

ERRATA

Corrections to published RIFE reports

	Page, Section	Comment																
RIFE-1 1995	38, Section 16.2	Last but one sentence, replace 1994 with 1995.																
	39, Section 16.4	First sentence, 2 nd paragraph, replace 1994 with 1995.																
	45, Table 1	Replace ²⁴¹ Am Sellafield (sea pipelines) limit of 1.3 TBq with 0.3 TBq. Replace ⁶⁰ Co Harwell (pipeline) percentage of 1.5 with 6.9.																
	74, Table 16 99, Table 33(a)	The following activity in soil data were reported as being Bq kg ⁻¹ (dry) whilst they should have been reported as Bq kg ⁻¹ (wet). All data are averages unless stated.																
		<table border="1"> <thead> <tr> <th>Site/location</th> <th>²¹⁰Po</th> <th>²³⁸Pu</th> <th>²³⁹⁺²⁴⁰Pu</th> </tr> </thead> <tbody> <tr> <td>Sellafield (Table 16)</td> <td>64</td> <td></td> <td></td> </tr> <tr> <td>Aldermaston (Table 33(a))</td> <td></td> <td>0.0091</td> <td>0.36</td> </tr> <tr> <td>max</td> <td></td> <td>0.016</td> <td>0.56</td> </tr> </tbody> </table>	Site/location	²¹⁰ Po	²³⁸ Pu	²³⁹⁺²⁴⁰ Pu	Sellafield (Table 16)	64			Aldermaston (Table 33(a))		0.0091	0.36	max		0.016	0.56
	Site/location	²¹⁰ Po	²³⁸ Pu	²³⁹⁺²⁴⁰ Pu														
Sellafield (Table 16)	64																	
Aldermaston (Table 33(a))		0.0091	0.36															
max		0.016	0.56															
99, Table 33(a)	The concentration of ¹³⁷ Cs in clay at Outfall (Pangbourne) was 12±0.15 Bq kg ⁻¹ (dry)																	
133, Appendix 3	The average consumption rates of nuts and offal by 10 year old children were 1.5 kg y ⁻¹ . The consumption of whelks at Sellafield by group E (Whitehaven commercial) was 11 kg y ⁻¹ .																	
138, Appendix 6	The values of t _f and t _s were 0. The transfer factors for beef offal (²⁴¹ Pu) and lamb (²⁴¹ Pu) were 2 10 ⁻² and 4 10 ⁻⁴ respectively.																	
RIFE-2 1996	32, Section 8.1	Lines 8-11. Replace with “In 1996 no fragments of spent fuel were found on the public beach at Dounreay. Thirteen small fragments were found with caesium-137 activities in the range 10 ⁵ -10 ⁸ Bq (these activities were measured by the operator). They were all found on the Dounreay foreshore which although a public area is largely inaccessible. A”																
	58, Table 2	Replace ³⁵ S Oldbury limit of 0.8 TBq with 0.75 TBq. Replace ⁴¹ Ar Trawsfynydd limit of 350 TBq with 3500 TBq.																

85, Table 16
87, Table 18
91, Table 20(a)
95, Table 21
119, Table 41

The following activity in soil data were reported as being Bq kg⁻¹ (dry) whilst they should have been reported as Bq kg⁻¹ (wet). All data are averages unless stated.

Site/location	²³⁴ U	²³⁵ U	²³⁸ U
Drigg (Table 16)	8.3	0.28	7.4
Ravenglass (Table 18)	16	0.56	15
Springfields (Table 20(a))	49	2.3	45
Capenhurst (Table 21)	9.8	0.36	10
Derby (Table 41)	44	1.7	43

Table 47

This was omitted in error. The data are attached.

Table 47. Radioactivity in plants near landfill sites, 1996

Sampling location	Material	No of samples	Mean radioactivity concentration (dry)*, Bq kg ⁻¹							
			³ H	¹⁴ C	⁹⁰ Sr	¹²⁵ I	¹³⁴ Cs	¹³⁷ Cs	²³⁸ Pu	²³⁹⁺²⁴⁰ Pu
Beddingham Lewes, East Sussex	Grass	4	<40 ±18	130 ±28	1.8 ±0.1	<0.19	<0.61	<0.54 ±0.30	<0.00099 ±0.00037	0.0067 ±0.0012
Cilgwyn Quarry, Gwynedd	"	4	<30	360 ±55	3.0 ±0.2	<0.63	<0.69	<5.2 ±0.9	<0.0095	0.018 ±0.005
Lyndown, Devon	"	4	<28	150 ±30	2.4 ±0.2	<1.3 ±0.2	<0.60	<0.62 ±0.17	<0.0010	<0.0024 ±0.0009
Witton, Cheshire	"	4	<38	130 ±33	0.76 ±0.12	<1.1 ±0.3	<0.59	<0.63	<0.0013	0.0021 ±0.0016

* Results are available for other artificial nuclides detectable by gamma spectrometry
All such results are less than the limit of detection

RIFE-3
1997

19, Table 1.1

Replace beta, tritium and ⁶⁰Co Devonport (sewer) discharges with 1.97 10⁻⁶, 2.22 10⁻⁶, 5.60 10⁻⁷ TBq respectively.

Replace alpha and beta limit and percentage Greenwich with 4.44 10⁻³ TBq and <1 respectively.

21, Table 1.2

Replace tritium Winfrith limit with 5 TBq.

38, Section 3.6.5

First paragraph. Reference to factor of 0.85 millisievert per milligray should be ICRP (1996b).

70, Table 4.10

72, Table 4.12

81, Table 4.16

121, Table 9.1

The following activity in soil data were reported as being Bq kg⁻¹ (dry) whilst they should have been reported as Bq kg⁻¹ (wet). All data are averages unless stated.

Site/location	²³⁴ U	²³⁵ U	²³⁸ U
Drigg (Table 4.10)	9.9	0.37	9.5
Ravenglass (Table 4.12)	18	0.60	16
Springfields (Table 4.12)	31	1.5	30
Capenhurst (Table 4.16)	9.5	0.40	9.5
Derby (Table 9.1)	27	0.97	24

90, Section 6.3

The maximum dose due to gaseous disposals was received by adults.

161, Appendix 4

The 1 year old child dose coefficient for ⁹⁹Tc was 4.80 10⁻⁹.

RIFE-4
1998

Page, Section	Comment																
70, Table 4.12	The concentrations of total Cs and ¹⁴⁴ Ce in ovine muscle (max) were 0.61 and <1.8 Bq kg ⁻¹ (wet) respectively. No value for ¹⁵⁵ Eu is available.																
75, Table 4.15(a) 77, Table 4.16 116, Table 9.1	The following activity in soil data were reported as being Bq kg ⁻¹ (dry) whilst they should have been reported as Bq kg ⁻¹ (wet). All data are averages unless stated.																
	<table border="1"> <thead> <tr> <th>Site/location</th> <th>²³⁴U</th> <th>²³⁵U</th> <th>²³⁸U</th> </tr> </thead> <tbody> <tr> <td>Springfields (Table 4.15(a))</td> <td>72</td> <td>3.0</td> <td>68</td> </tr> <tr> <td>Capenhurst (Table 4.16)</td> <td>7.9</td> <td>0.30</td> <td>7.4</td> </tr> <tr> <td>Derby (Table 9.1)</td> <td>31</td> <td>0.93</td> <td>26</td> </tr> </tbody> </table>	Site/location	²³⁴ U	²³⁵ U	²³⁸ U	Springfields (Table 4.15(a))	72	3.0	68	Capenhurst (Table 4.16)	7.9	0.30	7.4	Derby (Table 9.1)	31	0.93	26
Site/location	²³⁴ U	²³⁵ U	²³⁸ U														
Springfields (Table 4.15(a))	72	3.0	68														
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Derby (Table 9.1)	31	0.93	26														
96, Table 6.4(a)	The concentration of ²⁴¹ Am in mud at Paddy's Hole was <1.0 Bq kg ⁻¹ (dry). No measurement of ^{239/240} Pu was made.																
125, Section 11.1	Last but one paragraph. The estimated dose was 0.094 mSv.																
131, Section 11.8	Last paragraph, first sentence. Replace 1997 with 1998.																

RIFE-5
1999

71, Table 4.15(a) 73, Table 4.16 118, Table 9.1	The following activity in soil data were reported as being Bq kg ⁻¹ (dry) whilst they should have been reported as Bq kg ⁻¹ (wet). All data are averages unless stated.																
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112, Section 8.2	The second sentence of paragraph three states that "the duck and tide washed pasture pathways gave doses of 0.032 and 0.009 mSv y ⁻¹ respectively." The dose due to the duck pathway should read 0.042 mSv y ⁻¹ . The value for tide washed pasture is correct.																
123, Table 10.2	The concentration of ¹⁴ C in grass from Billingham was 960 Bq kg ⁻¹ (wet).																
162, Table A1.2	The Dounreay (Fast Reactor) data were duplicated.																

RIFE-6
2000

31, Section 3.5	It was stated that the dose limits do not apply to natural radionuclides. This sentence should be deleted.												
75, Table 4.16 124, Table 9.1	The following activity in soil data were reported as being Bq kg ⁻¹ (dry) whilst they should have been reported as Bq kg ⁻¹ (wet). All data are averages unless stated.												
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Page, Section	Comment
155, Table 12.1	Target date for project 'Tritium and carbon-14 in seafood' should have been March 2003.
166, Table A1.1	Discharges of tritium from Devonport (pipeline) given as 0.87 TBq should have been 0.087 TBq.
168, Table A1.2	Sellafield Discharge limits of alpha and beta activity should have been 0.00196 and 0.328 TBq. Percentage of limit for alpha and beta activity should have been 4.0 and <1. Discharges of tritium and ¹⁴ C from Sellafield given as 213 and 2.58 TBq should have been 355 and 2.94 TBq. Relevant percentages given as 15 and 30 should have been 25 and 34.
RIFE-7 2001 71, Table 4.8 80, Table 4.15(a) 93, Table 5.2(a) 122, Table 7.3 127, Table 8.2(a) 130, Table 9.1	The following activity in soil data were reported as being Bq kg ⁻¹ (dry) whilst they should have been reported as Bq kg ⁻¹ (wet). All data are averages unless stated.

Site/location	⁶⁰ Co	¹⁰⁶ Ru	¹²⁵ Sb	¹³⁴ Cs	¹³⁷ Cs	²³⁴ U	²³⁵ U	²³⁸ U	²⁴¹ Am
Sellafield (Table 4.8)	<0.80	<3.1	<1.1		80				5.8
max	1.2				97	9.3	0.34	9.1	6.0
Springfields (Table 4.15(a))						95	4.6	89	
max									
Harwell (Table 5.2(a))	<0.40			<0.40	2.9				
Featherstone position A (Table 7.3)						9.5	0.41	9.0	
Featherstone position B (Table 7.3)						7.3	0.34	7.5	
Cardiff (Table 8.2(a))				<0.33	5.6				
max				<0.40	6.5				
Derby (Table 9.1)						18	0.80	18	
max						30	1.3	29	

176, Table A1.1 Discharges of Alpha for Hunterston 'A' given as 0.14 TBq should have been 1.4 10⁻⁵ TBq. The % of limit given as 350 should have been <1.

181, Table A1.2 Dungeness 'A' discharge limit and % of limit for tritium should have been 3 and 23 respectively.

RIFE-8
2002
59, Table 4.1 Two tritium results were omitted.
The data are attached.

Table 4.1. Beta/gamma radioactivity in fish from the Irish Sea vicinity and further afield, 2002

Location	Material	No. of sampling observations	³ H
Liverpool Bay	Flounder	2	<25
Mersey estuary	Flounder	2	<25

79, Table 4.14
82 Table 4.17
128, Table 7.1(a)
138, Table 8.2(a)

The following activity in soil data were reported as being Bq kg^{-1} (dry) whilst they should have been reported as Bq kg^{-1} (wet). All data are averages unless stated.

Site/location	^{60}Co	^{106}Ru	^{125}Sb	^{134}Cs	^{137}Cs	^{234}U	^{235}U	^{238}U
Sellafield (Table 4.14)	<0.80	<2.3	<1.2	68				
max	1.0	<2.7	<1.4	82				
Drigg (Table 4.17)								
max						6.9	0.30	6.5
Aldermaston (Table 7.1(a))								
max						8.7	0.35	8.3
Cardiff (Table 8.2(a))				<0.30	6.4			
max					8.1			

102, Figure 6.1

An incorrect bar in Figure 6.1 for Bradwell (2002) is corrected below

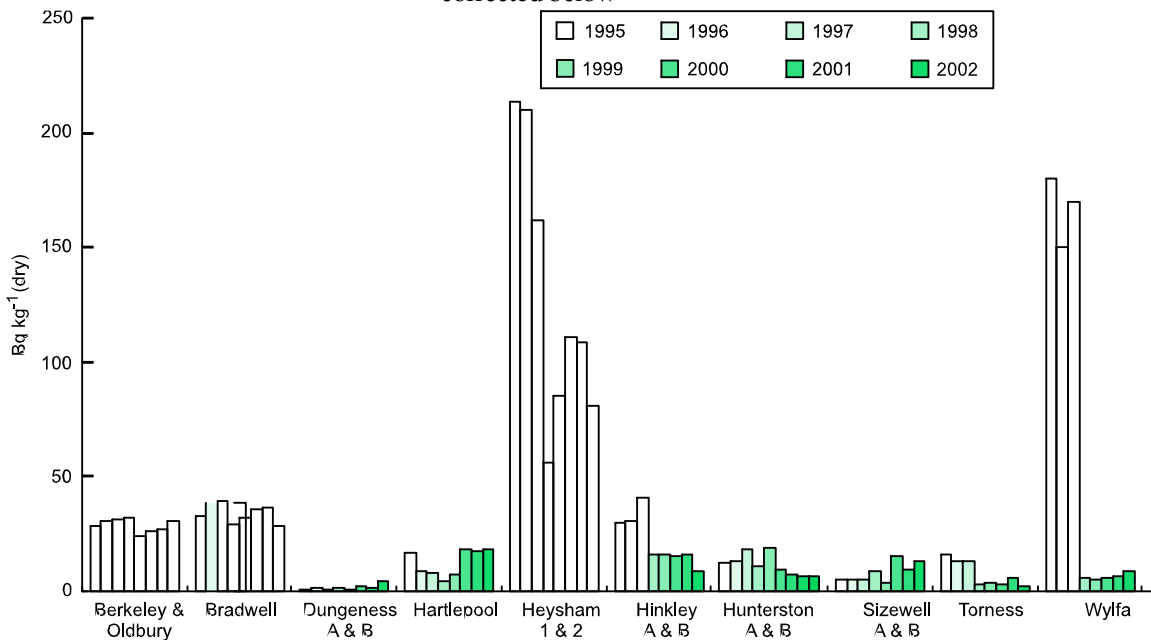


Figure 6.1. Caesium-137 concentration in sediments near nuclear power stations

RIFE-1 - RIFE-8
1995-2002

Urenco Capenhurst have reassessed atmospheric discharges of uranium; the reassessed discharges are listed in Table E1.

Table E1. Reassessed atmospheric discharges of uranium from Urenco Capenhurst

Year	Original reported discharge TBq	Reassessed discharge TBq
1993	$1.74 \cdot 10^{-9}$	$2.41 \cdot 10^{-7}$
1994	$6.74 \cdot 10^{-9}$	$2.63 \cdot 10^{-7}$
1995	$2.69 \cdot 10^{-8}$	$2.75 \cdot 10^{-7}$
1996	$1.11 \cdot 10^{-7}$	$8.23 \cdot 10^{-7}$
1997	$6.80 \cdot 10^{-8}$	$4.90 \cdot 10^{-7}$
1998	$6.87 \cdot 10^{-8}$	$1.87 \cdot 10^{-6}$
1999	$8.15 \cdot 10^{-8}$	$1.01 \cdot 10^{-6}$
2000	$9.64 \cdot 10^{-8}$	$8.72 \cdot 10^{-7}$
2001	$1.20 \cdot 10^{-7}$	$9.77 \cdot 10^{-7}$
2002	$1.16 \cdot 10^{-7}$	$6.01 \cdot 10^{-7}$

RIFE-9
200382, Table 3.15
138 Table 6.1(a)
141, Table 6.3(a)
151, Table 7.3(a)
157, Table 8.1(a)The following activity in soil data were reported as being Bq kg⁻¹ (dry) whilst they should have been reported as Bq kg⁻¹ (wet). All data are averages unless stated.

Site/location	⁶⁰ Co	¹⁰⁶ Ru	¹²⁵ Sb	¹³⁴ Cs	¹³⁷ Cs	¹⁵⁴ Eu	²³⁴ U	²³⁵ U	²³⁸ U	²⁴¹ Am
Sellafield (Table 3.15)	<0.90	<3.3	<1.2	<0.40	75	<0.50				5.9
max	1.6	<4.2	<1.6		89	<0.60	11	0.54	10	7.7
Aldermaston (Table 6.1(a))							11	0.48	11	
max										
Derby (Table 6.3(a))							47	1.6	40	
max										
Cardiff (Table 7.3(a))				<0.40	8.8					
max					11					
Drigg (Table 8.1)							6.7	0.26	6.7	
max										

185, Table 9.12

Some data were incorrect. The amended version of the table is attached.

Table 9.12. Concentrations of radionuclides in rainwater and air 2003

Location	Sample	No. of sampling observations	Mean radioactivity concentration ^a in rainwater and air									
			³ H ⁷	Be	⁹⁰ Sr ^b	¹³⁷ Cs	²¹⁰ Pb	²¹⁰ Po	²²⁸ Th	Gross alpha ^b	Gross beta ^b	
Ceredigion Aberporth	Rainwater	12	<2.4	<1.6		<0.053	0.10			*		
	Air	4		0.0022		<0.00000052	0.00017			*		
Co. Down Conlig	Rainwater	4		<1.5		<0.022	*			*		
	Air	4		0.0022		<0.00000063	0.00015			*		
Dumfries and Galloway Eskdalemuir	Rainwater	4	4	<2.7	1.2		<0.0098	0.094		*		
	Air	4		0.0018		<0.00000043	0.00013			*		
North Yorkshire Dishforth	Rainwater	4		<2.2		<0.039	*			*		
	Air	4		0.0016		<0.00000055	0.00014			*		
Oxfordshire Chilton	Rainwater	12		<1.5	<0.00064	<0.032	0.32			*	0.074	0.17
	Air	13		0.0018		<0.00000034	0.00027	<0.000014		*		
Shetland Lerwick	Rainwater	4		1.6		<0.017	*			*		
	Air	4		0.0015		<0.00000052	0.00010			*		
Suffolk Orfordness	Rainwater	4	<2.2	<2.4		<0.048	*			5.2		
	Air	4		0.0022		<0.00000053	0.00020			*		

* Not detected by the method used

^a Bq l⁻¹ for rainwater and Bq kg⁻¹ for air^b Annual bulk analysis

187, Table 9.14

The concentration of ²¹⁰Po in Cornwall, River Fowey was <0.0098 Bq l⁻¹.

Table 9.16. Estimates of maximum radiation exposure from radionuclides in drinking water, 2003^a

Country	Exposure, mSv		
	Man-made radionuclides ^b	Natural radionuclides ^c	All radionuclides
England	<0.001	0.028	0.028
Northern Ireland	<0.001	0.026	0.026
Scotland	<0.001	^d	^d
Wales	<0.001	0.027	0.027

^a The maximum dose is selected for each nuclide group from data for individual sampling locations.

Many estimates of dose are based on concentration results at limits of detection.

^b Including tritium

^c Including carbon-14

^d Analysis of natural radionuclides was not undertaken

214, Table A1.2

The data shown for Faslane are a duplication of the data for Rosyth and were included in error.

RIFE-10
2004

75, Table 3.7

The entry for Haverigg should read 0.087.

45, Figure 3.8

An incorrect bar in Figure 3.8 for Americium discharge is corrected below:

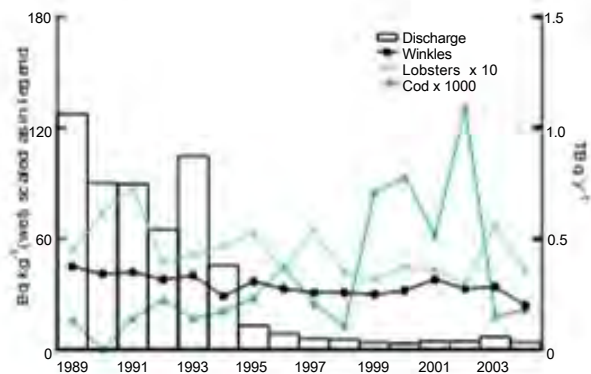


Figure 3.8. Americium-241 and liquid discharge from Sellafield and concentrations in cod*, lobsters and winkles near Sellafield (* estimated in 2004 due to lack of availability of cod)

87, Table 3.15

151 Table 6.1(a)

154, Table 6.3(a)

166, Table 7.3(a)

173, Table 8.1(a)

The following activity in soil data were reported as being Bq kg⁻¹ (dry) whilst they should have been reported as Bq kg⁻¹ (wet). All data are averages unless stated.

Site/location	⁶⁰ Co	¹⁰⁶ Ru	¹²⁵ Sb	¹³⁴ Cs	¹³⁷ Cs	²³⁴ U	²³⁵ U	²³⁸ U
Sellafield (Table 3.15)	<0.43	<1.4	<0.73					
max	0.80	<1.5	<0.80			16	0.64	15
Aldermaston (Table 6.1(a))								
max						7.8	0.29	7.2
Derby (Table 6.3(a))								
max						27	0.94	23
Cardiff (Table 7.3(a))				<0.47	7.1			
max				<0.50	7.7			
Drigg (Table 8.1)								
max						11	0.42	11

Page, Section	Comment
223, Table A1.1	The % annual limit for ¹⁰⁶ Ru discharge at Sellafield was 7% (not 70%).
246, Table A5.1	Some dose per unit intake values were missing for 1 yr old. These were:

Table A5.1. Dosimetric data

Radionuclide	Dose per unit intake by inhalation using ICRP-60 methodology (Sv Bq ⁻¹)
Sr-90 [†]	1.2E-07
Zr-95 [†]	2.1E-08
Ba-140 [†]	2.6E-08
Pb-210 [†]	4.0E-06
Th-228 [†]	1.4E-04
U-238	9.4E-06

[†] Energy and dose per unit intake data include the effects of radiations of short-lived daughter products

RIFE-11
2005

72, Table 3.3a	Footnote 'd' showed an incorrect value. It should have read: ^d The concentration of ²³⁷ Np was 0.00035 Bq kg ⁻¹
112, Table 4.3a	Column headings should have read: ²³⁹ Pu+ ²⁴⁰ Pu ²⁴¹ Pu
140, Table 5.5a	The result of <0.13 for ²⁴¹ Am in the <i>Fucus vesiculosus</i> samples from Pilot Station was incorrectly put into the ²³⁹ Pu+ ²⁴⁰ Pu column.
206, Figures 9.5 and 9.6	Incorrect units were shown. The correct units were mBq l ⁻¹ .
225, Table 9.15	Incorrect headings in the top part of the table. Should have been as below:

Table 9.15. Concentrations of radionuclides in sources of drinking water in England and Wales, 2005

Location	Sample source	No. of sampling observations	Mean radioactivity concentration, Bq l ⁻¹					
			³ H	⁴⁰ K	⁹⁰ Sr	¹³⁷ Cs	²¹⁰ Po	
Wales								
Gwynedd	Cwm Ystradlyn Treatment Works	4	<4.0	<0.020	0.0036	0.0018	<0.010	
Mid-Glamorgan	Llwyn-on Reservoir	4	<4.0	<0.045	0.0030	<0.0010	<0.013	
Powys	Elan Valley Reservoir	4	<4.0	<0.050	0.0040	0.00090	<0.010	

248, Table A1.2	Sellafield discharge limits for alpha and beta should have been 8.90 10 ⁻⁵ and 0.00174 TBq respectively.
251, Table A1.2	Aldermaston Tritium discharge and % limit should have been 14.1 and 8.3 respectively.

RIFE 8-11
2002-2005

Concentrations in sediments	For sediment samples with unusually high water contents it was discovered in 2007 that the resulting sample bulk densities were outside the instrument calibration range. Following investigations a correction factor has been calculated and this has been applied to the affected data from 2002-2005 and the new results are reported here in Table E2.
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These amendments do not significantly affect any assessments, charts or statements in the relevant RIFE reports.

Table E2. Amended concentrations of radionuclides in sediment, 2002 2005

Year	Site	Location	No. of sampling observations	Mean radioactivity concentration (dry), Bq kg ⁻¹						
				⁵⁷ Co	⁶⁰ Co	⁶⁵ Zn	⁹⁵ Zr	⁹⁵ Nb	¹⁰⁶ Ru	¹²⁵ Sb
2002	Aldermaston	Reading (Kennet)	4							
		Stream draining south	4							
	Bradwell	Maldon	2		<3.4					
		Waterside	2		<4.0					
	Capenhurst	Rossmore (4.3 km downstream)	2							
	Cardiff	Canal	2							
		West of pipeline	2							
	Devonport	Lopwell	2		<3.7					
	Dungeness	Pilot Sands	2		<0.90					
	Harwell	Appleford	4		<0.60					
Day's Lock		4		<0.50						
Sellafield	Caerhun	2		<3.3		<9.6	<7.7	<23	<9.2	
2003	Aldermaston	Reading (Kennet)	4							
		Aldermaston	4							
	Amersham	Outfall (Grand Union Canal)	3	<0.30	<1.1	<1.5				
	Bradwell	Waterside	2		<2.0					
		Canal	1							
	Derby	River Derwent (downstream)	4		<1.0					
Devonport	Lopwell	2		<2.5						
2004	Aldermaston	Reading (Kennet)	4							
		Aldermaston	4							
		Stream draining south	4							
	Amersham	Upstream of outfall (Grand Union Canal)	2	<6.4	<1.8	<4.1				
	Sellafield	Canal	2							
Caerhun		2		<1.6		<4.5	<2.2	<12	<13	
2005	Aldermaston	Reading (Kennet)	4							
	Amersham	Upstream of outfall (Grand Union Canal)	2	<5.3	<1.6	<3.6				
	Cardiff	Canal	2							
		Lydebank Brook	4		<1.7					
	Harwell	Appleford	4		<2.5					
		Day's Lock	4		<2.6		<8.8	<6.8	<20	<20
Trawsfynydd	Bailey Bridge	2		<8.3					<44	

Year	Site	Location	No. of sampling observations	Mean radioactivity concentration (dry), Bq kg ⁻¹							
				¹²⁵ I	¹³¹ I	¹³⁴ Cs	¹³⁷ Cs	¹⁴⁴ Ce	¹⁵⁴ Eu	¹⁵⁵ Eu	²⁴¹ Am
2002	Aldermaston	Reading (Kennet)	4				7.3				<1.9
		Stream draining south	4				<5.1				<1.2
	Bradwell	Maldon	2			6.5	80				<4.0
		Waterside	2			3.9	59				<13
	Capenhurst	Rossmore (4.3 km downstream)	2				<4.4				
	Cardiff	Canal	2	<0.80			2.4				
		West of pipeline	2	<3.1			33				
	Devonport	Lopwell	2				7.7				
	Dungeness	Pilot Sands	2				<0.90				<1.6
	Harwell	Appleford	4				<13				
Day's Lock		4				6.0					
Sellafield	Caerhun	2			<3.4	430	<25	<7.3	<8.0	75	
2003	Aldermaston	Reading (Kennet)	4				8.0				<1.6
		Aldermaston	4				6.3				<2.7
	Amersham	Outfall (Grand Union Canal)	3	<1.0	<550		<2.1				
	Bradwell	Waterside	2				35				<2.7
		Canal	1	<1.4			16				
	Derby	River Derwent (downstream)	4								
Devonport	Lopwell	2				<10					
2004	Aldermaston	Reading (Kennet)	4				5.4				<1.1
		Aldermaston	4				<3.9				<1.3
		Stream draining south	4				<2.8				1.6
	Amersham	Upstream of outfall (Grand Union Canal)	2	<0.80	<1.4		10				
	Sellafield	Canal	2	<1.5			11				
Caerhun		2			<1.5	220	<5.7	<7.3	<3.1	51	
2005	Aldermaston	Reading (Kennet)	4				<3.9				6.5
	Amersham	Upstream of outfall (Grand Union Canal)	2	<1.0	<9.1		6.2				
	Cardiff	Canal	2	<1.8			9.1				
		Lydebank Brook	4				9.0				
	Harwell	Appleford	4				<11				
		Day's Lock	4				<11				
Sellafield	Caerhun	2			<2.5	230	<9.3	<12	<5.3	59	
Trawsfynydd	Bailey Bridge	2			<4.2	920				76	

	Page, Section	Comment
RIFE-11 2005	270, Table A7.2B	Trawsfynydd, should read... Prenatal children of 0.008 Direct radiation, gamma occupants over sediment dose rate over sand/stone
	70, Table 2.7	The concentration of ²⁴¹ Am in winkles at Drigg should have been 29.
RIFE-12 2006	103, Section 4 Key points	Line 22 second column replace with • At Dungeness, dose from gaseous discharges increased.
	187, Figure 8.5	The range in the key should have been 2 to 8.
	234, Table A4.2B	Trawsfynydd, should read... Prenatal children of fish 0.013 Fish, gamma dose rate over consumers sediment, ⁹⁰ Sr
RIFE-13 2007	127, Table 4.5a	The ²¹⁰ Po and ²¹⁰ Pb results are the wrong way round for South Gare winkles. ²¹⁰ Po should be 11 and ²¹⁰ Pb should be 0.46 Bq kg ⁻¹
	153, Table 5.1	Derby, the total exposure and exposure from intakes of sediment and water should have been <0.005 mSv.
	161, Section 6 Key points	Line 17 second column should read... • The total dose of 0.008...
	236, Table A4.2B	Trawsfynydd, should read... Adult fish consumers 0.014 Fish, gamma dose rate over sediment, ⁹⁰ Sr, ¹³⁷ Cs, ²⁴¹ Am
	239, Appendix 5	Line 3 first column should read... ... indicated that it was likely there would be no adverse impact
RIFE-14 2008	12, Figure S1	Both bars for Bradwell should be the same height. The bar for exposures due to liquid wastes is wrong.
	33, Section 2	Springfields, doses to the public Lines 1 & 2 second column should read... ...pathways from gaseous discharges were less than 0.005mSv which was less than 0.5 per cent...
	51, Figure 2.22	The bar for Whitehaven in 2008 should have been the same height as the bar for 2007
	109, Section 4	Gaseous discharges and terrestrial monitoring Line 28, first column should read... The results of monitoring for 2008...
RIFE-14 2008	167, Table 6.3a	Results for Cardiff East WWTW should have been:

Page, Section Comment

Material	Location or selection ^b	No. of sampling observations ^c	Mean radioactivity concentration (fresh) ^a , Bq kg ⁻¹			
			Organic			
			³ H ^e	³ H	³ H ^f	14 ^c
Terrestrial samples						
Crude effluent	Cardiff East WWTW	3E	<150	<220	82	<11
Final effluent	Cardiff East WWTW	3E	<60	<70	80	<11
Sludge pellets	Cardiff East WWTW	3E		76000		740
Solids from crude effluent	Cardiff East WWTW	3E		<7500		<1800

225, Table A2.2 Sellafield (sea pipelines) Tritium discharge limit should have read 2 10⁴

236, Table A4.2B Trawsfynydd, should read...
Adult fish consumers 0.010 Fish, gamma dose rate over sediment, ⁹⁰Sr, ¹³⁷Cs, ²⁴¹Am

RIFE-15
2009

233, Table A2.1 MoD Coulport under reported discharges for the end of 2009. The ³H discharge for 2009 should have been 3.40 E-03 TBq.

249, Table A4.2B Trawsfynydd, should read...
Adult fish consumers 0.012 Fish, gamma dose rate over sediment, ⁹⁰Sr, ¹³⁷Cs, ²⁴¹Am

RIFE-16
2010

30, Table 1.2B Trawsfynydd, should read...
Adult fish consumers 0.012 Fish, gamma dose rate over sediment, ⁹⁰Sr, ¹³⁷Cs, ²⁴¹Am

37, Section 2 Line 13, paragraph 3, second column should read...
The dose to wildfowlers and farmers from exposure over salt marsh was 0.032 mSv, which was less than 4 per cent of the dose limit for members of the public of 1 mSv. The small decrease in dose from 0.036 mSv (in 2009) was due to lower gamma dose rates over marsh in 2010.

100, Section 3 The graph in Figure 3.2 is missing 2010 data. The data for 2010 is shown in Figure 3.2 RIFE 17

122, Section 4 Line 7, paragraph 1, first column should read...
An increase in the fish and crustacean consumption rates has been observed, together with a decrease in the mollusc and occupancy rates, in comparison with those of the previous survey reported in 2006.

RIFE-16
2010

Appendix 1, Annex 2 Table X2.2 Sellafield Group N winkle consumption should have said 15kg y⁻¹ (not 18 kg y⁻¹)

	Page, Section	Comment							
RIFE-17 2011	52, Section 2	On Figure 2.14 the year labels from 2004 to 2011 were underneath the bar chart incorrectly and should have been one place to the right, as shown in RIFE 18.							
	61, Section 2	Springfields ‘Source specific doses’ last entry on the table should read: ‘Consumers of locally grown food’ not ‘Infant consumers of locally grown food’							
	209, Section 9	Line 7, paragraph 7, should read: Tritium concentrations in the western English Channel were also very low (Figure 9.7).							
	240, Appendix 2	Third entry on the table – Capenhurst (Urenco UK) the discharge limits (annual equivalent) ^a Bq column should have read: <table border="1"> <tr> <td>Uranium</td> <td>7.50E+06</td> </tr> <tr> <td>Other Alpha</td> <td>2.40E+06</td> </tr> <tr> <td>Technetium-99</td> <td>1.00E+08</td> </tr> <tr> <td>Others</td> <td>2.25E+09</td> </tr> </table>	Uranium	7.50E+06	Other Alpha	2.40E+06	Technetium-99	1.00E+08	Others
Uranium	7.50E+06								
Other Alpha	2.40E+06								
Technetium-99	1.00E+08								
Others	2.25E+09								
RIFE-14-17 2011	CD, Appendix 1	Table X2.2 Sellafield Q – Ravenglass nature warden assessment, the ingestion and inhalation rates of sediment have been incorrect, they should have read: RIFE-14 3.1 10 ⁻³ kg y ⁻¹ mud by inadvertant ingestion 5.6 10 ⁻⁵ kg y ⁻¹ mud by resuspension and inhalation RIFE-15 3.4 10 ⁻³ kg y ⁻¹ mud by inadvertant ingestion 6.3 10 ⁻⁵ kg y ⁻¹ mud by resuspension and inhalation RIFE-16 3.4 10 ⁻³ kg y ⁻¹ mud by inadvertant ingestion 6.3 10 ⁻⁵ kg y ⁻¹ mud by resuspension and inhalation RIFE-17 3.4 10 ⁻³ kg y ⁻¹ mud by inadvertant ingestion 6.3 10 ⁻⁵ kg y ⁻¹ mud by resuspension and inhalation							
RIFE-18 2012	134, Table 4.1	Hinkley Point. These are small changes to the total dose and source specific dose shown below. The apply to relevant points of text, tables (S, 1.2, 1.3, 1.4 and 4.1) and figures (1.1, 4.1 and 6.2).							

Site	Exposed population ^a	Exposure, mSv per year					
		Total	Fish and shellfish	Other local food	External radiation from intertidal areas or the shoreline	Gaseous plume related pathways	Direct radiation from site
Total dose – all sources	Adult occupants over sediment	0.013	<0.005	<0.005	0.012	<0.005	<0.005
Source specific doses	Seafood consumers	0.018	<0.005	–	0.017	–	–

	Page, Section	Comment									
RIFE-18 2012	240, Appendix 2	Third entry on the table – Sellafield – the discharges during 2012 (Bq and % of annual limit) columns and should have read: <table border="1" style="margin-left: 40px;"> <tr> <td>Beta</td> <td>1.03E+09</td> <td>2.5</td> </tr> <tr> <td>Antimony-125</td> <td>3.20E+09</td> <td>11</td> </tr> <tr> <td>Caesium-137</td> <td>1.59E+08</td> <td>2.7</td> </tr> </table>	Beta	1.03E+09	2.5	Antimony-125	3.20E+09	11	Caesium-137	1.59E+08	2.7
	Beta	1.03E+09	2.5								
	Antimony-125	3.20E+09	11								
Caesium-137	1.59E+08	2.7									
41, Figure 2.3	The River Ribble houseboat dose rate datum for 2012 (figure 2.3, RIFE-18) was plotted incorrectly, it is shown corrected in Figure 2.4 in RIFE-19										
134, Table 2.18	Sellafield. These are small changes to the total dose shown below. They apply to relevant points of text, tables (1.2 and 2.18) and figure 2.6.										

Exposed population ^a	Exposure, mSv per year							
	Total	Seafood (nuclear industry discharges)	Seafood (other discharges)	Other local food	External radiation from intertidal areas, river banks or fishing gear	Intakes of sediment and water	Gaseous plume related pathways	Direct radiation from site
Total dose – maximum effect of gaseous release and direct radiation sources								
Infant root vegetable consumers	0.011	–	–	0.011	–	–	–	–

196, Table 7.7 Discharge data reported previous to RIFE-18 classified as Oil & Gas (Offshore) should have been classified as Oil & Gas (Onshore). This has been corrected for RIFE-18 onwards.

RIFE-19
2013 183, Table 6.1 Cardiff, these are small changes to the *total dose* and source-specific assessments shown below. They apply to relevant parts of text, tables (1.2B, 1.4 and 6.1) and figure (1.3)

Site	Exposed population ^a	Exposure, mSv per year					
		Total	Fish and shellfish	Other local food	External radiation from intertidal areas or the shoreline	Gaseous plume related pathways	Direct radiation from site
Total dose – liquid discharges	Adult occupants over sediment	0.006	<0.005	–	0.005	–	–
Source specific doses	Prenatal children of seafood consumers	0.009	<0.005	–	0.009	–	–

41, Figure 2.13 The cobalt-60 liquid discharge datum for 2013 (Figure 2.13, RIFE-19) was plotted incorrectly, it is shown corrected in Figure 2.13 in RIFE-20

247, Appendix A2.1 Chapelcross, replace All other nuclides limit of 7.50E+09 Bq with 5.15E+09 Bq

RIFE-19
2013

109, Figure 3.5 The discharge data for ⁶⁰Co and ¹³⁷Cs for 2013 (figure 3.5) were plotted incorrectly, they are shown corrected in Figure 3.5 in RIFE-20

232, Table 8.15 Eu-155 results have been revised

Location	Sample source	reported ¹⁵⁵ Eu	revised ¹⁵⁵ Eu
Firth of Clyde	East of Gull Point	<0.21	0.72
Firth of Clyde	SW of Lady Isle	<0.36	2.1
Firth of Clyde	East of Johnston's Point	<0.22	0.81
Firth of Clyde	East of Brodick	<0.39	1.8
Clyde Estuary	The Hole	<0.50	2.1
Clyde Estuary	Kempoch Point	<0.43	2.7

33, Table 1.2 Some data was missing from Table 1.2 C (electronic version only), revised table shown below.

Table 1.2. continued			
Site	Representative person ^a	Exposure, mSv	
		Total	Dominant contributions ^b
C All sources			
Aldermaston and Burghfield	Infant milk consumer	<0.005	Milk, ³ Hc, ¹³⁷ Cs ^c , ²³⁸ U
Amersham	Local adult inhabitant (0–0.25km)	0.22	Direct radiation
Barrow	Adult occupant on a houseboat	0.076	Gamma dose rate over sediment
Berkeley and Oldbury	Adult occupant over sediment	0.010	Gamma dose rate over sediment
Bradwell	Prenatal child of green vegetable consumers	<0.005	Green vegetables, potatoes, root vegetables, ¹⁴ C
Capenhurst	Local inhabitant aged 10y (0–0.25km)	0.080	Direct radiation
Cardiff	Infant milk consumer	0.010	Milk, ¹⁴ C, ³² Pc
Chapelcross	Infant milk consumer	0.024	Milk, ⁹⁰ Sr, ²⁴¹ Am ^c
Derby	Adult consumer of locally sourced water	<0.005	Water, ⁶⁰ Co ^c
Devonport	Adult fish consumer	<0.005	Fish, ¹⁴ C, ²⁴¹ Am ^c
Downreay	Adult green vegetable consumer	0.012	Domestic fruit, potatoes, root vegetables, ¹²⁹ Ic, ²³⁸ Pu ^c , ^{239/240} Pu, ²⁴¹ Am ^c
Dungeness	Local adult inhabitant (0.5–1km)	0.021	Direct radiation
Faslane	Adult occupant over sediment	<0.005	Gamma dose rate over sediment
Hartlepool	Local adult inhabitant (0–0.25km)	0.024	Direct radiation, gamma dose rate over sediment
Harwell	Prenatal child of local inhabitants (0–0.25km)	0.010	Direct radiation
Heysham	Adult mollusc consumer	0.028	Fish, gamma dose rate over sediment, molluscs, ¹³⁷ Cs, ^{239/240} Pu, ²⁴¹ Am
Hinkley Point	Adult occupant over sediment	0.022	Gamma dose rate over sediment
Hunterston	Prenatal child of local inhabitants (0.25–0.5km)	0.021	Direct radiation
LLWR near Drigg ^e	Adult fish consumer	0.061 ^f	Crustaceans, fish, gamma dose rate over sediment, ¹²⁹ Ic, ²¹⁰ Po
Rosyth	Adult occupant over sediment	<0.005	Gamma dose rate over sediment
Sellafield ^{e,g}	Adult occupant on a houseboat	0.076	Gamma dose rate over sediment
Sizewell	Local adult inhabitant (0–0.25km)	0.021	Direct radiation
Springfields	Adult occupant on a houseboat	0.060	Gamma dose rate over sediment
Torness	Local adult inhabitant (0.5–1km)	0.020	Direct radiation
Trawsfynydd	Infant local inhabitant (0.25–0.5km)	0.017	Milk, ¹⁴ C, ²⁴¹ Am
Whitehaven ^e	Adult fish consumer	0.061 ^f	Crustaceans, fish, gamma dose rate over sediment, ¹²⁹ Ic, ²¹⁰ Po
Winfrith	Infant milk consumer	<0.005	Milk, ¹⁴ C
Wylfa	Adult occupant over sediment	<0.005	Gamma dose rate over sediment

^a Selected on the basis of providing the highest dose from the pathways associated with the sources as defined in A, B or C

^b Pathways and radionuclides that contribute more than 10% of the total dose. Some radionuclides are reported as being at the limits of detection and based on these measurements, an upper estimate of dose is calculated

^c The assessed contribution is based on data being wholly at limits of detection

^d The effects of gaseous discharges and direct radiation are not assessed for this site

^e The effects of liquid discharges from Sellafield, Whitehaven and LLWR near Drigg are considered together when assessing exposures at these sites because their effects are manifested in a common area of the Cumbrian coast

^f The doses from man-made and naturally occurring radionuclides were 0.040 and 0.021 mSv respectively. The source of naturally occurring radionuclides was a phosphate processing works near Sellafield at Whitehaven. Minor discharges of radionuclides were also made from the LLWR near Drigg into the same area

^g The highest exposure due to operations at Sellafield was to a person living on a houseboat near Barrow

	Page, Section	Comment
RIFE-20 2014	201, Table 8.1	Iodine-129 data were entered incorrectly and should be removed with the exception of Alderney <i>Fucus vesiculosus</i> which was undertaken by radiochemistry. All other results reported as ¹²⁹ I were actually ¹³¹ I.
RIFE-17-20 2014	86, Table 2.11	The units of Mean beta dose rate in tissue should read uSvh ⁻¹
RIFE-21 2016	Page 44, Section 2	The two sentences starting “During the financial year...”, should be replaced with “During the financial year, 2015/16, 460 tonnes of spent oxide fuel was reprocessed in THORP, compared with an original target of 435 tonnes, and the highest reprocessing throughput since NDA too ownership of the site. The reprocessing of spent Magnox fuel for 2015/16 was a total of 390 tonnes of fuel, compared with an original performance target of 477 tonnes.” The footnote is not correct and no longer applies.
	Page 50, Figure 2.8	The carbon-14, strontium-90 and caesium-137 discharge data for 2015 (figure 2.8) were plotted incorrectly, it is shown corrected in Figure 2.9 in RIFE-22.
	Page 98, Section 3.2	Replace Iodine-125 with iodine-131 (twice).
	Page 143, Table 4.9(a)	The concentration of plutonium-239+240 in sediment (pipeline) was 109 Bq kg ⁻¹ .
	Page 161, Table 5.1	Devonport, the total dose of breakdown of “External radiation from intertidal areas or river banks” in the table should read <0.005, the table should read.

Site	Representative person ^{a,b}	Exposure, mSv per year					
		Total	Fish and shellfish	Other local food	External radiation from intertidal areas, river banks or fishing gear	Intakes of sediment and water	Gaseous plume related pathways
Devonport							
Total dose – all sources	Adult fish consumers	<0.005	<0.005	–	<0.005	–	–

Previous
RIFE reports

Gaseous discharges of krypton-85 from Dounreay Fast Reactor

In May 2016, DSRL notified SEPA of the identification of the release of unmonitored krypton-85 gaseous discharges through the authorised discharge outlet at the DFR facility (see table A2.5 RIFE-22 for more detail). The krypton-85 discharge data have been revised and are presented below.

Year	Revised Discharge (Bq)	Revised % of annual limit
1995	1.46E+08	37
1996	1.47E+08	37
1997	1.25E+08	31
1998	1.25E+08	31
1999	1.25E+08	31
2000	1.26E+08	31
2001	1.25E+08	31
2002	5.31E+08	130
2003	3.57E+08	89
2004	8.35E+07	21
2005	2.37E+07	5.9
2006	2.37E+07	5.9
2007	2.55E+07	6.4
2008	3.04E+07	7.6
2009	3.61E+07	9.0
2010	5.89E+07	15
2011	9.29E+07	23
2012	9.68E+07	24
2013	1.07E+09	270
Discharge authorisation revised 2014		
2014	2.58E+08	<1
2015	7.92E+08	<1

Previous
RIFE reports
(RIFE 2–12
inclusive)

Gaseous Discharges of Alpha and Beta at Sellafield

The published gaseous discharges of alpha and beta at Sellafield in the years, 1996, 1998-2001 and 2005-6 were reported incorrectly. The revised data is given below, the % of annual limit for Alpha in 1997 should read 12% (not 1.2%).

Year	Alpha (Bq)	% of annual Limit	Beta (Bq)	% of annual Limit
1996	1.80E+08	11	3.40E+09	7.1
1998	8.20E+07	4.8	1.60E+09	3.3
1999	1.70E+08	10	2.20E+09	4.6
2000	9.00E+07	5.3	1.10E+09	2.3
2001	7.20E+07	3.7	9.70E+08	<1
2005	8.90E+07	10	1.70E+09	4.0
2006	1.10E+08	13	2.00E+09	4.8

Previous
RIFE reports
(RIFE 19–21
inclusive)

Table A2.1

Gaseous discharges from Chapelcross

Replace the Tritium and all other radionuclides discharge limits with 7.50E+14 and 2.50E+09, respectively. The authorisation was revised 1 May 2013.