TABLE 9B

Deposition of Specific Radionuclides 1984 – 1985 (Bqm^{-2})

Month	1984								1985						
	Be-7	Zr-95	Nb-95	Mn-54	Cs-134	Cs-137	Ru-106	I-131	Be-7	Zr-95	Nb-95	Mn-54	Cs-134	Cs-137	Ru-106
January	54.84	<0.20	<0.12	<0.11	<0.13	0.51	<1.22	<0.28	34.87	<0.09	<0.07	<0.07	<0.08	0.25	<0.70
February	30.55	<0.09	<0.06	<0.06	<0.08	0.16	<0.66	<0.16	35.52	<0.18	<0.10	<0.10	<0.10	0.24	<1.03
March	35.00	<0.10	<0.06	<0.05	NM	0.20	<0.54	NM	33.49	<0.26	<0.14	<0.14	<0.14	0.34	<1.42
April	21.02	<0.08	<0.05	<0.05	<0.05	0.23	<0.48	<0.12	6.84	<0.13	<0.07	<0.07	<0.07	0.10	<0.73
May	43.50	<0.10	<0.05	<0.05	<0.06	0.19	<0.55	<0.14	37.80	<0.13	<0.08	<0.08	<0.08	0.13	<0.82
June	34.69	0.20	0.07	<0.05	<0.06	0.17	<0.49	<0.12	39.89	<0.14	<0.08	<0.08	<0.08	0.14	<0.77
July	8.02	0.10	<0.05	0.05	<0.05	0.15	<0.45	<0.11	70.40	<0.41	<0.24	<0.25	<0.24	<0.28	<2.47
August	36.32	<0.09	<0.05	0.11	<0.05	0.21	<0.49	<0.12	63.67	<0.34	<0.19	<0.20	<0.20	<0.22	<2.01
Sept.	28.47	<0.11	<0.06	<0.06	<0.07	0.21	<0.68	<0.17	26.49	<0.21	<0.12	<0.12	<0.12	<0.13	<1.21
October	18.86	<0.17	0.18	<0.09	<0.11	0.24	<0.98	<0.24	50.01	<0.18	<0.10	<0.10	<0.10	0.10	<1.00
November	41.68	<0.21	0.40	0.27	<0.14	0.48	<1.22	<0.31	41.92	<0.12	<0.07	<0.10	<0.09	0.09	<0.70
December	15.71	<0.16	<0.08	<0.09	<0.10	0.20	0.88	<0.22	45.87	<0.14	<0.08	<0.10	<0.09	0.11	<0.80
Mean	30.72	<0.13	<0.10	<0.09	<0.08	0.25	<0.72	<0.18	40.56	<0.19	<0.11	<0.12	<0.12	<0.18	<1.14

NM = Not Measured

TABLE 11

Rainfall at Meteorological Stations 1986-1987 (mm)

Period	Dublin	Belmullet	Mullingar	Roches Point	Rosslare	Valentia
1986						
April - June	133.3	317.6	214.2	248.0	357.6	384.0
July - Sept.	185.9	239.7	71.6	100.8	55.3	265.5
Oct. - Dec.	167.6	571.9	342.6	330.0	336.9	456.4
Total	486.8	1129.2	628.4	678.8	749.8	1105.9
1987						
Jan. - March	97.6	244.9	165.8	272.2	169.9	260.9
April - June	162.7	164.4	163.2	191.8	173.2	180.1
July - Sept.	223.7	326.3	150.4	199.5	166.6	101.4
Oct - Dec.	112.5	212.9	142.4	299.8	174.9	437.1
Total	596.5	948.5	621.8	963.3	684.6	979.5

TABLE 12

Total Beta Activity of Tapwater Samples 1982 - 1987 (Bq l^{-1})

Month	1982		1983		1984		1985		1986		1987	
	Dublin	Valentia	Dublin	Valentia	Dublin	Valentia	Dublin	Valentia	Dublin	Valentia	Dublin	Valentia
January	0.05	0.05	0.07	0.07	0.06	0.12	0.07	0.06	0.06	0.05	0.10	0.11
February	0.08	0.06	0.10	0.07	0.01	0.12	0.09	0.09	0.09	0.10	0.04	0
March	0.08	0.08	0.11	0.06	0.01	0.03	0.06	0.06	0.09	0.02	0.06	0.04
April	0.04	0.07	0.11	0.09	0.03	0.05	0.05	0.04	0.07	0.05	0.05	0.06
May	0.10	0.03	0.08	0.08	0.05	0.05	0.04	0.06	1.41	0.15	0.13	0.08
June	0.14	0.08	0.04	0.07	0	0.07	0.06	0.05	0.45	0.18	0.09	0.04
July	0.10	0.08	0.11	0.08	0.06	0.09	0.07	0.05	0.12	0.15	0.05	0.07
August	0.06	0.06	0.11	0.07	0.06	0.08	0.02	0.10	0.11	0.04	0.03	0.07
Sept.	0.10	0.06	0.10	0.05	0.11	0.04	0.01	0.01	0.09	0.04	0.05	0.07
October	0.09	0.04	0.04	0.05	0.03	0.03	0	0.01	0.09	0.07	0.10	0
November	0.10	0.05	0.07	0.09	0.10	0.04	0.02	0.03	0.12	0.08	0.04	0.02
December	0.05	0.06	0.11	0.14	0.16	0.04	0.08	0.08	0.05	0.09	0.08	0.04
Peak Value Observed	NA	NA	NA	NA	0.22	0.18	0.18	0.19	4.01	0.15	0.20	0.15
Mean Value	0.08	0.06	0.09	0.08	0.06	0.06	0.05	0.05	0.23	0.01	0.07	0.05

NA = Not available

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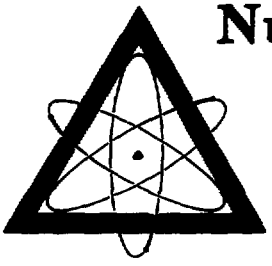

Nuclear Energy Board

RADIOACTIVITY MONITORING IN IRELAND OF AIR, DEPOSITION AND WATER 1982 — 1987

S Sequeira
M McRandall
E Hayden
JD Cunningham

February 1989

Nuclear Energy Board,
3 Clonskeagh Square,
Clonskeagh Road,
Dublin 14.

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CONTENTS

TABLES

1. INTRODUCTION

Each Member State of the European Community undertakes environmental radioactivity monitoring programmes in accordance with the provisions of Article 36 of the 1957 Treaty of Rome establishing the European Community. The results of each national programme are included in annual reports describing the ambient radioactivity levels in the Community.

The Nuclear Energy Board in conjunction with the Meteorological Service of the Department of Transport, undertakes an environmental radioactivity monitoring programme with the objective of determining levels of artificially produced radioactivity in the Irish environment. The collection and the processing of samples are undertaken by the Meteorological Service whereas the measurement of radioactivity in these samples is carried out by the Nuclear Energy Board.

The levels of radioactivity in airborne dust, total fallout samples, precipitation and drinking water are presented for 1982, 1983, 1984, 1985, 1986 and 1987. Up until April 1986 any fallout radioactivity originated mainly from the testing of nuclear weapons in the atmosphere (details for the period 1976 – 1980 are summarised in Table 1); no weapons testing was recoreded in 1982 or 1983. The Chernobyl reactor accident in April 1986 had a major impact on environmental radioactivity levels.

TABLE 1

Atmospheric Nuclear Weapons Tests 1976-1982

DATE	LOCATION	YIELD
24-01-1976	Central Asia	Low
26-09-1976	Central Asia	Intermediate
17-11-1976	Central Asia	High
17-12-1977	Central Asia	Low
15-03-1978	Central Asia	Low
14-12-1978	Central Asia	Low
16-10-1980	Central Asia	Intermediate

2. METHODOLOGY

2.1 Sampling Stations

Samples are collected at the six sampling stations detailed in Table 2.

TABLE 2

Sampling Stations

SAMPLING STATION	LOCATION	TYPES OF SAMPLE
Belmullet, Co. Mayo	54°14'N 10°00'W	Fallout
Dublin Airport	53°26'N 06°14'W	Fallout
Mullingar, Co. Westmeath	53°32'N 07°22'W	Fallout
Roches Point, Co. Cork	51°48'N 08°15'W	Fallout
Rosslare, Co. Wexford	52°15'N 06°20'W	Fallout
Valentia, Co. Kerry	51°56'W 10°15'W	Fallout, air, drinking water
Dublin	53°22'N 06°17'W	Fallout, air, drinking water

2.2 Airborne Dust Sampling and Analysis

Airborne dust is sampled continuously by drawing air through a 48 mm Whatman No. 41 Filter Paper at two sampling stations, Dublin and Valentia. The volume of air sample is 70 m^3 per day at Dublin and 75 m^3 per day at Valentia. The filters are changed daily, covered with a layer of thin cellulose adhesive tape and analysed for total beta radioactivity in the same way as described for the total fallout samples.

2.3 Total Fallout Sampling and Analysis

Total fallout samples at Dublin and Valentia are collected by the water pot method in which a water surface is maintained in the bottom of a plastic collection vessel to ensure retention of dry material and precipitation. 500 ml of distilled water are placed in the vessel and samples are collected over a period of one week. Distilled water is added as required to offset evaporation losses and to rinse out the samples at the end of the sampling period. The sample is reduced by evaporation over a water bath to about 10 ml and finally dried on an aluminium planchette. The planchettes are flat bottomed of 0.1 mm thickness and 24 mm diameter. The dry residue is covered with a thin layer of gelva (polyvinyl acetate).

The total beta radioactivity of the sample is determined by one of two different counting systems. The first uses an organic-quenched Geiger-Muller end-window tube as the detector. The window diameter is 20 – 22 mm and the thickness about 7 mg cm^{-2} . The detector is shielded by a lead screen and the background counts averaged about 5 per minute. The second system uses a scintillation detector equipped with a thin anthracene phosphor covered with an aluminised polycarbonate window. The geometry is nearly 2 and the detector is surrounded by an 8 – 10 cm layer of lead shielding.

2.4 Precipitation Sampling and Analysis

Precipitation samples are collected by two funnels of 12.5 and 25 cm diameter connected to two polythene containers. The samples are collected on the first day of each month. The sample from either or both polythene containers is taken as the monthly sample with the preferred sample being, where possible, at least one litre. The samples are evaporated, dried and counted for total beta radioactivity in the same way as the total fallout samples.

For the 1982 to 1985 periods a composite sample was prepared each month from the six-monthly precipitation samples and analysed for specific radionuclides by a high resolution germanium (lithium) detector in the Physics Department U.C.D. The detector, which has a resolution of 1.7 keV at 1.33 MeV and an active volume of 75 cm^3, is of the closed-end coaxial configuration and is mounted in a cryostat specially designed for low level measurements. The detector is protected by a passive shield of lead, cadmium and copper which reduces the background count to approximately 10^{-3} counts $^{-1}$ keV $^{-1}$. Following the Chernobyl accident the precipitation samples from each station were bulked on a three monthly basis and reduced in volume to about 200 ml. These were then measured on a high resolution germanium detector system in the Nuclear Energy Board, Clonskeagh. The detector has a measured relative efficiency of 30.9% at the 1.33 MeV cobalt-60 line. The corresponding resolution was 1.90 keV. The detector was housed in a copper cadmium lined lead castle of thickness 10 cm.

2.5 Drinking Water Sampling and Analysis

A litre sample of drinking water is collected every week at Dublin and Valentia. The samples are evaporated, dried and analysed for total beta radioactivity.

3. RESULTS

3.1 Radioactivity in the Air

The results of the measurement of airborne total beta activity at Dublin and Valentia are given in Table 3: these represent the monthly mean concentrations derived from individual measurements of the daily filters. The annual mean values of the total beta activity in air for Ireland and for the European Community are given in Table 4: the values for Ireland cover the 1962-1987 period whereas those for the European Community cover the 1962-1986 period.

3.2 Radioactivity of Fallout

The total beta activity values of fallout at Dublin and Valentia are presented in Table 5: these represent the monthly mean concentrations derived from individual measurements of the weekly samples. The values for the total beta activity of monthly deposition for the period 1982-1985 at the six sampling stations distributed around Ireland, are given in Table 6. The total annual deposition for each station is also presented. The rainfall for the corresponding years is detailed on Table 7. A comparison of the annual total beta deposition values for Ireland and the EEC from 1962-1986 is given in Table 8.

The activities of specific radionuclides in samples bulked on a monthly basis for 1982 through to 1985 from the six sampling stations are given in Table 9. The Cs-137 activity in samples bulked on a three monthly basis from each of the six stations during 1986/87 period are shown in Table 10. The rainfall for 1985 and 1986 is detailed on Table 11.

3.3 Radioactivity of Drinking Water

The total beta activity values of drinking water samples from Dublin and Valentia are given in Table 12: these represent the monthly mean concentrations derived from individual measurements of the weekly samples.

4. CONCLUSIONS

The pattern of results from the measurement of radioactivity in environmental samples for the period January 1982 to April 1986 is broadly similar to those of previous years; the trend continued to show decreases on the high levels of the early nineteen sixties and the slightly elevated levels of 1981 caused by the atmospheric weapons test of October 1980. The Chernobyl accident in April 1986 resulted in significant increases of airborne and fallout radionuclides. The airborne radioactivity levels returned to pre-Chernobyl values by December 1986, whereas Cs-137 deposition was still observed at Glasnevin and Mullingar until September 1987. An increase in airborne radioactivity was observed in August 1987: this was shown to be due to an increase in naturally occuring radionuclides brought by unusually large amounts of Sahara dust. The results for the last quarter of 1987 show a return to low atmospheric radioactivity levels.

5. ACKNOWLEDGEMENT

The valuable assistance provided by the officers of the Meteorological Service in providing and processing samples is acknowledged with gratitude as is the assistance of the Department of Physics, University College Dublin for the analysis of some samples.

TABLE 3

Airborne Total Beta Activity at Dublin and Valentia 1982 - 1987 (mBq m^{-3})

Month	1982		1983		1984		1985		1986		1987	
	Dublin	Valentia	Dublin	Valentia	Dublin	Valentia	Dublin	Valentia	Dublin	Valentia	Dublin	Valentia
January	0.5	0.6	0.7	0.4	0.5	0.6	0.6	0.5	0.9	0.5	0.5	0.2
February	0.6	0.5	0.7	0.5	0.2	0.3	0.5	0.4	1.1	0.2	0.4	0.2
March	0.4	0.5	0.5	0.3	0.9	0.5	0.3	0.3	0.5	0.4	0.5	0.3
April	0.6	0.5	0.3	0.4	0.4	0.4	0.8	0.4	0.4	0.5	0.3	0.3
May	0.5	0.6	0.3	0.4	0.6	0.3	0.8	0.4	13.8	1.2	0.4	0.3
June	0.8	0.7	0.4	0.2	0.2	0.3	0.5	0.3	0.4	0.3	0.6	0.3
July	0.4	0.6	0.7	0.4	0.8	0.5	0.6	0.5	0.6	0.3	0.3	0.6
August	0.4	0.5	0.4	0.6	0.7	0.4	0.6	0.3	0.4	0.6	6.1	0.4
September	0.5	0.7	0.6	0.3	0.4	0.2	0.4	0.4	0.7	0.3	1.3	0.3
October	0.7	0.5	0.6	0.2	0.6	0.5	0.4	0.5	0.8	0.4	0.4	0.3
November	0.7	0.2	0.3	0.3	1.1	0.2	0.4	0.5	0.8	0.5	0.3	0.1
December	0.4	0.3	0.3	0.3	0.2	0.3	0.3	0.6	0.5	0.3	0.4	0.4
Annual Mean Concentration	0.5	0.5	0.5	0.4	0.5	0.4	0.5	0.4	1.7	0.5	1.0	0.3

TABLE 4

Airborne Total Beta Activity for Ireland and the EEC 1962 – 1987 (mBq m^{-3})

Year	Ireland	EEC
1962	81.0	150.0
1963	67.0	160.0
1964	17.0	36.0
1965	3.7	8.5
1966	2.0	4.8
1967	2.0	4.4
1968	4.1	7.0
1969	3.0	8.1
1970	3.7	7.4
1971	4.4	8.1
1972	2.0	3.0
1973	0.7	1.0
1974	2.0	3.0
1975	1.0	2.0
1976	1.2	2.0
1977	3.0	3.7
1978	1.0	2.0
1979	0.7	1.0
1980	1.0	1.1
1981	1.0	3.0
1982	0.5	0.9
1983	0.4	0.8
1984	0.4	1.0
1985	0.4	0.9
1986	1.0	488.0
1987	0.7	NA

NA = Not Available

TABLE 5

Total Beta Activity of Fallout 1982 - 1987 (Bq m^{-2} d^{-1})

Month	1982		1983		1984		1985		1986		1987	
	Dublin	Valentia	Dublin	Valentia	Dublin	Valentia	Dublin	Valentia	Dublin	Valentia	Dublin	Valentia
January	0.3	0.5	0.2	0.4	0.2	0.5	0.3	0.3	0.2	0.1	0.8	0.3
February	0.3	1.0	0.2	0.3	0.3	0.3	0.3	0.1	0.3	0.5	0.3	0.2
March	0.3	0.3	0.3	0.2	0.3	0.1	0.3	0.2	0.2	0.2	0.4	0.2
April	0.3	0.2	0.3	0.5	0.2	0.2	0.2	0.1	0.2	0.1	0.6	0.2
May	0.4	0.3	0.3	0.4	0.3	0.2	0.2	0.1	248	185	0.5	0.2
June	0.5	0.2	0.2	0.3	0.3	0.1	0.3	0.2	6.5	6.6	0.4	0.3
July	0.3	0.4	0.3	0.2	0.2	0.2	0.4	0.1	2.9	1.9	0.3	0.2
August	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.1	1.7	0.5	0.2	0.2
September	0.4	0.4	0.2	0.1	0.2	0.3	0.2	0.2	0.6	0.2	0.3	0.1
October	0.3	0.3	0.2	0.1	0.2	0.1	0.2	0.1	0.8	0.6	0.2	0.3
November	0.3	0.2	0.2	0.3	0.2	0.2	0.3	0.1	0.7	0.3	0.2	0.1
December	0.2	0.3	0.2	0.2	0.3	0.2	0.3	0.1	0.3	0.4	0.3	0.3
Annual Mean Concentration	0.3	0.4	0.2	0.3	0.3	0.2	0.3	0.1	21.5	16.3	0.4	0.2

TABLE 6A

Deposition of Total Beta Activity at Meteorological Stations 1982 (Bq m^{-2})

Station	January	February	March	April	May	June	July	August	Sept	October	Nov	Dec	Annual
Valentia	11.2	45.1	4.8	1.7	5.7	5.5	4.7	9.6	17.5	2.8	1.9	14.6	125.1
Dublin	15.1	9.2	4.5	4.5	10.1	9.2	5.1	4.1	15.1	8.5	3.5	18.2	107.1
Belmullet	4.7	1.1	4.0	37.5	6.7	4.3	4.8	15.8	11.4	6.5	5.6	10.9	113.3
Mullingar	6.0	2.5	3.2	2.1	13.7	10.9	5.1	8.6	5.8	3.5	6.5	10.7	78.7
Rosslare	7.5	7.1	4.1	1.3	8.9	6.0	4.5	4.7	8.1	5.0	1.8	9.8	68.8
Roches Point	6.6	1.2	2.8	1.3	14.3	11.3	6.9	10.1	17.2	4.8	10.9	11.8	99.2

TABLE 6B

Deposition of Total Beta Activity at Meteorological Stations 1983 (Bq m^{-2})

Station	January	February	March	April	May	June	July	August	Sept	October	Nov	Dec	Annual
Valentia	NM	5.6	11.8	4.5	9.4	4.6	1.2	2.8	6.8	0	4.4	15.6	66.7
Dublin	NM	6.3	2.7	16.2	14.0	4.4	4.8	6.8	6.3	1.5	4.2	20.4	87.6
Belmullet	NM	2.5	4.9	5.3	4.2	5.1	5.3	3.5	9.1	0	1.7	6.7	48.3
Mullingar	NM	9.7	10.2	6.4	6.7	2.8	2.6	5.3	3.4	0	4.0	0	51.1
Rosslare	NM	5.1	2.7	5.1	5.4	2.0	5.5	8.0	8.5	2.3	4.6	0	49.2
Roches Point	NM	12.2	4.4	8.6	8.4	3.6	1.2	6.0	5.8	0	7.2	5.1	62.5

TABLE 6C

Deposition of Total Beta Activity at Meteorological Stations 1984 (Bq m^{-2})

Station	January	February	March	April	May	June	July	August	Sept	October	Nov	Dec	Annual
Valentia	12.5	NM	2.1	8.1	0	0.8	0	8.2	0	8.9	11.1	5.6	57.3
Dublin	7.7	5.0	5.3	4.6	3.8	5.3	4.7	11.7	3.7	6.8	3.9	7.9	70.3
Belmullet	21.1	4.3	4.3	3.4	4.7	5.1	3.0	4.2	11.2	10.4	16.6	3.9	92.3
Mullingar	16.7	7.1	6.5	0	0	5.2	1.7	5.9	8.5	6.6	10.1	5.1	73.4
Rosslare	3.0	2.6	4.8	3.1	4.7	2.9	2.5	4.9	5.7	5.0	4.9	0	44.1
Roches Point	13.8	1.1	0	5.2	4.6	3.2	3.2	7.3	5.0	13.7	10.8	2.6	70.5

NM = Not Measured

TABLE 6D

Deposition of Total Beta Activity at Meteorological Stations 1985 (Bq m^{-2})

Station	January	February	March	April	May	June	July	August	Sept	October	Nov	Dec	Annual
Valentia	9.9	0	11.6	4.7	17.1	0	0	5.5	0	0	12.8	6.5	68.1
Dublin	9.4	4.6	4.7	4.4	7.7	4.3	4.3	5.0	0.8	1.8	3.3	4.9	55.2
Belmullet	7.6	2.1	11.1	2.8	7.1	2.3	4.0	0	0	4.8	0	15.2	57.0
Mullingar	5.1	2.7	0	2.1	3.3	0	4.2	5.4	0	0	4.8	24.5	52.1
Rosslare	8.3	5.0	6.9	2.1	5.5	4.5	1.9	3.8	0.8	2.1	0	15.5	56.4
Roches Point	4.0	6.5	12.4	3.9	2.8	5.0	9.8	12.4	4.1	3.0	2.2	14.1	80.2

TABLE 7A

Rainfall at Meteorological Stations 1982 (mm)

Station	January	February	March	April	May	June	July	August	Sept	October	Nov	Dec	Annual
Valentia	188.9	237.3	159.0	34.2	94.7	92.1	15.2	137.7	145.9	282.5	190.4	208.7	1786.6
Dublin	50.2	24.3	45.0	19.5	59.5	102.2	9.2	67.7	89.1	94.2	115.9	72.7	749.5
Belmullet	78.6	112.0	133.7	268.0	74.6	71.9	23.9	98.5	94.8	161.3	141.2	156.2	1414.7
Mullingar	85.6	83.1	106.9	30.4	69.9	108.9	24.3	86.1	82.3	117.2	130.9	120.1	1045.7
Rosslare	94.2	89.1	67.8	32.3	29.5	99.3	23.6	52.5	134.6	125.7	177.4	97.9	1023.9
Roches Point	93.6	122.1	93.5	33.3	75.0	140.7	24.6	67.0	101.2	160.2	155.2	107.1	1173.5

TABLE 7B

Rainfall at Meteorological Stations 1983 (mm)

Station	January	February	March	April	May	June	July	August	Sept	October	Nov	Dec	Annual
Valentia	192.2	36.7	122.7	101.5	120.8	88.5	20.4	74.7	204.0	152.7	90.7	234.4	1439.3
Dublin	63.8	43.8	61.0	79.5	77.0	44.3	18.1	45.9	77.4	45.9	21.3	131.4	709.4
Belmullet	137.0	44.5	88.6	54.8	87.8	33.6	39.6	41.2	111.6	155.6	42.0	151.6	987.9
Mullingar	146.9	45.1	98.3	79.0	113.8	41.9	14.6	62.0	116.6	120.8	41.0	125.2	1005.2
Rosslare	84.8	68.8	56.1	76.9	105.3	26.6	15.4	77.0	114.6	69.4	34.7	121.1	850.7
Roches Point	93.6	79.9	69.4	75.1	87.2	36.8	4.2	49.3	130.4	105.5	55.4	125.7	912.5

TABLE 7C

Rainfall at Meteorological Stations 1984 (mm)

Station	January	February	March	April	May	June	July	August	Sept	October	Nov	Dec	Annual
Valentia	249.4	96.3	51.2	90.3	43.9	40.1	80.1	117.1	104.2	223.5	221.6	186.4	1504.1
Dublin	95.9	55.2	53.0	32.6	34.4	38.1	30.8	97.3	74.4	56.4	97.0	87.7	752.8
Belmullet	210.6	71.6	47.4	30.5	39.4	72.4	49.3	52.1	92.9	208.7	237.0	129.0	1240.9
Mullingar	128.3	59.2	72.3	41.3	16.7	52.0	42.6	118.4	106.1	110.6	111.7	126.8	986.0
Rosslare	100.2	51.2	53.3	39.3	24.5	9.2	13.2	23.2	113.5	99.4	164.4	91.7	783.1
Roches Point	172.6	53.6	67.6	43.4	33.0	39.5	31.5	40.3	82.6	91.2	154.5	65.5	875.3

TABLE 7D

Rainfall at Meteorological Stations 1985 (mm)

Station	January	February	March	April	May	June	July	August	Sept	October	Nov	Dec	Annual
Valentia	110.1	117.1	193.1	67.2	131.6	112.6	66.5	272.9	118.2	94.1	182.7	161.7	1627.8
Dublin	66.8	57.8	67.1	39.5	70.1	78.5	107.2	124.7	38.1	19.7	36.3	69.6	775.4
Belmullet	84.2	34.3	111.3	70.6	118.3	56.4	80.4	224.8	207.4	68.2	89.7	152.0	1297.6
Mullingar	57.0	45.6	71.3	52.0	110.8	65.7	105.1	180.8	106.3	66.9	60.2	102.0	1023.7
Rosslare	68.9	70.7	86.4	42.8	49.6	55.9	64.0	127.9	39.3	41.4	127.2	97.0	871.1
Roches Point	66.8	92.8	112.6	42.8	34.8	62.3	81.9	154.5	67.8	60.6	111.9	117.5	1006.3

TABLE 8

Deposition of Total Beta Activity for Ireland and the EEC 1962-1986 (Bq m^{-2})

Year	Ireland	EEC
1962	19900	33900
1963	21500	36600
1964	5030	9070
1965	1600	2500
1966	670	1200
1967	630	100
1968	740	1600
1969	630	1700
1970	810	1700
1971	890	2100
1972	590	100
1973	130	280
1974	560	980
1975	260	520
1976	570	600
1977	600	1360
1978	380	730
1979	120	260
1980	100	270
1981	610	1180
1982	100	Less than 180
1983	60	Less than 160
1984	70	49
1985	60	44
1986	2360	4880
1987	135	NA

NA = Not Available

TABLE 9A

Deposition of Specific Radionuclides 1982 – 1983 (Bqm^{-2})

Month	1982						1983					
	Be-7	Zr-95	Nb-95	Mn-54	Cs-137	Ru-106	Be-7	Zr-95	Nb-95	Mn-54	Cs-137	Ru-106
January	98.4	<0.29	<0.16	<0.16	<1.30	<1.59	20.2	<0.09	<0.06	<0.05	<0.18	<0.5
February	78.9	<0.29	<0.16	<0.16	<1.0	<1.59	31.6	<0.09	<0.06	<0.05	<0.17	<0.54
March	36.6	<0.29	<0.16	<0.16	<0.43	<1.59	48.8	<0.09	<0.06	<0.05	<0.20	<0.54
April	41.4	<0.17	<0.09	<0.09	<0.41	<0.95	69.0	<0.12	<0.08	<0.07	<0.66	<0.70
May	84.4	<0.23	<0.12	<0.13	<0.71	<1.25	51.1	<0.09	<0.06	<0.05	<0.51	<0.50
June	143.0	<0.36	<0.20	<0.20	<0.56	<2.00	39.3	<0.08	<0.05	<0.04	<0.26	<0.44
July	30.3	<0.06	<0.07	<0.07	<0.15	<0.69	29.3	<0.07	<0.04	<0.04	<0.53	<0.37
August	53.7	<0.11	<0.12	<0.09	<0.68	<0.34	18.1	<0.08	<0.05	<0.04	<0.61	<0.44
Sept.	11.7	<0.17	<0.20	<0.14	<0.25	<0.45	41.6	<0.16	<0.10	<0.08	<0.27	<0.88
October	39.9	<0.11	<0.12	<0.09	<0.61	<0.35	61.7	<0.13	<0.08	<0.07	<0.43	<0.71
November	24.1	<0.17	<0.20	<0.14	<0.37	<0.47	19.9	<0.08	<0.05	<0.04	<0.39	<0.44
December	19.0	<0.17	<0.20	<0.14	<0.46	<0.97	23.7	<0.21	<0.12	<0.10	<0.81	<1.00
Mean	55.1	<0.20	<0.15	<0.13	<0.58	<1.02	37.9	<0.11	<0.06	<0.06	<0.42	<0.59

TABLE 10

Deposition of Caesium – 137 at Meteorological Stations 1986 – 1987 (Bqm^{-2})

Period	Dublin	Belmullet	Mullingar	Roches Point	Rosslare	Valentia
1986						
April - June	1281	409.9	1221	2789.4	518	534.2
July - Sept.	72.1	97.8	28.8	113.1	13.4	9.0
Oct. - Dec.	13.9	105.9	53.1	59.4	29.4	<8.8
Total	1367.0	613.6	1302.9	2961.9	560.8	<552.0
1987						
Jan. - March	10.7	<29.4	61.4	<21.8	<13.6	<4.7
April - June	5.7	<3.3	25.3	<19.2	<17.3	<3.6
July - Sept.	13.4	<13.1	7.0	<24.9	<16.6	<2.0
Oct. - Dec.	<4.5	<8.5	<11.4	<11.9	<14.0	<7.9
Total	<34.3	<54.3	<105.1	<77.8	<61.5	<18.2