WASTE STREAM 9D926 ILW Skip Millings

SITE	Hinkley Point A
SITE OWNER	Nuclear Decommissioning Authority
WASTE CUSTODIAN	Magnox Limited
WASTE TYPE	ILW
Is the waste subject to Scottish Policy:	No

WASTE VOLUMES

		Reported
Stocks:	At 1.4.2022.....	~0.3 m³
Total future arisings:		0 m³
Total waste volume:		0.3 m³
Comment on volumes:	This waste stream is a result of skip milling	
Uncertainty factors on volumes:	Stock (upper): x 1.2	Arisings (upper) x
	Stock (lower): x 0.8	Arisings (lower) x

WASTE SOURCE This waste stream is a result of skip milling

PHYSICAL CHARACTERISTICS

General description:	Metal swarf and paint from the milling of ponds skips
Physical components (%vol):	-
Sealed sources:	The waste does not contain sealed sources.
Bulk density (t/m³):	1
Comment on density:	-

CHEMICAL COMPOSITION

General description and components (%wt):	Metal swarf and paint, percentage composition not estimated.
Chemical state:	-
Chemical form of radionuclides:	-
Metals and alloys (%wt):	-

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

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Other metals.....

Organics (%wt): -

	(%wt)	Type(s) and comment	% of total C14 activity
Total cellulosics.....	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): -

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

Inorganic anions (%wt): -

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	(%wt)	Type(s) and comment
Fluoride.....		
Chloride.....		
Iodide.....		
Cyanide.....		
Carbonate.....		
Nitrate.....		
Nitrite.....		
Phosphate.....		
Sulphate.....		
Sulphide.....		

Materials of interest for waste acceptance criteria: -

	(%wt)	Type(s) and comment
Combustible metals.....		
Low flash point liquids.....		
Explosive materials.....		
Phosphorus.....		
Hydrides.....		
Biological etc. materials.....		
Biodegradable materials.....	0	
Putrescible wastes.....		
Non-putrescible wastes.....		
Corrosive materials.....		
Pyrophoric materials.....		
Generating toxic gases.....		
Reacting with water.....		
Higher activity particles.....		
Soluble solids as bulk chemical compounds.....		

Hazardous substances / non hazardous pollutants: -

	(%wt)	Type(s) and comment
Acrylamide.....		
Benzene.....		
Chlorinated solvents.....		
Formaldehyde.....		
Organometallics.....		
Phenol.....		
Styrene.....		
Tri-butyl phosphate.....		
Other organophosphates.....		

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Vinyl chloride.....

Arsenic.....

Barium.....

Boron..... 0

Boron (in Boral).....

Boron (non-Boral).....

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):

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

Potential for the waste to contain discrete items: Not yet determined. In & of itself not a DI; waste stream may include DIs (notably any stainless steel components)

PACKAGING AND CONDITIONING

Conditioning method: Gravel and particulate conditioning plant (PCF or tumble mix TBC)

Plant Name: -

Location: -

Plant startup date: -

Total capacity (m^3/y incoming waste): -

Target start date for packaging this stream: -

Throughput for this stream (m^3/y incoming waste): -

Other information: Assume will be co-disposed with ponds skips or MCI, no containers allocated to this

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stream.

Likely container type:

Container	Waste packaged (%vol)	Waste loading (m^3)	Payload (m^3)	Number of packages

Likely container type comment: -

Range in container waste volume: -

Other information on containers: -

Likely conditioning matrix:

Other information: -

Conditioned density (t/m^3): -

Conditioned density comment: -

Other information on conditioning: -

Opportunities for alternative disposal routing: -

Baseline Management Route	Opportunity Management Route	Stream volume (%)	Estimated Date that Opportunity will be realised	Opportunity Confidence	Comment
-	-	-	-	-	-

RADIOACTIVITY

Source: -

Uncertainty: The values quoted represent an indicative Total Activity derived from decay correction of skip millings trial data (HPA/PROG/PP1-3/0453).

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: As per HINA/WASTE/076 (PROG/HPA/SILW/0069) this update was derived from data provided in the skip milling trials report project report HPA/PROG/PP1-3/0453 (information in this report indicates ~39 kg of waste with a density of ~1 t/m3, contained ~1.1 GBq Total Activity). Split between Pu-239 & Pu-240 is set so that Pu-239 comprises 50% of the isotope pair.

Other information: -

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Nuclide	Mean radioactivity, TBq/m³ Waste at 1.4.2022	Bands and Code	Future arisings	Bands and Code	Nuclide	Mean radioactivity, TBq/m³ Waste at 1.4.2022	Bands and Code	Future arisings	Bands and Code
H 3	8.69E-06	C C 2			Gd 153				
Be 10					Ho 163				
C 14	5.3E-06	C C 2			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	5.98E-06	C C 2			Pb 210		8		
Co 60	1.76E-05	C C 2			Bi 208				
Ni 59					Bi 210m				
Ni 63	7.23E-06	C C 2			Po 210		8		
Zn 65					Ra 223		8		
Se 79					Ra 225		8		
Kr 81					Ra 226		8		
Kr 85					Ra 228		8		
Rb 87					Ac 227		8		
Sr 90	1.78E-02	C C 2			Th 227		8		
Zr 93					Th 228		8		
Nb 91					Th 229		8		
Nb 92					Th 230		8		
Nb 93m					Th 232		8		
Nb 94	5.11E-07	C C 2			Th 234				
Mo 93					Pa 231		8		
Tc 97					Pa 233		8		
Tc 99					U 232				
Ru 106	4.21E-08	C C 2			U 233		8		
Pd 107					U 234		8		
Ag 108m	1.24E-06	C C 2			U 235		8		
Ag 110m					U 236		8		
Cd 109					U 238				
Cd 113m					Np 237		8		
Sn 119m					Pu 236				
Sn 121m					Pu 238	6.72E-05	C C 2		
Sn 123					Pu 239	8.17E-05	C C 2		
Sn 126					Pu 240	8.17E-05	C C 2		
Sb 125	8.36E-07	C C 2			Pu 241	2.51E-03	C C 2		
Sb 126					Pu 242				
Te 125m	2.09E-07	C C 2			Am 241	2.76E-04	C C 2		
Te 127m					Am 242m				
I 129					Am 243				
Cs 134	4.83E-07	C C 2			Cm 242				
Cs 135					Cm 243				
Cs 137	2.05E-03	C C 2			Cm 244				
Ba 133	2.04E-06	C C 2			Cm 245				
La 137					Cm 246				
La 138					Cm 248				
Ce 144					Cf 249				
Pm 145					Cf 250				
Pm 147	7.86E-06	C C 2			Cf 251				
Sm 147		8			Cf 252				
Sm 151					Other a				
Eu 152	3.37E-06	C C 2			Other b/g				
Eu 154	1.57E-05	C C 2			**Total a**	**5.07E-04**	**C C 2**	**0**	
Eu 155	3.99E-06	C C 2			**Total b/g**	**2.25E-02**	**C C 2**	**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