

| WASTE STREAM | 5B26 | LLLETP Sludge |
|--------------|------|---------------|
|--------------|------|---------------|

**SITE** Dounreay

**SITE OWNER** Nuclear Decommissioning Authority

**WASTE CUSTODIAN** Nuclear Restoration Services Ltd (NRS)

**WASTE TYPE** LLW

#### WASTE VOLUMES

|                        | Reported (m <sup>3</sup> ) | OR    | Conditioned (m <sup>3</sup> ) | Packaged (m <sup>3</sup> ) |
|------------------------|----------------------------|-------|-------------------------------|----------------------------|
| Stocks:                | At 1.4.2025                | 0     |                               |                            |
| Future arisings:       | 1.4.2025 - 31.3.2026       | = 1.0 |                               |                            |
|                        | 1.4.2026 - 31.3.2027       | = 1.0 |                               |                            |
|                        | 1.4.2027 - 31.3.2028       | = 1.0 |                               |                            |
|                        | 1.4.2028 - 31.3.2029       | = 1.0 |                               |                            |
|                        | 1.4.2029 - 31.3.2030       | = 1.0 |                               |                            |
|                        | 1.4.2030 - 31.3.2031       | = 1.0 |                               |                            |
|                        | 1.4.2031 - 31.3.2032       | = 1.0 |                               |                            |
|                        | 1.4.2032 - 31.3.2033       | = 1.0 |                               |                            |
|                        | 1.4.2033 - 31.3.2034       | = 1.0 |                               |                            |
|                        | 1.4.2034 - 31.3.2035       | = 1.0 |                               |                            |
|                        | 1.4.2035 - 31.3.2036       | = 1.0 |                               |                            |
|                        | 1.4.2036 - 31.3.2037       | = 1.0 |                               |                            |
|                        | 1.4.2037 - 31.3.2038       | = 1.0 |                               |                            |
|                        | 1.4.2038 - 31.3.2039       | = 1.0 |                               |                            |
|                        | 1.4.2039 - 31.3.2040       | = 1.0 |                               |                            |
|                        | 1.4.2040 - 31.3.2041       | = 1.0 |                               |                            |
|                        | 1.4.2041 - 31.3.2042       | = 1.0 |                               |                            |
|                        | 1.4.2042 - 31.3.2043       | = 1.0 |                               |                            |
|                        | 1.4.2043 - 31.3.2044       | = 1.0 |                               |                            |
|                        | 1.4.2044 - 31.3.2045       | = 1.0 |                               |                            |
|                        | 1.4.2045 - 31.3.2046       | = 1.0 |                               |                            |
|                        | 1.4.2046 - 31.3.2047       | = 1.0 |                               |                            |
|                        | 1.4.2047 - 31.3.2048       | = 1.0 |                               |                            |
|                        | 1.4.2048 - 31.3.2049       | = 1.0 |                               |                            |
|                        | 1.4.2049 - 31.3.2050       | = 1.0 |                               |                            |
|                        | 1.4.2050 - 31.3.2051       | = 1.0 |                               |                            |
|                        | 1.4.2051 - 31.3.2052       | = 1.0 |                               |                            |
|                        | 1.4.2052 - 31.3.2053       | = 1.0 |                               |                            |
|                        | 1.4.2053 - 31.3.2054       | = 1.0 |                               |                            |
|                        | 1.4.2054 - 31.3.2055       | = 1.0 |                               |                            |
|                        | 1.4.2055 - 31.3.2056       | = 1.0 |                               |                            |
|                        | 1.4.2056 - 31.3.2057       | = 1.0 |                               |                            |
|                        | 1.4.2057 - 31.3.2058       | = 1.0 |                               |                            |
|                        | 1.4.2058 - 31.3.2059       | = 1.0 |                               |                            |
|                        | 1.4.2059 - 31.3.2060       | = 1.0 |                               |                            |
|                        | 1.4.2060 - 31.3.2061       | = 1.0 |                               |                            |
|                        | 1.4.2061 - 31.3.2062       | = 1.0 |                               |                            |
|                        | 1.4.2062 - 31.3.2063       | = 1.0 |                               |                            |
|                        | 1.4.2063 - 31.3.2064       | = 1.0 |                               |                            |
|                        | 1.4.2064 - 31.3.2065       | = 0.1 |                               |                            |
| Total future arisings: | 40.0                       |       |                               |                            |
| Total waste volume:    | 40.0                       |       |                               |                            |

Number of waste packages in stock: At 1.4.2025..... - packages

Comment on arising rates: Arisings are based on the current assumption that the facility will generate 1 m<sup>3</sup> sludge per year. Programme is based on Dounreay Life Time Plan generated in December 2023.

Additional information on quantities: Operational experience suggests that arisings will be around 1 m<sup>3</sup> per year however there is scope for this rate to increase.

Uncertainty factors on volumes: Stock (upper): x - Arisings (upper): x 1.20  
Stock (lower): x - Arisings (lower): x 0.80

**WASTE SOURCE** This waste stream consists of sludges which will be produced as a result of operations in the Low Level Liquid Effluent Treatment Plant (LLLETP) at Dounreay. The sludges themselves will consist of a mixture of ferric and aluminium hydroxides.

#### PHYSICAL CHARACTERISTICS

General description: The waste is a watery sludge.

Changes since waste generated: -

Bulk density (t/m<sup>3</sup>): ~ 1.2

Comment on density: Based on actual data from Dounreay Waste consignment system. Data considered acceptable for 2025 submission.

## CHEMICAL COMPOSITION

General description and components (%wt): The waste consists of ferric/aluminium hydroxide sludge.

Chemical state: Alkali

Sheet metal proportion / thickness: -

Metals and alloys (%wt):

|                           | (%wt) | Type(s) / Grades(s) with proportions | % of total C14 activity |
|---------------------------|-------|--------------------------------------|-------------------------|
| Stainless steel.....      | = 0   | -                                    |                         |
| Other ferrous metals..... | = 0   | -                                    |                         |
| Iron.....                 | = 0   | -                                    |                         |
| Aluminium.....            | = 0   | -                                    |                         |
| Beryllium.....            | = 0   | -                                    |                         |
| Cobalt.....               | = 0   | -                                    |                         |
| Copper.....               | = 0   | -                                    |                         |
| Lead.....                 | = 0   | -                                    |                         |
| Magnox/Magnesium.....     | = 0   | -                                    |                         |
| Nickel.....               | = 0   | -                                    |                         |
| Titanium.....             | = 0   | -                                    |                         |
| Uranium.....              | = 0   | -                                    |                         |
| Zinc.....                 | = 0   | -                                    |                         |
| Zircaloy/Zirconium.....   | = 0   | -                                    |                         |
| Other metals.....         | = 0   | -                                    |                         |

Organics (%wt):

|                                     | (%wt) | Type(s) and comment | % of total C14 activity |
|-------------------------------------|-------|---------------------|-------------------------|
| Total cellulose.....                | = 0   | -                   |                         |
| Paper, cotton.....                  | = 0   | -                   |                         |
| Wood.....                           | = 0   | -                   |                         |
| Halogenated plastics.....           | = 0   | -                   |                         |
| Total non-halogenated plastics..... | = 0   | -                   |                         |
| Condensation polymers.....          | = 0   | -                   |                         |
| Others.....                         | = 0   | -                   |                         |
| Organic ion exchange materials..... | = 0   | -                   |                         |
| Total rubber.....                   | = 0   | -                   |                         |
| Halogenated rubber.....             | = 0   | -                   |                         |
| Non-halogenated rubber.....         | = 0   | -                   |                         |
| Hydrocarbons.....                   | = 0   | -                   |                         |
| Oil or grease.....                  | = 0   | -                   |                         |
| Fuel.....                           | = 0   | -                   |                         |
| Asphalt/Tarmac (cont.coal tar)..... | = 0   | -                   |                         |
| Asphalt/Tarmac (no coal tar).....   | = 0   | -                   |                         |
| Bitumen.....                        | = 0   | -                   |                         |
| Others.....                         | = 0   | -                   |                         |
| Other organics.....                 | = 0   | -                   |                         |

Other materials (%wt):

|                                       | (%wt)   | Type(s) and comment | % of total C14 activity |
|---------------------------------------|---------|---------------------|-------------------------|
| Inorganic ion exchange materials..... | = 0     | -                   |                         |
| Inorganic sludges and flocs.....      | = 100.0 | -                   |                         |
| Soil.....                             | = 0     | -                   |                         |
| Brick/Stone/Rubble.....               | = 0     | -                   |                         |
| Cementitious material.....            | = 0     | -                   |                         |
| Sand.....                             | = 0     | -                   |                         |
| Glass/Ceramics.....                   | = 0     | -                   |                         |
| Graphite.....                         | = 0     | -                   |                         |
| Desiccants/Catalysts.....             | = 0     | -                   |                         |
| Asbestos.....                         | = 0     | -                   |                         |
| Non/low friable.....                  | = 0     | -                   |                         |
| Moderately friable.....               | = 0     | -                   |                         |
| Highly friable.....                   | = 0     | -                   |                         |
| Free aqueous liquids.....             | P       | -                   |                         |
| Free non-aqueous liquids.....         | = 0     | -                   |                         |
| Powder/Ash.....                       | = 0     | -                   |                         |

# COMPONENTS OF MATERIALS, WASTE PROPERTIES, MATERIALS NOT CONTRIBUTING TO MASS

Inorganic anions (%wt):

|                | (%wt) | Type(s) and comment |
|----------------|-------|---------------------|
| Fluoride.....  | = 0   | -                   |
| Chloride.....  | NE    | -                   |
| Iodide.....    | NE    | -                   |
| Cyanide.....   | -     | -                   |
| Carbonate..... | NE    | -                   |
| Nitrate.....   | NE    | -                   |
| Nitrite.....   | = 0   | -                   |
| Phosphate..... | NE    | -                   |
| Sulphate.....  | NE    | -                   |
| Sulphide.....  | NE    | -                   |

Materials of interest for waste acceptance criteria:

|                                                | (%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.....                 | = 0   | -                   |
| Soluble solids as bulk chemical compounds..... | = 0   | -                   |

Hazardous substances / non hazardous pollutants:

|                             | (%wt) | Type(s) and comment |
|-----------------------------|-------|---------------------|
| Acrylamide.....             | -     | -                   |
| Benzene.....                | -     | -                   |
| Chlorinated solvents.....   | -     | -                   |
| Formaldehyde.....           | -     | -                   |
| Organometallics.....        | -     | -                   |
| Phenol.....                 | -     | -                   |
| Styrene.....                | -     | -                   |
| Tri-butyl phosphate.....    | -     | -                   |
| Other organophosphates..... | -     | -                   |
| Vinyl chloride.....         | -     | -                   |
| Arsenic.....                | -     | -                   |
| Barium.....                 | -     | -                   |
| Boron.....                  | -     | -                   |
| Boron (in Boral).....       | -     | -                   |
| Boron (non-Boral).....      | -     | -                   |
| Cadmium.....                | -     | -                   |
| Caesium.....                | -     | -                   |
| Selenium.....               | -     | -                   |
| Chromium.....               | -     | -                   |
| Molybdenum.....             | -     | -                   |
| Thallium.....               | -     | -                   |
| Tin.....                    | -     | -                   |
| Vanadium.....               | -     | -                   |
| Mercury compounds.....      | -     | -                   |
| Others.....                 | -     | -                   |

Complexing agents (%wt):

|                                | (%wt) | Type(s) and comment |
|--------------------------------|-------|---------------------|
| EDTA.....                      | = 0   | -                   |
| DPTA.....                      | = 0   | -                   |
| NTA.....                       | = 0   | -                   |
| Polycarboxylic acids.....      | = 0   | -                   |
| Other organic complexants..... | = 0   | -                   |
| Total complexing agents.....   | = 0   | -                   |

Physical components:

|                                         | Number | Type(s) and comment |
|-----------------------------------------|--------|---------------------|
| Sources.....                            | = 0    | -                   |
| Electronic & Electrical Equipment (EEE) | -      | -                   |
| EEE Type 1.....                         | 0      | -                   |
| EEE Type 2.....                         | 0      | -                   |
| EEE Type 3.....                         | 0      | -                   |
| EEE Type 4.....                         | 0      | -                   |
| EEE Type 5.....                         | 0      | -                   |

## TREATMENT, PACKAGING AND DISPOSAL

Planned on-site / off-site treatment(s):

| Treatment                                                  | On-site / Off-site | Stream volume % |
|------------------------------------------------------------|--------------------|-----------------|
| Size reduction                                             | On-site            | = 100.0         |
| Decay storage                                              |                    |                 |
| Low force compaction                                       |                    |                 |
| Supercompaction (HFC)                                      |                    |                 |
| Incineration                                               |                    |                 |
| Drying/dewatering/liquid separation                        |                    |                 |
| Tie down/fixatives/strippable coating/painting application |                    |                 |
| Decontamination                                            |                    |                 |
| Metal treatment                                            |                    |                 |
| Recycling / reuse                                          |                    |                 |
| Thermal treatment, including vitrification                 | On-site            | = 100.0         |
| Encapsulation                                              |                    |                 |
| Polymer encapsulation                                      |                    |                 |
| Other physical treatment                                   |                    |                 |
| Other chemical treatment                                   |                    |                 |
| Containerisation                                           |                    |                 |
| Treatment not yet determined                               |                    |                 |
| None                                                       |                    |                 |

Comments on planned treatments:

LLLETP sludge is expected to be produced at a sludge concentration of up to 50g/l. This is expected to be dewatered to a sludge concentration of around 300g/l. Sludge is cemented into 200 litre lost paddle product drums using 3:1 PFA/OPC grout and approx. 40% volume sludge loading. The waste will be encapsulated in HHISOs before final disposal.

Conditioning method:

LLLETP sludge is expected to be produced at a sludge concentration of up to 50g/l. This is expected to be dewatered to a sludge concentration of around 300g/l. Sludge is cemented into 200 litre lost paddle product drums using 3:1 PFA/OPC grout and approx. 40% volume sludge loading. Uncompacted drums will be supercompacted before being placed in HHISOs. The waste will be encapsulated before final disposal.

Conditioning plants:

| Plant Name | Location |
|------------|----------|
|            |          |

Likely conditioning matrix:

Non-standard

Further information on the conditioning matrix:

OPC instead of BFS. 42% water and plasticiser.

### Waste Packaging:

Likely container type:

| Container                            | Waste packaged (vol%) | Waste loading (m³) | Payload (m³) | Number of packages | Estimated start date for packaging |
|--------------------------------------|-----------------------|--------------------|--------------|--------------------|------------------------------------|
| Non IP-2 rated 1/2 Height ISO (DC02) | 100.0                 | 3.6                | 15.6         | 11                 | -                                  |

Range in container waste loading:

Other information on packaging and conditioning:

The waste will consist of 200 litre drums of cemented sludge which will be un-compactable and loaded into alternative non-IP2 rated LLW Disposal HHISO for transfer to the DSRL LLW Disposal Facility. Each HHISO may have other LLW items in the final HHISO.

Conditioned density (t/m³):

~ 1.7

Conditioned density comment:

-

### Management Routes:

| Disposal Route                                                                     | Stream volume % | Raw density t/m³ | Start date |
|------------------------------------------------------------------------------------|-----------------|------------------|------------|
| Expected to be consigned to a Near Site, Near Surface Disposal Facility (Scotland) | = 100.0         | ~ 1.7            |            |
| Expected to be Non-NSD HAW managed under Scottish Government's policy              |                 |                  |            |
| Expected to be disposed to LLW Vaults NRS Dounreay                                 |                 |                  |            |
| Expected to be consigned to the Geological Disposal Facility                       |                 |                  |            |
| Expected to be consigned to a Near Surface Disposal Facility                       |                 |                  |            |
| Expected to be consigned to the LLW Repository                                     |                 |                  |            |
| Expected to be consigned to a Landfill Facility                                    |                 |                  |            |
| Expected to be disposed On-Site                                                    |                 |                  |            |
| Expected to be managed by In-Situ Disposal                                         |                 |                  |            |
| Expected to be consigned to an Incineration Facility                               |                 |                  |            |
| Expected to be consigned to a Metal Treatment Facility                             |                 |                  |            |
| Expected to be Out of Scope                                                        |                 |                  |            |
| Expected to be recycled / reused                                                   |                 |                  |            |
| Disposal route not known                                                           |                 |                  |            |

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

Opportunities for alternative disposal routing: No

| Baseline Management Route | Opportunity Management Route | Stream volume (%) | Opportunity Confidence | Comment |
|---------------------------|------------------------------|-------------------|------------------------|---------|
| -                         | -                            | -                 | -                      | -       |

### RADIOACTIVITY

Source:

The activity originates from a variety of operations on the Dounreay site.

Uncertainty:

The information is accurate to within a factor of ten.

Measurement of radioactivities:

The specific activities of the beta/gamma emitting radionuclides were estimated from sludge composition studies.

Total alpha and beta/gamma values were derived from consignor records.

Chemical form of radionuclides:

H-3: Not thought to be present.

C-14: Not thought to be present.

Cl-36: Not thought to be present.

Se-79: Not thought to be present.

Tc-99: Not thought to be present.

I-129: Not thought to be present.

Ra: May be present as particulate.

Th: May be present as particulate.

U: Likely to be present as particulate.

Np: Possible present in low concentrations.

Pu: Not identified by analysis to date.

| WASTE STREAM 5B26 LLETP Sludge |                            |                |                 |                |                  |                            |                |                 |                |
|--------------------------------|----------------------------|----------------|-----------------|----------------|------------------|----------------------------|----------------|-----------------|----------------|
| Nuclide                        | Mean radioactivity, TBq/m³ |                |                 |                | Nuclide          | Mean radioactivity, TBq/m³ |                |                 |                |
|                                | Waste at 1.4.2025          | Bands and Code | Future Arisings | Bands and Code |                  | Waste at 1.4.2025          | Bands and Code | Future Arisings | Bands and Code |
| H 3                            |                            |                |                 |                | Gd 153           |                            |                |                 |                |
| Be 10                          |                            |                |                 |                | Ho 163           |                            |                |                 |                |
| C 14                           |                            |                |                 |                | Ho 166m          |                            |                |                 |                |
| Na 22                          |                            |                |                 |                | Tm 170           |                            |                |                 |                |
| Al 26                          |                            |                |                 |                | Tm 171           |                            |                |                 |                |
| Cl 36                          |                            |                |                 |                | Lu 174           |                            |                |                 |                |
| Ar 39                          |                            |                |                 |                | Lu 176           |                            |                |                 |                |
| Ar 42                          |                            |                |                 |                | Hf 178n          |                            |                |                 |                |
| K 40                           |                            |                |                 |                | Hf 182           |                            |                |                 |                |
| Ca 41                          |                            |                |                 |                | Pt 193           |                            |                |                 |                |
| Mn 53                          |                            |                |                 |                | Ti 204           |                            |                |                 |                |
| Mn 54                          |                            |                |                 |                | Pb 205           |                            |                |                 |                |
| Fe 55                          |                            |                | = 2.89E-06      | C C 2          | Pb 210           |                            |                | = 7.44E-15      | C C 2          |
| Co 60                          |                            |                |                 |                | Bi 208           |                            |                |                 |                |
| Ni 59                          |                            |                |                 |                | Bi 210m          |                            |                |                 |                |
| Ni 63                          |                            |                |                 |                | Po 210           |                            |                | = 5.70E-15      | C C 2          |
| Zn 65                          |                            |                |                 |                | Ra 223           |                            |                | = 5.99E-13      | C C 2          |
| Se 79                          |                            |                |                 |                | Ra 225           |                            |                | = 2.04E-19      | C C 2          |
| Kr 81                          |                            |                |                 |                | Ra 226           |                            |                | = 1.25E-13      | C C 2          |
| Kr 85                          |                            |                |                 |                | Ra 228           |                            |                | = 4.67E-18      | C C 2          |
| Rb 87                          |                            |                |                 |                | Ac 227           |                            |                | = 6.23E-13      | C C 2          |
| Sr 90                          |                            |                | = 1.15E-04      | C C 2          | Th 227           |                            |                | = 5.99E-13      | C C 2          |
| Zr 93                          |                            |                |                 |                | Th 228           |                            |                | = 2.21E-18      | C C 2          |
| Nb 91                          |                            |                |                 |                | Th 229           |                            |                | = 2.10E-19      | C C 2          |
| Nb 92                          |                            |                |                 |                | Th 230           |                            |                | = 9.66E-11      | C C 2          |
| Nb 93m                         |                            |                |                 |                | Th 232           |                            |                | = 1.62E-17      | C C 2          |
| Nb 94                          |                            |                |                 |                | Th 234           |                            |                | = 9.58E-08      | C C 2          |
| Mo 93                          |                            |                |                 |                | Pa 231           |                            |                | = 6.94E-12      | C C 2          |
| Tc 97                          |                            |                |                 |                | Pa 233           |                            |                | = 8.99E-11      | C C 2          |
| Tc 99                          |                            |                |                 |                | U 232            |                            |                |                 |                |
| Ru 106                         |                            |                |                 |                | U 233            |                            |                | = 1.14E-15      | C C 2          |
| Pd 107                         |                            |                |                 |                | U 234            |                            |                | = 1.75E-06      | C C 2          |
| Ag 108m                        |                            |                |                 |                | U 235            |                            |                | = 5.47E-08      | C C 2          |
| Ag 110m                        |                            |                |                 |                | U 236            |                            |                | = 5.47E-08      | C C 2          |
| Cd 109                         |                            |                |                 |                | U 238            |                            |                | = 9.58E-08      | C C 2          |
| Cd 113m                        |                            |                |                 |                | Np 237           |                            |                | = 9.16E-11      | C C 2          |
| Sn 119m                        |                            |                |                 |                | Pu 236           |                            |                |                 |                |
| Sn 121m                        |                            |                |                 |                | Pu 238           |                            |                | = 4.29E-05      | C C 2          |
| Sn 123                         |                            |                |                 |                | Pu 239           |                            |                | = 2.93E-05      | C C 2          |
| Sn 126                         |                            |                |                 |                | Pu 240           |                            |                | = 2.15E-05      | C C 2          |
| Sb 125                         |                            |                |                 |                | Pu 241           |                            |                | = 3.37E-04      | C C 2          |
| Sb 126                         |                            |                |                 |                | Pu 242           |                            |                |                 |                |
| Te 125m                        |                            |                |                 |                | Am 241           |                            |                | = 4.87E-05      | C C 2          |
| Te 127m                        |                            |                |                 |                | Am 242m          |                            |                |                 |                |
| I 129                          |                            |                |                 |                | Am 243           |                            |                |                 |                |
| Cs 134                         |                            |                |                 |                | Cm 242           |                            |                |                 |                |
| Cs 135                         |                            |                |                 |                | Cm 243           |                            |                |                 |                |
| Cs 137                         |                            |                | = 7.40E-05      | C C 2          | Cm 244           |                            |                |                 |                |
| Ba 133                         |                            |                |                 |                | Cm 245           |                            |                |                 |                |
| La 137                         |                            |                |                 |                | Cm 246           |                            |                |                 |                |
| La 138                         |                            |                |                 |                | Cm 248           |                            |                |                 |                |
| Ce 144                         |                            |                |                 |                | Cf 249           |                            |                |                 |                |
| Pm 145                         |                            |                |                 |                | Cf 250           |                            |                |                 |                |
| Pm 147                         |                            |                | = 3.25E-07      | C C 2          | Cf 251           |                            |                |                 |                |
| Sm 147                         |                            |                | = 3.12E-17      | C C 2          | Cf 252           |                            |                |                 |                |
| Sm 151                         |                            |                |                 |                | Unsp a           |                            |                |                 |                |
| Eu 152                         |                            |                |                 |                | Unsp b/g         |                            |                |                 |                |
| Eu 154                         |                            |                | = 1.70E-06      | C C 2          | <b>Total a</b>   | <b>0</b>                   | <b>*</b>       | <b>1.44E-04</b> | <b>*</b>       |
| Eu 155                         |                            |                | = 6.56E-07      | C C 2          | <b>Total b/g</b> | <b>0</b>                   | <b>*</b>       | <b>5.32E-04</b> | <b>*</b>       |

#### 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 the 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  
\* Total calculated from the 114 declared radionuclides