

WASTE STREAM	9D916	C&M Preps LLW Buildings
--------------	-------	-------------------------

SITE Hinkley Point A

SITE OWNER Nuclear Decommissioning Authority

WASTE CUSTODIAN Nuclear Restoration Services Ltd (NRS)

WASTE TYPE LLW

WASTE VOLUMES

	Reported (m ³)	OR	Conditioned (m ³)	Packaged (m ³)
Stocks:	At 1.4.2025	= 0		
Future arisings:	1.4.2025 - 31.3.2027	167.4		
Total future arisings:		167.4		
Total waste volume:		167.4		

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 1.10
Stock (lower):	x -	Arisings (lower):	x 0.80

WASTE SOURCE Initial Decommissioning Works and procedures in the Decontamination Building.

PHYSICAL CHARACTERISTICS

General description: Hard trash and redundant equipment including metal, plastic, rubber and glass. Small quantities of cellulosic materials such as paper. Large items will be cut to fit standard packages.

Changes since waste generated: -

Bulk density (t/m³): ~ 0.46

Comment on density: -

CHEMICAL COMPOSITION

General description and components (%wt): Redundant mechanical equipment and trash (~100%wt). Metal (including drums) (87%wt), rubble (5%wt), soil (1%wt), soft organic (2%wt), plastics/rubber (3%wt), wood (1%wt), other materials (1%wt). Other materials consist mainly of glass.

Chemical state: Neutral

Sheet metal proportion / thickness: Typical thicknesses have not been estimated although the drums will have walls ~1mm thick.

Metals and alloys (%wt):

	(%wt)	Type(s) / Grades(s) with proportions	% of total C14 activity
Stainless steel.....	NE	-	
Other ferrous metals.....	= 87.1	carbon and low alloy steels	
Iron.....		-	
Aluminium.....	TR	-	
Beryllium.....		-	
Cobalt.....		-	
Copper.....		-	
Lead.....	TR	Lead may be present in trace amounts.	
Magnox/Magnesium.....	= 0	-	
Nickel.....	~ 0.09	-	
Titanium.....		-	
Uranium.....		-	
Zinc.....	~ 0.19	In galvanised metals	
Zircaloy/Zirconium.....	= 0	-	
Other metals.....	= 0	-	

Organics (%wt):

	(%wt)	Type(s) and comment	% of total C14 activity
Total cellulose.....	= 1.0	-	
Paper, cotton.....		-	
Wood.....	= 1.0	-	
Halogenated plastics.....	~ 1.0	Halogenated plastic as PVC and possibly halogenated rubber as neoprene may be present.	
Total non-halogenated plastics.....	~ 1.0	-	
Condensation polymers.....	~ 0.50	-	
Others.....	~ 0.50	-	
Organic ion exchange materials.....	= 0	-	
Total rubber.....	~ 1.0	Halogenated plastic as PVC and possibly halogenated rubber as neoprene may be present.	
Halogenated rubber.....	~ 0.50	-	
Non-halogenated rubber.....	~ 0.50	-	
Hydrocarbons.....	-	-	
Oil or grease.....	-	-	
Fuel.....	-	-	
Asphalt/Tarmac (cont.coal tar).....	-	-	
Asphalt/Tarmac (no coal tar).....	-	-	
Bitumen.....	-	-	
Others.....	-	-	
Other organics.....	TR	-	

Other materials (%wt):

	(%wt)	Type(s) and comment	% of total C14 activity
Inorganic ion exchange materials.....	= 0	-	
Inorganic sludges and flocs.....	= 0	-	
Soil.....	= 1.0	-	
Brick/Stone/Rubble.....	= 5.0	-	
Cementitious material.....	= 0	-	
Sand.....	-	-	
Glass/Ceramics.....	~ 1.0	-	
Graphite.....	= 0	-	
Desiccants/Catalysts.....	-	-	
Asbestos.....	= 0	-	
Non/low friable.....	-	-	
Moderately friable.....	-	-	
Highly friable.....	-	-	
Free aqueous liquids.....	= 0	-	
Free non-aqueous liquids.....	= 0	-	
Powder/Ash.....	TR	-	

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

Inorganic anions (%wt):

	(%wt)	Type(s) and comment
Fluoride.....	TR	-
Chloride.....	TR	-
Iodide.....	TR	-
Cyanide.....	= 0	-
Carbonate.....	TR	-
Nitrate.....	TR	-
Nitrite.....	TR	-
Phosphate.....	TR	-
Sulphate.....	TR	-
Sulphide.....	TR	-

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.....	~ 2.0	-
Putrescible wastes.....	~ 1.0	-
Non-putrescible wastes.....	~ 1.0	-
Corrosive materials.....	= 0	-
Pyrophoric materials.....	= 0	-
Generating toxic gases.....	= 0	-
Reacting with water.....	P	28m2
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.....	= 0.19	-
Caesium.....		-
Selenium.....		-
Chromium.....		-
Molybdenum.....		-
Thallium.....		-
Tin.....		-
Vanadium.....		-
Mercury compounds.....		-
Others.....		-

Complexing agents (%wt):

Yes		
	(%wt)	Type(s) and comment
EDTA.....	TR	-
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	Off-site	= 5.0
Decay storage		
Low force compaction		
Supercompaction (HFC)		
Incineration		
Drying/dewatering/liquid separation	Off-site	= 60.0
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		= 35.0
Treatment not yet determined		
None		

Comments on planned treatments:

60% of this waste stream is expected to be sent for Metal Recycle, 30% LLW disposal, 5% Incineration and 5% to Landfill as VLLW.

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)	30.0	10.0	18.3	6	-

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)			
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	= 30.0	0.46	
Expected to be consigned to a Landfill Facility	= 5.0	0.46	
Expected to be disposed On-Site			
Expected to be managed by In-Situ Disposal			
Expected to be consigned to an Incineration Facility	= 5.0	0.40	
Expected to be consigned to a Metal Treatment Facility	= 60.0	1.4	
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: 17 04 05, 17 04 07, 17 01 07, 17 02 03

Opportunities for alternative disposal routing: No

Baseline Management Route	Opportunity Management Route	Stream volume (%)	Opportunity Confidence	Comment
-	-	-	-	-

RADIOACTIVITY

Source: Activation and contamination of materials.

Uncertainty: Activity values are current best estimates. The values quoted are indicative of the activities that are expected. They are estimates based upon operating experience.

Measurement of radioactivities: -

Chemical form of radionuclides:

H-3: The chemical form of Tritium has not been determined but may be present as surface contamination of waste by tritiated liquor.

C-14: The chemical form of carbon-14 has not been determined but may be in the form of graphite dust.

Cl-36: The chemical form of chlorine 36 has not been determined but may be present as a contaminant of graphite dust.

Se-79: The selenium content is insignificant.

Tc-99: The technetium content is insignificant.

I-129: -

Ra: The radium isotope content is insignificant.

Th: The thorium content is insignificant.

U: The uranium isotope content is insignificant.

Np: The neptunium content is insignificant.

Pu: The plutonium isotope content is probably in the form of plutonium oxides.

WASTE STREAM 9D916 C&M Preps LLW Buildings									
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			2.42E-05	C C 1	Gd 153				8
Be 10				8	Ho 163				8
C 14			8.08E-07	C C 1	Ho 166m				8
Na 22				8	Tm 170				8
Al 26				8	Tm 171				8
Cl 36			4.41E-07	C C 1	Lu 174				8
Ar 39				8	Lu 176				8
Ar 42				8	Hf 178n				8
K 40				8	Hf 182				8
Ca 41				8	Pt 193				8
Mn 53				8	Ti 204				8
Mn 54				8	Pb 205				8
Fe 55			1.59E-07	C C 1	Pb 210				8
Co 60			4.75E-07	C C 2	Bi 208				8
Ni 59				8	Bi 210m				8
Ni 63			2.12E-06	C C 1	Po 210				8
Zn 65				8	Ra 223				8
Se 79				8	Ra 225				8
Kr 81				8	Ra 226				8
Kr 85				8	Ra 228				8
Rb 87				8	Ac 227				8
Sr 90			1.78E-06	C C 1	Th 227				8
Zr 93				8	Th 228				8
Nb 91				8	Th 229				8
Nb 92				8	Th 230				8
Nb 93m				8	Th 232				8
Nb 94			3.43E-08	C C 2	Th 234			1.00E-08	8
Mo 93				8	Pa 231				8
Tc 97				8	Pa 233				8
Tc 99				8	U 232				8
Ru 106				8	U 233				8
Pd 107				8	U 234			8.57E-09	C C 1
Ag 108m			3.96E-08	C C 2	U 235			1.43E-09	C C 1
Ag 110m				8	U 236			8.57E-09	C C 1
Cd 109				8	U 238			1.00E-08	C C 1
Cd 113m				8	Np 237				8
Sn 119m				8	Pu 236				8
Sn 121m				8	Pu 238			1.16E-07	C C 1
Sn 123				8	Pu 239			1.37E-07	C C 1
Sn 126				8	Pu 240			1.79E-07	C C 1
Sb 125				8	Pu 241			3.04E-06	C C 1
Sb 126				8	Pu 242				8
Te 125m				8	Am 241			6.79E-07	C C 1
Te 127m				8	Am 242m				8
I 129				8	Am 243				8
Cs 134				8	Cm 242				8
Cs 135				8	Cm 243				8
Cs 137			5.00E-06	C C 2	Cm 244			7.95E-09	C C 1
Ba 133			5.01E-08	C C 2	Cm 245				8
La 137				8	Cm 246				8
La 138				8	Cm 248				8
Ce 144				8	Cf 249				8
Pm 145				8	Cf 250				8
Pm 147			1.49E-08	C C 1	Cf 251				8
Sm 147				8	Cf 252				8
Sm 151				8	Unsp a				
Eu 152			2.10E-08	C C 2	Unsp b/g				
Eu 154			1.41E-08	C C 2	Total a	0	*	1.15E-06	*
Eu 155			4.85E-09	C C 2	Total b/g	0	*	3.82E-05	*

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