Department for Business, Energy & Industrial Strategy

Nuclear Decommissioning Authority

Radioactive Wastes in the UK:

UK Radioactive Waste Inventory Report

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2016 UK RADIOACTIVE WASTE & MATERIALS INVENTORY: UK RADIOACTIVE WASTE INVENTORY REPORT

Report prepared for the Department for Business, Energy & Industrial Strategy (BEIS) and the Nuclear Decommissioning Authority (NDA) by Pöyry Energy Limited and Amec Foster Wheeler plc.

PREFACE

The 2016 United Kingdom Radioactive Waste & Materials Inventory (the 2016 Inventory) provides detailed information on radioactive wastes and materials in the United Kingdom (UK). It is produced by the Department for Business, Energy & Industrial Strategy (BEIS) and the Nuclear Decommissioning Authority (NDA).

The 2016 Inventory provides information on radioactive waste stocks (at 1 April 2016) and forecasts of future waste arisings. Information on radioactive materials that may be classed as waste in the future is also presented. The 2016 Inventory aims to provide data in an open and transparent manner for those interested in radioactive wastes and materials.

Information collected for the 2016 Inventory is presented in a suite of five reports:

- Summary Brochure
- Context and Methodology
- UK Radioactive Waste Inventory
- Radioactive Materials Not Reported
- Summary for International Reporting

All documents have been prepared using information supplied to the 2016 Inventory contractors, Pöyry Energy and Amec Foster Wheeler. This information was verified in accordance with arrangements established by Pöyry Energy and Amec Foster Wheeler.

This report presents information about the quantities and characteristics of radioactive wastes. It gives the volume of waste in stock at 1 April 2016 and projected future arisings for each waste producing organisation and for each waste producing site. An explanation of key changes since the 2013 Inventory is provided.

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Feedback

We welcome feedback on the content, clarity and presentation of the UK Inventory reports. Please do not hesitate to contact us if you would like to provide feedback or if you would like further information about radioactive waste issues:

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GLOSSARY

	<	Less than.
	~	About.
A	**ADAP**	Aqueous Discharge Abatement Plant
	ADU	Ammonium Diuranate.
	AETP	Active Effluent Treatment Plant (at reactor site).
	AEWTP	Active Effluent Waste Treatment Plant (at reactor site).
	AGR	Advanced Gas-cooled Reactor.
	AW500	A proprietary zeolite used in ion exchange processes.
	AWE	Previously the Atomic Weapons Establishment, now known as AWE. AWE develops nuclear warheads for the UK's deterrent at Aldermaston and Burghfield in Berkshire.
B	**BAESM**	BAE Systems Marine Ltd.
	BCD	Burst Cartridge (Can) Detection.
	Becquerel	The standard international unit of measurement of radioactivity – corresponding to one disintegration per second. Its symbol is Bq (see also kBq, GBq and TBq).
	BEIS	The Department for Business, Energy & Industrial Strategy is a ministerial department that brings together responsibilities for business, industrial strategy, science, innovation, energy, and climate change.
	BEP	Box Encapsulation Plant (at Sellafield).
	BEPO	British Experimental Pile O. Air-cooled graphite-moderated pile (at Harwell site; shut down in 1968).
	Beta/gamma activity	Radioactivity associated with the emission of beta particles and/or gamma radiation.
	Beta particle	Particle emitted from parent nucleus in beta decay with corresponding neutrino. $Beta^-$ decay results in electron emission with an antineutrino and $Beta^+$ decay results in positron emission with a neutrino.
	BPS	Berkeley Power Station.
	BTC	British Technology Centre (at Sellafield). Now known as National Nuclear Laboratory, Central Laboratory.
C	**C&M**	Care and Maintenance.
	Capping material	Cement or other substance forming inactive cover over conditioned waste in a container.
	CCP	Cartridge Cooling Pond.

	CEGB	Central Electricity Generating Board. The body previously responsible for electricity generation in England and Wales; it was broken up in the early 1990's.
	CHILW	Contact Handled Intermediate Level Waste.
	Clifton Marsh	Landfill site (near Preston).
	Conditioned volume	The volume of waste after conditioning, consisting of the waste material and encapsulating matrix.
	Conditioned waste	Radioactive waste that has undergone *conditioning*.
	Conditioning	The process used to prepare waste for long-term storage and/or disposal by converting it into a solid and stable form. The conditioning material (also called the conditioning matrix) may be cement, glass or polymer.
	Controlled burial	The authorised disposal of some LLW, arising principally in the non-nuclear sector, at suitable landfill sites that possess good containment characteristics.
	Crud	Any deposits of impurity or corrosion product within a reactor, storage vessel or chemical plant.
	CVCS	Chemical Volume and Control System (PWR station).
	CXPP	Chapelcross Process Plant.
D ▸	**DCP**	Dounreay Cementation Plant.
	Decommissioning waste	Wastes arising after the shutdown of a facility associated with the use or handling of radioactive materials. They can consist of plant or equipment, building debris and material from the clean-up of surrounding ground.
	Depleted uranium	Uranium where the uranium 235 isotope content is below the naturally occurring 0.72% by mass.
	DFR	Dounreay Fast Reactor (shut down in 1977).
	DIDO	Heavy-water cooled and moderated materials testing reactor (at Harwell site; shut down in 1990).
	Disposal	The emplacement of waste in a suitable facility without intent to retrieve it. (Retrieval may be possible but, if intended, the appropriate term is storage.)
	DMTR	Dounreay Materials Test Reactor.
	Dragon	Experimental high temperature reactor project sited at Winfrith (shut down in 1976).
E ▸	**EARP**	Enhanced Actinide Removal Plant (at Sellafield).
	EAST	External Active Sludge Tanks (at Winfrith).
	Enriched uranium	Uranium where the uranium 235 isotope content is above the naturally occurring 0.72% by mass.

	Enrichment	The process of increasing the abundance of fissionable atoms in natural uranium.
F	**FED**	Fuel Element Debris.
	FGMSP	First Generation Magnox Storage Pond (at Sellafield).
	FHP	Fuel Handling Plant (at Sellafield).
	Fission	Spontaneous or induced fragmentation of heavy atoms into two (occasionally three) lighter atoms, accompanied by the release of neutrons and radiation.
	Fission products	Atoms, often radioactive, resulting from nuclear fission.
	Flatrol	Type of railway wagon. It is used for transporting fuel flasks.
	Floc	A product of flocculation, a process of coagulation by the use of reagents.
	Fuel cladding	The metal casing around the fuel.
	Fuel stringer	A string of fuel element assemblies for an *AGR*.
G	**GBq**	Gigabecquerel (equal to 1,000,000,000 Becquerels).
	GE Healthcare Ltd	A company that provides products and services for use in healthcare and life science research. This includes radioisotopes for medical and research users.
	GDF	Geological Disposal Facility. Deep underground facility for disposal of higher activity wastes.
	GLEEP	Graphite Low Energy Experimental Pile. Low energy, graphite reactor (at Harwell site; shut down in 1990).
	Government	A collective term for the central government bodies responsible for setting radioactive waste management policy within the UK. It comprises the UK Government, the Scottish Government and the devolved administrations of Wales and Northern Ireland.
H	**HA**	High Activity.
	HAL	Highly Active Liquor.
	Hex	Uranium Hexafluoride.
	HLW	High Level Waste.
	HMNB	Her Majesty's Naval Base.
	HVVLLW	High Volume Very Low Level Waste.
I	**IFP**	Insoluble Fission Products.
	ILW	Intermediate Level Waste.
	ISO	International Organisation for Standardisation.
J	**JET**	Joint European Torus - the internationally funded fusion project sited at Culham.
K	**kBq**	Kilobecquerel (equal to 1,000 Becquerels).

L ▸	**LA**	Low Active.
	LAEMG	Low Active Effluent Management Group area (at Sellafield).
	LA-LLW	Low Activity Low Level Waste.
	LETP	Liquid Effluent Treatment Plant.
	LLLETP	Low Level Liquid Effluent Treatment Plant.
	LLRF	Low Level Refuelling Facility.
	LLW	Low Level Waste.
	LLWR	Low Level Waste Repository. The LLWR, south of Sellafield in Cumbria, has operated as a national disposal facility for LLW since 1959.
	LQA	Land Quality Assessment.
	LSA	Low Specific Activity.
	LWR	Light Water Reactor.
M ▸	**m^3**	Cubic metres – a measure of volume.
	MA	Medium Active.
	MAC	Miscellaneous Activated Component.
	Magnox	An alloy of magnesium used for fuel element cladding in natural uranium fuelled gas-cooled power reactors, and a generic name for this type of reactor.
	MBGWS	Miscellaneous Beta Gamma Waste Store (at Sellafield).
	MBq	Megabecquerel (equal to 1,000,000 Becquerels).
	MCI	Miscellaneous Contaminated Items.
	MEB	Multi-Element Bottle. Container used to hold irradiated LWR fuel in cooling ponds prior to reprocessing.
	MEP	Magnox Encapsulation Plant (at Sellafield).
	MMMF	Man-Made Mineral Fibre.
	MOD	Ministry of Defence.
	MODIX	Multi-stage Oxidative Decontamination with Ion-Exchange. A process used, among other things, to clean the pressure vessels and primary circuit pipework of nuclear submarines prior to refuelling.
	MOX	Mixed Oxide. Refers to nuclear fuel consisting of uranium oxide and plutonium oxide for use in reactors.
	MTR	Materials Testing Reactor.
N ▸	**NDA**	Nuclear Decommissioning Authority. A non-departmental public body responsible for overseeing the decommissioning and cleanup of 17 of the UK's civil public sector nuclear sites.

	NDS	Commercial disposal service formerly operated by AEA Technology Harwell, sometimes referred to as the National Disposal Service.
	NE	Not estimated.
	Nimonic	An alloy of the elements nickel, chromium and other minor constituents.
	NNL	National Nuclear Laboratory Limited. A Government owned science and technology services company.
	NRTE	Naval Reactor Test Establishment (at Vulcan, Dounreay).
	Nuclear fuel	Fuel used in a nuclear reactor. Most fuel is made of uranium metal or oxide, and produces heat when the uranium atoms split into smaller fragments.
O	**Operational waste**	Wastes arising from the day-to-day operations of a facility associated with the use or handling of radioactive materials.
P	**Packaged volume**	The volume of waste after packaging, consisting of the waste material, any encapsulating matrix, any capping grout and ullage, and the container.
	Packaged waste	Radioactive waste that has undergone *Packaging*.
	Packaging	The loading of waste into a container for long-term storage and/or disposal. In most but not all cases this includes conditioning.
	PCD	Primary Circuit Decontamination.
	PCM	Plutonium Contaminated Material.
	PFR	Prototype Fast Reactor (at Dounreay site; shut down in 1994).
	PIE	Post Irradiation Examination, of fuel elements etc.
	PLUTO	Heavy-water cooled and moderated materials testing reactor (at Harwell site; shut down in 1990).
	Plutonium	A radioactive element created in nuclear reactors. It can be separated from spent nuclear fuel by reprocessing. Plutonium is used as a nuclear fuel, in nuclear weapons and as a power source for space probes.
	POCO	Post Operational Clean Out. Activity after final shutdown that prepares a plant for decommissioning.
	Pond furniture	Various storage racks, skips, frames, containers and MEBs used for storing irradiated fuel in cooling ponds.
	Pu	Plutonium.
	PWR	Pressurised Water Reactor.
	PWTP	Pond Water Treatment Plant (at reactor sites).
R	**R&D**	Research & Development.

	Radioactivity	A property possessed by some atoms that split spontaneously, with release of energy through emission of a sub-atomic particle and/or radiation.
	Raffinate	A solution resulting from a solvent extraction process. The term is applied to the aqueous solution of fission products (liquid HLW) remaining after the extraction of uranium and plutonium in the first stage or irradiated fuel reprocessing.
	Reprocessing	The chemical extraction of reusable uranium and plutonium from waste materials in spent nuclear fuel.
	RHILW	Remote Handled Intermediate Level Waste.
	RRF	Residue Recovery Facility (at Capenhurst).
	RRMPOL	Rolls-Royce Marine Power Operations Ltd.
	RV	Resin Vault (at Trawsfynydd).
S	**SDP**	Sodium Disposal Plant (at Dounreay).
	SDP	Submarine Dismantling Project.
	SEP	Silo Emptying Plant (at Sellafield).
	SETP	Segregated Effluent Treatment Plant (at Sellafield).
	SGHWR	Steam Generating Heavy Water Reactor (at Winfrith site; shut down in 1990).
	SIXEP	Site Ion Exchange Plant (at Sellafield).
	SLC	Site Licence Company.
	Small users	Organisations that use radioactive materials and create radioactive wastes that are not part of the nuclear sector licensed under the Nuclear Installations Act 1965 (as amended), including hospitals, universities and industrial undertakings.
	SMP	Sellafield MOX Plant.
	SPP	Sludge Packaging Plant (at Sellafield).
	Storage	The emplacement of waste in a suitable facility with the intent to retrieve it at a later date.
	Supercompaction	A general term that describes the reduction in bulk volume by the application of high external force. It differs from routine compaction methods by using hydraulic equipment capable of exerting forces of 1,000-2,000 tonnes, and the original container (metal drum or box) is supercompacted along with its contents. Waste is often precompacted into steel drums or boxes prior to supercompaction of the drum or box.
	SWR	SIXEP Waste Retrieval (at Sellafield).
T	**TBq**	Terabecquerel (equal to 1,000,000,000,000 Becquerels).
	Tc	Technetium, an element atomic number 43.

	te	Tonnes.
	tHM	Tonnes of heavy metal. A unit of mass used to quantify uranium, plutonium and thorium including mixtures of these elements.
	Thorp	Thermal Oxide Reprocessing Plant (at Sellafield).
	THTR	Thorium High Temperature Reactor.
	Treatment	A process that changes the state or form of radioactive waste to facilitate its future management. It may or may not serve to put the waste into its finally conditioned form.
	Tritiated	Containing tritium.
	Tritium	An isotope of hydrogen (H-3) having a radioactive half-life of about 12 years.
	tU	Tonnes of Uranium – a measure of mass.
U	**UCP**	Urenco Chemical Plants.
	Ullage	The space remaining within a container above the conditioned waste matrix and any capping material.
	United Kingdom Atomic Energy Authority	A public body that manages the UK fusion research programme and operates the Joint European Torus (JET). Originally formed in 1954 to carry out nuclear research for the UK Government.
	Uranium	A radioactive element that occurs in nature. Uranium is used for nuclear fuel and in nuclear weapons.
V	**Vitrification**	The process of converting materials into a glass or glass-like form. Vitrification is the process used at Sellafield to convert liquid HLW from spent fuel reprocessing into a borosilicate glass.
	VLLW	Very Low Level Waste.
	Vulcan	The Naval Reactor Test Establishment (NRTE), located adjacent to the Dounreay site on the north coast of Scotland.
W	**WAGR**	Windscale Advanced Gas-cooled Reactor (at Sellafield site; shut down in 1981).
	WAMAC	Waste Monitoring and Compaction facility (at Sellafield site).
	Waste package	A container and its content of conditioned radioactive waste.
	WEP	Wastes Encapsulation Plant (at Sellafield).
	WRACS	Waste Receipt Assay Characterisation and Supercompaction facility (at Dounreay).
	WRAT	Waste Requiring Additional Treatment.
	WTC	Waste Treatment Complex (at Sellafield).
	WVP	Waste Vitrification Plant (at Sellafield).

Z ▸	**Zircaloy**	An alloy of the element zirconium used for the cladding of nuclear fuel – particularly in water reactors.

1 INTRODUCTION

The UK has accumulated a substantial legacy of radioactive waste from a variety of pioneering civil and defence-related nuclear programmes. Some of this waste is already in storage, but most of it still forms part of existing facilities and will only become waste over the next century or so as these plants are shut down, decommissioned and cleaned-up.

For more information on what radioactive waste is and how it arises in the UK please refer to the NDA report [1].

The Inventory

An inventory of radioactive waste in the UK is compiled periodically by the Department for Business, Energy & Industrial Strategy (BEIS) and the Nuclear Decommissioning Authority (NDA).

Information from the Inventory helps the UK to plan safe and efficient radioactive waste and materials management routes, with high standards of protection for people and the environment.

The inventory:

- Enables the UK to meet international reporting obligations;
- Informs policy and strategy development;
- Aids radioactive waste and material management planning; and
- Supports stakeholder engagement.

The inventory is used by a wide range of stakeholders, including:

- ***Government Departments and Agencies*** who develop policies and strategies for managing waste and who regulate nuclear operations;
- ***Supply chain organisations*** who process waste and need data to support the planning, operation and performance of their facilities;
- ***Waste planners*** who are responsible for ensuring that waste management facilities meet local and national needs;
- ***Researchers and academics*** who are developing innovative technologies and processes for managing our radioactive wastes; and
- ***Members of the public*** who would like to understand more about radioactive waste.

The 2016 UK Radioactive Waste & Materials Inventory (the 2016 Inventory) is the latest public record on the sources, quantities and properties of radioactive waste and materials in the UK at 1 April 2016 and predicted to arise after that date.

Inventory documents

The 2016 Inventory comprises five reports:

- ***Summary Brochure*** – gives a high level overview of radioactive waste in the UK, waste quantities and waste management;
- ***Context and Methodology*** – provides information on how the Inventory was produced, including the scope of the Inventory and the terms and conventions used in reporting Inventory data;

- ***Radioactive Waste Inventory*** – describes the volume, radioactivity and composition of radioactive waste in the UK;
- ***Radioactive Materials Inventory*** – summarises information on UK civil nuclear materials that might have to be managed as waste in the future; and
- ***Summary for International Reporting*** – gives a summary of information to meet the UK's international reporting obligations in the field of radioactive waste.

This report

This report aims to help users to interpret the 2016 UK Inventory data. It provides information about:

- Assumptions used to estimate future radioactive waste arisings (the inventory scenario);
- Waste volumes, radioactivities and material compositions;
- How the 2016 Inventory compares to the 2013 Inventory;
- Uncertainty in waste volumes and radioactivities; and
- Overseas waste and waste disposals.

Annexes 1-4 provide further detail on waste volumes at 1 April 2016 and estimated future waste arisings:

- Annex 1 gives waste volumes from all sources, and separately for England, Scotland and Wales;
- Annex 2 gives waste volumes for each waste producing organisation;
- Annex 3 gives waste volumes for each waste stream in the 2016 Inventory[1]; and
- Annex 4 gives the radionuclide composition of wastes.

A series of information sheets at the back of this report provide information on the inventory for each waste producing site in the UK.

[1] *Individual waste stream volumes cover a wide range (from less than 1 m^3 to more than 1,000,000 m^3). In this report summed waste stream volumes are rounded to three significant figures, as any impression of undue arithmetic accuracy can be misleading. Summed numbers of waste packages are also rounded to three significant figures, except for waste packages at 1 April 2016 where the actual numbers being held are reported. Summed waste stream material component masses and radioactivities are rounded to two significant figures.*

2 SCENARIO FOR FUTURE WASTE ARISINGS

A summary of key points:

- *Spent fuel reprocessing continues to 2020.*
- *AGR stations operate to 2023, and shut down over the following seven years.*
- *PWR station at Sizewell B operates to 2035.*
- *Magnox stations C&M preparations completed by 2034.*
- *Dounreay, Harwell and Winfrith R&D sites decommissioned by 2030.*
- *All existing UK facilities fully decommissioned by 2125.*

The inventory scenario sets out the assumptions used by waste producers to estimate the amount of radioactive waste that will arise from their sites in future. The assumptions consider the nature, scale and timings of operations and activities at each site.

These assumptions were made at the 2016 Inventory stock date, 1 April 2016, and may change in future due to a range of commercial, policy or funding reasons, or if improved data become available.

Since the 1 April 2016 there have already been developments in the forward plans at a number of sites. This means that certain assumptions used in preparing data for the 2016 Inventory have been revised or are being reviewed. These changes can affect either or both the quantity and timing of future waste arisings.

Table 1 provides the key assumptions and programme dates used to forecast radioactive waste arisings at UK waste producing sites. The site information sheets at the end of the report provide further information on the basis for estimates of future waste arisings.

Table 1: List of assumptions used to estimate future waste arisings in the 2016 Inventory

Organisation / site	Operations	Decommissioning
NDA sites:		
Sellafield	Magnox reprocessing plant operates to 2020 with lifetime throughput of ~55,000 tU Thorp reprocessing plant operates to 2018 with lifetime throughput of ~9,500 tU.	After 2020 and the closure of the reprocessing plants, the site will focus on waste retrieval and treatment, and the Post Operational Clean Out (POCO) and decommissioning of redundant facilities. All site decommissioning activities will be largely completed by 2090. All buildings/waste stores (except product stores and supporting ancillary buildings) are assumed to be demolished by 2120.
Magnox reactor sites(1)	All reactors are shut down	All defueling and C&M preparations completed by 2034 Final site clearance work scheduled over the period 2070-2114
LLWR	Waste forecast to 2080	PCM store decommissioning complete 2019
Dounreay	All reactors and supporting facilities are shut down	All facilities decommissioned by 2030

Organisation / site	Operations	Decommissioning
Harwell	All reactors and supporting facilities are shut down	All facilities decommissioned by 2027
Winfrith	All reactors and supporting facilities are shut down	All facilities decommissioned by 2023
Springfields	Oxide manufacture to continue until 2028	All facilities decommissioned by 2045
MOD sites:		
AWE	End of operations at 2080 (date when all currently operational facilities are decommissioned and all higher activity waste has been disposed to a GDF)	
Dockyards	Operations extrapolated to 2100 Rosyth - submarine dismantling activities continue until 2028	
Submarine decommissioning	-	Includes 27 submarines currently in scope of the SDP programme, as well as any future classes of submarine that exit operational service and begin dismantling before 2110
EDFE sites:		
AGR power stations	Reactors shut down over period 2023-2030	All defueling and C&M preparations completed by 2044 Final site clearance work scheduled over the period 2108-2125
Sizewell B PWR power station	Reactor operates to 2035	Defuelling and C&M Preparations 2035-2045 Reactor Dismantling & Final Site Clearance 2043-2053
UKAEA site:		
Culham	JET operates to 2020	2020-2029
Urenco site:		
Capenhurst	Waste forecast to 2112	Decommissioning complete 2117
GE Healthcare site:		
Amersham	Waste forecast to 2040	
Minor waste producer sites:		
Imperial College CONSORT reactor	Reactor is shut down	Decommissioning complete 2019
Rutherford Appleton Laboratory	Waste forecast to 2030	

(1) Stations include Calder Hall on the Sellafield site.

3 WASTE VOLUMES

A summary of key points:

- *At 1 April 2016 the total reported volume of waste is 132,000 m³.*
- *Future waste arisings are estimated to be 4,360,000 m³.*
- *Over 90% of all waste is of low radioactivity (LLW and VLLW).*
- *Over 90% of all waste is located in England.*
- *About 74% of all waste is generated at Sellafield.*

Radioactive waste quantities are reported by waste producers as:

- Stocks - the reported quantity of waste in existence at 1.4.2016; and
- Future waste arisings out to 2125 - estimates based on key assumptions about the nature, scale and timing of future operations and activities (the inventory scenario).

This information can be presented in terms of the reported volume, the conditioned volume or the packaged volume.[2]

Waste at 1 April 2016 comprises radioactive materials that had been declared as waste and were being held at this date. The reported volumes are those that the wastes occupied in tanks, vaults, silos, drums etc. in which they were contained.

Many of the wastes exist in either an untreated or partly treated state (part treatment can include compaction of solid waste or evaporation of liquid waste to reduce storage volume), while some wastes are being conditioned directly in suitable containers for long-term management as they arise and others have been retrieved from stores and conditioned. For these conditioned wastes the volume reported at 1 April 2016 is the conditioned volume.

In general the reported volumes for future arisings reflect current waste management practices. For most future arisings the volume reported is that for untreated or partly treated waste. For those waste streams where fresh arisings are being conditioned the volume reported is the conditioned volume.

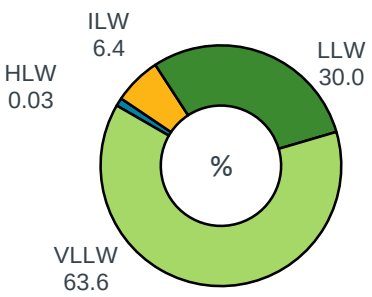
Wastes can also be expressed in terms of packaged volume. Packaging is the loading of waste into a container for long-term management. In most but not all cases this involves conditioning. The packaged volume is the total volume taken up by the waste, the immobilising medium and the waste container. It represents a 'final' waste volume. Knowledge of packaged volumes, and the corresponding numbers of packages, is needed for planning waste storage and disposal facilities.

3.1 All wastes

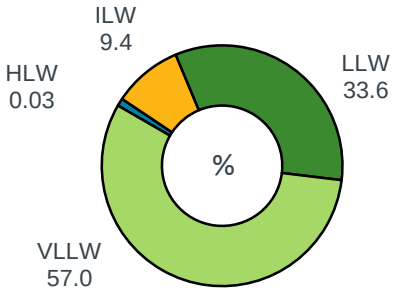
Figure 1 illustrates the relative contributions of HLW, ILW, LLW and VLLW to the total radioactive waste volume from all sources for reported volumes and packaged volumes. More than 90% of the waste volumes are of low activity (LLW and VLLW).

2 The convention for reporting waste volumes and an explanation of the terms used are given in the 2016 Inventory 'Context and *Methodology' report.*

Figure 1: Proportions of waste volumes by type (total at 1 April 2016 and estimated for future arisings up to 2125)



Total reported volume = 4,490,000 m³



Total packaged volume = 4,770,000 m³

Note: LLW includes 214,000 m^3 (reported volume) and 204,000 m^3 (packaged volume) of mixed LLW/VLLW corresponding to about 5% of total reported waste volume and about 4% of total packaged volume).

Table 2 gives the total reported waste volumes and corresponding masses, and the total packaged waste volumes and corresponding numbers of packages, for each waste type existing at 1 April and estimated for future arisings up to 2125.

Table 2: Total wastes at 1 April 2016 and estimated for future arisings up to 2125

Waste type	Reported volume (m^3)	Reported mass (tonnes)	Packaged volume (m^3)	Number of packages
HLW(1)	1,150	3,000	1,500	7,650
ILW	290,000(2)	310,000	449,000	229,000
LLW	1,350,000(3)	1,700,000	1,600,000	71,600(4)
VLLW	2,860,000(5)	2,900,000	2,720,000	See Note 6
Total	**4,490,000**	**4,900,000**	**4,770,000**	**308,000**

(1) For HLW the reported volume and mass are for conditioned waste. The volume and mass do not include waste from reprocessing overseas spent fuel that will be exported to the country of origin, and assume substitution arrangements are implemented (see Section 8 for further information).

(2) ILW includes 7,580 m^3 reported volume that is expected to become LLW as a result of decontamination or decay storage.

(3) LLW includes 214,000 m^3 reported volume of mixed VLLW/LLW at Springfields.

(4) Includes only those wastes packaged for disposal to the LLWR and Dounreay LLW vaults (packaged volume 1,360,000 m^3). Excludes LLW streams and component parts of LLW streams whose characteristics make them suitable for recycling, incineration or appropriately permitted landfill disposal.

(5) Includes 2,700,000 m^3 reported volume from facility decommissioning at Sellafield. However the current best estimate, albeit based on limited decommissioning experience, is that 70% of this material may be 'out of scope' of regulatory control (i.e. not radioactive for the purposes of UK legislation).

(6) As VLLW can be disposed to appropriately permitted landfill sites no package numbers are reported for this waste category in the UK Inventory.

Reported volumes show that about 73% (3,070,000 m^3) of all low activity waste (i.e. LLW and VLLW) falls into the VLLW sub-category or is mixed VLLW/LLW. Much of this waste is forecast to arise from decommissioning and site clearance activities. In general current arisings are disposed of at appropriately permitted landfill sites shortly after they arise.

Approximately 95% of VLLW (about 2,700,000 m^3) is forecast from plant decommissioning at Sellafield, including reprocessing and associated plants, storage and treatment plants and site service facilities. However, there is a large uncertainty in potential radioactive waste arisings from decommissioning and current expectations are that about 70% of this material may be out of scope of regulatory control. As decommissioning projects at the site are progressed and opportunities for further characterisation arise the projected amounts of radioactive waste will continue to be refined.

3.2 Wastes at 1 April 2016

Table 3 gives the reported waste volumes and corresponding masses at 1 April 2016, and the volumes already packaged at 1 April 2016 with corresponding numbers of packages, for each waste type. At 1 April 2016 the total reported volume of radioactive waste in the UK was about 132,000 m^3. This included about 42,700 m^3 already packaged.

Table 3: Wastes at 1 April 2016 Reported volumes, masses and package numbers

Waste type	At 1.4.2016	Reported volume (m^3)(1)	Reported mass (tonnes)(1)	Packaged volume (m^3)	No of packages(4)
HLW	**Total**	**1,960**	**3,700**		
	Not yet packaged	1,100	1,400	-	-
	Already packaged	867	2,300	1,130	5,781
ILW	**Total**	**99,000**	**120,000**		
	Not yet packaged(2)	67,800	62,000	-	-
	Already packaged	31,200	59,000	41,400	60,407
LLW	**Total**	**30,100(3)**	**40,000**		
	Not yet packaged	19,500	25,000	-	-
	Already packaged	10,600	15,000	14,300	648
VLLW	**Total**	**935**	**1,100**		
	Not yet packaged	935	1,100	-	-
	Already packaged	0	0	-	-

(1) Volume and mass "not yet packaged" are for untreated or partly treated waste; volume and mass "already packaged" are the conditioned volume and corresponding mass for wastes that have been encapsulated in a cement-based material, polymer or glass (i.e. waste streams with a /C in the identifier).

(2) ILW "not yet packaged" includes 1,550 m^3 reported volume that is expected to become LLW as a result of decontamination or decay storage.

(3) LLW includes 120 m^3 reported volume of mixed VLLW/LLW at Springfields.

(4) ILW package numbers include 1,928 of 1803-type mild steel drums. These drums are expected to be overpacked in larger capacity boxes (6 drums per box). LLW package numbers exclude those in short-term storage before consignment to the LLWR or other disposal routes, and include 645 packages with waste that is being stored unconditioned at Dounreay.

High Level Waste

HLW is generated from reprocessing spent nuclear fuel at Sellafield. HLW is accumulating in stores at the site, as there is no current disposal route for this waste type.

At 1 April 2016 the reported volume of HLW at Sellafield was about 1,960 m^3. The quantity of packaged HLW in stores is increasing as waste, which is initially stored in a liquid form known as Highly Active Liquor (HAL), undergoes an evaporation process before vitrification

into glass blocks within stainless steel canisters. At 1 April 2016 there were 5,781 packages of conditioned HLW in long-term storage.

Intermediate Level Waste

ILW is also accumulating in stores, as there is no current disposal route for this waste type.[3]

At 1 April 2016 the reported volume of ILW was about 99,000 m^3, of which about 73,200 m^3 (~74%) was at Sellafield. Most of the other ILW was at the Magnox and AGR power stations (10,500 m^3 and 3,410 m^3 respectively), Dounreay (4,930 m^3), Aldermaston (4,410 m^3) and Harwell (1,700 m^3).

The quantity of packaged ILW in stores is increasing, as a significant fraction of current arisings are being conditioned. Conditioned ILW comprises various types of waste immobilised in cement in stainless steel or concrete containers, and wastes immobilised in polymer in mild steel containers. These mild steel containers will be overpacked at a later date. Also, vacuum drying methods are being used to condition ILW in robust shielded containers.

At 1 April 2016 there were 60,407 packages of ILW in long-term storage facilities. Of these 52,493 (~87%) were at Sellafield.

Low Level Waste

At 1 April 2016 the reported volume of LLW was about 30,100 m^3, of which about 17,000 m^3 (~57%) was at Dounreay. Most of the other LLW was at Sellafield (3,330 m^3), Aldermaston (1,560 m^3), Chapelcross (1,210 m^3) and Winfrith (894 m^3).

At Dounreay LLW has been packaged and held in interim storage. Transfers to the new site LLW disposal facility started in 2015. At Sellafield there is a variety of metallic waste, for which the management strategy is decontamination to allow much of this to be released into the clean metals market. At other sites, most LLW at 1 April 2016 was in temporary storage awaiting recycling if suitable, or disposal to landfill or the LLWR.

LLW that is unsuitable for incineration, metal treatment or landfill disposal is immobilised in cement within mild steel ISO containers and disposed of at the LLWR.[4]

Very Low Level Waste

At 1 April 2016 the reported volume of VLLW was about 935 m^3, of which 728 m^3 was at Harwell. All VLLW was in temporary storage awaiting treatment or disposal.

3.3 Estimates of future waste arisings

The figures given in the 2016 Inventory for future radioactive waste arisings are projections made by the organisations that operate sites. These projections are based on assumptions about the nature, scale and timing of future operations and activities at their sites (see Section 2 and the Site Information Sheets at the back of the report).

The 2016 Inventory includes radioactive wastes from future operations and activities up to 2125.

Table 4 gives the total volumes and masses, and the total packaged waste volumes and corresponding numbers of packages, for each waste type projected to arise after 1 April 2016 and up to 2125.

[3] *Discrete items of short-lived ILW may be suitable for near-surface disposal after a period of decay storage.*
[4] *Some LLW may require geological disposal.*

Table 4: Estimated future waste arisings up to 2125 Reported volumes, masses and package numbers

Waste type	Reported volume (m^3)	Reported mass (tonnes)	Packaged volume (m^3)	No of packages
HLW(1)	See Note 2	See Note 2	366	1,870
ILW(3)	191,000	190,000	299,000	108,000
LLW(4)	1,320,000	1,600,000	1,570,000	69,600
VLLW	2,860,000	2,900,000	2,720,000	0
Total	**4,360,000**	**4,700,000**	**4,580,000**	**180,000**

(1) HLW does not include waste from reprocessing overseas spent fuel that will be exported to the country of origin, and assumes substitution arrangements are implemented (see Section 8 for further information.

(2) From 1 April 2016 there is a net decrease in the reported volume and mass of HLW because accumulated HAL is being conditioned, which reduces its volume and mass by about two-thirds, and also because vitrified HLW is being exported to overseas customers.

(3) ILW includes 6,030 m^3 reported volume of waste that is expected to become LLW as a result of decontamination or decay storage.

(4) LLW includes 213,000 m^3 reported volume of mixed VLLW/LLW at Springfields.

High Level Waste

HLW is generated from reprocessing spent nuclear fuel at Sellafield. Future arisings are forecast from continuing Magnox and oxide fuel reprocessing. In the 2016 Inventory scenario Magnox reprocessing is scheduled to end in 2020 and oxide reprocessing around 2018.

Reported volumes of HLW will actually fall in the future. There are two reasons for this. The first and most significant reason is that HLW is initially stored as a liquid (HAL), which will later undergo an evaporation process before vitrification into glass blocks. The vitrified glass blocks produced are roughly one-third of the volume of the original HAL. The second reason is that future arisings of HLW are net of exports to overseas reprocessing customers (see Section 8 for more information).

Sellafield currently forecasts that operations to produce vitrified HLW will end in around 2021; although further vitrified wastes will arise during the subsequent Post Operational Clean Out (POCO) phase, which is expected to continue until 2029. Total future arisings amount to 1,870 waste packages (366 m^3 packaged volume).

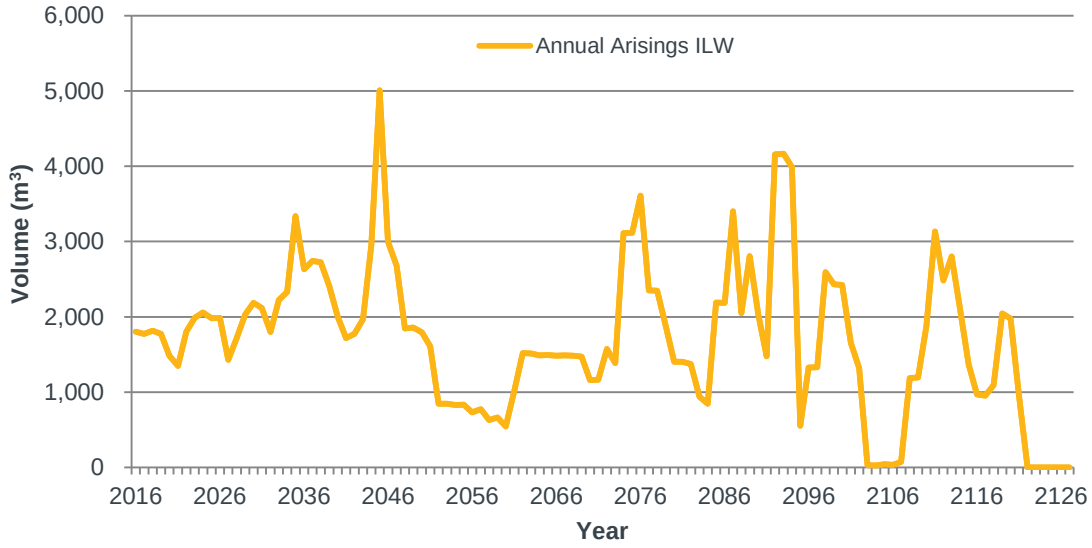
Intermediate Level Waste

The reported volume for forecast future arisings of ILW is about 191,000 m^3. About 60% (115,000 m^3) is from Sellafield. Most of the other ILW is from Magnox power station sites (42,900 m^3) and AGR power station sites (21,200 m^3).

About 62% (119,000 m^3) of all forecast future arisings are from decommissioning of existing reactors and other facilities. The remainder are from ongoing plant operations.

Figure 2 illustrates the pattern of future annual arisings volumes.

Figure 2: ILW future arisings Annual reported volumes



Forecast annual arisings of ILW average about 2,000 m^3 in the period up to about 2070, largely from legacy waste conditioning and facilities decommissioning at Sellafield. The spike at 2045 is due to pond skips at Sellafield that have been reported as waste arisings at the midpoint of POCO of the first generation Magnox storage pond. However it is likely that this waste arising would be spread over a longer period. Final dismantling and site clearance at Magnox and AGR stations between 2070 and 2125 give rise to the majority of waste over this period.

Low Level Waste

The forecast future arisings of LLW are about 1,320,000 m^3. This includes about 213,000 m^3 of mixed LLW/VLLW from Springfields.

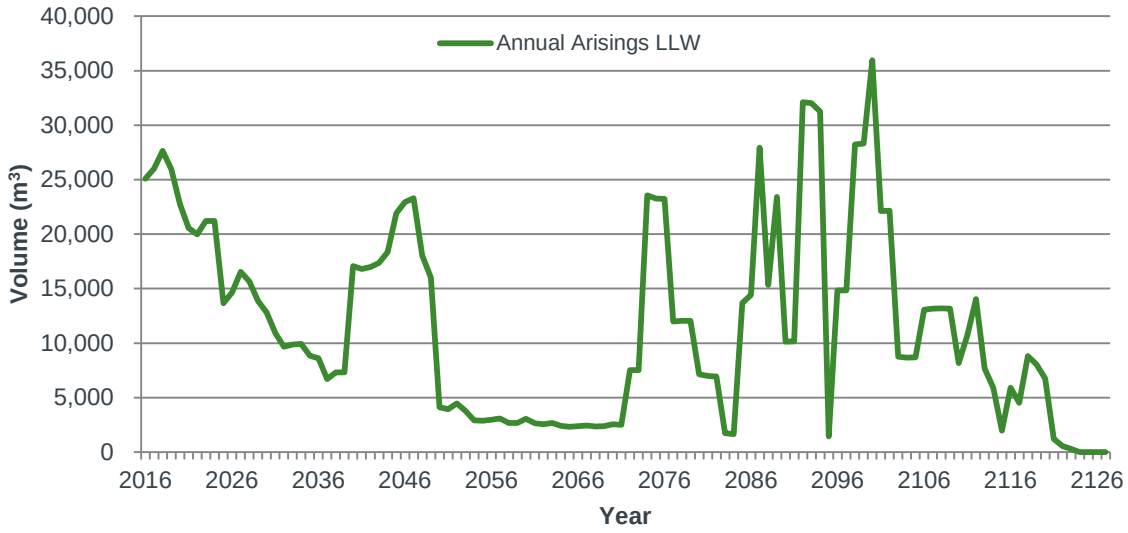
About 35% (465,000 m^3) of all forecast future LLW arisings are from Magnox power station sites (excluding Calder Hall). Much of the other LLW is from Sellafield (330,000 m^3 - including 40,400 m^3 from Calder Hall), Springfields (214,000 m^3), AGR power stations (110,000 m^3), and Dounreay (82,100 m^3).

Approximately 84% (1,110,000 m^3) of all forecast future arisings of LLW are from decommissioning existing reactors and other facilities and from site remediation. Only 16% (211,000 m^3) are from plant operations; about 63% (133,000 m^3) of which is from Sellafield.

Final stage decommissioning of reactors and ancillary plant at Magnox and AGR power stations is forecast to produce 446,000 m^3 and 61,000 m^3 of LLW respectively. Decommissioning of uranium processing and fabrication facilities at Springfields is forecast to produce 199,000 m^3 of LLW. Decommissioning of facilities at Sellafield is forecast to produce about 198,000 m^3 of LLW.

Figure 3 illustrates the pattern of future annual arisings volumes.

Figure 3: LLW future arisings Annual reported volumes



Forecast annual arisings of LLW show a decrease from about 25,000 m^3 to about 7,000 m^3 over the period up to 2040. This is the result of a number of factors including the completion of Magnox and oxide fuel reprocessing operations at Sellafield, the completion of Care and Maintenance (C&M) Preparations at Magnox stations, the closure of AGR power stations and the completion of defuelling and C&M Preparations, and the completion of decommissioning activities at Dounreay, Harwell and Winfrith.

From 2040 up to 2050 forecast annual arisings are higher as a result of the decommissioning of uranium processing and fabrication facilities at Springfields. From 2050 up to 2071 average annual arisings are lower at about 2,500 m^3, and much of this waste is from facilities decommissioning at Sellafield.

Final dismantling and site clearance at Magnox and AGR stations between 2070 and 2125 give rise to increased waste volumes over this period.

Very Low Level Waste

The forecast future arisings of VLLW are about 2,860,000 m^3. About 95% (2,700,000 m^3) of this volume is attributable to waste from the decommissioning of reprocessing and associated plants, waste storage and treatment plants, and site service facilities at Sellafield. However, there is a large uncertainty about how much of this will be managed as radioactive waste; current expectations are that about 70% of this material, which comprises concrete, brick and metal from building structures, may be out of scope of regulatory control. As decommissioning projects at the site are progressed and opportunities for further characterisation arise the projected amounts of radioactive waste will continue to be refined.

Forecast annual arisings of VLLW are on average about 11,000 m^3 in the period up to 2030. Thereafter they are higher due to decommissioning projects at Sellafield.

Figure 4 illustrates the pattern of future annual arisings volumes.

Figure 4: VLLW future arisings Annual reported volumes

3.4 Wastes for England, Scotland, Wales and Northern Ireland

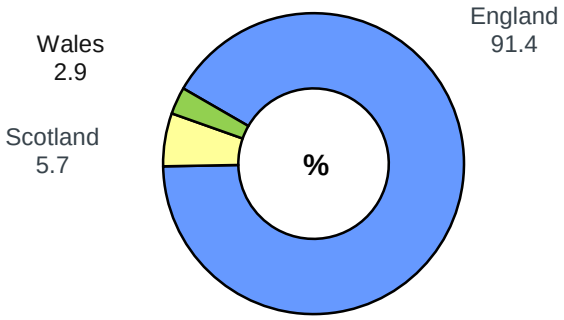
Responsibility for radioactive waste management in England rests with the UK Government. Responsibility for radioactive waste management in Scotland, Wales and Northern Ireland has been devolved to the Scottish Government, the Welsh Government and the Northern Ireland Executive respectively.

Figure 5 illustrates the relative contributions of radioactive waste in England, Scotland and Wales to the total reported volume in the UK.

There are currently no nuclear licensed sites in Northern Ireland; only very small quantities of radioactive waste are produced there from hospitals and industry. These wastes can be incinerated or disposed to landfill, and not within the scope of the 2016 Inventory (see the companion *'Context and Methodology' report*)[5].

[5] *Some redundant radioactive sources are transferred for storage in the MBGWS at Sellafield and so are included in the Inventory.*

Figure 5: Proportion of total waste reported volume by country (at 1 April 2016 and estimated for future arisings up to 2125)



Total reported volume = 4,490,000 m³

In terms of reported volume, approximately 91% of all radioactive wastes in the UK at 1 April 2016 and in estimated future arisings up to 2125 are located in England, 5.7% in Scotland and 2.9% in Wales.

For England radioactive waste production is dominated by Sellafield. For Scotland most waste is from Dounreay and the Magnox power station sites at Chapelcross and Hunterston. For Wales nearly all waste is from the Magnox power station sites at Trawsfynydd and Wylfa.

Annex 1 gives further information on waste volumes for England, Scotland and Wales, including volumes at 1 April 2016 and in projected future arisings, and for each waste type.

3.5 Wastes for each site

Most radioactive waste in the UK originates from the nuclear power industry. This includes the operation of nuclear power stations and supporting activities, including nuclear fuel fabrication and uranium enrichment, spent fuel reprocessing and nuclear energy research and development (R&D) programmes.

The majority of radioactive waste from the nuclear power industry is from historical operations that include Magnox reactors at eleven sites, Magnox fuel reprocessing at Sellafield, and R&D programmes at Sellafield, Dounreay, Harwell and Winfrith that included a number of research and prototype reactors. Waste volumes from the seven operating AGR power stations and the PWR power station at Sizewell B are lower.

The volumes of radioactive waste produced by other sectors (defence; medical and industrial activities) are less significant in comparison. Most of this waste is generated by the nuclear weapons programme at Aldermaston and Burghfield and the nuclear submarine propulsion programme at Devonport, Clyde and Rosyth.

Site Information Sheets at the back of this report provide details of the operations at each UK site that produces radioactive waste and give the volumes and radioactivities of the wastes.

4 RADIOACTIVITY IN WASTES

A summary of key points:

- *Radioactivity in LLW and VLLW is insignificant compared with that in HLW and ILW.*
- *Total radioactivity at 1 April 2016 (83 million TBq) is mainly in HLW.*
- *Total radioactivity reduces over time - by 2150 total radioactivity will be 20 times lower, in 1,000 years it will be 600 times lower and in 100,000 years it will be 7,500 times lower.*

Information on radioactivity is important for managing the safe handling, storage, transport and disposal of radioactive wastes.

Radioactivities (in TBq) given in this section have been derived from the reported volumes (in m^3) and radioactivity concentrations (in TBq/m^3) for each waste stream[6].

Total radioactivity is made up of the sum of the radioactivities of radionuclides (or radioisotopes) present in the wastes. The origin of a waste determines the types of radionuclide present.

In the 2016 Inventory there are a number of ILW and LLW streams where radioactivity concentration is not quantified. However, it is expected that the overall impact of these streams on total radioactivity estimates will be small.

Because radioactivities in wastes can cover a wide range, it is sometimes necessary to use scientific notation in tables of data (e.g. 16,000 TBq is expressed as 1.6E+04 TBq and 0.00016 TBq is expressed as 1.6E-04 TBq).

Summed waste stream radioactivities reported in this section are rounded to two significant figures.

Annex 4 provides information on the radionuclide composition for each waste type and how the composition changes over time as a result of radioactive decay.

The *'Context and Methodology'* report present background information on radioactivity and radionuclides present in wastes.

4.1 Total radioactivity

Waste producers report the radioactivity concentration of waste in stocks at the inventory reference date of 1 April 2016 or, for future waste arisings, at the time that the waste will be generated. The radioactivity of waste reduces over time as it undergoes radioactive decay. This means that the total radioactivity of all wastes in the 2016 Inventory will change as new wastes arise and existing wastes decay.

Hence we can only determine the total radioactivity of wastes by selecting reference points in time and calculating the radioactivity at those dates.

To determine total radioactivity in waste at 1 April 2016, the radioactivities of all relevant waste streams are summed. This is valid, because the activities of waste at 1 April 2016 refer to a particular point in time.

[6] *For conditioned waste streams the radioactivity concentration and volume reported are those for the conditioned product.*

For selected future dates, the total radioactivity of accumulated wastes is calculated by taking account of the radioactive decay of each waste stream. The period of decay for wastes that existed at 1 April 2016 is from that date, and for waste generated after 1 April 2016 is from the time that the waste is generated.

The radioactivities given in Table 5 are those for all wastes at 1 April 2016, 2050, 2100 and 2150. The values show that most of the radioactivity is in HLW.

Table 5: Total radioactivity of all wastes

Waste type	Total radioactivity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
HLW	79,000,000	31,000,000	9,800,000	3,200,000
ILW	3,800,000	1,800,000	930,000	590,000
LLW	26	99	110	93
VLLW	0.002	4.1	11	14
Total	**83,000,000**	**33,000,000**	**11,000,000**	**3,800,000**

Although the majority of radioactivity is associated with HLW, this waste type represents a very small volume relative to other categories in the 2016 Inventory. In contrast, very little radioactivity is associated with LLW and VLLW although these waste types represent most of the waste volume in the 2016 Inventory (see Figure 1). Figure 6 below illustrates this relationship between radioactivity and volume for each waste type.

Figure 6 Relationship between the total reported volume and its radioactivity at 1.4.2150 (1)

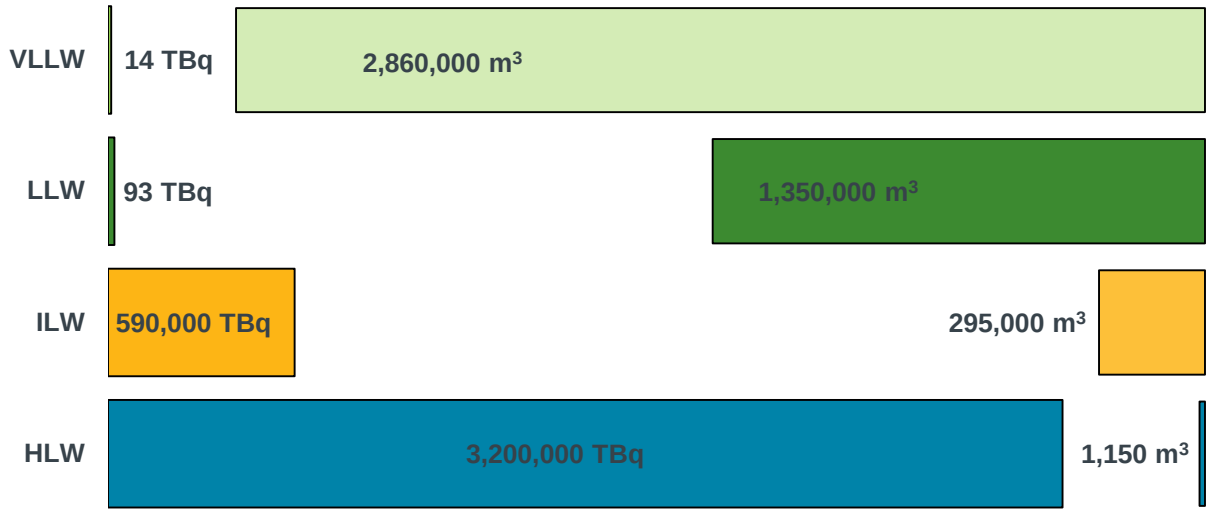
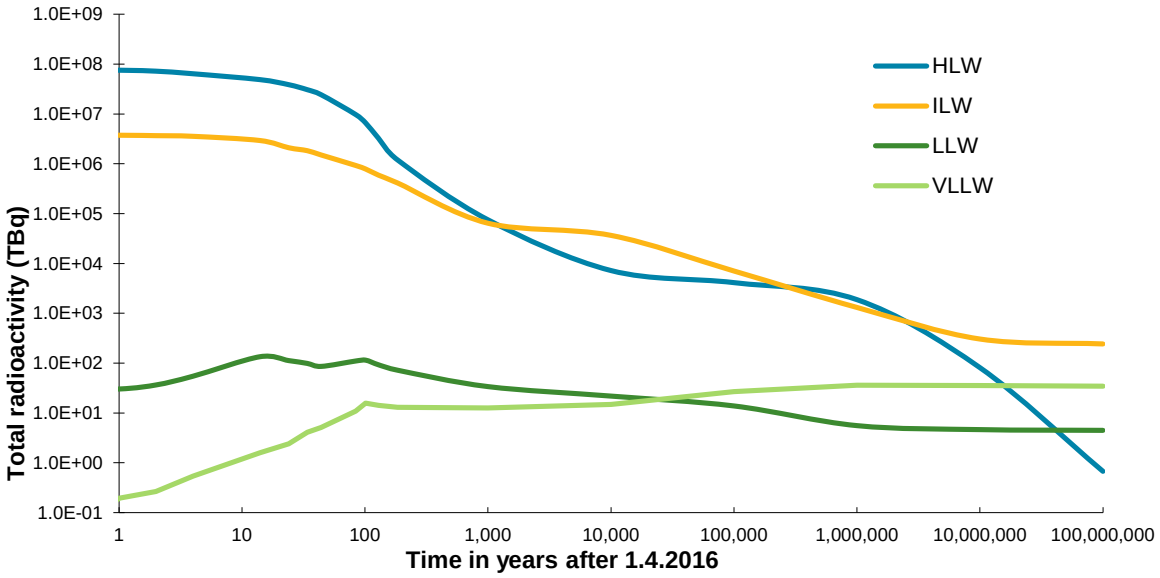


Figure 7 illustrates how the total radioactivities of HLW, ILW, LLW and VLLW change with time after 1 April 2016. There are a number of aspects to note:

- Total radioactivities of HLW and ILW initially decrease slightly as the reduction in radioactivity from the decay of accumulated arisings is greater than the additional radioactivity in projected future arisings. In contrast total radioactivities of LLW and VLLW increase; this is because stocks at 1 April 2016 are relatively small and projected future arisings over the next 100 years are relatively very large (see Figure 4);

- Once all projected waste has arisen, total radioactivities fall in a manner that reflects the decay of the major radionuclide species. No HLW is projected to arise after 2029. There are no further arisings of ILW, LLW and VLLW beyond 2125 when the final stage decommissioning of all existing power reactors, the dismantling of all other nuclear plants and site clean-up activities are forecast to be complete;
- The total radioactivities of HLW and ILW exhibit decreases of many orders of magnitude over time as radionuclide components with shorter half-lives decay. In time (between about one and ten million years) the total radioactivity of HLW falls below that of ILW, LLW and VLLW because of the lower quantities of uranium in HLW, which with its daughter products is the major contributor to total radioactivities beyond about 1 million years;
- LLW shows a markedly smaller decrease in radioactivity over time from its peak level than either HLW or ILW. This is because a relatively high proportion of the radioactivity at the time of generation is from uranium, which has a very long half-life; and
- There is an initial rise in the radioactivity of VLLW as waste is generated over the next 100 years. Thereafter the radioactivity of VLLW is dominated by uranium and its daughter products.

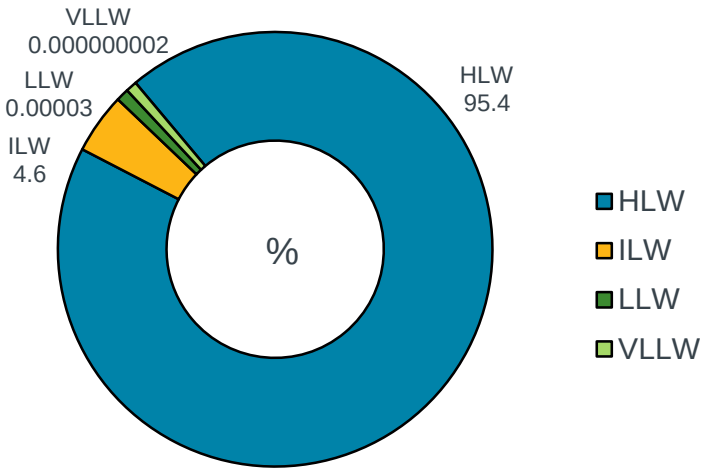
Figure 7: Total radioactivity of wastes as a function of time post 1 April 2016



4.2 Radioactivity at 1 April 2016

The total radioactivity of all wastes at 1 April 2016 was about 83,000,000 TBq. Figure 8 shows the relative contributions of HLW, ILW, LLW and VLLW to this total.

Figure 8: Proportions of radioactivity by waste category at 1 April 2016

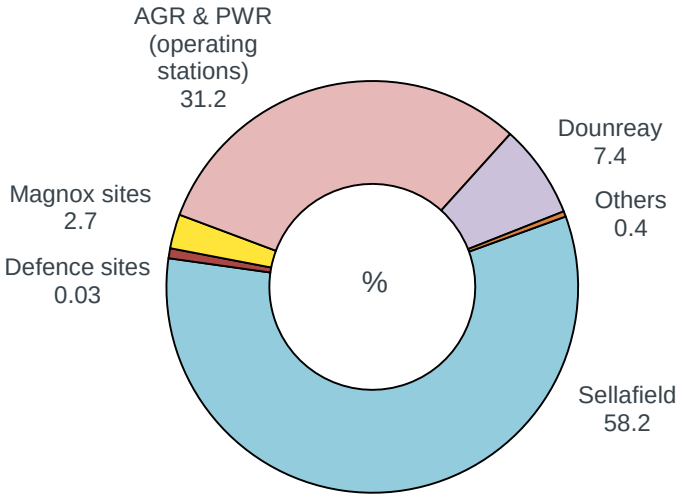


Total activity = 83,000,000 TBq

Most of the radioactivity (79,000,000 TBq) was contained in HLW. The total radioactivity in ILW was lower (3,800,000 TBq), while the radioactivity contents of LLW (26 TBq) and VLLW (0.002 TBq) were comparatively very small.

HLW is produced from spent fuel reprocessing at Sellafield. Figure 9 overleaf illustrates the origin of radioactivity in ILW at 1 April 2016. The major contributor is ILW from spent fuel reprocessing at Sellafield, where radioactivity is present in fuel cladding and process wastes. The AGR and PWR power stations are the other major source of radioactivity. Most of this radioactivity is generated as activation products in fuel element and reactor core components that have been subjected to neutron irradiation.

Figure 9 Proportions of radioactivity by waste origin in ILW at 1 April 2016



Total activity = 3,800,000 TBq

Most LLW is held in interim storage on the site of arising for a short period only before being consigned for disposal, recycled or diverted for metal treatment or incineration, so the origin of the waste at any one date is subject to change. VLLW is similarly managed.

5 WASTE COMPOSITION

A summary of key points:

- *The total mass of all wastes at 1 April 2016 and for future arisings up to 2125 is 4,900,000 tonnes.*
- *HLW is processed into a glass waste form.*
- *ILW comprises a number of different materials, but about half is PCM and graphite.*
- *LLW is about 70% concrete & rubble and miscellaneous contaminated materials.*
- *VLLW is mainly concrete & rubble.*

In the UK, radioactive materials are used for a wide range of purposes, including nuclear power generation and a variety of medical, industrial and research activities. The radioactive wastes that are produced from these activities take many different forms and have varying physical, chemical and radiological properties. Waste can range from large solid items that are relatively inert to chemically reactive sludges and liquids.

These different forms of waste may need separate management arrangements. This could include particular conditioning and packaging solutions appropriate for their properties. To facilitate an explanation of the forms of waste that are generated, and how these forms are to be processed and stored, they are assigned to 24 different waste groups (see Table 6).

Table 6: Waste groups (1)

Activated metals	Contaminated other materials	Graphite	Organic ion exchange material
Activated other materials	Desiccant & catalysts	HLW	Plutonium contaminated materials (PCM)
Asbestos & other insulation materials	Flocs	Inorganic ion exchange material	Raffinate
Concrete & rubble	Fuel cladding & miscellaneous wastes	Miscellaneous contaminated materials	Sludges
Conditioned waste	Fuel element debris	Mixed wastes	Soil
Contaminated metals	Fuels & uranium residues	Oils & other fluids	Uranium & thorium contaminated materials

(1) More information on the sources and characteristics of waste groups can be found in the NDA report '*An overview of NDA Higher Activity Waste*'.

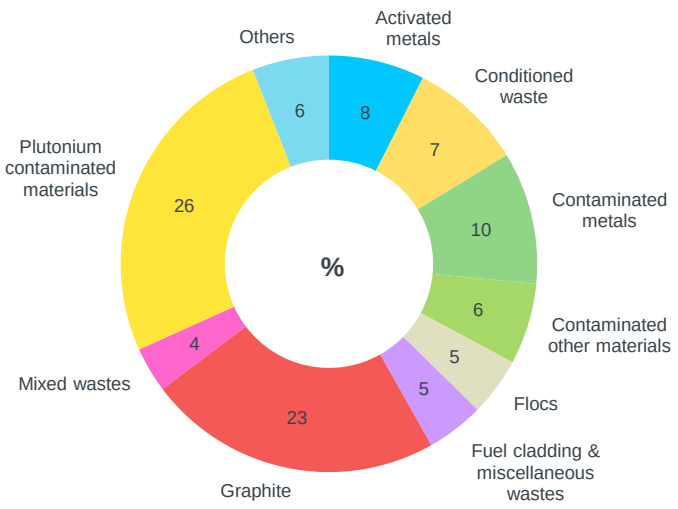
Subsections 5.1-5.3 below describe the composition of ILW, LLW and VLLW in terms of these waste groups. HLW has its own single waste group because all HLW is managed the same way; HLW is vitrified, meaning that it is processed into a glass waste form.

Section 5.4 gives a breakdown of HLW, ILW, LLW and VLLW in terms of the types of materials (metals, organics and inorganics) that make up the wastes.

5.1 Intermediate Level Waste

Figure 10 shows the waste groups that make up the total reported volume of ILW.

Figure 10: Composition of ILW



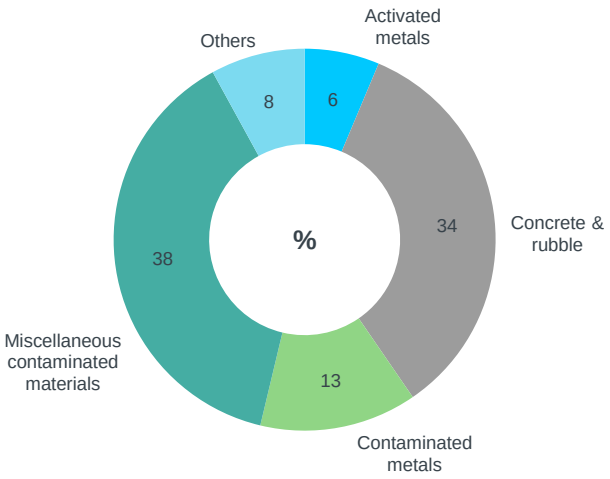
Total reported volume = 290,000 m³

About a half of all ILW is composed of PCM and graphite. PCM is mainly from spent fuel reprocessing and future facilities decommissioning at Sellafield and plutonium plant decommissioning at Aldermaston. Most graphite is associated with Magnox and AGR cores and will arise during final stage decommissioning of the reactors. The majority of contaminated metals are from Sellafield plant decommissioning.

5.2 Low Level Waste

Figure 11 shows the waste groups that make up the total reported volume of LLW.

Figure 11: Composition of LLW



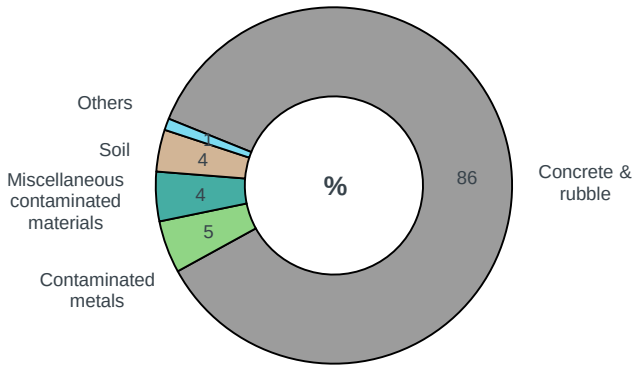
Total reported volume = 1,350,000 m³

Over 70% of LLW comprises miscellaneous contaminated materials and concrete & rubble. Miscellaneous contaminated materials are mainly from the decommissioning of uranium processing and fabrication facilities at Springfields, routine operations and demolition and excavation projects at Sellafield. Concrete and rubble is mainly from decommissioning of Magnox reactors. Most contaminated metals are from decommissioning and arise across the inventory.

5.3 Very Low Level Waste

Figure 12 shows the waste groups that make up the total reported volume of VLLW.

Figure 12: Composition of VLLW



Total reported volume = 2,860,000 m³

Most VLLW is comprised of concrete & rubble with smaller quantities of contaminated metals, miscellaneous contaminated materials and soil. Most VLLW is from the decommissioning of reprocessing and associated plants, waste storage and treatment plants, and site service facilities at Sellafield. Sellafield's best estimate, albeit based on limited decommissioning experience, is that about 70% of this waste may be exempt from regulatory control.

5.4 Material quantities

Table 7 gives the total mass of materials in HLW, ILW, LLW and VLLW. This includes wastes at 1 April 2016 that had been conditioned as well as future arisings that are reported as conditioned waste.

Table 7: Mass of materials by waste category

Material	Mass (tonnes)[1]			
	HLW[2]	ILW	LLW	VLLW
METALS:				
Stainless steel	1.9	27,000	120,000	4.4
Other steel	-	55,000	360,000	810
Magnox/magnesium	-	6,200	190	0.11
Aluminium	-	2,600	17,000	0.02
Zircaloy/zirconium	-	1,400	250	0.11
Copper & alloys	-	300	7,900	0.27
Nickel & alloys	21	85	1,000	0
Other metals	-	2,300	58,000	140,000
ORGANICS:				
Cellulosics	-	2,300	32,000	42,000
Plastics	-	5,900	41,000	1,400
Rubbers	-	1,700	14,000	510
Organic ion exchange resins	-	410	590	0
Other organics	-	600	23,000	17,000
INORGANICS:				
Asbestos	-	310	22,000	28,000
Cementitious materials	-	61,000	790,000	2,000,000
Graphite	-	83,000	14,000	0
Sand, glass & ceramics	3,000[3]	870	12,000	220
Inorganic ion exchange materials	-	2,800	20	0
Brick, stone & rubble	-	3,000	38,000	450,000
Sludges, flocs & liquids	-	29,000	11,000	0
Other inorganics	-	1,200	610	0.01
SOIL	-	6.2	69,000	160,000
UNSPECIFIED MATERIALS[4]	0	21,000	33,000	34,000
TOTAL	**3,000**	**310,000**	**1,700,000**	**2,900,000**

(1) HLW material components masses are those of conditioned waste. ILW and LLW material component masses are those for untreated or partly treated waste, apart from conditioned waste streams where the components masses are those of conditioned waste.

(2) HLW metals are scrap, waste vitrification plant (WVP) items that have become contaminated.

(3) Mass of vitrified product. Includes about 608 tonnes of waste oxides.

(4) Includes wastes for which no material breakdown is reported.

HLW

HLW is initially produced as a concentrated nitric acid solution containing waste fission products from the reprocessing of spent nuclear fuel. The 2016 Inventory includes the nitric acid solutions awaiting conditioning in the WVP, some insoluble fission products that settle in the storage tanks, the glass product of conditioning and small quantities of contaminated plant items from the WVP (mostly metal and ceramic).

The mass of conditioned HLW at 1 April 2016 was 2,300 tonnes. A further 1,400 tonnes of liquid waste remained to be conditioned. Once all waste at 1 April 2016 and projected future arisings of liquid waste and contaminated scrap items are conditioned the total mass will be about 3,000 tonnes. This does not include HLW that will be exported.

HLW containers

ILW

Example of ILW: Magnox cladding swarf

The major components are steels, graphite, concrete, cement and sand, sludges, ion exchange resins and flocs. There is a wide range of steel items, including plant items and equipment, fuel cladding and reactor components. Most graphite is in the form of moderator blocks from final stage reactor dismantling at Magnox and AGR power stations.

The majority of waste reported as cementitious materials is cement associated with conditioned waste. The remainder is mostly higher activity concrete from the decommissioning of buildings. Most sludge and floc waste is from the treatment of liquid effluents and from the corrosion of stored Magnox fuel cladding waste.

The principal material components of unconditioned ILW are metals (mainly steels) and graphite, with smaller proportions of sludges and flocs and of concrete, cement and sand.

The material composition of conditioned ILW reflects the nature of the encapsulating medium and of the wastes that are being conditioned. Sellafield waste streams that are encapsulated in cement-based matrices account for about 87% of the conditioned waste mass. These streams mainly include fuel cladding (Magnox, AGR and LWR), plutonium contaminated material (PCM) and EARP floc.

LLW

The major components of LLW are building rubble, soil and steel items such as framework, pipework and reinforcement from the dismantling and demolition of nuclear reactors and other nuclear facilities and the clean-up of nuclear sites.

LLW also comprises miscellaneous contaminated wastes from the operation of nuclear facilities which is mainly scrap metal items, plastics and paper.

Drum of miscellaneous LLW

VLLW

The major components of VLLW are building structural materials (principally concrete, with brick, metal and other materials) from the dismantling and demolition of nuclear facilities. There are also smaller quantities of excavated soil from construction and demolition activities.

Demolition work

6 COMPARISON WITH THE 2013 INVENTORY

A summary of key points:

- *Reported volumes for all waste types are similar to those in the 2013 Inventory.*
- *The numbers of HLW and ILW packages has increased as progress continues in conditioning these wastes for long-term management.*
- *A number of waste streams show changes in volume and radioactivity as inventories have been updated.*

Information about radioactive wastes may change due to a range of technical, commercial or policy reasons:

- ***Understanding of the waste streams has improved.*** Some radioactive waste streams generated many years ago lack detailed contemporary records, but as these waste streams (often referred to as legacy wastes) are characterised a better understanding of amounts and compositions are gained;
- ***The strategy for managing wastes has been updated.*** This may be due to more sustainable and cost-effective techniques being used such as new treatment, packaging and disposal options;
- ***Operational activities have affected the amount of waste.*** Volumes of waste recorded may change as waste continues to be generated, treated, conditioned and packaged; and
- ***Forecasts of future amounts have been updated.*** Given the many decades over which arisings are projected, there are inevitable changes in future estimates, and assumptions underpinning the forecasts and plant operating lifetimes are updated.

This section summarises the changes in the 2016 Inventory compared with the previous 2013 Inventory.

While most wastes in stock at 1 April 2016 are in an untreated or partly treated state, increasing amounts of legacy wastes are being retrieved from stores and packaged for long-term management. The nature of retrieval and packaging depends on the current operational or decommissioning status of the sites. Furthermore, some of the current arisings from the Fuel Handling Plant (FHP) and the Magnox and Thorp reprocessing plants at Sellafield are being packaged as they arise.

Progress in the packaging of wastes, as indicated by the accumulation in the numbers of waste packages over time, is illustrated in Table 8. Packaging of HLW and ILW for long-term management began on the Sellafield site in 1990 with the start-up of the Waste Vitrification Plant (WVP) and the Magnox Encapsulation Plant (MEP). Since then further ILW conditioning facilities have been built and are operating at Sellafield and at a number of other sites in the UK[7].

Table 8: Numbers of waste packages accumulated (1)

Date	HLW	ILW	LLW(2)	Total
At 1.4.2001	2,281	21,654	23	**23,958**

[7] *Further information is given in the 2016 Inventory 'Context and Methodology' report.*

At 1.4.2004	3,037	31,557	123	**34,717**
At 1.4.2007	4,319	40,797	8,527	**53,643**
At 1.4.2010	5,108	47,662	1,288	**54,058**
At 1.4.2013	5,626	55,326	2,549	**63,501**
At 1.4.2016[3]	5,781	60,407	648	**66,836**

(1) The table gives the numbers of packages accumulated at various UK Inventory reference dates. There are no VLLW packages.

(2) LLW package numbers exclude those in short-term storage before consignment for disposal. Packages at 1.4.2007, 1.4.2010 and 1.4.2013 include those held in vaults at the LLWR and which had not been classed as disposed under existing environmental permits. Most of the packages reported at 1.4.2007 were subsequently classed as disposed.

(3) At 1.4.2016 HLW packages were at Sellafield, ILW packages were at Sellafield, Dounreay, Harwell, Berkeley, Bradwell, Sizewell and Trawsfynydd, and LLW packages were mostly at Dounreay (with a few at Sellafield).

6.1 High Level Waste

Volume

Figure 13 shows that forecasts of HLW since the 2007 Inventory are similar. Forecasts reflect the scale of spent fuel reprocessing, assumptions regarding POCO of the high level waste plants and the level of waste incorporation in the vitrified product.

Figure 13: HLW past and current volume projections (conditioned waste)

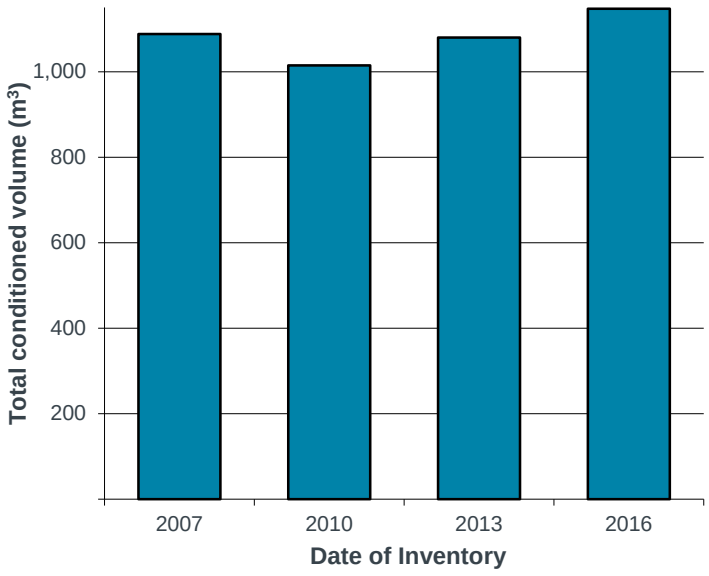


Table 9 gives the reported volume changes in accumulated HLW and estimated future arisings compared with the 2013 Inventory.

Table 9: Changes in HLW reported volumes between the 2016 and 2013 Inventories (1)

Date	Reported volume (m^3)		Change	
	2013 Inventory	2016 Inventory	(m^3)	(%)
At 1 April (already conditioned)	844	867	+23.3	+2.8
At 1 April (not yet conditioned)	931	1,100	+165	+17.6
Total at 1 April	**1,770**	**1,960**	**+188**	**+10.6**
Total in future arisings	See Note 2	See Note 2	-121	+17.4
Total (conditioned)	**1,080**	**1,150**	**+67.2**	**+6.2**

(1) For HLW the reported volume is for conditioned waste.

(2) From 1 April 2016 there is a net decrease in the reported volume of HLW because accumulated HAL is being conditioned, which reduces its volume and mass by about two-thirds, and also because vitrified HLW is being exported to overseas customers.

The total conditioned volume of HLW is estimated to be about 1,150 m^3, which is 67.2 m^3 (6.2%) more than forecast in the 2013 Inventory. The principal reason for this increase is a higher waste estimate from POCO of the high level waste plants at Sellafield.

The total volume of HLW at 1 April 2016 was 1,960 m^3, an increase of 188 m^3 (10.6%) compared with waste at 1 April 2013. This increase is the result of two factors:

- An increase of 165 m^3 in liquid waste from Magnox and oxide fuel reprocessing; and
- An increase of about 23 m^3 in conditioned waste from continuing vitrification.

Radioactivity

Table 10 gives the total radioactivity changes in HLW compared with the 2013 Inventory.

Table 10: Changes in HLW radioactivity between the 2016 and 2013 Inventories

Date	Total radioactivity (TBq)		Change	
	2013 Inventory	2016 Inventory	(TBq)	(%)
Stock date	78,000,000	79,000,000	+1,600,000	+2.1
At 1.4.2050	27,000,000	31,000,000	+3,200,000	+11.8
At 1.4.2100	8,700,000	9,800,000	+1,000,000	+11.7
At 1.4.2150	2,900,000	3,200,000	+330,000	+11.5

The total radioactivity of HLW at 1 April 2016 was 79,000,000 TBq, an increase of 1,600,000 TBq (2.1%) compared with waste at 1 April 2013. This increase is the net result of more waste accumulation and radioactive decay. Decayed future radioactivities show an increase of between 11-12%, due to revised estimates of radioactivity.

6.2 Intermediate Level Waste

Volume

Figure 14 shows past and current forecasts for ILW reported volumes. Forecasts since the 2010 Inventory are similar.

Figure 14: ILW past and current volume projections

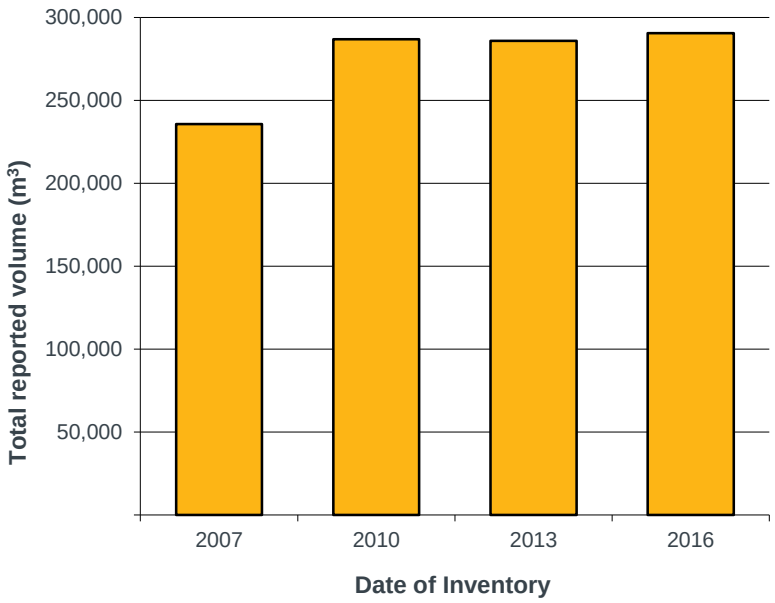


Table 11 gives the reported volume changes in accumulated ILW and estimated future arisings compared with the 2013 Inventory.

Table 11: Changes in ILW reported volumes between the 2016 and 2013 Inventories

Date	Reported volume (m^3)		Change	
	2013 Inventory	2016 Inventory	(m^3)	(%)
At 1 April (already conditioned)	28,100	31,200	+3,180	+11.4
At 1 April (not yet conditioned)	67,500	67,800	+302	+0.4
Total at 1 April	**95,600**	**99,000**	**+3,490**	**+3.6**
Total in future arisings(1)	190,000	191,000	+1,120	+0.6
Total	**286,000**	**290,000**	**+4,610**	**+1.6**

(1) Future arisings are untreated or partly treated waste, apart from conditioned waste streams (i.e. those with a /C in the identifier) where the conditioned volume is reported. The convention for reporting waste volumes and an explanation of the terms used are given in the 2016 Inventory *'Context and Methodology'* report.

The total reported volume of ILW is estimated to be about 290,000 m^3, which is 4,610 m^3 (1.6%) more than forecast in the 2013 Inventory. At most producing sites the volume changes are small. The principal changes are:

- A net 6,110 m^3 increase at Sellafield, principally due to:
  - A re-assessment of PCM arisings and the continued conditioning of existing PCM resulting in an overall volume increase of 3,080 m^3;

- AGR fleet life extensions resulting in volume increases of 1,670 m^3 for AGR fuel assembly components and 207 m^3 for encapsulated AGR cladding;
- Revised forecasts of encapsulated floc from EARP (+735 m^3) and ion exchange materials from SIXEP (+310 m^3);
- Inclusion in the waste inventory of 583 m^3 of orphan[8] and miscellaneous wastes;
- The transfer of 491 m^3 of contact handled ILW from Harwell; and
- A decrease of 625 m^3 in the total forecast volume of encapsulated Magnox cladding.

- A net increase of 427 m^3 at AGR sites, largely due to increased volumes of desiccants and miscellaneous activated components resulting from station life extensions.
- An increase of 215 m^3 at Sizewell B, principally due to a revised estimate of miscellaneous contaminated items post-shutdown and the reporting of spent fuel pond solid absorber assemblies;
- A decrease of 448 m^3 at AWE Aldermaston, a large part of which is due to a reassessment of uranium contaminated decommissioning arisings;
- A decrease of 1,140 m^3 at Magnox stations, including 416 m^3 at Sizewell A principally due to the reclassification of Magnox fuel element debris (FED) as LLW (-286 m^3) and pond fuel skips (-114 m^3) as LLW; 410 m^3 at Bradwell principally due to the reclassification of Magnox FED (-289 m^3); 140 m^3 at Berkeley principally due to a revised management strategy for empty drums and liners and conditioning of miscellaneous activated components; and 121 m^3 at Dungeness A due to a revised estimate of ILW pond skips.
- A decrease of 360 m^3 at Harwell, principally due to shipments of waste to Sellafield and a reassessment of decommissioning arisings; and
- A decrease of 224 m^3 at the LLWR, due to a reassessment of PCM operations waste.

The total volume of ILW at 1 April 2016 was 99,000 m^3, an increase of 3,490 m^3 (3.6%) compared with waste at 1 April 2013. Conditioned wastes were 3,180 m^3 greater at 31,200 m^3, while accumulations of wastes yet to be conditioned were 302 m^3 greater at 67,800 m^3.

The relatively large increase in the volume of conditioned ILW at 1 April 2016 illustrates progress in waste packaging. Additional ILW accumulations have resulted in increased volumes at a number of sites, principally at Sellafield from continuing site operations and waste transfers from off site.

Projected future arisings of ILW are 191,000 m^3. This is 1,120 m^3 more than future arisings reported in the 2013 Inventory. An updated assessment of PCM arisings at Sellafield is the principal contributor to this change, and additional wastes associated with AGR station life extensions also contribute.

Radioactivity

Table 12 gives the total radioactivity changes in ILW compared with the 2013 Inventory.

[8] *An 'orphan waste' is one that does not yet have a technically underpinned treatment or disposal route. Orphan wastes comprise a range of materials, generally of small volume. Examples can include oils, laboratory chemicals, resins and sludges.*

Table 12: Changes in ILW radioactivity between the 2016 and 2013 Inventories

Date	Total radioactivity (TBq)		Change	
	2013 Inventory	2016 Inventory	(TBq)	(%)
Stock date	3,900,000	3,800,000	-100,000	-2.6
At 1.4.2050	1,900,000	1,800,000	-75,000	-3.9
At 1.4.2100	950,000	930,000	-20,000	-2.1
At 1.4.2150	590,000	590,000	+6,400	+1.1

The total radioactivity of ILW at 1 April 2016 was 3,800,000 TBq, a decrease of 100,000 TBq (2.6%) compared with waste at 1 April 2013. Although there has been an increase in ILW accumulated, this is more than compensated by revised radioactivity estimates and radioactive decay. Decayed future activity at 2150, when all forecast ILW will have arisen, shows a small increase in line with the forecast total volume.

6.3 Low Level Waste

Volume

Figure 15 shows past and current forecasts for LLW reported volumes. The 2016 Inventory shows a small decrease from the 2013 Inventory.

Figure 15: LLW past and current volume projections

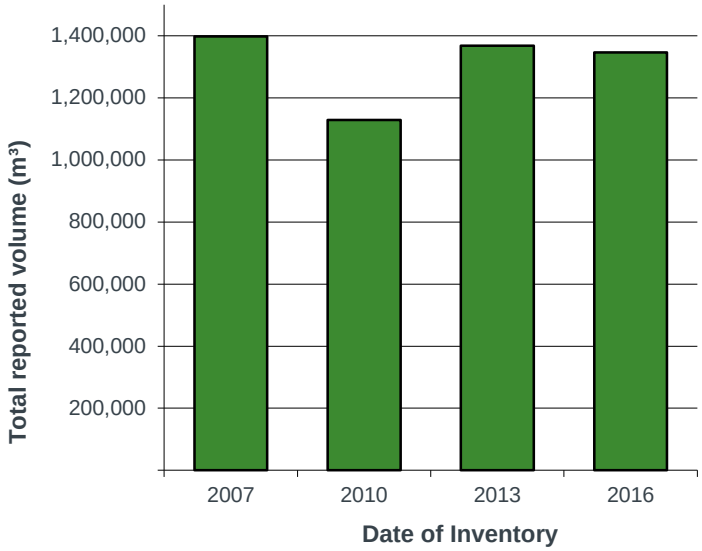


Table 13 gives the reported volume changes in accumulated LLW and estimated future arisings compared with the 2013 Inventory.

Table 13: Changes in LLW reported volumes between the 2016 and 2013 Inventories

Date	Reported volume (m^3)		Change	
	2013 Inventory	2016 Inventory	(m^3)	(%)

At 1 April (already conditioned)	43,400	10,600	-32,800	-75.5
At 1 April (not yet conditioned)	23,400	19,500	-3,850	-16.5
Total at 1 April	**66,700**	**30,100**	**-36,600**	**-54.9**
Total in future arisings(1)	1,300,000	1,320,000	+15,000	+1.1
Total	**1,370,000**	**1,350,000**	**-21,700**	**-1.6**

(1) Future arisings are untreated or partly treated waste, apart from conditioned waste streams (i.e. those with a /C in the identifier) where the conditioned volume is reported. The convention for reporting waste volumes and an explanation of the terms used are given in the 2016 Inventory *'Context and Methodology'* report.

The total reported volume of LLW is forecast to be 1,350,000 m^3, which is 21,700 m^3 or about 1.6% less than in the 2013 Inventory. This is the net result of a number of changes to LLW volumes. The principal decreases in reported volumes are:

- A decrease of 33,700 m^3 at the LLWR. A small proportion of the waste containers in Vault 8 and all waste containers in Vault 9 were classed as 'stored' and so included in the 2013 Inventory. Due to a change in environmental permit these containers are now classed as 'disposed', so these two waste streams have been removed from the 2016 Inventory.
- A decrease of 27,100 m^3 at Harwell and 9,130 m^3 at Winfrith, due to re-assessments of decommissioning wastes and reclassification of land remediation wastes as VLLW;
- A decrease of ~13,200 m^3 at Springfields, due to a re-evaluation of waste arisings disposed to the Clifton Marsh landfill site; and
- A decrease of 5,370 m^3 at Chapelcross due to waste disposals and an updated estimate of decommissioning arisings.

The principal increases in reported volumes are:

- An increase of 38,600 m^3 at Sellafield, mainly due to a reassessment of future arisings across the site. The major contributor to the increase is a revised estimate of future demolition and excavation wastes (+33,800 m^3), although longer term arisings are based on extrapolation and subject to considerable uncertainty;
- An increase of 15,400 m^3 at RRMPOL Derby, due to routine LLW arisings being extrapolated to 2110 where previously only short-term future arisings were quantified; and
- An increase of 9,590 m^3 at Sizewell B, mainly due to redundant shield and transfer casks, which will arise following future closure of the spent fuel dry store, being included in the UK Inventory for the first time.

The total volume of LLW at 1 April 2016 was 30,100 m^3, a decrease of 36,600 m^3 compared with waste at 1 April 2013. This relatively large volume decrease is mainly due the disposal of previously 'stored' containers in Vaults 8 and 9 at the LLWR (see first bullet point above).

Projected future arisings of LLW are 1,320,000 m^3. This is 15,000 m^3 more than future arisings reported in the 2013 Inventory. The reasons for the increase are covered in the discussion above.

Radioactivity

Table 14 gives the total radioactivity changes in LLW compared with the 2013 Inventory.

Table 14: Changes in LLW radioactivity between the 2016 and 2013 Inventories

Date	Total radioactivity (TBq)		Change	
	2013 Inventory	2016 Inventory	(TBq)	(%)
Stock date	57	26	-31	-55.1
At 1.4.2050	130	99	-28	-22.0
At 1.4.2100	130	110	-19	-14.7
At 1.4.2150	110	93	-15	-13.7

The total radioactivity of LLW at 1 April 2016 was 26 TBq, a decrease of 31 TBq (55.1%) compared with waste at 1 April 2013 and consistent with the decrease in waste volume.

Decayed future activity at 2150, when all forecast LLW will have arisen, shows a decrease resulting from a decrease in the volume of some of the streams that were major contributors to the activity in the 2013 Inventory.

6.4 Very Low Level Waste

Volume

Figure 16 shows past and current forecasts for VLLW reported volumes. The volume for the 2016 Inventory is about the same as the 2013 Inventory. There was a large increase in the 2010 Inventory as a result of an initiative to improve the reporting of this waste type in the UK Inventory.

Figure 16: VLLW past and current volume projections

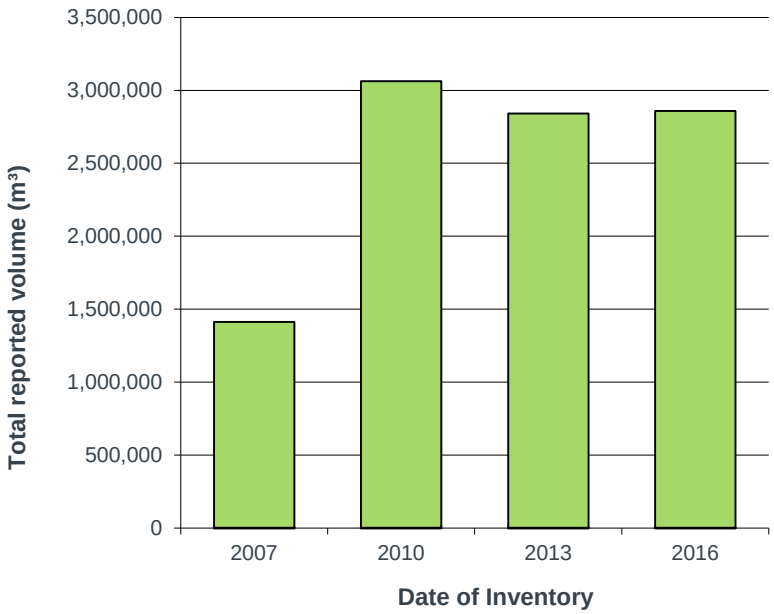


Table 15 gives the reported volume changes in accumulated VLLW and estimated future arisings compared with the 2013 Inventory.

Table 15: Changes in VLLW reported volumes between the 2016 and 2013 Inventories

Date	Reported volume (m^3)		Change	
	2013 Inventory	2016 Inventory	(m^3)	(%)
At 1 April (already conditioned)	0	0	0	0
At 1 April (not yet conditioned)	1,170	935	-232	-19.9
Total at 1 April	**1,170**	**935**	**-232**	**-19.9**
Total in future arisings (1)	2,840,000	2,860,000	+18,900	+0.7
Total	**2,840,000**	**2,860,000**	**+18,700**	**+0.7**

(1) Future arisings are untreated or partly treated waste, apart from conditioned waste streams (i.e. those with a /C in the identifier) where the conditioned volume is reported. The convention for reporting waste volumes and an explanation of the terms used are given in the 2016 Inventory *'Context and Methodology'* report.

The total volume of VLLW is forecast to be 2,860,000 m^3, which is 18,700 m^3 or about 0.7% more than in the 2013 Inventory.

This is the net result of a number of changes to VLLW volumes. The principal changes are:

- A decrease of 45,100 m^3 at Sellafield, which is the net result of a reassessment of HVLLW final site decommissioning (-56,400 m^3) and excavated soil and putrescible waste (+12,100 m^3);
- Increases of 35,800 m^3 at Harwell and 6,390 m^3 at Winfrith, due to a re-evaluation of decommissioning wastes and the reclassification of previous LLW;
- An increase of 21,000 m^3 at Capenhurst as land contamination wastes are reported in the UK Inventory for the first time; and
- An increase of 2,790 m^3 at Dungeness A due to a reclassification of contaminated insulation.

Radioactivity

Table 16 gives the total activity changes in VLLW compared with the 2013 Inventory.

Table 16: Changes in VLLW radioactivity between the 2016 and 2013 Inventories

Date	Total radioactivity (TBq)		Change	
	2013 Inventory	2016 Inventory	(TBq)	(%)
Stock date	0.001	0.002	+0.001	+134
At 1.4.2050	3.9	4.1	+0.25	+6.5
At 1.4.2100	11	11	+0.12	+1.1
At 1.4.2150	14	14	+0.11	+0.8

The total radioactivity of VLLW at 1 April 2016 was 0.002 TBq, an increase of 0.0012 TBq compared with waste at 1 April 2013. This increase is the result of the re-evaluation of decommissioning wastes and the reclassification of waste at Harwell previously categorised as LLW.

The decayed future activity at 2150, when all forecast VLLW will have arisen, shows a small increase in line with the forecast total volume.

7 UNCERTAINTY IN THE INVENTORY

A summary of key points:

- *The greatest uncertainties in inventory data are for LLW and VLLW volumes and for ILW radioactivities.*
- *Uncertainties will reduce in the future as decommissioning experience feeds into improved inventory estimates.*
- *Nuclear new build will impact on future inventories.*

There is the highest level of confidence in the volumes, material composition and radioactivity of waste streams that have been packaged for long-term management, because they have been well characterised. The greatest uncertainties rest with future arisings of waste, particularly from facilities decommissioning and site clean-up where past operational experience is less relevant and future strategies may not yet be confirmed. As decommissioning projects progress through initial scoping studies, detailed planning and then implementation, and as land contamination surveys are extended and refined, waste volumes can be estimated with greater certainty.

Legacy waste streams generated many years ago may lack detailed contemporary records. As these waste streams are characterised the uncertainties on the amounts and compositions are reduced.

Furthermore, changes in the scenario for future waste arisings, including plant operating lifetimes, provides a further uncertainty factor.

7.1 Volumes

The 2016 Inventory includes information on the confidence levels in reported waste stream volumes. Where lower and upper uncertainties on the reported volumes can be quantified, waste producers have provided appropriate factors. These data have been used to calculate lower and upper waste volume estimates for each waste type (see Table 17).

Table 17: Estimated uncertainties in total reported volumes for each waste type (1)

Waste type	Best estimate (m^3)	Lower estimate (m^3)	Upper estimate (m^3)
HLW(2, 3)	1,150	1,050	1,260
ILW	290,000	217,000	447,000
LLW	1,350,000	907,000	2,640,000
VLLW	2,860,000	1,040,000	4,150,000
Total	**4,490,000**	**2,160,000**	**7,230,000**

(1) The 2016 Inventory includes numerical lower and upper volume uncertainty factors on the best estimate volumes for waste streams covering more than 99% of the total reported waste volume.

(2) For HLW the reported volumes are those for conditioned waste.

(3) Includes uncertainty factors for the vitrified waste product from reprocessing spent fuel plus contaminated vitrification plant items, but excludes uncertainty factors for vitrification plant POCO.

The uncertainties on the HLW volume are relatively small, as spent fuel reprocessing schedules and the HAL vitrification process are well defined.

The major contributors to uncertainties on the ILW volume are operational PCM arisings and plant decommissioning wastes at Sellafield and plutonium plant decommissioning waste at AWE Aldermaston.

The major contributors to uncertainties on the LLW volume are plant decommissioning wastes at Sellafield and radioactive contaminated land at AWE Aldermaston.

The majority of VLLW reported in the Inventory is generated from future decommissioning projects at Sellafield. The best estimate of waste volume is 2,700,000 m^3, but there is a large uncertainty in the potential arisings. Improved inventory assessments have refined the likely lower and upper bounds to be 1,000,000 m^3 and 4,000,000 m^3. Also, Sellafield has stated its current best estimate, based on limited decommissioning experience, is that approximately 70% of the waste may be exempt from regulatory control.

Radioactive land contamination and radioactively contaminated subsurface structures at certain sites have not been included in the 2016 Radioactive Waste Inventory where clean-up plans have not been confirmed and there is significant uncertainty over the management route and the waste quantities[9]. As land contamination surveys are extended and refined, and there is more certainty on management routes, waste volumes can be determined with increasing confidence.

7.2 Radioactivities

The 2016 Inventory includes information on the confidence levels in waste stream radioactivities and radionuclide concentrations. These data have been used to estimate lower and upper total radioactivities at the stock date of 1 April 2016 and decayed radioactivities at 2150 for each waste type (see Table 18).

Table 18: Estimated uncertainties in total radioactivity for each waste category

Waste type	At 1.4.2016 (TBq)			At 1.4.2150 (TBq)		
	Best estimate	Lower estimate	Upper estimate	Best estimate	Lower estimate	Upper estimate
HLW	79,000,000	58,000,000	110,000,000	3,200,000	2,200,000	4,900,000
ILW	3,800,000	1,100,000	110,000,000	590,000	120,000	18,000,000
LLW	26	8.0	120	93	13	840
VLLW	0.002	<0.001	0.009	14	0.24	140
Total	**83,000,000**	**59,000,000**	**220,000,000**	**3,800,000**	**2,300,000**	**23,000,000**

(1) Includes uncertainty factors for the vitrified waste product from reprocessing spent fuel plus contaminated vitrification plant items, but excludes uncertainty factors for vitrification plant POCO.

The uncertainties on radioactivity are greater than those on volume because there are greater uncertainties associated with the sampling, measurement and calculation processes. Most of the uncertainties in radioactivities can be attributed to a small number of waste streams.

The uncertainties on the HLW radioactivity are relatively small, as vitrified HLW is well characterised.

[9] Volume *estimates can be found in the 2016 Inventory report "Radioactive Wastes and Materials Not Reported in the 2016 Inventory".*

The major contributors to uncertainty on the ILW radioactivity are AGR activated core components including fuel stringer debris. The radioactivities of these wastes are based on theoretical estimates and have associated lower and upper uncertainty factors of 0.01 and 100. These estimates have been listed as priority improvements for future inventory work.

The radioactivities of LLW and VLLW are small in comparison to HLW and ILW. Uncertainties are relatively high because the majority of radioactivity is from plant decommissioning wastes, but their impact on total radioactivity in the 2016 Inventory is negligible.

7.3 Future waste arisings

Changes in the assumptions used to compile 2016 Inventory data could affect forecasts of future waste arisings. Potential impacts are described below.

- Springfields manufactures oxide fuels for AGRs and LWRs, and intermediates for export. Future operations at Springfields will depend on commercial strategies and the global demand for its products.
- Urenco's business at Capenhurst supplies enriched uranium for oxide fuel manufacture. Future operations at Capenhurst will depend on the global demand for its products.
- The UK government proposed a preliminary policy view to pursue reuse of UK civil separated plutonium as Mixed Oxide (MOX) fuel subject to a suitable business case. The UK Government is continuing its work to develop options capable of delivering the policy objective of putting the plutonium beyond reach, including disposal and reuse options [2]. The 2016 Inventory does not include an estimate of waste from such options.
- For the 2016 Inventory the assumed power station operating lifetimes are those in operators' existing corporate plans. However, market conditions or technical and safety issues could result in revisions to lifetimes. To illustrate the impact of power station lifetime changes, the authors have estimated waste volumes from one year's operation of AGR and PWR stations (see Table 19). Longer or shorter operating lifetimes for power stations would not have a significant effect on overall future waste volumes from the stations, which are dominated by wastes from decommissioning.

Table 19: Predicted waste volumes from 1 year's operation of power station (1)

Waste type	Station	Reported volume (m^3)	When waste has been packaged (m^3)	
			Packaged volume	Number of packages(2)
ILW	AGR	20.8	34.9	5.22
	PWR	4.48	16.5	17.9
LLW	AGR	43.3	28.8	1.48
	PWR	68.3	116	5.96

(1) The values are for wastes generated at the station and do not include wastes from reprocessing spent fuel. The volumes are average annual arisings for all the AGR stations and the Sizewell B PWR for the 4-year period 2016-2019.

(2) Calculated fractional package numbers are not rounded up to the nearest whole number as this would overestimate the number of packages generated over a number of years of operation.

- A number of organisations are pursuing plans for new nuclear power stations in the UK. The 2016 Inventory does not include any estimates of waste arisings from new build reactors as it is not yet clear how many reactors and of what design might be constructed. No final investment decisions had been taken by the 2016 Inventory stock date.

- At Sellafield there are a large number of future decommissioning projects where only minimal characterisation of waste volumes and radionuclide fingerprints has been carried out to date, and hence there are considerable uncertainties in potential arisings. Based on limited decommissioning experience, much decommissioning waste may be exempt from regulatory control.

- The JET fusion facility is assumed to operate until 2020. However, the extent of future operations is uncertain, and JET could well operate beyond this date for several years in support of ITER (a larger fusion device being constructed in France). This will not have a significant effect on overall radioactive waste volumes because annual operational arisings are low, but will impact the timing of decommissioning waste arisings.

- Irradiated fuel from nuclear powered submarines has not been declared as waste. It is held in long-term storage at Sellafield.

- MOD's Submarine Dismantling Project (SDP) aims to deliver a safe, environmentally responsible and cost effective solution for dismantling 27 of the UK's defuelled nuclear powered submarines after they have left service. Any change in this programme would affect future waste arisings.

- The MOD Estate is subject to a rolling programme of prioritised Land Quality Assessment (LQA). This assessment includes the potential for radioactive contamination. In light of the ongoing LQA programme, the current volume estimate for arisings associated with the remediation of contaminated ground in the UK is subject to potential significant change.

8 WASTES FROM OVERSEAS MATERIALS

A summary of key points:

- *Waste from reprocessing overseas spent fuel is returned to the country of origin.*
- *About 1,575 canisters of vitrified HLW and smaller quantities of other wastes will be exported.*

A proportion of the waste from the Thorp and Magnox reprocessing plants at Sellafield results from reprocessing overseas spent fuel. All reprocessing contracts with overseas customers signed since 1976 include a provision to return packaged wastes or their equivalent (by internationally agreed substitution arrangements) back to the country of origin.

Government policy is that wastes resulting from the reprocessing of overseas spent fuel should be returned to the country of origin, and HLW should be returned as soon as practicable after vitrification. The policy allows "waste substitution" arrangements that ensure broad environmental neutrality for the UK. Waste substitution is the process whereby an additional amount of HLW from reprocessing would be returned, which is smaller in volume but equivalent in radiological terms to customers' ILW and LLW from reprocessing that would otherwise be returned.

Exports of vitrified HLW started in January 2010 and are expected to be completed by around 2021/22. In total about 1,575 canisters of vitrified HLW (about 236 m^3) is planned for export, and this volume assumes that substitution arrangements are implemented.

Future arisings of HLW reported in the Inventory are net of exports to overseas reprocessing customers, so that the total volume/number of containers reported represents only the HLW that is a UK liability.

Shipment of vitrified HLW from Sellafield to Japan

During the 1990s about 1,000 tonnes of materials test reactor fuel was reprocessed at Dounreay for customers in Belgium, Germany, the Netherlands and Australia. The contracts for this work require that the radioactive wastes produced be returned to the countries of origin within 25 years of reprocessing. The contracts are backed by inter-governmental letters. Wastes are currently being repatriated to Belgium and approximately 123 containers of cemented waste from the reprocessing of BR2 fuel were returned between 2012 and 2014. In 2012 the Scottish and UK governments agreed in principle to allow waste substitution for these customers. The 2016 Inventory includes 75 m^3 of raffinate (210 m^3 when packaged) subject to return.

9 WASTE MANAGEMENT

A summary of key points:

- *Higher activity wastes (HLW, ILW) and some LLW unsuitable for near-surface disposal are being accumulated in stores.*
- *The waste hierarchy and the opening up of alternative management routes mean that less LLW is expected to be disposed at the LLWR.*
- *Most VLLW is disposed of at appropriately permitted landfill sites.*

The continued operation of nuclear plants and the decommissioning of sites depend on the availability of suitable waste management routes and facilities. Radioactive waste management involves a series of steps, which depend on the nature of each waste stream, within an integrated waste strategy. A short discussion of radioactive waste management is provided in the 'Context and *Methodology*' report.

This section consolidates the information on waste management routes compiled by the waste producers.

9.1 HLW and ILW

These higher activity wastes are being accumulated in stores[10]. The long-term management policy of the UK Government and devolved administrations for Wales and Northern Ireland is geological disposal. This uses engineered barriers and hundreds of metres of rock overlying the disposal facility to isolate the waste so that no harmful amounts of radioactivity reach the surface environment. The specially-engineered vaults and tunnels deep underground that will house the waste are called a Geological Disposal Facility (GDF).

There is no GDF yet operating but the UK Government is currently developing a site selection process to find a volunteer host community with suitable geology. The geological characteristics of the site are important for the long-term safety of the facility.

The Scottish Government policy is that long-term management of higher activity wastes should be in near-surface facilities. Facilities should be located as near to the site where the waste is produced as possible. Developers will need to demonstrate how the facilities will be monitored and how waste packages, or waste, could be retrieved.

9.2 LLW and VLLW

UK policy for managing LLW provides a flexible and sustainable approach for the long term, with a preference for managing LLW at higher levels of the waste hierarchy (i.e. waste minimisation, reuse and recycling)[11].

[10] *Discrete items of short-lived ILW may be suitable near-surface disposal after a period of decay storage.*
[11] *Application of the waste hierarchy is central to the UK-wide strategy for managing LLW from the nuclear industry. This means managing LLW at higher levels of the hierarchy, such as reducing, reusing and recycling waste, and a move away from the past focus on disposal.*

Improved segregation of waste materials can allow the diversion of metals for recycling and combustibles for incineration. The opening up of disposal routes for VLLW together with improved waste characterisation is leading to more LLW being recategorised as VLLW.

Similarly, improved characterisation is resulting in the recategorisation of some waste from ILW to LLW (e.g. Magnox FED, Magnox reactor fuel skips).

Waste routing

There is greater certainty in how lower activity wastes will be managed in the near term. Figure 17 shows the disposal routes for LLW forecast to arise over the next five years (2016-2020 inclusive). About 21% only of the reported volume is expected to be disposed of at the LLWR. All other LLW is expected to be diverted away from the LLWR, with the majority routed to the on-site disposal facility at Dounreay, appropriately permitted landfill sites or for incineration. All VLLW in this period is expected to be disposed of at appropriately permitted landfill sites.

Figure 17: Projected routing of LLW arising in the period 2016-2020

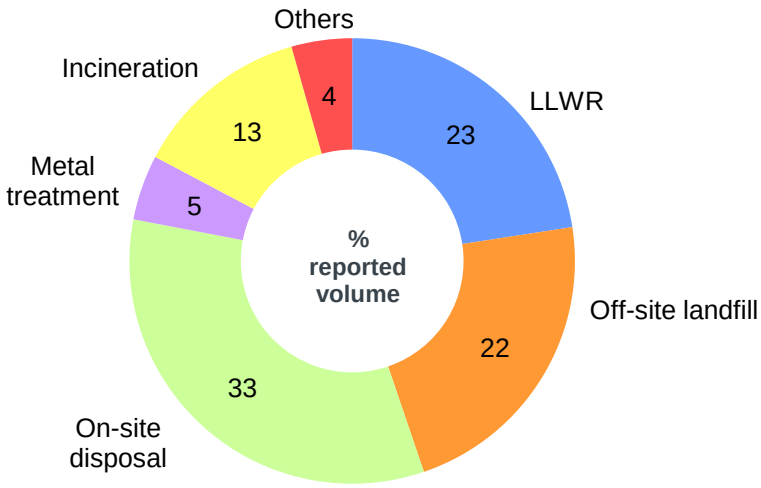


Table 20 provides an analysis of projected disposal routes for all LLW and VLLW in the 2016 inventory, comprising stocks at 1 April 2016 and forecast future arisings. The table shows that over half of all LLW by volume is projected to be disposed of at the LLWR. Much of this volume is from final stage reactor decommissioning that will not arise for many decades and for which there is a greater uncertainty on the disposal route.

The 2016 Inventory data show that increasing amounts of LLW are expected to be diverted for metal treatment, incineration and landfill disposal compared with the 2103 Inventory.

Table 20: Projected routing of LLW and VLLW - wastes at 1 April 2016 and estimated for future arisings up to 2125

Expected waste route	LLW		VLLW	
	Reported volume (m^3)	Reported volume (%)	Reported volume (m^3)	Reported volume (%)
LLWR(1)	715,000(2)	53	-	-
Off-site landfill facilities	236,000(3)	18	2,640,000	92.6
On-site disposal facilities(4)	98,000	7.3	73,000	2.6
Metal treatment(5)	124,000	9	137,000	4.8
Incineration(5)	96,000	7.1	1,920	<0.1
Recycled / reused	10,600(6)	<1	-	-
Out-of-scope(7)	17,400	1.3	-	-
Unsuitable for current near-surface disposal facilities(8)	9,820	<1	-	-
Unconfirmed	39,100	2.9	-	-
Total	**1,350,000**	**100**	**2,860,000**	**100**

(1) With supercompaction of suitable wastes.

(2) About 361,000 m^3 is concrete from final stage decommissioning of Magnox reactors.

(3) Includes 204,000 m^3 of mixed VLLW/LLW at Springfields.

(4) Includes the Dounreay LLW disposal facility (with supercompaction of suitable wastes) and the Calder Landfill Extension Segregated Area (CLESA) facility at Sellafield.

(5) A small quantity of secondary waste is generated for disposal.

(6) Includes 10,000 m^3 of mixed VLLW/LLW at Springfields.

(7) Following treatment or characterisation, waste is expected to contain radioactivity below regulatory levels.

(8) Predominantly Magnox and AGR core graphite that does not meet acceptance conditions at the LLWR and where the disposal route is to a GDF.

Low Level Waste Repository

The LLWR is the UK's principal facility for the disposal of solid LLW.

Aerial view of the LLWR showing vaults of disposed low activity waste

Since 1988 most waste for disposal at the LLWR has been placed in large metal containers, similar to shipping containers. These are then filled with cement and stacked in engineered concrete vaults (Vaults 8 & 9). Suitable LLW is first supercompacted to minimise its volume. In this process drums or boxes of waste are compacted under high pressure of up to 2,000 tonnes per square metre.[12]

At 1 April 2016 disposed waste containers in Vault 8 occupied approximately 200,000 m^3 and those in Vault 9 approximately 33,000 m^3.

[12] *Between 1959 and 1995 drummed, bagged and loose waste was disposed in a series of seven clay-lined trenches at the LLWR. As a result of compaction, the waste in the trenches occupies a volume of about 500,000m^3. The trenches have been covered by an interim soil cap; a final cap will be constructed over the trenches and vaults as part of site closure engineering.*

For the 2013 Inventory a small proportion of the waste containers in Vault 8 and all waste containers in Vault 9 were not classed as disposed[13]; these stored containers were included in the LLW quantities reported in the inventory. However in November 2015, the Environment Agency granted LLWR a new environmental permit, allowing LLWR to designate all containers in Vaults 8 and 9 as disposed.

Consignments to the LLWR over the past ten years have totalled about 67,000 m^3 (see Table 21). Annual consignment volumes have reduced, driven primarily by application of the waste hierarchy and, diversion of significant volumes of LLW and the development and use of alternative treatment and disposal routes.

Table 21: Annual consignments to the LLWR 2006 – 2015

Year	Total volume (m^3)(1)
2006	12,900
2007	9,100
2008	8,600
2009	7,000
2010	4,830
2011	6,700
2012	4,820
2013	5,090
2014	3,280
2015	3,630
2016(2)	1,220

(1) Volume is for waste and its primary containment.

(2) Up to 31 March 2016

Dounreay LLW facility

A new shallow, engineered LLW disposal facility has been constructed next to the Dounreay site in Caithness. Waste transfers started in 2015. The disposal facility will receive LLW from decommissioning the Dounreay site, as well as retrieved and repackaged LLW from the historical disposal pits. It will also receive waste from the neighbouring Vulcan nuclear site that cannot be recycled.

Consignments to date are given in Table 22.

Table 22: Annual consignments to Dounreay LLW facility 2015 – 2016

Year	Total volume (m^3)(1)
2015	2,050
2016(2)	1,080

(1) Volume is for packaged waste.

[13] *At this time the disposal permit issued by the Environment Agency applied to waste in the trenches and that originally planned for Vault 8, it did not apply to waste in Vault 9 and higher stacked waste in Vault 8.*

(2) Up to 31 March 2016.

Internal view of empty Dounreay LLW disposal vault

Table 23 gives a projection of waste consignments to the LLWR and Dounreay disposal vaults over the next few years. The values are packaged volumes for waste streams that are identified in the 2016 Inventory as expected to be consigned to the LLWR or for on-site disposal at Dounreay.

Table 23: Projected future consignments to disposal facilities

Year[1]	Total packaged volume (m^3)[2]	
	LLWR	Dounreay LLW facility[3]
2016	6,710	13,200
2017	7,300	13,200
2018	8,050	13,200
2019	4,980	13,200
2020	4,640	13,200
2021	5,320	13,200

(1) Financial years.

(2) Volume is the packaged volume and reflects the effect of both waste compaction and containerisation.

(3) Provisional volumes.

10 REFERENCES

[1] NDA, “Understanding activities that produce radioactive wastes in the UK,” 2015.

[2] NDA, “Progress on approaches to the management of separated plutonium. Position Paper,” January 2014.

ANNEX 1 WASTE VOLUMES BY COUNTRY

This annex presents waste volumes and package numbers from all sources, for HLW, ILW LLW and VLLW, and in total. It also provides this information separately for wastes located in England, Scotland and Wales.

Some of the radioactive wastes located in England (at Sellafield) are from the reprocessing of spent fuel from reactors in Scotland and Wales.

Information is given in a number of tables, listed below.

Contents	Table[1-3]
All wastes	A1.1, A1.2
Wastes from sites in England	A1.3, A1.4
Wastes from sites in Scotland	A1.5, A1.6
Wastes from sites in Wales	A1.7, A1.8

(1) Tables A1.1, A1.3, A1.5 and A1.7 give reported waste volumes at 1 April 2016 and estimated for future time periods.

(2) Tables A1.2, A1.4, A1.6 and A1.8 give the numbers of packages, packaged volumes and conditioned volumes existing at 1 April 2016, and the numbers of packages, packaged volumes and conditioned volumes once all wastes at 1 April 2016 and estimated for future arisings have been packaged. LLW package numbers exclude those streams suitable for landfill disposal, as the UK Inventory does not compile information on waste packaging for this disposal route.

(3) All wastes from decommissioned nuclear powered submarines, which are berthed at Devonport and Rosyth, are included in wastes from sites in England.

Table A1.1: All wastes
Reported volume at 1 April 2016 and for estimated future arisings (m^3) (1)

	HLW	ILW(3)	LLW	VLLW	Total
Total	**1,150**	**290,000**	**1,350,000**	**2,860,000**	**4,490,000**
At 1.4.2016	1,960	99,000	30,100	935	**132,000**
Future arisings	See Note 2	191,000	1,320,000	2,860,000	**4,360,000**
Arisings 2016	See Note 2	1,800	25,100	12,900	**39,700**
Arisings 2017	See Note 2	1,770	26,000	10,900	**38,600**
Arisings 2018-2019	See Note 2	3,590	53,600	29,800	**86,600**
Arisings 2020-2029	See Note 2	17,800	180,000	101,000	**298,000**
Arisings 2030-2039	0	24,500	92,000	136,000	**253,000**
Arisings 2040-2059	0	34,400	222,000	489,000	**746,000**
Arisings 2060-2099	0	77,800	474,000	1,090,000	**1,650,000**
Arisings post-2100	0	29,700	243,000	982,000	**1,260,000**

(1) Volumes are those reported by the waste producers. Reported volumes are for untreated or partly treated wastes, apart from wastes that are conditioned (i.e. waste streams with a /C in the identifier) where the conditioned volume is reported.

(2) From 1.4.2016 there is a net decrease in the reported volume of HLW because accumulated HAL is being conditioned, which reduces its volume by about two-thirds, and also because vitrified HLW is being exported to overseas customers. Thus, the volume of 1,960 m^3 at 1.4.2016 is expected to fall by 816 m^3, to 1,150 m^3, by 2029 when all HAL (plus IFP residues and contaminated plant items) is expected to be conditioned.

(3) ILW includes 7,580 m^3 of waste that is expected to become LLW as a result of decontamination or decay storage. This comprises 1,550 m^3 at 1.4.2016 and 6,030 m^3 for future arisings.

Table A1.2: All wastes
Number of packages, packaged and conditioned volumes (m^3)

	HLW	ILW(2)	LLW	VLLW(3)	Total
At 1.4.2016(1)					
Number of packages	5,781	60,407	648	-	**66,836**
Packaged volume	1,130	41,400	14,300	0	**56,900**
Conditioned volume	867	33,300	11,500	0	**45,600**
When all wastes at 1.4.2016 and future arisings are packaged(3)					
Number of packages	7,650	229,000	71,600	-	**308,000**
Packaged volume	1,500	449,000	1,600,000	2,720,000	**4,770,000**
Conditioned volume	1,150	352,000	1,270,000	2,720,000	**4,340,000**

(1) Package numbers and packaged volumes at 1.4.2016 are for those wastes that had been conditioned (i.e. waste streams with a /C in the identifier).

(2) ILW packages at 1.4.2016 include 1,928 1803-type drums at Trawsfynydd. These drums are expected to be overpacked in 4m boxes (6 drums per box). The conditioned volume of these wastes at 1.4.2016 is for the overpacked waste. The number of packages given for all wastes includes these 4m boxes and not the number of drums.

(3) All wastes at 1.4.2016 and future arisings includes 449 packages, 8,730 m^3 packaged volume and 6,600 m^3 conditioned volume of ILW that is expected to become LLW as a result of decontamination or decay storage.

(4) Information on VLLW packaging is not compiled.

Table A1.3: Wastes at sites in England Reported volume at 1 April 2016 and estimated for future arisings (m^3) (1)

	HLW	ILW(3)	LLW	VLLW	Total
Total	**1,150**	**251,000**	**999,000**	**2,860,000**	**4,110,000**
At 1.4.2016	1,960	86,900	11,000	926	**101,000**
Future arisings	See Note 2	164,000	989,000	2,850,000	**4,010,000**
Arisings 2016	See Note 2	1,620	15,900	12,900	**30,300**
Arisings 2017	See Note 2	1,610	16,900	10,800	**29,200**
Arisings 2018-2019	See Note 2	3,300	35,000	29,600	**67,500**
Arisings 2020-2029	See Note 2	15,800	120,000	100,000	**235,000**
Arisings 2030-2039	0	24,400	84,300	136,000	**245,000**
Arisings 2040-2059	0	34,300	220,000	489,000	**743,000**
Arisings 2060-2099	0	62,300	312,000	1,090,000	**1,470,000**
Arisings post-2100	0	20,500	184,000	982,000	**1,190,000**

(1) Volumes are those reported by the waste producers. Reported volumes are for untreated or partly treated wastes, apart from wastes that are conditioned (i.e. waste streams with a /C in the identifier) where the conditioned volume is reported.

(2) From 1.4.2016 there is a net decrease in the reported volume of HLW because accumulated HAL is being conditioned, which reduces its volume by about two-thirds, and also because vitrified HLW is being exported to overseas customers. Thus, the volume of 1,960 m^3 at 1.4.2016 is expected to fall by 816 m^3, to 1,150 m^3, by 2029 when all HAL (plus IFP residues and contaminated plant items) is expected to be conditioned.

(3) ILW includes 6,890 m^3 of waste that is expected to become LLW as a result of decontamination or decay storage. This comprises 1,010 m^3 at 1.4.2016 and 5,880 m^3 for future arisings.

Table A1.4: Wastes at sites in England Number of packages, packaged and conditioned volumes (m^3)

	HLW	ILW	LLW	VLLW(3)	Total
At 1.4.2016(1)					
Number of packages	5,781	52,784	3	-	**58,568**
Packaged volume	1,130	31,500	1,750	0	**34,400**
Conditioned volume	867	26,800	1,440	0	**29,100**
When all wastes at 1.4.2016 and future arisings are packaged(2)					
Number of packages	7,650	210,000	45,200	-	**263,000**
Packaged volume	1,500	388,000	1,060,000	2,720,000	**4,170,000**
Conditioned volume	1,150	303,000	859,000	2,720,000	**3,880,000**

(1) Package numbers and packaged volumes at 1.4.2016 are for those wastes that had been conditioned (i.e. waste streams with a /C in the identifier).

(2) All wastes at 1.4.2016 and future arisings includes 406 packages, 7,900 m^3 packaged volume and 5,970 m^3 conditioned volume of ILW that is expected to become LLW as a result of decontamination or decay storage.

(3) Information on VLLW packaging is not compiled.

Table A1.5: Wastes at sites in Scotland Reported volume at 1 April 2016 and estimated for future arisings (m^3) (1)

	ILW(2)	LLW	VLLW	Total
Total	**25,500**	**230,000**	**1,040**	**257,000**
At 1.4.2016	9,030	18,600	4.2	**27,700**
Future arisings	16,500	212,000	1,030	**229,000**
Arisings 2016	158	8,950	90.9	**9,200**
Arisings 2017	150	8,960	90.9	**9,200**
Arisings 2018-2019	268	17,900	182	**18,400**
Arisings 2020-2029	2,040	59,200	559	**61,800**
Arisings 2030-2039	121	7,600	0	**7,720**
Arisings 2040-2059	34.0	1,960	0	**1,990**
Arisings 2060-2099	8,280	88,300	110	**96,700**
Arisings post-2100	5,420	18,700	0	**24,200**

(1) Volumes are those reported by the waste producers. Reported volumes are for untreated or partly treated wastes, apart from wastes that are conditioned (i.e. waste streams with a /C in the identifier) where the conditioned volume is reported.

(2) ILW includes 467 m^3 of waste that is expected to become LLW as a result of decontamination or decay storage. This comprises 314 m^3 at 1.4.2016 and 153 m^3 for future arisings.

Table A1.6: Wastes at sites in Scotland Number of packages, packaged and conditioned volumes (m^3)

	ILW	LLW	VLLW(3)	Total
At 1.4.2016(1)				
Number of packages	5,618	645	-	**6,263**
Packaged volume	3,210	12,600	0	**15,800**
Conditioned volume	2,810	10,000	0	**12,900**
When all wastes at 1.4.2016 and future arisings are packaged(2)				
Number of packages	17,200	15,800	-	**33,000**
Packaged volume	39,200	330,000	1,040	**371,000**
Conditioned volume	31,200	256,000	1,040	**288,000**

(1) Package numbers and packaged volumes at 1.4.2016 are for those wastes that had been conditioned (i.e. waste streams with a /C in the identifier).

(2) All wastes at 1.4.2016 and future arisings include 43 packages, 834 m^3 packaged volume and 631 m^3 conditioned volume of ILW that is expected to become LLW as a result of decontamination or decay storage.

(3) Information on VLLW packaging is not compiled.

Table A1.7: Wastes at sites in Wales Reported volume at 1 April 2016 and estimated for future arisings (m^3) (1)

	ILW(2)	LLW	VLLW	Total
Total	**14,300**	**117,000**	**5**	**131,000**
At 1.4.2016	3,150	543	5	**3,700**
Future arisings	11,100	116,000	0	**127,000**
Arisings 2016	22.2	222	0	**244**
Arisings 2017	13.9	141	0	**155**
Arisings 2018-2019	17.1	682	0	**699**
Arisings 2020-2029	19.9	1,300	0	**1,320**
Arisings 2030-2039	0	40	0	**40**
Arisings 2040-2059	0	80	0	**80**
Arisings 2060-2099	7,200	73,600	0	**80,800**
Arisings post-2100	3,830	40,300	0	**44,100**

(1) Volumes are those reported by the waste producers. Reported volumes are for untreated or partly treated wastes, apart from wastes that are conditioned (i.e. waste streams with a /C in the identifier) where the conditioned volume is reported.

(2) ILW includes 231 m^3 of waste that is expected to become LLW as a result of decontamination or decay storage. This comprises 231 m^3 at 1.4.2016 and no future arisings.

Table A1.8: Wastes at sites in Wales Number of packages, packaged and conditioned volumes (m^3)

	ILW(2)	LLW	VLLW(3)	Total
At 1.4.2016 (1)				
Number of packages	2,005	0	-	**2,005**
Packaged volume	6,720	0	0	**6,720**
Conditioned volume	3,720	0	0	**3,720**
When all wastes at 1.4.2016 and future arisings are packaged				
Number of packages	1,330	10,600	-	**12,000**
Packaged volume	22,200	208,000	5	**230,000**
Conditioned volume	18,100	158,000	5	**176,000**

(1) Package numbers and volumes at 1.4.2016 are for those wastes that had been conditioned (i.e. waste streams with a /C in the identifier).

(2) ILW packages at 1.4.2016 include 1,928 1803-type drums at Trawsfynydd. These drums are expected to be overpacked in 4m boxes (6 drums per box). The number of packages given for all wastes includes these 4m boxes and not the number of drums.

(3) Information on VLLW packaging is not compiled.

ANNEX 2 WASTE VOLUMES FROM EACH ORGANISATION

This annex provides a breakdown of waste volumes and package numbers for HLW, ILW and LLW for each waste producing organisation. The organisations are:

- **Nuclear Decommissioning Authority (NDA);**
- **EDF Energy;**
- **Ministry of Defence (includes contractor owned and contractor operated sites);**
- **United Kingdom Atomic Energy Authority**
- **GE Healthcare Ltd;**
- **Urenco[14]; and**
- **Minor waste producers.**

Information is given in a number of tables, listed below.

Site owner	Table(1-3)
All site owners (all wastes)	A2.1
All site owners (wastes at 1.4.2016)	A2.2
All site owners (all wastes when packaged)	A2.3

(1) Table A2.1 gives waste volumes at 1 April 2016 and a consolidated estimate for future arisings.

(2) Table A2.2 gives the numbers of packages, packaged volumes and conditioned volumes existing at 1 April 2016.

(3) Table A2.3 gives the numbers of packages, packaged volumes and conditioned volumes once all wastes at 1 April 2016 and for future arisings have been packaged. LLW package numbers exclude those streams suitable for landfill disposal, as the UK Inventory does not compile information on waste packaging for this disposal route.

[14] *Comprising Capenhurst Nuclear Services (CNS), Urenco UK (UUK) and Urenco Chemical Plants (UCP).*

Table A2.1: Reported volume at 1 April 2016 and estimated for future arisings (m^3) (1)

Site owner		HLW	ILW	LLW	VLLW	Total
NDA	**Total**	**1,150**	**252,000**	**1,130,000**	**2,830,000**	**4,210,000**
	1.4.2016	1,960	90,600	25,500	909	**119,000**
	Future arisings	See Note 2	161,000	1,100,000	2,830,000	**4,090,000**
Ministry of Defence	**Total**	**0**	**9,120**	**44,200**	**8,100**	**61,500**
	1.4.2016	0	4,480	2,150	26.0	**6,650**
	Future arisings	0	4,640	42,100	8,080	**54,800**
EDF Energy	**Total**	**0**	**29,200**	**139,000**	**0**	**168,000**
	1.4.2016	0	3,520	624	0	**4,140**
	Future arisings	0	25,600	138,000	0	**164,000**
United Kingdom Atomic Energy Authority	**Total**	**0**	**193**	**4,810**	**0**	**5,000**
	1.4.2016	0	34.1	86.0	0	**120**
	Future arisings	0	159	4,720	0	**4,880**
GE Healthcare	**Total**	**0**	**454**	**4,610**	**0**	**5,070**
	1.4.2016	0	399	513	0	**911**
	Future arisings	0	55.2	4,100	0	**4,160**
Urenco	**Total**	**0**	**2.5**	**13,100**	**21,000**	**34,100**
	1.4.2016	0	0.7	632	0	**633**
	Future arisings	0	1.8	12,400	21,000	**33,400**
Minor waste producers	**Total**	**0**	**11.5**	**12,200**	**0**	**12,200**
	1.4.2016	0	5.3	648	0	**653**
	Future arisings	0	6.2	11,600	0	**11,600**
Total	**Total**	**1,150**	**290,000**	**1,350,000**	**2,860,000**	**4,490,000**
	1.4.2016	**1,960**	**99,000**	**30,100**	**935**	**132,000**
	Future arisings	**See Note 2**	**191,000**	**1,320,000**	**2,860,000**	**4,360,000**

(1) Volumes are those reported by the waste producers. Report volumes are for untreated or partly treated wastes, apart from wastes that are conditioned (i.e. waste streams with a /C in the identifier) where the conditioned volume is reported.

(2) From 1.4.2016 there is a net decrease in the reported volume of HLW because accumulated HAL is being conditioned, which reduces its volume by about two-thirds, and also because vitrified HLW is being exported to overseas customers. Thus, the volume of 1,960 m^3 at 1.4.2016 is expected to fall by 816 m^3, to 1,150 m^3, by 2029 when all HAL (plus IFP residues and contaminated plant items) is expected to be conditioned.

Table A2.2: Wastes at 1 April 2016 Number of packages, packaged volume and conditioned volume [1]

Site owner	At 1.4.2016	HLW	ILW[2]	LLW	VLLW	Total
NDA	Number of packages	5,781	60,339	648	0	**66,768**
	Packaged volume (m^3)	1,130	41,400	14,300	0	**56,800**
	Conditioned volume (m^3)	867	33,300	11,400	0	**45,600**
Ministry of Defence	Number of packages	0	0	0	0	**0**
	Packaged volume (m^3)	0	0	49.7	0	**49.7**
	Conditioned volume (m^3)	0	0	37.6	0	**37.6**
EDF Energy	Number of packages	0	55	0	0	**55**
	Packaged volume (m^3)	0	72.6	0	0	**72.6**
	Conditioned volume (m^3)	0	26.0	0	0	**26.0**
United Kingdom Atomic Energy Authority	Number of packages	0	0	0	0	**0**
	Packaged volume (m^3)	0	0	0	0	**0**
	Conditioned volume (m^3)	0	0	0	0	**0**
GE Healthcare	Number of packages	0	0	0	0	**0**
	Packaged volume (m^3)	0	0	0	0	**0**
	Conditioned volume (m^3)	0	0	0	0	**0**
Urenco	Number of packages	0	0	0	0	**0**
	Packaged volume (m^3)	0	0	0	0	**0**
	Conditioned volume (m^3)	0	0	0	0	**0**
Minor waste producers	Number of packages	0	13	0	0	**13**
	Packaged volume (m^3)	0	7.4	0	0	**7.4**
	Conditioned volume (m^3)	0	2.5	0	0	**2.5**
Total	**Number of packages**	**5,781**	**60,407**	**648**	**0**	**66,836**
	Packaged volume (m^3)	**1,130**	**41,400**	**14,300**	**0**	**56,900**
	Conditioned volume (m^3)	**867**	**33,300**	**11,500**	**0**	**45,600**

(1) Package numbers and packaged volumes are for those wastes that had been conditioned (i.e. waste streams with a /C in the identifier).

(2) ILW packages from NDA include 1,928 type 1803 drums. These drums are expected to be overpacked in 4m boxes (6 drums per box).

Table A2.3: All wastes when packaged Number of packages, packaged volume and conditioned volume

Site owner	When all wastes at 1.4.2016 and future arisings are packaged	HLW	ILW	LLW	VLLW[1]	Total
NDA	Number of packages	7,650	214,000	60,500	-	**282,000**
	Packaged volume (m^3)	1,500	394,000	1,410,000	2,690,000	**4,500,000**
	Conditioned volume (m^3)	1,150	311,000	1,130,000	2,690,000	**4,130,000**
Ministry of Defence	Number of packages	0	8,820	2,880	-	**11,700**
	Packaged volume (m^3)	0	7,410	57,300	8,100	**72,900**
	Conditioned volume (m^3)	0	6,160	44,300	8,100	**58,600**
EDF Energy	Number of packages	0	5,770	5,140	-	**10,900**
	Packaged volume (m^3)	0	47,900	100,000	0	**148,000**
	Conditioned volume (m^3)	0	34,200	77,200	0	**111,000**
United Kingdom Atomic Energy Authority	Number of packages	0	29	58	-	**87**
	Packaged volume (m^3)	0	299	4,550	0	**4,850**
	Conditioned volume (m^3)	0	94.5	4,290	0	**4,380**
GE Healthcare	Number of packages	0	374	2,260	-	**2,640**
	Packaged volume (m^3)	0	279	4,280	0	**4,560**
	Conditioned volume (m^3)	0	224	3,920	0	**4,150**
Urenco	Number of packages	0	6	2	-	**8**
	Packaged volume (m^3)	0	3.0	4,790	21,000	**25,800**
	Conditioned volume (m^3)	0	2.5	4,780	21,000	**25,800**
Minor waste producers	Number of packages	0	28	811	-	**839**
	Packaged volume (m^3)	0	18.7	16,000	0	**16,000**
	Conditioned volume (m^3)	0	11.5	12,200	0	**12,200**
Total	**Number of packages**	**7,650**	**229,000**	**71,600**	**-**	308,000
	Packaged volume (m^3)	**1,500**	**449,000**	**1,600,000**	**2,720,000**	4,770,000
	Conditioned volume (m^3)	**1,150**	**352,000**	**1,270,000**	**2,720,000**	4,340,000

(1) Information on VLLW packaging is not compiled.

ANNEX 3 LIST OF WASTE STREAMS IN THE INVENTORY AND THEIR VOLUMES

The table below shows the number of waste streams in the 2016 Inventory for each waste type from each waste producer.

Table A3.1 Number of waste streams in the 2016 Inventory

Site owner	HLW	ILW	LLW	VLLW	Total
NDA	5	501	459	26	**991**
Ministry of Defence	-	22	38	1	**61**
EDF Energy	-	95	132	-	**227**
United Kingdom Atomic Energy Authority	-	5	7	-	**12**
GE Healthcare	-	9	5	-	**14**
Urenco	-	1	14	2	**17**
Minor waste producers	-	11	4	-	**15**
Total	**5**	**644**	**659**	**29**	**1,337**

All 1,337 waste streams in the 2016 Inventory are listed on the following pages in order of waste stream identifier. Each site is identified, together with the site owner and waste custodian. For sites with operational and decommissioning wastes, the operational waste streams are listed first.

The following information is given for each waste stream:

- Stream identifier;
- Stream title;
- Waste type;
- Reported volume of waste at 1 April 2016;

- Reported volume of waste for projected future arisings;
- Total reported volume for all wastes at 1 April 2016 and projected future arisings; and
- Forecast total packaged volume and number of waste packages when all stocks at 1 April 2016 and projected future arisings have been packaged.

(Further information on waste stream identifiers and on the reporting of waste volumes can be found in the *'Context and Methodology Report'*).

The forecast packaged volume and number of waste packages are determined from waste packaging plans. For those waste streams where waste packaging plans are not yet fully defined, assumptions have been made so that total package numbers and packaged volumes can be estimated (see *'Context and Methodology Report'*).

The reported volume of waste (at 1 April 2016, future arisings and total) is the reported value in cubic metres (m^3) to 1 decimal place. Reported volumes of less than 0.05 m^3 are displayed as "<0.1". The packaged volume and number of waste packages for all wastes at 1 April 2016 and future arisings are calculated values given to 3 significant figures, or, for values below 10, to the nearest 0.1. Calculated fractional package numbers for waste streams are not rounded up to the nearest whole number. This would overestimate the number of packages, particularly as small volume waste streams of the same type and the same or similar composition at a site will be packaged together.

Total volumes and package numbers are zero for waste streams that are to be incinerated or recycled, or where arisings are not estimated.

VLLW may be disposed to appropriately permitted landfill sites. Package numbers for these wastes are reported as zero (as the UK Inventory does not include packaging information for wastes sent to landfill).

Site Owner – Waste Custodian - Site		Waste type	Reported volume (m^3)			When all wastes at 1.4.2016 and future arisings are packaged	
Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
GE Healthcare – GE Healthcare - Amersham							
1A01	LLW Compactable Drummable	LLW	16.6	150.0	166.6	183	559
1A02	LLW Non-Compactable Drummable	LLW	171.0	400.0	571.0	645	1,650
1A03	LLW Non-Compactable Non-Drummable	LLW	175.0	550.0	725.0	938	48.1
1A04	LLW Non-Compactable Drummable (Spoil)	LLW	84.5	2,400.0	2,484.5	2,520	8.0
1A07	ILW	ILW	146.8	15.0	161.8	198	347
1A08	Decay Stored Waste	ILW	25.4	31.2	56.6	67.3	3.5
1A09	Incinerated Waste	LLW	65.4	600.0	665.4	0	0
1A10	ILW Containing Radium	ILW	2.0	9.0	11.0	13.5	23.6
1A11	Sealed Sources	ILW	<0.1	<0.1	<0.1	<0.1	<0.1
GE Healthcare – GE Healthcare – Cardiff							
1B04	ILW Containing Tritium Excluding Free Liquid	ILW	169.0	0	169.0	0	0
1B05	ILW Containing Carbon-14 Excluding Free Liquid	ILW	24.0	0	24.0	0	0
1B07	ILW Containing Tritium and Carbon-14	ILW	0.5	0	0.5	0	0
1B10	ILW Containing Carbon-14 Free Liquid	ILW	14.0	0	14.0	0	0
1B11	ILW Containing Tritium Free Liquid	ILW	17.0	0	17.0	0	0
NDA - Sellafield Ltd – Sellafield							
2A01	Redundant Activated Control Rods ILW	ILW	2.9	0	2.9	6.9	1.5
2A06	Redundant Activated Control Rods LLW	LLW	7.6	0	7.6	14.8	0.8
2A07	Redundant Fuel Transport Flasks & Liners	LLW	27.2	59.2	86.4	33.7	1.7
2A30	Waste Oils	LLW	15.0	10.0	25.0	0	0
2A910	Care and Maintenance Preparation (Reactor LLW)	LLW	0	9,212.9	9,212.9	4,290	220
2A911	C&M Preparation: Control Rod Mechanism Workshop Dismantling LLW	LLW	0	132.6	132.6	51.0	2.6
2A914	C&M Preparations Calder Hall Lagging - HVVLLW	VLLW	140.0	75.0	215.0	215	0
2A100	Care & Maintenance: General Reactor LLW	LLW	0	144.0	144.0	48.6	2.4
2A303	Final Dismantling & Site Clearance : Graphite LLW	LLW	0	6.3	6.3	8.3	0.4
2A304	Final Dismantling & Site Clearance : Mild Steel (Reactor) LLW	LLW	0	8,141.0	8,141.0	3,170	163
2A305	Final Dismantling & Site Clearance : Stainless Steel (Reactor) LLW	LLW	0	6.0	6.0	2.3	0.1
2A306	Final Dismantling & Site Clearance : Mild Steel (Non-Reactor) LLW	LLW	0	4,235.0	4,235.0	1,650	84.7
2A307	Final Dismantling & Site Clearance Concrete (Reactor & Non-Reactor) LLW	LLW	0	16,604.0	16,604.0	32,400	1,660

Site Owner – Waste Custodian - Site		Waste type	Reported volume (m^3)			When all wastes at 1.4.2016 and future arisings are packaged	
Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
2A308	Final Dismantling & Site Clearance: Misc Metals & Materials (Reactor and Non-Reactor) LLW	LLW	0	721.0	721.0	281	14.4
2A309	Final Dismantling & Site Clearance: Secondary LLW	LLW	0	1,113.0	1,113.0	495	25.1
2A310	Final Dismantling & Site Clearance: Graphite ILW	ILW	0	3,633.2	3,633.2	9,010	2,730
2A311	Final Dismantling & Site Clearance : Mild Steel (Reactor) ILW	ILW	0	654.0	654.0	1,620	492
2A312	Final Dismantling & Site Clearance : Stainless Steel (Reactor) ILW	ILW	0	80.0	80.0	198	60.2
2A313	Final Dismantling & Site Clearance : Miscellaneous Metal (Reactor) ILW	ILW	0	21.2	21.2	52.6	15.9
NDA - Magnox Ltd - Chapelcross							
2C01	Ion Exchange Resins AW500 (Zeolite)	ILW	39.4	0	39.4	593	50.0
2C03	Miscellaneous Reactor Components Stored dry	ILW	13.0	0	13.0	16.1	0.8
2C04	Waste Oil	LLW	13.0	0	13.0	0	0
2C05	Sludge	ILW	15.0	0	15.0	83.1	7.0
2C06	Ceramic Pellets	ILW	12.0	0	12.0	11.4	20.0
2C07	Contaminated Plant Components (CXPP Cave Line)	ILW	5.0	0	5.0	9.5	16.7
2C08	Hydraulic Fluid	LLW	0.9	0	0.9	0	0
2C13	Large Items from Reactor Areas	LLW	0	1,211.5	1,211.5	0	0
2C14	Large Items from Ponds	LLW	0	1,262.9	1,262.9	1,500	30.3
2C15	Rotary Pump Oil	ILW	0.3	0	0.3	1.1	2.0
2C20	Fuel Skips in Pond	ILW	52.4	0	52.4	107	9.0
2C23	Desiccant	ILW	15.0	0	15.0	14.8	26.0
2C28	Miscellaneous Reactor Components stored wet	ILW	7.0	0	7.0	26.4	20.0
2C29	Vacuum Furnaces	ILW	0.6	0	0.6	1.1	2.0
2C30	Uranium Furnaces	ILW	0.7	0	0.7	3.4	6.0
2C31	Cobalt Cartridges	ILW	0.1	0	0.1	26.4	20.0
2C32	CEGB Cartridges (Bradwell)	ILW	0.2	0	0.2	0.6	1.0
2C33	Activated Charcoal	LLW	0	90.0	90.0	0	0
2C34	Spark Arrestors	ILW	1.5	0	1.5	6.9	12.0
2C35	Tritiated Mercury	ILW	<0.1	0	<0.1	0.6	1.0
2C36	Chapelcross Process Plant Product Containers	ILW	1.7	0	1.7	4.0	7.0
2C37	CXPP Delay Tank Sludges	ILW	0.2	0	0.2	1.3	1.0
2C38	Miscellaneous Activated Reactor Components	ILW	18.6	0	18.6	23.0	1.1
2C40	Large Items from Cooling Ponds VLLW	VLLW	0	909.0	909.0	909	0

Site Owner – Waste Custodian - Site		Waste type	Reported volume (m^3)			When all wastes at 1.4.2016 and future arisings are packaged	
Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
2C920	Reactor LLW	LLW	900.0	952.0	1,852.0	787	0
2C921	Ponds LLW	LLW	0	716.0	716.0	55.8	2.9
2C923	Pipeline Steel LLW	LLW	0	501.5	501.5	0	0
2C925	Chapelcross Processing Plant Dismantling LLW	LLW	300.8	2,405.3	2,706.1	1,620	0
2C929	Pipeline Lime Scale	VLLW	4.2	14.0	18.2	18.2	0
2C100	General Reactor LLW	LLW	0	126.0	126.0	125	6.3
2C303	Contaminated Soil	LLW	0	1,000.0	1,000.0	1,950	100
2C304	Graphite LLW	LLW	0	6.0	6.0	7.4	0.4
2C305	Mild Steel (Reactor) LLW	LLW	0	221.0	221.0	431	22.1
2C306	Stainless Steel (Reactor) Recycle LLW	LLW	0	4.6	4.6	0	0
2C307	Mild Steel (Non-Reactor) LLW	LLW	0	4,235.0	4,235.0	8,260	424
2C308	Concrete (Reactor and Non-Reactor) LLW	LLW	0	34,903.1	34,903.1	68,100	3,490
2C309	Miscellaneous Metals and Materials (Reactor and Non-Reactor) LLW	LLW	0	480.0	480.0	936	48.0
2C310	Secondary Wastes LLW	LLW	0	1,114.0	1,114.0	2,170	111
2C311	Graphite ILW	ILW	0	3,647.0	3,647.0	4,510	225
2C312	Mild Steel (Reactor) ILW	ILW	0	782.0	782.0	967	48.3
2C313	Stainless Steel (Reactor) ILW	ILW	0	80.0	80.0	170	8.5
2C314	Miscellaneous Metal (Reactor) ILW	ILW	0	21.0	21.0	44.7	2.2
2C316	Miscellaneous Metals and Materials (Reactor and Non-Reactor) VLLW	VLLW	0	110.0	110.0	110	0
2C317	Mild Steel (Reactor) Recycle LLW	LLW	0	5,557.0	5,557.0	0	0
NDA - Sellafield Ltd - Sellafield							
2D02	High Level Liquid Waste	HLW	1,095.6	-1,095.6	0	0	0
2D02/C	Vitrified High Level Waste - Magnox	HLW	456.0	0	456.0	596	3,040
2D03	Plutonium Contaminated Materials; Drums	ILW	2,852.4	735.4	3,587.8	586	1,030
2D06	Plutonium Contaminated Materials; Crates and Filters	ILW	4,953.3	1,085.9	6,039.2	987	1,730
2D07	Pile Fuel Cladding and Miscellaneous Solid Waste	ILW	3,231.0	0	3,231.0	7,260	2,200
2D08	Magnox Cladding and Miscellaneous Solid Waste	ILW	3,450.0	0	3,450.0	12,100	3,670
2D09	Magnox Cladding and Miscellaneous Solid Waste	ILW	2,850.0	0	2,850.0	10,000	3,030
2D11	Pond Sludge	ILW	323.0	0	323.0	738	1,290
2D12	Miscellaneous Solid Waste in Pond and Bays	ILW	311.1	0	311.1	513	156
2D19	Aluminium-Ferric Floc from Effluent Treatment	ILW	4,011.4	-4,011.4	0	0	0
2D200	Contact Handled ILW from Harwell	ILW	490.8	0	490.8	601	1,050
2D21	Stored Miscellaneous Beta/Gamma Active Solid Waste	ILW	440.0	0	440.0	528	160

Site Owner – Waste Custodian - Site		Waste type	Reported volume (m^3)			When all wastes at 1.4.2016 and future arisings are packaged	
Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
2D22	Magnox Cladding and Miscellaneous Solid Waste	ILW	1,040.0	0	1,040.0	3,650	1,110
2D23	Filters in Concrete Box	ILW	16.0	0	16.0	19.6	5.9
2D24	Magnox Cladding and Miscellaneous Solid Waste	ILW	1,370.0	0	1,370.0	4,810	1,460
2D25	Miscellaneous Solid Waste	ILW	475.0	0	475.0	1,670	505
2D26	Ion Exchange Material (Clinoptilolite) and Sand	ILW	1,192.0	1,264.4	2,456.4	3,010	5,270
2D27/C	Encapsulated Floc from Effluent Treatment	ILW	8,696.0	4,470.9	13,166.9	15,000	26,300
2D30	Waste Oils	LLW	2.5	0	2.5	0	0
2D31	Redundant Transport Flasks Magnox Fuel	LLW	110.8	0	110.8	10.8	0.6
2D33	Fuel Handling Plant Sludges	ILW	15.5	2.0	17.5	72.3	21.9
2D34	Sludge from Sand Filters and Transfers	ILW	954.0	297.0	1,251.0	1,530	2,680
2D35	Magnox Cladding and Miscellaneous Solid Waste	ILW	1,135.0	0	1,135.0	3,990	1,210
2D35/C	Encapsulated Retrieved Magnox Cladding	ILW	1,205.4	0	1,205.4	1,410	2,470
2D38/C	Encapsulated Magnox Cladding	ILW	9,224.2	489.4	9,713.6	11,400	19,900
2D39	Miscellaneous Beta/Gamma Waste Store	ILW	3,125.5	1,618.7	4,744.2	6,370	1,360
2D42	Magnox Pond Furniture	ILW	0	2,675.0	2,675.0	3,540	181
2D43	Pond Skips	LLW	976.8	-976.8	0	0	0
2D45	Magnox Fuel End Crops	ILW	25.3	0	25.3	38.8	11.8
2D55	Stored Filters	ILW	14.0	0	14.0	17.1	5.2
2D56	Effluent Plants Maintenance Waste	ILW	0.2	2.8	3.0	7.1	1.5
2D57	Hydrocyclone Solids from Effluent Treatment	ILW	<0.1	3.0	3.0	3.4	6.0
2D64	Magnox Interfacial Crud - ILW	ILW	10.0	10.0	20.0	22.8	40.0
2D73	Miscellaneous Beta/Gamma Waste in Voids	ILW	10.0	0	10.0	35.1	10.6
2D74	Pile Fuel Storage Pond Ion Exchange Material	ILW	3.3	4.0	7.3	12.0	3.6
2D76/C	Encapsulated Retrieved Pond Sludge	ILW	0.5	0	0.5	0.6	1.0
2D77/C	Encapsulated Retrieved Miscellaneous Beta/Gamma Waste	ILW	0.5	350.0	350.5	400	701
2D83/C	Encapsulated Plutonium Contaminated Materials	ILW	2,439.9	0	2,439.9	2,760	4,840
2D85.3/C	SPP1 Secondary Waste ILW	ILW	0	64.8	64.8	79.2	24.0
2D86.3/C	BEP Secondary Waste ILW	ILW	0	118.8	118.8	145	44.0
2D87.1.3/C	SDP Secondary Waste	ILW	0	5,525.5	5,525.5	8,480	2,570
2D87.2.3	SWR Secondary ILW	ILW	0	110.0	110.0	135	236
2D90	Plutonium Contaminated Materials; Drums	ILW	4,395.2	44,345.2	48,740.4	7,960	13,900
2D93	Acidic Sample Waste in Analytical Services	ILW	6.7	2.9	9.5	10.9	19.1
2D95.1	Magnox Fuel Storage Pond Sludge	ILW	1,370.5	0	1,370.5	4,570	1,380

Site Owner – Waste Custodian - Site		Waste type	Reported volume (m^3)			When all wastes at 1.4.2016 and future arisings are packaged	
Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
2D95.2	Settling Pond Sludge	ILW	75.0	0	75.0	310	93.9
2D95.3	Sludge Settling Tank	ILW	26.5	0	26.5	110	33.2
2D95.4	Decanner Settling Tank Sludge	ILW	35.0	0	35.0	117	35.4
2D95.5	Sludge in SPP1 Buffer	ILW	16.4	0	16.4	54.7	16.6
2D96.1	FGMSP Bay Solid Waste to BEP	ILW	848.0	0	848.0	1,580	479
2D96.2	FGMSP Pond Solid Waste to BEP	ILW	1,201.7	0	1,201.7	2,240	678
2D96.3	Magazines in Magnox Fuel Storage Pond	ILW	36.9	0	36.9	68.7	20.8
2D96.4	Ion Exchange Material in Skips (AW500)	ILW	302.6	0	302.6	757	229
2D97	Miscellaneous Trench Silt ILW/LLW	ILW	43.0	430.0	473.0	580	1,020
2D100	Pile Chimney Decommissioning Waste	ILW	39.4	0	39.4	46.4	14.1
2D108	Miscellaneous Plants Initial/Interim Decommissioning: Ponds	LLW	0	2,718.0	2,718.0	1,050	53.5
2D109	Miscellaneous Plants Initial/Interim Decommissioning: Processing Plants, Tanks, Silos etc.	LLW	0	36,312.2	36,312.2	14,000	715
2D110	Miscellaneous Plants Initial/Interim Decommissioning: Product Stores	LLW	0	1,583.6	1,583.6	609	31.2
2D111	Plutonium Plants Initial/Interim Decommissioning: Processing Plants	LLW	0	2,141.7	2,141.7	824	42.2
2D112	Plutonium Plants Initial/Interim Decommissioning: Stores	LLW	0	214.4	214.4	82.5	4.2
2D113	Uranium Plants Initial/Interim Decommissioning: Processing Plants	LLW	0	639.5	639.5	244	12.5
2D114	Uranium Plants Initial/Interim Decommissioning: Stores	LLW	0	78.9	78.9	30.3	1.6
2D115	Miscellaneous Plants Initial/Interim Decommissioning: Ponds	ILW	0	386.7	386.7	1,880	569
2D116	Miscellaneous Plants Initial/Interim Decommissioning: Processing Plants, Tanks, Silos etc.	ILW	0	18,214.6	18,214.6	88,400	26,800
2D117	Miscellaneous Plants Initial/Interim Decommissioning: Product Stores	ILW	0	83.9	83.9	407	123
2D118	Plutonium Plants Initial/Interim Decommissioning: Processing Plants	ILW	0	118.0	118.0	573	173
2D120	Uranium Plants Initial/Interim Decommissioning: Processing Plants	ILW	0	14.6	14.6	70.6	21.4
2D122	Miscellaneous Plants Final Decommissioning: Ponds	LLW	0	1,887.7	1,887.7	2,870	147
2D123	Miscellaneous Plants Final Decommissioning: Processing Plants, Tanks, Silos, etc.	LLW	0	34,320.1	34,320.1	52,200	2,680
2D124	Miscellaneous Plants Final Decommissioning: Product Stores	LLW	0	7,398.8	7,398.8	11,800	607
2D125	Plutonium Plants Final Decommissioning: Processing Plants	LLW	0	635.4	635.4	954	48.9
2D126	Plutonium Plants Final Decommissioning: Stores	LLW	0	1,216.6	1,216.6	2,090	107
2D127	Uranium Plants Final Decommissioning: Processing Plants	LLW	0	246.7	246.7	366	18.7
2D130	Miscellaneous Plants Initial/Interim Decommissioning: Processing Plants, Tanks, Silos, etc. (PCM)	ILW	0	5,167.7	5,167.7	1,010	1,770

Site Owner – Waste Custodian - Site		Waste type	Reported volume (m^3)			When all wastes at 1.4.2016 and future arisings are packaged	
Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
2D132	Plutonium Plants Initial/Interim Decommissioning: Processing Plants (PCM)	ILW	0	2,494.5	2,494.5	489	857
2D133	Plutonium Plants Initial/Interim Decommissioning: Stores (PCM)	ILW	0	546.3	546.3	107	188
2D136	Miscellaneous Plants Final Decommissioning: Ponds	ILW	0	248.7	248.7	720	218
2D137	Miscellaneous Plants Final Decommissioning: Processing Plants, Tanks, Silos, etc.	ILW	0	12,487.0	12,487.0	36,300	11,000
2D148	HVVLLW from Final Decommissioning	VLLW	0	2,701,786.3	2,701,786.3	2,570,000	0
NDA - Springfields Fuels Ltd - Springfields							
2E15	Drummed Waste for Disposal at LLW Repository	LLW	0	0	0	0	0
2E90	General Waste for Clifton Marsh Disposal	LLW	0	14,811.0	14,811.0	14,800	0
2E91	Process Wastes for Clifton Marsh	LLW	120.0	480.0	600.0	600	0
2E101	Decommissioning LLW	LLW	3.0	988.0	991.0	1,310	66.9
2E191	Decommissioning Wastes for Clifton Marsh Disposal	LLW	0	198,160.0	198,160.0	188,000	0
NDA - Sellafield Limited - Sellafield							
2F01/C	Vitrified High Level Waste	HLW	411.2	51.2	462.3	604	3,080
2F02	Plutonium Contaminated Materials; Drums	ILW	110.8	262.8	373.6	61.0	107
2F03/C	Encapsulated AGR Cladding	ILW	1,599.7	453.3	2,053.0	2,310	4,040
2F04/C	Encapsulated LWR Cladding	ILW	1,763.3	56.0	1,819.3	2,040	3,580
2F06/C	Encapsulated Barium Carbonate Slurry/MEB Crud	ILW	499.4	59.0	558.4	676	1,180
2F07	AGR Graphite Fuel Assembly Components	ILW	4,864.2	3,260.6	8,124.8	12,600	22,100
2F08	AGR Stainless Steel Fuel Assembly Components	ILW	630.1	311.4	941.5	1,460	2,570
2F10/C	Encapsulated Centrifuge Cake	ILW	475.8	88.7	564.5	683	1,200
2F14	AGR Pond Furniture (Containers, Skips, Racks)	LLW	0	9,950.0	9,950.0	13,200	675
2F15	LWR Pond Furniture (MEBs)	ILW	0	2,485.0	2,485.0	1,940	99.4
2F17	Redundant Excellox Flasks	LLW	1,223.4	0	1,223.4	119	6.1
2F20	LWR Pond Furniture (Racks and Frames) from First Generation Oxide Storage Pond	LLW	0	7,583.1	7,583.1	10,000	514
2F21/C	Encapsulated Maintenance Scrap	ILW	100.0	22.8	122.8	140	237
2F22/C	High Level Contaminated Waste	HLW	0	6.8	6.8	8.8	45.0
2F26	LWR Pond Sludge	ILW	20.4	18.6	39.0	47.8	83.7
2F27	AGR Pond Sludge	ILW	6.0	4.7	10.7	13.1	23.0
2F28	Interfacial Crud - ILW/LLW	ILW	0.3	0.1	0.4	0.5	0.9
2F31	Oxide Fuel Hulls from Early Reprocessing	ILW	74.4	0	74.4	261	79.2

Site Owner – Waste Custodian - Site		Waste type	Reported volume (m^3)			When all wastes at 1.4.2016 and future arisings are packaged	
Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
2F34	Plutonium Contaminated Materials; Drums	ILW	49.6	39.8	89.4	14.6	25.6
2F35	Excellox-Type Transport Flasks and French-Design Dry Flasks	LLW	128.2	0	128.2	12.5	0.6
2F36	LWR Pond Furniture	LLW	0	705.6	705.6	550	28.2
2F38/C	Vitrified High Level Waste from POCO	HLW	0	222.0	222.0	290	1,480
2F40	Fuel Support Frames	LLW	17.7	0	17.7	1.7	0.1
2F41	LWR Pond Furniture (MEBs) in Interim Storage	LLW	777.6	0	777.6	607	31.1
2F42/C	Encapsulated MEP, Thorp and WEP POCO	ILW	0	361.0	361.0	412	722
NDA - LLWR SLC Limited - LLWR							
2N01	Plutonium Contaminated Material; Drummed (Legacy Drums)	ILW	33.9	0	33.9	41.5	72.7
2N03	Plutonium Contaminated Material; Drummed (Operational Mixed Waste)	ILW	232.8	34.0	266.8	127	222
2N04	LLW from PCM Operations	LLW	204.0	727.0	931.0	440	9.0
2N06	LLW from Site LLW Operations	LLW	37.0	454.0	491.0	540	24.7
2N08	Sealed Sources	ILW	0.1	<0.1	0.1	0.1	<0.1
NDA – National Nuclear Laboratory - Sellafield							
2P02	BTC Rig Hall	LLW	0	360.0	360.0	155	7.9
2P03	BTC Level 3 Laboratories and Other General Active Areas	LLW	0	1,680.0	1,680.0	538	26.9
2P05	BTC HA Cells	LLW	0	480.0	480.0	317	16.1
NDA - Sellafield Limited – Sellafield							
2S09	Waste from P.I.E. Operations	ILW	3.8	21.0	24.8	106	22.5
2S10/C	WAGR Stringer Graphite Debris - Conditioned	ILW	28.8	0	28.8	59.3	5.0
2S11	Windscale Uranic Residues	ILW	0.2	0	0.2	0.3	0.5
2S302	Windscale Pile1 and Pile 2 Graphite and Aluminium Charge Pans	ILW	0	2,830.0	2,830.0	6,370	1,930
2S303	Windscale Pile 2 LLW	LLW	0	3,650.0	3,650.0	5,250	269
2S304	Windscale Piles Fuel and Isotopes	ILW	0.1	5.2	5.3	89.7	157
2S307/C	Conditioned Windscale Advanced Gas-Cooled Reactor (WAGR) Decommissioning LLW	LLW	17.3	0	17.3	35.6	3.0
2S308/C	Conditioned WAGR Decommissioning ILW	ILW	610.6	5.8	616.3	1,270	107
2S309	AGR Examination Caves LLW	LLW	0	457.8	457.8	306	15.7
2S310	AGR Examination Caves ILW	ILW	0	40.0	40.0	49.0	85.8
2S311	Other Facilities Decommissioning LLW	LLW	0.5	2,444.5	2,445.0	3,810	196
2S312	Other Facilities Decommissioning ILW	ILW	1.0	117.8	118.8	140	42.4
2S313	Windscale Piles Miscellaneous ILW	ILW	6.8	798.0	804.8	5,480	1,660

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Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
2S314	WAGR - HVVLLW	VLLW	0	6,656.2	6,656.2	6,660	0
NDA - Sellafield Limited - Sellafield							
2X01	WTC and PCM Stores LLW	LLW	0	5,899.2	5,899.2	1,850	92.7
2X01/3	North Group Compound LLW	LLW	0	20.0	20.0	39.0	2.0
2X02	Magnox Plutonium Finishing Lines & Plutonium Stores LLW	LLW	0	3,002.8	3,002.8	1,050	52.9
2X03	Decontamination Centre LLW	LLW	0	80.6	80.6	38.8	2.0
2X05	Solid LLW from Separation Area	LLW	0	2,129.2	2,129.2	2,400	122
2X05/1	SEP Surface Drainage System Solids and Lagoon Sediment LLW	LLW	0	7,407.5	7,407.5	3,240	164
2X06	Redundant NNL Facilities AC&M LLW	LLW	0	673.0	673.0	362	18.4
2X07	Demolition of Development Centre B and Ancilliary Buildings	LLW	0	448.4	448.4	43.5	2.2
2X08	LLW from Reprocessing Plant General Areas	LLW	0	1,193.9	1,193.9	418	21.0
2X09	Reprocessing Plant: PS1 and Dissolver Tower Area LLW	LLW	0	210.7	210.7	53.6	2.7
2X10	Reprocessing Plant: Thermal Denitration Plant Area and UO3 Rework Facility LLW	LLW	0	762.0	762.0	252	12.6
2X11	Reprocessing Plant: MA Evaporator Area	LLW	0	2,393.6	2,393.6	1,100	55.5
2X15	HLW Plants: HA Evaporation & Storage LLW	LLW	0	1,851.7	1,851.7	121	6.1
2X16	Low Active Effluent Management Group: Salt Evaporator LLW	LLW	0	89.0	89.0	32.5	1.6
2X17	Low Active Effluent Management Group: MA Tanks LLW	LLW	0	89.8	89.8	32.3	1.6
2X18	Low Active Effluent Management Group: LA Treatment & Sludge Tanks	LLW	0	74.6	74.6	46.6	2.4
2X19	Low Active Effluent Management Group: SETP Operational LLW	LLW	0	183.4	183.4	48.9	2.5
2X20	LLW from Magnox Storage Pond and Decanning Facility	LLW	0	13,734.0	13,734.0	7,880	404
2X21/3	LLW from Magnox Flask Maintenance Facility	LLW	0	1,139.8	1,139.8	71.8	3.6
2X22	Calder LLW	LLW	0	2,923.4	2,923.4	557	28.4
2X22/1	Calder Hall Cooling Water System Solid LLW	LLW	0	39.4	39.4	1.2	0.1
2X25	Ponds East River: Fuel Handling Plant LLW	LLW	0	4,101.9	4,101.9	179	9.1
2X26	Ponds East River: SIXEP LLW	LLW	0	772.0	772.0	41.2	2.1
2X27	Ponds East River: AGR Dismantler & Store LLW	LLW	0	1,121.1	1,121.1	63.7	3.2
2X28	Wet Inlet Facility LLW	LLW	0	523.1	523.1	10.1	0.5
2X29	Solid LLW from LWR Storage Pond	LLW	0	1,335.8	1,335.8	92.0	4.7
2X30	Solid LLW from AGR Storage Pond	LLW	0	822.6	822.6	57.0	2.9
2X31	Solid LLW from Oxide Flask Maintenance Facility and Railways	LLW	0	3,031.9	3,031.9	363	18.2
2X32	THORP Receipt & Storage LLW	LLW	0	3,955.5	3,955.5	17.1	0.9

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Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
2X34	Separation Area Ventilation LLW	LLW	0	2,202.7	2,202.7	876	39.3
2X35	Solid LLW from MEP & Associated Buildings plus Encapsulated Product Stores	LLW	0	298.9	298.9	11.9	0.6
2X36	Waste Encapsulation Plant LLW	LLW	0	453.6	453.6	32.5	1.6
2X37	Miscellaneous Beta Gamma Waste Store LLW	LLW	0	339.2	339.2	107	5.3
2X39	LLW from Waste Vitrification Plant and Vitrified Product Store	LLW	0	4,763.6	4,763.6	372	18.9
2X45	LLW Smoke Detectors	LLW	0	1.0	1.0	2.0	0.1
2X49	LLW from the Active Area Laundry and Associated Drain Sumps	LLW	0	13,708.2	13,708.2	4,640	232
2X50	Solid LLW from Effluent Plants and Associated Stores	LLW	0	1,190.2	1,190.2	393	19.6
2X51	Feed Pond LLW	LLW	0	1,652.1	1,652.1	85.5	4.3
2X52	Head End LLW	LLW	0	655.4	655.4	80.8	4.1
2X53	Uranium Purification/Finishing LLW	LLW	0	171.9	171.9	57.6	2.9
2X54	Plutonium Purification/Finishing LLW	LLW	0	246.8	246.8	82.6	4.1
2X55	Uranium (IV) LLW	LLW	0	51.7	51.7	17.3	0.9
2X57	Chemical Separation Area LLW	LLW	0	468.2	468.2	134	6.7
2X59	LLW from the MOX Demonstration Facility PIE Laboratory	LLW	0	45.9	45.9	13.0	0.6
2X61	WAMAC LLW	LLW	0	376.0	376.0	187	9.5
2X62	Sellafield MOX Plant LLW (Uranium Areas)	LLW	0	6.5	6.5	2.8	0.1
2X64	SMP LLW (MOX & Pu Areas)	LLW	0	727.6	727.6	244	12.2
2X65/12	Radioactive Sources	LLW	0	0.2	0.2	0.5	<0.1
2X68	Analytical Services Facilities	LLW	0	23,476.8	23,476.8	7,840	393
2X71	Solvent Treatment Plant LLW	LLW	0	29.5	29.5	9.6	0.5
2X72	Oxide Transport Containers (Baskets and Stools)	LLW	5.8	0	5.8	0.6	<0.1
2X74	Mixed Oxide Areas of the MOX Demonstration Facility	LLW	0	53.1	53.1	19.6	1.0
2X82	Low Active Drain (LAD) Zones 5-9	LLW	0	93.2	93.2	33.5	1.7
2X83	Low Active Drain (LAD) Zone 4	LLW	0	93.2	93.2	33.5	1.7
2X84	Low Active Drain (LAD) Zones 1&3	LLW	0	93.2	93.2	33.5	1.7
2X104	Secondary Waste from Processing Contaminated Oils and Metal	LLW	0	4.9	4.9	1.7	0.1
2X106	Contaminated Land and Groundwater Monitoring Project LLW	LLW	0	1.5	1.5	2.9	0.2
2X108/4	Separation Head Plant Outcell Clearance	LLW	0	5,655.0	5,655.0	2,450	124
2X114/1	Caesium Extraction Plant Decommissioning	LLW	0	47.7	47.7	9.3	0.5
2X115/12	Pile Chimney Decommissioning	LLW	0	1,759.0	1,759.0	861	9.3
2X116/4	PFR Plant Decommissioning	LLW	0	361.5	361.5	128	6.5

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Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
2X117/1	Pile Fuel Storage Pond Decommissioning	LLW	0	2,224.3	2,224.3	667	34.2
2X118	Purification and Recovery Plant Decommissioning	LLW	0	2,506.7	2,506.7	841	42.1
2X119/2	Solid LLW from Solvent Recovery Plant Outcell Areas	LLW	0	328.3	328.3	132	6.7
2X119/5	LLW from Solvent Recovery Plant Cell 3	LLW	0	3.0	3.0	0.5	<0.1
2X119/7	Solid LLW from Thorp Miniature Pilot Plant	LLW	0	1.1	1.1	0.3	<0.1
2X122/2	Solid LLW from Analytical Services Labs 52, 54, 54A & 55	LLW	0	45.6	45.6	16.6	0.8
2X122/4	LLW from Analytical Services Lab 188C	LLW	0	14.6	14.6	12.9	0.7
2X124/1	LLW from Pile Fuel Cladding Silo General Areas	LLW	0	898.3	898.3	57.0	2.9
2X125	Magnox Swarf Storage Silo Decommissioning	LLW	0	9,417.3	9,417.3	4,120	211
2X127	Workshop & Incident Control Centre	LLW	0	325.7	325.7	113	5.7
2X130/1	North Group Compound Crate Storage Area LLW	LLW	0	28.4	28.4	14.8	0.7
2X131/1	LLW from Medium Active Solid Waste Storage Outcell Areas	LLW	0	35.6	35.6	12.0	0.6
2X133	Magnox Sludge Settling and Transfer Facility LLW	LLW	0	952.8	952.8	47.3	2.4
2X140/2	Miscellaneous Wastes Contaminated by Aerial Discharges	LLW	0	33,782.5	33,782.5	10,800	544
2X19/2	Low Active Effluent Management Group: LA Effluent Treatment Plant Decommissioning LLW	LLW	0	364.7	364.7	146	7.4
2X301	Pile 1 LLW	LLW	0	200.3	200.3	78.5	4.0
2X302/7	Fuel Element Storage and Handling Compactable LLW	LLW	0	265.9	265.9	11.5	0.6
2X304	Active Handling Facility LLW	LLW	0	1,950.9	1,950.9	436	22.4
2X305	LLW from Redundant Active Handling Facilities	LLW	0	223.0	223.0	18.8	1.0
2X307/3	WAGR Solid Low Level Waste	LLW	0	292.8	292.8	34.5	1.8
2X927	Metals Recycling Facility LLW	LLW	0	256.5	256.5	35.6	1.8
NDA - Sellafield Limited - Sellafield							
2Y50	Analytical Services Process Facilities - Laboratory 195	LLW	0	10.5	10.5	7.8	0.4
2Y51	Analytical Services Process Facilities - North Labs	LLW	0	1.3	1.3	2.5	0.1
2Y53	Separation Area Ventilation Plant Decommissioning	LLW	0	124.4	124.4	243	12.4
2Y56	Analytical Services Process Facilities - LA Labs	LLW	0	207.7	207.7	271	13.9
2Y57	Excavated Soil and Putrescible Waste - High Volume Very Low Level Waste (HVVLLW)	VLLW	0	72,986.3	72,986.3	73,000	0
2Y60	Miscellaneous Minor Wastes - ILW	ILW	50.0	40.0	90.0	110	193
2Y65	Miscellaneous Minor Wastes - LLW	LLW	20.0	40.0	60.0	79.3	4.1
EDF Energy - EDF Energy - Dungeness B							
3J01	Ion Exchange Material	ILW	32.6	19.3	51.9	148	259

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Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
3J02	Sludge	ILW	4.5	3.2	7.7	13.3	23.3
3J03	Miscellaneous Contaminated Items	ILW	2.6	5.2	7.8	18.6	32.5
3J04	Desiccants ILW	ILW	104.0	100.0	204.0	332	17.0
3J09	Miscellaneous Activated Components - Debris Vault 3	ILW	2.8	8.9	11.7	19.2	1.0
3J11	Reactor Vessel Internals and Dry Fuel Route LLW	LLW	22.5	313.8	336.3	218	11.2
3J12	General Reactor LLW	LLW	30.2	225.6	255.8	166	8.5
3J13	Wet Fuel Route LLW	LLW	11.6	220.0	231.6	150	7.7
3J19	Catalysts LLW	LLW	1.1	5.6	6.7	14.4	0.7
3J20	Catalysts ILW	ILW	1.0	5.6	6.6	14.1	0.7
3J22	Miscellaneous Sludges	LLW	2.8	0	2.8	3.7	0.2
3J24	Neutron Scatter Plugs	ILW	30.6	100.8	131.4	537	26.8
3J25	Gag Pistons	ILW	2.0	0	2.0	2.0	0.1
3J26	Miscellaneous Activated Components - Debris Vault 1	ILW	82.2	75.7	157.9	259	12.9
3J27	Miscellaneous Activated Components & Fuel Stringer Debris - Debris Vault 2	ILW	254.0	241.7	495.7	814	40.6
3J110	Care & Maintenance Preparations: Stainless Steel LLW	LLW	0	590.3	590.3	679	34.8
3J111	Care & Maintenance Preparations: Mild Steel LLW	LLW	0	2,350.2	2,350.2	1,090	55.8
3J112	Care & Maintenance Preparations: Secondary Waste LLW	LLW	0	1,200.1	1,200.1	634	32.5
3J113	Care & Maintenance Preparations: Miscellaneous Metals and Materials LLW	LLW	0	894.6	894.6	804	41.2
3J114	Care & Maintenance: Miscellaneous Materials LLW	LLW	0	93.7	93.7	60.7	3.1
3J311	Decommissioning Stage 3: Stainless Steel (Reactor) ILW	ILW	0	16.0	16.0	26.3	1.3
3J312	Decommissioning Stage 3: Mild Steel (Reactor) ILW	ILW	0	403.4	403.4	662	33.1
3J313	Decommissioning Stage 3: Graphite ILW	ILW	0	1,959.8	1,959.8	3,680	184
3J314	Decommissioning Stage 3: Stainless Steel (Reactor) LLW	LLW	0	2,760.8	2,760.8	876	44.9
3J315	Decommissioning Stage 3: Mild Steel (Reactor) LLW	LLW	0	3,291.0	3,291.0	1,040	53.5
3J317	Decommissioning Stage 3: Graphite LLW	LLW	0	1,693.8	1,693.8	2,260	113
3J318	Stage 3 Decommissioning: Concrete (Reactor and Non-Reactor) LLW	LLW	0	785.4	785.4	1,040	53.2
3J319	Stage 3 Decommissioning: Miscellaneous Metals and Materials (Reactor and Non-Reactor) LLW	LLW	0	116.3	116.3	194	9.9
3J320	Stage 3 Decommissioning: Secondary Wastes LLW	LLW	0	1,818.5	1,818.5	535	27.4
EDF Energy - EDF Energy - Hartlepool							
3K01	Pond Water Ion Exchange Material	ILW	8.0	2.8	10.8	30.8	54.0

Site Owner – Waste Custodian - Site		Waste type	Reported volume (m^3)			When all wastes at 1.4.2016 and future arisings are packaged	
Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
3K02	Active Effluent Filtration Sludges	LLW	55.0	20.7	75.7	142	7.3
3K03	Miscellaneous Contaminated Items	ILW	0	4.8	4.8	11.9	20.9
3K04	Desiccant	ILW	0	99.0	99.0	161	8.3
3K09	Miscellaneous Activated Components - Debris Vault 1	ILW	17.0	8.8	25.8	42.4	2.1
3K14	Gas Circulator LLW	LLW	22.1	197.4	219.5	142	7.3
3K15	Dry Fuel Route LLW	LLW	21.0	203.2	224.2	145	7.4
3K16	Wet Fuel Route LLW	LLW	8.5	434.8	443.3	287	14.7
3K17	Waste Sorting LLW & Incinerator Ash	LLW	1.8	69.6	71.4	46.2	2.4
3K18	Pond Water Filtration Sludge	ILW	5.4	4.1	9.5	16.4	28.8
3K20	Gas Circulator Maintenance Sludge	LLW	1.2	0.6	1.8	3.4	0.2
3K22	Catalyst	ILW	2.0	4.8	6.8	14.6	0.7
3K23	Miscellaneous Activated Components - Debris Vault 3	ILW	0.5	0	0.5	0.8	<0.1
3K24	Miscellaneous Activated Components - Spalled Oxide & Dust	ILW	10.1	4.0	14.1	23.1	1.2
3K25	Miscellaneous Activated Components - Debris Vault 4	ILW	168.0	83.6	251.6	413	20.6
3K26	Laundry LLW	LLW	1.8	71.4	73.2	47.4	2.4
3K27	Active Effluent Ion Exchange Material	LLW	2.4	1.7	4.1	12.7	0.7
3K28	Miscellaneous Activated Components - Tie Bar Ends & Nuts	ILW	1.8	1.2	3.0	4.9	0.2
3K29	Bypass Blowdown Filters	ILW	10.0	15.2	25.2	43.9	2.3
3K30	Miscellaneous Activated Components & Fuel Stringer Debris - Debris Vault 2	ILW	75.0	41.4	116.4	191	9.5
3K110	Care & Maintenance Preparations: Stainless Steel LLW	LLW	0	894.8	894.8	438	22.4
3K111	Care & Maintenance Preparations: Mild Steel LLW	LLW	0	3,305.3	3,305.3	2,970	152
3K112	Care & Maintenance Preparations: Secondary Waste LLW	LLW	0	1,823.3	1,823.3	964	49.4
3K113	Care & Maintenance Preparations: Miscellaneous Metals and Materials LLW	LLW	0	1,403.5	1,403.5	1,060	54.2
3K114	Care & Maintenance: Miscellaneous Materials LLW	LLW	0	100.1	100.1	64.8	3.3
3K311	Decommissioning Stage 3: Stainless Steel (Reactor) ILW	ILW	0	219.0	219.0	359	18.0
3K312	Decommissioning Stage 3: Mild Steel (Reactor) ILW	ILW	0	209.0	209.0	343	17.1
3K313	Decommissioning Stage 3: Graphite ILW	ILW	0	2,464.8	2,464.8	3,940	197
3K314	Decommissioning Stage 3: Stainless Steel (Reactor) LLW	LLW	0	1,221.0	1,221.0	387	19.9
3K315	Decommissioning Stage 3: Mild Steel (Reactor) LLW	LLW	0	1,422.9	1,422.9	451	23.2
3K317	Decommissioning Stage 3: Graphite LLW	LLW	0	453.0	453.0	605	30.2
3K318	Stage 3 Decommissioning: Concrete (Reactor and Non-Reactor) LLW	LLW	0	1,609.4	1,609.4	2,130	109

Site Owner – Waste Custodian - Site		Waste type	Reported volume (m^3)			When all wastes at 1.4.2016 and future arisings are packaged	
Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
3K319	Stage 3 Decommissioning: Miscellaneous Metals and Materials (Reactor and Non-Reactor) LLW	LLW	0	151.7	151.7	253	13.0
3K320	Stage 3 Decommissioning: Secondary Wastes LLW	LLW	0	1,923.6	1,923.6	566	29.0
EDF Energy - EDF Energy - Heysham 1							
3L01	Pond Water Ion Exchange Material	ILW	11.5	5.3	16.8	48.0	84.0
3L02	Pond Water Filtration Sludge	ILW	3.3	2.7	6.0	10.3	18.1
3L03	Miscellaneous Contaminated Items	ILW	6.0	4.8	10.8	25.7	45.0
3L04	Desiccant	ILW	12.4	66.0	78.4	128	6.5
3L09	Miscellaneous Activated Components - Debris Vault 1	ILW	10.6	7.0	17.6	28.9	1.4
3L11	Dry Fuel Route LLW	LLW	11.2	81.5	92.7	60.0	3.1
3L12	Wet Fuel Route LLW	LLW	2.0	220.0	222.0	144	7.4
3L13	Gas Circulators LLW	LLW	10.0	133.4	143.4	92.9	4.8
3L14	Vacuum Cleaners LLW	LLW	1.0	2.5	3.5	2.3	0.1
3L15	Active Effluent Ion Exchange Material	LLW	5.6	2.8	8.4	26.1	1.3
3L16	Active Effluent Filtration Sludges	LLW	33.8	14.7	48.5	91.1	4.7
3L17	Gas Circulator Maintenance Sludge	ILW	1.5	0.6	2.1	3.6	6.4
3L18	Miscellaneous Sludges	LLW	2.5	0	2.5	3.3	0.2
3L19	Catalyst	ILW	5.4	1.6	7.0	15.0	0.8
3L20	Miscellaneous Activated Components - Debris Vault 3	ILW	0.1	3.3	3.4	5.6	0.3
3L21	Miscellaneous Activated Components - Spalled Oxide and Dust	ILW	0.7	1.0	1.7	2.7	0.1
3L22	Fuel Stringer Debris - Debris Vault 4	ILW	158.0	79.6	237.6	390	19.5
3L23	Miscellaneous Activated Components - Tie Bar Ends & Nuts	ILW	0.3	0.8	1.1	1.8	0.1
3L24	Bypass Blowdown Filters	ILW	9.7	15.2	24.9	0	0
3L25	Miscellaneous Activated Components & Fuel Stringer Debris - Debris Vault 2	ILW	66.3	37.8	104.1	171	8.5
3L110	Care & Maintenance Preparations: Stainless Steel LLW	LLW	0	894.4	894.4	438	22.4
3L111	Care & Maintenance Preparations: Mild Steel LLW	LLW	0	3,474.7	3,474.7	3,120	160
3L112	Care & Maintenance Preparations: Secondary Waste LLW	LLW	0	1,102.6	1,102.6	583	29.9
3L113	Care & Maintenance Preparations: Miscellaneous Metals and Materials LLW	LLW	0	1,346.1	1,346.1	1,010	52.0
3L114	Care & Maintenance: Miscellaneous Materials LLW	LLW	0	95.6	95.6	61.9	3.2
3L311	Decommissioning Stage 3: Stainless Steel (Reactor) ILW	ILW	0	219.1	219.1	360	18.0
3L312	Decommissioning Stage 3: Mild Steel (Reactor) ILW	ILW	0	209.0	209.0	343	17.1

Site Owner – Waste Custodian - Site		Waste type	Reported volume (m^3)			When all wastes at 1.4.2016 and future arisings are packaged	
Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
3L313	Decommissioning Stage 3: Graphite ILW	ILW	0	2,464.7	2,464.7	3,940	197
3L314	Decommissioning Stage 3: Stainless Steel (Reactor) LLW	LLW	0	1,221.0	1,221.0	387	19.9
3L315	Decommissioning Stage 3: Mild Steel (Reactor) LLW	LLW	0	1,423.0	1,423.0	452	23.2
3L317	Decommissioning Stage 3: Graphite LLW	LLW	0	453.0	453.0	605	30.2
3L318	Stage 3 Decommissioning: Concrete (Reactor and Non-Reactor) LLW	LLW	0	1,600.4	1,600.4	2,120	108
3L319	Stage 3 Decommissioning: Miscellaneous Metals and Materials (Reactor and Non-Reactor) LLW	LLW	0	151.9	151.9	253	13.0
3L320	Stage 3 Decommissioning: Secondary Wastes LLW	LLW	0	1,925.3	1,925.3	566	29.0
EDF Energy - EDF Energy - Heysham 2							
3M01	Pond Ion Exchange Material	ILW	2.5	1.2	3.7	10.6	18.6
3M02	Pond Water Filter Sludge	ILW	8.2	0.9	9.1	15.7	27.6
3M03	Miscellaneous Contaminated Items	ILW	4.9	8.2	13.1	32.5	57.0
3M04	Desiccant	ILW	61.3	120.0	181.3	295	15.1
3M08	Active Effluent Ion Exchange Material	ILW	0.4	2.9	3.3	9.4	16.5
3M09	Active Effluent Filters Sludge	LLW	1.8	10.4	12.2	22.9	1.2
3M10	Oily Sludge	LLW	0	3.6	3.6	6.8	0.3
3M13	Wet Fuel Route - Low Level Waste	LLW	6.4	343.7	350.1	227	11.6
3M14	Gas Circulator Maintenance - Low Level Waste	LLW	7.9	12.4	20.3	13.1	0.7
3M15	Waste Sorting - Low Level Waste	LLW	7.9	39.2	47.1	30.5	1.6
3M17	Catalysts	ILW	0	13.0	13.0	27.9	1.4
3M19	Reactors and Dry Fuel Route - Low Level Waste	LLW	27.9	363.5	391.4	253	13.0
3M20	Miscellaneous Sludges LLW	LLW	2.0	0	2.0	2.6	0.1
3M22	Miscellaneous Activated Components & Fuel Stringer Debris	ILW	175.2	172.0	347.2	570	28.5
3M110	Care & Maintenance Preparations: Stainless Steel LLW	LLW	0	430.8	430.8	496	25.4
3M111	Care & Maintenance Preparations: Mild Steel LLW	LLW	0	2,985.8	2,985.8	1,380	70.9
3M112	Care & Maintenance Preparations: Secondary Waste LLW	LLW	0	1,622.8	1,622.8	858	44.0
3M113	Care & Maintenance Preparations: Miscellaneous Metals and Materials LLW	LLW	0	1,295.4	1,295.4	1,160	59.7
3M114	Care & Maintenance: Miscellaneous Materials LLW	LLW	0	95.8	95.8	62.1	3.2
3M311	Decommissioning stage 3: Stainless Steel (Reactor) ILW	ILW	0	141.0	141.0	231	11.6
3M312	Decommissioning Stage 3: Mild Steel (Reactor) ILW	ILW	0	583.0	583.0	957	47.8
3M313	Decommissioning Stage 3: Graphite ILW	ILW	0	2,131.0	2,131.0	3,520	176
3M314	Decommissioning Stage 3: Stainless Steel (Reactor) LLW	LLW	0	1,120.0	1,120.0	355	18.2

Site Owner – Waste Custodian - Site		Waste type	Reported volume (m^3)			When all wastes at 1.4.2016 and future arisings are packaged	
Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
3M315	Decommissioning Stage 3: Mild Steel (Reactor) LLW	LLW	0	3,278.0	3,278.0	1,040	53.3
3M317	Decommissioning Stage 3: Graphite LLW	LLW	0	654.0	654.0	873	43.6
3M318	Stage 3 decommissioning: Concrete (Reactor and Non-Reactor) LLW	LLW	0	2,788.8	2,788.8	3,690	189
3M319	Stage 3 Decommissioning: Miscellaneous Metals and Materials (Reactor and Non-Reactor) LLW	LLW	0	598.9	598.9	997	51.1
3M320	Stage 3 Decommissioning: Secondary Wastes LLW	LLW	0	1,964.6	1,964.6	578	29.6
EDF Energy - EDF Energy - Hinkley Point B							
3N01	Ion Exchange Material	ILW	7.2	6.6	13.8	39.4	69.0
3N02	Sludge	ILW	15.9	3.3	19.2	33.2	58.2
3N04	Desiccants and Catalysts	ILW	181.2	57.6	238.8	388	19.9
3N12	Gas Circulator LLW	LLW	34.7	157.5	192.2	124	6.4
3N13	Wet Fuel Route LLW	LLW	1.4	330.4	331.8	215	11.0
3N14	General Reactor LLW	LLW	19.0	620.7	639.7	414	21.2
3N35	Miscellaneous Sludges	LLW	23.0	0	23.0	30.4	1.6
3N37	Miscellaneous Contaminated Items	ILW	0	4.7	4.7	11.4	20.0
3N38	Miscellaneous Activated Components & Fuel Stringer Debris - Debris Vault 1	ILW	584.0	120.9	704.9	1,160	57.8
3N39	Miscellaneous Activated Components & Fuel Stringer Debris - Debris Vault 2	ILW	33.4	17.2	50.6	83.1	4.1
3N40	Miscellaneous Activated Components - Debris Vault 3	ILW	7.0	0	7.0	11.5	0.6
3N41	Miscellaneous Activated Components - Debris Vault 4	ILW	3.3	2.0	5.3	8.7	0.4
3N42	Gas Driers/Gas Bypass area	LLW	3.0	24.3	27.3	17.7	0.9
3N43	Combustible Radioactive Waste Disposal (CRAWD) including Decontamination Centre.	LLW	1.4	36.9	38.3	22.3	1.1
3N110	Care & Maintenance Preparations: Stainless Steel LLW	LLW	0	234.8	234.8	270	13.9
3N111	Care & Maintenance Preparations: Mild Steel LLW	LLW	0	1,806.5	1,806.5	836	42.9
3N112	Care & Maintenance Preparations: Secondary Waste LLW	LLW	0	1,180.7	1,180.7	624	32.0
3N113	Care & Maintenance Preparations: Secondary Waste LLW	LLW	0	1,155.0	1,155.0	1,040	53.2
3N114	Care & Maintenance Preparations: Secondary Waste LLW	LLW	0	99.4	99.4	64.4	3.3
3N311	Decommissioning Stage 3: Stainless Steel (Reactor) ILW	ILW	0	194.3	194.3	319	15.9
3N312	Decommissioning Stage 3: Mild Steel (Reactor) ILW	ILW	0	591.3	591.3	971	48.5
3N313	Decommissioning Stage 3: Graphite ILW	ILW	0	1,830.5	1,830.5	3,260	163
3N314	Decommissioning Stage 3: Stainless Steel (Reactor) LLW	LLW	0	1,269.6	1,269.6	403	20.7
3N315	Decommissioning Stage 3: Mild Steel (Reactor) LLW	LLW	0	2,406.4	2,406.4	764	39.2

Site Owner – Waste Custodian - Site		Waste type	Reported volume (m^3)			When all wastes at 1.4.2016 and future arisings are packaged	
Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
3N317	Decommissioning Stage 3: Graphite LLW	LLW	0	466.6	466.6	623	31.1
3N318	Stage 3 Decommissioning: Concrete (Reactor and Non-Reactor) LLW	LLW	0	1,020.0	1,020.0	1,350	69.1
3N319	Stage 3 Decommissioning: Miscellaneous Metals and Materials (Reactor and Non-Reactor) LLW	LLW	0	1,148.7	1,148.7	1,910	98.1
3N320	Stage 3 Decommissioning: Secondary Wastes LLW	LLW	0	1,610.7	1,610.7	474	24.3
EDF Energy - EDF Energy - Sizewell B							
3S03	Spent Cartridge Filters (ILW)	ILW	20.8	13.8	34.6	415	691
3S04	Sludges and Concentrates	LLW	0	34.0	34.0	63.8	3.3
3S05	Miscellaneous Contaminated Items	ILW	47.7	272.3	320.0	739	1,290
3S06	Spent Resins (LLW)	LLW	26.7	739.1	765.8	1,980	101
3S07	Station Maintenance and Operations LLW	LLW	76.0	1,124.8	1,200.8	778	39.9
3S08	Secondary Cartridge Filters (LLW)	LLW	0.8	53.6	54.4	112	5.8
3S09	Miscellaneous Activated Components	ILW	8.8	32.6	41.4	68.0	3.4
3S12	CVCS Resins and Spent Resins (ILW)	ILW	5.6	-5.6	0	0	0
3S12/C	CVCS Resins and Spent Resins (ILW) - Conditioned waste	ILW	26.0	49.1	75.1	210	159
3S101	Decommissioning: Station Maintenance LLW	LLW	0	544.5	544.5	353	18.1
3S301	Decommissioning: Mild Steel LLW	LLW	0	8,130.7	8,130.7	4,940	254
3S302	Decommissioning: Mild Steel ILW	ILW	0	3,639.7	3,639.7	4,170	208
3S303	Decommissioning: Concrete LLW	LLW	0	735.4	735.4	972	49.9
3S304	Decommissioning: Secondary Wastes & Miscellaneous Materials LLW	LLW	0	5,803.1	5,803.1	3,820	196
3S305	Decommissioning: Stainless Steel LLW	LLW	0	774.5	774.5	542	27.8
3S306	Decommissioning: Stainless Steel ILW	ILW	0	404.4	404.4	463	23.1
3S307	Decommissioning: Concrete ILW	ILW	0	38.0	38.0	54.3	2.7
3S308	SZB Dry Store - Shield & Transfer Casks	LLW	0	8,425.3	8,425.3	11,100	571
3S309	Dry Store - MPC Fuel casks	LLW	0	1,604.0	1,604.0	2,120	109
3S310	Fuel Pond Solid Absorber Assemblies	ILW	0	31.2	31.2	64.0	3.3
EDF Energy - EDF Energy - Flasks & Flatrols							
3Z202	AGR Fuel Transport Flasks	LLW	0	387.6	387.6	0	0
3Z203	Rail Flatrols	LLW	0	39.2	39.2	0	0
EDF Energy - EDF Energy - Hunterston B							
4B01	Ion Exchange Resin and Sand	ILW	17.4	7.9	25.3	72.3	127
4B04	Sludge	ILW	33.0	7.7	40.7	96.8	170
4B06	Desiccants and Catalysts	ILW	260.0	51.0	311.0	506	25.9

Site Owner – Waste Custodian - Site		Waste type	Reported volume (m^3)			When all wastes at 1.4.2016 and future arisings are packaged	
Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
4B12	Wet Fuel Route LLW	LLW	15.0	284.1	299.1	194	9.9
4B13	General Reactor LLW	LLW	75.0	946.6	1,021.6	662	33.9
4B14	Laundry LLW	LLW	10.0	225.0	235.0	152	7.8
4B15	Miscellaneous Sludges	LLW	8.0	0	8.0	10.6	0.5
4B17	Miscellaneous Contaminated Items	ILW	4.0	4.8	8.8	21.4	37.4
4B18	Miscellaneous Activated Components - Debris Vault 1	ILW	572.6	174.4	747.0	1,230	61.2
4B19	Miscellaneous Activated Components - Debris Vault 2	ILW	55.7	16.9	72.6	119	6.0
4B20	Miscellaneous Activated Components - Debris Vault 3	ILW	7.0	0	7.0	11.5	0.6
4B21	Miscellaneous Activated Components - Debris Vault 4	ILW	5.1	1.6	6.7	11.0	0.6
4B110	Care & Maintenance Preparations: Stainless Steel LLW	LLW	0	195.3	195.3	225	11.5
4B111	Care & Maintenance Preparations: Mild Steel LLW	LLW	0	1,558.8	1,558.8	721	37.0
4B112	Care & Maintenance Preparations: Secondary Waste LLW	LLW	0	1,234.2	1,234.2	652	33.4
4B113	Care & Maintenance Preparations: Miscellaneous Metals and Materials LLW	LLW	0	1,135.6	1,135.6	1,020	52.4
4B114	Care & Maintenance: Miscellaneous Materials LLW	LLW	0	99.3	99.3	64.3	3.3
4B311	Decommissioning Stage 3: Stainless Steel (Reactor) ILW	ILW	0	194.3	194.3	319	15.9
4B312	Decommissioning Stage 3: Mild Steel (Reactor) ILW	ILW	0	591.3	591.3	971	48.5
4B313	Decommissioning Stage 3: Graphite ILW	ILW	0	1,830.5	1,830.5	3,260	163
4B314	Decommissioning Stage 3: Stainless Steel (Reactor) LLW	LLW	0	1,269.7	1,269.7	403	20.7
4B315	Decommissioning Stage 3: Mild Steel (Reactor) LLW	LLW	0	2,406.3	2,406.3	763	39.2
4B317	Decommissioning Stage 3: Graphite LLW	LLW	0	466.5	466.5	623	31.1
4B318	Stage 3 Decommissioning: Concrete (Reactor and Non-Reactor) LLW	LLW	0	1,020.0	1,020.0	1,350	69.2
4B319	Stage 3 Decommissioning: Miscellaneous Metals and Materials (Reactor and Non-Reactor) LLW	LLW	0	1,049.8	1,049.8	1,750	89.6
4B320	Stage 3 Decommissioning: Secondary Wastes LLW	LLW	0	1,945.3	1,945.3	572	29.4
EDF Energy - EDF Energy - Torness							
4C01	Catalyst	ILW	0	9.4	9.4	20.2	1.0
4C02	Desiccant	ILW	31.6	92.5	124.1	202	10.4
4C03	Pond Water Filtration Resin	ILW	5.0	6.1	11.1	31.6	55.3
4C06	Active Effluent Filtration Resin	ILW	2.3	1.6	3.9	11.2	19.6
4C12	Miscellaneous Activated Components & Fuel Stringer Debris	ILW	221.3	146.0	367.3	603	30.1
4C13	Active Effluent and Workshop LLW	LLW	8.4	681.7	690.1	447	22.9
4C16	Dry Fuel Route LLW	LLW	14.4	409.2	423.6	274	14.1

Site Owner – Waste Custodian - Site		Waste type	Reported volume (m^3)			When all wastes at 1.4.2016 and future arisings are packaged	
Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
4C17	Wet Fuel Route LLW	LLW	1.2	338.0	339.2	220	11.3
4C18	Active Effluent Filtration Sludge	LLW	3.4	10.4	13.8	25.9	1.3
4C19	Pond Water Filtration Sludge	ILW	1.2	0.9	2.1	3.6	6.4
4C20	Oily Sludge	LLW	0.2	0.1	0.3	0.6	<0.1
4C23	Miscellaneous Contaminated Items	ILW	9.8	10.3	20.1	48.8	85.5
4C110	Care & Maintenance Preparations: Stainless Steel LLW	LLW	0	423.1	423.1	487	25.0
4C111	Care & Maintenance Preparations: Mild Steel LLW	LLW	0	3,072.1	3,072.1	1,420	73.0
4C112	Care & Maintenance Preparations: Secondary Waste LLW	LLW	0	1,753.6	1,753.6	927	47.5
4C113	Care & Maintenance Preparations: Miscellaneous Metals and Materials LLW	LLW	0	1,445.2	1,445.2	1,300	66.6
4C114	Care & Maintenance: Miscellaneous Materials LLW	LLW	0	96.2	96.2	62.3	3.2
4C311	Decommissioning stage 3: Stainless Steel (Reactor) ILW	ILW	0	141.1	141.1	232	11.6
4C312	Decommissioning Stage 3: Mild Steel (Reactor) ILW	ILW	0	530.9	530.9	871	43.5
4C313	Decommissioning Stage 3: Graphite ILW	ILW	0	2,131.0	2,131.0	3,520	176
4C314	Decommissioning Stage 3: Stainless Steel (Reactor) LLW	LLW	0	1,120.0	1,120.0	355	18.2
4C315	Decommissioning Stage 3: Mild Steel (Reactor) LLW	LLW	0	3,278.0	3,278.0	1,040	53.3
4C317	Decommissioning Stage 3: Graphite LLW	LLW	0	654.0	654.0	873	43.6
4C318	Stage 3 decommissioning: Concrete (Reactor and Non-Reactor) LLW	LLW	0	2,788.7	2,788.7	3,690	189
4C319	Stage 3 Decommissioning: Miscellaneous Metals and Materials (Reactor and Non-Reactor) LLW	LLW	0	595.6	595.6	992	50.9
4C320	Stage 3 Decommissioning: Secondary Wastes LLW	LLW	0	2,018.6	2,018.6	594	30.5
NDA - Dounreay Site Restoration Limited - Dounreay							
5B01	PFR Raffinate	ILW	212.1	0	212.1	433	759
5B02	Low Alpha RHILW	ILW	0	480.0	480.0	428	750
5B03	Operational RHILW	ILW	144.8	0.1	144.9	276	483
5B04/C	Cemented MTR Raffinate	ILW	2,432.0	0	2,432.0	2,780	4,860
5B05	DFR Raffinate	ILW	31.7	-31.7	0	0	0
5B05/C	Cemented DFR Raffinate	ILW	377.0	56.5	433.5	495	867
5B15/C	Compacted LLW	LLW	4,863.0	0	4,863.0	6,080	312
5B16/C	Conditioned Bulk Operational LLW	LLW	2,476.8	0	2,476.8	3,100	159
5B19	Uranium Contaminated Materials	ILW	24.0	0	24.0	68.5	120
5B20	Contaminated Solvent and Oils	LLW	137.4	0	137.4	182	9.3
5B22	ADU Floc	ILW	164.0	16.0	180.0	411	720

Site Owner – Waste Custodian - Site		Waste type	Reported volume (m^3)			When all wastes at 1.4.2016 and future arisings are packaged	
Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
5B24	Operational CHILW	ILW	775.2	0	775.2	443	775
5B25	ILW Shaft (Contents)	ILW	0	739.0	739.0	659	1,150
5B26	LLLETP Sludge	LLW	32.9	70.0	102.9	62.7	3.2
5B27	Thorium Nitrate	ILW	12.4	0	12.4	50.5	88.4
5B28	Graphite/THTR Waste	ILW	88.6	0	88.6	253	443
5B29	LSA Scale	ILW	228.4	0	228.4	1,690	143
5B32	Irradiated Thorium Fuel Pin Pieces	ILW	<0.1	0	<0.1	3.3	5.7
5B33	PFR Mixer Breeder Sections	ILW	6.8	0.2	7.0	20.0	35.0
5B34	DFR Breeder Fuel Removal Waste	ILW	1.0	13.3	14.3	61.4	108
5B301	Prototype Fast Reactor LLW	LLW	450.5	2,223.9	2,674.4	4,860	249
5B301/C	Conditioned Prototype Fast Reactor, LLW	LLW	998.7	0	998.7	1,250	64.0
5B302	Prototype Fast Reactor ILW	ILW	7.0	163.5	170.5	1,080	546
5B303	Dounreay Fast Reactor LLW	LLW	298.9	2,866.0	3,164.9	5,220	268
5B303/C	Conditioned Dounreay Fast Reactor LLW	LLW	187.2	0	187.2	234	12.0
5B304	Dounreay Fast Reactor ILW	ILW	0.2	254.1	254.3	465	160
5B305	Site Drains and Ducts LLW	LLW	0	1,308.0	1,308.0	2,550	131
5B305/C	Site Drains and Ducts Conditioned LLW	LLW	312.0	0	312.0	390	20.0
5B307	PFR Reprocessing Plant LLW	LLW	321.7	2,194.6	2,516.2	4,500	231
5B308	PFR Reprocessing Plant ILW	ILW	20.0	129.7	149.7	161	282
5B309	Materials Test Reactor LLW	LLW	75.4	274.0	349.4	578	29.7
5B309/C	Conditioned Materials Test Reactor LLW	LLW	31.2	0	31.2	39.0	2.0
5B310	Materials Test Reactor ILW	ILW	0	15.3	15.3	36.3	3.1
5B311	Development Laboratory LLW	LLW	223.8	323.5	547.3	909	46.6
5B311/C	Conditioned Development Laboratory LLW	LLW	15.6	0	15.6	19.5	1.0
5B312	Development Laboratory ILW	ILW	125.9	10.2	136.1	98.4	172
5B313	HAL Store and Evaporation Plant LLW	LLW	117.2	658.0	775.2	1,350	69.3
5B314	HAL Store and Evaporation Plant ILW	ILW	0	94.6	94.6	195	16.4
5B315	MTR Reprocessing Plant LLW	LLW	301.8	583.3	885.1	1,720	88.4
5B315/C	Conditioned MTR Reprocessing Plant LLW	LLW	31.2	0	31.2	39.0	2.0
5B316/C	Conditioned Pu Laboratory LLW	LLW	312.0	0	312.0	390	20.0
5B317	Pu Laboratory ILW	ILW	18.2	0	18.2	10.4	18.2
5B323	Decommissioning Contaminated Soil	LLW	405.6	13,068.1	13,473.7	26,300	1,350
5B325	DFR Ion Exchange Columns	ILW	0.6	1.0	1.6	4.6	8.0

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Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
5B326	MTR Reprocessing Plant ILW	ILW	2.6	25.4	28.0	53.3	93.3
5B327/C	Conditioned Waste Treatment Complex Decommissioning LLW	LLW	46.8	0	46.8	58.5	3.0
5B329	CHILW Retrievable Drum Store LLW	LLW	3.0	14.9	17.9	29.3	1.5
5B330	CHILW Retrievable Drum Store ILW	ILW	1.6	1.8	3.4	1.9	3.4
5B331	RHILW Retrievable Drum Store LLW	LLW	601.0	53.4	654.4	1,180	60.4
5B332	RHILW Retrievable Drum Store ILW	ILW	22.0	0	22.0	41.9	73.3
5B333	DCP Vault Store and Extension LLW	LLW	168.0	1,187.3	1,355.3	2,640	136
5B334	DCP, Vault Store and Extension ILW	ILW	8.3	41.9	50.2	95.5	167
5B335	Analytical Laboratories LLW	LLW	110.0	2,819.7	2,929.7	5,280	271
5B335/C	Conditioned Analytical Laboratories LLW	LLW	124.8	0	124.8	156	8.0
5B336	Analytical Laboratories ILW	ILW	31.8	56.8	88.6	60.3	106
5B337	Decontamination and Waste Services LLW	LLW	146.9	540.7	687.6	1,110	57.1
5B337/C	Conditioned Decontamination and Waste Services LLW	LLW	382.2	0	382.2	487	25.0
5B338	Decontamination and Waste Services ILW	ILW	6.6	1.4	8.0	4.6	8.0
5B339	PIE Facility LLW	LLW	388.5	137.1	525.6	210	10.8
5B339/C	Conditioned PIE Facility LLW	LLW	31.2	0	31.2	39.0	2.0
5B340	PIE Facility ILW	ILW	40.3	7.3	47.6	51.3	89.8
5B341	Pu Fuels Examination Facility LLW	LLW	188.8	1,122.5	1,311.2	2,140	110
5B342	Pu Fuels Examination Facility ILW	ILW	93.3	42.9	136.2	243	426
5B343	Other Facilities Decommissioning LLW	LLW	215.5	857.9	1,073.3	1,730	88.6
5B344	Other Facilities Decommissioning ILW	ILW	2.8	1.4	4.2	3.2	5.6
5B345	Service Corridor and Tank Farm LLW	LLW	16.9	196.7	213.5	416	21.4
5B347/C	Conditioned MTR Fuel Fabrication Plant LLW	LLW	78.0	0	78.0	97.5	5.0
5B348	Effluent Treatment Plant LLW	LLW	160.3	630.6	790.9	1,540	79.0
5B348/C	Conditioned Effluent Treatment Plant LLW	LLW	15.6	0	15.6	19.5	1.0
5B349	Uranium Recovery Plant LLW	LLW	121.0	1,314.8	1,435.8	2,340	120
5B349/C	Conditioned Uranium Recovery Plant LLW	LLW	140.4	0	140.4	176	9.0
5B350	Uranium Recovery Plant ILW	ILW	42.4	0.9	43.3	24.7	43.3
5B351	Changerooms LLW	LLW	7.5	101.1	108.6	212	10.9
5B352	Waste Receipt, Assay, Characterisation and Supercompaction Facility LLW	LLW	6.0	94.7	100.8	196	10.1
5B354	PFR SDP Ion Exchange Columns	ILW	3.8	0	3.8	10.8	19.0
5B355	Demolition LLW	LLW	2,473.3	15,844.7	18,317.9	18,300	0

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Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
5B357	DFR Pond Ion Exchange Columns	ILW	1.2	0.4	1.6	4.6	8.0
5B358	Previously Disposed LLW to be Retrieved	LLW	0	33,616.7	33,616.7	50,400	2,590
NDA - Magnox Limited - Harwell							
5C08	ILW Concrete Lined Drums	ILW	1,061.0	0	1,061.0	1,300	2,280
5C18/C	Encapsulated ILW Liquors	ILW	20.5	0	20.5	23.4	41.0
5C30	Harwell Remote Handled ILW	ILW	78.8	0	78.8	112	197
5C39	Solid Waste Complex Operational LLW	LLW	1.0	1,099.0	1,100.0	1,210	60.4
5C41	Operational LLW Sludge	LLW	9.0	0	9.0	48.8	2.5
5C45	GLEEP Fuel	ILW	1.9	0	1.9	24.7	43.2
5C46	Uranic Residues	ILW	8.1	0	8.1	0	0
5C47	Organic Wastes	LLW	2.0	2.0	4.0	0	0
5C50	Dragon Fuel	ILW	3.4	0	3.4	4.2	7.3
5C52	Processed Remote Handled ILW	ILW	193.4	0	193.4	276	484
5C54	Zenith Fuel	ILW	0.6	0	0.6	1.0	1.8
5C55	Miscellaneous Legacy LLW	LLW	141.0	0	141.0	275	14.1
5C56	Harwell LLW Sources	LLW	2.0	0	2.0	7.8	0.4
5C300	Land Remediation VLLW and LA-LLW	VLLW	0	11,140.0	11,140.0	11,100	0
5C301	BEPO Reactor Decommissioning LLW	LLW	0	185.0	185.0	79.4	4.1
5C302	BEPO Reactor Decommissioning ILW	ILW	0	561.0	561.0	2,580	217
5C303	Radiochemical Laboratory Decommissioning LLW	LLW	0	945.0	945.0	310	15.9
5C304	Radiochemical Laboratory Decommissioning CHILW	ILW	0	34.0	34.0	201	17.0
5C305	DIDO Reactor Decommissioning LLW	LLW	0	262.0	262.0	480	24.5
5C306	DIDO Reactor Decommissioning ILW	ILW	0	60.0	60.0	356	30.0
5C307	PLUTO Reactor Decommissioning LLW	LLW	0	262.0	262.0	480	24.5
5C308	PLUTO Reactor Decommissioning ILW	ILW	0	47.0	47.0	265	22.4
5C309	Minor Facilities Decommissioning LLW	LLW	3.0	145.0	148.0	188	9.6
5C310	Solid Waste Complex Decommissioning ILW	ILW	0	25.0	25.0	30.6	53.6
5C312	Western Storage Area LLW	LLW	20.0	0	20.0	20.0	0
5C313	B466 Ponds Decommissioning LLW	LLW	4.0	7.5	11.5	22.4	1.2
5C314	LETP Decommissioning LLW	LLW	147.0	211.0	358.0	272	8.3
5C315	Active Handling Facility Decommissioning LLW	LLW	0	420.0	420.0	373	18.8
5C316	Solid Waste Complex Decommissioning LLW	LLW	0	2,771.0	2,771.0	5,240	269
5C317	Harwell Contact Handled ILW Drums	ILW	310.0	0	310.0	380	665

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Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
5C318	Harwell Remote Handled ILW - WRATs	ILW	16.2	0	16.2	23.1	40.5
5C319	Ripple Crates	LLW	20.2	0	20.2	39.4	2.0
5C320/C	Encapsulated ILW Sludges	ILW	6.5	0	6.5	7.4	13.0
5C321	Active Handling Facility Decommissioning ILW	ILW	0	1.9	1.9	11.9	1.0
5C322	Land Remediation LLW	LLW	0	25.0	25.0	48.8	2.5
5C323	LETP Land Remediation VLLW and LA-LLW	VLLW	0	8,000.0	8,000.0	8,000	0
5C324	LETP Land Remediation LLW	LLW	0	178.0	178.0	347	17.8
5C325	Radiochemical Laboratory Decommissioning VLLW and LA-LLW	VLLW	0	2,628.0	2,628.0	1,970	0
5C326	Active Handling Facility Decommissioning VLLW and LA-LLW	VLLW	0	480.0	480.0	360	0
5C327	Solid Waste Complex Decommissioning VLLW and LA-LLW	VLLW	0	869.0	869.0	652	0
5C328	BEPO Reactor Decommissioning VLLW and LA-LLW	VLLW	38.0	5,020.0	5,058.0	4,050	0
5C329	DIDO Reactor Decommissioning VLLW and LA-LLW	VLLW	0	455.0	455.0	364	0
5C330	PLUTO Reactor Decommissioning VLLW and LA-LLW	VLLW	0	454.0	454.0	363	0
5C331	Minor Facilities Decommissioning VLLW and LA-LLW	VLLW	690.0	5,963.0	6,653.0	4,990	0
5C332	Harwell Care & Maintenance VLLW and LA-LLW	VLLW	0	24.0	24.0	24.0	0
5C333	Harwell Care & Maintenance LLW	LLW	0	2.0	2.0	3.3	0.2
5C334	Replacement Effluent Treatment Plant LLW	LLW	0	25.0	25.0	48.8	2.5
5C335	LETP HLA Tanks ILW	ILW	0.5	0	0.5	0.6	1.1
5C336	Radiologically Contaminated Mercury	LLW	2.0	0	2.0	0	0
NDA - Magnox Limited - Winfrith							
5G01	Miscellaneous Reactor Hardware ILW	ILW	0.8	0	0.8	21.1	1.8
5G03/C	Conditioned SGHWR Sludges	LLW	534.0	0	534.0	1,640	61.4
5G04	Winfrith ILW Sources	ILW	0.1	0	0.1	0.1	0.2
5G10	ILW Concrete-lined Drums	ILW	3.3	0	3.3	4.0	7.1
5G11	LLW Concrete Lined Drums	LLW	1.3	0	1.3	2.5	0.1
5G21	Organic Wastes	LLW	0.5	2.0	2.5	0	0
5G23	Thorium Metal	ILW	1.0	0	1.0	1.9	3.3
5G24	Winfrith LLW Sources	LLW	2.0	0	2.0	19.5	1.0
5G300	Land Remediation VLLW and LA-LLW	VLLW	0	1,268.0	1,268.0	1,270	0
5G301	SGHWR Decommissioning LLW	LLW	17.0	1,029.0	1,046.0	1,250	45.1
5G302	SGHWR Decommissioning ILW	ILW	0	40.0	40.0	1,030	87.0
5G303	DRAGON Reactor Decommissioning LLW	LLW	34.0	129.0	163.0	151	7.7
5G304	DRAGON Reactor Decommissioning ILW	ILW	0	22.0	22.0	293	24.7

Site Owner – Waste Custodian - Site		Waste type	Reported volume (m^3)			When all wastes at 1.4.2016 and future arisings are packaged	
Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
5G307	Minor Facilities Decommissioning LLW	LLW	5.0	56.0	61.0	76.3	3.9
5G308	Legacy Decommissioning LLW	LLW	206.0	0	206.0	258	13.2
5G309	SGHWR Decommissioning VLLW and LA-LLW	VLLW	28.0	5,079.0	5,107.0	5,110	0
5G310	DRAGON Reactor Decommissioning VLLW and LA-LLW	VLLW	0	18.0	18.0	18.0	0
5G311	Minor Facilities Decommissioning VLLW and LA-LLW	LLW	94.0	2,363.0	2,457.0	2,460	0
5G312	Active Liquid Effluent Plant LLW	LLW	0	19.0	19.0	23.8	1.2
United Kingdom Atomic Energy Authority - United Kingdom Atomic Energy Authority - Culham							
5H06	LLW Incinerable Materials	LLW	12.3	146.0	158.3	0	0
5H07	LLW Non-Incinerable Materials	LLW	20.7	28.0	48.7	61.3	4.7
5H08	ILW Non-Incinerable Materials	ILW	17.6	10.0	27.6	35.9	2.8
5H09	ILW Incinerable Materials	ILW	16.5	9.0	25.5	0	0
5H10	Low Activity Low Level Waste	LLW	53.0	54.0	107.0	107	0
5H11	Materials Research Facility ILW	ILW	0	1.9	1.9	2.3	4.1
5H301	JET Decommissioning Non-Activated ILW	ILW	0	8.2	8.2	15.5	1.3
5H302	JET Decommissioning Tritiated Non-Activated LLW	LLW	0	768.4	768.4	722	12.4
5H304	JET Decommissioning Tritiated Activated LLW	LLW	0	830.0	830.0	755	13.4
5H305	JET Decommissioning Concrete LLW	LLW	0	2,798.5	2,798.5	2,900	26.9
5H306	JET Decommissioning Activated ILW	ILW	0	129.7	129.7	245	20.7
5H307	LLW Organic Waste	LLW	0	100.0	100.0	0	0
Minor waste producers – Magnox Limited - Harwell							
6C31/C	NDS Contact Handled ILW	ILW	2.5	0	2.5	7.4	13.0
6C32	NDS Remote Handled ILW	ILW	0.3	0	0.3	0.5	0.9
Minor waste producers – LLWR SLC Limited - Various sites							
6H02	LLW (minor users)	LLW	0	11,468.0	11,468.0	15,100	775
Minor waste producers – Outokumpu - Sheffield							
6J01	Contaminated Slag and Other Materials	LLW	647.6	0	647.6	756	28.8
Minor waste producers – Imperial College - Reactor Centre, Ascot							
6K101	Am/Be Sources	ILW	<0.1	0	<0.1	<0.1	<0.1
6K102	Cadmium and Aluminium Linings	ILW	0	0.3	0.3	0.4	0.6
6K103	Control Rods	ILW	0	<0.1	<0.1	<0.1	<0.1
6K104	Core Support Plate	ILW	0	<0.1	<0.1	<0.1	0.1
6K105	Graphite Columns	ILW	0	4.0	4.0	4.9	8.6

Site Owner – Waste Custodian - Site		Waste type	Reported volume (m^3)			When all wastes at 1.4.2016 and future arisings are packaged	
Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
6K107	Miscellaneous Stainless Steel Items	ILW	0	<0.1	<0.1	<0.1	<0.1
6K108	Miscellaneous LLW	LLW	0	6.0	6.0	7.9	0.4
6K109	Reactor Concrete Biological Shield	LLW	0	100.0	100.0	132	6.8
Minor waste producers - Rutherford Appleton Laboratory - Harwell							
6N01	Neutron Targets	ILW	0.2	0.2	0.5	0.6	1.0
6N02	Moderators	ILW	0.6	0.8	1.4	1.8	3.1
6N03	Reflectors	ILW	1.6	0.8	2.4	3.1	0.2
Ministry of Defence - AWE plc - AWE Aldermaston							
7A13	Sea Disposal Packs (Concrete Lined Drums)	ILW	483.0	0	483.0	587	1,030
7A21	Operational ILW Plutonium Contaminated	ILW	1,264.0	285.0	1,549.0	737	1,290
7A22	Operational ILW Tritium Hard Waste	ILW	28.3	9.8	38.1	18.1	31.8
7A23	Operational LLW Above the LLWR Limit	LLW	185.1	0	185.1	301	15.4
7A24	Operational LLW - Depleted/Natural Uranium	LLW	123.8	504.0	627.8	460	5.5
7A25	Operational Tritiated LLW	LLW	8.1	103.0	111.1	25.5	1.3
7A26	Operational LLW - Enriched Uranium	LLW	10.7	328.0	338.7	350	5.8
7A27	Operational LLW - Plutonium	LLW	104.3	1,172.0	1,276.3	1,180	19.5
7A28	Operational LLW - Miscellaneous Radionuclides	LLW	0	35.0	35.0	9.1	0.1
7A29	Uranium Contaminated Operations ILW	ILW	29.5	52.5	82.0	39.0	68.3
7A32	Closed Sources	ILW	0	99.0	99.0	0	0
7A33	Radioactive Contaminated Land	LLW	216.0	3,786.0	4,002.0	4,000	0
7A34	Low Activity Liquids (excluding Hg)	LLW	3.3	78.0	81.3	0	0
7A36	Pyrochemical Wastes	ILW	21.1	0	21.1	25.9	45.3
7A37	Contaminated Mercury	LLW	2.7	0	2.7	3.6	0.2
7A40	Experimental Metallic Vessels	ILW	10.7	2.2	12.9	15.2	4.6
7A41	Cemented Sludges	LLW	164.8	0	164.8	665	33.5
7A108	Decommissioning LLW Above the LLWR Limit	LLW	311.0	0	311.0	404	20.7
7A109	Decommissioning Waste from Reactors ILW	ILW	3.3	4.0	7.3	4.4	1.4
7A110	Decommissioning Waste Tritium Bearing ILW	ILW	7.0	5.0	12.0	5.7	10.0
7A111	Decommissioning Waste PCM ILW	ILW	2,568.0	3,112.0	5,680.0	2,700	4,730
7A112	Decommissioning LLW - Natural / Depleted Uranium	LLW	24.0	1,181.0	1,205.0	398	0
7A113	Decommissioning LLW - Tritiated	LLW	0.4	121.0	121.4	69.6	3.6
7A114	Decommissioning LLW - Enriched Uranium	LLW	0	3,298.0	3,298.0	3,120	118
7A115	Decommissioning LLW - Plutonium	LLW	390.0	11,843.0	12,233.0	8,800	68.4

Site Owner – Waste Custodian - Site		Waste type	Reported volume (m^3)			When all wastes at 1.4.2016 and future arisings are packaged	
Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
7A116	Decommissioning LLW - Miscellaneous	LLW	18.0	855.0	873.0	465	14.9
7A117	Decommissioning Waste Uranium Contaminated ILW	ILW	0	724.0	724.0	345	603
Ministry of Defence - Babcock International Group - HMNB Devonport							
7D22	Devonport RA Soft Trash (for Disposal to LLWR)	LLW	13.4	232.4	245.8	19.4	1.0
7D23	Devonport RA Hard Trash (for Disposal to LLWR)	LLW	4.4	205.8	210.2	10.5	0.5
7D24	ILW Reactor Components	ILW	3.3	5.0	8.3	22.5	1.2
7D26/C	Devonport Conditioned LL Ion-Exchange Resin (for Disposal to LLWR)	LLW	6.3	25.0	31.3	197	10.1
7D28	Low Level Waste Resin from Plant Decontamination (MODIX)	LLW	11.8	8.5	20.3	87.8	4.5
7D29	Intermediate Level Waste Resin from Plant Decontamination (MODIX)	ILW	10.1	0	10.1	43.8	2.2
7D30/C	Devonport Conditioned Sludge (for Disposal to LLWR)	LLW	1.8	28.0	29.8	166	8.5
7D31	Devonport Filters (for Disposal to LLWR)	LLW	3.0	47.0	50.0	17.2	0.9
7D34	Ion Exchange Resin from Primary Circuit Decontamination	LLW	5.8	3.5	9.3	40.3	2.1
7D37	Low Level Waste - LLRF Concentrate	LLW	1.0	1.0	2.0	8.7	0.4
7D40	ILW PCD Ion Exchange Resin	ILW	8.1	3.5	11.6	50.3	2.6
7D41	ILW Submarine Ion Exchange Resin	ILW	2.3	10.0	12.3	53.3	2.7
7D90	Very Low Level Waste (VLLW) Generated from Nuclear Repair Activities	VLLW	26.0	8,078.0	8,104.0	8,100	0
Ministry of Defence - Babcock International Group - Rosyth Royal Dockyard							
7E22	Submarine Refitting Wastes (Soft Trash)	LLW	4.8	28.0	32.8	43.4	2.2
7E23	Metallic Waste	LLW	1.0	23.0	24.0	30.7	1.5
7E29	Intermediate Level Ion Exchange Resin (Decontamination)	ILW	22.4	0.4	22.8	106	5.4
7E101	Site and Facilities Decommissioning Waste: Steel and Building Rubble	LLW	0	25.0	25.0	25.0	0
Ministry of Defence - Ministry of Defence - Clyde Submarine Base							
7F22	Submarine Reactor Wastes (Non-metallic)	LLW	12.5	475.0	487.5	0	0
7F23	Submarine Reactor Wastes (Metallic LLW)	LLW	10.0	480.0	490.0	0	0
7F26/C	Conditioned Ion Exchange Resin from Nuclear Effluent Plants	LLW	0	12.8	12.8	34.7	1.8
7F28	Tritiated Desiccant	LLW	0	0	0	0	0
Ministry of Defence - Babcock and Ministry of Defence - Rosyth & Devonport (Submarines)							
7G103	LLW from Decommissioned Submarines	LLW	0	1,069.4	1,069.4	55.6	4.3
7G104	Long-Lived ILW from Decommissioned Submarines	ILW	0	191.5	191.5	2,470	684
Ministry of Defence - Ministry of Defence - HMNB Portsmouth							
7J23	Miscellaneous ILW	ILW	5.0	11.0	16.0	19.6	34.3

Site Owner – Waste Custodian - Site		Waste type	Reported volume (m^3)			When all wastes at 1.4.2016 and future arisings are packaged	
Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
7J25	Luminised Waste	ILW	2.4	7.0	9.4	12.4	0.6
7J27	Intermediate Level Tritium Waste	ILW	0.1	0.4	0.5	0.6	1.1
Ministry of Defence - Ministry of Defence - Logistic Services Donnington							
7N03	MOD Donnington Miscellaneous LLW	LLW	0	70.0	70.0	92.5	4.6
Ministry of Defence - Ministry of Defence - Defence Infrastructure Organisation							
7S01	Contaminated Soil, Ash & Rubble	LLW	350.0	0	350.0	463	23.7
Ministry of Defence - Ministry of Defence - NRTE Vulcan							
7V24	Metallic ILW from Vulcan	ILW	5.9	113.0	118.9	146	255
7V25	Resin from Decontamination Operations	ILW	2.6	2.7	5.3	6.5	11.4
7V26	Vulcan Supercompactable Drummed Low Level Waste	LLW	0	77.0	77.0	102	5.1
Ministry of Defence - Rolls Royce Marine Power Operations Limited - RRMPOL Derby							
7X01	RRMPOL Low Level Wastes	LLW	160.0	15,980.0	16,140.0	35,700	2,500
Ministry of Defence - BAE Systems Marine Limited - BAESM Barrow-in-Furness							
7Y101	Decommissioning of Chemistry Laboratory	LLW	0	1.0	1.0	0	0
7Y102	Decommissioning of Waste Treatment Facility	LLW	0	3.0	3.0	0	0
Urenco - Capenhurst Nuclear Services / Urenco UK / Urenco CP - Capenhurst							
8A01	Feed Filter Material	ILW	0.7	1.8	2.5	3.0	5.3
8A05	Empty Uranium Hexafluoride Containers	LLW	0	1,776.0	1,776.0	0	0
8A06	Dewatered Sewage Sludge	LLW	0	47.0	47.0	47.0	0
8A07	Metallic Waste	LLW	113.7	192.0	305.7	30.6	0
8A08	Demolition Waste	LLW	40.0	64.8	104.8	105	0
8A09	Non-Aqueous Waste	LLW	0.1	11.5	11.6	0	0
8A10	Aqueous Waste	LLW	148.0	600.0	748.0	0	0
8A11	C16 Demolition Wastes	LLW	40.0	0	40.0	40.0	0
8A19	Solid Waste from B36 and Legacy Cylinder Facility (LCF)	LLW	20.6	613.8	634.3	38.1	0
8A20	Contaminated Land - Soil	VLLW	0	14,700.0	14,700.0	14,700	0
8A21	Contaminated Land - Concrete	VLLW	0	6,300.0	6,300.0	6,300	0
8A30	UCP Cemented RRF Concentrate	LLW	0	1,371.0	1,371.0	1,370	0
8A31	UCP Incinerable Solid LLW	LLW	0	2,579.0	2,579.0	0	0
8A32	UCP Metallic LLW	LLW	0	443.0	443.0	0	0
8A33	UCP Non-Combustible Solid LLW	LLW	0	644.5	644.5	645	0
8A101	Centrifuge Plant Decommissioning	LLW	65.0	160.0	225.0	28.1	1.4

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Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
8A103	Capenhurst Decommissioning Waste	LLW	205.0	3,931.0	4,136.0	2,480	0
NDA - Magnox Limited - Berkeley							
9A03/C	Ion Exchange Material	ILW	14.2	0	14.2	38.1	7.0
9A25	Ion Exchange Material in Drums	ILW	13.5	0	13.5	50.0	4.2
9A27	Sludge	ILW	13.5	0	13.5	22.3	4.1
9A31	FED Graphite	ILW	150.7	0	150.7	558	47.1
9A32	FED Graphite	ILW	225.2	0	225.2	831	70.2
9A33	FED Graphite	ILW	265.2	0	265.2	496	91.2
9A34	FED Graphite	ILW	156.1	0	156.1	292	53.7
9A35	FED Graphite	ILW	65.1	0	65.1	122	22.4
9A36	Miscellaneous Contaminated Items	ILW	0.2	0	0.2	1.1	0.1
9A37	Miscellaneous Contaminated Items	ILW	0.2	0	0.2	0.9	0.1
9A38	Miscellaneous Contaminated Items	ILW	10.9	0	10.9	23.7	2.0
9A39	FED Magnox	ILW	16.0	0	16.0	59.3	5.0
9A40	FED Magnox	ILW	24.0	0	24.0	88.9	7.5
9A41	FED Magnox	ILW	28.0	0	28.0	52.0	9.6
9A42	FED Magnox	ILW	17.0	0	17.0	31.9	5.9
9A43	FED Magnox	ILW	7.0	0	7.0	13.1	2.4
9A44/C	Miscellaneous Activated Components	ILW	5.4	0	5.4	14.5	11.0
9A45	Miscellaneous Activated Components	ILW	10.0	0	10.0	12.4	0.6
9A46	Miscellaneous Activated Components	ILW	10.0	0	10.0	12.4	0.6
9A47	FED Stainless Steel	ILW	0.3	0	0.3	1.6	0.1
9A48	FED Stainless Steel	ILW	0.4	0	0.4	2.4	0.2
9A49	FED Stainless Steel	ILW	0.5	0	0.5	1.0	0.2
9A50	FED Stainless Steel	ILW	0.3	0	0.3	0.6	0.1
9A51	FED Stainless Steel	ILW	0.1	0	0.1	0.2	<0.1
9A52	FED Zirconium	ILW	2.2	0	2.2	8.7	0.7
9A53	FED Zirconium	ILW	3.3	0	3.3	13.0	1.1
9A54	FED Zirconium	ILW	4.0	0	4.0	7.5	1.4
9A55	FED Zirconium	ILW	2.4	0	2.4	4.5	0.8
9A56	FED Zirconium	ILW	1.0	0	1.0	1.9	0.3
9A57	Sludge (filter-precoat) from Berkeley Technology Centre	ILW	48.5	0	48.5	284	24.0
9A58	Sludge (filter-precoat) from Berkeley Technology Centre	ILW	14.3	0	14.3	82.9	7.0

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Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
9A59	Sludge (filter-precoat) from Berkeley Technology Centre	ILW	0.5	0	0.5	2.0	0.2
9A60	FED Magnox from Post Irradiation Examination	ILW	0.7	0	0.7	2.6	0.2
9A61	FED Magnox from Post Irradiation Examination	ILW	61.9	0	61.9	229	19.3
9A62	FED Magnox from Post Irradiation Examination	ILW	1.9	0	1.9	7.5	0.6
9A63	FED Magnox from Post Irradiation Examination	ILW	0.1	0	0.1	0.2	0.5
9A64	FED Magnox from Post Irradiation Examination	ILW	6.8	0	6.8	16.9	32.5
9A65	FED Magnox from Post Irradiation Examination	ILW	0.5	0	0.5	1.8	0.2
9A66	Miscellaneous Contaminated Items from Post Irradiation Examination	ILW	0.1	0	0.1	0.4	<0.1
9A67	Miscellaneous Contaminated Items from Post Irradiation Examination	ILW	0.1	0	0.1	0.4	<0.1
9A68	Miscellaneous Contaminated Items from Post Irradiation Examination	ILW	53.2	0	53.2	130	11.0
9A69	Miscellaneous Contaminated Items from Post Irradiation Examination	ILW	27.5	0	27.5	71.1	6.0
9A70	Miscellaneous Contaminated Items from Post Irradiation Examination	ILW	30.8	0	30.8	107	9.0
9A71	BPS ILW Sludge in Drums	ILW	38.6	0	38.6	14.5	2.7
9A72	BPS ILW Sludge in Drums	ILW	7.6	0	7.6	2.9	0.5
9A73	Contaminated Gravel	ILW	47.0	0	47.0	178	15.0
9A74	Contaminated Gravel	ILW	47.0	0	47.0	178	15.0
9A75	Contaminated Gravel	ILW	47.0	0	47.0	178	15.0
9A76	Contaminated Gravel - Chute Silo	LLW	0.2	0	0.2	0.4	<0.1
9A77	BPS Sludge in Drums	ILW	13.5	0	13.5	5.1	0.9
9A78	BPS Sludge in Drums	ILW	12.7	0	12.7	4.8	0.9
9A79	Oil - AETP Tanks	LLW	0.2	0	0.2	0	0
9A80	Drummed Sludge	ILW	3.7	0	3.7	9.6	1.8
9A82	Ion Exchange Material in Drums	ILW	3.0	0	3.0	0.6	0.1
9A83	Miscellaneous Contaminated Items	ILW	0.1	0	0.1	5.9	0.5
9A84	Miscellaneous Contaminated Items from Post Irradiation Examination	ILW	0.1	0	0.1	5.9	0.5
9A916	Empty BPS Sludge Cans	ILW	0	95.3	95.3	5.4	1.0
9A920	Reactor LLW	LLW	1.6	0	1.6	1.4	<0.1
9A921	AETP and Decontamination LLW	LLW	8.0	64.4	72.4	26.4	0.1
9A923	AETP Sludge and Associated Arisings	LLW	4.0	0	4.0	22.6	1.7
9A927	Vault Scabbling Wastes	LLW	0	42.2	42.2	42.2	0
9A930	Active Waste Vault Retrieval Decommissioning.	LLW	0	183.3	183.3	166	2.6
9A932	Cooling Water Valve Chamber Sludge	LLW	0.2	0	0.2	1.6	0.1
9A933	Concrete Slurry	LLW	0.1	0	0.1	0.8	0.1

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9A934	Storm Drains Sludge	LLW	0	0.3	0.3	0.6	<0.1
9A938	CRP Resin Tank SRST1	LLW	0	1.0	1.0	0	0
9A939	CRP Sludge Tank	LLW	0	1.0	1.0	0	0
9A940	Miscellaneous Activated Components - Charge Chutes	LLW	6.0	0	6.0	11.7	0.6
9A941	Miscellaneous Activated Components - Control Rods	LLW	2.6	0	2.6	4.8	0.4
9A980	Caesium Removal Plant Decommissioning.	LLW	8.0	56.4	64.4	78.4	4.0
9A105	Reactor LLW	LLW	0	96.0	96.0	31.7	1.6
9A310	Stainless Steel (Reactor) ILW	ILW	0	52.0	52.0	85.0	4.2
9A311	Mild Steel (Reactor) ILW	ILW	0	270.0	270.0	334	16.7
9A312	Miscellaneous Metal (Reactor) ILW	ILW	0	52.0	52.0	150	7.5
9A313	Stainless Steel (Reactor) LLW	LLW	0	6.6	6.6	0	0
9A314	Mild Steel (Reactor) LLW	LLW	0	211.0	211.0	411	21.1
9A315	Mild Steel (Non-Reactor) LLW	LLW	0	484.2	484.2	944	48.4
9A316	Graphite LLW	LLW	0	33.0	33.0	40.8	2.0
9A317	Concrete (Reactor and Non-Reactor) LLW	LLW	0	26,128.0	26,128.0	50,900	2,610
9A318	Miscellaneous Metals and Materials (Reactor and Non-Reactor) LLW	LLW	0	1,728.0	1,728.0	3,370	173
9A319	Secondary Wastes LLW	LLW	0	1,116.0	1,116.0	2,180	112
9A320	Contaminated Soil LLW	LLW	0	159.9	159.9	312	16.0
9A321	Graphite ILW	ILW	0	3,121.0	3,121.0	3,860	193
9A322	Mild Steel (Reactor) Recycle LLW	LLW	0	2,903.0	2,903.0	0	0
NDA - Magnox Limited - Bradwell							
9B02	Ion Exchange Material	ILW	2.0	0	2.0	11.9	9.0
9B02/C	Ion Exchange Material	ILW	35.0	0	35.0	39.6	30.0
9B13	Desiccant	ILW	11.4	0	11.4	37.1	1.9
9B15	Sludge	ILW	15.0	0	15.0	43.5	8.0
9B15/C	Sludge	ILW	2.4	0	2.4	4.0	3.0
9B17	Miscellaneous Contaminated Items	ILW	12.2	5.0	17.2	43.6	8.0
9B21	FED Magnox, Gravel and Interface	LLW	328.0	0	328.0	656	32.8
9B25	FED Magnox	ILW	22.3	0	22.3	0	0
9B28	Miscellaneous Activated Components - R1	ILW	81.0	0	81.0	132	6.6
9B29	Miscellaneous Activated Components - R2	ILW	81.0	0	81.0	132	6.6
9B30	Miscellaneous Activated Components - R1	ILW	3.2	0	3.2	5.2	0.3
9B31	Miscellaneous Activated Components - R2	ILW	3.2	0	3.2	5.2	0.3

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Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
9B33	Contaminated Gravel	ILW	12.0	0	12.0	26.1	4.8
9B36	Contaminated Gravel	ILW	11.0	0	11.0	23.9	4.4
9B37	Contaminated Gravel	ILW	13.2	0	13.2	28.7	5.3
9B38	Contaminated Gravel	LLW	1.6	0	1.6	4.2	0.2
9B39	Contaminated Gravel	LLW	1.6	0	1.6	4.2	0.2
9B43	Contaminated Soil	LLW	11.4	0	11.4	11.4	0
9B55	Ponds Decontamination Sludge	ILW	7.1	0	7.1	66.0	50.0
9B56	FED Magnox	ILW	52.0	0	52.0	0	0
9B57	FED Magnox	ILW	43.8	0	43.8	0	0
9B58	FED Magnox	ILW	39.6	0	39.6	0	0
9B59	FED Magnox	ILW	4.8	0	4.8	0	0
9B63	Contaminated Gravel	ILW	4.0	0	4.0	8.7	1.6
9B65	Sand and Gravel in Sand Pressure Filters - PWTP & AETP	ILW	4.1	0	4.1	38.4	29.1
9B79	FED Magnox - Solid Secondary Waste	ILW	0.5	0.1	0.6	3.3	2.5
9B80	FED Magnox Dissolution Secondary Waste (Filters)	ILW	0	4.9	4.9	7.3	5.5
9B81	FED Magnox - Secondary Ion Exchange Resin (Co-Treat)	ILW	0.4	0.8	1.1	5.3	4.0
9B82	FED Magnox Dissolution Secondary Waste (Sludge)	ILW	1.0	4.7	5.7	21.8	4.0
9B83/C	Graphite Filter Dust Pots	ILW	7.0	0	7.0	9.2	7.0
9B84	FED Magnox - Secondary Granular Activated Carbon (GAC)	ILW	0.4	1.9	2.2	7.9	6.0
9B85	FED Magnox - Secondary Ion Exchange Resin (Cs-Treat)	ILW	0	0.4	0.4	1.3	1.0
9B910	Reactor LLW	LLW	0	370.0	370.0	229	7.8
9B914	Miscellaneous Contaminated Items PWTP & AETP decommissioning	LLW	0	0.1	0.1	0.2	<0.1
9B918	Low Level Waste Facility Decommissioning	LLW	0	89.0	89.0	223	11.4
9B951	Ponds LLW	LLW	20.0	363.0	383.0	266	11.5
9B960	Redundant Sealed Sources	LLW	<0.1	0	<0.1	<0.1	<0.1
9B961	Used FED drums	LLW	60.0	0	60.0	19.8	1.0
9B962	FED/ADAP Plant	LLW	0	166.2	166.2	90.7	4.7
9B963	FAVORIT Plant	LLW	0	477.0	477.0	472	19.6
9B964	FAVORIT Plant	ILW	0	6.0	6.0	13.1	2.4
9B965	Ketra Plant	LLW	0	144.0	144.0	84.2	4.3
9B105	Reactor LLW	LLW	0	136.0	136.0	45.0	2.2
9B310	Stainless Steel (Reactor) ILW	ILW	0	167.0	167.0	358	17.9
9B311	Mild Steel (Reactor) ILW	ILW	0	412.0	412.0	509	25.4

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Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
9B312	Graphite ILW	ILW	0	3,025.0	3,025.0	3,740	187
9B313	Miscellaneous Metal (Reactor) ILW	ILW	0	7.0	7.0	11.4	0.6
9B314	Mild Steel (Reactor) LLW	LLW	0	80.0	80.0	156	8.0
9B315	Mild Steel (Non-Reactor) LLW	LLW	0	3,404.0	3,404.0	6,640	340
9B316	Graphite LLW	LLW	0	215.0	215.0	266	13.3
9B317	Concrete (Reactor and Non-Reactor) LLW	LLW	0	30,244.0	30,244.0	59,000	3,020
9B318	Miscellaneous Metals and Materials (Reactor and Non-Reactor) LLW	LLW	0	626.0	626.0	1,220	62.6
9B319	Secondary Wastes LLW	LLW	0	1,038.0	1,038.0	2,020	104
9B320	Stainless Steel (Reactor) LLW	LLW	0	0.2	0.2	0.3	<0.1
9B321	Contaminated Soil LLW	LLW	0	2,112.0	2,112.0	4,120	211
9B322	Mild Steel (Reactor) Recycle LLW	LLW	0	2,602.0	2,602.0	0	0
NDA - Magnox Limited - Dungeness A							
9C02	PWTP Ion Exchange Material	ILW	28.9	0	28.9	86.5	65.5
9C13	Magnox Dissolution Plant LLW	LLW	36.6	0	36.6	56.5	2.6
9C14	Desiccant	ILW	6.3	3.1	9.4	0	0
9C15	Incinerator Ash	LLW	0.5	0	0.5	0.3	<0.1
9C16	PWTP Sludge	ILW	0.5	2.5	3.0	4.0	3.0
9C17	Magnox Dissolution Plant Sludge	ILW	11.6	0	11.6	11.1	2.0
9C20	AETP Sludge	ILW	7.0	0.5	7.5	5.4	1.0
9C24	FED Magnox (Lugs)	ILW	1.8	0	1.8	0	0
9C30	Miscellaneous Activated Components	ILW	52.0	0	52.0	64.3	3.2
9C32	Miscellaneous Activated Components	ILW	8.4	0	8.4	10.4	0.5
9C33	Miscellaneous Activated Components	ILW	58.0	0	58.0	71.7	3.6
9C35	Miscellaneous Activated Components	ILW	6.2	0	6.2	7.7	0.4
9C36	Ion Exchange Resin from Ponds	ILW	30.5	1.4	31.8	97.7	74.0
9C38	Ion Siv Unit Pre Filters	ILW	1.4	0	1.4	5.4	1.0
9C40	Ion Siv Unit Post Filters	ILW	0.4	0	0.4	5.4	1.0
9C41	Ion Siv Unit Pre Filters	ILW	1.1	0	1.1	5.4	1.0
9C43	Ion Siv Unit Post Filters	ILW	0.8	0	0.8	5.4	1.0
9C44	Fuel Skips in Pond	ILW	20.0	0	20.0	62.5	5.3
9C45	Fuel Skips in Pond	LLW	6.0	0	6.0	15.1	0.8
9C47	Nimonic Springs and Thermocouples	ILW	0.2	0	0.2	3.8	2.9
9C51	Contaminated Zinc Bromide	LLW	0.1	0	0.1	0.5	<0.1

Site Owner – Waste Custodian - Site		Waste type	Reported volume (m^3)			When all wastes at 1.4.2016 and future arisings are packaged	
Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
9C52	Contaminated Sand	LLW	1.9	0	1.9	3.4	0.2
9C53	Miscellaneous Contaminated Items	ILW	2.7	0	2.7	7.9	6.0
9C54	Catalyst	ILW	1.5	0	1.5	0	0
9C55	Doulton Filters	LLW	6.4	0	6.4	12.4	0.6
9C56	Miscellaneous Activated Components	ILW	9.8	0	9.8	12.1	0.6
9C57	Miscellaneous Activated Components	ILW	8.3	0	8.3	10.3	0.5
9C58	Cationic Resin - AEWTP	LLW	2.6	0	2.6	21.1	1.1
9C59	Anionic Resin - AEWTP	LLW	1.9	0	1.9	15.4	0.8
9C60	Contaminated Oil	LLW	0.3	0	0.3	0	0
9C61	Contaminated Sand and Gravel from AETP Sand Filters	LLW	3.2	0	3.2	6.2	0.3
9C62	Contaminated Sand and Gravel from PWTP Sand Filter	LLW	5.5	0	5.5	10.7	0.6
9C67	CRU1 Ion-exchange resin	ILW	2.0	0	2.0	6.6	5.0
9C68	Sand & Gravel ST2	ILW	13.0	0	13.0	32.7	6.0
9C911	Reactor and Boiler Systems LLW	LLW	128.0	124.0	252.0	252	0
9C912	Effluent Treatment Plant, Ponds and Decontamination LLW	LLW	23.3	293.6	316.8	317	0
9C913	DAMAL	LLW	0	42.5	42.5	82.9	4.3
9C914	Scaffolding	LLW	0	104.1	104.1	37.1	1.9
9C915	LLAW Plant	LLW	0	196.4	196.4	245	12.6
9C944	Contaminated Insulation	VLLW	0	2,794.0	2,794.0	2,790	0
9C950	Redundant Sealed Sources	LLW	0	1.0	1.0	2.5	0.1
9C105	Reactor and Boiler Systems LLW	LLW	0	134.0	134.0	68.2	3.4
9C310	Stainless Steel (Reactor) ILW	ILW	0	143.0	143.0	177	8.8
9C311	Mild Steel (Reactor) ILW	ILW	0	477.0	477.0	590	29.4
9C312	Graphite ILW	ILW	0	3,424.0	3,424.0	4,230	211
9C313	Stainless Steel (Reactor) LLW	LLW	0	1.0	1.0	0	0
9C314	Mild Steel (Reactor) LLW	LLW	0	457.0	457.0	891	45.7
9C315	Mild Steel (Non-Reactor) LLW	LLW	0	3,607.0	3,607.0	7,030	361
9C317	Concrete (Reactor and Non-Reactor) LLW	LLW	0	23,611.0	23,611.0	46,000	2,360
9C318	Miscellaneous Metals and Materials (Reactor and Non-Reactor) LLW	LLW	0	762.0	762.0	1,490	76.2
9C319	Secondary Wastes LLW	LLW	0	1,019.0	1,019.0	1,990	102
9C320	Miscellaneous Metals (Reactor) ILW	ILW	0	0.1	0.1	0.1	<0.1
9C321	Contaminated Soil LLW	LLW	0	930.0	930.0	1,810	93.0
9C322	Mild Steel (Reactor) Recycle LLW	LLW	0	2,310.0	2,310.0	0	0

Site Owner – Waste Custodian - Site		Waste type	Reported volume (m^3)			When all wastes at 1.4.2016 and future arisings are packaged	
Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
9C323	Reactor and Boiler Systems LLW	LLW	0	209.9	209.9	210	0
9C324	Effluent Treatment Plant, Ponds and Decontamination LLW	LLW	0	159.3	159.3	159	0
NDA - Magnox Limited - Hinkley Point A							
9D11	Incinerator Ash	LLW	2.5	0	2.5	0.8	<0.1
9D15/C	PWTP Fine Filters (Conditioned)	LLW	5.8	0	5.8	15.6	0.8
9D17	PWTP Fine Filters (ILW)	ILW	20.6	15.7	36.3	94.8	8.0
9D18	Desiccant	ILW	2.4	4.2	6.6	0	0
9D22	Sludge	ILW	20.7	0	20.7	154	13.0
9D23	Sludge	ILW	12.9	0	12.9	94.8	8.0
9D24	Sludge	ILW	19.4	0	19.4	142	12.0
9D25	Ion Exchange Material	ILW	44.0	0	44.0	88.0	169
9D26	Ion Exchange Material	ILW	15.0	0	15.0	59.3	5.0
9D27	Ion Exchange Material	ILW	27.0	0	27.0	94.8	8.0
9D28	Ion Exchange Material	ILW	29.4	0	29.4	63.7	123
9D29	Ion Exchange Material	ILW	29.2	0.8	30.0	45.8	88.1
9D30	Miscellaneous Contaminated Items	ILW	1.3	0	1.3	11.9	1.0
9D32	Contaminated Sand	ILW	1.0	0	1.0	11.9	1.0
9D33	FED Magnox R1	ILW	207.0	0	207.0	391	33.0
9D34	FED Magnox R2	ILW	218.0	0	218.0	403	34.0
9D35	Miscellaneous Activated Components R1	ILW	68.0	0	68.0	111	5.6
9D36	Miscellaneous Activated Components R2	ILW	68.0	0	68.0	111	5.6
9D37	Miscellaneous Activated Components R1	ILW	2.1	0	2.1	3.4	0.2
9D38	Miscellaneous Activated Components R2	ILW	2.1	0	2.1	3.4	0.2
9D39	FED Nimonic R1	ILW	0.4	0	0.4	21.1	16.0
9D40	FED Nimonic R2	ILW	0.4	0	0.4	20.8	15.8
9D41	FED Magnox - R1	ILW	165.0	0	165.0	308	26.0
9D42	FED Magnox - R2	ILW	155.0	0	155.0	284	24.0
9D43	FED Nimonic - R1	ILW	0.1	0	0.1	5.3	4.0
9D44	FED Nimonic - R2	ILW	0.1	0	0.1	2.6	2.0
9D45	Contaminated Gravel	ILW	10.0	0	10.0	23.7	2.0
9D46	Contaminated Gravel	ILW	10.0	0	10.0	23.7	2.0
9D47	Contaminated Sand	ILW	6.8	0	6.8	27.0	51.9
9D48	Miscellaneous Contaminated Items	LLW	6.7	0	6.7	13.1	0.7

Site Owner – Waste Custodian - Site		Waste type	Reported volume (m^3)			When all wastes at 1.4.2016 and future arisings are packaged	
Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
9D49	Ion Siv Unit Pre Filters	ILW	2.2	0	2.2	11.9	1.0
9D50	Ion Siv Unit Cartridges	ILW	0.4	0	0.4	1.5	3.0
9D51	Ion Siv Unit Post Filters	ILW	0.4	0	0.4	11.9	1.0
9D52	Miscellaneous Activated Components from R1 Pond	ILW	6.0	0	6.0	48.8	93.8
9D53	VLLW Asbestos and MMMF	VLLW	0.3	0	0.3	0.3	0
9D54	Miscellaneous Activated Components from R2 pond	ILW	7.0	0	7.0	56.9	109
9D60	Sand in Sand Pressure Filters - PWTP	ILW	4.8	14.4	19.2	142	12.0
9D64	Contaminated Gravel	ILW	6.6	0	6.6	29.6	56.9
9D65	Ion Exchange Material	ILW	3.4	0	3.4	6.7	13.0
9D66	Contaminated Gravel	ILW	2.0	0	2.0	10.8	0.9
9D67	FED Sludge - R1	ILW	5.0	0	5.0	35.5	3.0
9D68	FED Sludge - R2	ILW	5.0	0	5.0	35.5	3.0
9D69	FED Sludge - R1	ILW	10.0	0	10.0	71.1	6.0
9D70	FED Sludge - R2	ILW	10.0	0	10.0	71.1	6.0
9D71	Ion Exchange Material	LLW	0	38.0	38.0	309	15.8
9D72	Sludge/resin from operational clean-up	ILW	3.1	9.0	12.1	11.9	1.0
9D73	Miscellaneous Activated Components R1	ILW	30.0	0	30.0	49.0	2.4
9D74	Miscellaneous Activated Components - R2	ILW	30.0	0	30.0	49.0	2.4
9D75	Vacuum Debris	LLW	0.8	0	0.8	1.6	0.1
9D76	AETP Sludge LLW	LLW	0	0.6	0.6	3.5	0.2
9D77	Desiccant (LLW)	LLW	2.5	0	2.5	0.8	<0.1
9D78	IonSiv Unit Pre Filters (LLW)	LLW	9.6	0	9.6	29.6	1.5
9D79	IonSiv Unit Post Filters (LLW)	LLW	4.3	0	4.3	13.2	0.7
9D80	MCI Metallic, contaminated metal from Pond operations	ILW	4.7	0	4.7	11.9	1.0
9D81	MCI Concrete, contaminated concrete blocks from Pond operations	ILW	1.2	0	1.2	11.9	1.0
9D82	Vacuum Debris (ILW)	ILW	1.5	0	1.5	11.9	1.0
9D83	Incinerator Ash (ILW)	ILW	0.8	0	0.8	11.9	1.0
9D84	Skip Store Skip Coating	ILW	1.4	0	1.4	20.0	1.7
9D913	Pond & Effluent Treatment Plant LLW	LLW	174.7	1,129.5	1,304.2	807	38.0
9D914	General Reactor LLW	LLW	34.0	1,665.0	1,699.0	697	34.0
9D916	C&M Preps LLW Buildings	LLW	0	177.5	177.5	113	5.3
9D917	Sludge/Resin from Post Operational Clean Out	ILW	0	0.7	0.7	11.9	1.0
9D918	Ponds and Magnox Vault Wall Scabblings	LLW	2.0	0	2.0	11.8	0.6

Site Owner – Waste Custodian - Site		Waste type	Reported volume (m^3)			When all wastes at 1.4.2016 and future arisings are packaged	
Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
9D919	Settling Tank Bitumen Linings	ILW	0	2.3	2.3	11.9	1.0
9D920	Miscellaneous Decommissioning ILW from Plant Items.	ILW	0	10.0	10.0	23.7	2.0
9D921	Sludge Canning Building Plant Items	ILW	0	6.2	6.2	11.9	1.0
9D922	Sludge Canning Building Decommissioning LLW	LLW	0	172.3	172.3	188	9.3
9D923	Redundant Sealed Sources	LLW	0.3	0	0.3	1.9	0.1
9D925	Ponds & Magnox Vault ILW Scabblings	ILW	2.8	0	2.8	5.3	1.0
9D926	ILW Skip Millings	ILW	0.1	0	0.1	0.1	0.1
9D927	VLLW Metallic waste from skip milling operations	VLLW	2.0	0	2.0	2.0	0
9D928	Effluent Treatment Plant Sludge	VLLW	2.0	0	2.0	2.0	0
9D929	LLW DNA skips	LLW	1.5	0	1.5	3.8	0.2
9D930	Bradwell ILW skips	ILW	1.6	0	1.6	3.3	0.3
9D931	Sellafield ILW skip	ILW	0.5	0	0.5	11.9	1.0
9D932	Sellafield LLW Skips	LLW	1.0	0	1.0	2.5	0.1
9D106	General Reactor LLW	LLW	0	116.0	116.0	38.4	1.9
9D310	Stainless Steel (Reactor) ILW	ILW	0	61.0	61.0	75.4	3.8
9D311	Mild Steel (Reactor) ILW	ILW	0	384.0	384.0	475	23.7
9D312	Graphite ILW	ILW	0	3,555.0	3,555.0	4,390	219
9D313	Miscellaneous Metal (Reactor) ILW	ILW	0	12.0	12.0	25.7	1.3
9D314	Mild Steel (Reactor) LLW	LLW	0	913.0	913.0	1,780	91.3
9D315	Mild Steel (Non-Reactor) LLW	LLW	0	4,578.0	4,578.0	8,930	458
9D316	Graphite LLW	LLW	0	47.0	47.0	58.1	2.9
9D317	Concrete (Reactor and Non-Reactor) LLW	LLW	0	27,019.0	27,019.0	52,700	2,700
9D318	Miscellaneous Metals and Materials (Reactor and Non-Reactor) LLW	LLW	0	1,380.0	1,380.0	2,690	138
9D319	Secondary Wastes LLW	LLW	0	1,038.0	1,038.0	2,020	104
9D320	Stainless Steel (Reactor) LLW	LLW	0	0.1	0.1	0.2	<0.1
9D321	Contaminated Soil LLW	LLW	0	710.0	710.0	1,380	71.0
9D322	Reactor Neutron Sources R1	ILW	0	0.5	0.5	0.6	<0.1
9D323	Reactor Neutron Sources R2	ILW	0	0.5	0.5	0.6	<0.1
9D324	Debris in Debris Removal Ducts R1	ILW	0	1.0	1.0	1.2	0.1
9D325	Debris in Debris Removal Ducts R2	ILW	0	1.0	1.0	1.2	0.1
9D326	Mild Steel (Reactor) Recycle LLW	LLW	0	2,051.0	2,051.0	0	0
NDA - Magnox Limited - Oldbury							
9E01	Sludge	ILW	13.0	14.0	27.0	5.3	4.0

Site Owner – Waste Custodian - Site		Waste type	Reported volume (m^3)			When all wastes at 1.4.2016 and future arisings are packaged	
Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
9E13	AETP LLW	LLW	1.8	9.0	10.8	9.5	0.5
9E14	Ponds and Other Wet Fuel Routes LLW	LLW	2.6	55.0	57.6	50.5	2.6
9E17	Sludge	ILW	11.9	11.0	22.9	4.0	3.0
9E20	Ion Exchange Material	ILW	14.7	6.2	20.9	54.4	10.0
9E22	Miscellaneous Contaminated Items	ILW	11.3	1.0	12.3	5.4	1.0
9E23	Miscellaneous Contaminated Items	ILW	9.7	2.0	11.7	16.3	3.0
9E24	FED Magnox	ILW	81.4	0	81.4	82.8	4.1
9E25	FED Magnox	ILW	81.4	0	81.4	82.8	4.1
9E26	FED Magnox	ILW	85.3	0	85.3	86.8	4.3
9E27	FED Magnox	ILW	85.3	0	85.3	86.8	4.3
9E28	FED Magnox	ILW	75.4	2.0	77.4	78.8	3.9
9E31	Miscellaneous Activated Components	ILW	52.1	0	52.1	64.4	3.2
9E32	Miscellaneous Activated Components	ILW	70.1	0	70.1	86.7	4.3
9E39	Miscellaneous Activated Components	ILW	1.0	0	1.0	1.2	0.1
9E40	FED Nimonic	ILW	0.1	0	0.1	5.3	4.0
9E41	FED Nimonic	ILW	0.2	0	0.2	7.8	5.9
9E43	FED Nimonic	ILW	0.1	0	0.1	5.3	4.0
9E45	Sludge	ILW	15.6	0	15.6	10.9	2.0
9E47	Desiccant	ILW	6.2	0	6.2	0	0
9E49	Contaminated Gravel	ILW	4.0	0	4.0	10.9	2.0
9E50	Contaminated Gravel	ILW	4.0	0	4.0	10.9	2.0
9E54	Contaminated Oil	LLW	1.0	11.0	12.0	0	0
9E55	Ion Siv Unit Pre Filters	ILW	2.2	0	2.2	10.9	2.0
9E56	Ion Siv Unit Cartridges	ILW	0.4	0	0.4	5.3	4.0
9E57	Ion Siv Unit Post Filters	ILW	2.1	0	2.1	9.2	7.0
9E58	Dry Fuel Route (excl BCD) LLW	LLW	5.3	10.0	15.3	6.0	0.3
9E59	BCD LLW	LLW	0	0.3	0.3	0.5	<0.1
9E60	Active Waste Store, Active Laundry LLW	LLW	0.2	8.0	8.2	3.2	0.2
9E61	Fuel Skips in Pond	ILW	0	191.0	191.0	453	38.2
9E63	Redundant Sources	LLW	<0.1	0	<0.1	<0.1	<0.1
9E68	Active Effluent Treatment Plant Fine Filters	LLW	0.5	1.5	2.0	3.9	0.2
9E69	Pond Filtration Plant Fine Filters	LLW	1.7	1.4	3.1	6.0	0.3
9E913	Care & Maintenance Preparation : AETP LLW	LLW	0	526.7	526.7	863	44.2

Site Owner – Waste Custodian - Site		Waste type	Reported volume (m^3)			When all wastes at 1.4.2016 and future arisings are packaged	
Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
9E914	Ponds and Other Wet Fuel Routes LLW	LLW	0	161.3	161.3	220	11.3
9E958	Dry Fuel Route (excluding BCD) LLW	LLW	0	200.0	200.0	199	10.2
9E960	Active Waste Store, Active Laundry LLW	LLW	0	182.9	182.9	267	13.7
9E961	Ion Siv Unit Cartridges	ILW	0.4	0	0.4	11.7	8.8
9E962	Ion Siv Unit Cartridges	ILW	0.3	0	0.3	8.9	6.8
9E963	Ion Siv Unit Cartridges	ILW	0.4	0	0.4	5.3	4.0
9E964	Ion Siv Unit Pre Filters	ILW	0.1	0	0.1	2.0	1.5
9E965	Ion Siv Unit Pre Filters	ILW	0.1	0	0.1	2.0	1.5
9E104	Care & Maintenance : Dry Fuel Route LLW	LLW	0	138.0	138.0	140	7.0
9E310	Stainless Steel (Reactor) ILW	ILW	0	80.5	80.5	173	8.7
9E311	Mild Steel (Reactor) ILW	ILW	0	489.1	489.1	605	30.2
9E312	Stainless Steel (Reactor) Recycle LLW	LLW	0	68.1	68.1	0	0
9E313	Mild Steel (Reactor) LLW	LLW	0	266.0	266.0	519	26.6
9E315	Graphite LLW	LLW	0	1,890.0	1,890.0	2,340	117
9E316	Concrete (Reactor and Non-Reactor) LLW	LLW	0	58,029.0	58,029.0	113,000	5,800
9E317	Miscellaneous Metals and Materials (Reactor and Non-Reactor) LLW	LLW	0	99.0	99.0	193	9.9
9E318	Secondary Wastes LLW	LLW	0	1,206.0	1,206.0	2,350	121
9E319	Graphite ILW	ILW	0	3,303.0	3,303.0	4,080	204
9E320	Miscellaneous Metals (Reactor) ILW	ILW	0	0.1	0.1	0.1	<0.1
9E321	Final Dismantling & Site Clearance : Contaminated Soil LLW	LLW	0	1,000.0	1,000.0	1,950	100
9E322	Final Dismantling & Site Clearance : Mild Steel (Reactor) Recycle LLW	LLW	0	1,481.0	1,481.0	0	0
9E323	Dry Fuel Route (excluding BCD) LLW	LLW	0	3,513.2	3,513.2	3,490	179
9E324	BCD LLW	LLW	0	114.9	114.9	137	7.0
NDA - Magnox Limited - Sizewell A							
9F02	Ion Exchange Material	LLW	2.0	0	2.0	16.3	0.8
9F14	Desiccant and Catalyst from Gas Conditioning Plant	ILW	8.3	0	8.3	0	0
9F17	Sludge	LLW	12.8	0	12.8	104	5.3
9F18	Miscellaneous Drummed Contaminated and Activated Items	ILW	90.0	0	90.0	176	9.0
9F19	Miscellaneous Drummed Contaminated and Activated Items	LLW	48.0	0	48.0	0	0
9F23	FED Magnox	LLW	286.0	0	286.0	387	19.9
9F25	Miscellaneous Activated Components	ILW	145.0	0	145.0	179	9.0
9F26	Miscellaneous Activated Components - R1	ILW	142.0	0	142.0	176	8.8
9F27	Miscellaneous Activated Components - R2	ILW	113.0	0	113.0	140	7.0

Site Owner – Waste Custodian - Site		Waste type	Reported volume (m^3)			When all wastes at 1.4.2016 and future arisings are packaged	
Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
9F28	Shield Cooling Air Filters - R1	LLW	12.7	0	12.7	24.8	1.3
9F29	Shield Cooling Air Filters - R2	LLW	15.6	0	15.6	30.4	1.6
9F31	Ion Siv Unit Filters	LLW	5.1	0	5.1	17.2	0.9
9F33	Ion Siv Unit Filters	ILW	0.4	0	0.4	0.8	0.2
9F37	Sludge	ILW	0	11.0	11.0	10.9	2.0
9F38	PWTP Filters - Sand and Gravel	ILW	0	9.4	9.4	22.0	4.0
9F39	Fuel Skips in Pond	ILW	86.0	0	86.0	75.9	6.4
9F42	AETP Filters - Sand and Gravel	ILW	0	2.3	2.3	17.9	0.9
9F43	FED Nimonic/Zirconium	ILW	<0.1	0	<0.1	1.3	1.0
9F44	Pond Sludge	ILW	4.1	0	4.1	5.4	1.0
9F45	Fuel Bottle	ILW	0.5	0	0.5	2.6	2.0
9F46	Fuel Skips in Pond	LLW	113.0	0	113.0	220	11.3
9F910	Reactor Area LLW	LLW	0	220.0	220.0	148	7.6
9F911	Ponds and Effluent Treatment Plant LLW	LLW	0	372.0	372.0	673	34.5
9F913	VLLW Reactor Area Lagging	VLLW	0	56.0	56.0	56.0	0
9F950	Redundant Sealed Sources	LLW	0	0.5	0.5	0.6	<0.1
9F105	Care & Maintenance LLW	LLW	0	130.0	130.0	57.3	2.9
9F310	Stainless Steel (Reactor) ILW	ILW	0	19.0	19.0	23.5	1.2
9F311	Mild Steel (Reactor) ILW	ILW	0	398.0	398.0	492	24.6
9F312	Graphite ILW	ILW	0	3,606.0	3,606.0	4,460	223
9F313	Miscellaneous Metal (Reactor) ILW	ILW	0	2.4	2.4	5.1	0.3
9F314	Stainless Steel (Reactor) Recycle LLW	LLW	0	0.9	0.9	0	0
9F315	Mild Steel (Reactor) LLW	LLW	0	569.0	569.0	1,110	56.9
9F316	Mild Steel (Non-Reactor) LLW	LLW	0	2,774.0	2,774.0	5,410	277
9F318	Concrete (Reactor and Non-Reactor) LLW	LLW	0	23,501.0	23,501.0	45,800	2,350
9F319	Miscellaneous Metals and Materials (Reactor and Non-Reactor) LLW	LLW	0	1,385.0	1,385.0	2,700	139
9F320	Secondary Wastes LLW	LLW	0	1,043.0	1,043.0	2,030	104
9F321	Contaminated Soil LLW	LLW	0	308.0	308.0	601	30.8
9F322	Mild Steel (Reactor) Recycle LLW	LLW	0	2,475.0	2,475.0	0	0
9F323	Ponds and Effluent Treatment Plant LLW	LLW	0	291.8	291.8	528	27.1
9F324	Reactor Area LLW/VLLW	LLW	0	949.4	949.4	637	32.7
NDA - Magnox Limited - Trawsfynydd							
9G04/C	Ion Exchange Material Conditioned Waste	ILW	300.0	0	300.0	1,320	65.9

Site Owner – Waste Custodian - Site		Waste type	Reported volume (m^3)			When all wastes at 1.4.2016 and future arisings are packaged	
Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
9G15	FED Drummed Magnox	ILW	43.3	0	43.3	66.8	20.4
9G16/C	Sludge - Conditioned Material	ILW	67.2	0	67.2	91.6	28.0
9G18/C	Ion Exchange Material - Conditioned Waste	ILW	656.0	0	656.0	2,880	144
9G19/C	Ion Exchange Material - Conditioned Waste	ILW	215.0	0	215.0	968	48.3
9G20/C	Ion Exchange Material - Conditioned Waste	ILW	187.7	0	187.7	841	42.0
9G34	FED Magnox	ILW	118.3	0	118.3	127	38.8
9G34/C	FED Magnox	ILW	33.7	0	33.7	40.8	12.5
9G35	FED Magnox	ILW	176.0	0	176.0	189	57.7
9G36/C	Conditioned Miscellaneous Activated Components	ILW	43.2	0	43.2	52.3	16.0
9G37/C	Conditioned Miscellaneous Activated Components	ILW	43.2	0	43.2	52.3	16.0
9G38	Miscellaneous Activated Components	ILW	21.0	0	21.0	26.0	1.3
9G39	Miscellaneous Activated Components	ILW	21.0	0	21.0	26.0	1.3
9G40	FED Nimonic	ILW	0.2	0	0.2	0.2	0.1
9G41	FED Nimonic	ILW	0.3	0	0.3	0.3	0.1
9G48/C	Encapsulated Skips and Debris from Fuel Cooling Pond	ILW	8.1	0	8.1	9.8	3.0
9G49	Contaminated Oil - Drummed	LLW	24.0	0	24.0	0	0
9G64	Miscellaneous Contaminated Items	ILW	4.1	0	4.1	5.0	8.8
9G66	Miscellaneous Contaminated Items	LLW	2.0	0	2.0	2.4	0.1
9G69	Miscellaneous Contaminated Items - Debris from Fuel Cooling Ponds	ILW	0.7	0	0.7	0.8	0.2
9G71	Diversion Culvert Silt	LLW	52.0	0	52.0	0	0
9G72	Ponds - Acceptance Bays Gravel & Sand from North and South Acceptance Bays - Gravel	ILW	1.6	0	1.6	9.0	2.8
9G73	Wet / Mobile Waste - WRATS	ILW	3.0	0	3.0	8.2	2.5
9G74	Wet / Mobile Waste - WRATS	LLW	2.0	0	2.0	2.6	0.1
9G76	Concrete from Base of Magnox Debris South Vault	ILW	0	7.7	7.7	9.3	2.9
9G77	Concrete from Base of Magnox Debris North Vault	ILW	0	7.7	7.7	9.3	2.9
9G78	MSV and RV1 WRATS	ILW	25.4	0	25.4	69.2	21.2
9G78/C	MSV and RV1 WRATS	ILW	1.4	0	1.4	3.3	1.0
9G79	Ponds Sampling Drain 7 Components	ILW	1.3	0	1.3	14.7	4.5
9G104	Resin Vaults LLW	LLW	0	208.0	208.0	86.6	3.3
9G105	Reactor LLW	LLW	33.8	213.2	246.9	164	5.8
9G106	Ponds LLW	LLW	118.4	301.8	420.2	324	8.0
9G107/C	Ion Exchange Material	ILW	106.9	0	106.9	457	22.8

Site Owner – Waste Custodian - Site		Waste type	Reported volume (m^3)			When all wastes at 1.4.2016 and future arisings are packaged	
Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
9G109	Pond Scabbling Wastes	LLW	30.0	80.5	110.5	202	9.6
9G110	Reactor LLW	LLW	0	92.0	92.0	60.8	3.0
9G113	CDVAR Plates	LLW	0.2	0.5	0.7	76.9	3.9
9G114	Reactor VLLW	VLLW	5.0	0	5.0	5.0	0
9G115	Asbestos Stripped from Primary Cooling Circuit	LLW	26.5	0	26.5	33.2	1.7
9G118	Active Drains	LLW	6.1	0	6.1	6.1	0
9G119	Oil Separator Sludge (Reactor Building Oil Separators)	LLW	0.4	0	0.4	0	0
9G121	Active Drains (Final Delay Tank)	LLW	3.4	0	3.4	1.0	0
9G122	Ponds Oil Separator Tank (OST)	LLW	5.5	0	5.5	0	0
9G123	Ponds North Void FED debris	ILW	0	1.4	1.4	1.7	0.5
9G124	Loose Particulate Waste North and South FED vaults	ILW	0	3.8	3.8	4.6	1.4
9G125	R2 Pressure Vessel Sampling Inspection Equipment	ILW	0	3.0	3.0	3.6	1.4
9G126	DWTP Sand Filtration Vessel	ILW	0	3.0	3.0	3.6	1.4
9G127	Diversion Culvert Oil Interceptor (DCOI) Oil Sump	LLW	15.8	4.3	20.0	26.4	1.4
9G128	Active Waste Vaults LLW	LLW	10.9	0	10.9	14.4	0.7
9G129	Active Waste Vaults ILW	ILW	2.0	0	2.0	2.5	4.3
9G130	Flux Detectors	ILW	0	1.0	1.0	1.8	0.5
9G131	AETP Sand & Sludge	ILW	0	6.5	6.5	11.7	3.3
9G309	Stainless Steel (Reactor) ILW	ILW	0	51.6	51.6	111	5.5
9G310	Mild Steel (Reactor) ILW	ILW	0	1,157.7	1,157.7	1,430	71.5
9G311	Graphite ILW	ILW	0	3,432.0	3,432.0	4,240	212
9G312	Miscellaneous Metal (Reactor) ILW	ILW	0	10.3	10.3	22.2	1.1
9G313	Stainless Steel (Reactor) Recycle LLW	LLW	0	10.0	10.0	0	0
9G314	Mild Steel (Reactor) LLW	LLW	0	1,328.0	1,328.0	2,590	133
9G315	Mild Steel (Non-Reactor) LLW	LLW	0	3,475.0	3,475.0	6,780	348
9G316	Graphite LLW	LLW	0	48.0	48.0	59.3	3.0
9G317	Concrete (Reactor and Non-Reactor) LLW	LLW	0	34,645.0	34,645.0	67,600	3,460
9G318	Miscellaneous Metals and Materials (Reactor and Non-Reactor) LLW	LLW	0	766.0	766.0	1,490	76.6
9G319	Secondary Wastes LLW	LLW	0	1,092.0	1,092.0	2,130	109
9G320	Contaminated Soil LLW	LLW	0	3,200.0	3,200.0	6,240	320
9G321	Mild Steel (Reactor) Recycle LLW	LLW	0	2,079.0	2,079.0	0	0
NDA - Magnox Limited - Wylfa							
9H02	Desiccant	ILW	6.7	0	6.7	0	0

Site Owner – Waste Custodian - Site		Waste type	Reported volume (m^3)			When all wastes at 1.4.2016 and future arisings are packaged	
Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
9H11	Pile Cap, Dry Fuel Store and Associated Areas LLW	LLW	44.0	135.0	179.0	43.3	1.5
9H12	Flask Handling Area, AETP and Laundry LLW	LLW	13.0	45.0	58.0	18.8	0.8
9H13	Incinerator Ash LLW	LLW	0.4	0	0.4	0.5	<0.1
9H14	Auxiliary Gas Systems LLW	LLW	49.0	9.0	58.0	0	0
9H15	Sludge	LLW	27.1	8.5	35.6	289	14.8
9H16	Sludge	LLW	6.6	1.7	8.3	67.4	3.5
9H17	Sludge	LLW	6.6	1.7	8.3	67.4	3.5
9H18	Miscellaneous Activated Components	ILW	268.0	9.0	277.0	342	17.1
9H19	Miscellaneous Activated Components	ILW	268.0	9.0	277.0	342	17.1
9H20	Miscellaneous Activated Components	ILW	299.1	10.5	309.6	383	19.1
9H21	Contaminated Waste Oil	LLW	4.5	178.0	182.5	0	0
9H24	Burst Can Detector Coolers	ILW	2.0	2.5	4.5	5.4	1.0
9H25	Type H Cleaner Bags	ILW	1.4	0.5	1.9	5.4	1.0
9H26	DSC4 Uranic Corrosion Debris	ILW	<0.1	0	<0.1	4.4	3.3
9H27	Auxiliary Gas Systems	ILW	3.0	6.0	9.0	21.8	4.0
9H28	Redundant Sealed Sources	LLW	0.1	0	0.1	0.4	<0.1
9H29	Dry Store Cell 4 Residue	LLW	1.0	8.0	9.0	0.9	<0.1
9H32	Water/Sludge Active Incinerator Effluent Tanks	LLW	60.0	0	60.0	0	0
9H911	Pile Cap, Dry Fuel Store and Associated Areas LLW	LLW	0	673.8	673.8	133	6.7
9H912	Flask Handling Area and AETP LLW	LLW	0	217.3	217.3	42.6	2.1
9H914	Auxiliary Gas Systems LLW	LLW	0	56.9	56.9	4.4	0.2
9H928	Auxiliary Gas Systems	ILW	0	1.1	1.1	5.4	1.0
9H929	Incinerator Building - LLW	LLW	0	36.9	36.9	72.0	3.7
9H930	Dry Store Cell 4	LLW	0	151.1	151.1	34.1	1.4
9H931	Dry Store Cell 4 Skip Debris	ILW	0	0.4	0.4	1.2	0.9
9H104	Care & Maintenance LLW	LLW	0	144.0	144.0	190	9.5
9H309	Stainless Steel (Reactor) ILW	ILW	0	75.0	75.0	122	6.1
9H310	Mild Steel (Reactor) ILW	ILW	0	371.0	371.0	459	22.9
9H311	Graphite ILW	ILW	0	5,915.0	5,915.0	7,310	365
9H312	Stainless Steel (Reactor) Recycle LLW	LLW	0	287.0	287.0	0	0
9H313	Mild Steel (Reactor) LLW	LLW	0	51.0	51.0	99.5	5.1
9H315	Graphite LLW	LLW	0	2,737.0	2,737.0	3,380	169
9H316	Concrete (Reactor and Non-Reactor) LLW	LLW	0	57,208.0	57,208.0	112,000	5,720

Site Owner – Waste Custodian - Site		Waste type	Reported volume (m^3)			When all wastes at 1.4.2016 and future arisings are packaged	
Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
9H317	Miscellaneous Metals and Materials (Reactor and Non-Reactor) LLW	LLW	0	224.0	224.0	437	22.4
9H318	Secondary Wastes LLW	LLW	0	1,571.0	1,571.0	3,060	157
9H319	Miscellaneous Metals (Reactor) ILW	ILW	0	21.9	21.9	47.2	2.4
9H322	Mild Steel (Reactor) Recycle LLW	LLW	0	3,937.0	3,937.0	0	0
9H323	Pile Cap, Dry Fuel Store and Associated Areas LLW	LLW	0	683.3	683.3	140	7.0
9H324	Flask Handling Area and AETP LLW	LLW	0	77.9	77.9	16.9	0.9
9H325	Auxiliary Gas Systems LLW	LLW	0	41.1	41.1	3.2	0.2
9H326	Incinerator Building - LLW	LLW	0	65.4	65.4	127	6.5
9H327	Dry Store Cell 4	LLW	0	203.0	203.0	117	5.5
NDA - Magnox Limited - Hunterston A							
9J03	Ion Exchange Resins	ILW	11.7	0	11.7	34.7	13.3
9J18	FED Graphite	ILW	4.0	0	4.0	8.8	2.7
9J19	FED Graphite	ILW	501.3	0	501.3	964	295
9J20	FED Graphite	ILW	460.3	0	460.3	926	283
9J21	FED Graphite	ILW	447.2	0	447.2	981	300
9J22	FED Graphite	ILW	86.9	0	86.9	191	58.3
9J23	FED Magnox	ILW	563.7	0	563.7	670	205
9J24	FED Magnox	ILW	1.1	0	1.1	1.1	0.4
9J25	FED Magnox	ILW	0.4	0	0.4	0.4	0.1
9J26	Miscellaneous Contaminated Items	ILW	26.7	0	26.7	49.2	18.4
9J27	Miscellaneous Contaminated Items	ILW	22.5	0	22.5	28.3	8.7
9J28	Miscellaneous Contaminated Items	ILW	16.2	0	16.2	23.3	7.1
9J29	Miscellaneous Contaminated Items	ILW	17.9	0	17.9	35.3	10.8
9J30	Miscellaneous Contaminated Items	ILW	17.1	0	17.1	6.7	2.0
9J33	CCP Sludge	ILW	251.5	0	251.5	375	144
9J35	FED Fuel Channel Components	ILW	0.2	0	0.2	0.3	0.1
9J36	FED Fuel Channel Components	ILW	26.6	0	26.6	38.5	11.8
9J37	FED Fuel Channel Components	ILW	24.7	0	24.7	35.7	10.9
9J38	FED Fuel Channel Components	ILW	23.3	0	23.3	33.7	10.3
9J39	FED Fuel Channel Components	ILW	5.2	0	5.2	7.5	2.3
9J40	Miscellaneous Activated Components	ILW	0.8	0	0.8	0.8	0.2
9J41	Miscellaneous Activated Components	ILW	8.7	0	8.7	46.6	14.3
9J42	Miscellaneous Activated Components	ILW	0.4	0	0.4	2.1	0.6

Site Owner – Waste Custodian - Site		Waste type	Reported volume (m^3)			When all wastes at 1.4.2016 and future arisings are packaged	
Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
9J44	Miscellaneous Activated Components	ILW	0.2	0	0.2	1.0	0.3
9J45	Miscellaneous Activated Components R1	ILW	0.8	0	0.8	1.0	<0.1
9J46	Miscellaneous Activated Components R2	ILW	0.6	0	0.6	0.7	<0.1
9J52	Desiccant	ILW	3.4	0	3.4	13.9	4.3
9J54	Oil in Drums in LLW Transfer Facility	LLW	1.2	0	1.2	0	0
9J58	Residual Oils in Circulator Seals and Main Gas Valve	LLW	5.0	0	5.0	0	0
9J59	Ion Siv Cartridges	ILW	<0.1	<0.1	<0.1	3.0	0.9
9J60	Ion Siv Unit Post Filters	ILW	<0.1	<0.1	<0.1	3.0	0.9
9J61	Pond Skip Decontamination Liquor	ILW	140.0	0	140.0	338	130
9J948	Reactor and Auxiliary Building LLW	LLW	170.8	247.0	417.9	227	10.1
9J949	Pond and Effluent Treatment Plant LLW	LLW	44.3	570.6	614.9	751	23.7
9J952	Redundant Sealed Sources	LLW	0	0.1	0.1	0.1	<0.1
9J100	General Reactor LLW	LLW	0	96.0	96.0	8.5	0.4
9J301	Graphite ILW	ILW	0	3,434.0	3,434.0	4,250	212
9J302	Concrete (Reactor and Non-Reactor) LLW	LLW	0	29,212.0	29,212.0	57,000	2,920
9J303	Mild Steel (Reactor) ILW	ILW	0	246.0	246.0	304	15.2
9J306	Stainless Steel (Reactor) ILW	ILW	0	67.0	67.0	82.8	4.1
9J310	Stainless Steel (Reactor) Recycle LLW	LLW	0	5.2	5.2	0	0
9J311	Mild Steel (Reactor) LLW	LLW	0	818.0	818.0	1,600	81.8
9J312	Mild Steel (Non-Reactor) LLW	LLW	0	4,242.0	4,242.0	8,270	424
9J313	Graphite LLW	LLW	0	6.7	6.7	8.3	0.4
9J314	Miscellaneous Metals and Materials (Reactor and Non-Reactor) LLW	LLW	0	1,852.0	1,852.0	3,610	185
9J315	Secondary Wastes LLW	LLW	0	1,234.0	1,234.0	2,410	123
9J316	Miscellaneous Metals (Reactor) ILW	ILW	0	6.8	6.8	11.1	0.6
9J318	Mild Steel (Reactor) Recycle LLW	LLW	0	2,861.0	2,861.0	0	0
NDA - Magnox Limited - Berkeley Centre							
9R02	Miscellaneous ILW	ILW	11.0	0	11.0	27.5	52.9
9R10	ILW Ion Exchange Material	ILW	0.7	0	0.7	11.9	1.0
9R13	Steel Surveillance Canisters	ILW	0.4	0	0.4	1.0	2.0
9R14	Depleted Uranium	LLW	<0.1	0	<0.1	0.1	<0.1
9R15	Natural Uranium	LLW	<0.1	0	<0.1	0.1	<0.1
9R16	Low Enriched Uranium	LLW	<0.1	0	<0.1	0.1	<0.1
9R17	Irradiated Uranium	ILW	<0.1	0	<0.1	0.5	1.0

Site Owner – Waste Custodian - Site		Waste type	Reported volume (m^3)			When all wastes at 1.4.2016 and future arisings are packaged	
Stream Identifier	Title		At 1.4.2016	Future arisings	Total	Packaged volume (m^3)	Number of packages
9R18	Thorium	LLW	<0.1	0	<0.1	0.1	<0.1
9R19	Graphite Samples	ILW	<0.1	0	<0.1	0.5	1.0
9R101	Berkeley Centre Decommissioning : Primary ILW	ILW	10.2	25.6	35.8	94.8	8.0
9R102	Berkeley Centre Decommissioning : Primary LLW	LLW	108.0	257.0	365.0	300	11.2
9R111	Berkeley Centre Decommissioning: LLW Ion Exchange Material	LLW	0.1	0	0.1	0.5	<0.1
9R112	Redundant Radioactive Sources	ILW	0.1	0	0.1	0.1	0.1
9R113	Redundant Radioactive Sources	LLW	<0.1	0	<0.1	3.0	0.2
9R115	Miscellaneous Oily Wastes (WRATs)	LLW	0.2	0	0.2	2.0	0.2
9R116	High Enriched Uranium	LLW	<0.1	0	<0.1	0.1	<0.1
9R118	Radiochemical Laboratory Samples	ILW	0.7	0	0.7	2.1	4.0
9R121	Encapsulated Radioactive Sources	LLW	0	0.1	0.1	0.1	<0.1
NDA - Magnox Limited - Sellafield							
9Z201	Magnox Fuel Transport Flasks	LLW	0	351.0	351.0	34.2	1.8
9Z203	Rail Flatrols	LLW	0	39.0	39.0	76.1	3.9

ANNEX 4 RADIONUCLIDE COMPOSITION OF WASTES

This annex provides information on the radionuclide composition of HLW, ILW, LLW and VLLW.

Table A4.1 gives the radioactivities of radionuclides in all wastes at 1 April 2016 and at 1 April 2050 (decayed values). Figures A4.1-A4.4 show those radionuclides that are the major contributors to the radioactivities of HLW, ILW, LLW and VLLW respectively, and how these contributions change with time.

Table A4.1: Radionuclide activities for all wastes

Radionuclide	Half-life (years)	Radionuclide activity (TBq) [1]							
		At 1.4.2016				At 1.4.2150			
		HLW	ILW	LLW	VLLW	HLW	ILW	LLW	VLLW
H3	1.23E+01	1.1E+2	2.0E+4	5.1E+0	2.2E-5	-	2.6E+1	1.6E+0	1.2E-1
Be10	1.60E+06	3.9E-2	3.5E-1	8.3E-8	-	3.6E-2	3.6E-1	4.6E-7	-
C14	5.73E+03	3.6E+0	6.7E+2	1.8E-1	1.9E-6	-	9.7E+3	1.3E+1	6.3E-2
Na22	2.60E+00	-	9.6E-1	7.1E-5	-	-	3.1E-16	9.1E-17	-
Al26	7.17E+05	-	2.9E-2	-	-	-	2.9E-2	9.9E-3	-
Cl36	3.02E+05	1.7E+0	1.0E+1	6.3E-2	8.2E-7	1.5E+0	4.7E+1	2.2E+0	3.5E-2
Ar39	2.69E+02	-	5.2E-1	6.0E-5	-	-	1.2E+0	7.5E-4	-
Ar42	3.30E+01	-	1.3E-7	-	-	-	1.6E-5	-	-
K40	1.28E+09	-	1.4E-2	6.2E-5	7.4E-7	1.6E-18	6.8E-2	1.5E-4	1.1E-6
Ca41	1.03E+05	2.4E-1	3.9E+0	4.8E-3	-	1.7E-1	2.1E+1	6.9E+0	2.7E-4
Mn53	3.70E+06	1.4E-7	1.9E-5	6.6E-11	-	1.3E-7	3.3E-3	3.7E-10	-
Mn54	8.56E-01	1.8E+0	3.8E+3	7.7E-3	6.3E-9	-	2.9E-18	2.6E-17	1.9E-15
Fe55	2.70E+00	3.0E+3	5.2E+5	2.9E-1	5.4E-6	4.4E-12	2.2E-1	2.0E-6	1.8E-5
Co60	5.27E+00	1.5E+4	5.8E+5	8.9E-1	1.0E-4	2.9E-4	1.8E+0	1.1E-3	1.1E-4
Ni59	7.49E+04	3.2E+0	6.8E+3	1.0E-3	1.6E-10	3.0E+0	9.8E+3	2.0E+0	5.1E-8
Ni63	1.00E+02	3.6E+2	7.1E+5	5.2E-1	6.7E-6	1.3E+2	4.3E+5	4.4E+1	5.0E-2
Zn65	6.69E-01	2.1E-3	2.4E+2	4.2E-4	1.6E-9	-	-	-	-
Se79	3.77E+05	2.0E+1	1.1E+0	3.0E-7	-	1.7E+1	1.1E+0	6.9E-6	-
Kr81	2.10E+05	-	2.7E-6	6.6E-8	-	-	6.1E-2	3.2E-7	-
Kr85	1.07E+01	-	3.7E+3	1.9E-5	-	-	7.0E-1	3.6E-8	-

Radionuclide	Half-life (years)	Radionuclide activity (TBq) [1]							
		At 1.4.2016				At 1.4.2150			
		HLW	ILW	LLW	VLLW	HLW	ILW	LLW	VLLW
Rb87	4.80E+10	7.8E-3	3.0E-5	1.1E-5	-	6.8E-3	6.4E-4	5.3E-5	-
Sr90	2.91E+01	1.6E+7	2.8E+5	2.2E+0	6.5E-5	5.7E+5	1.2E+4	1.0E+0	4.5E-1
Zr93	1.53E+06	6.6E+2	3.5E+1	1.3E-5	-	5.8E+2	3.8E+1	8.3E-4	-
Nb91	6.80E+02	4.9E-12	3.3E-3	6.5E-9	-	3.9E-12	9.9E-2	5.7E-5	-
Nb92	3.50E+07	1.1E-9	1.8E-5	2.1E-13	-	1.0E-9	5.6E-5	8.6E-8	-
Nb93m	1.64E+01	4.1E+2	3.4E+1	1.2E-4	-	5.7E+2	1.3E+2	3.4E-1	-
Nb94	2.03E+04	2.2E-1	1.8E+2	3.1E-3	6.0E-9	1.8E-1	2.9E+2	3.4E-2	6.0E-9
Mo93	3.50E+03	2.5E-1	4.0E+1	2.7E-5	-	2.1E-1	8.5E+1	4.7E-1	-
Tc97	2.60E+06	9.6E-9	2.6E-8	7.6E-14	-	8.8E-9	4.2E-6	4.2E-13	-
Tc99	2.13E+05	3.2E+3	6.7E+2	1.5E-2	-	2.8E+3	1.1E+3	3.8E-1	2.9E-1
Ru106	1.01E+00	5.8E+4	1.9E+4	1.0E-3	-	-	1.8E-12	1.9E-13	1.2E-12
Pd107	6.50E+06	3.5E+1	6.3E-1	9.8E-8	-	3.0E+1	6.4E-1	1.8E-5	-
Ag108m	4.18E+02	2.5E-3	2.0E+3	8.9E-4	-	1.8E-3	1.8E+3	7.9E-2	-
Ag110m	6.84E-01	8.7E+0	1.4E+2	3.4E-4	1.2E-10	-	-	-	-
Cd109	1.27E+00	2.3E-3	1.8E+0	2.8E-5	-	-	-	-	-
Cd113m	1.41E+01	2.2E+3	2.2E+2	5.4E-5	-	2.3E+0	2.5E-1	3.5E-7	-
Sn119m	8.02E-01	7.5E-1	2.3E-3	8.9E-15	-	-	-	-	-
Sn121m	5.00E+01	5.3E+3	1.8E+2	1.7E-5	-	8.7E+2	4.0E+1	1.0E-2	-
Sn123	3.54E-01	3.1E-2	2.2E-4	5.4E-17	-	-	-	-	-
Sn126	2.30E+05	1.1E+2	2.9E+0	1.3E-6	-	9.5E+1	2.9E+0	1.8E-4	-
Sb125	2.73E+00	7.6E+4	4.3E+3	6.5E-3	8.7E-9	1.5E-10	6.2E-9	1.5E-8	4.1E-7
Sb126	3.39E-02	3.5E+1	2.8E+0	1.8E-7	-	1.3E+1	4.1E-1	2.6E-5	-
Te125m	1.59E-01	1.8E+4	4.4E+3	6.1E-4	-	3.7E-11	1.6E-9	3.8E-9	1.0E-7
Te127m	2.98E-01	1.6E-2	1.5E-7	-	-	-	-	-	-
I129	1.57E+07	1.0E-1	6.9E-1	4.8E-4	-	9.1E-2	7.7E-1	2.4E-3	6.7E-2
Cs134	2.06E+00	1.2E+5	5.4E+3	7.3E-3	1.1E-8	2.9E-15	5.3E-7	2.3E-8	2.2E-8
Cs135	2.30E+06	2.1E+2	6.6E+0	1.0E-5	-	1.9E+2	6.8E+0	1.8E-4	-
Cs137	3.00E+01	2.2E+7	4.8E+5	4.4E+0	3.4E-4	9.1E+5	2.3E+4	2.6E+0	2.8E-1
Ba133	1.05E+01	4.2E-4	5.4E-1	6.9E-4	3.2E-8	6.0E-8	2.8E-3	9.9E-5	3.3E-11

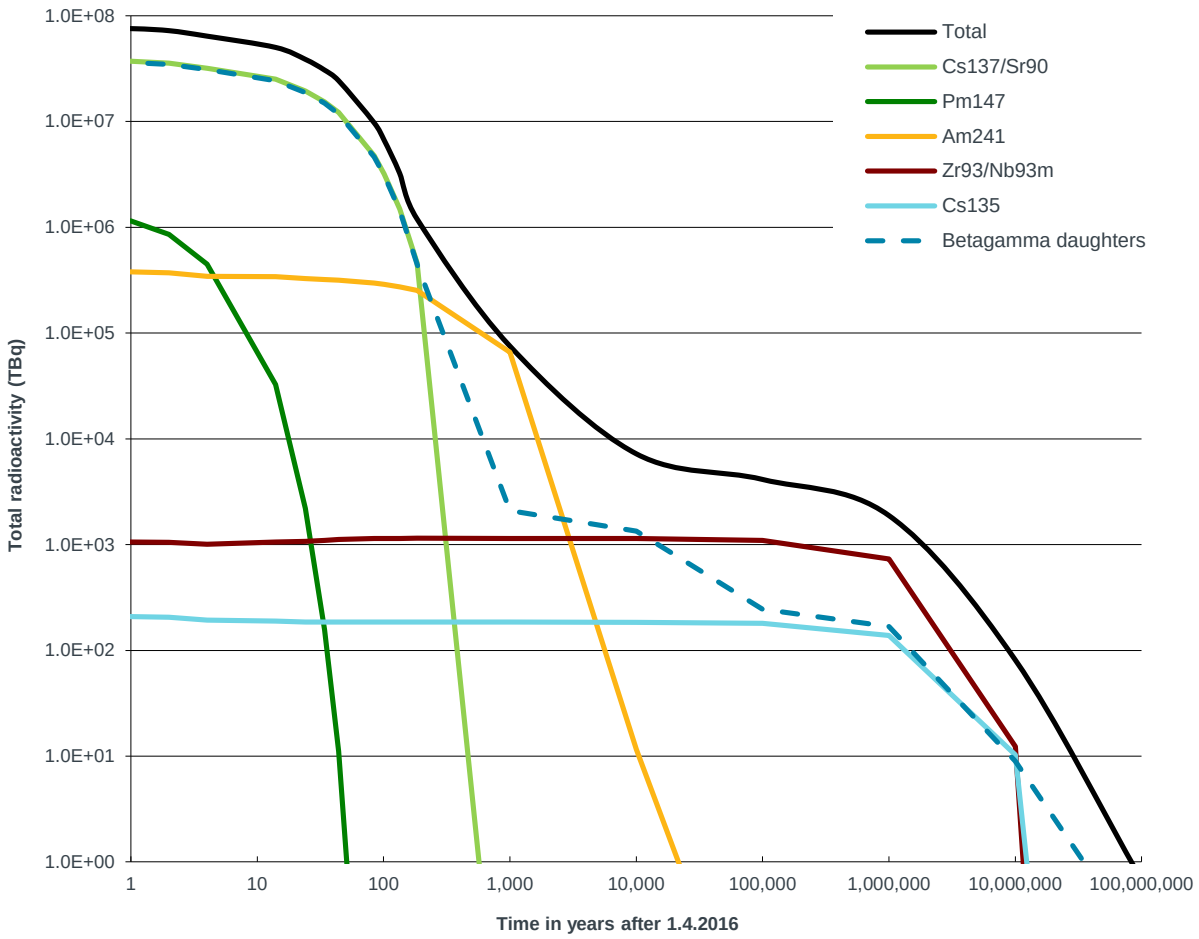
Radionuclide	Half-life (years)	Radionuclide activity (TBq) [1]							
		At 1.4.2016				At 1.4.2150			
		HLW	ILW	LLW	VLLW	HLW	ILW	LLW	VLLW
La137	6.00E+04	5.4E-4	7.7E-3	6.3E-10	-	4.9E-4	1.9E-2	1.2E-5	-
La138	1.05E+11	1.6E-8	4.1E-10	1.3E-15	-	1.4E-8	1.6E-8	7.0E-15	-
Ce144	7.80E-01	3.3E+4	2.2E+4	7.3E-4	-	-	1.8E-15	1.9E-16	2.9E-15
Pm145	1.77E+01	3.7E-2	1.6E+0	1.2E-7	-	1.2E-4	1.0E-2	9.1E-5	-
Pm147	2.62E+00	1.5E+6	3.1E+4	1.2E-2	9.8E-9	5.2E-10	4.3E-8	2.6E-8	1.8E-6
Sm147	1.06E+11	2.9E-3	1.6E-5	9.4E-11	-	2.6E-3	1.8E-5	5.7E-10	2.0E-12
Sm151	8.87E+01	1.3E+5	4.6E+3	2.1E-2	6.3E-7	4.1E+4	1.7E+3	5.6E-1	5.0E-4
Eu152	1.33E+01	1.1E+3	2.3E+4	6.7E-3	1.2E-10	1.0E+0	2.4E+1	2.3E-1	8.5E-8
Eu154	8.60E+00	3.1E+5	5.3E+3	8.4E-3	1.3E-7	5.0E+0	1.2E-1	3.5E-3	4.4E-5
Eu155	4.96E+00	6.2E+4	1.9E+3	2.4E-3	1.7E-8	2.5E-4	1.9E-5	2.1E-6	1.1E-5
Gd153	6.61E-01	4.5E-2	8.6E+0	8.5E-18	-	-	-	-	-
Ho163	4.57E+03	9.5E-6	1.8E-2	1.2E-7	-	8.5E-6	1.8E-2	1.2E-4	-
Ho166m	1.20E+03	8.9E-2	2.2E-2	8.6E-6	-	7.2E-2	4.7E-1	7.7E-3	-
Tm170	3.52E-01	3.0E-7	8.6E-2	-	-	-	-	-	-
Tm171	1.92E+00	7.3E-1	2.7E-2	3.7E-10	-	-	-	-	-
Lu174	3.31E+00	-	2.9E+0	5.6E-12	-	-	1.3E-11	-	-
Lu176	3.61E+10	-	1.0E-8	1.3E-14	-	-	2.5E-7	7.4E-14	-
Hf178n	3.10E+01	-	1.8E-3	7.2E-4	-	-	5.0E-2	4.0E-5	-
Hf182	8.99E+06	2.3E-10	4.2E-9	1.4E-14	-	2.1E-10	4.9E-5	7.6E-14	-
Pt193	5.07E+01	-	1.5E-1	6.4E-6	-	-	8.7E-1	5.1E-6	-
Tl204	3.78E+00	-	1.8E-1	6.9E-5	-	-	2.1E-8	8.3E-10	-
Pb205	1.52E+07	4.9E-7	1.0E-4	1.4E-5	-	4.8E-7	1.3E-4	7.8E-5	-
Pb210	2.23E+01	1.7E-4	1.5E+0	2.2E-3	1.7E-6	3.0E-3	9.0E+0	2.2E-1	7.1E-2
Bi208	3.68E+05	-	1.1E-7	5.3E-13	-	-	2.2E-5	3.0E-12	-
Bi210m	3.00E+06	1.6E-11	6.0E-7	2.6E-9	-	1.5E-11	1.9E-5	7.9E-6	-
Po210	3.79E-01	1.6E-4	4.1E-1	1.2E-3	1.4E-6	3.0E-3	9.0E+0	2.2E-1	7.1E-2
Ra223	3.13E-02	4.0E-3	3.2E-1	9.2E-8	9.9E-7	7.0E-3	1.0E-1	1.7E-4	3.4E-4
Ra225	4.08E-02	2.5E-5	3.3E-3	6.5E-9	-	1.8E-4	2.5E-2	8.3E-6	2.0E-3
Ra226	1.60E+03	5.8E-4	9.2E+0	4.0E-2	2.0E-5	3.7E-3	9.0E+0	2.3E-1	8.4E-2

Radionuclide	Half-life (years)	Radionuclide activity (TBq) [1]							
		At 1.4.2016				At 1.4.2150			
		HLW	ILW	LLW	VLLW	HLW	ILW	LLW	VLLW
Ra228	5.75E+00	4.1E-8	2.1E-1	1.1E-4	5.0E-7	4.1E-8	2.6E-1	9.6E-4	1.1E-2
Ac227	2.18E+01	4.0E-3	7.5E-1	9.4E-8	9.9E-7	7.0E-3	1.0E-1	1.6E-4	3.4E-4
Th227	5.12E-02	4.0E-3	3.2E-1	9.2E-8	9.8E-7	6.9E-3	1.0E-1	1.6E-4	3.4E-4
Th228	1.91E+00	2.7E-1	1.2E+0	2.3E-4	2.8E-7	2.0E-4	6.9E-1	1.2E-3	1.5E-2
Th229	7.34E+03	2.5E-5	3.4E-3	1.2E-8	-	1.8E-4	2.5E-2	8.3E-6	2.0E-3
Th230	7.54E+04	6.7E-2	5.7E-2	2.1E-4	2.1E-5	5.8E-2	8.4E-2	3.0E-3	1.7E-2
Th232	1.41E+10	4.9E-8	2.4E-1	1.9E-4	1.9E-6	4.1E-8	2.6E-1	9.6E-4	1.1E-2
Th234	6.60E-02	2.9E-2	5.7E+0	3.7E-3	2.0E-5	2.6E-2	1.7E+1	2.7E-1	2.3E+0
Pa231	3.28E+04	8.5E-3	7.4E-2	4.7E-7	9.9E-7	7.1E-3	9.3E-2	2.2E-4	5.3E-4
Pa233	7.39E-02	3.8E+1	7.6E+1	2.1E-5	-	4.7E+1	1.1E+2	1.0E-2	7.5E-2
U232	6.98E+01	7.5E-4	1.1E+0	7.6E-5	-	2.0E-4	4.2E-1	2.7E-4	3.7E-3
U233	1.59E+05	1.9E-3	1.5E+0	3.5E-5	-	2.5E-2	1.7E+0	7.0E-4	3.2E-1
U234	2.46E+05	9.0E-2	1.8E+1	9.4E-2	2.1E-5	4.2E-1	2.1E+1	8.9E-1	1.9E+0
U235	7.04E+08	1.1E-3	5.0E-1	4.6E-2	1.0E-6	1.0E-3	5.4E-1	7.8E-2	3.4E-1
U236	2.34E+07	8.0E-3	1.5E+0	1.5E-2	-	1.0E-2	1.6E+0	3.5E-2	1.7E-1
U238	4.47E+09	2.9E-2	1.6E+1	2.2E-2	2.3E-5	2.6E-2	1.7E+1	2.7E-1	2.3E+0
Np237	2.14E+06	3.8E+1	8.0E+1	2.1E-4	-	4.7E+1	1.1E+2	1.0E-2	7.5E-2
Pu236	2.90E+00	1.6E-3	3.4E+0	9.1E-12	-	1.8E-17	1.4E-13	-	-
Pu238	8.77E+01	1.3E+3	5.6E+3	5.7E-1	1.2E-5	7.4E+2	3.1E+3	3.6E-1	3.0E-2
Pu239	2.41E+04	2.9E+2	8.6E+3	8.0E-1	1.6E-4	2.7E+2	1.2E+4	2.7E+0	1.5E-1
Pu240	6.56E+03	6.3E+2	9.1E+3	2.1E-1	1.6E-4	8.4E+2	1.2E+4	1.1E+0	1.7E-1
Pu241	1.44E+01	2.5E+4	2.5E+5	1.4E+0	2.2E-4	5.8E+1	1.3E+3	7.3E-2	2.5E-1
Pu242	3.74E+05	1.2E+0	6.8E+0	1.4E-2	-	1.0E+0	9.5E+0	3.3E-2	3.5E-3
Am241	4.33E+02	3.9E+5	2.5E+4	1.3E+0	1.5E-4	2.7E+5	3.0E+4	3.0E+0	1.9E-1
Am242m	1.41E+02	1.2E+3	2.0E+2	4.6E-4	-	5.2E+2	1.0E+2	3.0E-3	-
Am243	7.36E+03	2.2E+3	2.1E+1	1.0E-5	-	1.8E+3	2.2E+1	8.8E-4	-
Cm242	4.46E-01	9.6E+2	5.0E+2	3.8E-4	-	4.3E+2	8.6E+1	2.5E-3	-
Cm243	3.00E+01	1.5E+3	4.0E+1	6.9E-4	-	5.4E+1	1.9E+0	6.5E-5	-
Cm244	1.81E+01	1.4E+5	6.6E+2	7.8E-3	2.3E-7	6.5E+2	4.5E+0	5.4E-4	1.0E-3

Radionuclide	Half-life (years)	Radionuclide activity (TBq) (1)							
		At 1.4.2016				At 1.4.2150			
		HLW	ILW	LLW	VLLW	HLW	ILW	LLW	VLLW
Cm245	8.50E+03	3.1E+1	4.5E-2	1.7E-7	-	2.5E+1	4.8E-2	1.3E-3	2.0E-1
Cm246	4.73E+03	7.0E+0	8.1E-3	2.7E-8	-	5.2E+0	8.8E-3	1.6E-7	1.9E-2
Cm248	3.40E+05	6.0E-5	3.8E-4	1.3E-12	-	4.3E-5	3.8E-4	7.8E-12	-
Cf249	3.51E+02	4.8E-4	1.4E-4	1.5E-10	-	2.6E-4	1.8E-4	9.7E-10	-
Cf250	1.31E+01	1.4E-3	5.8E-5	8.1E-11	-	7.9E-7	1.8E-6	5.3E-13	-
Cf251	8.98E+02	2.2E-5	9.6E-8	2.8E-12	-	1.4E-5	1.5E-7	1.5E-11	-
Cf252	2.65E+00	4.3E-5	1.8E-3	2.9E-13	-	2.2E-20	3.4E-13	-	-
Alpha daughters		9.9E-1	3.3E+1	1.2E-1	6.3E-5	3.4E-2	3.0E+1	6.8E-1	3.2E-1
Beta/gamma daughters		3.8E+7	7.8E+5	7.2E+0	6.1E-4	1.4E+6	4.6E+4	7.0E+0	3.7E+0

(1) Only waste streams with a quantified radionuclide concentration contribute to this table.

Figure A4.1: Radioactivity of HLW as a function of time post 1 April 2016



HLW comprises the waste fission products from reprocessing spent nuclear fuel. The total activity of HLW for about 300 years following 1 April 2016 is largely due to the activities of the fission products Sr90 and Cs137 and their short-lived daughters (Y90 and Ba137m respectively). Both Sr90 and Cs137 have a radioactive half-life of about 30 years. Thereafter a number of increasing longer half-life radionuclides make significant contributions, including Am241, Zr93 and Nb93m.

Figure A4.2: Radioactivity of ILW as a function of time post 1 April 2016

ILW comprises wastes that have been activated by neutrons in reactors as well as wastes that have been contaminated with fission products and/or uranium and its radioactive decay products. In the first 300 years following 1 April 2016 the major contributors to the total activity of ILW are the activation products Fe55 and Ni63 and the fission products Sr90 and Cs137 and their short-lived daughters (Y90 and Ba137m respectively). Thereafter a number of increasing longer half-life radionuclides make significant contributions, including Ni59. After a few millions of years uranium and its radioactive daughters are predominant.

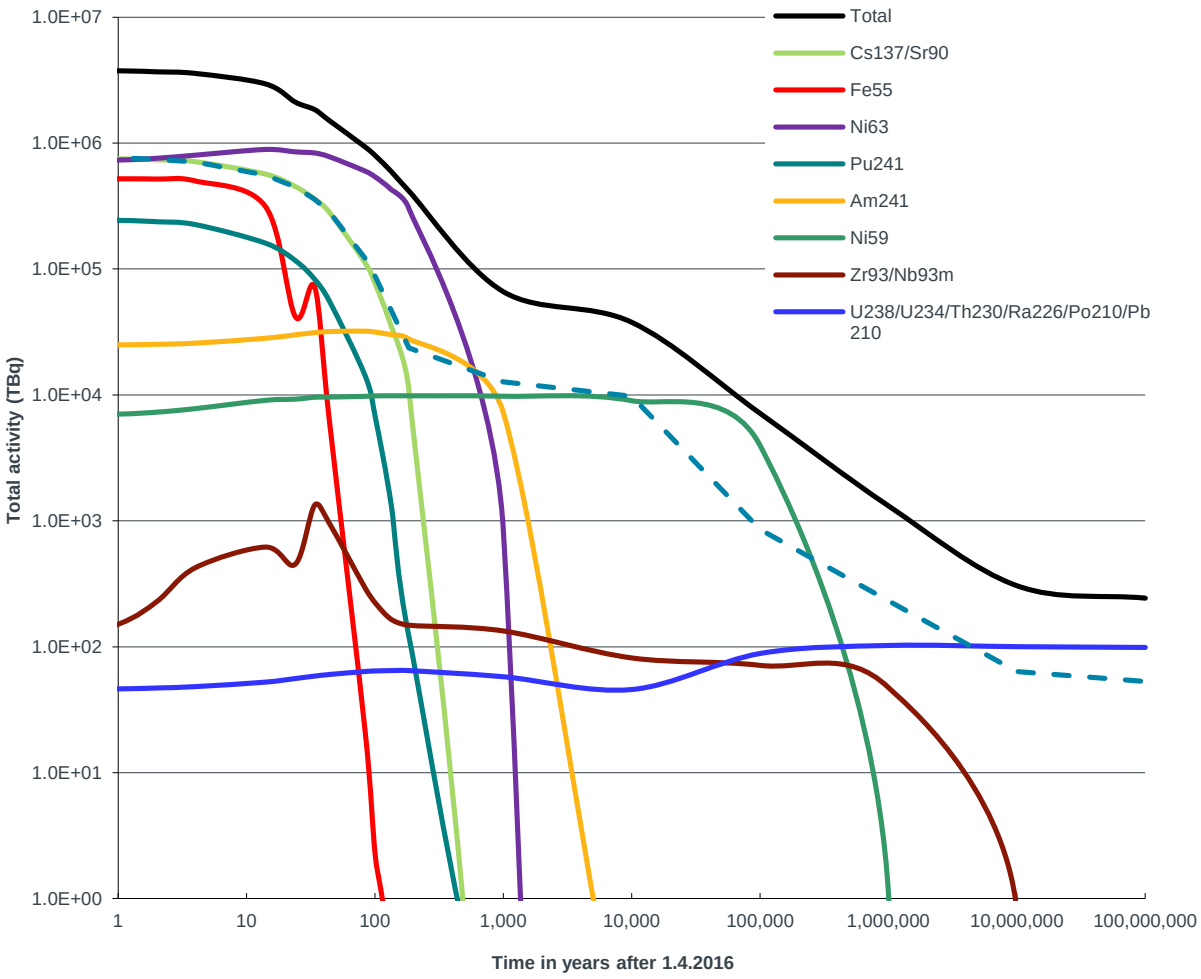


Figure A4.3: Radioactivity of LLW as a function of time post 1 April 2016

LLW comprises wastes that have been activated by neutrons in reactors as well as wastes that have been contaminated with fission products and/or uranium and its radioactive decay products. In the first 300 years following 1 April 2016 the major contributors to the total activity of LLW are the activation products Ni63 and the fission products Sr90 and Cs137 and their short-lived daughters (Y90 and Ba137m respectively). Thereafter a number of longer half-life radionuclides make significant contributions, including C14 and Ni59. After about 100,000 years uranium and its radioactive daughters are predominant.

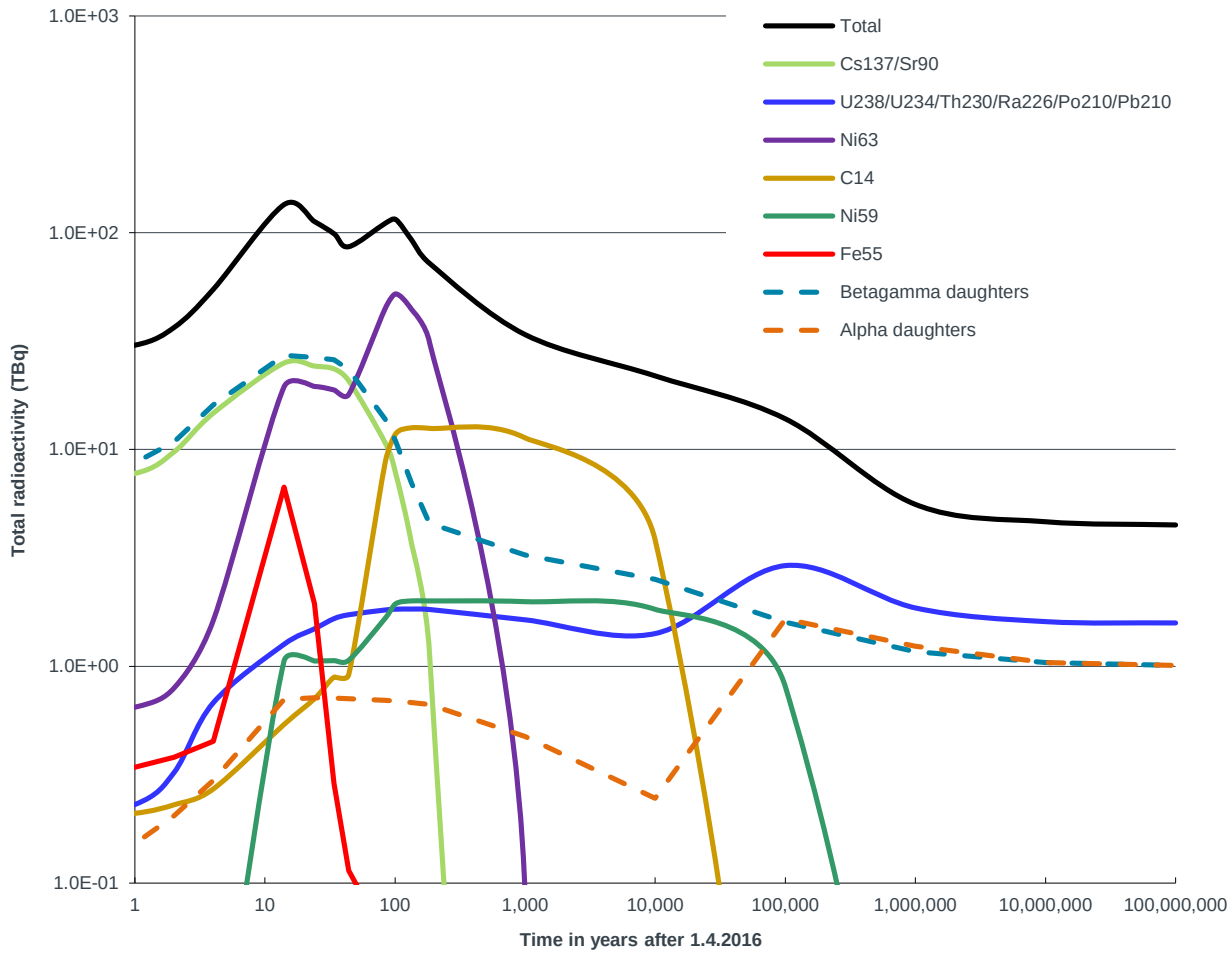
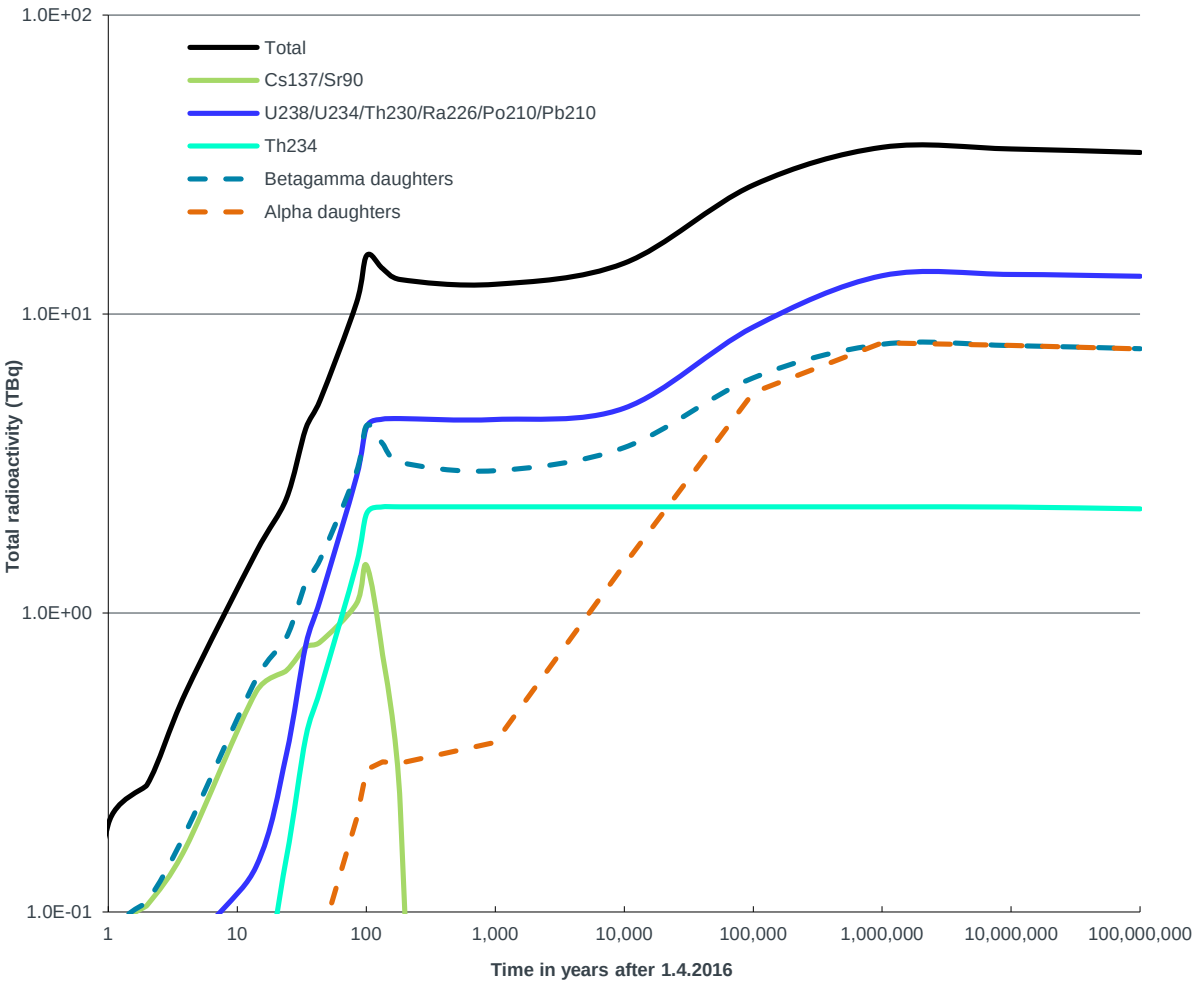


Figure A4.4: Radioactivity of VLLW as a function of time post 1 April 2016

VLLW principally comprises wastes that have been have been contaminated with uranium and its radioactive decay products and with fission products. Apart from the first 100 years following 1 April 2016, the major contributor to the total activity of VLLW is uranium and its radioactive daughters.



SITE INFORMATION SHEETS

The following information sheets provide an overview of radioactive wastes for each producing site in the UK:

Each information sheet contains the following information:

- **Background** – general information about the nature of the site;
- **Scenario** – the basis of future radioactive waste estimates;
- **Waste volume** – a table giving the reported volumes for each waste type generated at the site at 1 April 2016, in future arisings and in total; and the total packaged volume and number of packages once all waste has been packaged for long-term management or disposal;
- **Profile of waste arisings** – a chart showing the volume of future arisings against time for each waste type; and
- **Radioactivity** – a table showing total radioactivity for each waste type at 1 April 2016, and at 2050, 2100 and 2150.

AMERSHAM (GE HEALTHCARE)

Background

From its UK operating site at Amersham in Buckinghamshire, GE Healthcare supplies radioisotopes for medical, research and industrial uses.

Scenario

Expansion of GE Healthcare Ltd's activities is expected to be mainly in non-radioactive products. Future radioactive waste arisings are estimated up to 2040. Volumes are based on a continuation of the current rate of arising. Market forces will govern future business and manufacturing activities, so the medium and longer-term estimates of waste volumes and type can only be approximate.

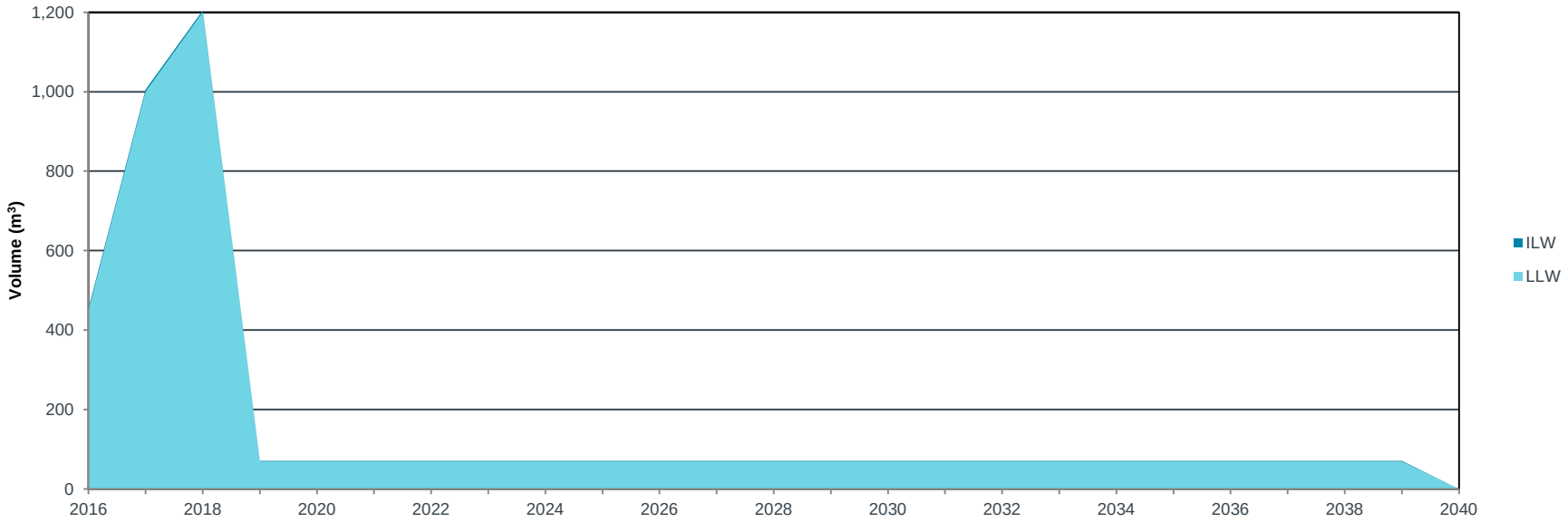
Predictions for decommissioning waste arisings are included in operational wastes, since facilities do not have a fixed operating lifetime but are refurbished as necessary. The rate of arising of refurbishment wastes reflects expected facilities development plans for commercial activities.

Waste volume

Waste is mostly low level and in the form of soft trash; some hard trash also arises. ILW is mainly in the form of radioactive sources.

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	174	55.2	229	279	375
LLW	513	4,100	4,610	4,280	2,260
VLLW	0	0	0	0	0
TOTAL	**687**	**4,160**	**4,840**	**4,560**	**2,640**

Profile of waste arisings



Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	10,000	4,900	1,700	700
LLW	0.59	2.1	1.00	0.64
VLLW	0	0	0	0
TOTAL	**10,000**	**4,900**	**1,700**	**700**

ALDERMASTON & BURGHFIELD (MOD)

Background

The primary purpose of the Atomic Weapons Establishment (AWE) is to support UK nuclear security needs. AWE's nuclear facilities are located at Aldermaston and Burghfield in Berkshire. The sites undertake research and development, design, manufacturing, servicing and decommissioning of nuclear warheads.

While the AWE sites and facilities remain in government ownership, their management, the day-to-day operations and the maintenance of the nuclear stockpile, has been contracted to a private company since 1993. This makes AWE a Government Owned Contractor Operated (GOCO) establishment.

Scenario

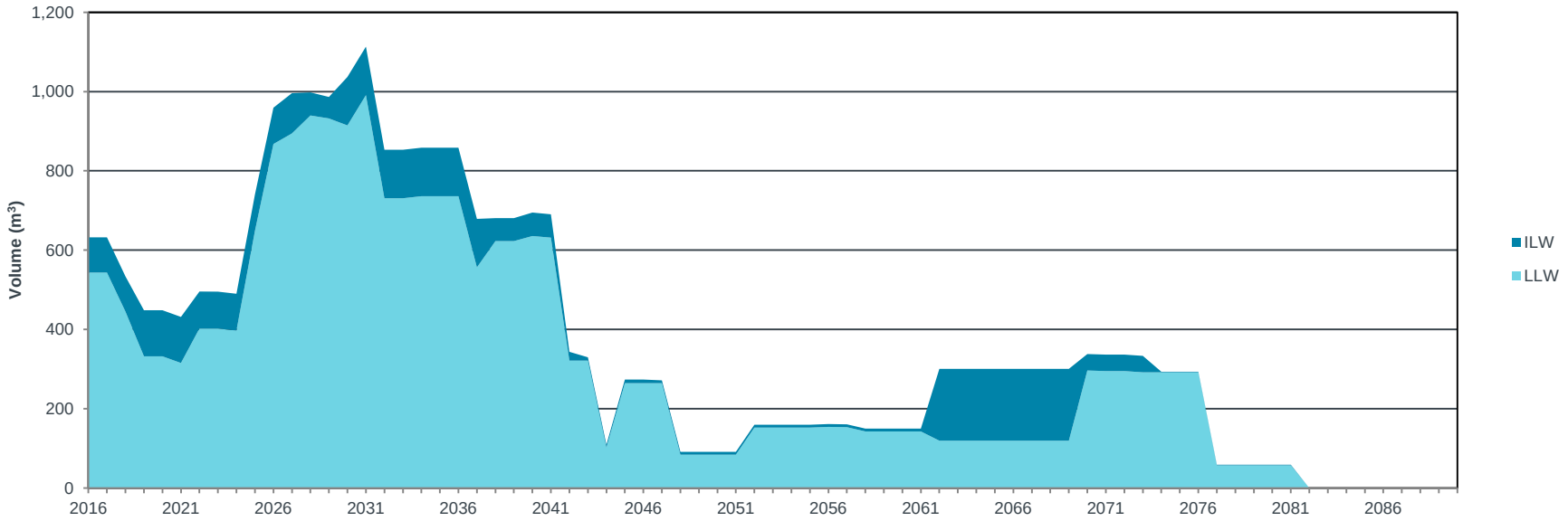
The inventory includes radioactive waste liabilities from legacy waste stock, waste from production and research facilities, and waste from the decommissioning of existing and future nuclear facilities including final land remediation. As no viable site end point is currently determinable, a future "end of operations" date of 2080 has been assumed.

Waste volume

The sites generate ILW and LLW, mostly plutonium contaminated materials. Future decommissioning is the major contributor to arisings.

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	4,410	4,290	8,710	4,480	7,820
LLW	1,560	23,300	24,900	20,300	307
VLLW	0	0	0	0	0
TOTAL	**5,980**	**27,600**	**33,600**	**24,700**	**8,120**

Profile of waste arisings



Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	990	1,100	1,300	1,200
LLW	3.5	3.6	2.9	2.7
VLLW	0	0	0	0
TOTAL	**990**	**1,100**	**1,300**	**1,200**

BARROW-IN-FURNESS (BAESM)

Background

At Barrow-in-Furness in Cumbria, BAE Systems Marine Ltd builds, tests and commissions nuclear powered submarines.

Scenario

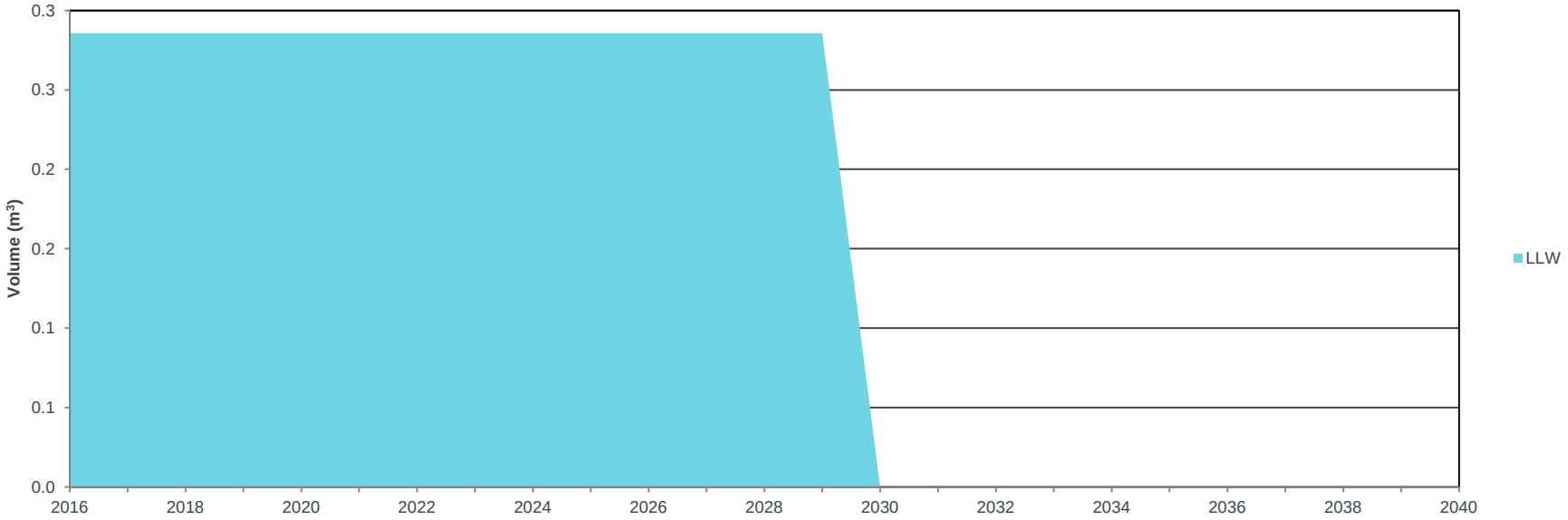
The site generates only small quantities of radioactive waste associated with the commissioning of submarine nuclear reactors. Arisings are estimated up to 2030.

Waste volume

The site is forecast to produce only small quantities of LLW.

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	0	0	0	0	0
LLW	0	4	4	0	0
VLLW	0	0	0	0	0
TOTAL	**0**	**4**	**4**	**0**	**0**

Profile of waste arisings



Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	0	0	0	0
LLW	0	0	0	0
VLLW	0	0	0	0
TOTAL	**0**	**0**	**0**	**0**

BERKELEY (NDA)

Background

Berkeley is a twin-reactor Magnox nuclear power station on the west coast of England in Gloucestershire. Berkeley operated from 1962 to 1989. The station is now shut down and is being decommissioned.

Active handling facilities at Berkeley (previously part of Berkeley Centre) used to provide research and development facilities including a post-irradiation examination service. Operations ended in 2005, and the facilities have been decommissioned.

Scenario

The decommissioning strategy for the Magnox sites is deferred dismantling of the reactors, comprising three phases – Defuelling and Care & Maintenance Preparations; Care & Maintenance; Final Site Clearance.

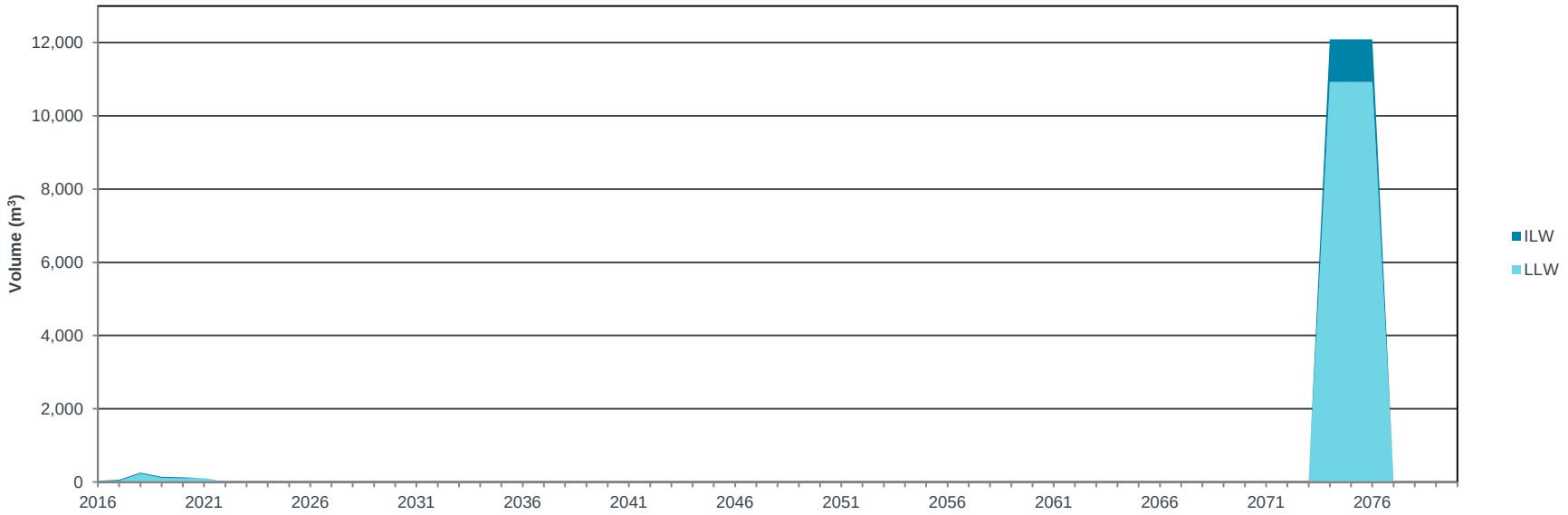
Berkeley has been defuelled, and Care & Maintenance Preparations are scheduled to be completed in 2022. The period of Care & Maintenance extends from 2022 to 2074 and Final Site Clearance from 2070 to 2083.

Waste volume

Stocks of ILW and LLW are from legacy operations and on-going decommissioning. Future arisings are principally from final site clearance.

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	1,540	3,620	5,150	8,850	806
LLW	139	33,500	33,600	58,900	3,010
VLLW	0	0	0	0	0
TOTAL	**1,680**	**37,100**	**38,800**	**67,700**	**3,810**

Profile of waste arisings



Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	720	380	1,200	880
LLW	0.72	1.2	2.1	1.5
VLLW	0	0	0	0
TOTAL	**720**	**380**	**1,200**	**880**

BRADWELL (NDA)

Background

Bradwell is a twin-reactor Magnox nuclear power station on the east coast of England in Essex. Bradwell operated from 1962 to 2002. The station is now shut down and is being decommissioned.

Scenario

The decommissioning strategy for the Magnox sites is deferred dismantling of the reactors, comprising three phases – Defuelling and Care & Maintenance Preparations; Care & Maintenance; Final Site Clearance.

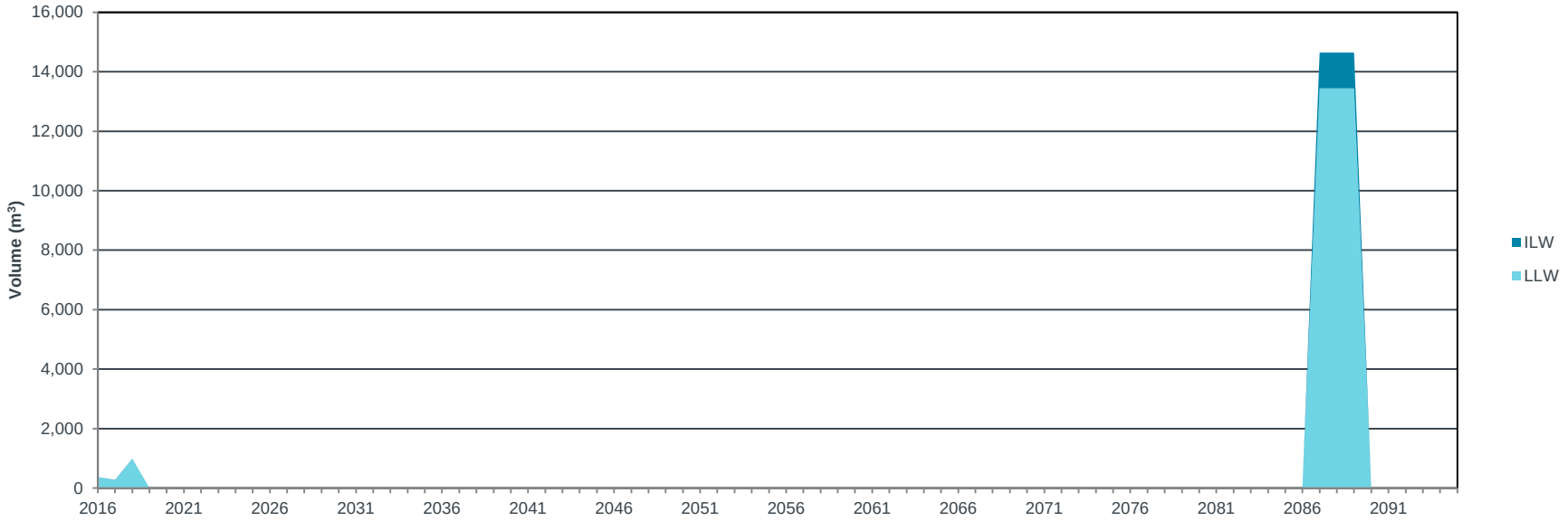
Bradwell has been defuelled, and Care & Maintenance Preparations are scheduled to be completed in 2019. The period of Care & Maintenance extends from 2019 to 2087 and Final Site Clearance from 2083 to 2093.

Waste volume

Stocks of ILW and LLW are from legacy operations and on-going decommissioning. Future arisings are principally from final site clearance.

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	469	3,630	4,100	5,330	432
LLW	423	42,100	42,500	75,500	3,860
VLLW	0	0	0	0	0
TOTAL	**892**	**45,700**	**46,600**	**80,800**	**4,290**

Profile of waste arisings



Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	5,000	1,800	2,400	1,800
LLW	1.4	0	3.0	1.9
VLLW	0	0	0	0
TOTAL	**5,000**	**1,800**	**2,400**	**1,800**

CAPENHURST (URENCO)

Background

The Capenhurst site in Cheshire engages in uranium enrichment and uranics management. The site receives natural uranium hexafluoride (UF_6) for U235 enrichment in gas centrifuge plants. The enriched UF_6 is transferred off site for conversion into uranium dioxide, which is used in the fabrication of nuclear fuel and intermediate products.

Scenario

A new Tails Management Facility (TMF) has been commissioned at Capenhurst and will deconvert UF_6 tails to U_3O_8 for safer long-term storage. The TMF is assumed to be operational from 2017 to 2047, after which the uranium oxide store is forecast to be maintained until 2112 and decommissioned by 2117. The TMF will deconvert uranium tails from enrichment operations on-site, Urenco group material from overseas and the tails from Government-owned uranium by-product/legacy material from uranium enrichment.

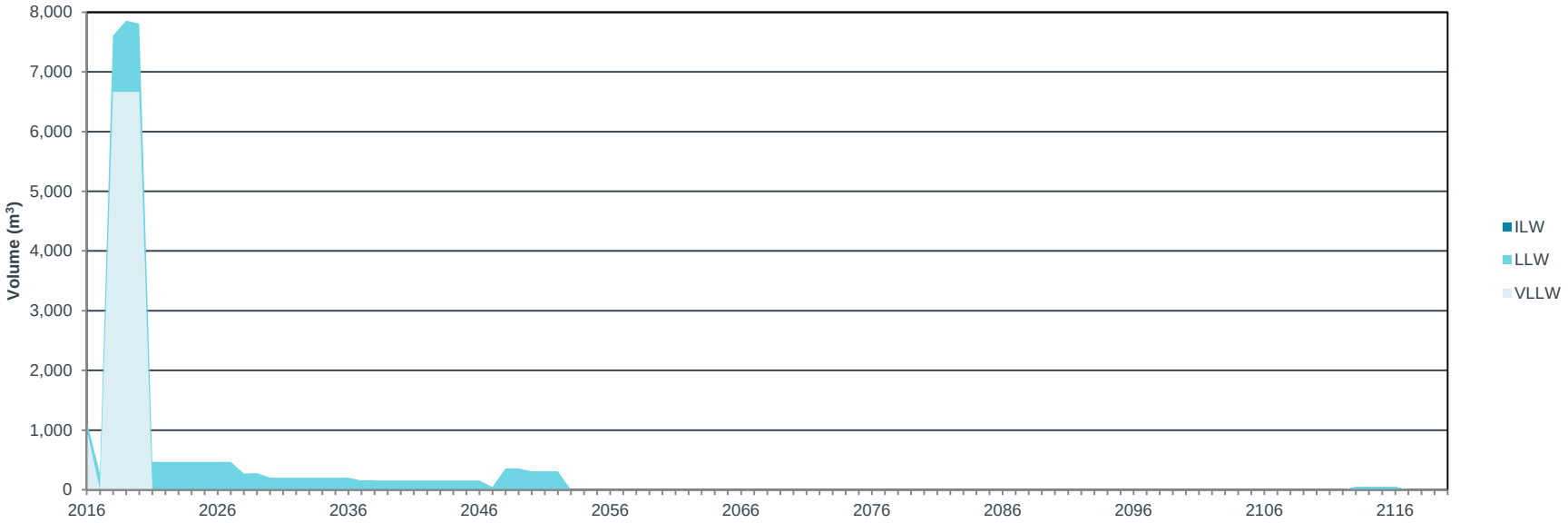
Future arisings at Capenhurst will depend on the outlook for the worldwide nuclear power industry, the commercial contracts won by the group and the installation of new enrichment capacity. Waste volumes from the enrichment plant are estimated up to 2037.

Waste volume

Uranium enrichment involves bulk chemical processing that produces a number of low level radioactive waste streams. These include filters, process residues, and soft and hard trash. Future arisings also include land contamination VLLW (soil and concrete foundations).

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	0.66	1.8	2.46	3.01	6
LLW	632	12,400	13,100	4,790	2
VLLW	0	21,000	21,000	21,000	Not quantified
TOTAL	**633**	**33,400**	**34,100**	**25,800**	**8**

Profile of waste arisings



Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	0.05	0.24	0.24	0.24
LLW	0.06	1.4	1.4	1.4
VLLW	-	0.22	0.22	0.22
TOTAL	**0.12**	**1.8**	**1.9**	**1.9**

CARDIFF (GE HEALTHCARE)

Background

GE Healthcare is a supplier of radioisotopes for medical, research and industrial uses, operating in the UK from its Amersham site. Commercial operations at its Cardiff site have ceased.

Scenario

Radioactive waste from past operations remains in storage at Cardiff.

Waste volume

Some legacy ILW remains stored at Cardiff.

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	225	0	225	0	0
LLW	0	0	0	0	0
VLLW	0	0	0	0	0
TOTAL	**225**	**0**	**225**	**0**	**0**

Profile of waste arisings

There are no future arisings at Cardiff.

Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	3,200	0	0	0
LLW	0	0	0	0
VLLW	0	0	0	0
TOTAL	**3,200**	**0**	**0**	**0**

CHAPELCROSS (NDA)

Background

Chaplecross is a four-reactor Magnox nuclear power station on the west coast of Scotland in Dumfries and Galloway. Chapelcross operated from 1959 to 2004. The station is now shut down and is being decommissioned.

Scenario

The decommissioning strategy for the Magnox sites is deferred dismantling of the reactors, comprising three phases – Defuelling and Care & Maintenance Preparations; Care & Maintenance; Final Site Clearance.

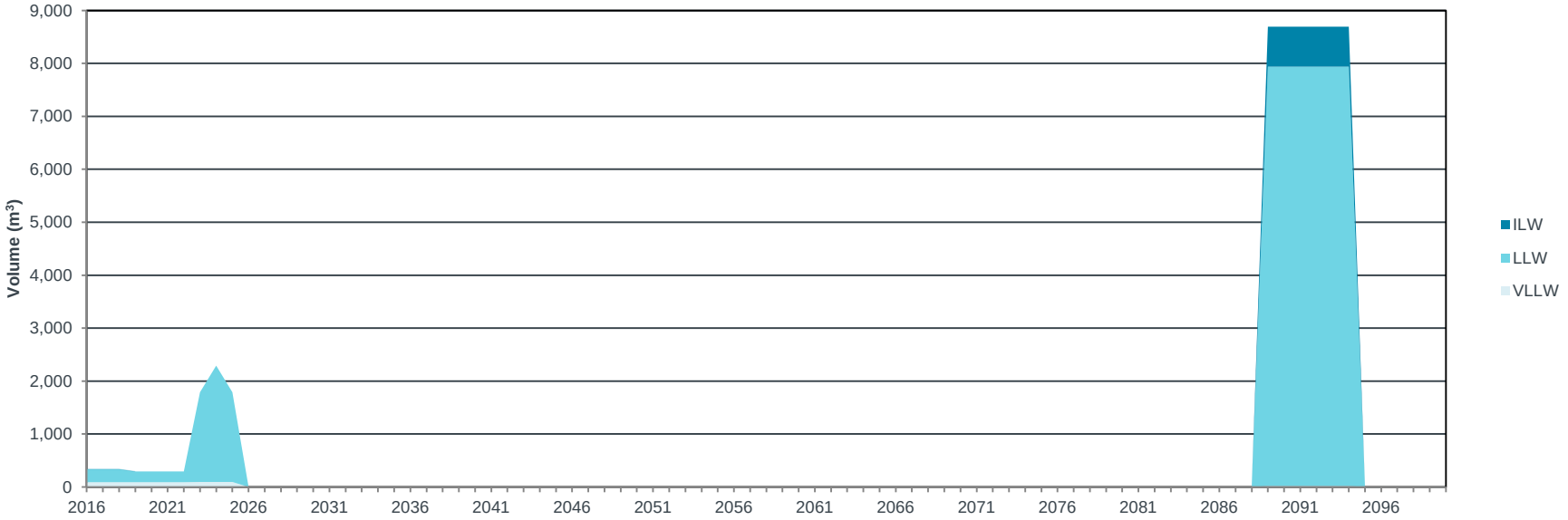
Chapelcross has been defuelled, and Care & Maintenance Preparations are scheduled to be completed in 2025. The period of Care & Maintenance extends from 2025 to 2089 and Final Site Clearance from 2089 to 2095.

Waste volume

Stocks of ILW and LLW are from legacy operations and on-going care and maintenance preparations. Future arisings are principally from final site clearance.

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	183	4,530	4,710	6,620	487
LLW	1,210	54,800	56,000	85,900	4,240
VLLW	4.2	1,030	1,040	1,040	Not quantified
TOTAL	**1,400**	**60,300**	**61,800**	**93,600**	**4,720**

Profile of waste arisings



Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	3,400	680	1,800	1,400
LLW	1.3	4.4	3.0	1.7
VLLW	<0.001	<0.001	<0.001	<0.001
TOTAL	**3,400**	**690**	**1,800**	**1,400**

HMNB CLYDE (MOD)

Background

The Clyde submarine base at Faslane near Helensburgh in Dunbartonshire provides maintenance and support services for the operational UK nuclear submarine squadrons. It deals with radioactive wastes arising from weapons handling, operations at sea and the maintenance ashore of submarine nuclear propulsion systems.

Scenario

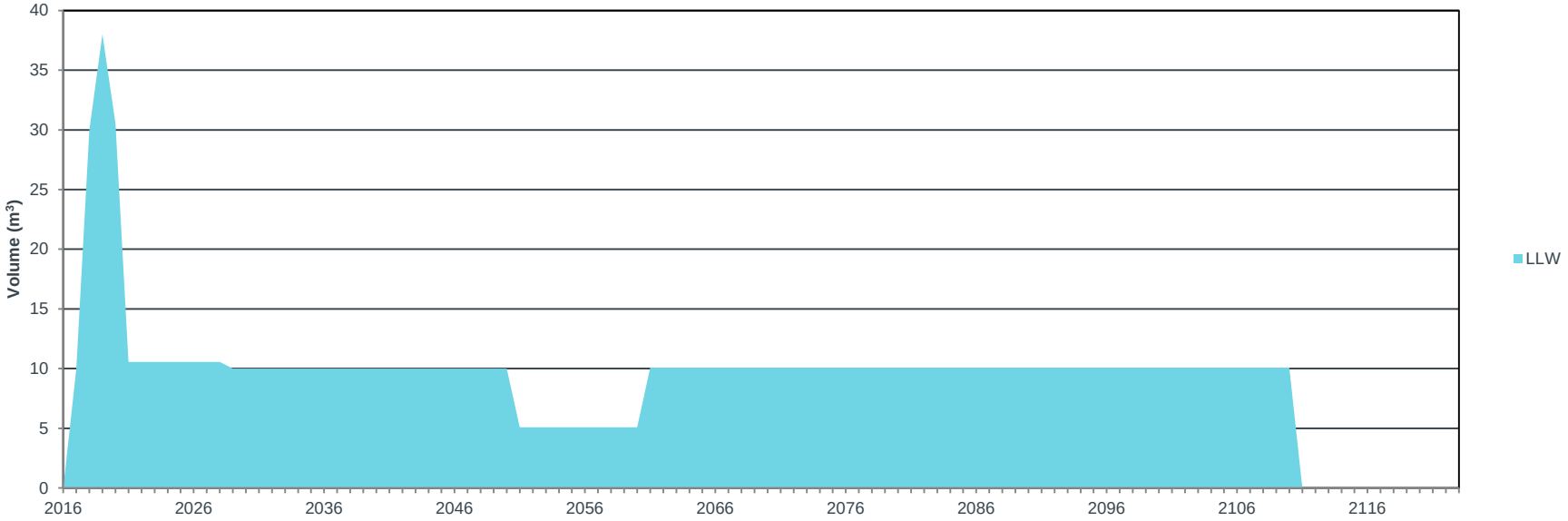
Operational wastes are at a significantly lower level than those resulting from refitting work at Devonport. The predicted arisings are based on the number of submarines maintained and future development work and are subject to change.

Waste volume

LLW is generated from nuclear submarine reactor compartments, laboratories, waste processing areas and effluent treatment.

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	0	0	0	0	0
LLW	22.5	968	990	34.7	2
VLLW	0	0	0	0	0
TOTAL	**22.5**	**968**	**990**	**34.7**	**2**

Profile of waste arisings



Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	0	0	0	0
LLW	<0.001	0.002	0.002	<0.001
VLLW	0	0	0	0
TOTAL	**<0.001**	**0.002**	**0.002**	**<0.001**

CULHAM (UKAEA)

Background

Culham Centre for Fusion Energy (CCFE) in Oxfordshire is the UK centre for fusion research. In 1978 the site became the host to the European 'flagship' fusion project the Joint European Torus (JET). The JET fusion experiment facilities are currently operated by United Kingdom Atomic Energy Authority under contract to Euratom, which acts on behalf of the parties to the EUROfusion consortium (formerly the European Fusion Development Agreement). Other facilities at Culham include the Mega Amp Spherical Tokamak fusion research machine.

Scenario

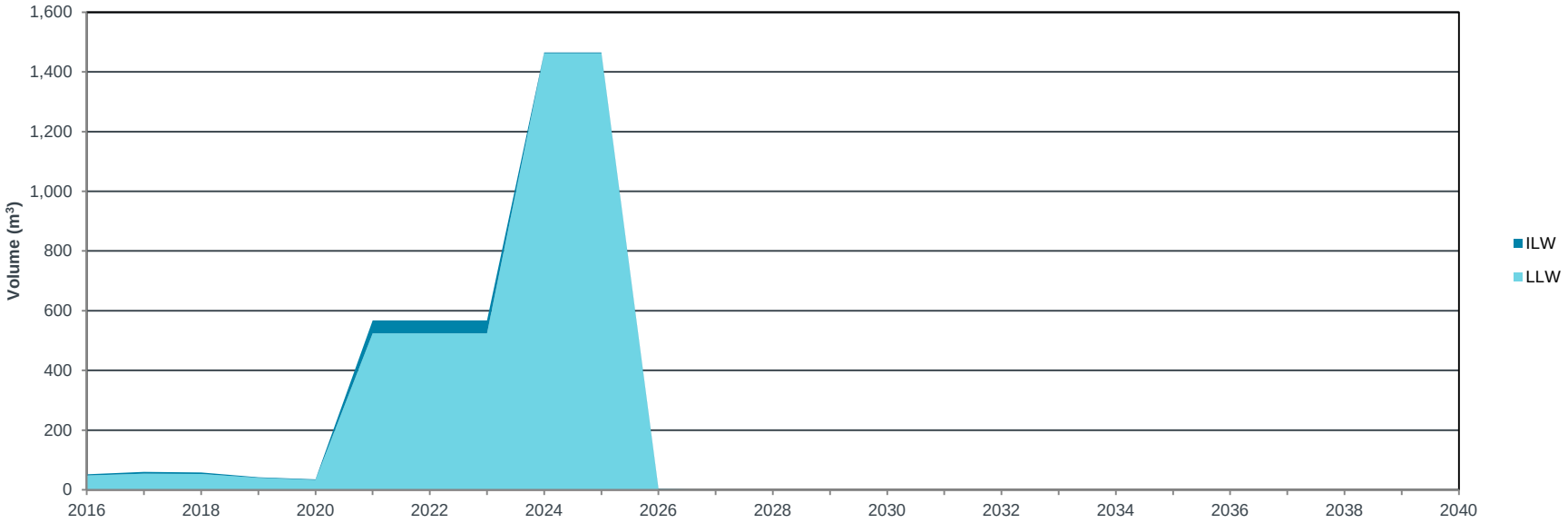
Small quantities of ILW and LLW will continue to be produced from the operational phase of the JET fusion experiment. Operations are scheduled to continue to 2020. However, the length of future operations is uncertain. There is some uncertainty over what further experiments will take place, and therefore what will be the final inventory of the plant and of the resultant decommissioning waste quantities. There is, however, an agreed limit on the maximum neutron production from deuterium-tritium operations, which has been used to define a bounding inventory for the wastes and is likely to be fully utilised. On the basis of a start date of December 2020 for JET decommissioning, removal of the torus facility is programmed for completion in 2026. The Active Gas Handling System needs to remain operational during the dismantling of the JET machine, but should then be fully decommissioned by September 2028, and the JET site completely cleared by the end of 2029.

Waste volume

Routine operational ILW and LLW volumes are small. Most waste will be generated from future JET decommissioning.

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	34.1	159	193	299	29
LLW	86	4,720	4,810	4,550	58
VLLW	0	0	0	0	0
TOTAL	**120**	**4,880**	**5,000**	**4,850**	**87**

Profile of waste arisings



Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	130	1,800	110	6.5
LLW	0.05	5.7	4.1	3.2
VLLW	0	0	0	0
TOTAL	**130**	**1,800**	**110**	**9.7**

DEFENCE INFRASTRUCTURE ORGANISATION (MOD)

Background

The Defence Infrastructure Organisation (DIO) is responsible for managing the MOD Estate. This includes a major programme to assess and remediate contaminated ground at MOD sites in the UK.

Scenario

As part of their work the DIO manages a major Land Quality Assessment (LQA) programme to assess and manage land contamination, including radioactive land contamination across the MOD Estate. This has the potential to create volumes of LLW comprising predominantly soil, ash and rubble from the remediation of radioactively contaminated ground. The principal source of the contamination is expected to be radium associated with the historic maintenance and disposal of luminised equipment.

The rate of waste arisings will be dependent on the site specific ground conditions and the remediation strategy employed. These may differ from site to site as will the degree of contamination, and as a result the quantities of waste generated will differ. Consequently the DIO is not in a position to predict either future arisings or the rate of production with any certainty.

Waste volume

The stock reported is based on estimated volumes at various sites with known radiological contamination that may require disposal.

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	0	0	0	0	0
LLW	350	NE	350	463	24
VLLW	0	0	0	0	0
TOTAL	**350**	**NE**	**350**	**463**	**24**

Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	0	0	0	0

LLW	0.20	0.27	0.29	0.29
VLLW	0	0	0	0
TOTAL	**0.20**	**0.27**	**0.29**	**0.29**

DERBY (RRMPOL)

Background

Rolls Royce Marine Power Operations Ltd (RRMPOL) operates two nuclear licensed sites at Raynesway in Derby, where work is carried out in support of the MOD's nuclear submarine programme. RRMPOL manufactures the reactors for the Navy's nuclear powered submarines and operates the low energy Neptune reactor used to develop submarine reactor designs.

Scenario

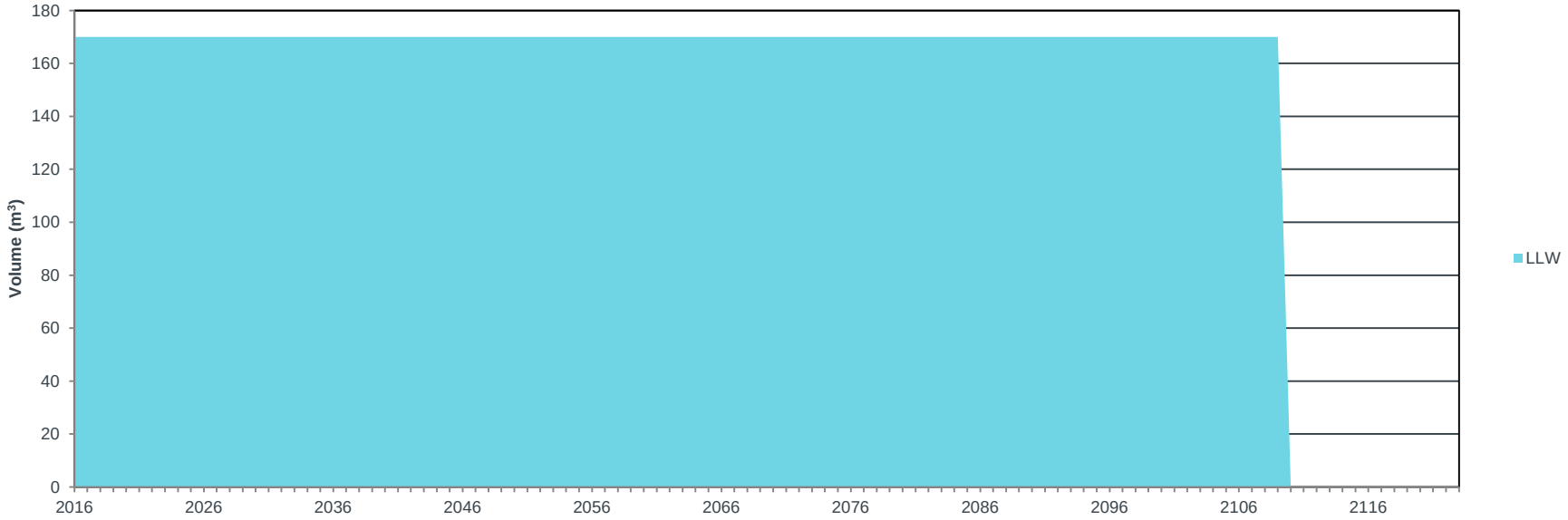
The future of the sites is inextricably linked to the future operational requirements of the submarine fleet. It is assumed that both of the nuclear licensed sites will operate at the current levels of activity until 2110.

Waste volume

LLW is produced at RRMPOL from facility operations.

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	0	0	0	0	0
LLW	160	16,000	16,100	35,700	2,500
VLLW	0	0	0	0	0
TOTAL	**160**	**16,000**	**16,100**	**35,700**	**2,500**

Profile of waste arisings



Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	0	0	0	0
LLW	NE	NE	NE	NE
VLLW	0	0	0	0
TOTAL	**NE**	**NE**	**NE**	**NE**

HMNB DEVONPORT (MOD)

Background

The Devonport site in Devon supports the operation, refuelling, refitting and decommissioning of the nuclear submarine fleet. The site comprises the Naval Base (owned and operated by the MOD) and its co-located Dockyard (owned and operated by Babcock International Group plc). Devonport provides maintenance and support services for the operational UK nuclear submarine squadrons. It has the facilities to carry out operations associated with submarine refitting and defuelling. Since 2004 all UK nuclear submarine refitting work has been carried out at Devonport.

Scenario

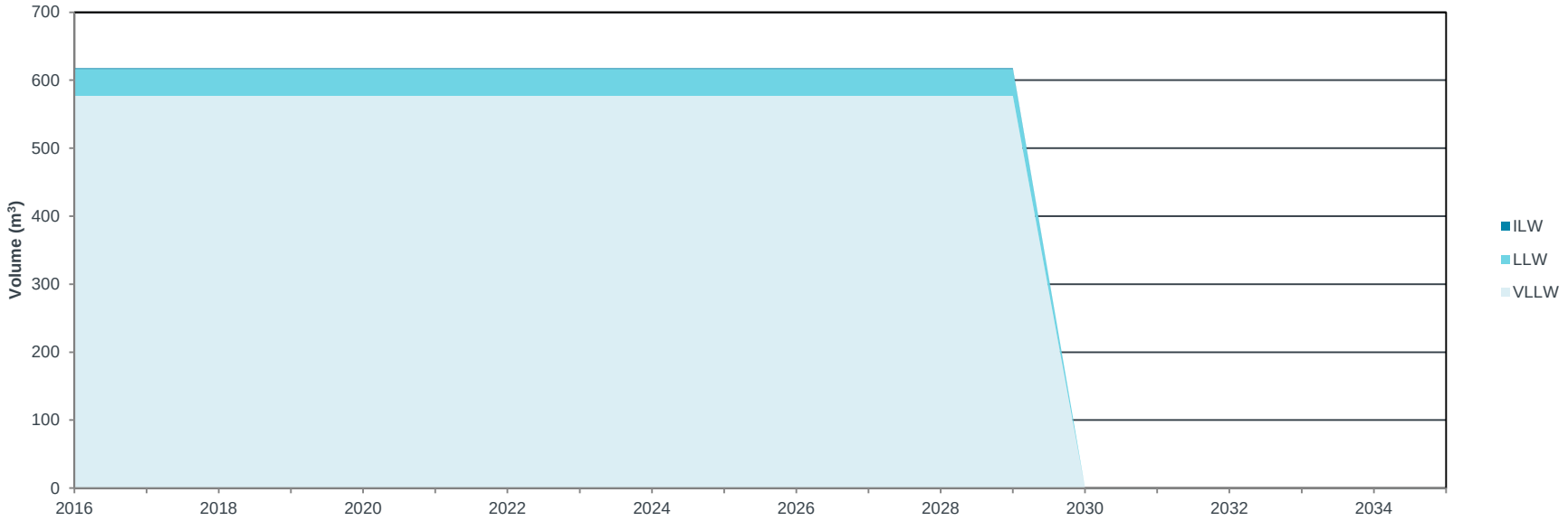
Operational waste arisings from Devonport have been derived by extrapolation of historical data and are forecast up to 2030. A number of nuclear-powered submarines have been taken out of service and decommissioned. Twelve are stored afloat at Devonport.

Waste volume

Most operational waste is hard and soft VLLW from nuclear repair activities.

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	23.8	18.5	42.3	170	9
LLW	47.5	551	599	547	29
VLLW	26	8,080	8,100	8,100	Not quantified
TOTAL	**97.3**	**8,650**	**8,740**	**8,820**	**38**

Profile of waste arisings



Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	3.0	0.64	0.57	0.55
LLW	0.21	0.14	0.11	0.10
VLLW	<0.001	<0.001	<0.001	<0.001
TOTAL	**3.2**	**0.79**	**0.69**	**0.65**

DOUNREAY (NDA)

Background

Dounreay in Caithness was the UK centre for fast reactor research. Three reactors were built on site: the Dounreay Fast Reactor (DFR), the Prototype Fast Reactor (PFR) and the Dounreay Materials Test Reactor (DMTR). These reactors are now closed. The site also included facilities for reprocessing spent PFR fuel, PIE of fuels and the manufacture and reprocessing of Materials Testing Reactor (MTR) fuels. In addition the Marshall Laboratory was used in the development of reprocessing technology for plutonium fuels. All of these facilities are no longer operational. The Waste Receipt Assay Characterisation and Supercompaction (WRACS) facility treats solid LLW. The first phase of the new LLW disposal facility (for wastes from Dounreay and the adjacent Vulcan site) has been constructed, and disposals started in 2015.

Scenario

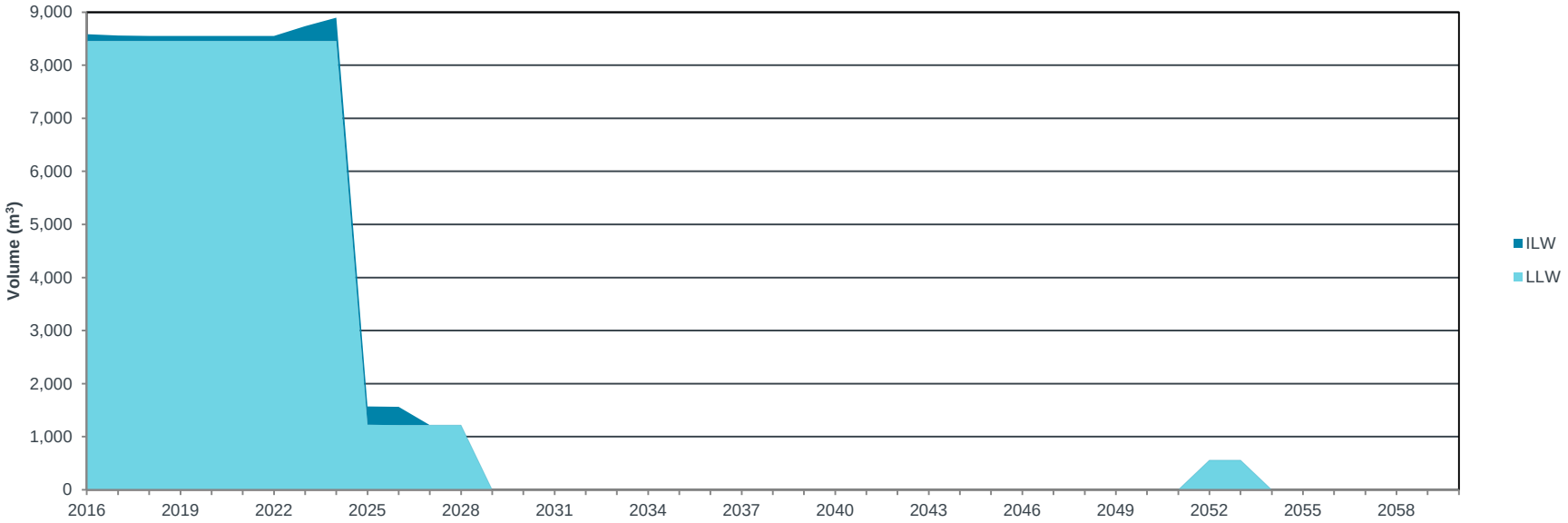
The core programme of work at Dounreay is now focused on the decommissioning of the reactors and other facilities including the ILW Shaft and Wet Silo. The PFR and DFR are undergoing decommissioning. The DMTR is currently under in Care & Maintenance. The ILW shaft will be emptied of waste, with some decontamination of rock being undertaken. The Silo will be emptied and decontaminated, and the structure will be removed. The current site plan is that all redundant facilities will be decommissioned by 2030.

Waste volume

Stocks of ILW are from legacy operations, including cemented PFR, DFR and MTR raffinates. Stocks of LLW comprise compacted and conditioned waste from legacy operations that are in interim storage and waste from on-going decommissioning projects.

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	4,930	2,120	7,050	10,700	13,600
LLW	17,000	82,100	99,100	149,000	6,680
VLLW	0	0	0	0	0
TOTAL	**21,900**	**84,200**	**106,000**	**159,000**	**20,200**

Profile of waste arisings



Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	280,000	130,000	48,000	21,000
LLW	6.7	12	5.7	3.8
VLLW	0	0	0	0
TOTAL	**280,000**	**130,000**	**48,000**	**21,000**

DONNINGTON (MOD)

Background

MOD Donnington, in Shropshire, acts as a collection centre for redundant equipment containing radioactive material, principally both in-service and redundant equipment containing gaseous tritium light sources, electrodeposited nickel-63 sources and legacy equipment containing radium luminised components. Equipment is disposed of as soon as possible when declared as waste in accordance with current legislation.

Scenario

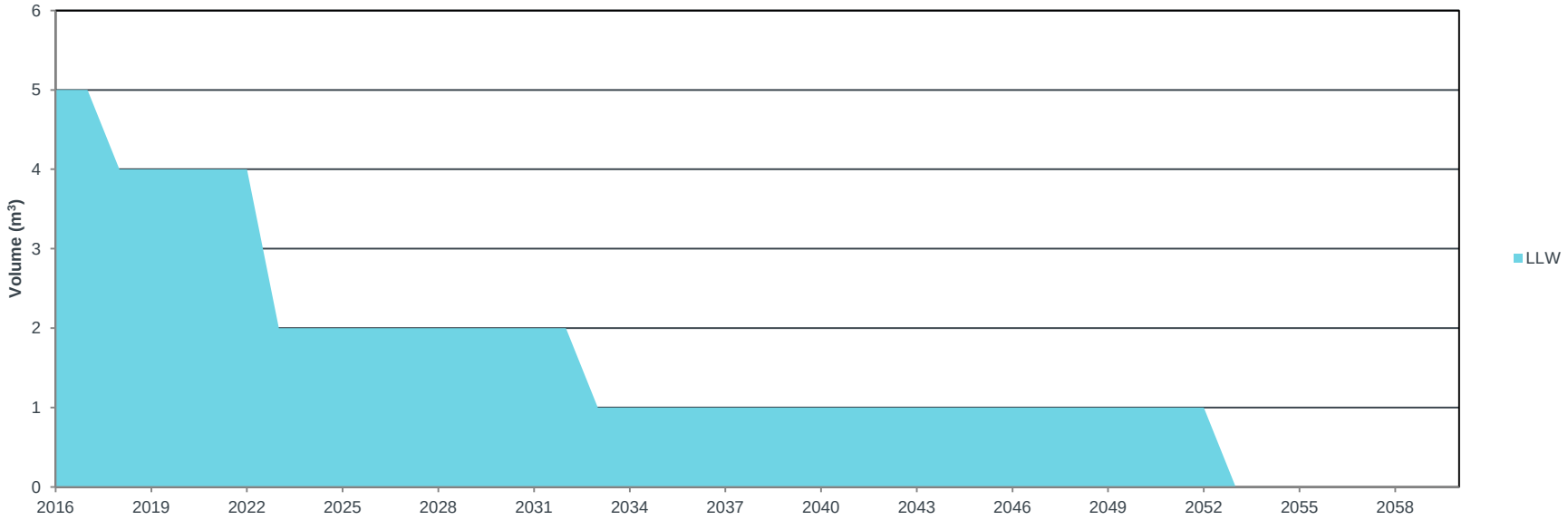
The future needs of MOD will govern waste arisings. It is assumed that waste will continue to arise at current levels. Volume estimates are extrapolated to 2053.

Waste volume

There are no wastes currently stored at Donnington. Future arisings of LLW are difficult to determine, but are assumed to be of low volume.

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	0	0	0	0	0
LLW	0	70	70	92.5	5
VLLW	0	0	0	0	0
TOTAL	**0**	**70**	**70**	**92.5**	**5**

Profile of waste arisings



Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	0	0	0	0
LLW	0	NE	NE	NE
VLLW	0	0	0	0
TOTAL	**0**	**NE**	**NE**	**NE**

DUNGENESS A (NDA)

Background

Dungeness A is a twin-reactor Magnox nuclear power station on the south coast of England in Kent. Dungeness A operated from 1965 to 2006. The station is now shut down and is being decommissioned.

Scenario

The decommissioning strategy for the Magnox sites is deferred dismantling of the reactors, comprising three phases – Defuelling and Care & Maintenance Preparations; Care & Maintenance; Final Site Clearance.

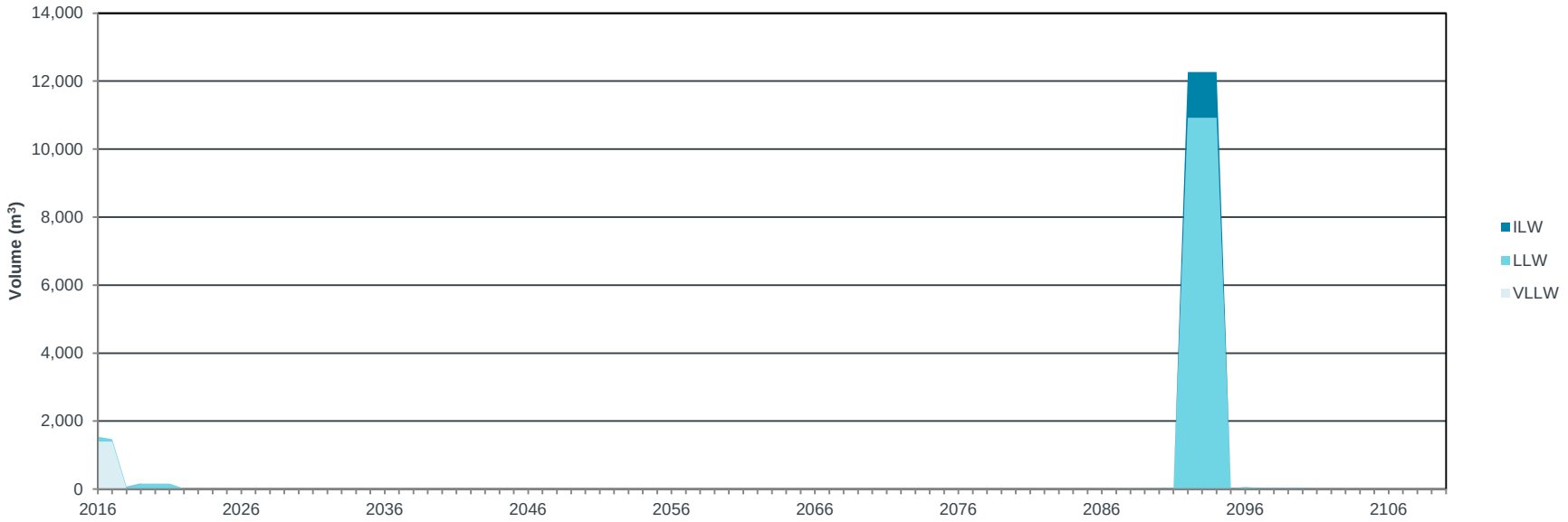
Dungeness A has been defuelled, and Care & Maintenance Preparations are scheduled to be completed in 2025. The period of Care & Maintenance extends from 2025 to 2092 and Final Site Clearance from 2087 to 2097.

Waste volume

Stocks of ILW and LLW are from legacy operations and on-going care and maintenance preparations. Future arisings are principally from final site clearance.

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	273	4,050	4,320	5,520	434
LLW	216	34,000	34,200	60,800	3,070
VLLW	0	2,790	2,790	2,790	Not quantified
TOTAL	**489**	**40,800**	**41,300**	**69,100**	**3,500**

Profile of waste arisings



Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	3,700	920	1,300	1,000
LLW	0.23	6.0	5.6	3.1
VLLW	0	<0.001	<0.001	<0.001
TOTAL	**3,700**	**930**	**1,300**	**1,000**

DUNGENESS B (EDFE)

Background

Dungeness B is a twin-reactor nuclear power station on the south coast of England in Kent. Dungeness B has been operating since 1983.

Scenario

Dungeness B is scheduled to operate until 2028.

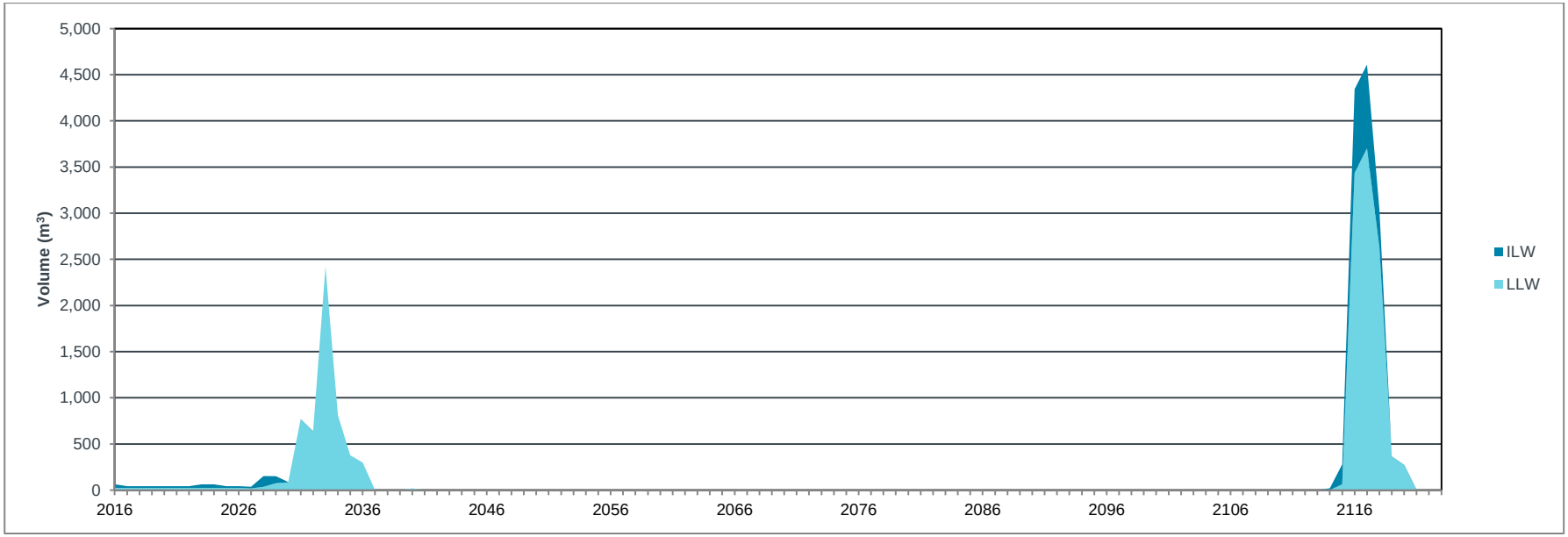
The decommissioning strategy for the AGR sites is Early Safestore, comprising three phases – Defuelling and Care & Maintenance Preparations; Care & Maintenance; Reactor Dismantling & Final Site Clearance. For Dungeness B the period of Defuelling and Care & Maintenance Preparations extends from 2028 to 2039, Care & Maintenance from 2039 to 2113 and Final Site Clearance from 2113 to 2122.

Waste volume

The majority of waste is LLW from future reactor decommissioning.

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	516	2,940	3,460	6,520	633
LLW	68.2	16,400	16,400	9,770	498
VLLW	0	0	0	0	0
TOTAL	**585**	**19,300**	**19,900**	**16,300**	**1,130**

Profile of waste arisings



Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	120,000	34,000	19,000	14,000
LLW	0.02	0.50	0.22	3.8
VLLW	0	0	0	0
TOTAL	**120,000**	**34,000**	**19,000**	**14,000**

HARTLEPOOL (EDFE)

Background

Hartlepool is a twin-reactor nuclear power station on the north-east coast of England in Durham. Hartlepool has been operating since 1983.

Scenario

Hartlepool scheduled to operate until 2024.

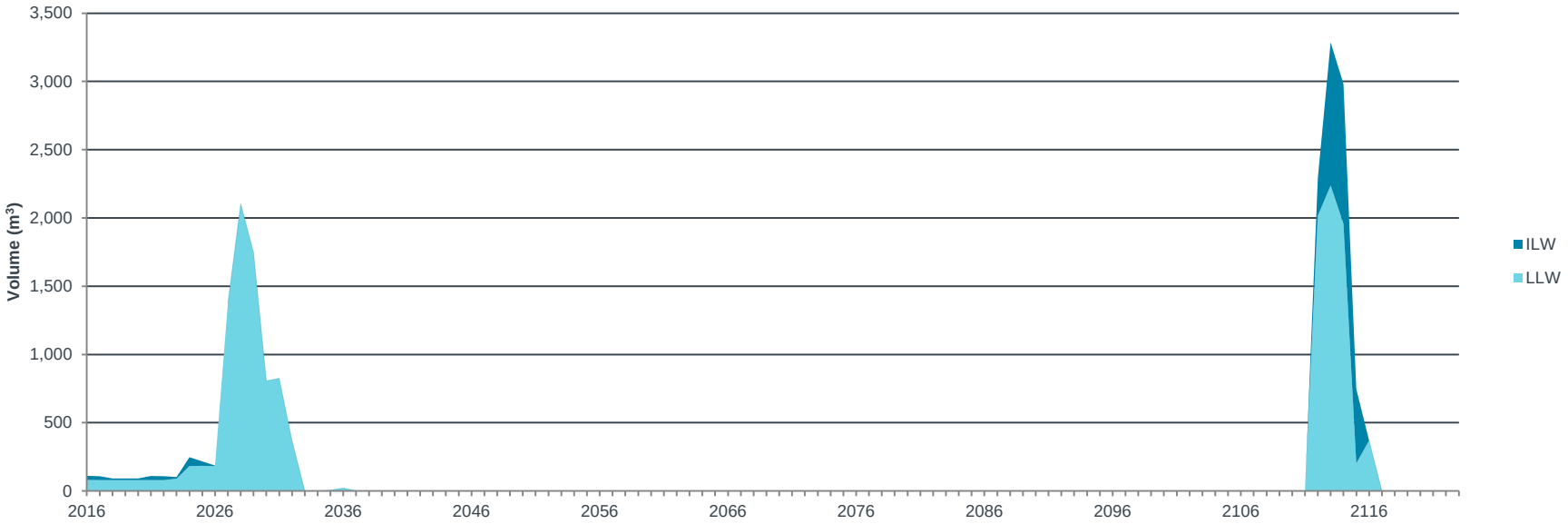
The decommissioning strategy for the AGR sites is Early Safestore, comprising three phases – Defuelling and Care & Maintenance Preparations; Care & Maintenance; Reactor Dismantling & Final Site Clearance. For Hartlepool the period of Defuelling and Care & Maintenance Preparations extends from 2024 to 2036, Care & Maintenance from 2036 to 2109 and Final Site Clearance from 2109 to 2119.

Waste volume

The majority of waste is LLW from future reactor decommissioning.

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	298	3,160	3,460	5,590	381
LLW	114	15,300	15,400	10,700	549
VLLW	0	0	0	0	0
TOTAL	**412**	**18,500**	**18,900**	**16,300**	**930**

Profile of waste arisings



Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	320,000	98,000	65,000	47,000
LLW	0.14	0.21	0.08	1.8
VLLW	0	0	0	0
TOTAL	**320,000**	**98,000**	**65,000**	**47,000**

HARWELL (NDA)

Background

Harwell in Oxfordshire has been a site for basic research into a variety of nuclear related topics for over 50 years. A range of reactors and other research facilities (including accelerators, radioactive handling facilities and laboratories) operated until the 1990s. Three redundant reactors remain on the Harwell site: the British Experimental Pile 0 (BEP0) reactor and the materials test reactors DIDO and PLUTO were decommissioned to Stage 2 several years ago, and all are currently under a minimum Care and Maintenance (C&M) regime.

Scenario

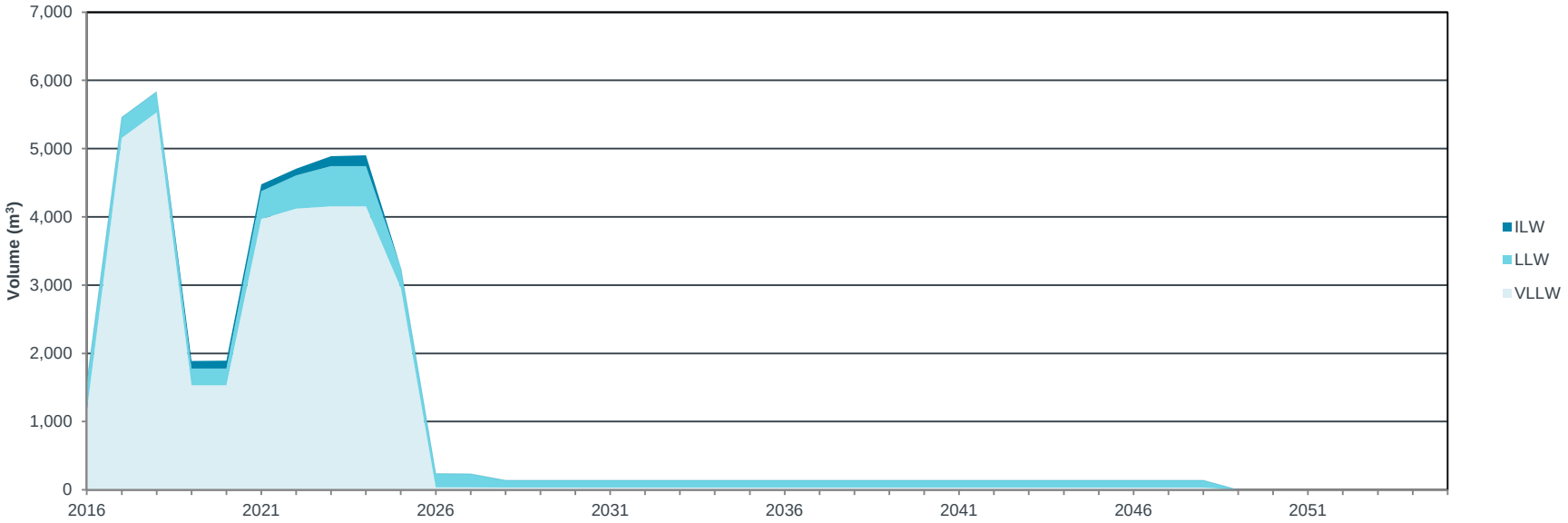
The reference strategy at 1 April 2016 is to decommission and remediate the site so that by 2027 the only licensed facilities remaining would be stores for packaged operational and decommissioning ILW. Final decommissioning of the reactors is scheduled to start in 2018 for BEP0 and 2021 for the MTRs. The radiochemical facility is currently being used for the interim storage of contact-handled ILW in drums. Stage 1 decommissioning of certain laboratories was undertaken before full shutdown; and the whole building should be decommissioned by 2025. The site is establishing similar waste processing operations as part of the wider scope of waste processing in the Solid Waste Complex.

Waste volume

The majority of ILW in stock is from operational wastes, particularly wastes that were originally packaged in sea dump drums. LLW and VLLW in stock are decommissioning wastes. Future arisings are from decommissioning. VLLW consists of soil and rubble from reactor decommissioning and land remediation.

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	1,700	729	2,430	5,590	4,110
LLW	351	6,540	6,890	9,490	478
VLLW	728	35,000	35,800	31,900	Not quantified
TOTAL	**2,780**	**42,300**	**45,100**	**47,000**	**4,590**

Profile of waste arisings



Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	24,000	7,400	2,800	1,400
LLW	1.0	15	8.9	6.4
VLLW	0.001	0.05	0.05	0.04
TOTAL	**24,000**	**7,400**	**2,800**	**1,400**

HEYSHAM 1 (EDFE)

Background

Heysham 1 is a twin-reactor nuclear power station on the north-west coast of England in Lancashire. Heysham 1 has been operating since 1983.

Scenario

Heysham 1 is scheduled to operate until 2024.

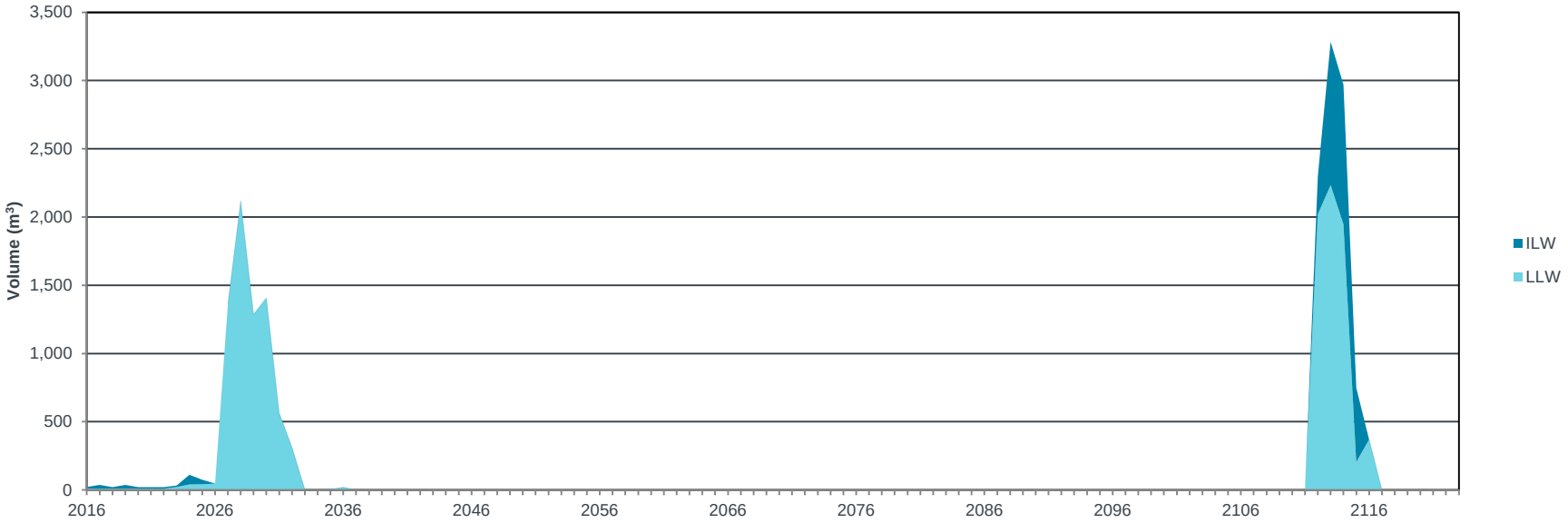
The decommissioning strategy for the AGR sites is Early Safestore, comprising three phases – Defuelling and Care & Maintenance Preparations; Care & Maintenance; Reactor Dismantling & Final Site Clearance. For Heysham 1 the period of Defuelling and Care & Maintenance Preparations extends from 2024 to 2035, Care & Maintenance from 2035 to 2109 and Final Site Clearance from 2109 to 2119.

Waste volume

The majority of waste is LLW from future reactor decommissioning.

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	286	3,120	3,400	5,470	423
LLW	66.1	14,100	14,200	10,000	513
VLLW	0	0	0	0	0
TOTAL	**352**	**17,300**	**17,600**	**15,500**	**936**

Profile of waste arisings



Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	170,000	86,000	57,000	42,000
LLW	0.03	1	0.43	1.8
VLLW	0	0	0	0
TOTAL	**170,000**	**86,000**	**57,000**	**42,000**

HEYSHAM 2 (EDFE)

Background

Heysham 2 is a twin-reactor nuclear power station on the north-west coast of England in Lancashire. Heysham 2 has been operating since 1988.

Scenario

Heysham 2 is scheduled to operate until 2030.

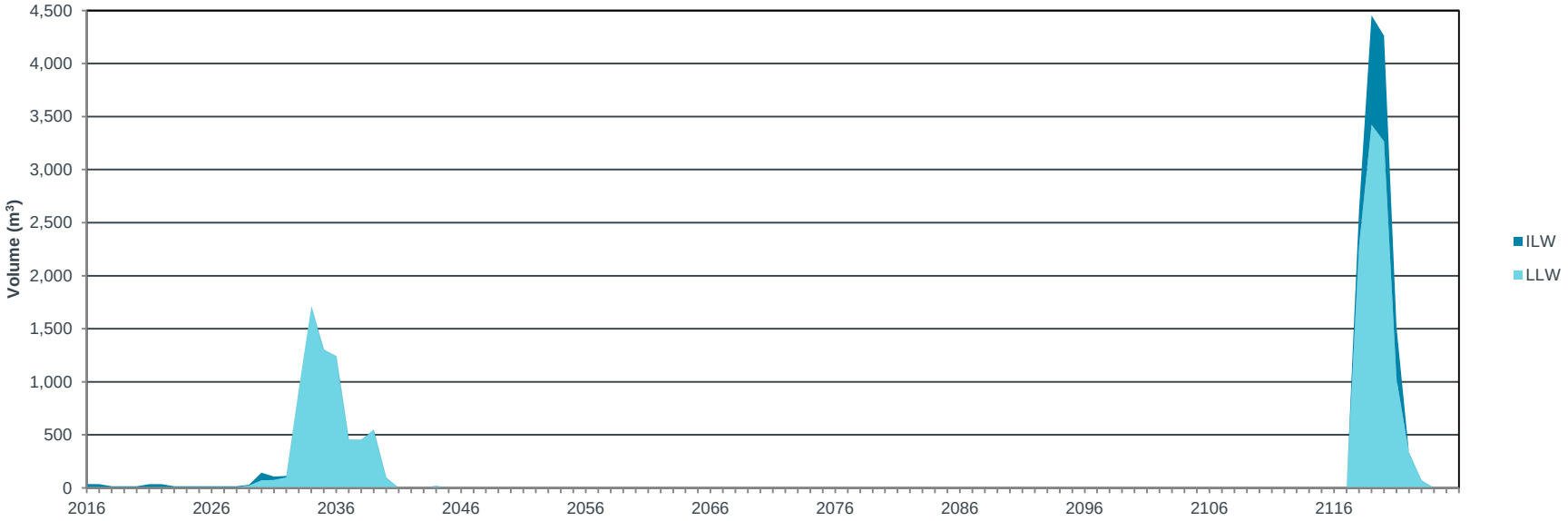
The decommissioning strategy for the AGR sites is Early Safestore, comprising three phases – Defuelling and Care & Maintenance Preparations; Care & Maintenance; Reactor Dismantling & Final Site Clearance. For Heysham 2 the period of Defuelling and Care & Maintenance Preparations extends from 2030 to 2043, Care & Maintenance from 2043 to 2115 and Final Site Clearance from 2115 to 2125.

Waste volume

The majority of waste is LLW from future reactor decommissioning.

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	253	3,170	3,430	5,670	400
LLW	53.9	17,600	17,700	12,000	617
VLLW	0	0	0	0	0
TOTAL	**306**	**20,800**	**21,100**	**17,700**	**1,020**

Profile of waste arisings



Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	28,000	11,000	5,800	5,100
LLW	0.08	2.0	0.78	1.6
VLLW	0	0	0	0
TOTAL	**28,000**	**11,000**	**5,800**	**5,100**

HINKLEY POINT A (NDA)

Background

Hinkley Point A is a twin-reactor Magnox nuclear power station on the west coast of England in Somerset. Hinkley Point A operated from 1965 to 2000. The station is now shut down and is being decommissioned.

Scenario

The decommissioning strategy for the Magnox sites is deferred dismantling of the reactors, comprising three phases – Defuelling and Care & Maintenance Preparations; Care & Maintenance; Final Site Clearance.

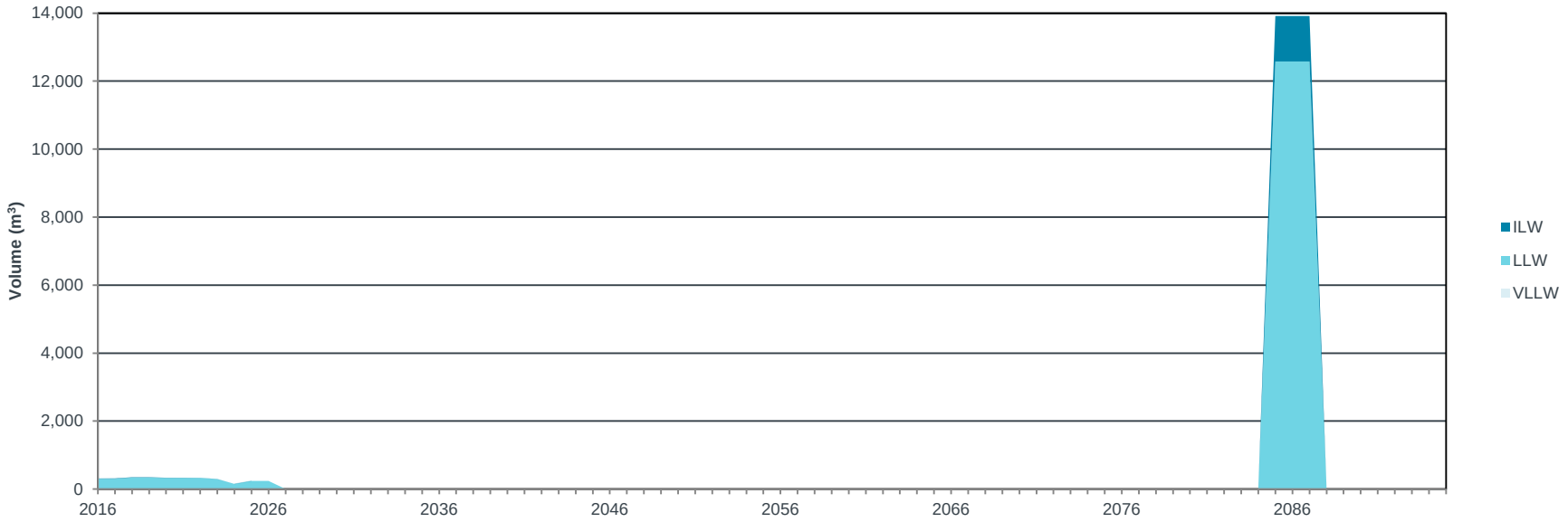
Hinkley Point A has been defuelled, and Care & Maintenance Preparations are scheduled to be completed in 2027. The period of Care & Maintenance extends from 2027 to 2085 and Final Site Clearance from 2084 to 2090.

Waste volume

Stocks of ILW and LLW are from legacy operations and on-going decommissioning. Future arisings are principally from final site clearance.

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	1,280	4,080	5,350	8,370	1,240
LLW	246	41,000	41,300	71,800	3,680
VLLW	4.25	0	4.25	4.25	Not quantified
TOTAL	**1,530**	**45,100**	**46,600**	**80,200**	**4,910**

Profile of waste arisings



Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	6,400	2,900	3,500	2,500
LLW	0.16	0.38	9.8	6.9
VLLW	<0.001	<0.001	<0.001	<0.001
TOTAL	**6,400**	**2,900**	**3,500**	**2,500**

HINKLEY POINT B (EDFE)

Background

Hinkley Point B is a twin-reactor nuclear power station on the south-west coast of England in Somerset. Hinkley Point B has been operating since 1976.

Scenario

Hinkley Point B is scheduled to operate until 2023.

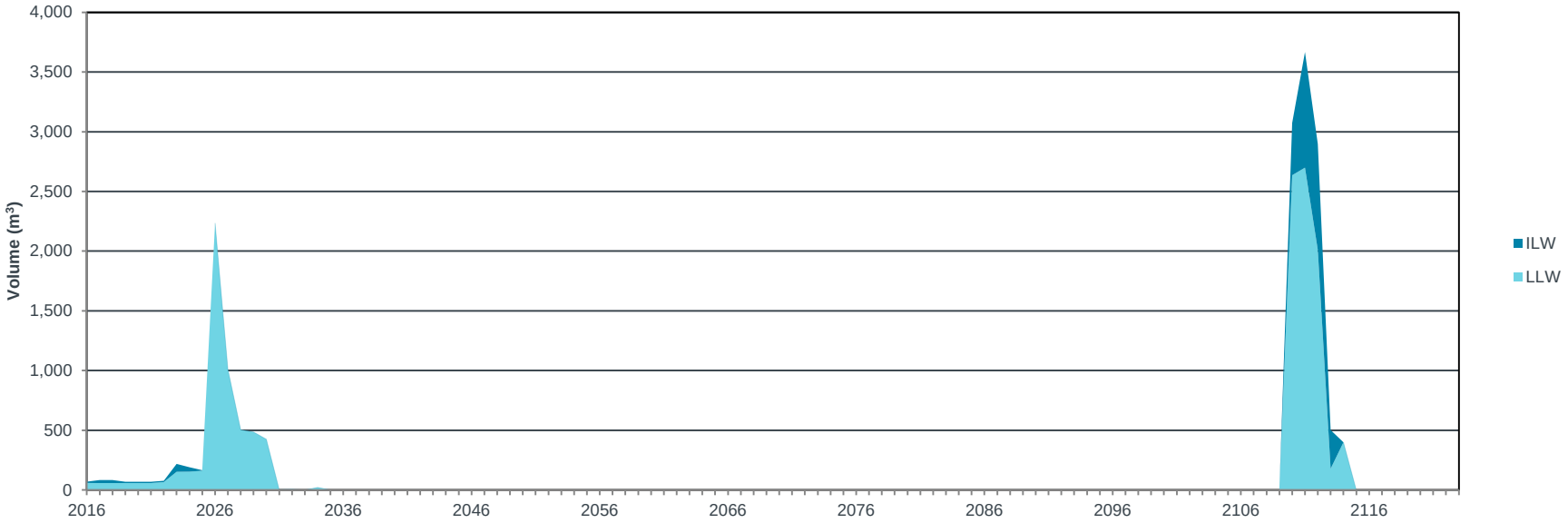
The decommissioning strategy for the AGR sites is Early Safestore, comprising three phases – Defuelling and Care & Maintenance Preparations; Care & Maintenance; Reactor Dismantling & Final Site Clearance. For Hinkley Point B the period of Defuelling and Care & Maintenance Preparations extends from 2023 to 2034, Care & Maintenance from 2034 to 2108 and Final Site Clearance from 2108 to 2117

Waste volume

The majority of waste is LLW from future reactor decommissioning.

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	832	2,830	3,660	6,280	457
LLW	82.5	13,600	13,700	9,180	470
VLLW	0	0	0	0	0
TOTAL	**915**	**16,400**	**17,300**	**15,500**	**927**

Profile of waste arisings



Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	230,000	77,000	53,000	39,000
LLW	0.003	1.9	1	2.7
VLLW	0	0	0	0
TOTAL	**230,000**	**77,000**	**53,000**	**39,000**

HUNTERSTON A (NDA)

Background

Hunterston A is a twin-reactor Magnox nuclear power station on the west coast of Scotland in Ayrshire. Hunterston A operated from 1964 to 1990. The station is now shut down and is being decommissioned.

Scenario

The decommissioning strategy for the Magnox sites is deferred dismantling of the reactors, comprising three phases – Defuelling and Care & Maintenance Preparations; Care & Maintenance; Final Site Clearance.

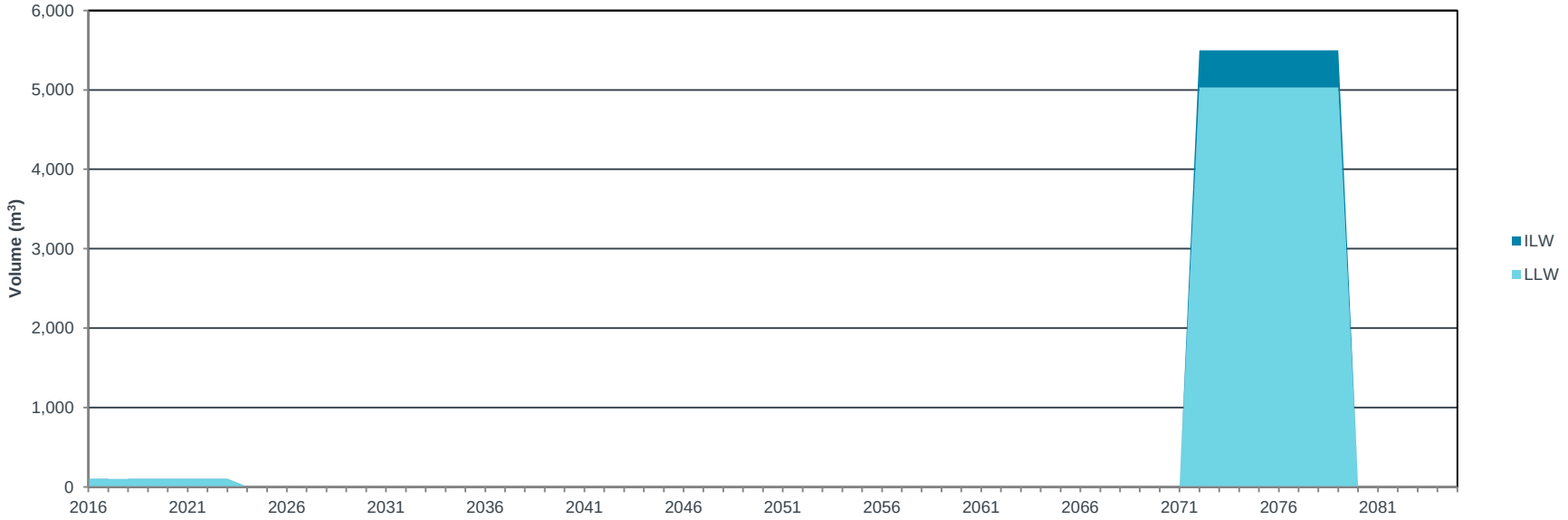
Hunterston A has been defuelled, and Care & Maintenance Preparations are scheduled to be completed in 2024. The period of Care & Maintenance extends from 2024 to 2075 and Final Site Clearance from 2072 to 2080.

Waste volume

Stocks of ILW and LLW are from legacy operations and on-going decommissioning. Future arisings are principally from final site clearance.

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	2,660	3,750	6,420	9,460	1,770
LLW	221	41,100	41,400	73,800	3,770
VLLW	0	0	0	0	0
TOTAL	**2,880**	**44,900**	**47,800**	**83,300**	**5,540**

Profile of waste arisings



Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	1,100	210	570	480
LLW	0.02	0.12	4.4	3.4
VLLW	0	0	0	0
TOTAL	**1,100**	**210**	**580**	**480**

HUNTERSTON B (EDFE)

Background

Hunterston B is a twin-reactor nuclear power station on the west coast of Scotland in Ayrshire. Hunterston B has been operating since 1976.

Scenario

Hunterston B is scheduled to operate until 2023.

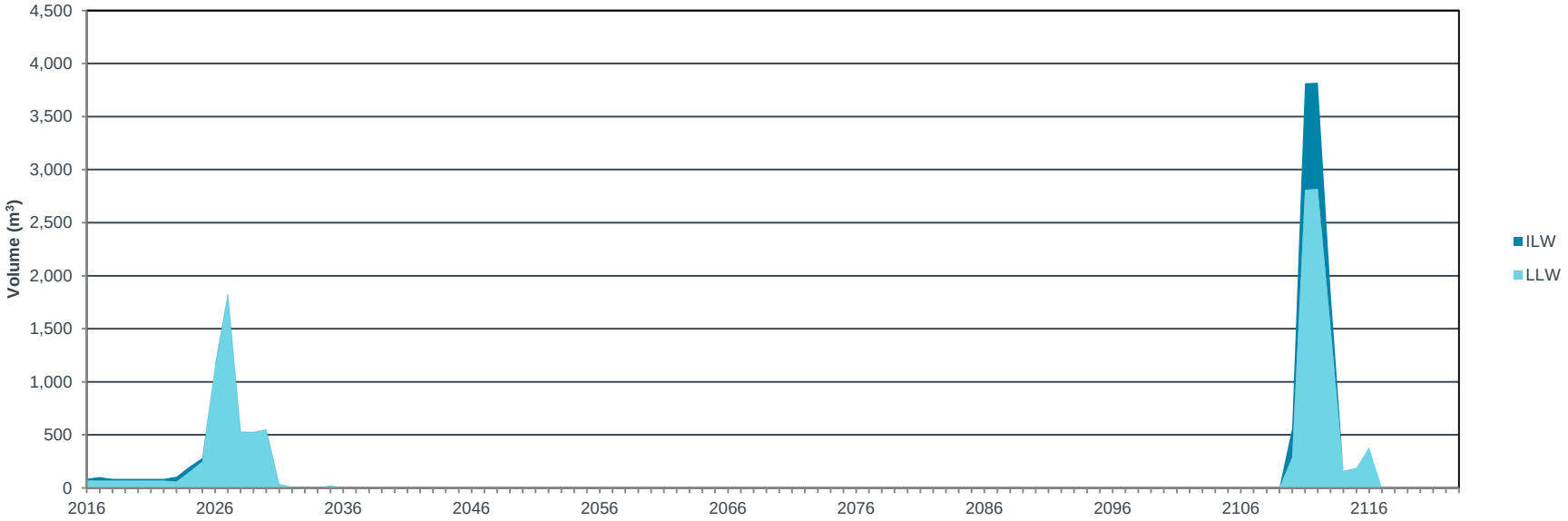
The decommissioning strategy for the AGR sites is Early Safestore, comprising three phases – Defuelling and Care & Maintenance Preparations; Care & Maintenance; Reactor Dismantling & Final Site Clearance. For Hunterston B the period of Defuelling and Care & Maintenance Preparations extends from 2023 to 2034, Care & Maintenance from 2034 to 2108 and Final Site Clearance from 2108 to 2118.

Waste volume

The majority of waste is LLW from future reactor decommissioning.

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	955	2,880	3,840	6,610	655
LLW	108	13,800	13,900	9,160	469
VLLW	0	0	0	0	0
TOTAL	**1,060**	**16,700**	**17,800**	**15,800**	**1,120**

Profile of waste arisings



Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	99,000	29,000	19,000	15,000
LLW	0.12	2.3	1.3	3.6
VLLW	0	0	0	0
TOTAL	**99,000**	**29,000**	**19,000**	**15,000**

LLWR (NDA)

Background

The Low Level Waste Repository (LLWR) south of Sellafield in West Cumbria is the UK's principal facility for the disposal of low level wastes. It has operated since 1959 and accepts LLW from a wide variety of sources throughout the UK, including nuclear licensed sites, hospitals, research establishments and industrial concerns.

The site has also been used for storing plutonium contaminated materials (PCM), initially in former munitions storage magazines, subsequently in a custom built drum store.

Scenario

Operations at the site, which cover receipt, storage and disposal of LLW, are forecast to continue until 2130 and will generate small quantities of LLW.

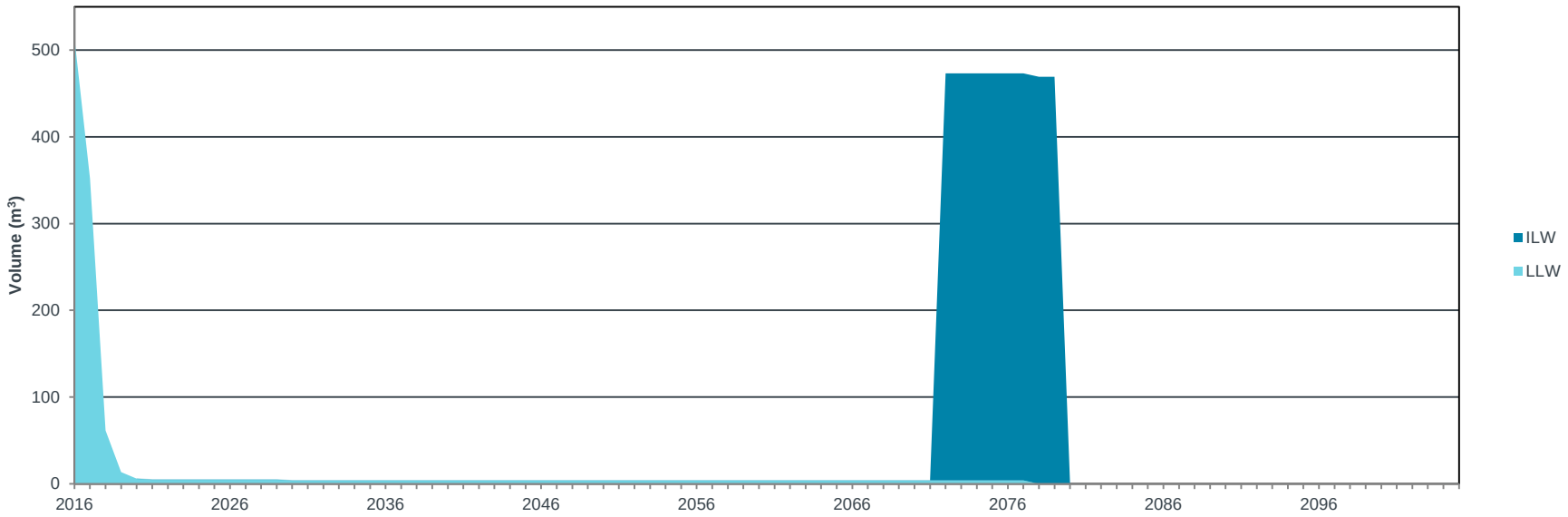
All PCM has been retrieved from the drum store and removed from the site for long-term storage at nearby Sellafield. However, several PCM magazines still require decommissioning. The completion of these decommissioning activities is planned for 2019.

Waste volume

ILW consists of PCM and sealed sources and LLW is from PCM decommissioning wastes and site maintenance.

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	267	34.0	301	169	296
LLW	241	1,180	1,420	980	34
VLLW	0	0	0	0	0
TOTAL	**508**	**1,220**	**1,720**	**1,150**	**330**

Profile of waste arisings



Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	640	190	73	59
LLW	0.04	0.49	0.46	0.45
VLLW	0	0	0	0
TOTAL	**640**	**190**	**73**	**59**

NRTE VULCAN (MOD)

Background

The Naval Reactor Test Establishment (NRTE) Vulcan at Dounreay in Caithness has carried out development work, acting as the test bed for prototype submarine nuclear reactors.

Scenario

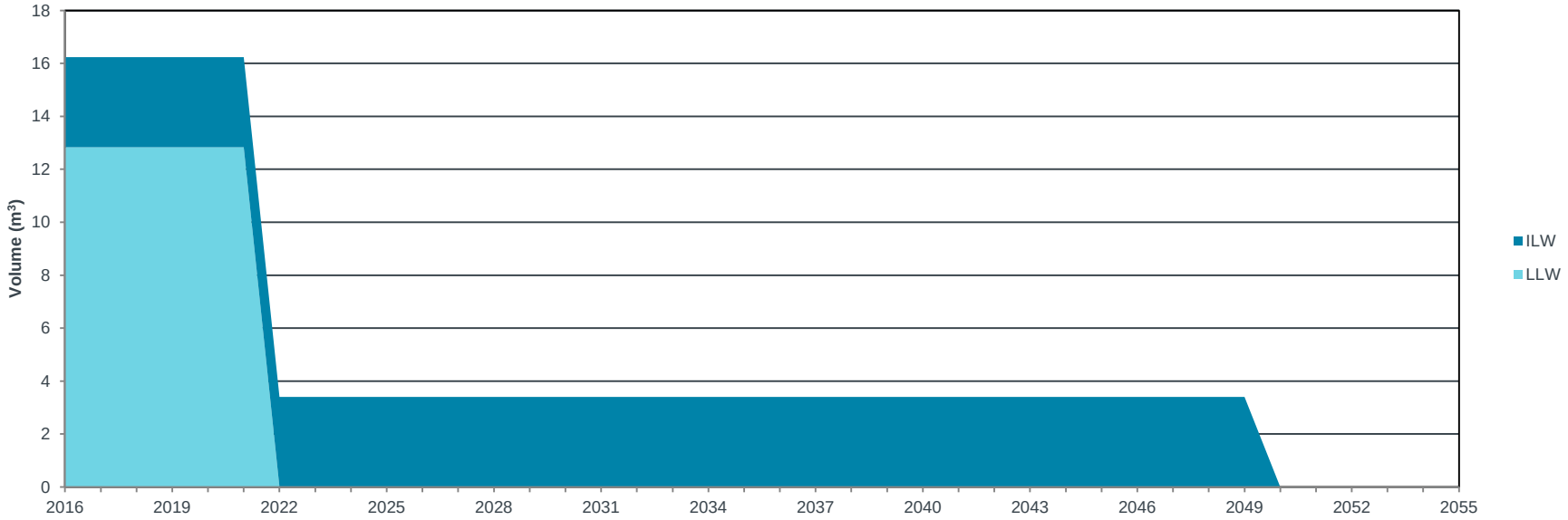
Operations at Vulcan ceased in July 2015. A post-operational phase is estimated to continue until about 2022. Post operational activities include defueling of the reactor, clearance of fuel from the site, and preparations for decommissioning and disposal of the reactors and their component parts. Decommissioning is assumed to take place during the period from about 2022 until 2050.

Waste volume

In addition to arisings from post-operations, the majority of waste in volume terms will be from steel reactor components from reactor decommissioning.

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	8.54	116	124	152	267
LLW	0	77	77	102	6
VLLW	0	0	0	0	0
TOTAL	**8.54**	**193**	**201**	**254**	**273**

Profile of waste arisings



Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	0.44	4,100	2,500	1,800
LLW	0	0.003	0.002	0.002
VLLW	0	0	0	0
TOTAL	**0.44**	**4,100**	**2,500**	**1,800**

OLDBURY (NDA)

Background

Oldbury is a twin-reactor Magnox nuclear power station on the west coast of England in South Gloucestershire. Oldbury operated from 1967 to 2012. The station is now shut down and is being decommissioned.

Scenario

The decommissioning strategy for the Magnox sites is deferred dismantling of the reactors, comprising three phases – Defuelling and Care & Maintenance Preparations; Care & Maintenance; Final Site Clearance.

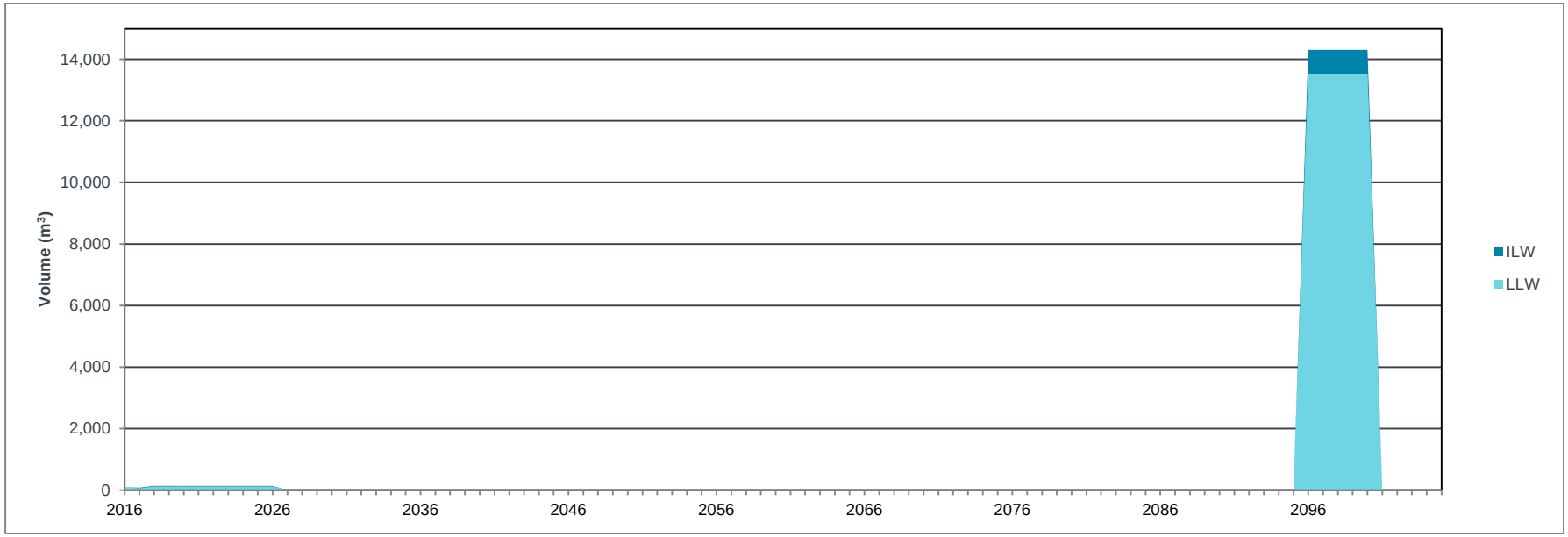
Oldbury has been defuelled, and Care & Maintenance Preparations are scheduled to be completed in 2027. The period of Care & Maintenance extends from 2027 to 2096 and Final Site Clearance from 2096 to 2101.

Waste volume

Stocks of ILW and LLW are from legacy operations and on-going care and maintenance preparations. Future arisings are principally from final site clearance.

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	629	4,100	4,730	6,080	386
LLW	13.1	69,000	69,000	126,000	6,450
VLLW	0	0	0	0	0
TOTAL	**642**	**73,100**	**73,700**	**132,000**	**6,840**

Profile of waste arisings



Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	6,600	960	1,400	1,300
LLW	0.01	0.85	3.0	2.5
VLLW	0	0	0	0
TOTAL	**6,600**	**960**	**1,400**	**1,300**

HMNB PORTSMOUTH (MOD)

Background

HMNB Portsmouth in Hampshire is involved in managing naval stores and de-equipping redundant naval surface vessels that can contain equipment and instrumentation incorporating radioactive materials. The base produces small quantities of radioactive waste from these activities.

Scenario

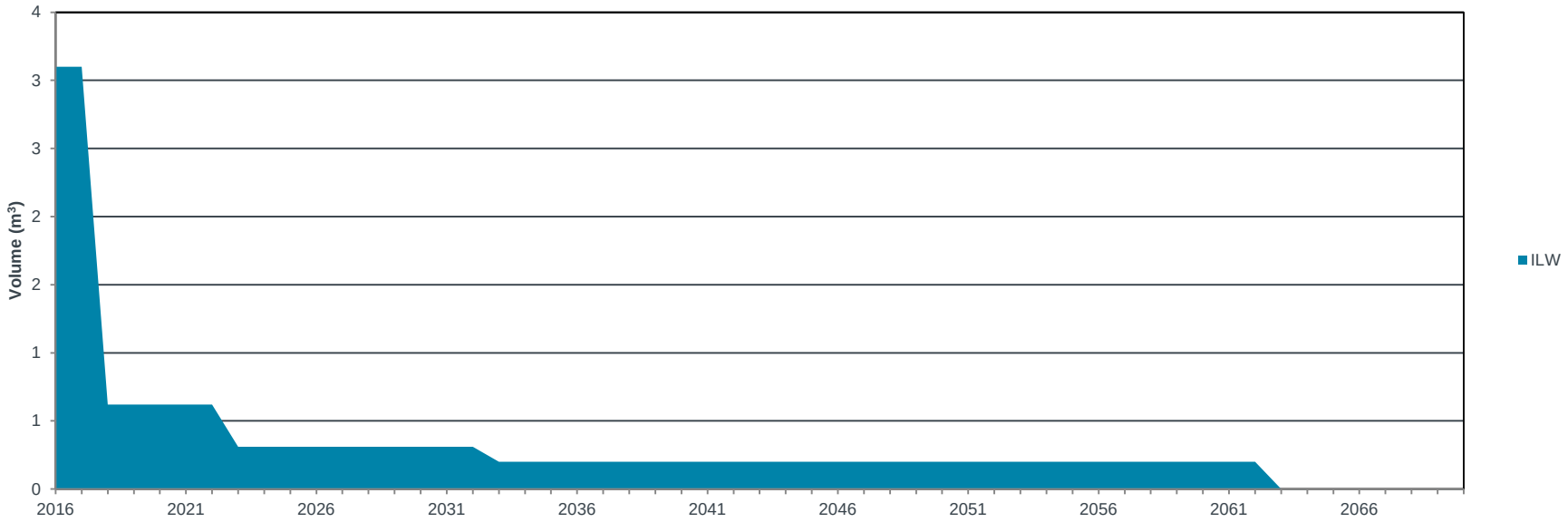
Waste arisings do not occur at a constant rate and are difficult to determine as they are dependent on a number of factors such as equipment being declared as obsolete and legacy items being returned following site closures. Volumes are estimated to 2063.

Waste volume

The site is forecast to produce only small quantities of ILW.

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	7.5	18.4	25.9	32.6	37
LLW	0	0	0	0	0
VLLW	0	0	0	0	0
TOTAL	**7.5**	**18.4**	**25.9**	**32.6**	**37**

Profile of waste arisings



Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	160	36	7.8	3.9
LLW	0	0	0	0
VLLW	0	0	0	0
TOTAL	**160**	**36**	**7.8**	**3.9**

ROSYTH & DEVONPORT – DECOMMISSIONED SUBMARINES (MOD)

Background

When nuclear powered submarines leave Royal Navy service they are decommissioned. This involves removing the nuclear fuel from the reactor, stripping out equipment and preparing the vessel for interim storage afloat. Radioactivity remains contained within the reactor compartment structures. To date 19 nuclear-powered submarines have left naval service and 11 have been defuelled. They are being stored afloat at Rosyth and Devonport dockyards.

Scenario

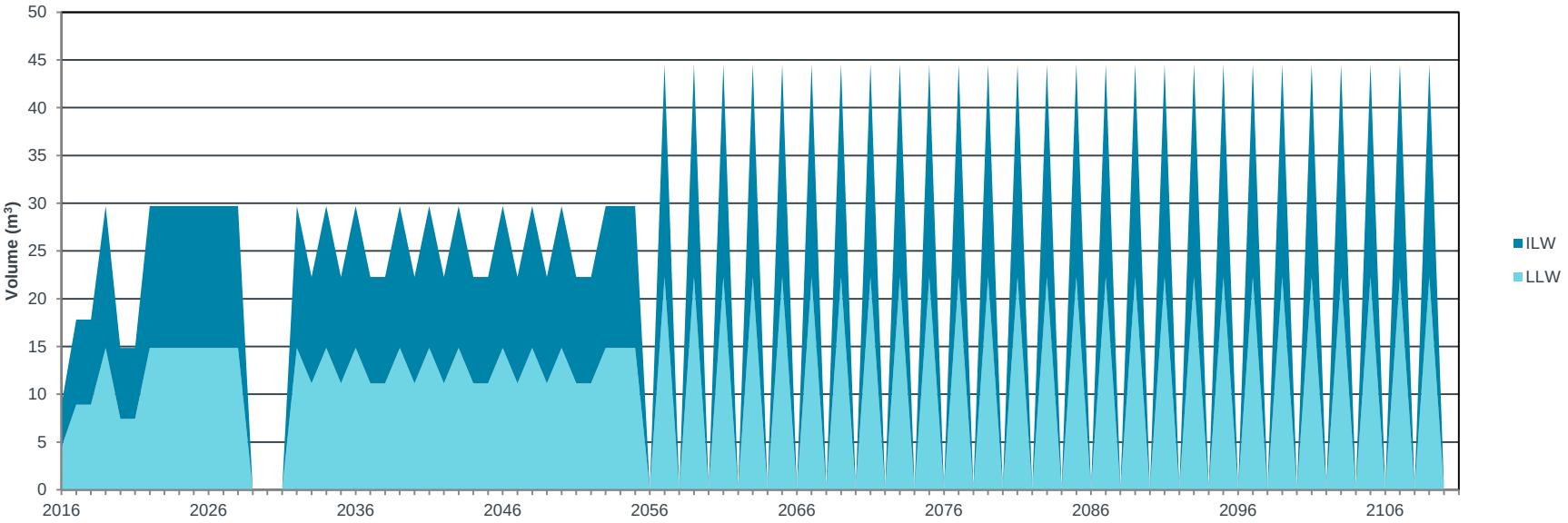
Future arisings of submarine decommissioning wastes assume a continuing naval nuclear propulsion programme with a fleet of up to 7 SSNs (nuclear powered, conventionally armed submarines) and 4 SSBNs (nuclear powered submarines with ballistic nuclear weapons). Submarines are assumed to have a hull life of between 25 and 30 years and to be stored afloat for 30 years before being dismantled and the waste processed. MOD's Submarine Dismantling Project (SDP) aims to deliver a safe, environmentally responsible and cost effective solution for dismantling 27 of the UK's defuelled nuclear-powered submarines after they have left service with the Royal Navy. This comprises all 19 currently stored afloat and a further eight yet to leave service. The 2016 Inventory includes wastes for 27 submarines currently in scope of the SDP programme as well as any future classes of submarine that exit operational service and will begin initial dismantling before 2110.

Waste volume

ILW and LLW future arisings are reported from submarine decommissioning.

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	0	191	191	2,470	684
LLW	0	1,070	1,070	55.6	5
VLLW	0	0	0	0	0
TOTAL	**0**	**1,260**	**1,260**	**2,520**	**689**

Profile of waste arisings



Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	0	1,700	4,300	3,500
LLW	0	1.3	2.5	1.9
VLLW	0	0	0	0
TOTAL	**0**	**1,700**	**4,300**	**3,500**

ROSYTH ROYAL DOCKYARD (MOD)

Background

The Rosyth Royal Dockyard near Dunfermline in Fife used to carry out refitting and refuelling of the nuclear submarine fleet. These activities Rosyth ceased in 2003. The site is undergoing progressive decommissioning.

Scenario

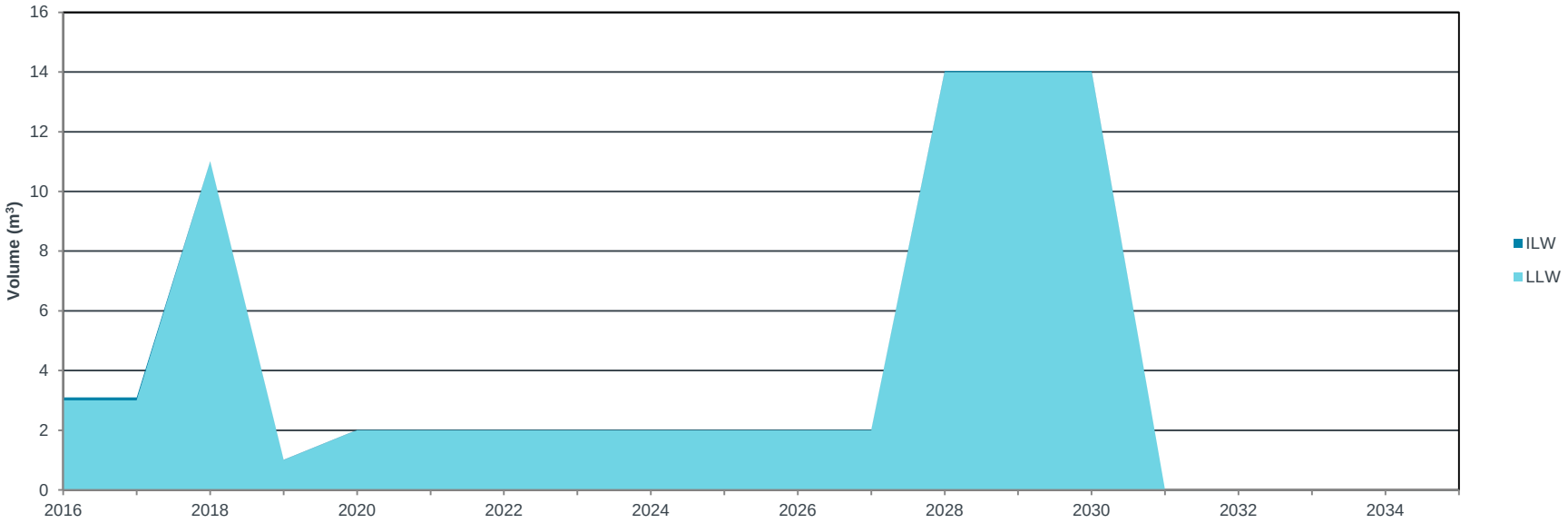
The first stage of Rosyth site decommissioning was completed in 2010, dealing with nuclear facilities associated with the previous submarine refitting activities. A number of nuclear-powered submarines have been taken out of service and decommissioned. Seven are stored afloat at Rosyth. The first stage of initial submarine dismantling (LLW removal) will commence at Rosyth in 2016. This will be followed by the final stage of initial submarine dismantling (ILW removal). Submarine dismantling activities at Rosyth are forecast to continue until 2028, after which the nuclear facilities used to support submarine dismantling will be decommissioned.

Waste volume

Small volumes of ILW and LLW are produced at Rosyth.

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	22.4	0.4	22.8	106	6
LLW	5.8	76	81.8	99.1	4
VLLW	0	0	0	0	0
TOTAL	**28.2**	**76.4**	**105**	**205**	**10**

Profile of waste arisings



Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	0.46	0.14	0.11	0.09
LLW	<0.001	0.004	0.003	0.002
VLLW	0	0	0	0
TOTAL	**0.46**	**0.14**	**0.11**	**0.09**

SELLAFIELD (NDA)

Background

Sellafield in West Cumbria was the birthplace of the UK nuclear industry. Since the 1940s the site has been at the forefront of nuclear developments, initially in support of the UK nuclear weapons programme followed by advances in the early generations of nuclear reactors and the development of spent fuel reprocessing technology. As a result of these activities and subsequent investment in waste treatment plants and stores, there are now about 300 buildings on the site with nuclear inventories. The Sellafield site incorporates the historically separate licensed sites of Windscale and Calder Hall. The Windscale site includes the Windscale Piles, the early spent fuel reprocessing facilities, WAGR and extensive PIE facilities (all facilities except PIE are shut down). The Calder Hall site is the location of the first Magnox nuclear power station (now shut down).

Scenario

There are two operating spent fuel reprocessing plants at Sellafield:

- **Magnox Reprocessing Plant** – operating since 1964, it reprocesses spent fuel from the UK's fleet of Magnox stations. At 1 April 2016, the total quantity of fuel reprocessed was approximately 53,000tU. This includes approximately 3,000tU of spent fuel from the overseas Magnox reactors at Latina in Italy and Tokai Mura in Japan. The plant will continue to receive and reprocess the remaining Magnox fuel (all reactors are shutdown following the end of power generation at Wylfa in December 2015) and a smaller quantity of other spent fuel. The plant is scheduled to cease operations by the end of 2020 when its lifetime throughput is expected to be approximately 55,000tU.
- **Thermal Oxide Reprocessing Plant** (Thorp) - operating since 1994, it reprocesses spent fuel from the UK's fleet of AGRs along with spent fuel from overseas PWR and BWR power stations. Nearly all overseas fuel has been reprocessed, and the plant will continue to reprocess AGR spent fuel, and a smaller quantity of other spent fuel, until it shuts down by the end of 2018. Further arisings of AGR spent fuel will be stored underwater in ponds before being packaged and consigned to a GDF. At 1 April 2016, the total quantity of spent fuel reprocessed in Thorp was over 8,300tU. The lifetime throughput of the plant is expected to be approximately 9,500tU, including approximately 5,000tU AGR spent fuel and approximately 4,400tU overseas spent fuel.

Vitrified HLW from reprocessing overseas spent fuel will continue to be repatriated to the country of origin; the programme is expected to be completed by about 2021/22. After closure of the reprocessing plants, the site will focus on waste retrieval and treatment, and the POCO and decommissioning of redundant facilities. Sellafield is exploring options for optimising these processes; therefore the current waste volume estimates will be subject to future revision as plans are developed. The main group of legacy plants at Sellafield known as Legacy Ponds & Silos (LP&S) represent the highest hazard at Sellafield and the highest decommissioning priority across the NDA estate. They comprise:

- **Pile Fuel Storage Pond** – an open-air pond used for underwater storage of a range of early reactor development fuels;

- **First Generation Magnox Storage Pond** - an open-air pond used to store Magnox fuel before reprocessing;
- **Magnox Swarf Storage Silo**[15] – a series of covered compartments used mainly to store Magnox fuel cladding removed from the spent fuel rods before reprocessing;
- **Pile Fuel Cladding Silo** – covered compartments used to store Pile reactor fuel cladding removed from the spent fuel before reprocessing.

The other nuclear facilities at Sellafield will be progressively decommissioned as they reach the end of their operating lives. Depending on the role of the plant there are a number of decommissioning stages to go through. All site decommissioning activities will be largely completed by 2090. All buildings/waste stores (except product stores and supporting ancillary buildings) are assumed to be demolished by 2120.

Waste volume

Most waste is LLW and VLLW from decommissioning the site's many nuclear facilities.

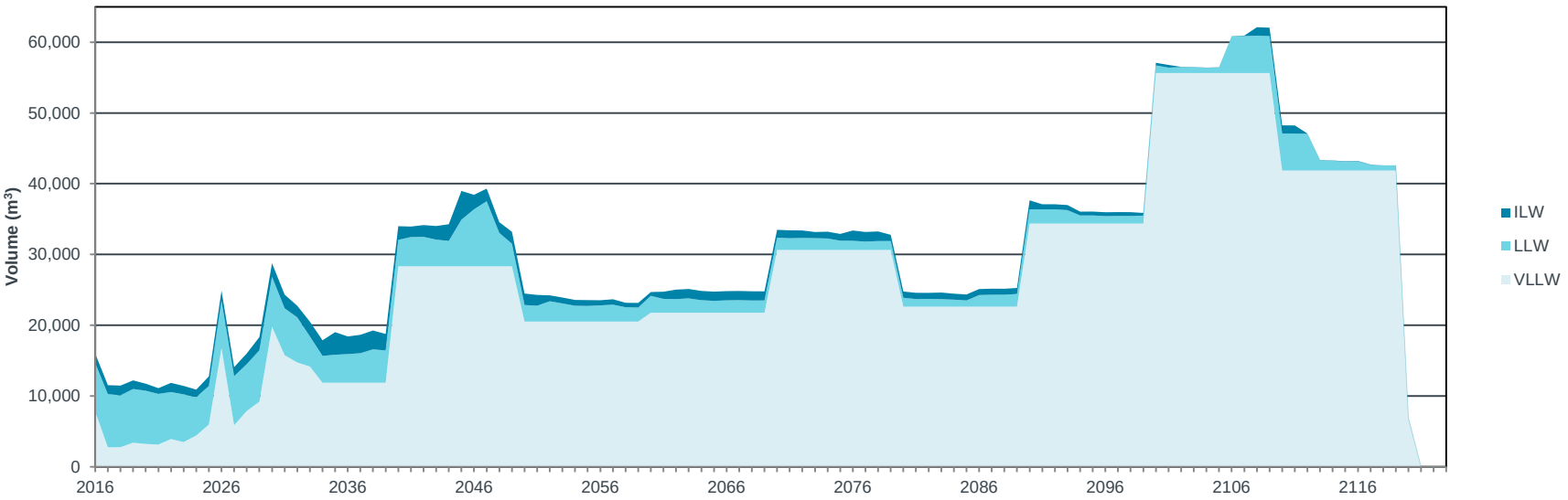
Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
HLW	1,960	See Note 1	1,150	1,500	7,650
ILW	73,200	115,000	188,000	298,000	189,000
LLW(2)	3,330	330,000	333,000	222,000	11,300
VLLW	140	2,780,000	2,780,000	2,650,000	Not quantified
TOTAL	**78,600**	**3,230,000**	**3,300,000**	**3,170,000**	**208,000**

(1) After 1.4.2016 there is a net decrease in HLW volume because accumulated Highly Active Liquor (HAL) is being conditioned, which reduces its volume, and also because vitrified HLW is being exported to overseas customers.

(2) In addition there is 390 m^3 reported volume (110 m^3 packaged volume) from Magnox fuel flasks and flatrols and 427 m^3 reported volume (0 m^3 packaged volume) from AGR fuel flasks and flatrols stored at Sellafield.

Profile of waste arisings

[15] Sellafield Ltd has recently announced a new approach to managing ILW from this plant. Given that the waste package data are not yet available the estimate of final packaged waste quantity in the 2016 Inventory is based on the original treatment process. However, it is expected that the new approach will result in fewer waste packages.



Radioactivity

Waste Category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
HLW	79,000,000	31,000,000	9,800,000	3,200,000
ILW	2,200,000	1,200,000	570,000	350,000
LLW	1.9	29	18	15
VLLW	<0.001	3.8	11	14
TOTAL	**81,000,000**	**32,000,000**	**10,000,000**	**3,600,000**

SIZEWELL A (NDA)

Background

Sizewell A is a twin-reactor Magnox nuclear power station in Suffolk on the east coast of England. Sizewell A operated from 1966 to 2006. The station is now shut down and is being decommissioned.

Scenario

The decommissioning strategy for the Magnox sites is deferred dismantling of the reactors, comprising three phases – Defuelling and Care & Maintenance Preparations; Care & Maintenance; Final Site Clearance.

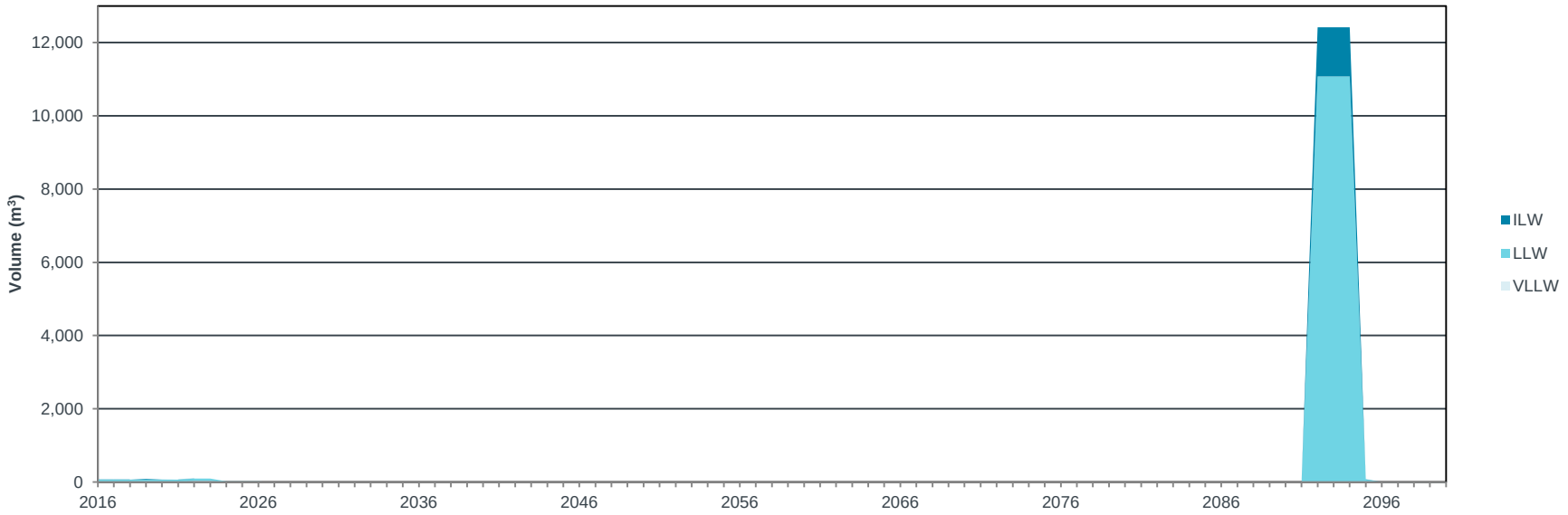
Sizewell A has been defuelled, and Care & Maintenance Preparations are scheduled to be completed in 2026. The period of Care & Maintenance extends from 2027 to 2092 and Final Site Clearance from 2088 to 2098.

Waste volume

Stocks of ILW and LLW are from legacy operations and on-going decommissioning. Future arisings are principally from final site clearance.

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	589	4,050	4,640	5,790	300
LLW	495	34,000	34,500	60,500	3,100
VLLW	0	56	56	56	Not quantified
TOTAL	**1,080**	**38,100**	**39,200**	**66,400**	**3,400**

Profile of waste arisings



Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	71	41	660	590
LLW	1.4	1.5	7.0	4.5
VLLW	0	<0.001	<0.001	<0.001
TOTAL	**73**	**43**	**660**	**600**

SIZEWELL B (EDFE)

Background

Sizewell B is a PWR nuclear power station on the east coast of England in Suffolk. The Sizewell B reactor has been operating since 1995.

Scenario

Sizewell B is scheduled to operate until 2035.

The decommissioning strategy for Sizewell B is Early Site Clearance, with reactor dismantling deferred for a period of 10 years after station shutdown. All decommissioning work on the site is planned to be completed 20 years after station shutdown. This strategy has been adopted following a review of international best practice for PWR decommissioning.

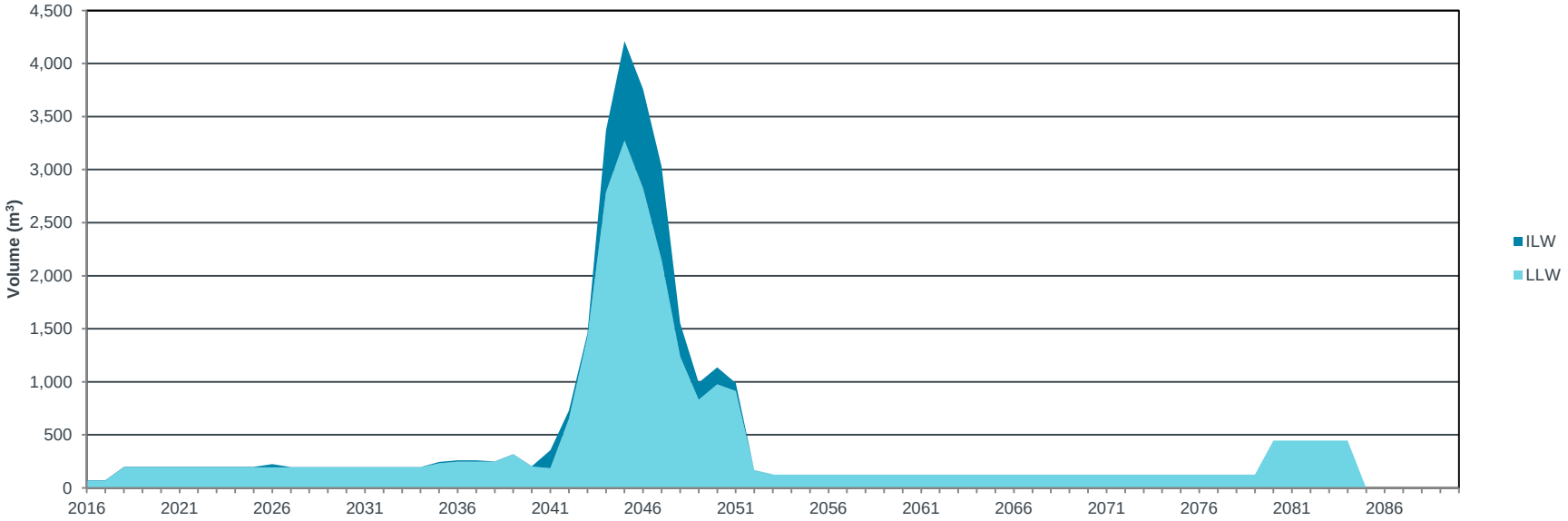
The spent fuel from the reactor will be stored at the site until a disposal route is available, although this does not foreclose potential alternative options.

Waste volume

The majority of waste is LLW from future reactor decommissioning. This includes redundant shield and transfer casks that arise after the closure of the spent fuel dry store.

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	109	4,480	4,580	6,180	2,380
LLW	104	28,000	28,100	26,800	1,380
VLLW	0	0	0	0	0
TOTAL	**212**	**32,400**	**32,700**	**33,000**	**3,760**

Profile of waste arisings



Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	6,400	130,000	30,000	21,000
LLW	0.07	2.0	0.82	0.53
VLLW	0	0	0	0
TOTAL	**6,400**	**130,000**	**30,000**	**21,000**

SPRINGFIELDS (NDA)

Background

The Springfields site, near Preston in Lancashire, manufactures nuclear fuel products for the UK's nuclear power stations and for international customers. Operations include the fabrication of oxide fuels for AGRs and intermediate fuel products such as powders, granules and pellets.

Scenario

Future operations at Springfields will depend on commercial strategies and the outlook for the worldwide nuclear power industry. The 2016 Inventory makes no prediction for the arisings of oxide fuel and product manufacture and uranium enrichment operations beyond 2030. While the Hex Plant is not currently in use, Westinghouse is pursuing future UF_6 conversion contracts. In addition, redundant plants and buildings are being demolished, and there is an ongoing programme to recover the site's historic legacy of uranic residues. Oxide manufacturing is forecast to continue until 2028, supplying the AGR power stations and uranium dioxide products for UK and overseas customers.

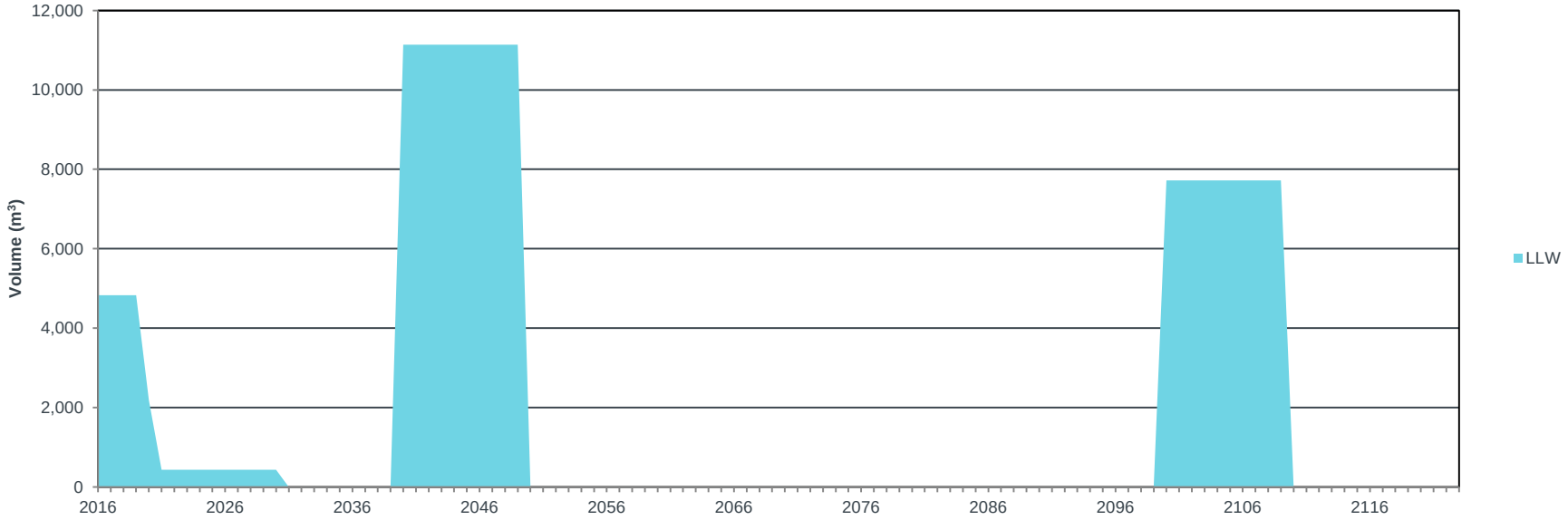
Decommissioning of residues facilities is expected to be completed by 2017, and the Hex Plant and Oxide Fuels Complex have a provisional date of 2045. Final site clean-up and remediation now has a provisional date of ~2100.

Waste volume

Only LLW wastes are reported. The site generates low activity wastes that have a range of activity concentrations spanning the VLLW/LLW boundary. The wastes are not separated into the two categories as they can be routinely disposed of to the landfill site at Clifton Marsh, which has a permit to accept radioactive wastes up to 200 Bq/g (i.e. comprising VLLW and LLW at the lower end of its activity range).

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	0	0	0	0	0
LLW	123	214,000	215,000	205,000	67
VLLW	0	0	0	0	0
TOTAL	**123**	**214,000**	**215,000**	**205,000**	**67**

Profile of waste arisings



Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	0	0	0	0
LLW	NE	NE	NE	NE
VLLW	0	0	0	0
TOTAL	**NE**	**NE**	**NE**	**NE**

TORNESS (EDFE)

Background

Torness is a twin-reactor AGR nuclear power station on the east coast of Scotland in East Lothian. Torness has been operating since 1988.

Scenario

Torness is scheduled to operate until 2030.

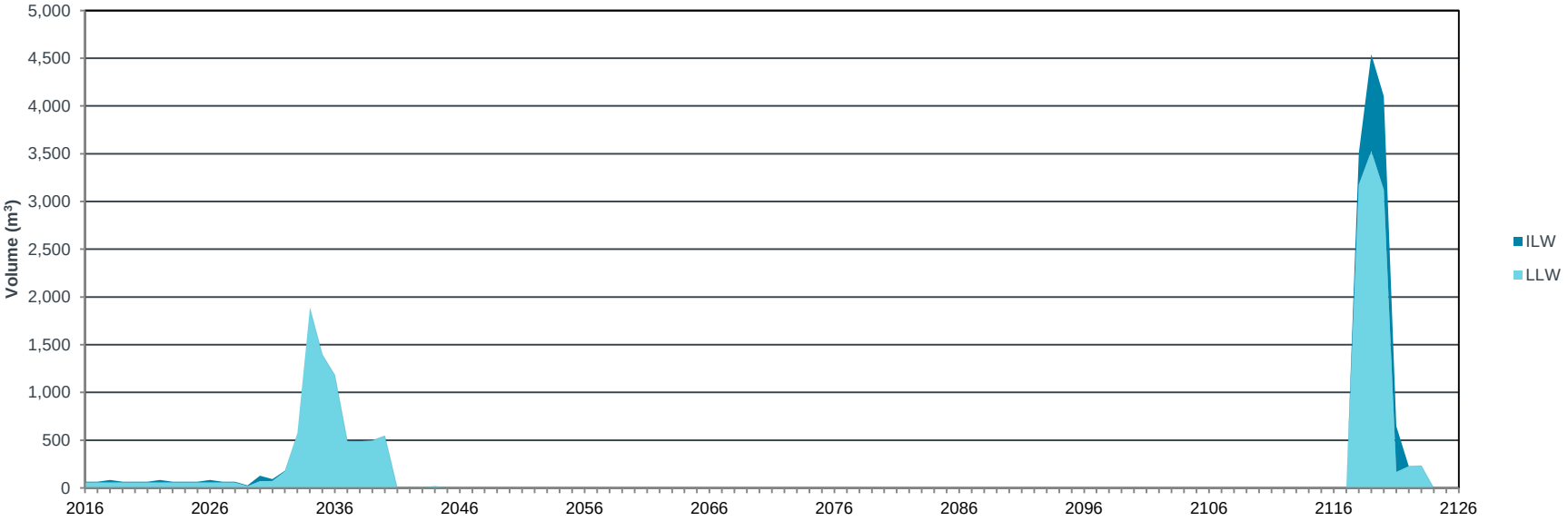
The decommissioning strategy for the AGR sites is Early Safestore, comprising three phases – Defuelling and Care & Maintenance Preparations; Care & Maintenance; Reactor Dismantling & Final Site Clearance. For Torness the period of Defuelling and Care & Maintenance Preparations extends from 2030 to 2044, Care & Maintenance from 2044 to 2115 and Final Site Clearance from 2115 to 2125.

Waste volume

The majority of waste is LLW from future reactor decommissioning.

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	271	3,070	3,340	5,540	440
LLW	27.6	18,700	18,700	12,700	651
VLLW	0	0	0	0	0
TOTAL	**299**	**21,800**	**22,100**	**18,300**	**1,090**

Profile of waste arisings



Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	210,000	40,000	26,000	20,000
LLW	0.003	0.23	0.08	1.1
VLLW	0	0	0	0
TOTAL	210,000	40,000	26,000	20,000

TRAWSFYNYDD (NDA)

Background

Trawsfynydd is a twin-reactor Magnox nuclear power station in Gwynedd, Wales. Trawsfynydd operated from 1965 to 1993. The station is now shut down and is being decommissioned.

Scenario

The decommissioning strategy for the Magnox sites is deferred dismantling of the reactors, comprising three phases – Defuelling and Care & Maintenance Preparations; Care & Maintenance; Final Site Clearance.

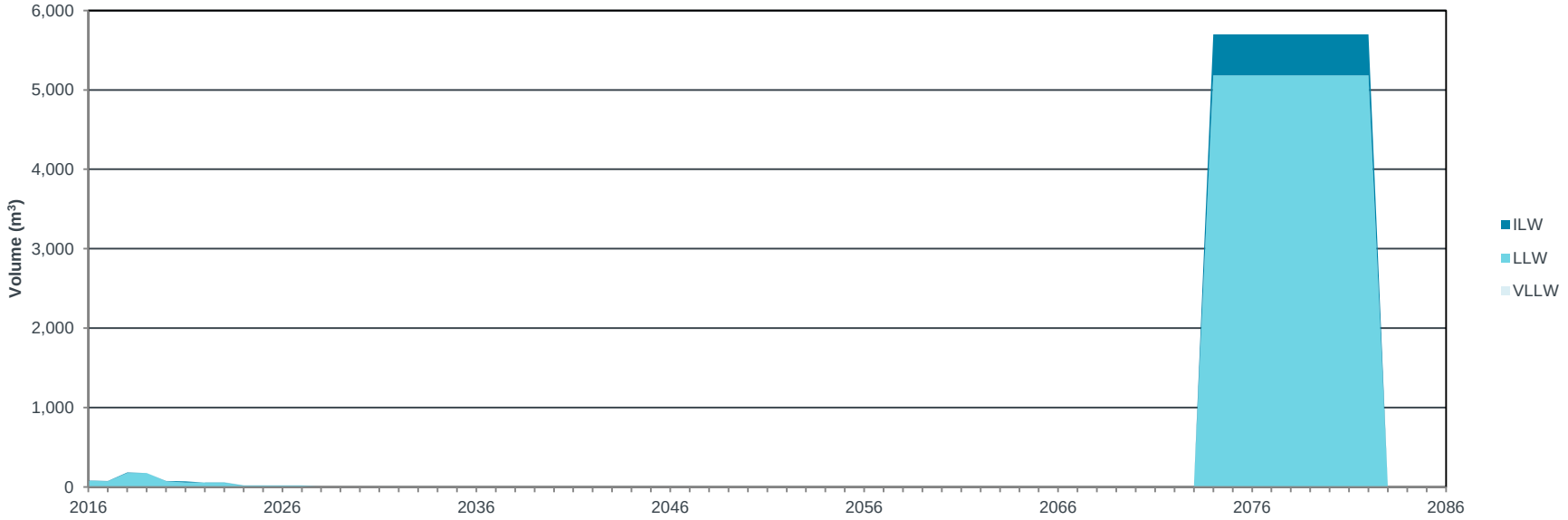
Trawsfynydd has been defuelled, and Care & Maintenance Preparations are scheduled to be completed in 2028. The period of Care & Maintenance extends from 2028 to 2078 and Final Site Clearance from 2074 to 2083.

Waste volume

Stocks of ILW and LLW are from legacy operations and on-going care and maintenance preparations. Future arisings are principally from final site clearance.

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	2,080	4,690	6,770	13,100	868
LLW	331	47,500	47,900	87,800	4,490
VLLW	5	0	5	5	Not quantified
TOTAL	**2,420**	**52,200**	**54,600**	**101,000**	**5,360**

Profile of waste arisings



Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	2,100	1,100	1,800	1,300
LLW	0.30	1	20	12
VLLW	<0.001	<0.001	<0.001	<0.001
TOTAL	**2,100**	**1,100**	**1,800**	**1,300**

WINFRITH (NDA)

Background

At Winfrith in Dorset research and development work into different reactor types was carried out. All facilities, including a number of research, experimental and prototype reactors, have closed down and have either already been decommissioned or are currently being decommissioned.

Scenario

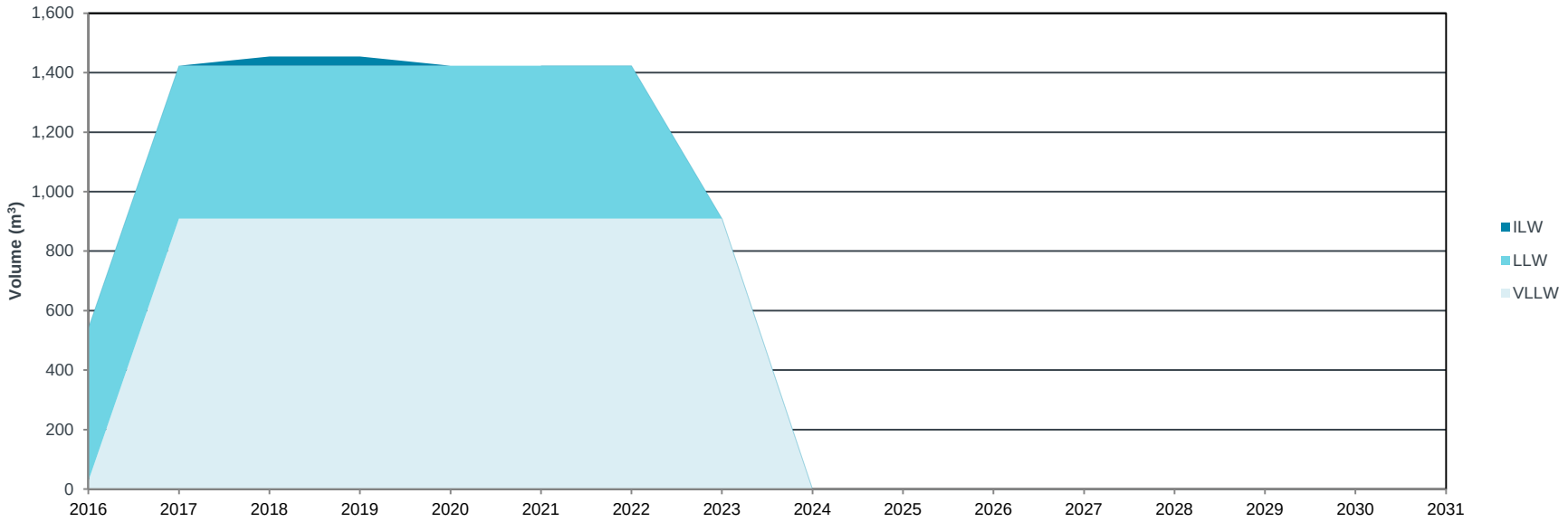
There are two remaining shutdown reactors on the site: the Steam Generating Heavy Water Reactor (SGHWR) and the Dragon high temperature gas-cooled reactor. Most of the secondary facilities associated with these buildings have been decommissioned, and the reactors have been in a Care & Maintenance regime for a number of years. In 2011 limited decommissioning activities recommenced on Dragon, and final decommissioning of both reactors commenced in 2014 and is scheduled to be complete by 2023.

Waste volume

Waste stocks are from legacy operations and decommissioning. Future arisings are from decommissioning. VLLW consists of soil and rubble from reactor decommissioning and land remediation.

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	5.18	62	67.2	1,350	125
LLW	894	3,600	4,490	5,880	134
VLLW	28	6,360	6,390	6,390	Not quantified
TOTAL	**927**	**10,000**	**11,000**	**13,600**	**259**

Profile of waste arisings



Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	71	820	500	360
LLW	4.7	2.4	1	0.40
VLLW	<0.001	0.01	0.005	0.002
TOTAL	**75**	**820**	**500**	**360**

WYLFA (NDA)

Background

Wylfa is a twin-reactor Magnox nuclear power station on the coast of Wales in Anglesey. Wylfa operated from 1971 to 2015. The station is now shut down and is being decommissioned.

Scenario

The decommissioning strategy for the Magnox sites is deferred dismantling of the reactors, comprising three phases – Defuelling and Care & Maintenance Preparations; Care & Maintenance; Final Site Clearance.

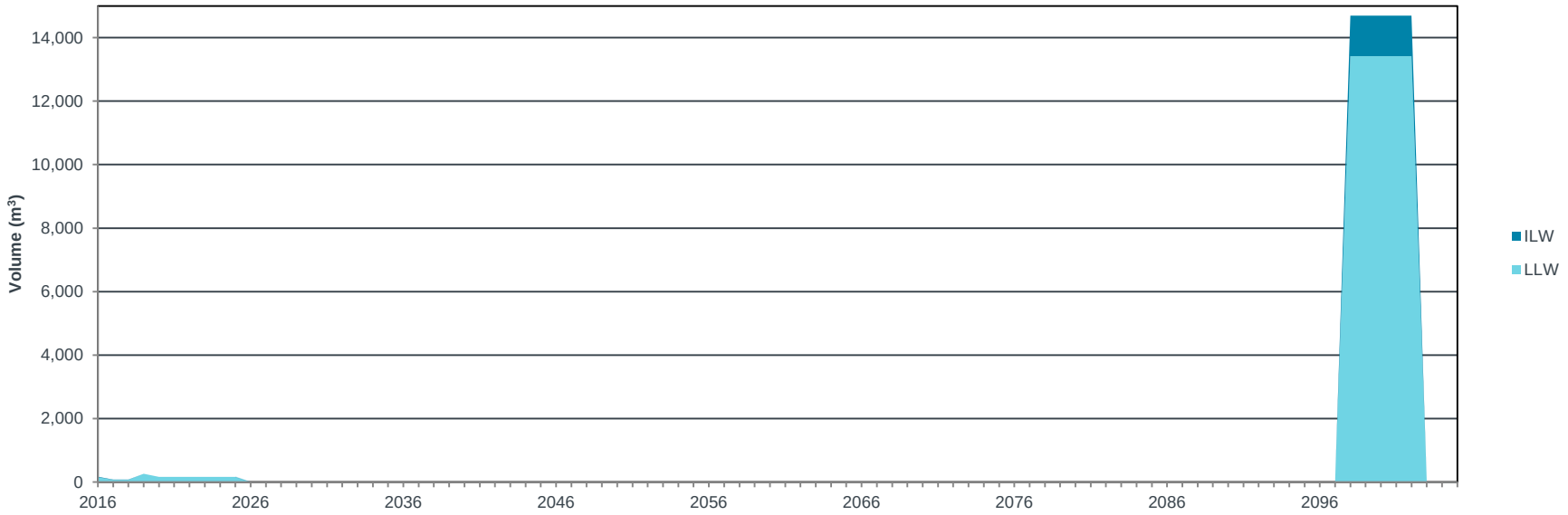
Wylfa is being defuelled, and Care & Maintenance Preparations are scheduled to be completed in 2026. The period of Care & Maintenance extends from 2026 to 2100 and Final Site Clearance from 2098 to 2103.

Waste volume

Stocks of ILW and LLW are from legacy operations and on-going care and maintenance preparations. Future arisings are principally from final site clearance.

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	848	6,420	7,270	9,050	462
LLW	212	68,800	69,000	120,000	6,140
VLLW	0	0	0	0	0
TOTAL	**1,060**	**75,200**	**76,200**	**129,000**	**6,600**

Profile of waste arisings



Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	50,000	3,300	3,100	3,700
LLW	0.19	0.20	2.0	2.2
VLLW	0	0	0	0
TOTAL	**50,000**	**3,300**	**3,100**	**3,700**

MINOR WASTE PRODUCERS (Various Sites)

Background

Many so-called ‘small users’ of radioactive substances (such as hospitals, industrial, educational and research establishments) produce small quantities of radioactive waste. In the Inventory these establishments are collectively referred to as ‘*Minor waste producers’*.

Scenario

Rates of waste arising are difficult to predict. In recent years annual arisings of ILW have fallen and are now at very low levels. Future arisings are expected to be minimal. LLW consigned to the LLWR is assumed to continue at the current rate of arising and is forecast to 2080.

Imperial College operated a small, low power research reactor, known as CONSORT, at Silwood Park, Ascot from 1965 to 2012, providing teaching and research facilities in fields of nuclear science. The reactor is now being decommissioned; all physical structures should be removed by the end of 2019 and site delicensing in 2021.

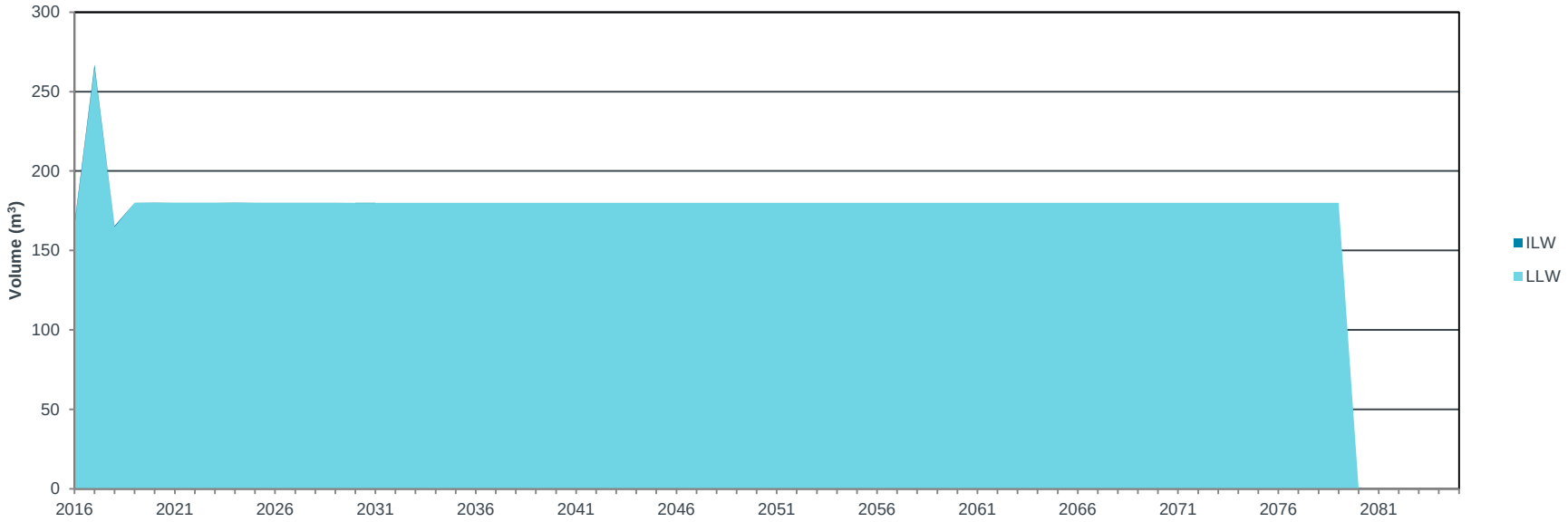
Rutherford Appleton Laboratory at Harwell in Oxfordshire provides research facilities, including the ISIS pulsed neutron and muon source. Radioactive waste is generated from the activation of components such as neutron targets. Arisings of ILW are estimated up to 2030.

Waste volume

ILW comprises radioactive sources stored at Harwell, neutron targets and other materials from Rutherford Appleton Laboratory and materials from CONSORT reactor decommissioning. Stocks of LLW are mostly contaminated slag, and future arisings are consignments to the LLWR.

Waste type	Reported volume at 1 April 2016 (m^3)	Reported future arisings (m^3)	All wastes at 1 April 2016 and future arisings		
			Reported volume (m^3)	Packaged volume (m^3)	Number of packages
ILW	5.28	6.18	11.5	18.7	28
LLW	648	11,600	12,200	16,000	811
VLLW	0	0	0	0	0
TOTAL	**653**	**11,600**	**12,200**	**16,000**	**839**

Profile of waste arisings



Radioactivity

Waste category	Total activity (TBq)			
	At 1.4.2016	At 1.4.2050	At 1.4.2100	At 1.4.2150
ILW	2,000	470	110	40
LLW	0.51	0.54	0.37	0.23
VLLW	0	0	0	0
TOTAL	**2,000**	**470**	**110**	**41**

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Electronic copies of this and other 2016 Inventory documents can be obtained from the NDA (see contact details below) or via the UK Radioactive Waste Inventory website **http://ukinventory.nda.gov.uk**

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