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| WASTE STREAM | 9G131 | AETP Sand & Sludge |
|---------------------|--------------|-------------------------------|

SITE Trawsfynydd
SITE OWNER Nuclear Decommissioning Authority
WASTE CUSTODIAN Magnox Limited
WASTE TYPE ILW

WASTE VOLUMES

| | | Reported |
|---------------------------------|-----------------------|--------------------|
| Stocks: | At 1.4.2019..... | 6.5 m ³ |
| Total future arisings: | | 0 m ³ |
| Total waste volume: | | 6.5 m ³ |
| Comment on volumes: | - | |
| Uncertainty factors on volumes: | Stock (upper): x 1.2 | Arisings (upper) x |
| | Stock (lower): x 0.25 | Arisings (lower) x |

WASTE SOURCE -

PHYSICAL CHARACTERISTICS

General description: -
 Physical components (%vol): -
 Sealed sources: -
 Bulk density (t/m³): 1.5
 Comment on density: Based on 9G126 DWTP Sand Filtration vessel

CHEMICAL COMPOSITION

General description and components (%wt): -
 Chemical state: -
 Chemical form of radionuclides: -
 Metals and alloys (%wt): -

| |
|---------------------------|
| Stainless steel..... |
| Other ferrous metals..... |
| Iron..... |
| Aluminium..... |
| Beryllium..... |
| Cobalt..... |
| Copper..... |
| Lead..... |
| Magnox/Magnesium..... |
| Nickel..... |
| Titanium..... |
| Uranium..... |
| Zinc..... |
| Zircaloy/Zirconium..... |
| Other metals..... |

Organics (%wt): -

WASTE STREAM**9G131****AETP Sand & Sludge**

| | | |
|-------------------------|-------------------------------------|----|
| | Total cellulose..... | 0 |
| | Paper, cotton..... | |
| | Wood..... | |
| | Halogenated plastics | |
| | Total non-halogenated plastics..... | 0 |
| | Condensation polymers..... | |
| | Others..... | |
| | Organic ion exchange materials.... | |
| | Total rubber..... | 0 |
| | Halogenated rubber | |
| | Non-halogenated rubber..... | |
| | Hydrocarbons..... | |
| | Oil or grease | |
| | Fuel..... | |
| | Asphalt/Tarmac (cont.coal tar)... | |
| | Asphalt/Tarmac (no coal tar).... | |
| | Bitumen..... | |
| | Others..... | |
| | Other organics..... | |
| Other materials (%wt): | - | |
| | Inorganic ion exchange materials. | |
| | Inorganic sludges and flocs..... | NE |
| | Soil..... | |
| | Brick/Stone/Rubble..... | |
| | Cementitious material..... | |
| | Sand..... | NE |
| | Glass/Ceramics..... | |
| | Graphite..... | |
| | Desiccants/Catalysts..... | |
| | Asbestos..... | |
| | Non/low friable..... | |
| | Moderately friable..... | |
| | Highly friable..... | |
| | Free aqueous liquids..... | |
| | Free non-aqueous liquids..... | |
| | Powder/Ash..... | |
| Inorganic anions (%wt): | - | |

- Fluoride.....
- Chloride.....
- Iodide.....
- Cyanide.....
- Carbonate.....
- Nitrate.....
- Nitrite.....
- Phosphate.....
- Sulphate.....
- Sulphide.....

Materials of interest for waste acceptance criteria:

-
- Combustible metals.....
- Low flash point liquids.....
- Explosive materials.....
- Phosphorus.....
- Hydrides.....
- Biological etc. materials.....
- Biodegradable materials.....
 - Putrescible wastes.....
 - Non-putrescible wastes.....
- Corrosive materials.....
- Pyrophoric materials.....
- Generating toxic gases.....
- Reacting with water.....
- Active particles.....
- Soluble solids as bulk chemical compounds.....

Hazardous substances / non hazardous pollutants:

-
- Acrylamide.....
- Benzene.....
- Chlorinated solvents.....
- Formaldehyde.....
- Organometallics.....
- Phenol.....
- Styrene.....
- Tri-butyl phosphate.....
- Other organophosphates.....
- Vinyl chloride.....
- Arsenic.....
- Barium.....
- Boron.....

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- Cadmium.....
- Caesium.....
- Selenium.....
- Chromium.....
- Molybdenum.....
- Thallium.....
- Tin.....
- Vanadium.....
- Mercury compounds.....
- Others.....
- Electronic Electrical Equipment (EEE)
 - EEE Type 1.....
 - EEE Type 2.....
 - EEE Type 3.....
 - EEE Type 4.....
 - EEE Type 5.....

Complexing agents (%wt):

- EDTA.....
- DPTA.....
- NTA.....
- Polycarboxylic acids.....
- Other organic complexants.....
- Total complexing agents.....

PACKAGING AND CONDITIONING

Conditioning method: This waste stream will be co-packaged with 9G64, 9G72, 9G73, 9G125, 9G126 & 9G129. Container numbers for all the above streams are allocated to this stream 9G131.

- Plant Name: -
- Location: -
- Plant startup date: -
- Total capacity (m³/y incoming waste): -
- Target start date for packaging this stream: -
- Throughput for this stream (m³/y incoming waste): -
- Other information: -

Likely container type:

| Container | Waste packaged (%vol) | Waste loading (m ³) | Payload (m ³) | Number of packages |
|-------------------------------------|-----------------------|---------------------------------|---------------------------|--------------------|
| 3m ³ box (round corners) | 100.0 | ~0.31 | 2.7 | 21 |

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Likely container type comment: -

Range in container waste volume: -

Other information on containers: -

Likely conditioning matrix: Other information: -

Conditioned density (t/m³): -

Conditioned density comment: -

Other information on conditioning: -

Opportunities for alternative disposal routing:

| Treatment | Stream volume (%) | Comment |
|-----------|-------------------|---------|
| - | - | - |

RADIOACTIVITY

Source: -

Uncertainty: -

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

Measurement of radioactivities: -

Other information: -

WASTE STREAM 9G131 AETP Sand & Sludge

| Nuclide | Mean radioactivity, TBq/m ³ | | | | Nuclide | Mean radioactivity, TBq/m ³ | | | |
|---------|--|----------------|-----------------|----------------|------------------|--|----------------|-----------------|----------------|
| | Waste at 1.4.2019 | Bands and Code | Future arisings | Bands and Code | | Waste at 1.4.2019 | 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 | | | | | Tl 204 | | | | |
| Mn 54 | | | | | Pb 205 | | | | |
| Fe 55 | | | | | Pb 210 | | | | |
| Co 60 | | | | | Bi 208 | | | | |
| Ni 59 | | | | | Bi 210m | | | | |
| Ni 63 | | | | | Po 210 | | | | |
| Zn 65 | | | | | Ra 223 | | | | |
| Se 79 | | | | | Ra 225 | | | | |
| Kr 81 | | | | | Ra 226 | | | | |
| Kr 85 | | | | | Ra 228 | | | | |
| Rb 87 | | | | | Ac 227 | | | | |
| Sr 90 | | | | | Th 227 | | | | |
| Zr 93 | | | | | Th 228 | | | | |
| Nb 91 | | | | | Th 229 | | | | |
| Nb 92 | | | | | Th 230 | | | | |
| Nb 93m | | | | | Th 232 | | | | |
| Nb 94 | | | | | Th 234 | | | | |
| Mo 93 | | | | | Pa 231 | | | | |
| Tc 97 | | | | | Pa 233 | | | | |
| Tc 99 | | | | | U 232 | | | | |
| Ru 106 | | | | | U 233 | | | | |
| Pd 107 | | | | | U 234 | | | | |
| Ag 108m | | | | | U 235 | | | | |
| Ag 110m | | | | | U 236 | | | | |
| Cd 109 | | | | | U 238 | | | | |
| Cd 113m | | | | | Np 237 | | | | |
| Sn 119m | | | | | Pu 236 | | | | |
| Sn 121m | | | | | Pu 238 | | | | |
| Sn 123 | | | | | Pu 239 | | | | |
| Sn 126 | | | | | Pu 240 | | | | |
| Sb 125 | | | | | Pu 241 | | | | |
| Sb 126 | | | | | Pu 242 | | | | |
| Te 125m | | | | | Am 241 | | | | |
| Te 127m | | | | | Am 242m | | | | |
| I 129 | | | | | Am 243 | | | | |
| Cs 134 | | | | | Cm 242 | | | | |
| Cs 135 | | | | | Cm 243 | | | | |
| Cs 137 | | | | | Cm 244 | | | | |
| Ba 133 | | | | | Cm 245 | | | | |
| La 137 | | | | | Cm 246 | | | | |
| La 138 | | | | | Cm 248 | | | | |
| Ce 144 | | | | | Cf 249 | | | | |
| Pm 145 | | | | | Cf 250 | | | | |
| Pm 147 | | | | | Cf 251 | | | | |
| Sm 147 | | | | | Cf 252 | | | | |
| Sm 151 | | | | | Other a | NE | | | |
| Eu 152 | | | | | Other b/g | NE | | | |
| Eu 154 | | | | | Total a | NE | | | 0 |
| Eu 155 | | | | | Total b/g | NE | | | 0 |

Bands (Upper and Lower)

- A a factor of 1.5
- B a factor of 3
- C a factor of 10
- D a factor of 100
- E a factor of 1000

Note: Bands quantify uncertainty in mean radioactivity.

Code

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