

WASTE STREAM	9H39	Future arisings (potential ILW)
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SITE Wylfa

SITE OWNER Nuclear Decommissioning Authority

WASTE CUSTODIAN Nuclear Restoration Services Ltd (NRS)

WASTE TYPE ILW

WASTE VOLUMES

	Reported (m ³)	OR	Conditioned (m ³)	Packaged (m ³)
Stocks:	At 1.4.2025	= 0		
Future arisings:	1.4.2025 - 31.3.2026	1.6		
	1.4.2026 - 31.3.2030	3.1		
Total future arisings:		4.7		
Total waste volume:		4.7		

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

Comment on arising rates: -

Additional information on quantities: -

Uncertainty factors on volumes:

Stock (upper):	x -	Arisings (upper):	x 1.50
Stock (lower):	x -	Arisings (lower):	x 0.50

WASTE SOURCE There are various quantities of other material that may be sentenced as ILW in the future.

PHYSICAL CHARACTERISTICS

General description: Retrieved ILW - Fine particulate and skip tubes (0.6m³), Radium arm - Tube - in two sections with a bolted flange (0.1m³), Radius tray - Curved channel section (0.2m³), Bellows x 3 - Flanged bellows section (0.06m³), Ball valves x 2 - Flanged ball valve - minus actuator (0.04m³), Metal filter - 6 off metal filters (0.06m³), Metal filter - debris in catcher pot - assume catcher pot is ILW (0.04m³), Trough - size reduced 304 ss 6mm thick plate (0.35m³), BCD probes and foil carriers - size reduced and in a single 200l drum (0.2m³), pile cap services coolers - constructed from 3 inverted and finned U tubes each 10ft x 3" off a header (0.4m³), BCD effluent header - 1" NB pipe used to blow down isolated but pressurised components (2.6m³)

Changes since waste generated: -

Bulk density (t/m³): = 1.0

Comment on density: Holding value

CHEMICAL COMPOSITION

General description and components (%wt): -

Chemical state: -

Sheet metal proportion / thickness: -

Metals and alloys (%wt):

	(%wt)	Type(s) / Grades(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.....	-		
Other metals.....	-		

Organics (%wt):

	(%wt)	Type(s) and comment	% of total C14 activity
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):

	(%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.....	-	-	

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

Inorganic anions (%wt):

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

Complexing agents (%wt):

No		
	(%wt)	Type(s) and comment
EDTA.....		-
DPTA.....		-
NTA.....		-
Polycarboxylic acids.....		-
Other organic complexants.....		-
Total complexing agents.....		-

Physical components:

	Number	Type(s) and comment
Sources.....		-
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:

This waste stream will be containerised into DCICs with no drying expected to be required.

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
	3 m³ RS box	100.0	2.3	2.5	2	-

Range in container waste loading: -

Other information on packaging and conditioning: -

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)	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: -

Uncertainty: -

Measurement of radioactivities: No data available.

Chemical form of radionuclides:

H-3: -
C-14: -
Cl-36: -
Se-79: -
Tc-99: -
I-129: -
Ra: -
Th: -
U: -
Np: -
Pu: -

WASTE STREAM		9H39		Future arisings (potential ILW)			
Nuclide	Mean radioactivity, TBq/m³			Nuclide	Mean radioactivity, TBq/m³		
	Waste at 1.4.2025	Bands and Code	Bands and Future Arisings Code		Waste at 1.4.2025	Bands and Code	Bands and Future Arisings 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				Unsp a			
Eu 152				Unsp b/g			
Eu 154				Total a	0	*	0
Eu 155				Total b/g	0	*	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 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