

WASTE STREAM	9G49	Contaminated Oil - Drummed
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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.....	2.9 m ³
Total future arisings:		0 m ³
Total waste volume:		2.9 m ³

Comment on volumes: The stock in 2006/07 was 83.2m³, out of which 18.2m³ was oil, 36m³ was sediment which is now allocated a new waste stream identifier 9G71. The remaining 36m³ was water. In 2017 the volume of 2.94m³ oil was updated to reflect number of drums in stock and volume given by ponds project

Uncertainty factors on volumes:	Stock (upper):	x 1.2	Arisings (upper)	x
	Stock (lower):	x 0.9	Arisings (lower)	x

WASTE SOURCE -

PHYSICAL CHARACTERISTICS

General description: The water and sediment have been separated from the oil. The oil is drummed and stored in 3 HHISO.

Physical components (%vol): -

Sealed sources: -

Bulk density (t/m³): 0.9

Comment on density: There is no information regarding the density of the oil. However the typical density of other oil waste streams is 0.9t/m³.

CHEMICAL COMPOSITION

General description and components (%wt): -

Chemical state: -

Chemical form of radionuclides: -

Metals and alloys (%wt): -

- Stainless steel..... 0
- Other ferrous metals..... 0
- Iron.....
- Aluminium..... 0
- Beryllium.....
- Cobalt.....
- Copper..... 0
- Lead..... 0
- Magnox/Magnesium..... 0
- Nickel.....
- Titanium.....
- Uranium.....
- Zinc..... 0
- Zircaloy/Zirconium..... 0
- Other metals..... 0

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Organics (%wt):

-	
Total cellulose.....	0
Paper, cotton.....	0
Wood.....	0
Halogenated plastics	0
Total non-halogenated plastics.....	0
Condensation polymers.....	0
Others.....	0
Organic ion exchange materials....	0
Total rubber.....	0
Halogenated rubber	0
Non-halogenated rubber.....	0
Hydrocarbons.....	100.0
Oil or grease	100.0
Fuel.....	
Asphalt/Tarmac (cont.coal tar)...	
Asphalt/Tarmac (no coal tar)....	
Bitumen.....	
Others.....	
Other organics.....	0

Other materials (%wt):

-	
Inorganic ion exchange materials.	0
Inorganic sludges and flocs.....	0
Soil.....	0
Brick/Stone/Rubble.....	0
Cementitious material.....	0
Sand.....	
Glass/Ceramics.....	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.....	0

Inorganic anions (%wt):

-

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Fluoride.....	0
Chloride.....	0
Iodide.....	0
Cyanide.....	0
Carbonate.....	0
Nitrate.....	0
Nitrite.....	0
Phosphate.....	0
Sulphate.....	0
Sulphide.....	0

Materials of interest for waste acceptance criteria:

-	
Combustible metals.....	0
Low flash point liquids.....	0
Explosive materials.....	0
Phosphorus.....	0
Hydrides.....	0
Biological etc. materials.....	0
Biodegradable materials.....	
Putrescible wastes.....	0
Non-putrescible wastes.....	
Corrosive materials.....	0
Pyrophoric materials.....	0
Generating toxic gases.....	0
Reacting with water.....	0
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):

No
 EDTA.....
 DPTA.....
 NTA.....
 Polycarboxylic acids.....
 Other organic complexants.....
 Total complexing agents..... 0

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 None	Off-site	100.0

Comment on planned treatments:

-

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Disposal Route	Stream volume %
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	100.0

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: (Not applicable to this waste stream)

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 2m box (no shielding) 4m box (no shielding) Other			

Other information: -

Waste Planned for Disposal at the LLW Repository: (Not applicable to this waste stream)

Container voidage: -

Waste Characterisation Form (WCH):

The oil is currently drummed and stored in the oil store. The oil is to be incinerated.

Waste consigned for disposal to LLWR in year of generation: -

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: -

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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: The only information available is the total alpha and total beta activities. It is assumed that the activities arise from H3 and Am241.

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		Waste at 1.4.2019	Bands and Code	Future arisings
H 3	2.86E-05	C C 6		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	4.96E-06	C C 6	
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			
Eu 152		8		Other b/g			
Eu 154		8		Total a	4.96E-06	C C 6	0
Eu 155		8		Total b/g	2.86E-05	C C 6	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