

WASTE STREAM	3S07	Station Maintenance and Operations LLW
--------------	------	--

SITE Sizewell B

SITE OWNER EDF Energy Nuclear Generation Ltd (EDFE NGL)

WASTE CUSTODIAN EDF Energy Nuclear Generation Ltd (EDFE NGL)

WASTE TYPE LLW

WASTE VOLUMES

	Reported (m ³)	OR	Conditioned (m ³)	Packaged (m ³)
Stocks:	At 1.4.2025	= 110.0		
Future arisings:	1.4.2025 - 31.3.2026	= 150.0		
	1.4.2026 - 31.3.2027	= 150.0		
	1.4.2027 - 31.3.2028	= 150.0		
	1.4.2028 - 31.3.2029	= 150.0		
	1.4.2029 - 31.3.2035	= 900.0		
	1.4.2035 - 31.3.2043	= 1200.0		
Total future arisings:		2700.0		
Total waste volume:		2810.0		

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

Comment on arising rates: Waste volumes aligned to WCH, but will be variable depending on station operating conditions.

Additional information on quantities: -

Uncertainty factors on volumes:

Stock (upper):	x 1.25	Arisings (upper):	x 1.50
Stock (lower):	x 0.75	Arisings (lower):	x 0.50

WASTE SOURCE Hard and soft trash arising from power station operation and maintenance.

PHYSICAL CHARACTERISTICS

General description: The waste comprises of material such as plastic sheeting, protective clothing, paper wipes, HVAC filters, vacuum cleaner bags, strainer socks, activated charcoal, metal components, rubble and other similar materials. These can be sub-categorised into combustible materials, shreddable materials and non combustible / nonshreddable materials. Prior to any processing, approximately 150m³ of waste is produced each year. Vacuum bags comprise of debris from plant cleaning / area decontamination and may include metallic / plastic swarf etc. Waste oil is also generated within this waste stream and is produced after draining of engines. Waste generated as part of the decontamination of reactor coolant pump and associated componets is incorporated within this waste stream. This includes contaminated liquor and a small volume of ion-exchange resin which contains additional hazardous properties.

Changes since waste generated: -

Bulk density (t/m³): ~ 0.20

Comment on density: Density from WCH - Raw Weight / Raw Volume.

CHEMICAL COMPOSITION

General description and components (%wt): Metal (21.5%wt), Paper / cotton (17%wt) , wood (1%wt), plastic (halogenated) (22%wt), plastic (non-halogenated) (22%wt), rubber (11.5%wt), oil/grease (1%wt), other organic (1%wt), soil (1%wt), Asbestos (1%wt), Powder/Ash (1%wt)

Chemical state: Neutral

Sheet metal proportion / thickness: -

Metals and alloys (%wt):

	(%wt)	Type(s) / Grades(s) with proportions	% of total C14 activity
Stainless steel.....	~ 9.0	-	
Other ferrous metals.....	~ 12.0	-	
Iron.....	NE	-	
Aluminium.....	= 0.20	-	
Beryllium.....	NE	-	
Cobalt.....	NE	-	
Copper.....	= 0.20	-	
Lead.....	P	-	
Magnox/Magnesium.....	NE	-	
Nickel.....	NE	-	
Titanium.....	NE	-	
Uranium.....	NE	-	
Zinc.....	= 0.10	-	
Zircaloy/Zirconium.....	NE	-	
Other metals.....	NE	-	

Organics (%wt):

	(%wt)	Type(s) and comment	% of total C14 activity
Total cellulotics.....	= 18.0	-	
Paper, cotton.....	= 17.0	-	
Wood.....	= 1.0	-	
Halogenated plastics.....	= 22.0	-	
Total non-halogenated plastics.....	= 22.0	-	
Condensation polymers.....	-	-	
Others.....	-	-	
Organic ion exchange materials.....	-	-	
Total rubber.....	= 11.5	-	
Halogenated rubber.....	= 11.5	-	
Non-halogenated rubber.....	-	-	
Hydrocarbons.....	= 1.0	-	
Oil or grease.....	= 1.0	-	
Fuel.....	-	-	
Asphalt/Tarmac (cont.coal tar).....	-	-	
Asphalt/Tarmac (no coal tar).....	-	-	
Bitumen.....	-	-	
Others.....	-	-	
Other organics.....	= 1.0	-	

Other materials (%wt):

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

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

Inorganic anions (%wt):

	(%wt)	Type(s) and comment
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:

	(%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.....	= 0	-
Putrescible wastes.....	= 0	-
Non-putrescible wastes.....	NE	-
Corrosive materials.....	= 0	-
Pyrophoric materials.....	= 0	-
Generating toxic gases.....	= 0	-
Reacting with water.....	= 0	-
Higher activity particles.....	= 0	-
Soluble solids as bulk chemical compounds.....	= 0	-

Hazardous substances / non hazardous pollutants:

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

Complexing agents (%wt):

	(%wt)	Type(s) and comment
EDTA.....	NE	-
DPTA.....	NE	-
NTA.....	NE	-
Polycarboxylic acids.....	NE	-
Other organic complexants.....	NE	Not expected.
Total complexing agents.....	= 0	-

Physical components:

	Number	Type(s) and comment
Sources.....	= 0	-
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		
Decay storage		
Low force compaction		
Supercompaction (HFC)	Off-site	~ 70.0
Incineration	Off-site	~ 20.0
Drying/dewatering/liquid separation		
Tie down/fixatives/strippable coating/painting application		
Decontamination		
Metal treatment	Off-site	~ 8.0
Recycling / reuse		
Thermal treatment, including vitrification		
Encapsulation	Off-site	~ 2.0
Polymer encapsulation		
Other physical treatment		
Other chemical treatment		
Containerisation		
Treatment not yet determined		
None		

Comments on planned treatments:

In line with the waste hierarchy, wastes will be treated preferentially by incineration, metal decontamination/melting, supercompaction, optimal packaging in HHISOs or immobilisation by encapsulation where necessary, prior to ultimate disposal at the LLW Repository. These treatments will be carried out off-site under contract with companies such as LLWR Ltd, Cyclife, Tradebe Inutec.

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)	72.0	58.0	18.3	35	-

Range in container waste loading:

Other information on packaging and conditioning:

Waste loading is representative of the raw waste following further planned treatments. Supercompaction assumed to reduce volume to 20% of original. Solidification assumed to increase volume to 300% of original. No treatment results in the same volume.

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	= 72.0		
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	= 20.0		
Expected to be consigned to a Metal Treatment Facility	= 8.0		
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: Contamination will be main source of activity with possibly some activation of certain reactor or fuel route components.

Uncertainty: The values quoted are indicative of the activities that may be expected.

Measurement of radioactivities: Activity values are based on fingerprint of waste stream.

Chemical form of radionuclides: H-3: In any residual moisture. Unlikely to be a significant fraction of the waste.
C-14: Trace (value unknown but not thought to be significant).
Cl-36: Not expected to be present in any measurable quantity.
Se-79: Not expected to be present in any measurable quantity.
Tc-99: Not expected to be present in any measurable quantity.
I-129: Not expected to be present in any measurable quantity.
Ra: Not expected to be present in any measurable quantity.
Th: Not expected to be present in any measurable quantity.
U: Trace (value unknown but not thought to be significant), probably as oxide.
Np: Not expected to be present in any measurable quantity.
Pu: Trace (value unknown but not thought to be significant), probably as oxide.

WASTE STREAM		3S07		Station Maintenance and Operations LLW					
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	3.52E-07	C C 2	3.52E-07	C C 2	Gd 153		8		8
Be 10		8		8	Ho 163		8		8
C 14	4.63E-07	C C 2	4.63E-07	C C 2	Ho 166m		8		8
Na 22		8		8	Tm 170		8		8
Al 26		8		8	Tm 171		8		8
Cl 36		8		8	Lu 174		8		8
Ar 39		8		8	Lu 176		8		8
Ar 42		8		8	Hf 178n		8		8
K 40		8		8	Hf 182		8		8
Ca 41		8		8	Pt 193		8		8
Mn 53		8		8	Tl 204		8		8
Mn 54	8.48E-06	C C 2	8.48E-06	C C 2	Pb 205		8		8
Fe 55	2.50E-04	C C 2	2.50E-04	C C 2	Pb 210		8		8
Co 60	1.15E-04	C C 2	1.15E-04	C C 2	Bi 208		8		8
Ni 59		8		8	Bi 210m		8		8
Ni 63	5.82E-05	C C 2	5.82E-05	C C 2	Po 210		8		8
Zn 65	4.55E-07	C C 2	4.55E-07	C C 2	Ra 223		8		8
Se 79		8		8	Ra 225		8		8
Kr 81		8		8	Ra 226		8		8
Kr 85		8		8	Ra 228		8		8
Rb 87		8		8	Ac 227		8		8
Sr 90	2.96E-07	C C 2	2.96E-07	C C 2	Th 227		8		8
Zr 93		8		8	Th 228		8		8
Nb 91		8		8	Th 229		8		8
Nb 92		8		8	Th 230		8		8
Nb 93m		8		8	Th 232		8		8
Nb 94		8		8	Th 234		8		8
Mo 93		8		8	Pa 231		8		8
Tc 97		8		8	Pa 233		8		8
Tc 99		8		8	U 232		8		8
Ru 106		8		8	U 233		8		8
Pd 107		8		8	U 234	1.81E-09	C C 2	1.81E-09	C C 2
Ag 108m	5.78E-07	C C 2	5.78E-07	C C 2	U 235	2.83E-13	C C 2	2.83E-13	C C 2
Ag 110m	1.11E-07	C C 2	1.11E-07	C C 2	U 236	2.12E-12	C C 2	2.12E-12	C C 2
Cd 109		8		8	U 238	1.80E-09	C C 2	1.80E-09	C C 2
Cd 113m		8		8	Np 237		8		8
Sn 119m		8		8	Pu 236		8		8
Sn 121m		8		8	Pu 238	1.03E-07	C C 2	1.03E-07	C C 2
Sn 123		8		8	Pu 239	6.81E-08	C C 2	6.81E-08	C C 2
Sn 126		8		8	Pu 240	7.76E-08	C C 2	7.76E-08	C C 2
Sb 125	3.00E-06	C C 2	3.00E-06	C C 2	Pu 241	6.37E-06	C C 2	6.37E-06	C C 2
Sb 126		8		8	Pu 242		8		8
Te 125m		8		8	Am 241	2.60E-07	C C 2	2.60E-07	C C 2
Te 127m		8		8	Am 242m		8		8
I 129		8		8	Am 243		8		8
Cs 134	1.37E-07	C C 2	1.37E-07	C C 2	Cm 242	2.93E-10	C C 2	2.93E-10	C C 2
Cs 135		8		8	Cm 243	4.40E-12	C C 2	4.40E-12	C C 2
Cs 137	1.51E-06	C C 2	1.51E-06	C C 2	Cm 244	3.92E-09	C C 2	3.92E-09	C C 2
Ba 133		8		8	Cm 245		8		8
La 137		8		8	Cm 246		8		8
La 138		8		8	Cm 248		8		8
Ce 144	3.86E-08	C 2	3.86E-08	C 2	Cf 249		8		8
Pm 145		8		8	Cf 250		8		8
Pm 147	4.64E-07	C 2	4.64E-07	C 2	Cf 251		8		8
Sm 147		8		8	Cf 252		8		8
Sm 151		8		8	Unsp a				
Eu 152		8		8	Unsp b/g	4.08E-06	C C 2	4.08E-06	C C 2
Eu 154		8		8	Total a	5.16E-07	*	5.16E-07	*
Eu 155	1.29E-07	C C 2	1.29E-07	C C 2	Total b/g	4.49E-04	*	4.49E-04	*

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