

| WASTE STREAM | 3K15 | Dry Fuel Route LLW |
|--------------|------|--------------------|
|--------------|------|--------------------|

**SITE** Hartlepool

**SITE OWNER** EDF Energy Nuclear Generation Ltd (EDFE NGL)

**WASTE CUSTODIAN** EDF Energy Nuclear Generation Ltd (EDFE NGL)

**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                | = 11.5       |                               |                            |
| Future arisings:       | 1.4.2025 - 31.3.2026       | = 26.0       |                               |                            |
|                        | 1.4.2026 - 31.3.2027       | = 26.0       |                               |                            |
|                        | 1.4.2027 - 31.3.2028       | = 26.0       |                               |                            |
|                        | 1.4.2028 - 31.3.2029       | = 26.0       |                               |                            |
|                        | 1.4.2029 - 31.3.2030       | = 26.0       |                               |                            |
| Total future arisings: |                            | <b>130.0</b> |                               |                            |
| Total waste volume:    |                            | <b>141.5</b> |                               |                            |

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

Comment on arising rates: Waste volumes will be variable depending on station operating conditions.

Additional information on quantities: -

Uncertainty factors on volumes:

|                |        |                   |        |
|----------------|--------|-------------------|--------|
| Stock (upper): | x 1.25 | Arisings (upper): | x 1.50 |
| Stock (lower): | x 0.75 | Arisings (lower): | x 0.50 |

**WASTE SOURCE** General solid LLW arisings from the Dry Fuel Route. Mainly from maintenance and refurbishment work and may include: items which have been contaminated in operation, materials that have been used to prevent spread of contamination along with sampling and cleaning equipment.

#### PHYSICAL CHARACTERISTICS

General description: Generally wastes from these areas are mixed materials such as metal items, spent filters, redundant plant items, cabling, soft waste, heavy duty plastic and rubber waste. Wood and powders may also be generated.

Changes since waste generated: The site does undertake volume reduction by low force compaction and shredding, this is principally to incinerable waste. Any free liquids present will be removed as far as practicable during the sorting process.

Bulk density (t/m<sup>3</sup>): ~ 0.28

Comment on density: Density based on raw volume and weight at arising as provided in WCH.

#### CHEMICAL COMPOSITION

General description and components (%wt): Stainless Steel (~10%), Mild Steel (~46%), Iron (~1.4%), Aluminium (~1%), Copper (~1.4%), Other metals (~1.1%), Paper / cotton (~8%), Wood (~1%), Plastics (halogenated) (~6%), Plastics (non-halogenated) (~16%), Rubber (~1%), Oil/grease (~0.3%), Powder/ash (~2%), other material such as glass, glass fibre, man made fibres and graphite (~4.8%).

Chemical state: Neutral

Sheet metal proportion / thickness: This waste stream is variable and may contain some bulk items which will be volume reduced by cutting, proportion of bulk items unknown.

Metals and alloys (%wt):

|                           | (%wt)  | Type(s) / Grades(s) with proportions       | % of total C14 activity |
|---------------------------|--------|--------------------------------------------|-------------------------|
| Stainless steel.....      | ~ 10.0 | metallic plant items/equipment.            |                         |
| Other ferrous metals..... | ~ 46.0 | Mild steel-metallic plant items/equipment. |                         |
| Iron.....                 | ~ 1.4  | metallic plant items/equipment.            |                         |
| Aluminium.....            | ~ 1.0  | metallic plant items/equipment.            |                         |
| Beryllium.....            | NE     | -                                          |                         |
| Cobalt.....               | NE     | -                                          |                         |
| Copper.....               | ~ 1.4  | e.g.cabelling and piping.                  |                         |
| Lead.....                 | NE     | -                                          |                         |
| Magnox/Magnesium.....     | NE     | -                                          |                         |
| Nickel.....               | NE     | -                                          |                         |
| Titanium.....             | NE     | -                                          |                         |
| Uranium.....              | NE     | -                                          |                         |
| Zinc.....                 | NE     | -                                          |                         |
| Zircaloy/Zirconium.....   | NE     | -                                          |                         |
| Other metals.....         | ~ 1.1  | Chromium metal/alloy (1%).                 |                         |

Organics (%wt):

|                                     | (%wt)  | Type(s) and comment                                                | % of total C14 activity |
|-------------------------------------|--------|--------------------------------------------------------------------|-------------------------|
| Total cellulotics.....              | ~ 9.0  | -                                                                  |                         |
| Paper, cotton.....                  | ~ 8.0  | Biodegradable non-putrescibles                                     |                         |
| Wood.....                           | ~ 1.0  | -                                                                  |                         |
| Halogenated plastics.....           | ~ 6.0  | e.g. PPE, contamination management.                                |                         |
| Total non-halogenated plastics..... | ~ 16.0 | e.g. PPE, contamination management.                                |                         |
| Condensation polymers.....          | NE     | -                                                                  |                         |
| Others.....                         | NE     | -                                                                  |                         |
| Organic ion exchange materials..... | NE     | -                                                                  |                         |
| Total rubber.....                   | ~ 1.0  | -                                                                  |                         |
| Halogenated rubber.....             | NE     | -                                                                  |                         |
| Non-halogenated rubber.....         | NE     | -                                                                  |                         |
| Hydrocarbons.....                   | ~ 0.30 | -                                                                  |                         |
| Oil or grease.....                  | ~ 0.30 | Drummed incinerable liquids, or oil/grease absorbed on cloth/rags. |                         |
| Fuel.....                           | NE     | -                                                                  |                         |
| Asphalt/Tarmac (cont.coal tar)..... | NE     | -                                                                  |                         |
| Asphalt/Tarmac (no coal tar).....   | NE     | -                                                                  |                         |
| Bitumen.....                        | NE     | -                                                                  |                         |
| Others.....                         | NE     | -                                                                  |                         |
| Other organics.....                 | NE     | -                                                                  |                         |

Other materials (%wt):

|                                       | (%wt) | Type(s) and comment                              | % of total C14 activity |
|---------------------------------------|-------|--------------------------------------------------|-------------------------|
| Inorganic ion exchange materials..... | NE    | -                                                |                         |
| Inorganic sludges and flocs.....      | NE    | -                                                |                         |
| Soil.....                             | NE    | -                                                |                         |
| Brick/Stone/Rubble.....               | NE    | -                                                |                         |
| Cementitious material.....            | NE    | -                                                |                         |
| Sand.....                             | NE    | -                                                |                         |
| Glass/Ceramics.....                   | ~ 1.7 | -                                                |                         |
| Graphite.....                         | ~ 1.7 | -                                                |                         |
| Desiccants/Catalysts.....             | NE    | -                                                |                         |
| Asbestos.....                         | ~ 1.4 | -                                                |                         |
| Non/low friable.....                  | NE    | -                                                |                         |
| Moderately friable.....               | NE    | -                                                |                         |
| Highly friable.....                   | ~ 1.4 | Lagging-Could be highly friable asbestos or MMF. |                         |
| Free aqueous liquids.....             | = 0   | -                                                |                         |
| Free non-aqueous liquids.....         | = 0   | -                                                |                         |
| Powder/Ash.....                       | = 2.0 | -                                                |                         |

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

Inorganic anions (%wt):

|                | (%wt) | Type(s) and comment |
|----------------|-------|---------------------|
| Fluoride.....  | NE    | -                   |
| Chloride.....  | NE    | -                   |
| Iodide.....    | NE    | -                   |
| Cyanide.....   | NE    | -                   |
| Carbonate..... | NE    | -                   |
| Nitrate.....   | NE    | -                   |
| Nitrite.....   | NE    | -                   |
| 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.....                    | = 0   | -                   |
| Corrosive materials.....                       | = 0   | -                   |
| Pyrophoric materials.....                      | = 0   | -                   |
| Generating toxic gases.....                    | = 0   | -                   |
| Reacting with water.....                       | = 0   | -                   |
| Higher activity particles.....                 | = 0   | Not expected        |
| Soluble solids as bulk chemical compounds..... | = 0   | -                   |

Hazardous substances / non hazardous pollutants:

-

|                             | (%wt) | Type(s) and comment |
|-----------------------------|-------|---------------------|
| Acrylamide.....             | NE    | -                   |
| Benzene.....                | NE    | -                   |
| Chlorinated solvents.....   | NE    | -                   |
| Formaldehyde.....           | NE    | -                   |
| Organometallics.....        | NE    | -                   |
| Phenol.....                 | NE    | -                   |
| Styrene.....                | NE    | -                   |
| Tri-butyl phosphate.....    | NE    | -                   |
| Other organophosphates..... | NE    | -                   |
| Vinyl chloride.....         | NE    | -                   |
| Arsenic.....                | NE    | -                   |
| Barium.....                 | NE    | -                   |
| Boron.....                  | NE    | -                   |
| Boron (in Boral).....       | NE    | -                   |
| Boron (non-Boral).....      | NE    | -                   |
| Cadmium.....                | NE    | -                   |
| Caesium.....                | NE    | -                   |
| Selenium.....               | NE    | -                   |
| Chromium.....               | NE    | -                   |
| Molybdenum.....             | NE    | -                   |
| Thallium.....               | NE    | -                   |
| Tin.....                    | NE    | -                   |
| Vanadium.....               | NE    | -                   |
| Mercury compounds.....      | = 0   | -                   |
| Others.....                 | NE    | -                   |

Complexing agents (%wt):

Yes

|                                | (%wt)   | Type(s) and comment |
|--------------------------------|---------|---------------------|
| EDTA.....                      | NE      | -                   |
| DPTA.....                      | NE      | -                   |
| NTA.....                       | NE      | -                   |
| Polycarboxylic acids.....      | NE      | -                   |
| Other organic complexants..... | ~~ 0.20 | Decon 90            |
| Total complexing agents.....   | ~~ 0.20 | -                   |

Physical components:

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

## TREATMENT, PACKAGING AND DISPOSAL

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

| Treatment                                                  | On-site / Off-site | Stream volume % |
|------------------------------------------------------------|--------------------|-----------------|
| Size reduction                                             |                    |                 |
| Decay storage                                              |                    |                 |
| Low force compaction                                       |                    |                 |
| Supercompaction (HFC)                                      | Off-site           | ~ 18.0          |
| Incineration                                               | Off-site           | ~ 53.0          |
| Drying/dewatering/liquid separation                        |                    |                 |
| Tie down/fixatives/strippable coating/painting application |                    |                 |
| Decontamination                                            |                    |                 |
| Metal treatment                                            | On-site            | ~ 19.0          |
| Recycling / reuse                                          |                    |                 |
| Thermal treatment, including vitrification                 |                    |                 |
| Encapsulation                                              |                    |                 |
| Polymer encapsulation                                      |                    |                 |
| Other physical treatment                                   |                    |                 |
| Other chemical treatment                                   |                    |                 |
| Containerisation                                           |                    |                 |
| Treatment not yet determined                               |                    |                 |
| None                                                       | Off-site           | ~ 10.0          |

Comments on planned treatments:

In line with the waste hierarchy, wastes will be treated preferentially by incineration, metal decontamination/melting, supercompaction, optimal packaging in HHISOs or immobilisation by encapsulation where necessary, prior to ultimate disposal at the LLW Repository. These treatments will be carried out off-site under contract with companies such as LLWR Ltd, Cycliffe, Tradebe Inutec.

Conditioning method:

-

Conditioning plants:

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

Likely conditioning matrix:

-

Further information on the conditioning matrix:

-

### Waste Packaging:

Likely container type:

| Container                                          | Waste packaged (vol%) | Waste loading (m³) | Payload (m³) | Number of packages | Estimated start date for packaging |
|----------------------------------------------------|-----------------------|--------------------|--------------|--------------------|------------------------------------|
| 1/2 Height IP-2 Disposal/Re-usable ISO (TC01/TC02) | 28.0                  | 37.3               | 18.3         | 2                  | -                                  |

Range in container waste loading:

Other information on packaging and conditioning:

Waste loading is representative of the raw waste following further planned treatments. Supercompaction assumed to reduce volume to 20% of original. Solidification assumed to increase volume to 300% of original. No treatment results in the same volume.

Conditioned density (t/m³):

-

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) |                 |                  |            |
| 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                                     | ~ 28.0          |                  |            |
| 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                               | ~ 53.0          |                  |            |
| Expected to be consigned to a Metal Treatment Facility                             | ~ 19.0          |                  |            |
| 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:                         | Contamination will be main source of activity with possibly some activation of certain reactor or fuel route components.                                                                                                                                                                      |
| Uncertainty:                    | The total given in the WCH is pessimistic, but not considered overly conservative. The waste for this stream is operational and on-going therefore the waste is variable. Fingerprint has been based over the last three years, so there is uncertainty about future arisings.                |
| Measurement of radioactivities: | Estimated based on arisings and data in WCH. The total activity has been estimated by applying the fingerprint for the date of arisings. For consignments this will be decayed, but the decay time will vary depending on the storage time for the waste.                                     |
| Chemical form of radionuclides: | H-3: To be Determined.<br>C-14: To be Determined.<br>Cl-36: To be Determined.<br>Se-79: To be Determined.<br>Tc-99: To be Determined.<br>I-129: To be Determined.<br>Ra: To be Determined.<br>Th: To be Determined.<br>U: To be Determined.<br>Np: To be Determined.<br>Pu: To be Determined. |

| WASTE STREAM 3K15 Dry Fuel Route LLW |                            |                |                 |                |                  |                            |                |                 |                |
|--------------------------------------|----------------------------|----------------|-----------------|----------------|------------------|----------------------------|----------------|-----------------|----------------|
| 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                                  | 3.54E-05                   | C C 1          | 3.54E-05        | C C 1          | Gd 153           |                            |                |                 |                |
| Be 10                                |                            |                |                 |                | Ho 163           |                            |                |                 |                |
| C 14                                 | 1.23E-05                   | C C 1          | 1.23E-05        | C C 1          | Ho 166m          |                            |                |                 |                |
| Na 22                                |                            |                |                 |                | Tm 170           |                            |                |                 |                |
| Al 26                                |                            |                |                 |                | Tm 171           |                            |                |                 |                |
| Cl 36                                | 1.30E-07                   | C C 1          | 1.30E-07        | C C 1          | Lu 174           |                            |                |                 |                |
| Ar 39                                |                            |                |                 |                | Lu 176           |                            |                |                 |                |
| Ar 42                                |                            |                |                 |                | Hf 178n          |                            |                |                 |                |
| K 40                                 |                            |                |                 |                | Hf 182           |                            |                |                 |                |
| Ca 41                                |                            |                |                 |                | Pt 193           |                            |                |                 |                |
| Mn 53                                |                            |                |                 |                | Ti 204           |                            |                |                 |                |
| Mn 54                                | 3.73E-05                   | C C 1          | 3.73E-05        | C C 1          | Pb 205           |                            |                |                 |                |
| Fe 55                                | 7.54E-04                   | C C 1          | 7.54E-04        | C C 1          | Pb 210           |                            |                |                 |                |
| Co 60                                | 9.36E-05                   | C C 1          | 9.36E-05        | C C 1          | Bi 208           |                            |                |                 |                |
| Ni 59                                |                            |                |                 |                | Bi 210m          |                            |                |                 |                |
| Ni 63                                | 4.43E-05                   | C C 1          | 4.43E-05        | C C 1          | Po 210           |                            |                |                 |                |
| Zn 65                                | 3.69E-06                   | C C 1          | 3.69E-06        | C C 1          | Ra 223           |                            |                |                 |                |
| Se 79                                |                            |                |                 |                | Ra 225           |                            |                |                 |                |
| Kr 81                                |                            |                |                 |                | Ra 226           |                            |                |                 |                |
| Kr 85                                |                            |                |                 |                | Ra 228           |                            |                |                 |                |
| Rb 87                                |                            |                |                 |                | Ac 227           |                            |                |                 |                |
| Sr 90                                | 6.52E-08                   | C C 1          | 6.52E-08        | C C 1          | Th 227           |                            |                |                 |                |
| Zr 93                                |                            |                |                 |                | Th 228           |                            |                |                 |                |
| Nb 91                                |                            |                |                 |                | Th 229           |                            |                |                 |                |
| Nb 92                                |                            |                |                 |                | Th 230           |                            |                |                 |                |
| Nb 93m                               |                            |                |                 |                | Th 232           |                            |                |                 |                |
| Nb 94                                | 6.05E-08                   | C C 1          | 6.05E-08        | C C 1          | Th 234           |                            |                |                 |                |
| Mo 93                                |                            |                |                 |                | Pa 231           |                            |                |                 |                |
| Tc 97                                |                            |                |                 |                | Pa 233           |                            |                |                 |                |
| Tc 99                                |                            |                |                 |                | U 232            |                            |                |                 |                |
| Ru 106                               | 5.12E-07                   | C C 1          | 5.12E-07        | C C 1          | U 233            |                            |                |                 |                |
| Pd 107                               |                            |                |                 |                | U 234            | 2.42E-12                   | C C 1          | 2.42E-12        | C C 1          |
| Ag 108m                              | 5.66E-08                   | C C 1          | 5.66E-08        | C C 1          | U 235            | 3.85E-14                   | C C 1          | 3.85E-14        | C C 1          |
| Ag 110m                              | 1.49E-07                   | C C 1          | 1.49E-07        | C C 1          | U 236            | 6.18E-13                   | C C 1          | 6.18E-13        | C C 1          |
| Cd 109                               |                            |                |                 |                | U 238            | 7.17E-13                   | C C 1          | 7.17E-13        | C C 1          |
| Cd 113m                              |                            |                |                 |                | Np 237           |                            |                |                 |                |
| Sn 119m                              |                            |                |                 |                | Pu 236           |                            |                |                 |                |
| Sn 121m                              |                            |                |                 |                | Pu 238           | 1.08E-09                   | C C 1          | 1.08E-09        | C C 1          |
| Sn 123                               |                            |                |                 |                | Pu 239           | 4.62E-10                   | C C 1          | 4.62E-10        | C C 1          |
| Sn 126                               |                            |                |                 |                | Pu 240           | 9.23E-10                   | C C 1          | 9.23E-10        | C C 1          |
| Sb 125                               | 1.26E-07                   | C C 1          | 1.26E-07        | C C 1          | Pu 241           | 5.63E-07                   | C C 1          | 5.63E-07        | C C 1          |
| Sb 126                               |                            |                |                 |                | Pu 242           |                            |                |                 |                |
| Te 125m                              |                            |                |                 |                | Am 241           | 6.15E-09                   | C C 1          | 6.15E-09        | C C 1          |
| Te 127m                              |                            |                |                 |                | Am 242m          |                            |                |                 |                |
| I 129                                | 3.06E-13                   | C C 1          | 3.06E-13        | C C 1          | Am 243           |                            |                |                 |                |
| Cs 134                               | 3.77E-07                   | C C 1          | 3.77E-07        | C C 1          | Cm 242           | 2.23E-09                   | C C 1          | 2.23E-09        | C C 1          |
| Cs 135                               |                            |                |                 |                | Cm 243           | 6.41E-12                   | C C 1          | 6.41E-12        | C C 1          |
| Cs 137                               | 9.82E-07                   | C C 1          | 9.82E-07        | C C 1          | Cm 244           | 4.62E-10                   | C C 1          | 4.62E-10        | C C 1          |
| Ba 133                               | 4.91E-08                   | C C 1          | 4.91E-08        | C C 1          | Cm 245           |                            |                |                 |                |
| La 137                               |                            |                |                 |                | Cm 246           |                            |                |                 |                |
| La 138                               |                            |                |                 |                | Cm 248           |                            |                |                 |                |
| Ce 144                               | 2.56E-07                   | C C 1          | 2.56E-07        | C C 1          | Cf 249           |                            |                |                 |                |
| Pm 145                               |                            |                |                 |                | Cf 250           |                            |                |                 |                |
| Pm 147                               | 1.85E-07                   | C C 1          | 1.85E-07        | C C 1          | Cf 251           |                            |                |                 |                |
| Sm 147                               |                            |                |                 |                | Cf 252           |                            |                |                 |                |
| Sm 151                               |                            |                |                 |                | Unsp a           |                            |                |                 |                |
| Eu 152                               | 9.35E-08                   | C C 1          | 9.35E-08        | C C 1          | Unsp b/g         | 1.99E-05                   | C C 1          | 1.99E-05        | C C 1          |
| Eu 154                               | 1.27E-07                   | C C 1          | 1.27E-07        | C C 1          | <b>Total a</b>   | <b>1.13E-08</b>            | *              | <b>1.13E-08</b> | *              |
| Eu 155                               | 5.36E-08                   | C C 1          | 5.36E-08        | C C 1          | <b>Total b/g</b> | <b>1.00E-03</b>            | *              | <b>1.00E-03</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