

WASTE STREAM**9C47****Miscellaneous Activated Components (including Nimonic Springs, Thermocouples, Nose Cones and End Caps)**

	Magnox/Magnesium.....	0	
	Nickel.....	100.0	90% Nimonic, 10% Inconel
	Titanium.....		
	Uranium.....		
	Zinc.....	0	
	Zircaloy/Zirconium.....	0	
	Other metals.....	0	
Organics (%wt):	There may be organic materials present in trace quantities. There are no halogenated plastics or rubbers present with the waste.		
	Total cellulosics.....	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.....		
	Oil or grease		
	Fuel.....		
	Asphalt/Tarmac (cont.coal tar)...		
	Asphalt/Tarmac (no coal tar)....		
	Bitumen.....		
	Others.....		
	Other organics.....	TR	
Other materials (%wt):	Traces of graphite may be present.		
	Inorganic ion exchange materials.	0	
	Inorganic sludges and flocs.....	0	
	Soil.....	0	
	Brick/Stone/Rubble.....	0	
	Cementitious material.....	0	
	Sand.....		
	Glass/Ceramics.....	0	
	Graphite.....	TR	
	Desiccants/Catalysts.....		
	Asbestos.....	0	
	Non/low friable.....		
	Moderately friable.....		
	Highly friable.....		
	Free aqueous liquids.....	TR	

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	Free non-aqueous liquids.....	0
	Powder/Ash.....	0
Inorganic anions (%wt):	Inorganic anions are not expected to be present at greater than trace concentrations.	
	Fluoride.....	TR
	Chloride.....	TR
	Iodide.....	0
	Cyanide.....	0
	Carbonate.....	TR
	Nitrate.....	TR
	Nitrite.....	TR
	Phosphate.....	TR
	Sulphate.....	TR
	Sulphide.....	0
Materials of interest for waste acceptance criteria:	No materials likely to pose a fire or other non-radiological hazard have been identified.	
	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:	None expected.	
	Acrylamide.....	
	Benzene.....	
	Chlorinated solvents.....	
	Formaldehyde.....	
	Organometallics.....	
	Phenol.....	
	Styrene.....	
	Tri-butyl phosphate.....	
	Other organophosphates.....	
	Vinyl chloride.....	

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Arsenic.....
 Barium.....
 Boron.....
 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):

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

PACKAGING AND CONDITIONING

Conditioning method: Waste loaded into Shielded Transfer Pots (STPs), up to 8 STPs to be placed into each Mosaik.
 Plant Name: -
 Location: Dungeness A Site
 Plant startup date: -
 Total capacity (m³/y incoming waste): -
 Target start date for packaging this stream: -
 Throughput for this stream (m³/y incoming waste): -
 Other information: -

Likely container type:	Container	Waste packaged (%vol)	Waste loading (m ³)	Payload (m ³)	Number of packages
	500 l RS drum (50mm Pb)	100.0	0.082	0.316	4

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Likely container type comment: -

Range in container waste volume: -

Other information on containers: -

Likely conditioning matrix: Other information: -

Conditioned density (t/m³): -

Conditioned density comment: -

Other information on conditioning: -

Opportunities for alternative disposal routing:

Treatment	Stream volume (%)	Comment
-	-	-

RADIOACTIVITY

Source: Nimonic springs originally incorporated into Magnox fuel element top end fittings and removed during fuel element desplitting. There will be activation products in the Nimonic and contamination by fission products and actinides.

Uncertainty: Specific activity is a function of Station operating history. The values quoted are indicative of the activities that might be expected.

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 Nimonic springs are expected to be of high activity. Induced activity has been calculated and fission product and actinide contamination levels have been based upon measurements of the activity of Magnox samples.

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	1.53E-03	CC 2			Gd 153		8		
Be 10		8			Ho 163		8		
C 14	6.00E-06	CC 2			Ho 166m		8		
Na 22		8			Tm 170		8		
Al 26		8			Tm 171		8		
Cl 36	2E-04	CC 2			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	1.87E-02	CC 2			Pb 210		8		
Co 60	1.03E+01	CC 2			Bi 208		8		
Ni 59	1E+01	CC 2			Bi 210m		8		
Ni 63	9.20E+02	CC 2			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	2.25E-05	CC 2			Th 227		8		
Zr 93	2E-09	CC 2			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	3E-08	CC 2		
Mo 93		8			Pa 231		8		
Tc 97		8			Pa 233	4.20E-09	CC 2		
Tc 99	1E-08	CC 2			U 232		8		
Ru 106		8			U 233		8		
Pd 107		8			U 234	3.08E-08	CC 2		
Ag 108m		8			U 235		8		
Ag 110m		8			U 236	4.00E-09	CC 2		
Cd 109		8			U 238	3E-08	CC 2		
Cd 113m		8			Np 237	4.20E-09	CC 2		
Sn 119m		8			Pu 236		8		
Sn 121m		8			Pu 238	1.82E-05	CC 2		
Sn 123		8			Pu 239	1.00E-05	CC 2		
Sn 126		8			Pu 240	2.00E-05	CC 2		
Sb 125		8			Pu 241	2.24E-04	CC 2		
Sb 126		8			Pu 242	1E-08	CC 2		
Te 125m		8			Am 241	5.48E-05	CC 2		
Te 127m		8			Am 242m	8.48E-08	CC 2		
I 129		8			Am 243	3.00E-08	CC 2		
Cs 134		8			Cm 242	7E-08	CC 2		
Cs 135		8			Cm 243	1.51E-08	CC 2		
Cs 137	3.80E-05	CC 2			Cm 244	1.89E-07	CC 2		
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	1.68E-09	CC 2			Cf 251		8		
Sm 147		8			Cf 252		8		
Sm 151	7.29E-08	CC 2			Other a				
Eu 152		8			Other b/g				
Eu 154	7.58E-08	CC 2			Total a	1.03E-04	CC 2	0	
Eu 155	1.83E-09	CC 2			Total b/g	9.40E+02	CC 2	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