.6\ 10^{10}$	$2.1\ 10^{10}$	$2.0\ 10^{10}$	$3.4\ 10^{10}$	$1.6\ 10^{10}$	$6.2\ 10^{9}$
^{140}Ba	$4.0\ 10^{8}$	0	$3.0\ 10^{7}$	$2.3\ 10^{10}$	0	0
^{140}La	$3.0\ 10^{8}$	0	$6.0\ 10^{7}$	$2.0\ 10^{7}$	$1.0\ 10^{6}$	0
^{141}Ce	0	0	0	0	0	0
^{144}Ce	$3.0\ 10^{7}$	0	$3.0\ 10^{7}$	$1.0\ 10^{6}$	0	0
^{239}Np	0	0	0	0	0	0
^{239}Pu	$4.0\ 10^{6}$	$6.0\ 10^{6}$	0	0	0	0

Table 59

Discharges from Risø, Denmark

Nuclide	1957	1958	1959	1960	1961	1962	1963
^{3}H	0	0	0	$5.0\ 10^{9}$	$1.0\ 10^{10}$	$1.5\ 10^{10}$	$2.0\ 10^{10}$
^{137}Cs	$1.0\ 10^{8}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$
^{90}Sr	$1.0\ 10^{8}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$

Nuclide	1964	1965	1966	1967	1968	1969	1970
^{3}H	$2.5\ 10^{10}$	$3.0\ 10^{10}$	$3.5\ 10^{10}$	$4.0\ 10^{10}$	$4.5\ 10^{10}$	$5.0\ 10^{10}$	$5.5\ 10^{10}$
^{137}Cs	$1.0\ 10^{8}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$
^{90}Sr	$1.0\ 10^{8}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$

Nuclide	1971	1972	1973	1974	1975	1976	1977
^{3}H	$6.0\ 10^{10}$	$6.5\ 10^{10}$	$7.0\ 10^{10}$	$7.5\ 10^{10}$	$8.0\ 10^{10}$	$8.5\ 10^{10}$	$9.0\ 10^{10}$
^{137}Cs	$1.0\ 10^{8}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$
^{90}Sr	$1.0\ 10^{8}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$

Nuclide	1978	1979	1980	1981	1982	1983	1984
^{3}H	$1.1\ 10^{11}$	$1.4\ 10^{11}$	$2.2\ 10^{11}$	$4.0\ 10^{11}$	$7.2\ 10^{10}$	0	$2.9\ 10^{11}$
^{137}Cs	$1.2\ 10^{8}$	$1.2\ 10^{8}$	$1.0\ 10^{8}$	$1.4\ 10^{8}$	$9.3\ 10^{7}$	$7.8\ 10^{8}$	$1.6\ 10^{8}$
^{90}Sr	$1.2\ 10^{8}$	$1.2\ 10^{8}$	$1.0\ 10^{8}$	$1.4\ 10^{8}$	$9.3\ 10^{7}$	$7.8\ 10^{8}$	$1.6\ 10^{8}$

Table 60

Discharges from Sellafield, UK

Nuclide	1952	1953	1954	1955	1956	1957	1958
^{3}H	$2.5\ 10^{14}$	$2.5\ 10^{14}$	$2.5\ 10^{14}$	$2.5\ 10^{14}$	$2.5\ 10^{14}$	$2.5\ 10^{14}$	$2.5\ 10^{14}$
^{14}C	$2.0\ 10^{11}$	$2.0\ 10^{11}$	$2.0\ 10^{11}$	$2.0\ 10^{11}$	$2.0\ 10^{11}$	$2.0\ 10^{11}$	$2.0\ 10^{11}$
^{35}S	0	0	0	0	0	0	0
^{54}Mn	0	0	0	0	0	0	0
^{55}Fe	0	0	0	0	0	0	0
^{60}Co	0	0	0	0	0	0	0
^{63}Ni	0	0	0	0	0	0	0
^{65}Zn	0	0	0	0	0	0	0
^{89}Sr	0	0	0	0	0	0	0
^{90}Sr	$3.2\ 10^{13}$	$3.5\ 10^{13}$	$1.8\ 10^{13}$	$9.2\ 10^{12}$	$7.0\ 10^{13}$	$6.0\ 10^{13}$	$9.3\ 10^{13}$
^{95}Zr	$2.0\ 10^{14}$	$2.0\ 10^{14}$	$2.0\ 10^{14}$	$2.3\ 10^{14}$	$2.3\ 10^{14}$	$2.6\ 10^{14}$	$3.1\ 10^{14}$
^{99}Tc	$8.0\ 10^{12}$	$8.0\ 10^{12}$	$8.0\ 10^{12}$	$8.0\ 10^{12}$	$8.0\ 10^{12}$	$8.0\ 10^{12}$	$8.0\ 10^{12}$
^{103}Ru	0	0	0	0	0	0	0
^{106}Ru	$9.1\ 10^{13}$	$1.7\ 10^{14}$	$2.6\ 10^{14}$	$2.0\ 10^{14}$	$1.5\ 10^{15}$	$9.8\ 10^{14}$	$1.5\ 10^{15}$
^{110m}Ag	0	0	0	0	0	0	0
^{125}Sb	0	0	0	0	0	0	0
^{129}I	$2.0\ 10^{10}$	$2.0\ 10^{10}$	$2.0\ 10^{10}$	$2.0\ 10^{10}$	$2.0\ 10^{10}$	$2.0\ 10^{10}$	$2.0\ 10^{10}$
^{134}Cs	$1.1\ 10^{12}$	$1.1\ 10^{12}$	$1.1\ 10^{12}$	$5.2\ 10^{11}$	$4.1\ 10^{12}$	$3.4\ 10^{12}$	$5.7\ 10^{12}$
^{137}Cs	$4.6\ 10^{13}$	$4.6\ 10^{13}$	$4.6\ 10^{13}$	$2.0\ 10^{13}$	$1.6\ 10^{14}$	$1.3\ 10^{14}$	$2.2\ 10^{14}$
^{144}Ce	$6.5\ 10^{13}$	$6.5\ 10^{13}$	$6.5\ 10^{13}$	$3.4\ 10^{13}$	$4.6\ 10^{13}$	$9.5\ 10^{13}$	$2.2\ 10^{14}$
^{147}Pm	0	0	0	0	0	0	0
^{152}Eu	0	0	0	0	0	0	0
^{154}Eu	0	0	0	0	0	0	0
^{155}Eu	0	0	0	0	0	0	0
^{230}Th	0	0	0	$1.8\ 10^{12}$	$1.8\ 10^{12}$	0	0
^{234}U	$1.3\ 10^{9}$	$1.2\ 10^{9}$	$1.5\ 10^{9}$	$1.7\ 10^{9}$	$4.6\ 10^{9}$	$4.2\ 10^{9}$	$4.8\ 10^{9}$
^{237}Np	$1.0\ 10^{10}$	$9.5\ 10^{9}$	$1.1\ 10^{10}$	$1.3\ 10^{10}$	$3.4\ 10^{10}$	$3.1\ 10^{10}$	$3.6\ 10^{10}$
^{238}U	$1.3\ 10^{9}$	$1.2\ 10^{9}$	$1.5\ 10^{9}$	$1.7\ 10^{9}$	$4.6\ 10^{9}$	$4.2\ 10^{9}$	$4.8\ 10^{9}$
^{238}Pu	0	0	0	0	0	0	0
^{239}Pu	$5.5\ 10^{11}$	$5.1\ 10^{11}$	$6.2\ 10^{11}$	$7.0\ 10^{11}$	$1.8\ 10^{12}$	$1.7\ 10^{12}$	$1.9\ 10^{12}$
^{241}Pu	$1.9\ 10^{12}$	$1.0\ 10^{12}$	$2.2\ 10^{12}$	$1.8\ 10^{12}$	$3.7\ 10^{12}$	$3.4\ 10^{12}$	$3.9\ 10^{12}$
^{241}Am	0	0	0	0	0	0	0
^{242}Cm	$7.5\ 10^{9}$	$7.0\ 10^{9}$	$8.6\ 10^{9}$	$9.6\ 10^{9}$	$2.5\ 10^{10}$	$2.3\ 10^{10}$	$2.6\ 10^{10}$
^{243}Cm	$3.6\ 10^{9}$	$3.3\ 10^{9}$	$4.1\ 10^{9}$	$4.5\ 10^{9}$	$1.2\ 10^{10}$	$1.1\ 10^{10}$	$1.2\ 10^{10}$

Table 60 (continued)

Nuclide	1959	1960	1961	1962	1963	1964	1965
^{3}H	$2.5\ 10^{14}$	$2.5\ 10^{14}$	$2.5\ 10^{14}$	$2.5\ 10^{14}$	$2.5\ 10^{14}$	$2.5\ 10^{14}$	$2.5\ 10^{14}$
^{14}C	$2.0\ 10^{11}$	$2.0\ 10^{11}$	$2.0\ 10^{11}$	$2.0\ 10^{11}$	$2.0\ 10^{11}$	$2.0\ 10^{11}$	$2.0\ 10^{11}$
^{35}S	0	0	0	0	0	0	0
^{54}Mn	0	0	0	0	0	0	0
^{55}Fe	0	0	0	0	0	0	0
^{60}Co	0	0	0	0	0	0	0
^{63}Ni	0	0	0	0	0	0	0
^{65}Zn	0	0	0	0	0	0	0
^{89}Sr	0	0	0	0	0	0	0
^{90}Sr	$5.7\ 10^{13}$	$1.9\ 10^{13}$	$1.8\ 10^{13}$	$3.7\ 10^{13}$	$2.0\ 10^{13}$	$3.6\ 10^{13}$	$5.6\ 10^{13}$
^{95}Zr	$5.5\ 10^{14}$	$3.1\ 10^{14}$	$3.3\ 10^{14}$	$1.9\ 10^{14}$	$1.4\ 10^{14}$	$1.5\ 10^{15}$	$1.8\ 10^{15}$
^{99}Tc	$8.0\ 10^{12}$	$8.0\ 10^{12}$	$8.0\ 10^{12}$	$8.0\ 10^{12}$	$8.0\ 10^{12}$	$8.0\ 10^{12}$	$8.0\ 10^{12}$
^{103}Ru	0	0	0	0	0	0	0
^{106}Ru	$1.3\ 10^{15}$	$1.4\ 10^{15}$	$9.3\ 10^{14}$	$8.5\ 10^{14}$	$1.2\ 10^{15}$	$9.0\ 10^{14}$	$7.4\ 10^{14}$
^{110m}Ag	0	0	0	0	0	0	0
^{125}Sb	0	0	0	0	0	0	0
^{129}I	$2.0\ 10^{10}$	$2.0\ 10^{10}$	$2.0\ 10^{10}$	$2.0\ 10^{10}$	$2.0\ 10^{10}$	$2.0\ 10^{10}$	$2.0\ 10^{10}$
^{134}Cs	$2.7\ 10^{12}$	$1.3\ 10^{12}$	$1.8\ 10^{12}$	$3.8\ 10^{12}$	$6.0\ 10^{12}$	$6.1\ 10^{12}$	$1.0\ 10^{13}$
^{137}Cs	$7.3\ 10^{13}$	$3.3\ 10^{13}$	$4.0\ 10^{13}$	$7.4\ 10^{13}$	$8.5\ 10^{13}$	$1.0\ 10^{14}$	$1.1\ 10^{14}$
^{144}Ce	$2.5\ 10^{14}$	$3.2\ 10^{13}$	$8.0\ 10^{13}$	$8.8\ 10^{13}$	$5.1\ 10^{13}$	$1.1\ 10^{14}$	$1.4\ 10^{14}$
^{147}Pm	0	0	0	0	0	0	0
^{152}Eu	0	0	0	0	0	0	0
^{154}Eu	0	0	0	0	0	0	0
^{155}Eu	0	0	0	0	0	0	0
^{230}Th	0	0	0	0	0	0	0
^{234}U	$5.4\ 10^{9}$	$7.0\ 10^{9}$	$1.1\ 10^{10}$	$1.6\ 10^{10}$	$2.0\ 10^{10}$	$1.4\ 10^{10}$	$1.7\ 10^{10}$
^{237}Np	$4.0\ 10^{10}$	$5.2\ 10^{10}$	$8.6\ 10^{10}$	$1.2\ 10^{11}$	$1.5\ 10^{11}$	$1.0\ 10^{11}$	$1.3\ 10^{11}$
^{238}U	$5.4\ 10^{9}$	$7.0\ 10^{9}$	$1.1\ 10^{10}$	$1.6\ 10^{10}$	$2.0\ 10^{10}$	$1.4\ 10^{10}$	$1.7\ 10^{10}$
^{238}Pu	0	0	0	0	0	0	0
^{239}Pu	$2.1\ 10^{12}$	$2.8\ 10^{12}$	$4.7\ 10^{12}$	$6.7\ 10^{12}$	$8.3\ 10^{12}$	$5.7\ 10^{12}$	$7.1\ 10^{12}$
^{241}Pu	$4.3\ 10^{12}$	$6.1\ 10^{12}$	$1.7\ 10^{13}$	$3.6\ 10^{13}$	$5.5\ 10^{13}$	$6.2\ 10^{13}$	$8.1\ 10^{13}$
^{241}Am	0	0	0	0	0	$4.5\ 10^{12}$	$8.1\ 10^{12}$
^{242}Cm	$2.9\ 10^{10}$	$3.8\ 10^{10}$	$6.4\ 10^{10}$	$9.2\ 10^{10}$	$1.1\ 10^{11}$	$7.7\ 10^{10}$	$9.8\ 10^{10}$
^{243}Cm	$1.4\ 10^{10}$	$1.8\ 10^{10}$	$3.0\ 10^{10}$	$4.4\ 10^{10}$	$5.4\ 10^{10}$	$3.7\ 10^{10}$	$4.6\ 10^{10}$

Table 60 (continued)

Nuclide	1966	1967	1968	1969	1970	1971	1972
^{3}H	$2.5\ 10^{14}$	$2.5\ 10^{14}$	$2.5\ 10^{14}$	$2.5\ 10^{14}$	$1.2\ 10^{15}$	$1.2\ 10^{15}$	$1.2\ 10^{15}$
^{14}C	$2.0\ 10^{11}$	$2.0\ 10^{11}$	$2.0\ 10^{11}$	$2.0\ 10^{11}$	$1.0\ 10^{12}$	$1.0\ 10^{12}$	$1.0\ 10^{12}$
^{35}S	0	0	0	0	0	0	0
^{54}Mn	0	0	0	0	0	0	0
^{55}Fe	0	0	0	0	0	0	0
^{60}Co	0	0	0	0	0	0	0
^{63}Ni	0	0	0	0	0	0	0
^{65}Zn	0	0	0	0	0	0	0
^{89}Sr	0	0	0	0	0	0	0
^{90}Sr	$3.3\ 10^{13}$	$5.1\ 10^{13}$	$5.0\ 10^{13}$	$1.0\ 10^{14}$	$2.3\ 10^{14}$	$4.5\ 10^{14}$	$5.6\ 10^{14}$
^{95}Zr	$1.3\ 10^{15}$	$1.6\ 10^{15}$	$2.4\ 10^{15}$	$2.2\ 10^{15}$	$7.0\ 10^{14}$	$1.3\ 10^{15}$	$1.8\ 10^{15}$
^{99}Tc	$8.0\ 10^{12}$	$8.0\ 10^{12}$	$8.0\ 10^{12}$	$8.0\ 10^{12}$	$4.0\ 10^{13}$	$4.0\ 10^{13}$	$4.0\ 10^{13}$
^{103}Ru	0	0	0	0	0	0	0
^{106}Ru	$9.2\ 10^{14}$	$6.3\ 10^{14}$	$8.9\ 10^{14}$	$8.4\ 10^{14}$	$1.0\ 10^{15}$	$1.3\ 10^{15}$	$1.1\ 10^{15}$
^{110m}Ag	0	0	0	0	0	0	0
^{125}Sb	0	0	0	0	0	0	0
^{129}I	$2.0\ 10^{10}$	$2.0\ 10^{10}$	$2.0\ 10^{10}$	$2.0\ 10^{10}$	$1.0\ 10^{11}$	$1.0\ 10^{11}$	$1.0\ 10^{11}$
^{134}Cs	$1.6\ 10^{13}$	$1.5\ 10^{13}$	$4.7\ 10^{13}$	$6.1\ 10^{13}$	$2.1\ 10^{14}$	$2.3\ 10^{14}$	$2.1\ 10^{14}$
^{137}Cs	$1.8\ 10^{14}$	$1.5\ 10^{14}$	$3.7\ 10^{14}$	$4.4\ 10^{14}$	$1.1\ 10^{15}$	$1.3\ 10^{15}$	$1.2\ 10^{15}$
^{144}Ce	$2.5\ 10^{14}$	$5.0\ 10^{14}$	$3.6\ 10^{14}$	$5.0\ 10^{14}$	$4.6\ 10^{14}$	$6.3\ 10^{14}$	$5.0\ 10^{14}$
^{147}Pm	0	0	0	0	0	0	0
^{152}Eu	0	0	0	0	0	0	0
^{154}Eu	0	0	0	0	0	0	0
^{155}Eu	0	0	0	0	0	0	0
^{230}Th	0	0	0	0	0	0	0
^{234}U	$3.4\ 10^{10}$	$4.5\ 10^{10}$	$7.5\ 10^{10}$	$7.5\ 10^{10}$	$8.7\ 10^{10}$	$1.3\ 10^{11}$	$1.4\ 10^{11}$
^{237}Np	$2.5\ 10^{11}$	$3.3\ 10^{11}$	$5.6\ 10^{11}$	$5.5\ 10^{11}$	$6.4\ 10^{11}$	$1.0\ 10^{12}$	$1.0\ 10^{12}$
^{238}U	$3.4\ 10^{10}$	$4.5\ 10^{10}$	$7.5\ 10^{10}$	$7.5\ 10^{10}$	$8.7\ 10^{10}$	$1.3\ 10^{11}$	$1.4\ 10^{11}$
^{238}Pu	0	0	0	0	0	0	0
^{239}Pu	$1.3\ 10^{13}$	$1.8\ 10^{13}$	$3.0\ 10^{13}$	$3.0\ 10^{13}$	$3.5\ 10^{13}$	$5.5\ 10^{13}$	$5.7\ 10^{13}$
^{241}Pu	$1.7\ 10^{14}$	$2.9\ 10^{14}$	$6.3\ 10^{14}$	$7.2\ 10^{14}$	$9.9\ 10^{14}$	$1.7\ 10^{15}$	$1.9\ 10^{15}$
^{241}Am	$7.5\ 10^{12}$	$1.7\ 10^{13}$	$2.1\ 10^{13}$	$1.4\ 10^{13}$	$1.8\ 10^{13}$	$3.7\ 10^{13}$	$8.0\ 10^{13}$
^{242}Cm	$1.9\ 10^{11}$	$2.4\ 10^{11}$	$4.1\ 10^{11}$	$4.1\ 10^{11}$	$4.8\ 10^{11}$	$7.6\ 10^{11}$	$7.8\ 10^{11}$
^{243}Cm	$9.0\ 10^{10}$	$1.1\ 10^{11}$	$1.9\ 10^{11}$	$1.9\ 10^{11}$	$2.2\ 10^{11}$	$3.6\ 10^{11}$	$3.7\ 10^{11}$

Table 60 (continued)

Nuclide	1973	1974	1975	1976	1977	1978	1979
^{3}H	$1.2\ 10^{15}$	$1.2\ 10^{15}$	$1.2\ 10^{15}$	$1.2\ 10^{15}$	$9.1\ 10^{14}$	$1.0\ 10^{15}$	$1.2\ 10^{15}$
^{14}C	$1.0\ 10^{12}$	$1.0\ 10^{12}$	$1.0\ 10^{12}$	$1.0\ 10^{12}$	$1.0\ 10^{12}$	$1.0\ 10^{12}$	$1.0\ 10^{12}$
^{35}S	0	0	0	0	0	$1.8\ 10^{12}$	$1.4\ 10^{12}$
^{54}Mn	0	0	0	0	0	$2.2\ 10^{11}$	$3.7\ 10^{10}$
^{55}Fe	0	0	0	0	0	$2.3\ 10^{12}$	$1.8\ 10^{12}$
^{60}Co	0	0	0	0	0	$1.0\ 10^{12}$	$5.2\ 10^{11}$
^{63}Ni	0	0	0	0	0	$1.5\ 10^{12}$	$1.8\ 10^{11}$
^{65}Zn	0	0	0	0	0	$3.7\ 10^{10}$	$2.2\ 10^{10}$
^{89}Sr	0	0	0	0	0	$9.9\ 10^{12}$	$7.5\ 10^{12}$
^{90}Sr	$2.7\ 10^{14}$	$3.9\ 10^{14}$	$4.6\ 10^{14}$	$3.8\ 10^{14}$	$4.2\ 10^{14}$	$5.9\ 10^{14}$	$2.5\ 10^{14}$
^{95}Zr	$1.5\ 10^{15}$	$3.5\ 10^{14}$	$3.1\ 10^{14}$	$3.3\ 10^{14}$	$2.9\ 10^{14}$	$2.3\ 10^{14}$	$1.5\ 10^{14}$
^{99}Tc	$4.0\ 10^{13}$	$4.0\ 10^{13}$	$4.0\ 10^{13}$	$4.0\ 10^{13}$	$4.0\ 10^{13}$	$1.8\ 10^{14}$	$4.3\ 10^{13}$
^{103}Ru	0	0	0	0	0	$8.5\ 10^{12}$	$5.8\ 10^{12}$
^{106}Ru	$1.4\ 10^{15}$	$1.0\ 10^{15}$	$7.6\ 10^{14}$	$7.6\ 10^{14}$	$8.1\ 10^{14}$	$8.1\ 10^{14}$	$3.9\ 10^{14}$
^{110m}Ag	0	0	0	0	0	$3.3\ 10^{11}$	$3.3\ 10^{10}$
^{125}Sb	0	0	0	0	0	$2.9\ 10^{13}$	$1.4\ 10^{13}$
^{129}I	$1.0\ 10^{11}$	$1.0\ 10^{11}$	$1.0\ 10^{11}$	$1.3\ 10^{11}$	$9.6\ 10^{10}$	$7.4\ 10^{10}$	$1.2\ 10^{11}$
^{134}Cs	$1.6\ 10^{14}$	$9.9\ 10^{14}$	$1.0\ 10^{15}$	$7.3\ 10^{14}$	$5.9\ 10^{14}$	$4.0\ 10^{14}$	$2.3\ 10^{14}$
^{137}Cs	$7.6\ 10^{14}$	$4.0\ 10^{15}$	$5.2\ 10^{15}$	$4.2\ 10^{15}$	$4.4\ 10^{15}$	$4.0\ 10^{15}$	$2.5\ 10^{15}$
^{144}Ce	$5.3\ 10^{14}$	$2.4\ 10^{14}$	$2.0\ 10^{14}$	$1.4\ 10^{14}$	$1.5\ 10^{14}$	$1.0\ 10^{14}$	$8.3\ 10^{13}$
^{147}Pm	0	0	0	0	0	0	0
^{152}Eu	0	0	0	0	0	$1.0\ 10^{13}$	$3.7\ 10^{12}$
^{154}Eu	0	0	0	0	0	$3.8\ 10^{13}$	$1.9\ 10^{12}$
^{155}Eu	0	0	0	0	0	$7.8\ 10^{12}$	$4.0\ 10^{12}$
^{230}Th	0	0	0	0	0	0	0
^{234}U	$1.6\ 10^{11}$	$1.1\ 10^{11}$	$1.1\ 10^{11}$	$1.1\ 10^{11}$	$9.0\ 10^{10}$	$1.4\ 10^{11}$	$7.4\ 10^{10}$
^{237}Np	$1.2\ 10^{12}$	$8.5\ 10^{11}$	$8.1\ 10^{11}$	$8.6\ 10^{11}$	$6.7\ 10^{11}$	$5.9\ 10^{11}$	$3.3\ 10^{11}$
^{238}U	$1.6\ 10^{11}$	$1.1\ 10^{11}$	$1.1\ 10^{11}$	$1.1\ 10^{11}$	$9.0\ 10^{10}$	$1.4\ 10^{11}$	$7.4\ 10^{10}$
^{238}Pu	0	0	0	0	0	$1.2\ 10^{13}$	$1.2\ 10^{13}$
^{239}Pu	$6.5\ 10^{13}$	$4.6\ 10^{13}$	$4.4\ 10^{13}$	$4.6\ 10^{13}$	$3.6\ 10^{13}$	$4.5\ 10^{13}$	$3.7\ 10^{13}$
^{241}Pu	$2.7\ 10^{15}$	$1.7\ 10^{15}$	$1.8\ 10^{15}$	$1.3\ 10^{15}$	$9.8\ 10^{14}$	$1.7\ 10^{15}$	$1.4\ 10^{15}$
^{241}Am	$1.0\ 10^{14}$	$1.1\ 10^{14}$	$3.6\ 10^{13}$	$1.2\ 10^{13}$	$3.6\ 10^{12}$	$7.9\ 10^{12}$	$7.8\ 10^{12}$
^{242}Cm	$8.9\ 10^{11}$	$6.3\ 10^{11}$	$6.0\ 10^{11}$	$6.4\ 10^{11}$	$4.9\ 10^{11}$	$5.6\ 10^{11}$	$3.7\ 10^{11}$
^{243}Cm	$4.2\ 10^{11}$	$3.0\ 10^{11}$	$2.8\ 10^{11}$	$3.0\ 10^{11}$	$2.3\ 10^{11}$	$3.3\ 10^{11}$	$1.5\ 10^{11}$

Table 60 (continued)

Nuclide	1980	1981	1982	1983	1984	1985	1986
^{3}H	$1.3\ 10^{15}$	$2.0\ 10^{15}$	$1.7\ 10^{15}$	$1.8\ 10^{15}$	$1.5\ 10^{15}$	$1.0\ 10^{15}$	$2.1\ 10^{15}$
^{14}C	$1.0\ 10^{12}$	$1.0\ 10^{12}$	$1.0\ 10^{12}$	$1.0\ 10^{12}$	$7.0\ 10^{11}$	$1.3\ 10^{12}$	$2.6\ 10^{12}$
^{35}S	$1.0\ 10^{12}$	$5.1\ 10^{11}$	$8.0\ 10^{11}$	$8.0\ 10^{11}$	$7.0\ 10^{11}$	$8.0\ 10^{11}$	$9.0\ 10^{11}$
^{54}Mn	$6.3\ 10^{10}$	$9.5\ 10^{10}$	$1.0\ 10^{11}$	$2.0\ 10^{11}$	$2.0\ 10^{11}$	$2.0\ 10^{11}$	$1.0\ 10^{11}$
^{55}Fe	$1.1\ 10^{12}$	$1.2\ 10^{12}$	$9.0\ 10^{11}$	$1.1\ 10^{12}$	$9.0\ 10^{11}$	$7.0\ 10^{11}$	$5.0\ 10^{11}$
^{60}Co	$7.8\ 10^{11}$	$7.4\ 10^{11}$	$1.1\ 10^{12}$	$1.7\ 10^{12}$	$1.3\ 10^{12}$	$2.3\ 10^{12}$	$1.5\ 10^{12}$
^{63}Ni	$4.1\ 10^{11}$	$5.3\ 10^{11}$	$5.0\ 10^{11}$	$1.1\ 10^{12}$	$1.5\ 10^{12}$	$4.0\ 10^{11}$	$1.0\ 10^{12}$
^{65}Zn	$3.3\ 10^{10}$	$3.4\ 10^{10}$	$4.0\ 10^{10}$	$4.0\ 10^{10}$	$3.0\ 10^{10}$	$6.0\ 10^{10}$	$4.0\ 10^{10}$
^{89}Sr	$1.2\ 10^{13}$	$1.1\ 10^{13}$	$1.3\ 10^{13}$	$8.5\ 10^{12}$	$3.0\ 10^{12}$	$1.8\ 10^{12}$	$2.0\ 10^{11}$
^{90}Sr	$3.5\ 10^{14}$	$2.7\ 10^{14}$	$3.2\ 10^{14}$	$2.0\ 10^{14}$	$7.2\ 10^{13}$	$5.2\ 10^{13}$	$1.8\ 10^{13}$
^{95}Zr	$1.6\ 10^{14}$	$3.3\ 10^{14}$	$5.1\ 10^{14}$	$5.9\ 10^{14}$	$4.7\ 10^{14}$	$4.6\ 10^{13}$	$1.4\ 10^{13}$
^{99}Tc	$5.7\ 10^{13}$	$5.8\ 10^{12}$	$3.6\ 10^{12}$	$4.4\ 10^{12}$	$4.3\ 10^{12}$	$1.9\ 10^{12}$	$6.6\ 10^{12}$
^{103}Ru	$4.6\ 10^{12}$	$1.1\ 10^{13}$	$1.7\ 10^{13}$	$1.9\ 10^{13}$	$8.4\ 10^{12}$	$1.6\ 10^{12}$	$7.0\ 10^{11}$
^{106}Ru	$3.4\ 10^{14}$	$5.3\ 10^{14}$	$4.1\ 10^{14}$	$5.5\ 10^{14}$	$3.4\ 10^{14}$	$8.1\ 10^{13}$	$2.8\ 10^{13}$
^{110m}Ag	$4.4\ 10^{10}$	$1.4\ 10^{11}$	$1.0\ 10^{11}$	$1.0\ 10^{11}$	$1.0\ 10^{11}$	$1.0\ 10^{11}$	$3.0\ 10^{10}$
^{125}Sb	$2.1\ 10^{13}$	$2.6\ 10^{13}$	$2.3\ 10^{13}$	$1.8\ 10^{13}$	$1.2\ 10^{13}$	$1.1\ 10^{13}$	$1.5\ 10^{13}$
^{129}I	$1.4\ 10^{11}$	$1.9\ 10^{11}$	$1.0\ 10^{11}$	$2.0\ 10^{11}$	$1.0\ 10^{11}$	$1.0\ 10^{11}$	$1.2\ 10^{11}$
^{134}Cs	$2.3\ 10^{14}$	$1.6\ 10^{14}$	$1.3\ 10^{14}$	$8.9\ 10^{13}$	$3.5\ 10^{13}$	$3.0\ 10^{13}$	$1.3\ 10^{12}$
^{137}Cs	$2.9\ 10^{15}$	$2.3\ 10^{15}$	$2.0\ 10^{15}$	$1.2\ 10^{15}$	$4.3\ 10^{14}$	$3.2\ 10^{14}$	$1.7\ 10^{13}$
^{144}Ce	$3.6\ 10^{13}$	$1.7\ 10^{13}$	$2.1\ 10^{13}$	$2.4\ 10^{13}$	$8.8\ 10^{12}$	$5.0\ 10^{12}$	$3.3\ 10^{12}$
^{147}Pm	$8.6\ 10^{13}$	$3.2\ 10^{13}$	$3.2\ 10^{13}$	$2.5\ 10^{13}$	$7.7\ 10^{12}$	$5.9\ 10^{12}$	$2.7\ 10^{12}$
^{152}Eu	$4.7\ 10^{12}$	$3.5\ 10^{12}$	$6.0\ 10^{11}$	$2.0\ 10^{11}$	$2.0\ 10^{11}$	$1.0\ 10^{11}$	$1.0\ 10^{11}$
^{154}Eu	$2.0\ 10^{12}$	$1.6\ 10^{12}$	$1.0\ 10^{12}$	$5.0\ 10^{11}$	$3.0\ 10^{11}$	$1.0\ 10^{11}$	$1.0\ 10^{11}$
^{155}Eu	$4.2\ 10^{12}$	$2.6\ 10^{12}$	$1.2\ 10^{12}$	$6.0\ 10^{11}$	$3.0\ 10^{11}$	$2.0\ 10^{11}$	$1.0\ 10^{11}$
^{230}Th	0	0	0	0	0	0	0
^{234}U	$6.0\ 10^{10}$	$5.5\ 10^{10}$	$7.4\ 10^{10}$	$3.2\ 10^{10}$	$2.5\ 10^{10}$	$3.0\ 10^{10}$	$2.4\ 10^{10}$
^{237}Np	$6.7\ 10^{11}$	$4.1\ 10^{11}$	$3.0\ 10^{11}$	$3.0\ 10^{11}$	$3.0\ 10^{11}$	$2.0\ 10^{11}$	$4.0\ 10^{11}$
^{238}U	$6.0\ 10^{10}$	$5.5\ 10^{10}$	$7.4\ 10^{10}$	$3.2\ 10^{10}$	$2.5\ 10^{10}$	$3.0\ 10^{10}$	$2.4\ 10^{10}$
^{238}Pu	$6.8\ 10^{12}$	$4.9\ 10^{12}$	$4.7\ 10^{12}$	$2.9\ 10^{12}$	$2.6\ 10^{12}$	$8.0\ 10^{11}$	$6.3\ 10^{11}$
^{239}Pu	$2.0\ 10^{13}$	$1.5\ 10^{13}$	$1.6\ 10^{13}$	$8.7\ 10^{12}$	$8.3\ 10^{12}$	$2.6\ 10^{12}$	$2.0\ 10^{12}$
^{241}Pu	$7.2\ 10^{14}$	$5.9\ 10^{14}$	$4.8\ 10^{14}$	$3.3\ 10^{14}$	$3.4\ 10^{14}$	$8.1\ 10^{13}$	$6.3\ 10^{13}$
^{241}Am	$8.2\ 10^{12}$	$8.7\ 10^{12}$	$6.4\ 10^{12}$	$2.2\ 10^{12}$	$2.3\ 10^{12}$	$1.6\ 10^{12}$	$1.3\ 10^{12}$
^{242}Cm	$3.3\ 10^{11}$	$1.9\ 10^{11}$	$2.8\ 10^{11}$	$4.0\ 10^{11}$	$1.0\ 10^{11}$	$1.0\ 10^{11}$	$1.0\ 10^{11}$
^{243}Cm	$1.9\ 10^{11}$	$1.1\ 10^{11}$	$1.4\ 10^{11}$	$1.0\ 10^{11}$	$1.0\ 10^{11}$	$1.0\ 10^{11}$	$1.0\ 10^{11}$

Table 61

Discharges from Sizewell, UK

Nuclide	1966	1967	1968	1969	1970	1971
^{3}H	$1.1\ 10^{12}$	$4.3\ 10^{12}$	$4.9\ 10^{12}$	$3.6\ 10^{11}$	$7.7\ 10^{11}$	$2.8\ 10^{12}$
^{14}C	$2.5\ 10^{7}$	$6.1\ 10^{7}$	$3.5\ 10^{8}$	$2.4\ 10^{8}$	$5.8\ 10^{8}$	$3.1\ 10^{8}$
^{32}P	$7.2\ 10^{8}$	$1.7\ 10^{9}$	$1.0\ 10^{10}$	$7.0\ 10^{9}$	$1.6\ 10^{10}$	$8.9\ 10^{9}$
^{35}S	$1.2\ 10^{10}$	$3.0\ 10^{10}$	$1.7\ 10^{11}$	$1.2\ 10^{11}$	$2.8\ 10^{11}$	$1.5\ 10^{11}$
^{45}Ca	$1.6\ 10^{9}$	$3.9\ 10^{9}$	$2.2\ 10^{10}$	$1.5\ 10^{10}$	$3.7\ 10^{10}$	$2.0\ 10^{10}$
^{51}Cr	$1.9\ 10^{8}$	$4.6\ 10^{8}$	$2.6\ 10^{9}$	$1.8\ 10^{9}$	$4.3\ 10^{9}$	$2.3\ 10^{9}$
^{54}Mn	$3.8\ 10^{7}$	$9.2\ 10^{7}$	$5.3\ 10^{8}$	$3.7\ 10^{8}$	$8.7\ 10^{8}$	$4.7\ 10^{8}$
^{55}Fe	$9.8\ 10^{8}$	$2.3\ 10^{9}$	$1.3\ 10^{10}$	$9.6\ 10^{9}$	$2.2\ 10^{10}$	$1.2\ 10^{10}$
^{58}Co	$3.1\ 10^{7}$	$7.6\ 10^{7}$	$4.4\ 10^{8}$	$3.0\ 10^{8}$	$7.2\ 10^{8}$	$3.9\ 10^{8}$
^{59}Fe	$3.1\ 10^{7}$	$7.6\ 10^{7}$	$4.4\ 10^{8}$	$3.0\ 10^{8}$	$7.2\ 10^{8}$	$3.9\ 10^{8}$
^{60}Co	$8.8\ 10^{7}$	$2.1\ 10^{8}$	$1.2\ 10^{9}$	$8.6\ 10^{8}$	$2.0\ 10^{9}$	$1.1\ 10^{9}$
^{63}Ni	$2.5\ 10^{7}$	$6.1\ 10^{7}$	$3.5\ 10^{8}$	$2.4\ 10^{8}$	$5.8\ 10^{8}$	$3.1\ 10^{8}$
^{65}Zn	$3.8\ 10^{7}$	$9.2\ 10^{7}$	$5.3\ 10^{8}$	$3.7\ 10^{8}$	$8.7\ 10^{8}$	$4.7\ 10^{8}$
^{89}Sr	$4.4\ 10^{8}$	$1.0\ 10^{9}$	$6.1\ 10^{9}$	$4.3\ 10^{9}$	$1.0\ 10^{10}$	$5.4\ 10^{9}$
^{90}Sr	$2.0\ 10^{9}$	$4.8\ 10^{9}$	$2.7\ 10^{10}$	$1.9\ 10^{10}$	$4.5\ 10^{10}$	$2.4\ 10^{10}$
^{90}Y	$2.0\ 10^{9}$	$4.8\ 10^{9}$	$2.7\ 10^{10}$	$1.9\ 10^{10}$	$4.5\ 10^{10}$	$2.4\ 10^{10}$
^{91}Y	$5.0\ 10^{7}$	$1.2\ 10^{8}$	$7.0\ 10^{8}$	$4.9\ 10^{8}$	$1.1\ 10^{9}$	$6.2\ 10^{8}$
^{95}Zr	$1.9\ 10^{7}$	$4.6\ 10^{7}$	$2.6\ 10^{8}$	$1.8\ 10^{8}$	$4.3\ 10^{8}$	$2.3\ 10^{8}$
^{95}Nb	$3.1\ 10^{7}$	$7.6\ 10^{7}$	$4.4\ 10^{8}$	$3.0\ 10^{8}$	$7.2\ 10^{8}$	$3.9\ 10^{8}$
^{106}Ru	$8.8\ 10^{7}$	$2.1\ 10^{8}$	$1.2\ 10^{9}$	$8.6\ 10^{8}$	$2.0\ 10^{9}$	$1.1\ 10^{9}$
^{106}Rh	$8.8\ 10^{7}$	$2.1\ 10^{8}$	$1.2\ 10^{9}$	$8.6\ 10^{8}$	$2.0\ 10^{9}$	$1.1\ 10^{9}$
^{110m}Ag	$2.5\ 10^{7}$	$6.1\ 10^{7}$	$3.5\ 10^{8}$	$2.4\ 10^{8}$	$5.8\ 10^{8}$	$3.1\ 10^{8}$
^{124}Sb	$7.6\ 10^{7}$	$1.8\ 10^{8}$	$1.0\ 10^{9}$	$7.4\ 10^{8}$	$1.7\ 10^{9}$	$9.4\ 10^{8}$
^{125}Sb	$1.3\ 10^{8}$	$3.3\ 10^{8}$	$1.9\ 10^{9}$	$1.3\ 10^{9}$	$3.1\ 10^{9}$	$1.7\ 10^{9}$
^{125m}Te	$3.8\ 10^{7}$	$9.2\ 10^{7}$	$5.3\ 10^{8}$	$3.7\ 10^{8}$	$8.7\ 10^{8}$	$4.7\ 10^{8}$
^{134}Cs	$2.2\ 10^{9}$	$5.3\ 10^{9}$	$3.0\ 10^{10}$	$2.1\ 10^{10}$	$5.0\ 10^{10}$	$2.7\ 10^{10}$
^{137}Cs	$1.4\ 10^{10}$	$3.4\ 10^{10}$	$1.9\ 10^{11}$	$1.3\ 10^{11}$	$3.2\ 10^{11}$	$1.7\ 10^{11}$
^{144}Ce	$5.0\ 10^{7}$	$1.2\ 10^{8}$	$7.0\ 10^{8}$	$4.9\ 10^{8}$	$1.1\ 10^{9}$	$6.2\ 10^{8}$
^{144}Pr	$5.0\ 10^{7}$	$1.2\ 10^{8}$	$7.0\ 10^{8}$	$4.9\ 10^{8}$	$1.1\ 10^{9}$	$6.2\ 10^{8}$
^{147}Pm	$1.6\ 10^{8}$	$3.9\ 10^{8}$	$2.3\ 10^{9}$	$1.6\ 10^{9}$	$3.7\ 10^{9}$	$2.0\ 10^{9}$
^{154}Eu	$2.5\ 10^{7}$	$6.1\ 10^{7}$	$3.5\ 10^{8}$	$2.4\ 10^{8}$	$5.8\ 10^{8}$	$3.1\ 10^{8}$
^{155}Eu	$1.9\ 10^{7}$	$4.6\ 10^{7}$	$2.6\ 10^{8}$	$1.8\ 10^{8}$	$4.3\ 10^{8}$	$2.3\ 10^{8}$
^{239}Pu	$1.9\ 10^{7}$	$4.6\ 10^{7}$	$2.6\ 10^{8}$	$1.8\ 10^{8}$	$4.3\ 10^{8}$	$2.3\ 10^{8}$

Table 61 (continued)

Nuclide	1972	1973	1974	1975	1976	1977
^{3}H	$2.0\ 10^{12}$	$7.7\ 10^{12}$	$9.4\ 10^{12}$	$1.8\ 10^{12}$	$2.3\ 10^{12}$	$1.6\ 10^{12}$
^{14}C	$3.6\ 10^{8}$	$4.8\ 10^{8}$	$2.9\ 10^{8}$	$3.7\ 10^{8}$	$5.5\ 10^{8}$	$8.0\ 10^{8}$
^{32}P	$1.0\ 10^{10}$	$4.8\ 10^{9}$	$1.5\ 10^{10}$	$5.9\ 10^{9}$	$3.3\ 10^{9}$	$3.2\ 10^{9}$
^{35}S	$1.4\ 10^{11}$	$2.0\ 10^{11}$	$1.7\ 10^{11}$	$1.0\ 10^{11}$	$2.0\ 10^{11}$	$2.0\ 10^{11}$
^{45}Ca	$3.5\ 10^{10}$	$1.3\ 10^{10}$	$1.9\ 10^{10}$	$1.1\ 10^{10}$	$1.1\ 10^{10}$	$8.0\ 10^{9}$
^{51}Cr	$2.7\ 10^{9}$	$1.9\ 10^{9}$	$4.1\ 10^{9}$	$2.9\ 10^{9}$	$5.5\ 10^{9}$	$1.6\ 10^{9}$
^{54}Mn	$5.4\ 10^{8}$	$4.8\ 10^{8}$	$5.9\ 10^{8}$	$7.4\ 10^{8}$	$5.5\ 10^{8}$	$8.0\ 10^{8}$
^{55}Fe	$5.4\ 10^{9}$	$1.4\ 10^{10}$	$2.1\ 10^{10}$	$3.7\ 10^{9}$	$2.2\ 10^{9}$	$3.2\ 10^{9}$
^{58}Co	$5.4\ 10^{8}$	$4.8\ 10^{8}$	$2.9\ 10^{8}$	$3.7\ 10^{8}$	$5.5\ 10^{8}$	$8.0\ 10^{8}$
^{59}Fe	$4.5\ 10^{8}$	$4.8\ 10^{8}$	$5.9\ 10^{8}$	$3.7\ 10^{8}$	$5.5\ 10^{8}$	$8.0\ 10^{8}$
^{60}Co	$5.4\ 10^{8}$	$1.4\ 10^{9}$	$1.7\ 10^{9}$	$7.4\ 10^{8}$	$5.5\ 10^{8}$	$1.6\ 10^{9}$
^{63}Ni	$3.6\ 10^{8}$	$4.8\ 10^{8}$	$2.9\ 10^{8}$	$3.7\ 10^{8}$	$5.5\ 10^{8}$	$8.0\ 10^{8}$
^{65}Zn	$5.4\ 10^{8}$	$4.8\ 10^{8}$	$5.9\ 10^{8}$	$7.4\ 10^{8}$	$5.5\ 10^{8}$	$8.0\ 10^{8}$
^{89}Sr	$1.1\ 10^{10}$	$4.3\ 10^{9}$	$2.9\ 10^{9}$	$7.4\ 10^{9}$	$4.4\ 10^{9}$	$4.8\ 10^{9}$
^{90}Sr	$3.1\ 10^{10}$	$2.6\ 10^{10}$	$2.6\ 10^{10}$	$4.5\ 10^{10}$	$7.7\ 10^{10}$	$7.2\ 10^{10}$
^{90}Y	$3.1\ 10^{10}$	$2.6\ 10^{10}$	$2.6\ 10^{10}$	$4.5\ 10^{10}$	$7.7\ 10^{10}$	$7.2\ 10^{10}$
^{91}Y	$7.2\ 10^{8}$	$4.8\ 10^{8}$	$1.1\ 10^{9}$	$7.4\ 10^{8}$	$1.1\ 10^{9}$	$1.6\ 10^{9}$
^{95}Zr	$2.7\ 10^{8}$	$2.4\ 10^{8}$	$2.9\ 10^{8}$	$3.7\ 10^{8}$	$5.5\ 10^{8}$	$8.0\ 10^{8}$
^{95}Nb	$4.5\ 10^{8}$	$2.4\ 10^{8}$	$5.9\ 10^{8}$	$7.4\ 10^{8}$	$5.5\ 10^{8}$	$3.2\ 10^{9}$
^{106}Ru	$5.4\ 10^{8}$	$1.4\ 10^{9}$	$1.7\ 10^{9}$	$1.4\ 10^{9}$	$3.3\ 10^{9}$	$8.0\ 10^{8}$
^{106}Rh	$5.4\ 10^{8}$	$1.4\ 10^{9}$	$1.7\ 10^{9}$	$1.4\ 10^{9}$	$3.3\ 10^{9}$	$8.0\ 10^{8}$
^{110m}Ag	$3.6\ 10^{8}$	$4.8\ 10^{8}$	$2.9\ 10^{8}$	$3.7\ 10^{8}$	$5.5\ 10^{8}$	$8.0\ 10^{8}$
^{124}Sb	$1.0\ 10^{9}$	$9.6\ 10^{8}$	$1.1\ 10^{9}$	$1.4\ 10^{9}$	$2.2\ 10^{9}$	$3.2\ 10^{9}$
^{125}Sb	$2.7\ 10^{9}$	$1.4\ 10^{9}$	$1.7\ 10^{9}$	$1.4\ 10^{9}$	$3.3\ 10^{9}$	$1.6\ 10^{9}$
^{125m}Te	$5.4\ 10^{8}$	$4.8\ 10^{8}$	$5.9\ 10^{8}$	$7.4\ 10^{8}$	$1.1\ 10^{9}$	$8.0\ 10^{8}$
^{134}Cs	$3.4\ 10^{10}$	$1.9\ 10^{10}$	$4.0\ 10^{10}$	$8.2\ 10^{10}$	$9.3\ 10^{10}$	$2.8\ 10^{11}$
^{137}Cs	$2.2\ 10^{11}$	$1.4\ 10^{11}$	$2.4\ 10^{11}$	$4.1\ 10^{11}$	$6.0\ 10^{11}$	$9.3\ 10^{11}$
^{144}Ce	$1.0\ 10^{9}$	$4.8\ 10^{8}$	$5.9\ 10^{8}$	$7.4\ 10^{8}$	$1.1\ 10^{9}$	$1.6\ 10^{9}$
^{144}Pr	$1.0\ 10^{9}$	$4.8\ 10^{8}$	$5.9\ 10^{8}$	$7.4\ 10^{8}$	$1.1\ 10^{9}$	$1.6\ 10^{9}$
^{147}Pm	$2.1\ 10^{9}$	$1.4\ 10^{9}$	$3.5\ 10^{9}$	$2.9\ 10^{9}$	$1.1\ 10^{9}$	$3.2\ 10^{9}$
^{154}Eu	$3.6\ 10^{8}$	$4.8\ 10^{8}$	$2.9\ 10^{8}$	$3.7\ 10^{8}$	$5.5\ 10^{8}$	$8.0\ 10^{8}$
^{155}Eu	$2.7\ 10^{8}$	$2.4\ 10^{8}$	$2.9\ 10^{8}$	$3.7\ 10^{8}$	$5.5\ 10^{8}$	$8.0\ 10^{8}$
^{239}Pu	$2.7\ 10^{8}$	$2.4\ 10^{8}$	$2.9\ 10^{8}$	$3.7\ 10^{8}$	$5.5\ 10^{8}$	$8.0\ 10^{8}$

Table 61 (continued)

Nuclide	1978	1979	1980	1981	1982	1983	1984
^{3}H	$1.1\ 10^{12}$	$1.6\ 10^{12}$	$1.0\ 10^{12}$	$1.3\ 10^{12}$	$1.3\ 10^{12}$	$8.1\ 10^{11}$	$1.3\ 10^{12}$
^{14}C	$4.5\ 10^{8}$	$7.0\ 10^{8}$	$9.5\ 10^{8}$	$5.5\ 10^{8}$	$5.0\ 10^{8}$	$4.2\ 10^{8}$	$4.5\ 10^{8}$
^{32}P	$4.5\ 10^{8}$	$7.0\ 10^{8}$	$9.5\ 10^{8}$	$5.5\ 10^{8}$	$5.0\ 10^{8}$	$4.2\ 10^{8}$	$4.5\ 10^{8}$
^{35}S	$1.2\ 10^{11}$	$1.4\ 10^{11}$	$1.7\ 10^{11}$	$7.5\ 10^{10}$	$1.2\ 10^{11}$	$7.5\ 10^{10}$	$1.7\ 10^{11}$
^{45}Ca	$8.1\ 10^{9}$	$7.0\ 10^{9}$	$1.7\ 10^{10}$	$2.2\ 10^{9}$	$5.0\ 10^{8}$	$1.6\ 10^{10}$	$9.0\ 10^{9}$
^{51}Cr	$4.5\ 10^{8}$	$7.0\ 10^{8}$	$9.5\ 10^{8}$	$1.8\ 10^{8}$	$1.6\ 10^{8}$	0	0
^{54}Mn	$4.5\ 10^{8}$	$7.0\ 10^{8}$	$9.5\ 10^{8}$	$5.5\ 10^{8}$	$5.0\ 10^{8}$	$4.2\ 10^{8}$	0
^{55}Fe	$4.5\ 10^{9}$	$4.2\ 10^{9}$	$5.7\ 10^{9}$	$1.1\ 10^{9}$	$5.0\ 10^{9}$	$4.2\ 10^{9}$	$4.5\ 10^{9}$
^{58}Co	$4.5\ 10^{8}$	$7.0\ 10^{8}$	$9.5\ 10^{8}$	$1.1\ 10^{9}$	$5.0\ 10^{8}$	0	0
^{59}Fe	$4.5\ 10^{8}$	$7.0\ 10^{8}$	$9.5\ 10^{8}$	$2.2\ 10^{9}$	$1.0\ 10^{10}$	0	0
^{60}Co	$9.1\ 10^{8}$	$5.6\ 10^{9}$	$9.5\ 10^{8}$	$1.1\ 10^{9}$	$5.0\ 10^{9}$	$4.2\ 10^{9}$	$4.5\ 10^{9}$
^{63}Ni	$4.5\ 10^{8}$	$7.0\ 10^{8}$	$9.5\ 10^{8}$	$5.5\ 10^{8}$	$5.0\ 10^{8}$	$4.2\ 10^{8}$	$4.5\ 10^{8}$
^{65}Zn	$4.5\ 10^{8}$	$7.0\ 10^{8}$	$9.5\ 10^{8}$	$5.5\ 10^{8}$	$5.0\ 10^{8}$	$4.2\ 10^{8}$	0
^{89}Sr	$2.7\ 10^{9}$	$4.2\ 10^{9}$	$1.1\ 10^{10}$	$5.5\ 10^{9}$	$5.0\ 10^{8}$	0	0
^{90}Sr	$6.0\ 10^{10}$	$8.9\ 10^{10}$	$1.3\ 10^{11}$	$6.7\ 10^{10}$	$3.0\ 10^{10}$	$8.4\ 10^{9}$	$6.3\ 10^{10}$
^{90}Y	$6.0\ 10^{10}$	$8.9\ 10^{10}$	$1.3\ 10^{11}$	$6.7\ 10^{10}$	$3.0\ 10^{10}$	$8.4\ 10^{9}$	$6.3\ 10^{10}$
^{91}Y	$8.1\ 10^{9}$	$5.6\ 10^{9}$	$1.9\ 10^{9}$	$5.5\ 10^{8}$	$1.0\ 10^{10}$	0	0
^{95}Zr	$9.1\ 10^{8}$	$7.0\ 10^{8}$	$9.5\ 10^{8}$	$1.1\ 10^{9}$	$5.0\ 10^{9}$	0	0
^{95}Nb	$4.5\ 10^{8}$	$7.0\ 10^{8}$	$9.5\ 10^{8}$	$4.4\ 10^{9}$	$1.0\ 10^{10}$	0	0
^{106}Ru	$9.1\ 10^{8}$	$7.0\ 10^{8}$	$1.9\ 10^{9}$	$3.3\ 10^{9}$	$5.0\ 10^{9}$	$4.2\ 10^{8}$	0
^{106}Rh	$9.1\ 10^{8}$	$7.0\ 10^{8}$	$1.9\ 10^{9}$	$3.3\ 10^{9}$	$5.0\ 10^{9}$	$4.2\ 10^{8}$	0
^{110m}Ag	$4.5\ 10^{8}$	$7.0\ 10^{8}$	$9.5\ 10^{8}$	$5.5\ 10^{8}$	$5.0\ 10^{8}$	0	0
^{124}Sb	$1.8\ 10^{9}$	$1.4\ 10^{9}$	$1.9\ 10^{9}$	$4.4\ 10^{9}$	$5.0\ 10^{9}$	$4.2\ 10^{9}$	$4.5\ 10^{9}$
^{125}Sb	$4.5\ 10^{9}$	$4.2\ 10^{9}$	$1.9\ 10^{9}$	$1.1\ 10^{9}$	$5.0\ 10^{9}$	$4.2\ 10^{9}$	$4.5\ 10^{9}$
^{125m}Te	$9.1\ 10^{8}$	$1.4\ 10^{9}$	$9.5\ 10^{8}$	$5.5\ 10^{8}$	$5.0\ 10^{8}$	$4.2\ 10^{8}$	$4.5\ 10^{8}$
^{134}Cs	$9.4\ 10^{10}$	$1.6\ 10^{11}$	$2.5\ 10^{11}$	$1.4\ 10^{11}$	$4.0\ 10^{10}$	$3.3\ 10^{10}$	$2.7\ 10^{10}$
^{137}Cs	$5.2\ 10^{11}$	$8.6\ 10^{11}$	$1.1\ 10^{12}$	$7.0\ 10^{11}$	$7.3\ 10^{11}$	$6.8\ 10^{11}$	$5.5\ 10^{11}$
^{144}Ce	$3.6\ 10^{9}$	$7.0\ 10^{9}$	$1.3\ 10^{10}$	$2.2\ 10^{9}$	$5.0\ 10^{9}$	0	0
^{144}Pr	$3.6\ 10^{9}$	$7.0\ 10^{9}$	$1.3\ 10^{10}$	$2.2\ 10^{9}$	$5.0\ 10^{9}$	0	0
^{147}Pm	$6.3\ 10^{9}$	$4.2\ 10^{9}$	$1.1\ 10^{10}$	$1.1\ 10^{9}$	$1.0\ 10^{10}$	$8.4\ 10^{9}$	$9.0\ 10^{9}$
^{154}Eu	$4.5\ 10^{8}$	$7.0\ 10^{8}$	$9.5\ 10^{8}$	$1.1\ 10^{9}$	$5.0\ 10^{8}$	$4.2\ 10^{8}$	0
^{155}Eu	$4.5\ 10^{8}$	$7.0\ 10^{8}$	$9.5\ 10^{8}$	0	$5.0\ 10^{8}$	$4.2\ 10^{8}$	0
^{239}Pu	$4.5\ 10^{8}$	$7.0\ 10^{8}$	$9.5\ 10^{8}$	$5.5\ 10^{8}$	$5.0\ 10^{8}$	$4.2\ 10^{8}$	$4.5\ 10^{8}$

Table 62

Discharges from Springfields, UK

Nuclide	1947	1948	1949	1950	1951	1952	1953
^{228}Th	$1.4\ 10^{11}$	$1.4\ 10^{11}$	$1.4\ 10^{11}$	$1.4\ 10^{11}$	$1.4\ 10^{11}$	$1.4\ 10^{11}$	$1.4\ 10^{11}$
^{230}Th	$5.8\ 10^{11}$	$5.8\ 10^{11}$	$5.8\ 10^{11}$	$5.8\ 10^{11}$	$5.8\ 10^{11}$	$5.8\ 10^{11}$	$5.8\ 10^{11}$
^{232}Th	$1.4\ 10^{11}$	$1.4\ 10^{11}$	$1.4\ 10^{11}$	$1.4\ 10^{11}$	$1.4\ 10^{11}$	$1.4\ 10^{11}$	$1.4\ 10^{11}$
^{234}Th	$3.1\ 10^{13}$	$3.1\ 10^{13}$	$3.1\ 10^{13}$	$3.1\ 10^{13}$	$3.1\ 10^{13}$	$3.1\ 10^{13}$	$3.1\ 10^{13}$
^{234}U	$4.7\ 10^{10}$	$4.7\ 10^{10}$	$4.7\ 10^{10}$	$4.7\ 10^{10}$	$4.7\ 10^{10}$	$4.7\ 10^{10}$	$4.7\ 10^{10}$
^{235}U	$1.9\ 10^{9}$	$1.9\ 10^{9}$	$1.9\ 10^{9}$	$1.9\ 10^{9}$	$1.9\ 10^{9}$	$1.9\ 10^{9}$	$1.9\ 10^{9}$
^{238}U	$4.7\ 10^{10}$	$4.7\ 10^{10}$	$4.7\ 10^{10}$	$4.7\ 10^{10}$	$4.7\ 10^{10}$	$4.7\ 10^{10}$	$4.7\ 10^{10}$

Nuclide	1954	1955	1956	1957	1958	1959	1960
^{228}Th	$1.4\ 10^{11}$	$1.4\ 10^{11}$	$1.4\ 10^{11}$	$1.4\ 10^{11}$	$1.4\ 10^{11}$	$1.4\ 10^{11}$	$1.4\ 10^{11}$
^{230}Th	$5.8\ 10^{11}$	$5.8\ 10^{11}$	$5.8\ 10^{11}$	$5.8\ 10^{11}$	$5.8\ 10^{11}$	$5.8\ 10^{11}$	$5.8\ 10^{11}$
^{232}Th	$1.4\ 10^{11}$	$1.4\ 10^{11}$	$1.4\ 10^{11}$	$1.4\ 10^{11}$	$1.4\ 10^{11}$	$1.4\ 10^{11}$	$1.4\ 10^{11}$
^{234}Th	$3.1\ 10^{13}$	$3.1\ 10^{13}$	$3.1\ 10^{13}$	$3.1\ 10^{13}$	$3.1\ 10^{13}$	$3.1\ 10^{13}$	$3.1\ 10^{13}$
^{234}U	$4.7\ 10^{10}$	$4.7\ 10^{10}$	$4.7\ 10^{10}$	$4.7\ 10^{10}$	$4.7\ 10^{10}$	$4.7\ 10^{10}$	$4.7\ 10^{10}$
^{235}U	$1.9\ 10^{9}$	$1.9\ 10^{9}$	$1.9\ 10^{9}$	$1.9\ 10^{9}$	$1.9\ 10^{9}$	$1.9\ 10^{9}$	$1.9\ 10^{9}$
^{238}U	$4.7\ 10^{10}$	$4.7\ 10^{10}$	$4.7\ 10^{10}$	$4.7\ 10^{10}$	$4.7\ 10^{10}$	$4.7\ 10^{10}$	$4.7\ 10^{10}$

Nuclide	1961	1962	1963	1964	1965	1966	1967	1968
^{228}Th	$1.4\ 10^{11}$	$1.4\ 10^{11}$	$1.2\ 10^{11}$	$9.3\ 10^{10}$	$5.7\ 10^{10}$	$3.3\ 10^{10}$	$4.5\ 10^{10}$	$5.1\ 10^{10}$
^{230}Th	$5.8\ 10^{11}$	$5.8\ 10^{11}$	$4.7\ 10^{11}$	$3.7\ 10^{11}$	$2.3\ 10^{11}$	$1.3\ 10^{11}$	$1.8\ 10^{11}$	$2.0\ 10^{11}$
^{232}Th	$1.4\ 10^{11}$	$1.4\ 10^{11}$	$1.2\ 10^{11}$	$9.3\ 10^{10}$	$5.7\ 10^{10}$	$3.3\ 10^{10}$	$4.5\ 10^{10}$	$5.1\ 10^{10}$
^{234}Th	$3.1\ 10^{13}$	$3.1\ 10^{13}$	$3.2\ 10^{13}$	$3.3\ 10^{13}$	$2.1\ 10^{13}$	$1.5\ 10^{13}$	$1.2\ 10^{13}$	$1.8\ 10^{13}$
^{234}U	$4.7\ 10^{10}$	$4.7\ 10^{10}$	$3.9\ 10^{10}$	$3.0\ 10^{10}$	$1.9\ 10^{10}$	$1.1\ 10^{10}$	$1.5\ 10^{10}$	$1.7\ 10^{10}$
^{235}U	$1.9\ 10^{9}$	$1.9\ 10^{9}$	$1.6\ 10^{9}$	$1.2\ 10^{9}$	$7.6\ 10^{8}$	$4.4\ 10^{8}$	$6.0\ 10^{8}$	$6.8\ 10^{8}$
^{238}U	$4.7\ 10^{10}$	$4.7\ 10^{10}$	$3.9\ 10^{10}$	$3.0\ 10^{10}$	$1.9\ 10^{10}$	$1.1\ 10^{10}$	$1.5\ 10^{10}$	$1.7\ 10^{10}$

Nuclide	1969	1970	1971	1972	1973	1974	1975	1976
^{228}Th	$7.1\ 10^{10}$	$9.3\ 10^{10}$	$7.8\ 10^{10}$	$7.2\ 10^{10}$	$1.4\ 10^{11}$	$2.6\ 10^{11}$	$2.9\ 10^{11}$	$2.9\ 10^{11}$
^{230}Th	$2.8\ 10^{11}$	$3.7\ 10^{11}$	$3.1\ 10^{11}$	$2.9\ 10^{11}$	$5.6\ 10^{11}$	$1.0\ 10^{12}$	$1.2\ 10^{12}$	$1.2\ 10^{12}$
^{232}Th	$7.1\ 10^{10}$	$9.3\ 10^{10}$	$7.8\ 10^{10}$	$7.2\ 10^{10}$	$1.4\ 10^{11}$	$2.6\ 10^{11}$	$2.9\ 10^{11}$	$2.9\ 10^{11}$
^{234}Th	$1.9\ 10^{13}$	$1.6\ 10^{13}$	$1.6\ 10^{13}$	$2.6\ 10^{13}$	$2.7\ 10^{13}$	$2.1\ 10^{13}$	$3.9\ 10^{13}$	$5.2\ 10^{13}$
^{234}U	$2.3\ 10^{10}$	$3.0\ 10^{10}$	$2.5\ 10^{10}$	$2.4\ 10^{10}$	$4.5\ 10^{10}$	$8.3\ 10^{10}$	$9.4\ 10^{10}$	$9.6\ 10^{10}$
^{235}U	$9.4\ 10^{8}$	$1.4\ 10^{9}$	$1.1\ 10^{9}$	$1.1\ 10^{9}$	$2.0\ 10^{9}$	$3.7\ 10^{9}$	$4.2\ 10^{9}$	$4.3\ 10^{9}$
^{238}U	$2.3\ 10^{10}$	$3.0\ 10^{10}$	$2.5\ 10^{10}$	$2.4\ 10^{10}$	$4.5\ 10^{10}$	$8.3\ 10^{10}$	$9.4\ 10^{10}$	$9.6\ 10^{10}$

Nuclide	1977	1978	1979	1980	1981	1982	1983	1984
^{228}Th	$1.2\ 10^{11}$	$2.4\ 10^{11}$	$2.7\ 10^{11}$	$1.4\ 10^{11}$	$9.2\ 10^{10}$	$1.0\ 10^{11}$	$1.0\ 10^{11}$	$1.2\ 10^{11}$
^{230}Th	$4.7\ 10^{11}$	$9.5\ 10^{11}$	$1.1\ 10^{12}$	$5.6\ 10^{11}$	$3.7\ 10^{11}$	$4.1\ 10^{11}$	$4.1\ 10^{11}$	$4.8\ 10^{11}$
^{232}Th	$1.2\ 10^{11}$	$2.4\ 10^{11}$	$2.7\ 10^{11}$	$1.4\ 10^{11}$	$9.2\ 10^{10}$	$1.0\ 10^{11}$	$1.0\ 10^{11}$	$1.2\ 10^{11}$
^{234}Th	$7.4\ 10^{13}$	$6.9\ 10^{13}$	$6.7\ 10^{13}$	$6.6\ 10^{13}$	$4.9\ 10^{13}$	$8.7\ 10^{13}$	$1.1\ 10^{14}$	$7.6\ 10^{13}$
^{234}U	$3.8\ 10^{10}$	$7.8\ 10^{10}$	$8.7\ 10^{10}$	$4.5\ 10^{10}$	$3.0\ 10^{10}$	$3.3\ 10^{10}$	$3.3\ 10^{10}$	$3.9\ 10^{10}$
^{235}U	$1.7\ 10^{9}$	$3.5\ 10^{9}$	$3.9\ 10^{9}$	$2.0\ 10^{9}$	$1.3\ 10^{9}$	$1.4\ 10^{9}$	$1.5\ 10^{9}$	$1.8\ 10^{9}$
^{238}U	$3.8\ 10^{10}$	$7.8\ 10^{10}$	$8.7\ 10^{10}$	$4.5\ 10^{10}$	$3.0\ 10^{10}$	$3.3\ 10^{10}$	$3.3\ 10^{10}$	$3.9\ 10^{10}$

Table 63

Discharges from St.Laurent GCR, France

Nuclide	1969	1970	1971	1972	1973	1974	1975	1976
^{3}H	$1.8\ 10^{13}$	$1.8\ 10^{13}$	$1.8\ 10^{13}$	$1.8\ 10^{13}$	$1.8\ 10^{13}$	$1.8\ 10^{13}$	$1.8\ 10^{13}$	$1.8\ 10^{13}$
^{35}S	$5.0\ 10^{10}$	$1.4\ 10^{10}$	$4.2\ 10^{10}$	$1.7\ 10^{11}$	$1.3\ 10^{11}$	$7.9\ 10^{10}$	$8.7\ 10^{10}$	$8.7\ 10^{10}$
^{51}Cr	$1.0\ 10^{8}$	$2.8\ 10^{7}$	$8.3\ 10^{7}$	$3.4\ 10^{8}$	$2.6\ 10^{8}$	$1.5\ 10^{8}$	$1.7\ 10^{8}$	$1.1\ 10^{8}$
^{54}Mn	$1.0\ 10^{8}$	$2.8\ 10^{7}$	$8.3\ 10^{7}$	$3.4\ 10^{8}$	$2.6\ 10^{8}$	$1.5\ 10^{8}$	$1.7\ 10^{8}$	$1.1\ 10^{8}$
^{60}Co	$6.6\ 10^{9}$	$1.8\ 10^{9}$	$5.5\ 10^{9}$	$2.3\ 10^{10}$	$1.7\ 10^{10}$	$1.0\ 10^{10}$	$1.1\ 10^{10}$	$1.7\ 10^{9}$
^{65}Zn	$3.0\ 10^{8}$	$8.5\ 10^{7}$	$2.5\ 10^{8}$	$1.0\ 10^{9}$	$8.0\ 10^{8}$	$4.7\ 10^{8}$	$5.2\ 10^{8}$	$2.2\ 10^{8}$
^{90}Sr	$5.5\ 10^{9}$	$1.5\ 10^{9}$	$4.5\ 10^{9}$	$1.9\ 10^{10}$	$1.4\ 10^{10}$	$8.6\ 10^{9}$	$9.5\ 10^{9}$	$7.7\ 10^{8}$
^{95}Zr	$7.0\ 10^{8}$	$2.0\ 10^{8}$	$5.8\ 10^{8}$	$2.4\ 10^{9}$	$1.8\ 10^{9}$	$1.1\ 10^{9}$	$1.2\ 10^{9}$	$1.2\ 10^{9}$
^{95}Nb	$2.1\ 10^{9}$	$5.9\ 10^{8}$	$1.7\ 10^{9}$	$7.3\ 10^{9}$	$5.6\ 10^{9}$	$3.3\ 10^{9}$	$3.6\ 10^{9}$	$2.2\ 10^{9}$
^{106}Ru	$1.3\ 10^{10}$	$3.9\ 10^{9}$	$1.1\ 10^{10}$	$4.7\ 10^{10}$	$3.6\ 10^{10}$	$2.1\ 10^{10}$	$2.3\ 10^{10}$	0
^{124}Sb	$6.0\ 10^{8}$	$1.7\ 10^{8}$	$5.0\ 10^{8}$	$2.0\ 10^{9}$	$1.6\ 10^{9}$	$9.4\ 10^{8}$	$1.0\ 10^{9}$	$7.7\ 10^{8}$
^{134}Cs	$3.3\ 10^{9}$	$9.4\ 10^{8}$	$2.7\ 10^{9}$	$1.1\ 10^{10}$	$8.8\ 10^{9}$	$5.1\ 10^{9}$	$5.7\ 10^{9}$	$3.9\ 10^{9}$
^{137}Cs	$7.5\ 10^{9}$	$2.1\ 10^{9}$	$6.2\ 10^{9}$	$2.6\ 10^{10}$	$2.0\ 10^{10}$	$1.1\ 10^{10}$	$1.3\ 10^{10}$	$1.0\ 10^{10}$
^{144}Ce	$9.1\ 10^{9}$	$2.5\ 10^{9}$	$7.5\ 10^{9}$	$3.1\ 10^{10}$	$2.4\ 10^{10}$	$1.4\ 10^{10}$	$1.5\ 10^{10}$	$1.1\ 10^{9}$

Nuclide	1977	1978	1979	1980	1981	1982	1983	1984
^{3}H	$1.3\ 10^{13}$	$2.5\ 10^{13}$	$2.8\ 10^{13}$	$1.5\ 10^{13}$	$1.5\ 10^{13}$	$1.5\ 10^{13}$	$1.5\ 10^{13}$	$1.5\ 10^{13}$
^{35}S	$9.1\ 10^{10}$	$9.4\ 10^{10}$	$1.0\ 10^{11}$	$2.0\ 10^{11}$	$2.0\ 10^{11}$	$2.0\ 10^{11}$	$2.0\ 10^{11}$	$2.0\ 10^{11}$
^{51}Cr	$1.8\ 10^{8}$	0	$2.1\ 10^{8}$	$4.0\ 10^{8}$	$4.0\ 10^{8}$	$4.0\ 10^{8}$	$4.0\ 10^{8}$	$4.0\ 10^{8}$
^{54}Mn	$1.8\ 10^{8}$	$2.8\ 10^{8}$	$2.1\ 10^{8}$	$4.0\ 10^{8}$	$4.0\ 10^{8}$	$4.0\ 10^{8}$	$4.0\ 10^{8}$	$4.0\ 10^{8}$
^{60}Co	$1.1\ 10^{10}$	$3.8\ 10^{10}$	$1.3\ 10^{10}$	$2.6\ 10^{10}$	$2.6\ 10^{10}$	$2.6\ 10^{10}$	$2.6\ 10^{10}$	$2.6\ 10^{10}$
^{65}Zn	$5.4\ 10^{8}$	$1.2\ 10^{9}$	$6.3\ 10^{8}$	$1.2\ 10^{9}$	$1.2\ 10^{9}$	$1.2\ 10^{9}$	$1.2\ 10^{9}$	$1.2\ 10^{9}$
^{90}Sr	$9.9\ 10^{9}$	$3.3\ 10^{10}$	$1.1\ 10^{10}$	$2.2\ 10^{10}$	$2.2\ 10^{10}$	$2.2\ 10^{10}$	$2.2\ 10^{10}$	$2.2\ 10^{10}$
^{95}Zr	$1.2\ 10^{9}$	$1.2\ 10^{9}$	$1.4\ 10^{9}$	$2.8\ 10^{9}$	$2.8\ 10^{9}$	$2.8\ 10^{9}$	$2.8\ 10^{9}$	$2.8\ 10^{9}$
^{95}Nb	$3.8\ 10^{9}$	$7.7\ 10^{9}$	$4.4\ 10^{9}$	$8.5\ 10^{9}$	$8.5\ 10^{9}$	$8.5\ 10^{9}$	$8.5\ 10^{9}$	$8.5\ 10^{9}$
^{106}Ru	$2.4\ 10^{10}$	$4.4\ 10^{10}$	$2.8\ 10^{10}$	$5.5\ 10^{10}$	$5.5\ 10^{10}$	$5.5\ 10^{10}$	$5.5\ 10^{10}$	$5.5\ 10^{10}$
^{124}Sb	$1.0\ 10^{9}$	0	$1.2\ 10^{9}$	$2.4\ 10^{9}$	$2.4\ 10^{9}$	$2.4\ 10^{9}$	$2.4\ 10^{9}$	$2.4\ 10^{9}$
^{134}Cs	$5.9\ 10^{9}$	0	$6.9\ 10^{9}$	$1.3\ 10^{10}$	$1.3\ 10^{10}$	$1.3\ 10^{10}$	$1.3\ 10^{10}$	$1.3\ 10^{10}$
^{137}Cs	$1.3\ 10^{10}$	$2.0\ 10^{10}$	$1.5\ 10^{10}$	$3.0\ 10^{10}$	$3.0\ 10^{10}$	$3.0\ 10^{10}$	$3.0\ 10^{10}$	$3.0\ 10^{10}$
^{144}Ce	$1.6\ 10^{10}$	$5.7\ 10^{10}$	$1.9\ 10^{10}$	$3.7\ 10^{10}$	$3.7\ 10^{10}$	$3.7\ 10^{10}$	$3.7\ 10^{10}$	$3.7\ 10^{10}$

Table 64

Discharges from St.Laurent PWR, France

Nuclide	1981	1982	1983	1984
^{3}H	$3.5\ 10^{13}$	$3.5\ 10^{13}$	$3.5\ 10^{13}$	$3.5\ 10^{13}$
^{54}Mn	$2.4\ 10^{10}$	$2.4\ 10^{10}$	$2.4\ 10^{10}$	$2.4\ 10^{10}$
^{58}Co	$3.8\ 10^{11}$	$3.8\ 10^{11}$	$3.8\ 10^{11}$	$3.8\ 10^{11}$
^{60}Co	$8.1\ 10^{10}$	$8.1\ 10^{10}$	$8.1\ 10^{10}$	$8.1\ 10^{10}$
^{110m}Ag	$6.0\ 10^{10}$	$6.0\ 10^{10}$	$6.0\ 10^{10}$	$6.0\ 10^{10}$
^{124}Sb	$4.0\ 10^{10}$	$4.0\ 10^{10}$	$4.0\ 10^{10}$	$4.0\ 10^{10}$
^{131}I	$1.7\ 10^{10}$	$1.7\ 10^{10}$	$1.7\ 10^{10}$	$1.7\ 10^{10}$
^{134}Cs	$5.4\ 10^{9}$	$5.4\ 10^{9}$	$5.4\ 10^{9}$	$5.4\ 10^{9}$
^{137}Cs	$6.4\ 10^{9}$	$6.4\ 10^{9}$	$6.4\ 10^{9}$	$6.4\ 10^{9}$

Table 65

Discharges from Stade, FRG

Nuclide	1972	1973	1974	1975	1976	1977
^{51}Cr	$1.6\ 10^{8}$	0	$1.7\ 10^{8}$	0	$9.5\ 10^{8}$	$8.6\ 10^{8}$
^{54}Mn	0	$3.7\ 10^{8}$	$1.6\ 10^{8}$	$1.8\ 10^{8}$	$2.2\ 10^{8}$	$9.7\ 10^{7}$
^{58}Co	$3.0\ 10^{9}$	$2.4\ 10^{9}$	$4.8\ 10^{8}$	$5.2\ 10^{8}$	$7.9\ 10^{8}$	$4.6\ 10^{8}$
^{60}Co	$1.5\ 10^{8}$	$7.4\ 10^{8}$	$5.6\ 10^{8}$	$1.0\ 10^{9}$	$1.8\ 10^{9}$	$1.2\ 10^{9}$
^{110m}Ag	0	$6.7\ 10^{8}$	$1.0\ 10^{9}$	$8.1\ 10^{8}$	$1.3\ 10^{9}$	$5.3\ 10^{8}$
^{123m}Te	0	0	0	0	0	0
^{124}Sb	$1.1\ 10^{9}$	$7.0\ 10^{8}$	$7.4\ 10^{8}$	$9.3\ 10^{8}$	$2.9\ 10^{9}$	$8.5\ 10^{8}$
^{134}Cs	$2.5\ 10^{8}$	$1.4\ 10^{9}$	$4.8\ 10^{8}$	$1.9\ 10^{8}$	$2.6\ 10^{8}$	$3.6\ 10^{8}$
^{137}Cs	$8.4\ 10^{8}$	$5.4\ 10^{9}$	$1.5\ 10^{9}$	$8.1\ 10^{8}$	$3.8\ 10^{8}$	$7.0\ 10^{8}$
^{141}Ce	0	0	0	0	0	$1.9\ 10^{8}$
^{144}Ce	$5.3\ 10^{8}$	0	$9.3\ 10^{7}$	0	0	$2.5\ 10^{8}$
^{106}Ru	0	0	0	0	0	0
^{131}I	$5.7\ 10^{9}$	$1.6\ 10^{9}$	0	$1.0\ 10^{8}$	0	0
^{95}Zr	0	0	0	0	0	$3.3\ 10^{8}$
^{95}Nb	0	0	0	$1.1\ 10^{8}$	0	$5.8\ 10^{8}$
Total	$1.2\ 10^{10}$	$1.4\ 10^{10}$	$5.6\ 10^{9}$	$4.8\ 10^{9}$	$8.9\ 10^{9}$	$7.4\ 10^{9}$
^{3}H	$3.6\ 10^{10}$	$4.1\ 10^{12}$	$1.2\ 10^{12}$	$4.2\ 10^{12}$	$1.7\ 10^{12}$	$5.3\ 10^{12}$

Nuclide	1978	1979	1980	1981	1982	1983	1984
^{51}Cr	$2.1\ 10^{8}$	$2.4\ 10^{9}$	$1.8\ 10^{8}$	$5.3\ 10^{7}$	0	0	0
^{54}Mn	$5.1\ 10^{7}$	$9.3\ 10^{7}$	$6.6\ 10^{7}$	$1.6\ 10^{7}$	$2.0\ 10^{7}$	$1.2\ 10^{7}$	0
^{58}Co	$2.1\ 10^{8}$	$3.9\ 10^{8}$	$2.8\ 10^{8}$	$1.3\ 10^{8}$	$8.0\ 10^{7}$	$7.0\ 10^{7}$	$2.0\ 10^{7}$
^{60}Co	$9.1\ 10^{8}$	$2.8\ 10^{9}$	$1.1\ 10^{9}$	$5.6\ 10^{8}$	$3.2\ 10^{8}$	$4.7\ 10^{8}$	$2.1\ 10^{8}$
^{110m}Ag	$5.8\ 10^{8}$	$7.5\ 10^{8}$	$1.1\ 10^{8}$	$6.4\ 10^{7}$	$4.0\ 10^{7}$	$9.4\ 10^{7}$	$4.3\ 10^{7}$
^{123m}Te	0	0	$7.4\ 10^{7}$	$6.9\ 10^{7}$	$6.7\ 10^{7}$	$4.1\ 10^{7}$	$2.7\ 10^{7}$
^{124}Sb	$1.9\ 10^{8}$	$1.4\ 10^{8}$	$1.2\ 10^{8}$	$2.4\ 10^{8}$	$1.3\ 10^{8}$	$6.0\ 10^{7}$	$1.1\ 10^{8}$
^{134}Cs	$2.7\ 10^{8}$	$6.1\ 10^{8}$	$2.3\ 10^{8}$	$7.9\ 10^{7}$	$4.4\ 10^{7}$	$4.1\ 10^{7}$	$3.6\ 10^{7}$
^{137}Cs	$4.5\ 10^{8}$	$1.7\ 10^{9}$	$6.6\ 10^{8}$	$3.4\ 10^{8}$	$3.0\ 10^{8}$	$3.4\ 10^{8}$	$4.7\ 10^{8}$
^{141}Ce	0	0	0	0	0	0	0
^{144}Ce	$1.6\ 10^{8}$	0	$3.0\ 10^{7}$	0	0	0	0
^{106}Ru	$2.1\ 10^{8}$	$2.9\ 10^{8}$	0	0	0	0	0
^{131}I	$1.1\ 10^{8}$	0	0	0	0	0	0
^{95}Zr	$1.3\ 10^{8}$	0	0	0	0	0	0
^{95}Nb	$6.7\ 10^{7}$	0	0	0	0	0	0
Total	$3.7\ 10^{9}$	$9.6\ 10^{9}$	$3.0\ 10^{9}$	$1.6\ 10^{9}$	$1.0\ 10^{9}$	$1.1\ 10^{9}$	$9.2\ 10^{8}$
^{3}H	$4.9\ 10^{12}$	$5.4\ 10^{12}$	$2.3\ 10^{12}$	$2.8\ 10^{12}$	$5.0\ 10^{12}$	$7.9\ 10^{12}$	$1.2\ 10^{13}$

Table 66

Discharges from Studsvik, Sweden

Nuclide	1960	1961	1962	1963	1964	1965
^{3}H	$3.3\ 10^{12}$	$3.3\ 10^{12}$	$3.3\ 10^{12}$	$3.3\ 10^{12}$	$3.3\ 10^{12}$	$3.3\ 10^{12}$
^{51}Cr	$2.6\ 10^{9}$	$2.6\ 10^{9}$	$2.6\ 10^{9}$	$2.6\ 10^{9}$	$2.6\ 10^{9}$	$2.6\ 10^{9}$
^{54}Mn	$3.5\ 10^{9}$	$3.5\ 10^{9}$	$3.5\ 10^{9}$	$3.5\ 10^{9}$	$3.5\ 10^{9}$	$3.5\ 10^{9}$
^{58}Co	$1.8\ 10^{9}$	$1.8\ 10^{9}$	$1.8\ 10^{9}$	$1.8\ 10^{9}$	$1.8\ 10^{9}$	$1.8\ 10^{9}$
^{59}Fe	$1.8\ 10^{8}$	$1.8\ 10^{8}$	$1.8\ 10^{8}$	$1.8\ 10^{8}$	$1.8\ 10^{8}$	$1.8\ 10^{8}$
^{60}Co	$2.3\ 10^{10}$	$2.3\ 10^{10}$	$2.3\ 10^{10}$	$2.3\ 10^{10}$	$2.3\ 10^{10}$	$2.3\ 10^{10}$
^{65}Zn	$1.2\ 10^{9}$	$1.2\ 10^{9}$	$1.2\ 10^{9}$	$1.2\ 10^{9}$	$1.2\ 10^{9}$	$1.2\ 10^{9}$
^{95}Nb	$2.6\ 10^{9}$	$2.6\ 10^{9}$	$2.6\ 10^{9}$	$2.6\ 10^{9}$	$2.6\ 10^{9}$	$2.6\ 10^{9}$
^{95}Zr	$8.4\ 10^{8}$	$8.4\ 10^{8}$	$8.4\ 10^{8}$	$8.4\ 10^{8}$	$8.4\ 10^{8}$	$8.4\ 10^{8}$
^{99m}Tc	0	0	0	0	0	0
^{103}Ru	$1.2\ 10^{8}$	$1.2\ 10^{8}$	$1.2\ 10^{8}$	$1.2\ 10^{8}$	$1.2\ 10^{8}$	$1.2\ 10^{8}$
^{106}Ru	0	0	0	0	0	0
^{110m}Ag	0	0	0	0	0	0
^{124}Sb	$6.0\ 10^{9}$	$6.0\ 10^{9}$	$6.0\ 10^{9}$	$6.0\ 10^{9}$	$6.0\ 10^{9}$	$6.0\ 10^{9}$
^{131}I	$3.9\ 10^{9}$	$3.9\ 10^{9}$	$3.9\ 10^{9}$	$3.9\ 10^{9}$	$3.9\ 10^{9}$	$3.9\ 10^{9}$
^{134}Cs	$2.1\ 10^{10}$	$2.1\ 10^{10}$	$2.1\ 10^{10}$	$2.1\ 10^{10}$	$2.1\ 10^{10}$	$2.1\ 10^{10}$
^{136}Cs	$6.0\ 10^{7}$	$6.0\ 10^{7}$	$6.0\ 10^{7}$	$6.0\ 10^{7}$	$6.0\ 10^{7}$	$6.0\ 10^{7}$
^{137}Cs	$9.4\ 10^{10}$	$9.4\ 10^{10}$	$9.4\ 10^{10}$	$9.4\ 10^{10}$	$9.4\ 10^{10}$	$9.4\ 10^{10}$
^{140}La	$1.8\ 10^{8}$	$1.8\ 10^{8}$	$1.8\ 10^{8}$	$1.8\ 10^{8}$	$1.8\ 10^{8}$	$1.8\ 10^{8}$
^{141}Ce	$4.2\ 10^{8}$	$4.2\ 10^{8}$	$4.2\ 10^{8}$	$4.2\ 10^{8}$	$4.2\ 10^{8}$	$4.2\ 10^{8}$
^{144}Ce	$9.5\ 10^{9}$	$9.5\ 10^{9}$	$9.5\ 10^{9}$	$9.5\ 10^{9}$	$9.5\ 10^{9}$	$9.5\ 10^{9}$
^{154}Eu	0	0	0	0	0	0
^{90}Sr	$1.4\ 10^{10}$	$1.4\ 10^{10}$	$1.4\ 10^{10}$	$1.4\ 10^{10}$	$1.4\ 10^{10}$	$1.4\ 10^{10}$
^{239}Pu	$4.4\ 10^{9}$	$4.4\ 10^{9}$	$4.4\ 10^{9}$	$4.4\ 10^{9}$	$4.4\ 10^{9}$	$4.4\ 10^{9}$
Beta	$1.9\ 10^{11}$	$1.9\ 10^{11}$	$1.9\ 10^{11}$	$1.9\ 10^{11}$	$1.9\ 10^{11}$	$1.9\ 10^{11}$
Y+rare	$3.0\ 10^{10}$	$3.0\ 10^{10}$	$3.0\ 10^{10}$	$3.0\ 10^{10}$	$3.0\ 10^{10}$	$3.0\ 10^{10}$

Table 66 (continued)

Nuclide	1966	1967	1968	1969	1970	1971
^{3}H	$3.3\ 10^{12}$	$3.3\ 10^{12}$	$3.3\ 10^{12}$	$3.3\ 10^{12}$	$3.3\ 10^{12}$	$1.1\ 10^{13}$
^{51}Cr	$2.6\ 10^{9}$	$2.6\ 10^{9}$	$2.6\ 10^{9}$	$2.6\ 10^{9}$	$2.6\ 10^{9}$	$6.9\ 10^{9}$
^{54}Mn	$3.5\ 10^{9}$	$3.5\ 10^{9}$	$3.5\ 10^{9}$	$3.5\ 10^{9}$	$3.5\ 10^{9}$	$9.4\ 10^{9}$
^{58}Co	$1.8\ 10^{9}$	$1.8\ 10^{9}$	$1.8\ 10^{9}$	$1.8\ 10^{9}$	$1.8\ 10^{9}$	$4.9\ 10^{9}$
^{59}Fe	$1.8\ 10^{8}$	$1.8\ 10^{8}$	$1.8\ 10^{8}$	$1.8\ 10^{8}$	$1.8\ 10^{8}$	$4.7\ 10^{8}$
^{60}Co	$2.3\ 10^{10}$	$2.3\ 10^{10}$	$2.3\ 10^{10}$	$2.3\ 10^{10}$	$2.3\ 10^{10}$	$6.3\ 10^{10}$
^{65}Zn	$1.2\ 10^{9}$	$1.2\ 10^{9}$	$1.2\ 10^{9}$	$1.2\ 10^{9}$	$1.2\ 10^{9}$	$3.3\ 10^{9}$
^{95}Nb	$2.6\ 10^{9}$	$2.6\ 10^{9}$	$2.6\ 10^{9}$	$2.6\ 10^{9}$	$2.6\ 10^{9}$	$6.9\ 10^{9}$
^{95}Zr	$8.4\ 10^{8}$	$8.4\ 10^{8}$	$8.4\ 10^{8}$	$8.4\ 10^{8}$	$8.4\ 10^{8}$	$2.2\ 10^{9}$
^{99m}Tc	0	0	0	0	0	0
^{103}Ru	$1.2\ 10^{8}$	$1.2\ 10^{8}$	$1.2\ 10^{8}$	$1.2\ 10^{8}$	$1.2\ 10^{8}$	$3.1\ 10^{8}$
^{106}Ru	0	0	0	0	0	0
^{110m}Ag	0	0	0	0	0	0
^{124}Sb	$6.0\ 10^{9}$	$6.0\ 10^{9}$	$6.0\ 10^{9}$	$6.0\ 10^{9}$	$6.0\ 10^{9}$	$1.5\ 10^{10}$
^{131}I	$3.9\ 10^{9}$	$3.9\ 10^{9}$	$3.9\ 10^{9}$	$3.9\ 10^{9}$	$3.9\ 10^{9}$	$1.0\ 10^{10}$
^{134}Cs	$2.1\ 10^{10}$	$2.1\ 10^{10}$	$2.1\ 10^{10}$	$2.1\ 10^{10}$	$2.1\ 10^{10}$	$5.6\ 10^{10}$
^{136}Cs	$6.0\ 10^{7}$	$6.0\ 10^{7}$	$6.0\ 10^{7}$	$6.0\ 10^{7}$	$6.0\ 10^{7}$	$1.5\ 10^{8}$
^{137}Cs	$9.4\ 10^{10}$	$9.4\ 10^{10}$	$9.4\ 10^{10}$	$9.4\ 10^{10}$	$9.4\ 10^{10}$	$2.5\ 10^{11}$
^{140}La	$1.8\ 10^{8}$	$1.8\ 10^{8}$	$1.8\ 10^{8}$	$1.8\ 10^{8}$	$1.8\ 10^{8}$	$4.7\ 10^{8}$
^{141}Ce	$4.2\ 10^{8}$	$4.2\ 10^{8}$	$4.2\ 10^{8}$	$4.2\ 10^{8}$	$4.2\ 10^{8}$	$1.1\ 10^{9}$
^{144}Ce	$9.5\ 10^{9}$	$9.5\ 10^{9}$	$9.5\ 10^{9}$	$9.5\ 10^{9}$	$9.5\ 10^{9}$	$2.5\ 10^{10}$
^{154}Eu	0	0	0	0	0	0
^{90}Sr	$1.4\ 10^{10}$	$1.4\ 10^{10}$	$1.4\ 10^{10}$	$1.4\ 10^{10}$	$1.4\ 10^{10}$	$6.4\ 10^{10}$
^{239}Pu	$4.4\ 10^{9}$	$4.4\ 10^{9}$	$4.4\ 10^{9}$	$4.4\ 10^{9}$	$4.4\ 10^{9}$	$6.7\ 10^{9}$
Beta	$1.9\ 10^{11}$	$1.9\ 10^{11}$	$1.9\ 10^{11}$	$1.9\ 10^{11}$	$1.9\ 10^{11}$	$5.3\ 10^{11}$
Y+rare	$3.0\ 10^{10}$	$3.0\ 10^{10}$	$3.0\ 10^{10}$	$3.0\ 10^{10}$	$3.0\ 10^{10}$	$7.6\ 10^{10}$

Table 66 (continued)

Nuclide	1972	1973	1974	1975	1976	1977
^{3}H	$5.3\ 10^{12}$	$1.1\ 10^{13}$	$6.4\ 10^{13}$	$8.3\ 10^{13}$	$2.4\ 10^{13}$	$9.3\ 10^{13}$
^{51}Cr	$4.2\ 10^{9}$	$3.1\ 10^{9}$	$1.5\ 10^{9}$	$6.9\ 10^{9}$	$7.6\ 10^{9}$	$4.4\ 10^{9}$
^{54}Mn	$5.7\ 10^{9}$	$4.1\ 10^{9}$	$2.1\ 10^{9}$	$9.4\ 10^{9}$	$1.0\ 10^{10}$	$5.9\ 10^{9}$
^{58}Co	$3.0\ 10^{9}$	$2.1\ 10^{9}$	$1.1\ 10^{9}$	$4.9\ 10^{9}$	$5.3\ 10^{9}$	$3.1\ 10^{9}$
^{59}Fe	$2.9\ 10^{8}$	$2.1\ 10^{8}$	$1.0\ 10^{8}$	$4.7\ 10^{8}$	$5.2\ 10^{8}$	$3.0\ 10^{8}$
^{60}Co	$3.8\ 10^{10}$	$2.8\ 10^{10}$	$1.4\ 10^{10}$	$6.3\ 10^{10}$	$6.9\ 10^{10}$	$3.9\ 10^{10}$
^{65}Zn	$2.0\ 10^{9}$	$1.4\ 10^{9}$	$7.5\ 10^{8}$	$3.3\ 10^{9}$	$3.6\ 10^{9}$	$2.1\ 10^{9}$
^{95}Nb	$4.2\ 10^{9}$	$3.1\ 10^{9}$	$1.5\ 10^{9}$	$6.9\ 10^{9}$	$7.6\ 10^{9}$	$4.4\ 10^{9}$
^{95}Zr	$1.3\ 10^{9}$	$9.9\ 10^{8}$	$5.0\ 10^{8}$	$2.2\ 10^{9}$	$2.4\ 10^{9}$	$1.4\ 10^{9}$
^{99m}Tc	$1.0\ 10^{9}$	0	0	0	0	0
^{103}Ru	$1.9\ 10^{8}$	$1.4\ 10^{8}$	$7.2\ 10^{7}$	$3.1\ 10^{8}$	$3.4\ 10^{8}$	$2.0\ 10^{8}$
^{106}Ru	0	0	0	0	0	0
^{110m}Ag	0	0	0	0	0	0
^{124}Sb	$9.7\ 10^{9}$	$7.0\ 10^{9}$	$3.6\ 10^{9}$	$1.5\ 10^{10}$	$1.7\ 10^{10}$	$1.0\ 10^{10}$
^{131}I	$6.4\ 10^{9}$	$4.6\ 10^{9}$	$2.3\ 10^{9}$	$1.0\ 10^{10}$	$1.1\ 10^{10}$	$6.6\ 10^{9}$
^{134}Cs	$3.4\ 10^{10}$	$2.5\ 10^{10}$	$1.2\ 10^{10}$	$5.6\ 10^{10}$	$6.1\ 10^{10}$	$3.5\ 10^{10}$
^{136}Cs	$9.7\ 10^{7}$	$7.0\ 10^{7}$	$3.6\ 10^{7}$	$1.5\ 10^{8}$	$1.7\ 10^{8}$	$1.0\ 10^{8}$
^{137}Cs	$1.5\ 10^{11}$	$1.1\ 10^{11}$	$5.6\ 10^{10}$	$2.5\ 10^{11}$	$2.7\ 10^{11}$	$1.5\ 10^{11}$
^{140}La	$2.9\ 10^{8}$	$2.1\ 10^{8}$	$1.0\ 10^{8}$	$4.7\ 10^{8}$	$5.2\ 10^{8}$	$3.0\ 10^{8}$
^{141}Ce	$6.8\ 10^{8}$	$4.9\ 10^{8}$	$2.5\ 10^{8}$	$1.1\ 10^{9}$	$1.2\ 10^{9}$	$7.0\ 10^{8}$
^{144}Ce	$1.5\ 10^{10}$	$1.1\ 10^{10}$	$5.7\ 10^{9}$	$2.5\ 10^{10}$	$2.7\ 10^{10}$	$1.5\ 10^{10}$
^{154}Eu	0	0	0	0	0	0
^{90}Sr	$1.4\ 10^{10}$	$1.3\ 10^{10}$	$3.5\ 10^{9}$	$1.3\ 10^{10}$	$1.9\ 10^{10}$	$2.7\ 10^{10}$
^{239}Pu	$1.2\ 10^{9}$	$5.4\ 10^{9}$	$8.0\ 10^{8}$	$3.0\ 10^{8}$	$9.0\ 10^{8}$	$1.9\ 10^{9}$
Beta	$3.0\ 10^{11}$	$2.2\ 10^{11}$	$1.1\ 10^{11}$	$5.0\ 10^{11}$	$5.4\ 10^{11}$	0
Y+rare	$4.6\ 10^{10}$	$1.6\ 10^{10}$	$9.3\ 10^{9}$	$2.8\ 10^{10}$	$4.9\ 10^{10}$	0

Table 66 (continued)

Nuclide	1978	1979	1980	1981	1982	1983	1984
^{3}H	$1.0\ 10^{14}$	$1.0\ 10^{14}$	$1.5\ 10^{14}$	$2.0\ 10^{14}$	$1.3\ 10^{14}$	$3.2\ 10^{13}$	$2.8\ 10^{13}$
^{51}Cr	$2.0\ 10^{9}$	$2.3\ 10^{10}$	$1.6\ 10^{10}$	$1.3\ 10^{10}$	$1.1\ 10^{9}$	0	0
^{54}Mn	$2.8\ 10^{9}$	$2.5\ 10^{9}$	$1.9\ 10^{9}$	$9.0\ 10^{8}$	$7.0\ 10^{8}$	0	0
^{58}Co	$1.7\ 10^{9}$	$2.2\ 10^{9}$	$1.2\ 10^{9}$	$1.0\ 10^{9}$	$1.0\ 10^{8}$	0	$3.6\ 10^{8}$
^{59}Fe	0	$7.0\ 10^{8}$	0	$1.0\ 10^{8}$	$2.0\ 10^{8}$	0	0
^{60}Co	$5.0\ 10^{10}$	$6.6\ 10^{10}$	$3.3\ 10^{10}$	$4.1\ 10^{10}$	$3.7\ 10^{10}$	$4.8\ 10^{10}$	$9.9\ 10^{10}$
^{65}Zn	$3.3\ 10^{9}$	$8.3\ 10^{9}$	$6.3\ 10^{9}$	$2.5\ 10^{9}$	$9.0\ 10^{8}$	$3.3\ 10^{10}$	$1.9\ 10^{9}$
^{95}Nb	$1.3\ 10^{9}$	$3.0\ 10^{8}$	$1.6\ 10^{9}$	$3.4\ 10^{9}$	$1.0\ 10^{8}$	0	0
^{95}Zr	$7.0\ 10^{8}$	$2.0\ 10^{8}$	$8.0\ 10^{8}$	$1.8\ 10^{9}$	0	0	0
^{99m}Tc	0	0	0	0	0	0	0
^{103}Ru	$7.0\ 10^{8}$	$4.0\ 10^{8}$	0	$2.0\ 10^{8}$	0	0	0
^{106}Ru	0	0	0	$3.7\ 10^{9}$	$3.0\ 10^{8}$	$1.5\ 10^{9}$	$1.0\ 10^{9}$
^{110m}Ag	0	0	0	$1.0\ 10^{7}$	0	0	0
^{124}Sb	$1.5\ 10^{10}$	$9.8\ 10^{9}$	$2.0\ 10^{10}$	$3.8\ 10^{10}$	$2.0\ 10^{10}$	$3.7\ 10^{9}$	$3.4\ 10^{9}$
^{131}I	$3.1\ 10^{9}$	$3.4\ 10^{10}$	$2.5\ 10^{10}$	$2.0\ 10^{9}$	$2.8\ 10^{9}$	0	$3.0\ 10^{9}$
^{134}Cs	$7.3\ 10^{10}$	$7.8\ 10^{10}$	$3.4\ 10^{10}$	$5.2\ 10^{10}$	$5.5\ 10^{10}$	$1.5\ 10^{10}$	$5.0\ 10^{10}$
^{136}Cs	0	0	0	0	0	0	$7.1\ 10^{8}$
^{137}Cs	$2.2\ 10^{11}$	$2.0\ 10^{11}$	$1.0\ 10^{11}$	$1.2\ 10^{11}$	$1.2\ 10^{11}$	$6.5\ 10^{10}$	$1.5\ 10^{11}$
^{140}La	0	$4.0\ 10^{8}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$	$1.0\ 10^{8}$	0	0
^{141}Ce	0	0	$2.0\ 10^{8}$	0	0	0	0
^{144}Ce	$1.5\ 10^{10}$	$1.3\ 10^{9}$	$4.7\ 10^{9}$	$7.4\ 10^{10}$	$9.7\ 10^{9}$	$8.2\ 10^{10}$	$2.3\ 10^{10}$
^{154}Eu	0	0	0	$9.0\ 10^{8}$	$1.0\ 10^{8}$	$5.0\ 10^{8}$	0
^{90}Sr	$1.5\ 10^{10}$	$6.0\ 10^{9}$	$7.5\ 10^{9}$	$2.1\ 10^{10}$	$1.0\ 10^{10}$	0	0
^{239}Pu	$2.2\ 10^{9}$	$6.0\ 10^{8}$	$3.0\ 10^{8}$	$1.1\ 10^{9}$	$7.0\ 10^{8}$	0	0
Beta	0	0	0	0	0	0	0
Y+rare	0	0	0	0	0	0	0

Table 67

Discharges from Tihange, Belgium

Nuclide	1975	1976	1977	1978	1979
^{3}H	$2.2\ 10^{12}$	$5.9\ 10^{12}$	$1.1\ 10^{13}$	$1.3\ 10^{13}$	$1.0\ 10^{13}$
^{51}Cr	0	0	$1.5\ 10^{9}$	$2.8\ 10^{9}$	$1.3\ 10^{9}$
^{54}Mn	$3.2\ 10^{8}$	$1.1\ 10^{9}$	$6.8\ 10^{9}$	$3.4\ 10^{9}$	$1.3\ 10^{9}$
^{57}Co	0	0	$9.2\ 10^{8}$	$1.1\ 10^{8}$	$3.7\ 10^{7}$
^{58}Co	$6.0\ 10^{9}$	$7.7\ 10^{10}$	$5.9\ 10^{10}$	$3.7\ 10^{10}$	$1.3\ 10^{10}$
^{59}Fe	0	$1.5\ 10^{7}$	$2.9\ 10^{8}$	$7.4\ 10^{8}$	0
^{60}Co	$8.4\ 10^{8}$	$8.1\ 10^{8}$	$3.0\ 10^{10}$	$9.9\ 10^{9}$	$1.4\ 10^{10}$
^{65}Zn	0	0	$1.4\ 10^{8}$	0	$1.8\ 10^{8}$
^{95}Zr	0	$7.0\ 10^{6}$	$1.8\ 10^{8}$	0	$1.4\ 10^{8}$
^{95}Nb	$3.8\ 10^{8}$	$1.1\ 10^{7}$	$3.3\ 10^{8}$	$1.8\ 10^{8}$	$1.0\ 10^{9}$
^{103}Ru	0	0	0	0	0
^{134}Cs	0	$1.3\ 10^{9}$	$7.4\ 10^{9}$	$3.1\ 10^{9}$	$8.1\ 10^{8}$
^{137}Cs	$2.0\ 10^{8}$	$2.3\ 10^{9}$	$1.3\ 10^{9}$	$6.2\ 10^{9}$	$1.5\ 10^{9}$
^{144}Ce	0	0	0	0	0

Nuclide	1980	1981	1982	1983	1984
^{3}H	$1.2\ 10^{13}$	$2.7\ 10^{13}$	$1.8\ 10^{13}$	$3.5\ 10^{13}$	$3.0\ 10^{13}$
^{51}Cr	$3.3\ 10^{9}$	$4.2\ 10^{10}$	$4.4\ 10^{8}$	$2.3\ 10^{8}$	$6.7\ 10^{9}$
^{54}Mn	$1.1\ 10^{9}$	$3.4\ 10^{9}$	$2.2\ 10^{8}$	$1.8\ 10^{9}$	$4.8\ 10^{9}$
^{57}Co	$2.6\ 10^{7}$	$2.5\ 10^{8}$	$3.7\ 10^{6}$	$1.8\ 10^{6}$	$2.9\ 10^{8}$
^{58}Co	$1.4\ 10^{10}$	$8.3\ 10^{10}$	$6.7\ 10^{9}$	$1.5\ 10^{10}$	$4.8\ 10^{10}$
^{59}Fe	0	$1.5\ 10^{9}$	0	0	$8.0\ 10^{8}$
^{60}Co	$1.7\ 10^{10}$	$4.4\ 10^{10}$	$7.3\ 10^{9}$	$7.4\ 10^{9}$	$1.3\ 10^{10}$
^{65}Zn	$3.7\ 10^{8}$	$1.8\ 10^{9}$	$7.4\ 10^{6}$	0	$1.8\ 10^{9}$
^{95}Zr	$4.8\ 10^{8}$	$1.9\ 10^{10}$	$3.3\ 10^{7}$	$1.9\ 10^{8}$	$1.3\ 10^{9}$
^{95}Nb	$1.4\ 10^{9}$	$5.6\ 10^{10}$	$5.1\ 10^{8}$	$9.6\ 10^{8}$	$4.7\ 10^{9}$
^{103}Ru	0	$8.3\ 10^{9}$	$2.2\ 10^{8}$	$1.3\ 10^{8}$	$1.6\ 10^{8}$
^{134}Cs	$7.0\ 10^{8}$	$4.8\ 10^{8}$	$1.1\ 10^{9}$	$4.7\ 10^{8}$	$7.0\ 10^{8}$
^{137}Cs	$1.3\ 10^{9}$	$2.7\ 10^{9}$	$2.4\ 10^{9}$	$1.6\ 10^{9}$	$1.9\ 10^{9}$
^{144}Ce	0	$1.2\ 10^{10}$	$2.2\ 10^{8}$	$7.2\ 10^{8}$	$1.0\ 10^{9}$

Table 68

Discharges from Trawsfynydd, UK

Nuclide	1965	1966	1967	1968	1969	1970
^{3}H	$7.8\ 10^{10}$	$8.3\ 10^{12}$	$4.1\ 10^{12}$	$6.7\ 10^{12}$	$8.6\ 10^{12}$	$2.5\ 10^{12}$
^{14}C	$1.3\ 10^{6}$	$5.4\ 10^{7}$	$1.7\ 10^{8}$	$3.0\ 10^{8}$	$2.6\ 10^{8}$	$3.3\ 10^{8}$
^{32}P	$1.7\ 10^{7}$	$7.1\ 10^{8}$	$2.2\ 10^{9}$	$3.9\ 10^{9}$	$3.4\ 10^{9}$	$4.3\ 10^{9}$
^{35}S	$6.2\ 10^{8}$	$2.5\ 10^{10}$	$8.1\ 10^{10}$	$1.4\ 10^{11}$	$1.2\ 10^{11}$	$1.5\ 10^{11}$
^{45}Ca	$2.0\ 10^{6}$	$8.2\ 10^{7}$	$2.6\ 10^{8}$	$4.5\ 10^{8}$	$4.0\ 10^{8}$	$5.0\ 10^{8}$
^{51}Cr	$1.3\ 10^{6}$	$5.4\ 10^{7}$	$1.7\ 10^{8}$	$3.0\ 10^{8}$	$2.6\ 10^{8}$	$3.3\ 10^{8}$
^{54}Mn	$1.6\ 10^{6}$	$6.8\ 10^{7}$	$2.1\ 10^{8}$	$3.7\ 10^{8}$	$3.3\ 10^{8}$	$4.1\ 10^{8}$
^{55}Fe	$3.3\ 10^{6}$	$1.3\ 10^{8}$	$4.3\ 10^{8}$	$7.5\ 10^{8}$	$6.6\ 10^{8}$	$8.3\ 10^{8}$
^{58}Co	$1.6\ 10^{6}$	$6.8\ 10^{7}$	$2.1\ 10^{8}$	$3.7\ 10^{8}$	$3.3\ 10^{8}$	$4.1\ 10^{8}$
^{59}Fe	$1.6\ 10^{6}$	$6.8\ 10^{7}$	$2.1\ 10^{8}$	$3.7\ 10^{8}$	$3.3\ 10^{8}$	$4.1\ 10^{8}$
^{60}Co	$2.6\ 10^{6}$	$1.0\ 10^{8}$	$3.4\ 10^{8}$	$6.0\ 10^{8}$	$5.3\ 10^{8}$	$6.6\ 10^{8}$
^{63}Ni	$1.3\ 10^{6}$	$5.4\ 10^{7}$	$1.7\ 10^{8}$	$3.0\ 10^{8}$	$2.6\ 10^{8}$	$3.3\ 10^{8}$
^{65}Zn	$1.6\ 10^{6}$	$6.8\ 10^{7}$	$2.1\ 10^{8}$	$3.7\ 10^{8}$	$3.3\ 10^{8}$	$4.1\ 10^{8}$
^{89}Sr	$5.0\ 10^{6}$	$2.0\ 10^{8}$	$6.5\ 10^{8}$	$1.1\ 10^{9}$	$1.0\ 10^{9}$	$1.2\ 10^{9}$
^{90}Sr	$6.8\ 10^{7}$	$2.8\ 10^{9}$	$8.9\ 10^{9}$	$1.5\ 10^{10}$	$1.3\ 10^{10}$	$1.7\ 10^{10}$
^{90}Y	$6.8\ 10^{7}$	$2.8\ 10^{9}$	$8.9\ 10^{9}$	$1.5\ 10^{10}$	$1.3\ 10^{10}$	$1.7\ 10^{10}$
^{91}Y	$1.3\ 10^{6}$	$5.4\ 10^{7}$	$1.7\ 10^{8}$	$3.0\ 10^{8}$	$2.6\ 10^{8}$	$3.3\ 10^{8}$
^{95}Zr	$1.3\ 10^{6}$	$5.4\ 10^{7}$	$1.7\ 10^{8}$	$3.0\ 10^{8}$	$2.6\ 10^{8}$	$3.3\ 10^{8}$
^{95}Nb	$1.3\ 10^{6}$	$5.4\ 10^{7}$	$1.7\ 10^{8}$	$3.0\ 10^{8}$	$2.6\ 10^{8}$	$3.3\ 10^{8}$
^{106}Ru	$5.3\ 10^{7}$	$2.1\ 10^{9}$	$6.9\ 10^{9}$	$1.2\ 10^{10}$	$1.0\ 10^{10}$	$1.3\ 10^{10}$
^{106}Rh	$5.3\ 10^{7}$	$2.1\ 10^{9}$	$6.9\ 10^{9}$	$1.2\ 10^{10}$	$1.0\ 10^{10}$	$1.3\ 10^{10}$
^{110m}Ag	$1.3\ 10^{6}$	$5.4\ 10^{7}$	$1.7\ 10^{8}$	$3.0\ 10^{8}$	$2.6\ 10^{8}$	$3.3\ 10^{8}$
^{124}Sb	$1.2\ 10^{7}$	$4.9\ 10^{8}$	$1.5\ 10^{9}$	$2.7\ 10^{9}$	$2.4\ 10^{9}$	$3.0\ 10^{9}$
^{125}Sb	$6.3\ 10^{8}$	$2.5\ 10^{10}$	$8.2\ 10^{10}$	$1.4\ 10^{11}$	$1.2\ 10^{11}$	$1.5\ 10^{11}$
^{125m}Te	$1.0\ 10^{8}$	$4.4\ 10^{9}$	$1.4\ 10^{10}$	$2.4\ 10^{10}$	$2.1\ 10^{10}$	$2.6\ 10^{10}$
^{134}Cs	$4.1\ 10^{7}$	$1.6\ 10^{9}$	$5.3\ 10^{9}$	$9.3\ 10^{9}$	$8.2\ 10^{9}$	$1.0\ 10^{10}$
^{137}Cs	$2.1\ 10^{8}$	$8.8\ 10^{9}$	$2.7\ 10^{10}$	$4.8\ 10^{10}$	$4.2\ 10^{10}$	$5.3\ 10^{10}$
^{144}Ce	$1.0\ 10^{7}$	$4.3\ 10^{8}$	$1.3\ 10^{9}$	$2.4\ 10^{9}$	$2.1\ 10^{9}$	$2.6\ 10^{9}$
^{144}Pr	$1.0\ 10^{7}$	$4.3\ 10^{8}$	$1.3\ 10^{9}$	$2.4\ 10^{9}$	$2.1\ 10^{9}$	$2.6\ 10^{9}$
^{147}Pm	$2.3\ 10^{7}$	$9.5\ 10^{8}$	$3.0\ 10^{9}$	$5.2\ 10^{9}$	$4.6\ 10^{9}$	$5.8\ 10^{9}$
^{154}Eu	$1.6\ 10^{6}$	$6.8\ 10^{7}$	$2.1\ 10^{8}$	$3.7\ 10^{8}$	$3.3\ 10^{8}$	$4.1\ 10^{8}$
^{155}Eu	$1.0\ 10^{6}$	$4.1\ 10^{7}$	$1.3\ 10^{8}$	$2.2\ 10^{8}$	$2.0\ 10^{8}$	$2.5\ 10^{8}$
^{239}Pu	$6.3\ 10^{6}$	$2.6\ 10^{8}$	$8.2\ 10^{8}$	$1.4\ 10^{9}$	$1.2\ 10^{9}$	$1.5\ 10^{9}$

Table 68 (continued)

Nuclide	1971	1972	1973	1974	1975	1976	1977
^{3}H	$1.6\ 10^{12}$	$1.7\ 10^{12}$	$4.3\ 10^{12}$	$2.2\ 10^{12}$	$3.3\ 10^{12}$	$5.9\ 10^{11}$	$4.8\ 10^{11}$
^{14}C	$5.6\ 10^{8}$	$8.0\ 10^{8}$	$5.9\ 10^{8}$	$3.5\ 10^{8}$	$3.1\ 10^{8}$	$3.7\ 10^{8}$	$2.5\ 10^{8}$
^{32}P	$7.2\ 10^{9}$	$3.6\ 10^{9}$	$5.9\ 10^{9}$	$9.1\ 10^{9}$	$1.8\ 10^{9}$	$1.4\ 10^{9}$	$5.0\ 10^{9}$
^{35}S	$2.6\ 10^{11}$	$9.3\ 10^{10}$	$1.6\ 10^{11}$	$4.0\ 10^{11}$	$1.4\ 10^{11}$	$1.1\ 10^{11}$	$1.7\ 10^{11}$
^{45}Ca	$8.4\ 10^{8}$	$1.2\ 10^{9}$	$5.9\ 10^{8}$	$7.0\ 10^{8}$	$1.2\ 10^{9}$	$3.7\ 10^{8}$	$3.0\ 10^{9}$
^{51}Cr	$5.6\ 10^{8}$	$8.0\ 10^{8}$	$5.9\ 10^{8}$	$3.5\ 10^{8}$	$3.1\ 10^{8}$	$3.7\ 10^{8}$	$2.5\ 10^{8}$
^{54}Mn	$7.0\ 10^{8}$	$1.0\ 10^{9}$	$5.9\ 10^{8}$	$3.5\ 10^{8}$	$6.3\ 10^{8}$	$3.7\ 10^{8}$	$2.5\ 10^{8}$
^{55}Fe	$1.4\ 10^{9}$	$2.4\ 10^{9}$	$1.1\ 10^{9}$	$7.0\ 10^{8}$	$3.1\ 10^{8}$	$5.9\ 10^{9}$	$1.0\ 10^{9}$
^{58}Co	$7.0\ 10^{8}$	$1.2\ 10^{9}$	$5.9\ 10^{8}$	$3.5\ 10^{8}$	$3.1\ 10^{8}$	$3.7\ 10^{8}$	$2.5\ 10^{8}$
^{59}Fe	$7.0\ 10^{8}$	$1.0\ 10^{9}$	$5.9\ 10^{8}$	$7.0\ 10^{8}$	$3.1\ 10^{8}$	$3.7\ 10^{8}$	$2.5\ 10^{8}$
^{60}Co	$1.1\ 10^{9}$	$1.2\ 10^{9}$	$5.9\ 10^{8}$	$1.4\ 10^{9}$	$6.3\ 10^{8}$	$7.4\ 10^{8}$	$2.5\ 10^{8}$
^{63}Ni	$5.6\ 10^{8}$	$8.0\ 10^{8}$	$5.9\ 10^{8}$	$3.5\ 10^{8}$	$3.1\ 10^{8}$	$3.7\ 10^{8}$	$2.5\ 10^{8}$
^{65}Zn	$7.0\ 10^{8}$	$1.0\ 10^{9}$	$5.9\ 10^{8}$	$7.0\ 10^{8}$	$3.1\ 10^{8}$	$3.7\ 10^{8}$	$2.5\ 10^{8}$
^{89}Sr	$2.1\ 10^{9}$	$7.2\ 10^{9}$	$5.9\ 10^{8}$	$3.5\ 10^{8}$	$3.1\ 10^{8}$	$3.7\ 10^{8}$	$2.5\ 10^{8}$
^{90}Sr	$2.8\ 10^{10}$	$4.4\ 10^{10}$	$3.3\ 10^{10}$	$6.3\ 10^{9}$	$4.9\ 10^{10}$	$5.1\ 10^{10}$	$6.0\ 10^{10}$
^{90}Y	$2.8\ 10^{10}$	$4.4\ 10^{10}$	$3.3\ 10^{10}$	$6.3\ 10^{9}$	$4.9\ 10^{10}$	$5.1\ 10^{10}$	$6.0\ 10^{10}$
^{91}Y	$5.6\ 10^{8}$	$8.0\ 10^{8}$	$5.9\ 10^{8}$	$3.5\ 10^{8}$	$3.1\ 10^{8}$	$3.7\ 10^{8}$	$2.5\ 10^{8}$
^{95}Zr	$5.6\ 10^{8}$	$8.0\ 10^{8}$	$2.9\ 10^{8}$	$3.5\ 10^{8}$	$6.3\ 10^{8}$	$1.4\ 10^{9}$	$5.0\ 10^{8}$
^{95}Nb	$5.6\ 10^{8}$	$8.0\ 10^{8}$	$2.9\ 10^{8}$	$3.5\ 10^{8}$	$6.3\ 10^{8}$	$2.9\ 10^{9}$	$5.0\ 10^{8}$
^{106}Ru	$2.2\ 10^{10}$	$3.1\ 10^{10}$	$2.2\ 10^{10}$	$1.1\ 10^{10}$	$1.2\ 10^{10}$	$2.7\ 10^{10}$	$7.5\ 10^{9}$
^{106}Rh	$2.2\ 10^{10}$	$3.1\ 10^{10}$	$2.2\ 10^{10}$	$1.1\ 10^{10}$	$1.2\ 10^{10}$	$2.7\ 10^{10}$	$7.5\ 10^{9}$
^{110m}Ag	$5.6\ 10^{8}$	$8.0\ 10^{8}$	$5.9\ 10^{8}$	$3.5\ 10^{8}$	$3.1\ 10^{8}$	$3.7\ 10^{8}$	$2.5\ 10^{8}$
^{124}Sb	$5.0\ 10^{9}$	$7.2\ 10^{9}$	$3.5\ 10^{9}$	$4.2\ 10^{9}$	$3.7\ 10^{9}$	$4.4\ 10^{9}$	$3.0\ 10^{9}$
^{125}Sb	$2.6\ 10^{11}$	$5.7\ 10^{11}$	$1.8\ 10^{11}$	$1.1\ 10^{11}$	$1.1\ 10^{11}$	$1.8\ 10^{11}$	$3.9\ 10^{10}$
^{125m}Te	$4.5\ 10^{10}$	$6.4\ 10^{10}$	$4.4\ 10^{10}$	$2.8\ 10^{10}$	$2.8\ 10^{10}$	$4.5\ 10^{10}$	$9.5\ 10^{9}$
^{134}Cs	$1.7\ 10^{10}$	$3.6\ 10^{10}$	$8.8\ 10^{9}$	$1.1\ 10^{10}$	$2.5\ 10^{10}$	$2.8\ 10^{10}$	$1.2\ 10^{10}$
^{137}Cs	$9.0\ 10^{10}$	$1.4\ 10^{11}$	$4.8\ 10^{10}$	$8.1\ 10^{10}$	$1.6\ 10^{11}$	$1.1\ 10^{11}$	$7.9\ 10^{10}$
^{144}Ce	$4.4\ 10^{9}$	$1.0\ 10^{10}$	$3.5\ 10^{9}$	$7.0\ 10^{8}$	$1.2\ 10^{9}$	$2.2\ 10^{10}$	$3.5\ 10^{9}$
^{144}Pr	$4.4\ 10^{9}$	$1.0\ 10^{10}$	$3.5\ 10^{9}$	$7.0\ 10^{8}$	$1.2\ 10^{9}$	$2.2\ 10^{10}$	$3.5\ 10^{9}$
^{147}Pm	$9.8\ 10^{9}$	$6.0\ 10^{9}$	$1.4\ 10^{10}$	$3.5\ 10^{9}$	$8.1\ 10^{9}$	$2.7\ 10^{10}$	$3.1\ 10^{10}$
^{154}Eu	$7.0\ 10^{8}$	$1.0\ 10^{9}$	$5.9\ 10^{8}$	$3.5\ 10^{8}$	$6.3\ 10^{8}$	$1.4\ 10^{9}$	$5.0\ 10^{8}$
^{155}Eu	$4.2\ 10^{8}$	$6.0\ 10^{8}$	$2.9\ 10^{8}$	$3.5\ 10^{8}$	$3.1\ 10^{8}$	$3.7\ 10^{8}$	$2.5\ 10^{8}$
^{239}Pu	$2.6\ 10^{9}$	$3.8\ 10^{9}$	$1.8\ 10^{9}$	$2.2\ 10^{9}$	$3.1\ 10^{8}$	$2.9\ 10^{9}$	$2.5\ 10^{9}$

Table 68 (continued)

Nuclide	1978	1979	1980	1981	1982	1983	1984
^{3}H	$5.6\ 10^{11}$	$2.1\ 10^{12}$	$1.0\ 10^{12}$	$1.1\ 10^{13}$	$3.7\ 10^{12}$	$9.6\ 10^{11}$	$7.8\ 10^{11}$
^{14}C	$3.2\ 10^{8}$	$1.1\ 10^{8}$	$2.6\ 10^{8}$	$1.4\ 10^{8}$	$2.4\ 10^{8}$	$2.2\ 10^{8}$	$1.8\ 10^{8}$
^{32}P	$3.2\ 10^{8}$	$1.1\ 10^{8}$	$2.6\ 10^{8}$	$1.4\ 10^{8}$	$2.4\ 10^{8}$	$2.2\ 10^{8}$	$1.8\ 10^{8}$
^{35}S	$1.8\ 10^{11}$	$9.4\ 10^{10}$	$1.8\ 10^{11}$	$1.4\ 10^{11}$	$3.1\ 10^{11}$	$3.0\ 10^{11}$	$1.0\ 10^{11}$
^{45}Ca	$3.9\ 10^{9}$	$1.8\ 10^{9}$	$1.0\ 10^{9}$	$1.4\ 10^{8}$	$2.4\ 10^{9}$	$2.2\ 10^{9}$	$1.8\ 10^{9}$
^{51}Cr	$3.2\ 10^{8}$	$1.1\ 10^{8}$	$2.6\ 10^{8}$	$4.6\ 10^{7}$	$8.0\ 10^{7}$	0	0
^{54}Mn	$3.2\ 10^{8}$	$1.1\ 10^{8}$	$2.6\ 10^{8}$	$1.4\ 10^{8}$	$2.4\ 10^{8}$	0	$1.8\ 10^{8}$
^{55}Fe	$1.9\ 10^{9}$	$2.5\ 10^{9}$	$2.0\ 10^{9}$	$1.9\ 10^{9}$	$2.4\ 10^{9}$	$2.2\ 10^{9}$	$3.7\ 10^{9}$
^{58}Co	$3.2\ 10^{8}$	$1.1\ 10^{8}$	$2.6\ 10^{8}$	$5.6\ 10^{8}$	$2.4\ 10^{9}$	0	0
^{59}Fe	$3.2\ 10^{8}$	$1.1\ 10^{8}$	$2.6\ 10^{8}$	$2.2\ 10^{10}$	$2.4\ 10^{9}$	0	0
^{60}Co	$6.5\ 10^{8}$	$4.6\ 10^{8}$	$5.2\ 10^{8}$	$5.6\ 10^{8}$	$2.4\ 10^{9}$	$2.2\ 10^{9}$	$1.8\ 10^{9}$
^{63}Ni	$3.2\ 10^{8}$	$1.1\ 10^{8}$	$2.6\ 10^{8}$	$1.4\ 10^{8}$	$2.4\ 10^{8}$	$2.2\ 10^{8}$	$1.8\ 10^{8}$
^{65}Zn	$3.2\ 10^{8}$	$1.1\ 10^{8}$	$2.6\ 10^{8}$	0	$2.4\ 10^{8}$	0	0
^{89}Sr	$3.2\ 10^{8}$	$1.1\ 10^{8}$	$2.6\ 10^{8}$	0	0	0	0
^{90}Sr	$1.1\ 10^{11}$	$2.1\ 10^{10}$	$6.6\ 10^{10}$	$1.4\ 10^{10}$	$2.8\ 10^{10}$	$9.0\ 10^{9}$	$3.3\ 10^{10}$
^{90}Y	$1.1\ 10^{11}$	$2.1\ 10^{10}$	$6.6\ 10^{10}$	$1.4\ 10^{10}$	$2.8\ 10^{10}$	$9.0\ 10^{9}$	$3.3\ 10^{10}$
^{91}Y	$3.2\ 10^{8}$	$1.1\ 10^{8}$	$2.6\ 10^{8}$	0	0	0	0
^{95}Zr	$6.5\ 10^{8}$	$2.3\ 10^{8}$	$2.6\ 10^{8}$	$3.0\ 10^{9}$	$4.8\ 10^{9}$	0	0
^{95}Nb	$1.3\ 10^{9}$	$4.8\ 10^{9}$	$8.8\ 10^{9}$	$1.6\ 10^{9}$	$9.6\ 10^{9}$	$4.5\ 10^{9}$	$7.4\ 10^{9}$
^{106}Ru	$5.2\ 10^{9}$	$4.8\ 10^{9}$	$2.3\ 10^{10}$	$7.0\ 10^{9}$	$4.8\ 10^{9}$	$1.3\ 10^{10}$	$1.4\ 10^{10}$
^{106}Rh	$5.2\ 10^{9}$	$4.8\ 10^{9}$	$2.3\ 10^{10}$	$7.0\ 10^{9}$	$4.8\ 10^{9}$	$1.3\ 10^{10}$	$1.4\ 10^{10}$
^{110m}Ag	$3.2\ 10^{8}$	$1.1\ 10^{8}$	$2.6\ 10^{8}$	$2.8\ 10^{8}$	$2.4\ 10^{8}$	0	0
^{124}Sb	$3.9\ 10^{9}$	$2.3\ 10^{8}$	$5.2\ 10^{8}$	$4.4\ 10^{9}$	$9.6\ 10^{9}$	$4.5\ 10^{9}$	$1.8\ 10^{9}$
^{125}Sb	$4.3\ 10^{10}$	$8.2\ 10^{9}$	$6.5\ 10^{10}$	$1.3\ 10^{10}$	$2.8\ 10^{10}$	$3.1\ 10^{10}$	$5.9\ 10^{10}$
^{125m}Te	$1.0\ 10^{10}$	$1.3\ 10^{9}$	$1.3\ 10^{10}$	$3.3\ 10^{9}$	$9.6\ 10^{9}$	$9.0\ 10^{9}$	$1.4\ 10^{10}$
^{134}Cs	$2.1\ 10^{10}$	$6.9\ 10^{9}$	$1.0\ 10^{10}$	$5.3\ 10^{9}$	$4.8\ 10^{9}$	$9.0\ 10^{9}$	$1.1\ 10^{10}$
^{137}Cs	$1.1\ 10^{11}$	$3.8\ 10^{10}$	$3.8\ 10^{10}$	$2.4\ 10^{10}$	$1.9\ 10^{10}$	$2.7\ 10^{10}$	$3.7\ 10^{10}$
^{144}Ce	$4.5\ 10^{9}$	$2.7\ 10^{9}$	$4.6\ 10^{9}$	$2.2\ 10^{9}$	$4.8\ 10^{9}$	$4.5\ 10^{9}$	$1.4\ 10^{10}$
^{144}Pr	$4.5\ 10^{9}$	$2.7\ 10^{9}$	$4.6\ 10^{9}$	$2.2\ 10^{9}$	$4.8\ 10^{9}$	$4.5\ 10^{9}$	$1.4\ 10^{10}$
^{147}Pm	$9.7\ 10^{9}$	$1.1\ 10^{10}$	$8.8\ 10^{9}$	$2.8\ 10^{9}$	$4.8\ 10^{9}$	$4.5\ 10^{9}$	$7.4\ 10^{9}$
^{154}Eu	$6.5\ 10^{8}$	$2.3\ 10^{8}$	$5.2\ 10^{8}$	$1.4\ 10^{8}$	$2.4\ 10^{8}$	0	$1.8\ 10^{9}$
^{155}Eu	$3.2\ 10^{8}$	$2.3\ 10^{8}$	$2.6\ 10^{8}$	$2.8\ 10^{8}$	$2.4\ 10^{9}$	0	0
^{239}Pu	$1.9\ 10^{9}$	$1.1\ 10^{9}$	$1.0\ 10^{9}$	$2.8\ 10^{8}$	$2.4\ 10^{9}$	$2.2\ 10^{9}$	$1.8\ 10^{9}$

Table 69

Discharges from Unterweser, FRG

Nuclide	1978	1979	1980	1981	1982	1983	1984
^{58}Co	0	$3.7\ 10^{7}$	$1.5\ 10^{8}$	$2.3\ 10^{7}$	$2.8\ 10^{7}$	$3.8\ 10^{7}$	0
^{60}Co	0	0	$8.4\ 10^{7}$	$5.4\ 10^{7}$	$9.4\ 10^{7}$	$6.7\ 10^{7}$	$1.7\ 10^{7}$
^{131}I	0	$2.6\ 10^{7}$	$8.9\ 10^{7}$	0	0	0	0
^{134}Cs	0	0	$2.6\ 10^{8}$	$5.4\ 10^{7}$	$1.1\ 10^{7}$	$3.9\ 10^{7}$	0
^{137}Cs	0	$3.7\ 10^{6}$	$5.1\ 10^{8}$	$1.5\ 10^{8}$	$4.4\ 10^{7}$	$1.7\ 10^{8}$	0
^{51}Cr	0	0	$1.0\ 10^{8}$	$3.9\ 10^{7}$	0	0	0
^{54}Mn	0	0	0	0	0	0	0
^{95}Zr	0	0	$5.3\ 10^{7}$	0	0	0	0
^{95}Nb	0	0	$7.5\ 10^{7}$	$4.4\ 10^{6}$	0	0	0
^{124}Sb	0	0	$3.8\ 10^{8}$	$3.8\ 10^{7}$	$2.4\ 10^{8}$	$3.3\ 10^{8}$	0
^{141}Ce	0	0	0	0	0	0	0
^{144}Ce	0	0	$3.1\ 10^{7}$	$7.0\ 10^{6}$	0	0	0
Total	0	$7.4\ 10^{7}$	$1.8\ 10^{9}$	$3.8\ 10^{8}$	$4.1\ 10^{8}$	$6.5\ 10^{8}$	$1.7\ 10^{7}$
^{3}H	$8.9\ 10^{9}$	$4.0\ 10^{12}$	$8.8\ 10^{12}$	$1.0\ 10^{13}$	$1.5\ 10^{13}$	$1.9\ 10^{13}$	$2.5\ 10^{13}$

Table 70

Discharges from Winfrith, UK

Nuclide	1960	1961	1962	1963	1964	1965
^{3}H	0	0	0	0	0	0
^{54}Mn	0	0	0	0	0	0
^{55}Fe	0	0	0	0	0	0
^{60}Co	0	0	0	0	0	0
^{65}Zn	0	0	0	0	0	0
^{90}Sr	$3.7\ 10^{7}$	$5.4\ 10^{7}$	$9.0\ 10^{10}$	$4.0\ 10^{8}$	$7.5\ 10^{7}$	$3.5\ 10^{9}$
^{106}Ru	$2.5\ 10^{7}$	$2.0\ 10^{7}$	$4.3\ 10^{10}$	$4.0\ 10^{8}$	$3.9\ 10^{7}$	$1.3\ 10^{9}$
^{134}Cs	0	0	0	$7.0\ 10^{8}$	$9.0\ 10^{8}$	$4.4\ 10^{9}$
^{137}Cs	0	0	0	$3.4\ 10^{9}$	$4.4\ 10^{9}$	$2.2\ 10^{10}$
^{239}Pu	$3.0\ 10^{7}$	$9.3\ 10^{7}$	$1.4\ 10^{8}$	$1.1\ 10^{10}$	$1.6\ 10^{10}$	$1.2\ 10^{10}$

Nuclide	1966	1967	1968	1969	1970	1971
^{3}H	0	$5.1\ 10^{10}$	$7.4\ 10^{12}$	$5.6\ 10^{12}$	$1.9\ 10^{13}$	$2.7\ 10^{13}$
^{54}Mn	0	0	0	$1.9\ 10^{10}$	$1.2\ 10^{11}$	$4.1\ 10^{11}$
^{55}Fe	0	0	0	$1.9\ 10^{11}$	$1.3\ 10^{12}$	$5.2\ 10^{12}$
^{60}Co	0	0	0	$1.4\ 10^{11}$	$9.0\ 10^{11}$	$3.7\ 10^{12}$
^{65}Zn	0	0	0	$8.9\ 10^{10}$	$7.0\ 10^{11}$	$2.6\ 10^{12}$
^{90}Sr	$4.9\ 10^{9}$	$1.9\ 10^{10}$	$4.0\ 10^{10}$	$8.9\ 10^{10}$	$3.7\ 10^{10}$	$3.7\ 10^{11}$
^{106}Ru	$3.4\ 10^{9}$	$1.2\ 10^{10}$	$8.9\ 10^{9}$	$2.2\ 10^{10}$	$2.3\ 10^{10}$	$4.4\ 10^{11}$
^{134}Cs	$1.1\ 10^{10}$	$2.7\ 10^{10}$	$2.3\ 10^{11}$	$2.3\ 10^{11}$	$2.3\ 10^{11}$	$2.3\ 10^{11}$
^{137}Cs	$5.4\ 10^{10}$	$1.3\ 10^{11}$	$1.1\ 10^{12}$	$1.1\ 10^{12}$	$1.1\ 10^{12}$	$1.1\ 10^{12}$
^{239}Pu	$4.1\ 10^{10}$	$5.0\ 10^{10}$	$5.8\ 10^{10}$	$3.1\ 10^{10}$	$1.1\ 10^{11}$	$1.4\ 10^{11}$

Nuclide	1972	1973	1974	1975	1976	1977
^{3}H	$3.3\ 10^{13}$	$3.7\ 10^{13}$	$2.1\ 10^{13}$	$4.1\ 10^{13}$	$1.9\ 10^{14}$	$7.7\ 10^{13}$
^{54}Mn	$7.7\ 10^{11}$	$3.5\ 10^{11}$	$6.4\ 10^{11}$	$2.0\ 10^{12}$	$3.7\ 10^{11}$	$5.7\ 10^{11}$
^{55}Fe	$9.8\ 10^{12}$	$3.6\ 10^{12}$	$1.0\ 10^{13}$	$2.0\ 10^{13}$	$4.7\ 10^{12}$	$6.3\ 10^{12}$
^{60}Co	$7.0\ 10^{12}$	$2.6\ 10^{12}$	$7.4\ 10^{12}$	$1.4\ 10^{13}$	$3.4\ 10^{12}$	$4.5\ 10^{12}$
^{65}Zn	$5.5\ 10^{11}$	$2.3\ 10^{11}$	$2.2\ 10^{11}$	$1.2\ 10^{12}$	$4.3\ 10^{11}$	$2.6\ 10^{11}$
^{90}Sr	$5.2\ 10^{10}$	$1.1\ 10^{11}$	$1.0\ 10^{11}$	$2.2\ 10^{11}$	$1.3\ 10^{11}$	$2.6\ 10^{11}$
^{106}Ru	$9.6\ 10^{10}$	$7.4\ 10^{9}$	$7.4\ 10^{10}$	$1.3\ 10^{11}$	$2.6\ 10^{10}$	$1.9\ 10^{11}$
^{134}Cs	$2.3\ 10^{11}$	$2.3\ 10^{11}$	$2.3\ 10^{11}$	$2.3\ 10^{11}$	$2.3\ 10^{11}$	$2.3\ 10^{11}$
^{137}Cs	$1.1\ 10^{12}$	$1.1\ 10^{12}$	$1.1\ 10^{12}$	$1.1\ 10^{12}$	$1.1\ 10^{12}$	$1.1\ 10^{12}$
^{239}Pu	$1.3\ 10^{11}$	$3.3\ 10^{11}$	$1.1\ 10^{11}$	$5.9\ 10^{10}$	$2.7\ 10^{11}$	$1.3\ 10^{11}$

Table 70 (continued)

Nuclide	1978	1979	1980	1981	1982	1983	1984
^{3}H	$4.4\ 10^{13}$	$1.0\ 10^{14}$	$4.5\ 10^{13}$	$5.1\ 10^{13}$	$1.0\ 10^{14}$	$1.2\ 10^{14}$	$1.0\ 10^{14}$
^{54}Mn	$1.2\ 10^{12}$	$2.0\ 10^{12}$	$1.2\ 10^{12}$	$2.1\ 10^{12}$	$5.2\ 10^{11}$	$8.5\ 10^{11}$	$2.5\ 10^{12}$
^{55}Fe	$1.3\ 10^{13}$	$1.3\ 10^{13}$	$3.1\ 10^{13}$	$2.9\ 10^{13}$	$7.2\ 10^{12}$	$6.7\ 10^{12}$	$1.1\ 10^{13}$
^{60}Co	$7.7\ 10^{12}$	$1.1\ 10^{13}$	$2.2\ 10^{13}$	$2.1\ 10^{13}$	$5.5\ 10^{12}$	$4.8\ 10^{12}$	$8.0\ 10^{12}$
^{65}Zn	$8.5\ 10^{11}$	$1.9\ 10^{12}$	$3.4\ 10^{12}$	$1.9\ 10^{12}$	$5.9\ 10^{11}$	$5.9\ 10^{11}$	$1.7\ 10^{12}$
^{90}Sr	$7.8\ 10^{10}$	$5.6\ 10^{10}$	$2.7\ 10^{11}$	$2.5\ 10^{11}$	$1.1\ 10^{11}$	$3.5\ 10^{11}$	$3.3\ 10^{11}$
^{106}Ru	$7.4\ 10^{9}$	$8.1\ 10^{10}$	$2.9\ 10^{11}$	$3.5\ 10^{11}$	$1.8\ 10^{11}$	$3.0\ 10^{11}$	$5.2\ 10^{11}$
^{134}Cs	$4.1\ 10^{11}$	$1.5\ 10^{11}$	$4.4\ 10^{11}$	$1.9\ 10^{11}$	$1.1\ 10^{11}$	$1.1\ 10^{11}$	$2.2\ 10^{11}$
^{137}Cs	$4.4\ 10^{11}$	$7.8\ 10^{11}$	$3.3\ 10^{12}$	$1.2\ 10^{12}$	$5.9\ 10^{11}$	$5.9\ 10^{11}$	$7.0\ 10^{11}$
^{239}Pu	$5.2\ 10^{9}$	$2.2\ 10^{10}$	$2.0\ 10^{11}$	$2.6\ 10^{10}$	$2.6\ 10^{10}$	$7.4\ 10^{10}$	$5.2\ 10^{10}$

Table 71

Discharges from Würgassen, FRG

Nuclide	1972	1973	1974	1975	1976	1977
^{51}Cr	0	$5.5\ 10^{8}$	$3.7\ 10^{9}$	$5.2\ 10^{8}$	$5.4\ 10^{9}$	$4.8\ 10^{9}$
^{54}Mn	$3.5\ 10^{8}$	$2.8\ 10^{8}$	$5.2\ 10^{8}$	$4.9\ 10^{8}$	0	0
^{58}Co	$5.4\ 10^{9}$	$1.2\ 10^{10}$	$5.9\ 10^{9}$	$3.7\ 10^{9}$	$2.9\ 10^{9}$	$1.8\ 10^{9}$
^{60}Co	$9.1\ 10^{8}$	$2.3\ 10^{9}$	$1.3\ 10^{10}$	$2.1\ 10^{10}$	$1.1\ 10^{10}$	$1.7\ 10^{10}$
^{134}Cs	0	0	0	0	$2.9\ 10^{9}$	$9.3\ 10^{9}$
^{137}Cs	0	0	0	$4.4\ 10^{8}$	$6.0\ 10^{9}$	$1.2\ 10^{10}$
^{65}Zn	0	$1.9\ 10^{9}$	$1.2\ 10^{10}$	$5.8\ 10^{9}$	$2.4\ 10^{4}$	$1.0\ 10^{10}$
^{131}I	0	0	0	$1.1\ 10^{9}$	$8.5\ 10^{9}$	$2.3\ 10^{9}$
^{133}Xe	0	0	0	0	0	0
^{90}Sr	0	0	0	0	0	0
^{106}Ru	0	0	0	0	0	0
^{89}Sr	0	0	0	0	0	0
^{95}Nb	0	0	0	0	0	0
^{140}La	0	0	0	0	0	0
^{59}Fe	0	0	0	0	0	0
Total	$6.7\ 10^{9}$	$1.7\ 10^{10}$	$3.7\ 10^{10}$	$3.3\ 10^{10}$	$4.1\ 10^{10}$	$5.9\ 10^{10}$
^{3}H	$1.1\ 10^{11}$	$2.2\ 10^{11}$	$1.5\ 10^{11}$	$1.5\ 10^{11}$	$9.3\ 10^{12}$	$1.6\ 10^{12}$

Nuclide	1978	1979	1980	1981	1982	1983	1984
^{51}Cr	$1.4\ 10^{9}$	$1.0\ 10^{9}$	0	0	0	0	$6.2\ 10^{8}$
^{54}Mn	0	0	0	0	$1.6\ 10^{8}$	$6.6\ 10^{7}$	$1.1\ 10^{8}$
^{58}Co	$2.7\ 10^{8}$	$1.5\ 10^{8}$	0	0	$1.2\ 10^{8}$	0	$1.1\ 10^{8}$
^{60}Co	$2.5\ 10^{9}$	$3.6\ 10^{9}$	$1.9\ 10^{9}$	$2.3\ 10^{9}$	$3.7\ 10^{9}$	$3.8\ 10^{9}$	$6.9\ 10^{7}$
^{134}Cs	$3.6\ 10^{9}$	$1.8\ 10^{9}$	$2.0\ 10^{9}$	$1.5\ 10^{9}$	$9.9\ 10^{8}$	$3.4\ 10^{8}$	0
^{137}Cs	$4.5\ 10^{9}$	$2.4\ 10^{9}$	$4.2\ 10^{9}$	$3.2\ 10^{9}$	$2.9\ 10^{9}$	$1.1\ 10^{9}$	0
^{65}Zn	$5.1\ 10^{8}$	0	$2.4\ 10^{8}$	$2.7\ 10^{8}$	$3.9\ 10^{8}$	$1.9\ 10^{8}$	$4.6\ 10^{8}$
^{131}I	$4.1\ 10^{9}$	$1.5\ 10^{9}$	$3.0\ 10^{8}$	$2.9\ 10^{8}$	$4.0\ 10^{8}$	$1.0\ 10^{8}$	0
^{133}Xe	$8.9\ 10^{8}$	$1.9\ 10^{9}$	$6.6\ 10^{8}$	$6.6\ 10^{8}$	$3.4\ 10^{8}$	$4.5\ 10^{8}$	0
^{90}Sr	0	0	0	$1.1\ 10^{8}$	$1.2\ 10^{8}$	0	0
^{106}Ru	0	0	0	$2.2\ 10^{8}$	0	0	0
^{89}Sr	$2.3\ 10^{8}$	0	$4.4\ 10^{8}$	0	0	0	0
^{95}Nb	0	0	$2.6\ 10^{8}$	0	0	0	0
^{140}La	0	$7.8\ 10^{8}$	0	0	0	0	0
^{59}Fe	0	$7.8\ 10^{8}$	0	0	0	0	$1.2\ 10^{8}$
Total	$2.0\ 10^{10}$	$1.6\ 10^{10}$	$1.0\ 10^{10}$	$9.3\ 10^{9}$	$9.7\ 10^{9}$	$6.2\ 10^{9}$	$1.5\ 10^{9}$
^{3}H	$2.0\ 10^{12}$	$1.5\ 10^{12}$	$2.1\ 10^{12}$	$1.9\ 10^{12}$	$1.0\ 10^{12}$	$4.3\ 10^{11}$	$5.9\ 10^{11}$

Table 72

Discharges from Wylfa, UK

Nuclide	1970	1971	1972	1973	1974	1975	1976
^{3}H	$2.0\ 10^{10}$	$1.1\ 10^{12}$	$3.1\ 10^{12}$	$1.0\ 10^{13}$	$5.0\ 10^{12}$	$4.8\ 10^{12}$	$7.3\ 10^{12}$
^{14}C	$3.0\ 10^{8}$	$1.4\ 10^{7}$	$1.4\ 10^{7}$	$8.9\ 10^{6}$	$3.4\ 10^{7}$	$1.3\ 10^{8}$	$2.4\ 10^{8}$
^{32}P	$1.5\ 10^{10}$	$7.3\ 10^{8}$	$7.3\ 10^{8}$	$4.5\ 10^{8}$	$8.5\ 10^{6}$	$2.3\ 10^{10}$	$4.0\ 10^{9}$
^{35}S	$6.2\ 10^{10}$	$3.0\ 10^{9}$	$3.0\ 10^{9}$	$1.8\ 10^{9}$	$8.9\ 10^{9}$	$2.2\ 10^{10}$	$2.9\ 10^{10}$
^{45}Ca	$1.1\ 10^{9}$	$5.5\ 10^{7}$	$5.5\ 10^{7}$	$3.3\ 10^{7}$	$3.4\ 10^{7}$	$3.9\ 10^{8}$	$2.4\ 10^{9}$
^{51}Cr	$3.6\ 10^{9}$	$1.7\ 10^{8}$	$1.7\ 10^{8}$	$1.0\ 10^{8}$	$5.4\ 10^{8}$	$6.5\ 10^{7}$	$3.6\ 10^{9}$
^{54}Mn	$9.9\ 10^{8}$	$4.7\ 10^{7}$	$4.7\ 10^{7}$	$2.9\ 10^{7}$	$1.3\ 10^{8}$	$1.3\ 10^{8}$	$9.6\ 10^{8}$
^{55}Fe	$2.3\ 10^{10}$	$1.1\ 10^{9}$	$1.1\ 10^{9}$	$6.8\ 10^{8}$	$1.8\ 10^{9}$	$5.0\ 10^{9}$	$3.7\ 10^{10}$
^{58}Co	$1.1\ 10^{8}$	$5.5\ 10^{6}$	$5.5\ 10^{6}$	$3.3\ 10^{6}$	$8.5\ 10^{6}$	$6.5\ 10^{7}$	$1.2\ 10^{8}$
^{59}Fe	$1.0\ 10^{9}$	$5.1\ 10^{7}$	$5.1\ 10^{7}$	$3.1\ 10^{7}$	$1.7\ 10^{8}$	$3.9\ 10^{8}$	$2.4\ 10^{8}$
^{60}Co	$2.6\ 10^{9}$	$1.2\ 10^{8}$	$1.2\ 10^{8}$	$7.8\ 10^{7}$	$2.7\ 10^{8}$	$7.8\ 10^{8}$	$3.1\ 10^{9}$
^{63}Ni	$1.4\ 10^{9}$	$6.9\ 10^{7}$	$6.9\ 10^{7}$	$4.2\ 10^{7}$	$2.7\ 10^{8}$	$2.6\ 10^{8}$	$2.4\ 10^{8}$
^{65}Zn	$8.4\ 10^{8}$	$4.0\ 10^{7}$	$4.0\ 10^{7}$	$2.4\ 10^{7}$	$1.3\ 10^{8}$	$2.6\ 10^{8}$	$2.4\ 10^{8}$
^{89}Sr	$1.4\ 10^{9}$	$6.9\ 10^{7}$	$6.9\ 10^{7}$	$4.2\ 10^{7}$	$3.4\ 10^{7}$	$2.0\ 10^{9}$	$2.4\ 10^{8}$
^{90}Sr	$1.1\ 10^{10}$	$5.3\ 10^{8}$	$5.3\ 10^{8}$	$3.2\ 10^{8}$	$8.1\ 10^{8}$	$8.3\ 10^{9}$	$8.1\ 10^{9}$
^{90}Y	$1.1\ 10^{10}$	$5.3\ 10^{8}$	$5.3\ 10^{8}$	$3.2\ 10^{8}$	$8.1\ 10^{8}$	$8.3\ 10^{9}$	$8.1\ 10^{9}$
^{91}Y	$1.3\ 10^{9}$	$6.6\ 10^{7}$	$6.6\ 10^{7}$	$4.0\ 10^{7}$	$3.4\ 10^{7}$	$1.6\ 10^{9}$	$7.2\ 10^{8}$
^{95}Zr	$9.2\ 10^{8}$	$4.4\ 10^{7}$	$4.4\ 10^{7}$	$2.6\ 10^{7}$	$1.3\ 10^{8}$	$3.9\ 10^{8}$	$2.4\ 10^{8}$
^{95}Nb	$1.0\ 10^{9}$	$5.1\ 10^{7}$	$5.1\ 10^{7}$	$3.1\ 10^{7}$	$1.3\ 10^{8}$	$6.5\ 10^{8}$	$2.4\ 10^{8}$
^{106}Ru	$1.7\ 10^{9}$	$8.4\ 10^{7}$	$8.4\ 10^{7}$	$5.1\ 10^{7}$	$1.3\ 10^{8}$	$1.4\ 10^{9}$	$9.6\ 10^{8}$
^{106}Rh	$1.7\ 10^{9}$	$8.4\ 10^{7}$	$8.4\ 10^{7}$	$5.1\ 10^{7}$	$1.3\ 10^{8}$	$1.4\ 10^{9}$	$9.6\ 10^{8}$
^{110m}Ag	$8.4\ 10^{8}$	$4.0\ 10^{7}$	$4.0\ 10^{7}$	$2.4\ 10^{7}$	$1.3\ 10^{8}$	$2.6\ 10^{8}$	$2.4\ 10^{8}$
^{124}Sb	$7.6\ 10^{8}$	$3.6\ 10^{7}$	$3.6\ 10^{7}$	$2.2\ 10^{7}$	$5.6\ 10^{7}$	$4.3\ 10^{8}$	$8.0\ 10^{8}$
^{125}Sb	$3.8\ 10^{8}$	$1.8\ 10^{7}$	$1.8\ 10^{7}$	$1.1\ 10^{7}$	$3.4\ 10^{7}$	$2.6\ 10^{8}$	$2.4\ 10^{8}$
^{125m}Te	$3.4\ 10^{8}$	$1.6\ 10^{7}$	$1.6\ 10^{7}$	$1.0\ 10^{7}$	$3.4\ 10^{7}$	$2.6\ 10^{8}$	$1.2\ 10^{8}$
^{134}Cs	$1.2\ 10^{10}$	$5.8\ 10^{8}$	$5.8\ 10^{8}$	$3.5\ 10^{8}$	$2.7\ 10^{8}$	$8.3\ 10^{9}$	$1.9\ 10^{10}$
^{137}Cs	$6.4\ 10^{10}$	$3.0\ 10^{9}$	$3.0\ 10^{9}$	$1.8\ 10^{9}$	$1.2\ 10^{9}$	$3.7\ 10^{10}$	$1.1\ 10^{11}$
^{144}Ce	$1.3\ 10^{9}$	$6.6\ 10^{7}$	$6.6\ 10^{7}$	$4.0\ 10^{7}$	$1.3\ 10^{8}$	$1.0\ 10^{9}$	$4.8\ 10^{8}$
^{144}Pr	$1.3\ 10^{9}$	$6.6\ 10^{7}$	$6.6\ 10^{7}$	$4.0\ 10^{7}$	$1.3\ 10^{8}$	$1.0\ 10^{9}$	$4.8\ 10^{8}$
^{147}Pm	$2.5\ 10^{9}$	$1.2\ 10^{8}$	$1.2\ 10^{8}$	$7.3\ 10^{7}$	$2.7\ 10^{8}$	$1.0\ 10^{9}$	$2.1\ 10^{9}$
^{154}Eu	$1.1\ 10^{9}$	$5.6\ 10^{7}$	$5.6\ 10^{7}$	$3.4\ 10^{7}$	$8.5\ 10^{6}$	$1.8\ 10^{9}$	$2.4\ 10^{8}$
^{155}Eu	$1.1\ 10^{8}$	$5.5\ 10^{6}$	$5.5\ 10^{6}$	$3.3\ 10^{6}$	$8.5\ 10^{6}$	$6.5\ 10^{7}$	$1.2\ 10^{8}$
^{239}Pu	$2.6\ 10^{8}$	$1.2\ 10^{7}$	$1.2\ 10^{7}$	$7.8\ 10^{6}$	$1.9\ 10^{7}$	$2.6\ 10^{8}$	$2.4\ 10^{8}$

Table 72 (continued)

Nuclide	1977	1978	1979	1980	1981	1982	1983	1984
^{3}H	$1.1\ 10^{13}$	$3.9\ 10^{13}$	$4.6\ 10^{12}$	$1.1\ 10^{13}$	$1.1\ 10^{13}$	$1.9\ 10^{13}$	$1.4\ 10^{13}$	$1.2\ 10^{13}$
^{14}C	$3.4\ 10^{8}$	$4.9\ 10^{8}$	$3.0\ 10^{8}$	$3.3\ 10^{7}$	$2.6\ 10^{7}$	$5.5\ 10^{7}$	$5.0\ 10^{7}$	$4.8\ 10^{7}$
^{32}P	$5.5\ 10^{9}$	$4.9\ 10^{8}$	$3.0\ 10^{8}$	$3.3\ 10^{7}$	$2.6\ 10^{7}$	$5.5\ 10^{7}$	$5.0\ 10^{7}$	$4.8\ 10^{7}$
^{35}S	$2.1\ 10^{10}$	$1.1\ 10^{11}$	$1.2\ 10^{10}$	$2.2\ 10^{10}$	$1.0\ 10^{10}$	$1.7\ 10^{10}$	$9.0\ 10^{9}$	$2.4\ 10^{10}$
^{45}Ca	$8.2\ 10^{9}$	$9.8\ 10^{8}$	$1.8\ 10^{9}$	$2.6\ 10^{8}$	$3.6\ 10^{8}$	$1.1\ 10^{9}$	$1.0\ 10^{9}$	$1.9\ 10^{9}$
^{51}Cr	$8.2\ 10^{9}$	$4.9\ 10^{8}$	$3.0\ 10^{8}$	$3.3\ 10^{7}$	$8.6\ 10^{6}$	$1.8\ 10^{7}$	0	0
^{54}Mn	$3.4\ 10^{8}$	$9.8\ 10^{8}$	$3.0\ 10^{8}$	$3.3\ 10^{8}$	$1.0\ 10^{9}$	$1.1\ 10^{9}$	$2.0\ 10^{9}$	$1.9\ 10^{9}$
^{55}Fe	$3.4\ 10^{9}$	$1.7\ 10^{10}$	$4.2\ 10^{9}$	$1.0\ 10^{10}$	$6.9\ 10^{9}$	$2.0\ 10^{10}$	$1.6\ 10^{10}$	$2.2\ 10^{10}$
^{58}Co	$3.4\ 10^{8}$	$4.9\ 10^{8}$	$3.0\ 10^{8}$	$3.3\ 10^{7}$	0	$1.1\ 10^{9}$	0	0
^{59}Fe	$6.9\ 10^{8}$	$4.9\ 10^{8}$	$3.0\ 10^{8}$	$6.7\ 10^{7}$	$1.3\ 10^{9}$	$1.4\ 10^{10}$	0	0
^{60}Co	$6.9\ 10^{8}$	$1.9\ 10^{9}$	$6.0\ 10^{8}$	$1.2\ 10^{9}$	$2.1\ 10^{9}$	$4.4\ 10^{9}$	$4.0\ 10^{9}$	$3.8\ 10^{9}$
^{63}Ni	$6.9\ 10^{8}$	$4.9\ 10^{8}$	$3.0\ 10^{8}$	$3.3\ 10^{7}$	$2.6\ 10^{7}$	$5.5\ 10^{7}$	$5.0\ 10^{7}$	$4.8\ 10^{7}$
^{65}Zn	$3.4\ 10^{8}$	$4.9\ 10^{8}$	$3.0\ 10^{8}$	$6.7\ 10^{7}$	$5.7\ 10^{8}$	$1.1\ 10^{9}$	$1.0\ 10^{9}$	0
^{89}Sr	$4.1\ 10^{9}$	$9.8\ 10^{8}$	$6.0\ 10^{8}$	$2.0\ 10^{8}$	$2.8\ 10^{9}$	$2.2\ 10^{9}$	0	0
^{90}Sr	$1.9\ 10^{10}$	$3.5\ 10^{10}$	$2.2\ 10^{10}$	$2.4\ 10^{9}$	$5.7\ 10^{8}$	$1.1\ 10^{9}$	$2.0\ 10^{9}$	$9.6\ 10^{8}$
^{90}Y	$1.9\ 10^{10}$	$3.5\ 10^{10}$	$2.2\ 10^{10}$	$2.4\ 10^{9}$	$5.7\ 10^{8}$	$1.1\ 10^{9}$	$2.0\ 10^{9}$	$9.6\ 10^{8}$
^{91}Y	$6.9\ 10^{8}$	$4.9\ 10^{8}$	$4.8\ 10^{9}$	$1.3\ 10^{8}$	$5.7\ 10^{8}$	$4.4\ 10^{9}$	0	0
^{95}Zr	$3.4\ 10^{8}$	$4.9\ 10^{8}$	$3.0\ 10^{8}$	$3.3\ 10^{7}$	$4.6\ 10^{8}$	$4.4\ 10^{9}$	0	0
^{95}Nb	$3.4\ 10^{8}$	$4.9\ 10^{8}$	$3.0\ 10^{8}$	$6.7\ 10^{7}$	$1.9\ 10^{9}$	$8.8\ 10^{9}$	0	0
^{106}Ru	$6.9\ 10^{8}$	$2.9\ 10^{9}$	$1.2\ 10^{9}$	$1.3\ 10^{8}$	$4.1\ 10^{8}$	$1.1\ 10^{9}$	0	0
^{106}Rh	$6.9\ 10^{8}$	$2.9\ 10^{9}$	$1.2\ 10^{9}$	$1.3\ 10^{8}$	$4.1\ 10^{8}$	$1.1\ 10^{9}$	0	0
^{110m}Ag	$3.4\ 10^{8}$	$4.9\ 10^{8}$	$3.0\ 10^{8}$	$6.7\ 10^{7}$	$5.2\ 10^{7}$	$5.5\ 10^{8}$	0	0
^{124}Sb	$2.3\ 10^{9}$	$3.2\ 10^{9}$	$3.0\ 10^{8}$	$3.3\ 10^{7}$	$4.6\ 10^{8}$	$5.5\ 10^{7}$	0	0
^{125}Sb	$6.9\ 10^{8}$	$9.8\ 10^{8}$	$1.8\ 10^{9}$	$6.7\ 10^{7}$	$1.5\ 10^{8}$	$5.5\ 10^{8}$	0	0
^{125m}Te	$3.4\ 10^{8}$	$4.9\ 10^{8}$	$6.0\ 10^{8}$	$6.7\ 10^{7}$	$5.2\ 10^{7}$	$5.5\ 10^{8}$	0	0
^{134}Cs	$6.4\ 10^{10}$	$7.0\ 10^{10}$	$3.6\ 10^{10}$	$1.6\ 10^{9}$	$8.8\ 10^{8}$	$1.1\ 10^{9}$	$2.0\ 10^{9}$	$1.9\ 10^{9}$
^{137}Cs	$5.2\ 10^{11}$	$6.7\ 10^{11}$	$4.8\ 10^{11}$	$2.3\ 10^{10}$	$1.6\ 10^{10}$	$2.2\ 10^{10}$	$4.0\ 10^{10}$	$3.6\ 10^{10}$
^{144}Ce	$6.9\ 10^{8}$	$3.9\ 10^{9}$	$1.2\ 10^{9}$	$6.7\ 10^{7}$	$1.2\ 10^{9}$	$5.5\ 10^{8}$	0	0
^{144}Pr	$6.9\ 10^{8}$	$3.9\ 10^{9}$	$1.2\ 10^{9}$	$3.3\ 10^{7}$	$1.2\ 10^{9}$	$5.5\ 10^{8}$	0	0
^{147}Pm	$3.4\ 10^{9}$	$5.8\ 10^{9}$	$2.4\ 10^{9}$	$1.4\ 10^{9}$	$2.6\ 10^{8}$	$1.1\ 10^{9}$	$2.1\ 10^{10}$	$9.6\ 10^{8}$
^{154}Eu	$3.4\ 10^{8}$	$4.9\ 10^{8}$	$3.0\ 10^{8}$	$3.3\ 10^{7}$	$5.2\ 10^{7}$	$5.5\ 10^{8}$	0	0
^{155}Eu	$3.4\ 10^{8}$	$4.9\ 10^{8}$	$3.0\ 10^{8}$	$3.3\ 10^{7}$	0	$5.5\ 10^{8}$	0	0
^{239}Pu	$3.4\ 10^{8}$	$4.9\ 10^{8}$	$3.0\ 10^{8}$	$3.3\ 10^{7}$	$5.2\ 10^{7}$	$5.5\ 10^{8}$	$5.0\ 10^{8}$	$9.6\ 10^{8}$