**SITE** Dounreay

SITE OWNER Nuclear Decommissioning Authority

WASTE CUSTODIAN Dounreay Site Restoration Limited

WASTE TYPE LLW

Is the waste subject to

Scottish Policy:

No

**WASTE VOLUMES** 

		reported
Stocks:	At 1.4.2022	0 m³
Future arisings -	1.4.2022 - 31.3.2023	116.2 m³
	1.4.2023 - 31.3.2024	116.2 m³
	1.4.2024 - 31.3.2025	116.6 m <sup>3</sup>
	1.4.2025 - 31.3.2026	116.2 m³
	1.4.2026 - 31.3.2027	136.8 m³
	1.4.2027 - 31.3.2028	444.1 m <sup>3</sup>
Total future arisings:		1046.1 m <sup>3</sup>
Total waste volume:		1046.1 m <sup>3</sup>

Comment on volumes: Arisings are dependent on the decommissioning programme and have been revised in line

with the Predictive Waste Inventory walk round exercise. Stocks have been removed; these will be captured under 5B15 and 5B16. It should be noted that DSRL are currently using a

Reported

provisional site programme and future arisings dates are subject to change.

Uncertainty factors on Stock (upper): x Arisings (upper) x 1.2

volumes: Stock (lower): x Arisings (lower) x 0.8

WASTE SOURCE Decommissioning of PIE facility.

#### PHYSICAL CHARACTERISTICS

General description: Metallic cell waste, concrete and rubble. Items will be size reduced where practicable

during decommissioning.

Physical components (%vol): Asbestos (1.43%), Asphalt (2.66%), Cementitious material (e.g. concrete) (30.02%),

Copper (2.26%), Fibreglass (4.11%), Glass (0.09%), Gypsum Plasterboard/Fibreboard (0.67%), Iron (0.08%), Lead (0.02%), Mild Steel (20.87%), Other (1.61%), Other organics (0.05%), Paper (7.58%), Plastic (21.26%), Rubber (2.43%), Wood/ Wood composite

(4.62%), Paper / Cardboard (0.23%),

Sealed sources: The waste does not contain sealed sources.

Bulk density (t/m³): 0.32

Comment on density: The Bulk Density is based on consignor's records; D3100 Disposed Inventory Report 2020

#### **CHEMICAL COMPOSITION**

General description and

components (%wt):

Asbestos (1.12%), Asphalt (1.91%), Cementitious material (e.g. concrete) (23.06%), Copper (6.49%), Fibreglass (3.45%), Glass (0.07%), Gypsum Plasterboard/Fibreboard (0.14%), Iron (0.21%), Lead (0.09%), Mild Steel (52.50%), Other (0.52%), Other organics (0.02%), Paper (1.94%), Plastic (6.26%), Rubber (1.19%), Wood/ Wood composite

(1.05%),

Chemical state: Neutral

Chemical form of CI-36: Not likely to be present. radionuclides: I-129: Not likely to be present.

U: Likely to be present as oxides.
Pu: Likely to be present as oxides.

Metals and alloys (%wt): Metals are likely to be mostly present as sheet metal.

	(%wt)	Type(s) / Grade(s) with proportions	% of total C14 activity
Stainless steel		assumed M316	dolivity
Other ferrous metals	52.5	mild steel	
Iron	0.21		
Aluminium			
Beryllium	NE		
Cobalt	NE		
Copper	6.5		
Lead	0.09		
Magnox/Magnesium	. NE		
Nickel	NE		
Titanium			
Uranium	Р		
Zinc	NE		
Zircaloy/Zirconium	NE		
Other metals	0.52	others	
Organics (%wt): Organic materials m	nay be pre	sent in small quantities.	
	(%wt)	Type(s) and comment	% of total C14
Total cellulosics	3.0		activity
Paper, cotton	1.9		
Wood	1.1		
Halogenated plastics	4.0		
Total non-halogenated plastics	2.3		
Condensation polymers	NE		
Others	NE		
Organic ion exchange materials	0		
Total rubber	1.2		
Halogenated rubber	0.60		
Non-halogenated rubber	0.59		
Hydrocarbons	1.9		
Oil or grease			
Fuel			
Asphalt/Tarmac (cont.coal tar)	1.9		
Asphalt/Tarmac (no coal tar)			
Bitumen			
Others			
Other organics	0.14	Plasterboard + others. Adjusted to get 100%	

Other materials (%wt):

#### **WASTE STREAM** PIE Facility LLW 5B339

		(%wt)	Type(s) and comment	% of total C14 activity
	Inorganic ion exchange materials	0		
	Inorganic sludges and flocs	0		
	Soil	0		
	Brick/Stone/Rubble			
	Cementitious material	23.1		
	Sand			
	Glass/Ceramics	3.5	Fibreglass + glass	
	Graphite	0		
	Desiccants/Catalysts	0		
	Asbestos	1.1		
	Non/low friable			
	Moderately friable			
	Highly friable			
	Free aqueous liquids	0		
	Free non-aqueous liquids	0		
	Powder/Ash	0		
Inorganic anic	ons (%wt): Inorganic anions ma	ay be prese	ent in trace quantities.	
		(%wt)	Type(s) and comment	
	Fluoride	NE		
	Chloride	NE		
	lodide	NE		
	Cyanide	0		
	Carbonate	NE		
	Nitrate	NE		
	Nitrite	NE		
	Phosphate	NE		
	Sulphate	NE		
	Sulphide	NE		
Materials of ir waste accept		s unlikely t	o be present in significant quantities.	
		(%wt)	Type(s) and comment	
	Combustible metals	0		
	Low flash point liquids	0		
	Explosive materials	0		
	Phosphorus	0		
	Hydrides	0		
	Biological etc. materials	0		
	Biodegradable materials	0		
	Putrescible wastes	0		

Non-putrescible wastes.....

Corrosive materials	0
Pyrophoric materials	0
Generating toxic gases	0
Reacting with water	0
Higher activity particles	NE
Soluble solids as bulk chemical compounds	0

Hazardous substances / non hazardous pollutants:

Toxic metals unlikely to be present in significant quantities.

οι	is pollutants:	10 20 p.00	on in organical quality
		(%wt)	Type(s) and comment
	Acrylamide		
	Benzene	NE	
	Chlorinated solvents		
	Formaldehyde		
	Organometallics		
	Phenol	NE	
	Styrene		
	Tri-butyl phosphate	NE	
	Other organophosphates		
	Vinyl chloride	NE	
	Arsenic	NE	
	Barium		
	Boron	NE	
	Boron (in Boral)		
	Boron (non-Boral)		
	Cadmium	NE	
	Caesium		
	Selenium	NE	
	Chromium	NE	
	Molybdenum	NE	
	Thallium		
	Tin	NE	
	Vanadium	NE	
	Mercury compounds		
	Others	NE	
	Electronic Electrical Equipment (EEE)		
	EEE Type 1	~40.0	
	EEE Type 2		
	EEE Type 3		
	EEE Type 4		
	EEE Type 5		

Complexing agents (%wt):	Not yet determined				
		(%wt)	Type(s) and com	ment	
EDTA					
DPTA					
NTA					
Polycarboxylic	acids				
Other organic of	complexants				
Total complexi	ng agents	NE			
Potential for the waste to contain discrete items:  TREATMENT, PACKAGING	Yes. There is the p durable engineered AND DISPOSAL				nand tools;
Planned on-site / off-site treatment(s):	Treatment			On-site / Off site	Stream volume %
	Low force compacti Supercompaction (I			On-site	51.0

Comment on planned treatments:

Uncompacted drums will be supercompacted before being placed in HHISOs. The waste will be encapsulated before final disposal. DSRL has begun trialling alternative waste treatment routes in particular Metal Treatment. These opportunities, however, are not yet fully established waste routes.

## **Disposal Routes:**

Disposal Route	Stream volume %	Disposal density t/m3
Expected to be consigned to the LLW Repository Expected to be consigned to a Landfill Facility Expected to be consigned to an On-Site Disposal Facility Expected to be consigned to an Incineration Facility Expected to be consigned to a Metal Treatment Facility Expected to be consigned as Out of Scope Expected to be recycled / reused Disposal route not known	100.0	~1.8

Classification codes for waste expected to be consigned to a landfill facility:

### Upcoming (2022/23-2024/25) Waste Routing (if expected to change from above):

Recyling / reuse Other / various

None

Disposal Route	Stream volume %			
Disposal Notice	2022/23	2023/24	2024/25	
Expected to be consigned to the LLW Repository Expected to be consigned to a Landfill Facility Expected to be consigned to an On-Site Disposal Facility Expected to be consigned to an Incineration Facility Expected to be consigned to a Metal Treatment Facility Expected to be consigned as Out of Scope Expected to be recycled / reused Disposal route not known				

Opportunities for alternative disposal routing: Yes

Baseline Management Route	Opportunity Management Route	Stream volume (%)	Estimated Date that Opportunity will be realised	Opportunity Confidence	Comment
Onsite disposal	Incineration	~44.0	-	Low	This opportunity is still at an early stage of development. A small scale trial is expected to take place in FY22/23. The timing is dependent on the non-containerised waste tasks which will generate the wastes.
Onsite disposal	Metal treatment	~9.0	2022	High	Trial is currently underway to open the Metal Treatment Route

#### **Waste Packaging for Disposal:**

Container	Stream volume %	Waste loading m <sup>3</sup>	Number of packages
1/3 Height IP-1 ISO 2/3 Height IP-2 ISO 1/2 Height WAMAC IP-2 ISO 1/2 Height IP-2 Disposal/Re-usable ISO 2m box (no shielding) 4m box (no shielding) Other	100.0	13	81

Other information:

There is an opportunity that when the facility's cell blocks are decommissioned their waste category may change to Demolition LLW and as such, would not be disposed in containers, but as blocks. The waste will consist of large uncompactable items and 200 litre drums that have already been compacted. The waste will be loaded into an alternative non-IP2 rated LLW Disposal HHISO for transfer to the DSRL LLW Disposal Facility. Each HHISO may have LLW items from other wastestreams in the final HHISO.

Waste Planned for Disposal at the LLW Repository: (Not applicable to this waste stream)

Container voidage:

Waste Characterisation

Form (WCH):

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Waste consigned for disposal to LLWR in year of generation:

Non-Containerised Waste for In-Vault Grouting: (Not applicable to this waste stream)

Stream volume (%):

Waste stream variation: -

Bounding cuboidal volume:

Inaccessible voidage: -

Other information:

#### **RADIOACTIVITY**

Source: The north cell has handled PFR wrapper sections and other materials which contain cobalt

60 from irradiation in PFR. Analysis of samples from the cells in 2005 indicated a low percentage of a activity and significant quantities of europium radionuclides. These europium radionuclides are the result of destructive examination of capsules containing europium hexaboride after irradiation in DFR. The south cell has handled DFR breeder elements with the dominant beta/gamma radionuclides being caesium 137 and strontium

90. All other radionuclides are expected to be negligible by comparison.

Uncertainty: The estimates are within a factor of ten.

Definition of total alpha and total beta/gamma:

Where totals are shown on the table of radionuclide activities they are the sums of the listed alpha or beta/gamma emitting radionuclides plus 'other alpha' or 'other beta/gamma'.

Measurement of radioactivities:

The activity is taken from waste consignor's declarations.

Other information: Specific Activity from UKRWI 2019 decayed to 2022

Nuclide		N	lean radioac	tivity, TBq/m³				Mean radioa	ctivity, TBq/m <sup>3</sup>	
Be 10	Nuclide					Nuclide				Bands and Code
C 14	H 3					Gd 153				
Na 22	Be 10					Ho 163				
A128	C 14					Ho 166m				
C136	Na 22					Tm 170				
C136										
A 739 A 742 K 40 C 24 1 Mn 53 Mn 54 PF 255 C 0 60 Mn 57 Ni 63 S 79 Ni 63 S 87 9 Ni 63 N 7 9 S 79 9 S 70 9 S										
A-42   A-42   A-42   A-42   A-42   A-42   A-43   A-42   A-44   A-45										
K-40   Ca 41   Mn 53   Mn 54   Mn 54   Mn 55   Mn 54   Mn 55   Mn 54   Mn 54   Mn 55   Mn 54   Mn 54   Mn 55   Mn 56   Mn 57   Mn 58   Mn 59										
Ca 41										
Mn 53										
Mn 54										
Fe 55										
Co   Co   Co   Co   Co   Co   Co   Co										
Ni 59 Ni 63 Zi 65 Se 79 Kr 81 Kr 85 Rb 87 Sr 90 Se 79				1.30F-05	CC 2					
Ni 63					00 2					
Zn 65   Se 79   Ra 223   Ra 225   Ra 226   Ra 226   Ra 226   Ra 226   Ra 226   Ra 228   Ra										
Se 79   Kr 81   Kr 85   Ra 225   Ra 226   Ra 228   Ra 2										
Kr 81   Kr 85   R8 67   R8 226   R8 228   R8 67   R9 67   R9 90   R9 227   R1 227   R1 227   R1 228   R1 229   R1 230										
RR 228										
Rb 87   Sr 90   CC 2   Th 227   Th 228   Th 229   Th 230   Th 232   Th 230   Th 232   Th 234   Th 235   Tc 97   Tc 97   Tc 97   Tc 97   Td 232   Td 233   U 234   U 234   U 235   Td 246   Td										
Sr 90   27 93   Nb 91										
Th 228				6 99F-05	CC 2					
Nb 91				0.552 05	00 2					
Nb 92 Nb 93m Nb 94 Mo 93 Tc 97 Tc 99 Ru 106 Pd 107 Ag 108m Sn 121m Sn 121m Sn 121m Sn 121a Sn 126 Sb 125 Sb 126 Tb 125m Tc 125m Tc 127m Tc 127										
Nb 93m Nb 94 Mo 93 Tc 97 Tc 99 Ru 106 Pd 107 Ag 108m Ag 110m Cd 119m Sn 119m Sn 121m Sn 121m Sn 126 Sb 125 Sb 126 Sb 126 Sb 125 Sb 126 Te 125m Te 127m Te 127m I 129 Cd 133 Cd 133 Cd 134 Cd 135 Cd 135 Cd 135 Cd 135 Cd 136 Cd 144 Pm 145 Pm 147 Sm 151 Eu 152 Eu 154 Eu 152 Eu 154  Pu 254 Th 232 Th 2										
Nb 94   Mo 93										
No 93   To 97   Pa 231   Pa 233   Pa 239   Pa 231   Pa 233   U 232   U 233   U 233   U 234   U 234   U 235   U 236   U 241   U 241   U 246   U 248										
Tc 97 Tc 99 Ru 106 Pd 107 Ag 108m Ag 110m Cd 113m Sn 119m Sn 121 Sn 128 Sh 126 Te 125m Te 127m I 129 Cs 134 Cs 135 Cs 137 Sc 134 Cs 137 Ba 133 La 137 La 138 Ce 144 Pm 145 Pm 147 Sm 151 Eu 152 Pm 147 Sm 151 Eu 152 Fu 154 Fu 152 Fu 154 Fu 152 Fu 152 Fu 154 Fu 152 Fu 152 Fu 154 Fu 152 Fu 154 Fu 152 Fu 154 Fu 152 Fu 152 Fu 154 Fu 152 Fu 154 Fu 152										
Tc 99 Ru 106 Pd 107 Ag 108m Ag 110m Cd 109 Cd 113m Sn 119m Sn 121m Sn 121m Sn 121m Sn 126 Sb 125 Sb 126 Te 125m Te 127m I 129 CS 134 CC 134 CC 137 Ba 133 La 137 La 138 CC 144 Pm 145 Pm 145 Pm 147 Sm 151 Eu 152 Eu 154    U 232 U 233 U 234 U 235 U 236 CC 2 U 238 CC 2 CC										
Ru 106 Pd 107 Ag 108m Ag 108m Ag 108m CC 2 Ag 110m Cd 113m Sn 119m Sn 121m Sn 123 Sn 126 Sb 126 Te 125m Te 127m Te 127m Te 127m Te 127m Te 127m Te 127m Te 133 Cs 133 Cs 133 Cs 133 Cs 133 Cs 137 Cs 138 Cc 137 Cs 138 Cc 137 Cs 138 Cc 144 Cp 143 Cs 138 Cc 144 Cp 143 Cc 144 Cp 144 Cp 145 Cp 146 Cp 144 Cp 145 Cp 146 Cp 144 Cp 145 Cp 146 Cp 147 Cp 1										
Pd 107 Ag 108m Ag 108m Ag 110m Cd 109 Cd 113m Sn 119m Sn 12tm Sn 12tm Sn 126 Sb 126 Te 125m Te 127m I 129 CS 134 CS 137 Ba 133 La 137 La 138 Ce 144 Pm 145 Pm 145 Pm 147 Sm 151 Eu 152 Eu 154										
Ag 108m       Ag 110m       1.27E-09       CC 2       2         Cd 109       U 236       U 238       4.21E-09       CC 2       2         Cd 113m       Np 237       Np 237       4.21E-09       CC 2       2         Sn 119m       Np 237       Pu 236       1.78E-08       CC 2       2         Sn 12m       Pu 238       1.78E-08       CC 2       2         Sn 12a       Pu 239       Pu 240       2.48E-07       CC 2       2         Sb 126       Pu 241       4.51E-07       CC 2       2         Sb 126       Pu 241       3.66E-08       CC 2       2         Te 127m       Pu 242       Am 241       3.66E-08       CC 2       2         Te 127m       I 129       Am 242       2.33E-11       CC 2       Cm 243       Cm 244       Cm 244       Cm 244       Cm 248       Cm 246       Cm 246       Cm 246       Cm 248       Cf 249       Cm 248       Cf 249       Cm 248       Cf 250       Cf 251       Cm 246       Cm 245       Cm 246									3.2F-08	CC 2
Ag 110m   Cd 109   Cd 109   U 238   U 236   U 238										
Cd 109   Cd 113m   Sn 119m   Sn 119m   Sn 123m   Pu 236   Pu 238   Pu 238   1.78E-08   CC 2 2 2 2 2 3										
Cd 113m   Sn 119m   Sn 121m   Pu 236   Pu 238   1.78E-08   CC 2									i	
Sn 119m   Sn 121m   Sn 121m   Sn 121m   Sn 126   Sn 126   Sn 126   Sn 126   Sn 126   Sn 126   Sn 125   Sn 126   Sn 125   Sn 126   Sn 125   Sn 126									4.216-09	00 2
Sn 121m						-				
Sn 123									1 705 00	CC 2
Sn 126   Sb 125   Sb 126   Pu 241   Pu 242   4.51E-07   CC 2     Sb 126   Pu 241   Pu 242   Am 241   Am 242m   Am 243     Cs 134   Cs 135   Cs 137   Sa 133   La 137   La 138   Ce 144   Pm 145   Pm 145   Pm 145   Pm 147   Sm 147   Sm 151   Eu 152   Eu 154   Eu 152   Eu 154   Pu 240   Pu 241   Pu 242   Am 241   Am 242m   Am 243   CC 2     Cm 240   Cm 243   Cm 244   Cm 245   Cm 246   Cm 248   Cf 249   Cf 250   Cf 251   Cf 252   Cm 147   Cf 252   Cm 148   Cf 2										
Sb 125   Sb 126   Te 125m   Te 127m   Te 129   Te 135   Te 135   Te 136   Te 127m   Te 129   Te 137   Te 138   Te 138   Te 138   Te 138   Te 144   Te 144   Te 145   Te 145   Te 145   Te 152   Te 152   Te 154   Te 151										
Sb 126   Te 125m   Te 127m   Te 127m   Te 127m   Te 129   Cs 134   Cs 135   Cs 137   Sa 133   Cm 242   Cm 243   Cm 244   Cm 245   Cm 246   Cm 246   Cm 248   Cf 249   Cf 250   Cf 250   Cf 251   Cf 252   Cm 147   Sm 147   Sm 147   Sm 151   Eu 152   Eu 154   Te 180   Te 180   CC 2   Total a   O										
Te 125m Te 127m I 129 Cs 134 Cs 135 Cs 137 Ba 133 La 137 La 138 Ce 144 Pm 145 Pm 145 Pm 147 Sm 147 Sm 151 Eu 152 Eu 154   Te 127m Am 242 Am 242 Am 242 Cc 2 Cm 243 Cc 2 Cm 244 Cm 245 Cm 246 Cm 248 Cf 249 Cf 250 Cf 251 Cf 252 Other a  1.80E-05 CC 2  Am 241 Am 242m Am 243 Cc 2 2.33E-11 CC 2 Cm 244 Cm 245 Cm 246 Cm 248 Cf 249 Cf 250 Cf 251 Cf 252 Other a  1.80E-05 CC 2  Total a  0  2.13E-06 CC 2									4.51E-U/	00 Z
Te 127m I 129 Cs 134 Cs 135 Cs 137 Ba 133 La 137 La 138 Ce 144 Pm 145 Pm 147 Sm 147 Sm 151 Eu 152 Eu 154  Am 242m Am 243 Cm 242 Cm 243 Cm 244 Cm 245 Cm 246 Cm 248 Cf 249 Cf 250 Cf 251 Cf 252 Other a Other b/g Eu 154  Am 242m Am 243 Cc 2 2.33E-11 CC 2 2 2.33E-11 CC 2 2 Cm 244 Cm 245 Cm 246 Cm 248 Cf 249 Cf 250 Cf 251 Ct 252 Other b/g Eu 154  0 2.33E-11 CC 2 2 3E-11 CC									2 665 00	CC 2
1 129									3.00E-U8	CC 2
Cs 134       Cs 135       Cm 242       2.33E-11       CC 2         Cs 137       Cm 243       Cm 243       Cm 244         Ba 133       Cm 245       Cm 246       Cm 248         Ce 144       Cm 248       Cf 249       Cf 250         Pm 147       Cf 250       Cf 251       Cf 252         Sm 147       Sm 151       Cf 252       Other a         Eu 152       1.80E-05       CC 2       Total a       0       2.13E-06       CC 2										
Cs 135 Cs 137 Ba 133 La 137 La 138 Ce 144 Pm 145 Pm 147 Sm 147 Sm 151 Eu 152 Eu 154  Cm 243 Cm 244 Cm 245 Cm 246 Cm 248 Cf 249 Cf 250 Cf 251 Cf 252 Other a Other b/g Eu 154  Cm 243 Cm 244 Cm 245 Cm 246 Cm 248 Cf 249 Cf 250 Cf 251 Cf 252 Other b/g Total a  0 2.13E-06 CC 2									2 225 44	00.0
Cs 137       Ba 133         La 137       Cm 245         La 138       Cm 248         Ce 144       Cm 248         Ce 144       Cf 249         Pm 145       Cf 250         Pm 147       Cf 251         Sm 147       Cf 252         Sm 151       Other a         Eu 152       1.80E-05       CC 2         Eu 154       Total a       0									∠.33E-11	UU 2
Ba 133 La 137 La 138 Ce 144 Pm 145 Pm 147 Sm 147 Sm 151 Eu 152 Eu 154 Cm 245 Cm 246 Cm 248 Cf 249 Cf 250 Cf 251 Cf 252 Other a Other b/g Eu 154 Other b/g Total a Other 245 Other 246 Cm 248 Cf 249 Cf 250 Cf 251 Cf 252 Other b/g Total a Other b/g Total a Other b/g Total a Other 245 Cm 245 Cm 245 Cm 246 Cm 248 Cf 249 Cf 250 Cf 251 Cf 252 Other a Other b/g Total a				5 37E 0F	CC 2					
La 137 La 138 Ce 144 Pm 145 Pm 147 Sm 147 Sm 151 Eu 152 Eu 154 Cm 246 Cm 248 Cf 249 Cf 250 Cf 251 Cf 252 Other a Other b/g Total a  0 2.13E-06 CC 2				3.37 E-03	00 2					
La 138 Ce 144 Pm 145 Pm 147 Sm 147 Sm 151 Eu 152 Eu 154 Cm 248 Cf 249 Cf 250 Cf 251 Cf 252 Other a Other b/g Total a Other b/g Total a Other 248 Cf 249 Cf 250 Cf 251 Cf 252 Other b/g Total a										
Ce 144       Pm 145       Cf 249       Cf 250         Pm 147       Cf 251       Cf 251         Sm 147       Cf 252       Cf 252         Sm 151       Cf 252       Other a         Eu 152       1.80E-05       CC 2       Other b/g         Eu 154       1.51E-05       CC 2       Total a       0       2.13E-06       CC 2										
Pm 145     Cf 250       Pm 147     Cf 251       Sm 147     Cf 252       Sm 151     Ct 252       Eu 152     1.80E-05     C C 2       Eu 154     0       2.13E-06     C C 2       2.13E-06     C C 2										
Pm 147       Cf 251         Sm 147       Cf 252         Sm 151       Other a         Eu 152       1.80E-05       CC 2         Eu 154       Other b/g         1.51E-05       CC 2         Total a       0         2.13E-06       CC 2										
Sm 147     Cf 252       Sm 151     Other a       Eu 152     1.80E-05     CC 2       Eu 154     0ther b/g       Total a     0       2.13E-06     CC 2										
Sm 151       Cther a         Eu 152       1.80E-05       C C 2         Eu 154       0ther b/g         Total a       0         2.13E-06       C C 2										
Eu 152       1.80E-05       CC 2       Other b/g         Eu 154       1.51E-05       CC 2       Total a       0       2.13E-06       CC 2										
Eu 154 1.51E-05 CC 2 Total a 0 2.13E-06 CC 2				4 005 05	00.5					
EU 100     1.2E-0/ CC 2   Total b/g   0   1.70F-04 CC 2										
	Eu 155	]		1.2E-07	CC 2	Total b/g	0		1.70E-04	CC 2

### Bands (Upper and Lower)

A a factor of 1.5 B a factor of 3 C a factor of 10 D a factor of 100

E a factor of 1000

Note: Bands quantify uncertainty in mean radioactivity.

#### Code

- 1 Measured activity
- 2 Derived activity (best estimate)
- 3 Derived activity (upper limit)
- 4 Not present
- 5 Present but not significant
- 6 Likely to be present but not assessed
- 7 Present in significant quantities but not determined 8 Not expected to be present in significant quantity