

| WASTE STREAM | 3N39 | Miscellaneous Activated Components & Fuel Stringer Debris - Debris Vault 2 |
|--------------|------|----------------------------------------------------------------------------|
|--------------|------|----------------------------------------------------------------------------|

**SITE** Hinkley Point B

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

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

**WASTE TYPE** ILW

#### WASTE VOLUMES

|                        | Reported (m <sup>3</sup> ) | OR     | Conditioned (m <sup>3</sup> ) | Packaged (m <sup>3</sup> ) |
|------------------------|----------------------------|--------|-------------------------------|----------------------------|
| Stocks:                | At 1.4.2025                | = 35.6 |                               |                            |
| Future arisings:       | 1.4.2025 - 31.3.2026       | = 4.8  |                               |                            |
| Total future arisings: |                            | 4.8    |                               |                            |
| Total waste volume:    |                            | 40.4   |                               |                            |

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

Comment on arising rates: Stock volume maintained at 35.6 m3 following station assessment. Waste volumes will be variable depending on station operating conditions. Future arising is estimated at 4.82 m3/yr for the remainder of the defueling period between 2025 and 2026

Additional information on quantities: -

Uncertainty factors on volumes: Stock (upper): x 1.25 Arisings (upper): x 1.75  
Stock (lower): x 0.75 Arisings (lower): x 0.25

**WASTE SOURCE** The waste is primarily produced as a result of dismantling plant components.

#### PHYSICAL CHARACTERISTICS

General description: The waste includes Secondary locks, Tie bar remnants (cropped and whole), Piston seals and buffer strap assemblies, Thermocouple wire and clamp assembly, 3rd brush assembly, snubber assembly, control rod shock absorbers, miscellaneous bolts, tabs and washers.

Changes since waste generated: -

Bulk density (t/m<sup>3</sup>): ~ 1.0

Comment on density: Estimated as 1 t/m<sup>3</sup>

#### CHEMICAL COMPOSITION

General description and components (%wt): The material breakdown is not currently assessed.

Chemical state: Neutral

Sheet metal proportion / thickness: -

Metals and alloys (%wt):

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

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.....                   | TR    | -                   |                         |
| Oil or grease.....                  | TR    | -                   |                         |
| Fuel.....                           | = 0   | -                   |                         |
| Asphalt/Tarmac (cont.coal tar)..... | = 0   | -                   |                         |
| Asphalt/Tarmac (no coal tar).....   | = 0   | -                   |                         |
| Bitumen.....                        | = 0   | -                   |                         |
| Others.....                         | = 0   | -                   |                         |
| Other organics.....                 | NE    | -                   |                         |

Other materials (%wt):

|                                       | (%wt) | Type(s) and comment | % of total C14 activity |
|---------------------------------------|-------|---------------------|-------------------------|
| Inorganic ion exchange materials..... | = 0   | -                   |                         |
| Inorganic sludges and flocs.....      | = 0   | -                   |                         |
| Soil.....                             | = 0   | -                   |                         |
| Brick/Stone/Rubble.....               | = 0   | -                   |                         |
| Cementitious material.....            | = 0   | -                   |                         |
| Sand.....                             | = 0   | -                   |                         |
| Glass/Ceramics.....                   | -     | -                   |                         |
| Graphite.....                         | NE    | -                   |                         |
| Desiccants/Catalysts.....             | = 0   | -                   |                         |
| Asbestos.....                         | = 0   | -                   |                         |
| Non/low friable.....                  | -     | -                   |                         |
| Moderately friable.....               | -     | -                   |                         |
| Highly friable.....                   | -     | -                   |                         |
| Free aqueous liquids.....             | = 0   | -                   |                         |
| 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.....  | = 0   | -                   |
| Iodide.....    | = 0   | -                   |
| Cyanide.....   | = 0   | -                   |
| Carbonate..... | = 0   | -                   |
| Nitrate.....   | = 0   | -                   |
| Nitrite.....   | = 0   | -                   |
| Phosphate..... | = 0   | -                   |
| Sulphate.....  | = 0   | -                   |
| Sulphide.....  | = 0   | -                   |

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.....                 | P     | -                   |
| 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.....      | NE    | -                   |
| Others.....                 | NE    | -                   |

Complexing agents (%wt):

| Not yet determined             |       |                                                                       |
|--------------------------------|-------|-----------------------------------------------------------------------|
|                                | (%wt) | Type(s) and comment                                                   |
| EDTA.....                      | NE    | -                                                                     |
| DPTA.....                      | NE    | -                                                                     |
| NTA.....                       | NE    | -                                                                     |
| Polycarboxylic acids.....      | NE    | -                                                                     |
| Other organic complexants..... | NE    | There may be traces of complexing agents (decontamination chemicals). |
| Total complexing agents.....   | NE    | -                                                                     |

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                                             | 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                 |                    |                 |
| Encapsulation                                              |                    |                 |
| Polymer encapsulation                                      |                    |                 |
| Other physical treatment                                   |                    |                 |
| Other chemical treatment                                   |                    |                 |
| Containerisation                                           |                    |                 |
| Treatment not yet determined                               |                    |                 |
| None                                                       |                    |                 |

Comments on planned treatments:

-

Conditioning method:

The waste will be conditioned to satisfy the disposal requirements which are effective at the time of retrieval/conditioning. It is currently assumed that the waste will be placed in 'baskets' in the waste packages and will be encapsulated.

Conditioning plants:

| Plant Name                                    | Location        |
|-----------------------------------------------|-----------------|
| Hinkley Point B Waste Management Centre (WMC) | Hinkley Point B |

Likely conditioning matrix:

-

Further information on the conditioning matrix:

Conditioning matrix will be BFS/OPC. Mix ratios are yet to be established

#### Waste Packaging:

| Likely container type: | Container                           | Waste packaged (vol%) | Waste loading (m³) | Payload (m³) | Number of packages | Estimated start date for packaging |
|------------------------|-------------------------------------|-----------------------|--------------------|--------------|--------------------|------------------------------------|
|                        | 4 m box (100 mm concrete shielding) | 100.0                 | 12.2               | 14.3         | 4                  | -                                  |

Range in container waste loading:

Other information on packaging and conditioning:

Waste will be retained on site pending Final Site Clearance, to let nuclides such as Co-60 undergo considerable radioactive decay. Baskets of different Final Site Clearance ILW wastes may be in the same waste package.

Conditioned density (t/m³):  
Conditioned density comment:

~ 3.0  
The density of the encapsulated waste is expected to be approximately 3 t/m³.

#### 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         |                  |            |
| 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:

Source of activity is activation with possible contamination by fission products and actinides.

Uncertainty:

Needs further assessment.

Measurement of radioactivities:

Theoretical estimates.

Chemical form of radionuclides:

H-3: Diffused into materials  
C-14: Graphite  
Cl-36: Incorporated into steels  
Se-79: Not Assessed  
Tc-99: Not expected to be significant  
I-129: Not expected to be significant  
Ra: Not expected to be significant  
Th: Not expected to be significant  
U: Not expected to be significant  
Np: Not expected to be significant  
Pu: Not expected to be significant

| WASTE STREAM |                            | 3N39              |                 | Miscellaneous Activated Components & Fuel Stringer Debris - Debris Vault 2 |           |                            |                   |                 |                   |
|--------------|----------------------------|-------------------|-----------------|----------------------------------------------------------------------------|-----------|----------------------------|-------------------|-----------------|-------------------|
| Nuclide      | Mean radioactivity, TBq/m³ |                   |                 |                                                                            | Nuclide   | Mean radioactivity, TBq/m³ |                   |                 |                   |
|              | Waste at<br>1.4.2025       | Bands and<br>Code | Future Arisings | Bands and<br>Code                                                          |           | Waste at<br>1.4.2025       | Bands and<br>Code | Future Arisings | Bands and<br>Code |
| H 3          |                            |                   | 6               |                                                                            | Gd 153    |                            |                   |                 |                   |
| Be 10        |                            |                   | 8               |                                                                            | Ho 163    |                            |                   |                 |                   |
| C 14         | 5.00E-02                   | C C 2             |                 | 5.00E-02 C C 2                                                             | Ho 166m   |                            |                   |                 |                   |
| Na 22        |                            |                   | 4               |                                                                            | Tm 170    |                            |                   |                 |                   |
| Al 26        |                            |                   | 4               |                                                                            | Tm 171    |                            |                   |                 |                   |
| Cl 36        |                            |                   | 6               |                                                                            | Lu 174    |                            |                   |                 |                   |
| Ar 39        |                            |                   |                 |                                                                            | Lu 176    |                            |                   |                 |                   |
| Ar 42        |                            |                   |                 |                                                                            | Hf 178n   |                            |                   |                 |                   |
| K 40         |                            |                   |                 |                                                                            | Hf 182    |                            |                   |                 |                   |
| Ca 41        |                            |                   | 8               |                                                                            | Pt 193    |                            |                   |                 |                   |
| Mn 53        |                            |                   |                 |                                                                            | Tl 204    |                            |                   |                 |                   |
| Mn 54        | 9.00E-02                   | C C 2             |                 | 1.00E+01 C C 2                                                             | Pb 205    |                            |                   |                 |                   |
| Fe 55        | 3.00E+01                   | C C 2             |                 | 3.00E+02 C C 2                                                             | Pb 210    |                            | 8                 |                 | 8                 |
| Co 60        | 3.00E+01                   | C C 2             |                 | 1.00E+02 C C 2                                                             | Bi 208    |                            |                   |                 |                   |
| Ni 59        | 2.00E-01                   | C C 2             |                 | 2.00E-01 C C 2                                                             | Bi 210m   |                            |                   |                 |                   |
| Ni 63        | 9.00E+00                   | C C 2             |                 | 1.00E+01 C C 2                                                             | Po 210    |                            | 8                 |                 | 8                 |
| Zn 65        | 1.00E-07                   | C C 2             |                 | 3.00E-05 C C 2                                                             | Ra 223    |                            |                   |                 |                   |
| Se 79        |                            |                   | 8               |                                                                            | 8         |                            |                   |                 |                   |
| Kr 81        |                            |                   |                 |                                                                            | Ra 225    |                            |                   |                 |                   |
| Kr 85        |                            |                   |                 |                                                                            | Ra 226    |                            | 8                 |                 | 8                 |
| Rb 87        |                            |                   |                 |                                                                            | Ra 228    |                            |                   |                 |                   |
| Sr 90        |                            | 8                 |                 | 8                                                                          | Ac 227    |                            |                   |                 |                   |
| Zr 93        |                            | 8                 |                 | 8                                                                          | Th 227    |                            |                   |                 |                   |
| Nb 91        |                            |                   |                 |                                                                            | Th 228    |                            |                   |                 |                   |
| Nb 92        |                            |                   |                 |                                                                            | Th 229    |                            | 8                 |                 | 8                 |
| Nb 93m       | 4.00E-05                   | C C 2             |                 | 5.00E-05 C C 2                                                             | Th 230    |                            | 8                 |                 | 8                 |
| Nb 94        | 1.00E-03                   | C C 2             |                 | 1.00E-03 C C 2                                                             | Th 232    |                            | 8                 |                 | 8                 |
| Mo 93        | 5.00E-04                   | C C 2             |                 | 5.00E-04 C C 2                                                             | Th 234    |                            |                   |                 |                   |
| Tc 97        |                            |                   |                 |                                                                            | Pa 231    |                            | 8                 |                 | 8                 |
| Tc 99        |                            | 8                 |                 | 8                                                                          | Pa 233    |                            |                   |                 |                   |
| Ru 106       |                            | 8                 |                 | 8                                                                          | U 232     |                            |                   |                 |                   |
| Pd 107       |                            | 8                 |                 | 8                                                                          | U 233     |                            | 8                 |                 | 8                 |
| Ag 108m      | 4.00E-03                   | C C 2             |                 | 4.00E-03 C C 2                                                             | U 234     |                            | 8                 |                 | 8                 |
| Ag 110m      |                            |                   |                 |                                                                            | U 235     |                            | 8                 |                 | 8                 |
| Cd 109       |                            |                   |                 |                                                                            | U 236     |                            | 8                 |                 | 8                 |
| Cd 113m      |                            |                   |                 |                                                                            | U 238     |                            | 8                 |                 | 8                 |
| Sn 119m      |                            |                   |                 |                                                                            | Np 237    |                            | 8                 |                 | 8                 |
| Sn 121m      |                            | 8                 |                 | 8                                                                          | Pu 236    |                            |                   |                 |                   |
| Sn 123       |                            |                   |                 |                                                                            | Pu 238    |                            | 8                 |                 | 8                 |
| Sn 126       |                            | 8                 |                 | 8                                                                          | Pu 239    |                            | 8                 |                 | 8                 |
| Sb 125       |                            |                   |                 |                                                                            | Pu 240    |                            | 8                 |                 | 8                 |
| Sb 126       |                            |                   |                 |                                                                            | Pu 241    |                            | 8                 |                 | 8                 |
| Te 125m      |                            |                   |                 |                                                                            | Pu 242    |                            | 8                 |                 | 8                 |
| Te 127m      |                            |                   |                 |                                                                            | Am 241    |                            | 8                 |                 | 8                 |
| I 129        |                            | 8                 |                 | 8                                                                          | Am 242m   |                            | 8                 |                 | 8                 |
| Cs 134       |                            | 6                 |                 | 6                                                                          | Am 243    |                            | 8                 |                 | 8                 |
| Cs 135       |                            | 8                 |                 | 8                                                                          | Cm 242    |                            | 8                 |                 | 8                 |
| Cs 137       |                            | 6                 |                 | 6                                                                          | Cm 243    |                            | 8                 |                 | 8                 |
| Ba 133       |                            |                   |                 |                                                                            | Cm 244    |                            | 8                 |                 | 8                 |
| La 137       |                            |                   |                 |                                                                            | Cm 245    |                            | 8                 |                 | 8                 |
| La 138       |                            |                   |                 |                                                                            | Cm 246    |                            | 8                 |                 | 8                 |
| Ce 144       |                            | 8                 |                 | 8                                                                          | Cm 248    |                            |                   |                 |                   |
| Pm 145       |                            |                   |                 |                                                                            | Cf 249    |                            |                   |                 |                   |
| Pm 147       |                            | 8                 |                 | 8                                                                          | Cf 250    |                            |                   |                 |                   |
| Sm 147       |                            |                   |                 |                                                                            | Cf 251    |                            |                   |                 |                   |
| Sm 151       |                            | 8                 |                 | 8                                                                          | Cf 252    |                            |                   |                 |                   |
| Eu 152       |                            | 8                 |                 | 8                                                                          | Unsp a    |                            | 8                 |                 | 8                 |
| Eu 154       |                            | 8                 |                 | 8                                                                          | Unsp b/g  | 5.00E-01                   | C C 2             | 5.00E+02        | C C 2             |
| Eu 155       |                            | 8                 |                 | 8                                                                          | Total a   | 0                          | *                 | 0               | *                 |
|              |                            |                   |                 |                                                                            | Total b/g | 6.98E+01                   | *                 | 9.20E+02        | *                 |

#### 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