

WASTE STREAM	9G74	Wet / Mobile Waste - WRATS
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SITE Trawsfynydd

SITE OWNER Nuclear Decommissioning Authority

WASTE CUSTODIAN Magnox Limited

WASTE TYPE LLW

WASTE VOLUMES

		Reported
Stocks:	At 1.4.2019.....	2.0 m ³
Total future arisings:		0 m ³
Total waste volume:		2.0 m ³

Comment on volumes: There are no more arisings of this waste stream.

Uncertainty factors on volumes:	Stock (upper):	x 1.2	Arisings (upper)	x
	Stock (lower):	x 0.8	Arisings (lower)	x

WASTE SOURCE This is a holding waste stream until the wastes are identified and allocated to the relevant LLW stream for disposal.

PHYSICAL CHARACTERISTICS

General description: This is a holding waste stream - no specific data available.

Physical components (%vol): No breakdown of the waste in this stream is available.

Sealed sources: -

Bulk density (t/m³): ~1.5

Comment on density: The assumption of 1.5 t/m³ as the average bulk density may be subject to revision.

CHEMICAL COMPOSITION

General description and components (%wt): No breakdown of the waste in this stream is available.

Chemical state: -

Chemical form of radionuclides:

- H-3: Tritium may be present as water or in the form of other inorganic or organic compounds.
- C-14: Chemical form of carbon 14 has not been determined but may be graphite.
- Se-79: The chemical form of selenium has not been determined.
- Tc-99: The chemical form of technetium has not been determined.
- Ra: Radium isotope content is insignificant.
- Th: Radium isotope content is insignificant.
- U: Chemical form of uranium isotopes has not been determined but may be uranium oxides.
- Np: The chemical form of neptunium has not been determined.
- Pu: Chemical form of plutonium isotopes has not been determined but may be plutonium oxides.

Metals and alloys (%wt): -

Stainless steel.....	NE
Other ferrous metals.....	NE
Iron.....	
Aluminium.....	NE
Beryllium.....	
Cobalt.....	
Copper.....	NE
Lead.....	NE
Magnox/Magnesium.....	NE
Nickel.....	
Titanium.....	

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	Uranium.....	
	Zinc.....	NE
	Zircaloy/Zirconium.....	NE
	Other metals.....	0
Organics (%wt):	Not assessed. Halogenated plastics and rubbers are not assessed but not expected to be in excess of trace quantities.	
	Total cellulose.....	NE
	Paper, cotton.....	NE
	Wood.....	NE
	Halogenated plastics	NE
	Total non-halogenated plastics.....	NE
	Condensation polymers.....	NE
	Others.....	NE
	Organic ion exchange materials....	0
	Total rubber.....	NE
	Halogenated rubber	NE
	Non-halogenated rubber.....	NE
	Hydrocarbons.....	
	Oil or grease	
	Fuel.....	
	Asphalt/Tarmac (cont.coal tar)...	
	Asphalt/Tarmac (no coal tar)....	
	Bitumen.....	
	Others.....	
	Other organics.....	NE
Other materials (%wt):	-	
	Inorganic ion exchange materials.	0
	Inorganic sludges and flocs.....	0
	Soil.....	NE
	Brick/Stone/Rubble.....	NE
	Cementitious material.....	NE
	Sand.....	
	Glass/Ceramics.....	NE
	Graphite.....	NE
	Desiccants/Catalysts.....	
	Asbestos.....	NE
	Non/low friable.....	
	Moderately friable.....	
	Highly friable.....	
	Free aqueous liquids.....	NE
	Free non-aqueous liquids.....	NE
	Powder/Ash.....	NE
Inorganic anions (%wt):	-	

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

Materials of interest for
 waste acceptance criteria:

The possible presence of materials likely to represent a fire or other non-radiological hazard has not been fully assessed.

Combustible metals..... NE
 Low flash point liquids..... NE
 Explosive materials..... NE
 Phosphorus..... NE
 Hydrides..... NE
 Biological etc. materials..... NE
 Biodegradable materials.....
 Putrescible wastes..... NE
 Non-putrescible wastes.....
 Corrosive materials..... NE
 Pyrophoric materials..... NE
 Generating toxic gases..... NE
 Reacting with water..... NE
 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):

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

TREATMENT, PACKAGING AND DISPOSAL

Planned on-site / off-site treatment(s):

Treatment	On-site / Off site	Stream volume %
Low force compaction		
Supercompaction (HFC)		
Incineration		
Solidification		
Decontamination		
Metal treatment		
Size reduction		
Decay storage		
Recycling / reuse		
Other / various		13.0
None		87.0

Comment on planned treatments:

13% of this waste stream is expected to be sent to Landfill as VLLW.

WASTE STREAM**9G74****Wet / Mobile Waste - WRATS****Disposal Routes:**

Disposal Route	Stream volume %
Expected to be consigned to the LLW Repository	87.0
Expected to be consigned to a Landfill Facility	13.0
Expected to be consigned to an On-Site Disposal Facility	
Expected to be consigned to an Incineration Facility	
Expected to be consigned to a Metal Treatment Facility	
Expected to be consigned as Out of Scope	
Expected to be recycled / reused	
Disposal route not known	

Upcoming (2019/20-2021/22) Waste Routing (if expected to change from above):

Disposal Route	Stream volume %		
	2019/20	2020/21	2021/22
Expected to be consigned to the LLW Repository			
Expected to be consigned to a Landfill Facility			
Expected to be consigned to an On-Site Disposal Facility			
Expected to be consigned to an Incineration Facility			
Expected to be consigned to a Metal Treatment Facility			
Expected to be consigned as Out of Scope			
Expected to be recycled / reused			
Disposal route not known			

Waste Packaging for Disposal:

Container	Stream volume %	Waste loading m ³	Number of packages
1/3 Height IP-1 ISO			
2/3 Height IP-2 ISO			
1/2 Height WAMAC IP-2 ISO			
1/2 Height IP-2 Disposal/Re-usable ISO	87.0	10	< 1
2m box (no shielding)			
4m box (no shielding)			
Other			

Other information: -

Waste Planned for Disposal at the LLW Repository:

Container voidage: -

Waste Characterisation Form (WCH): -

Waste consigned for disposal to LLWR in year of generation: No. These wastes will be sorted and assigned to specific waste streams. The waste will then be disposed of via these waste streams.

Potential for the waste to contain discrete items: -

Non-Containerised Waste for In-Vault Grouting: (Not applicable to this waste stream)

Stream volume (%): -

Waste stream variation: -

Bounding cuboidal volume:

Inaccessible voidage: -

Other information: -

WASTE STREAM**9G74****Wet / Mobile Waste - WRATS****RADIOACTIVITY**

Source:	This is a holding waste stream until the wastes are identified and allocated to the relevant stream for disposal.
Uncertainty:	No data is available at the moment.
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:	-

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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		8			Gd 153		8		
Be 10		8			Ho 163		8		
C 14		8			Ho 166m		8		
Na 22		8			Tm 170		8		
Al 26		8			Tm 171		8		
Cl 36		8			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			Tl 204		8		
Mn 54		8			Pb 205		8		
Fe 55		8			Pb 210		8		
Co 60		8			Bi 208		8		
Ni 59		8			Bi 210m		8		
Ni 63		8			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		8			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		8			Th 234		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		
Ag 108m		8			U 235		8		
Ag 110m		8			U 236		8		
Cd 109		8			U 238		8		
Cd 113m		8			Np 237		8		
Sn 119m		8			Pu 236		8		
Sn 121m		8			Pu 238		8		
Sn 123		8			Pu 239		8		
Sn 126		8			Pu 240		8		
Sb 125		8			Pu 241		8		
Sb 126		8			Pu 242		8		
Te 125m		8			Am 241		8		
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		8			Cm 244		8		
Ba 133		8			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		8			Cf 251		8		
Sm 147		8			Cf 252		8		
Sm 151		8			Other a	NE			
Eu 152		8			Other b/g	NE			
Eu 154		8			Total a	NE		0	
Eu 155		8			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