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March 2008

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Food and Rural Affairs

The 2007 UK Radioactive Waste Inventory

Main Report

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The 2007 UK Radioactive Waste Inventory

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Report prepared for the Department for
Environment, Food and Rural Affairs (Defra)
and the Nuclear Decommissioning Authority (NDA)
by Pöyry Energy Limited

PREFACE

The Department for Environment, Food and Rural Affairs (Defra)[1] and the Nuclear Decommissioning Authority (NDA) have commissioned the 2007 UK Radioactive Waste Inventory (2007 Inventory) to provide information on the status of radioactive waste at 1 April 2007 and forecasts of future arisings in the UK. Its aim is to provide comprehensive and up-to-date data in an open and transparent manner for those interested in radioactive waste issues. It is part of an ongoing programme of research jointly conducted by Defra and NDA.

Waste volumes are given for the UK as a whole, for each type of waste producing activity and for each of the main organisations producing wastes. The report also presents information on the radioactivity and the material content of the wastes.

The report includes high, intermediate and low level wastes produced from uranium enrichment, nuclear fuel manufacture, nuclear power production, spent fuel reprocessing, research and development, medical and industrial sources and defence activities.

The assumptions used in the forecasts of future waste arisings are presented and discussed. Also the waste quantities in the present Inventory are compared with corresponding information from previous inventories and any differences are explained.

This report has been prepared on the basis of information supplied by the UK waste producers to Pöyry Energy, the principal contractor for the production of the 2007 Inventory. This information was verified in accordance with arrangements established by Pöyry Energy.

The information given in this report represents the best available knowledge at the time of compilation of the 2007 Inventory based upon the processes, strategies and assumptions that were applicable at that time. Revision of the predictions, particularly of the long-term forecasts, may be necessary as plans change and estimates are refined.

2007 Inventory documents

Information collected for producing the 2007 Inventory is presented in a series of reports, as listed below.

- A summary of the 2007 Inventory;
- The main report for the 2007 Inventory (this document);
- A summary of Information for International Reporting;
- A review of the processes contributing to radioactive wastes in the UK;
- Information on other radioactive substances that may require long-term management as radioactive waste in the UK is presented in a separate report.

These reports are available in both printed and electronic format. Detailed information on the volumes, radioactive, physical and chemical content of the 1,269 separate radioactive waste streams reported in the 2007 Inventory is only available in electronic format.

The 2007 Inventory documents can be obtained on CD-ROM from the NDA (see contact details opposite) or via the UK Radioactive Waste Inventory website www.nda.gov.uk/ukinventory.

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[1] The results of this work will be used in the formulation of Government policy, but views expressed in this report do not necessarily represent Government policy.

Conditions of Publication

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Feedback & Queries

You are invited to provide feedback to the NDA on the content, clarity and presentation of this report and the UK Radioactive Waste Inventory (i.e. the Inventory). Please do not hesitate to contact the NDA if you have any queries on the Inventory and radioactive waste issues. Such feedback and queries should be addressed to:

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CONTENTS

1 INTRODUCTION

The 2007 Inventory provides the latest national record of information on radioactive wastes in the United Kingdom (UK). It has been compiled by Pöyry Energy, jointly funded by the Department for Environment, Food and Rural Affairs (Defra) and the Nuclear Decommissioning Authority (NDA)[1]. Its publication is one facet of the continuing commitment of the UK Government and the organisations responsible for radioactive wastes to openness and transparency in matters relating to the management of these wastes.

The Inventory is updated periodically with the best available information. The impacts of changes in plant operating lifetimes, decommissioning programmes and waste management strategies are incorporated. The 2007 Inventory contains information on radioactive wastes in the UK that existed at 1 April 2007 and those that were projected to arise after that date. The Inventory includes information on the quantities, types and characteristics of wastes.

Forecasts of radioactive waste arisings in the UK are based on assumptions as to the nature and scale of future operations and activities. However, these forecasts, particularly in the longer term, may change for policy, commercial, technological or regulatory reasons, and current information may be subsequently refined.

Not all radioactive materials in the UK are classified as waste. Nuclear materials such as plutonium, uranium and spent nuclear fuel have potential value - uranium and plutonium can be used to make nuclear fuel, and spent nuclear fuel can be reprocessed to recover uranium and plutonium for reuse. However, this might change in the future if there was no further use for some or all of these materials. Information on UK civil nuclear materials and other potential radioactive waste is given in a separate document [1].

Preparation of the 2007 Inventory has involved the compilation and assessment of detailed numerical and descriptive information for 1,269 waste streams. The data has been provided by the organisations that operate sites in the UK where there are radioactive wastes. Data relating to defence activities has been included on a voluntary basis.

Preparation of a UK Inventory of radioactive waste is driven by two international obligations: the Euratom Community Plan of Action in the Field of Radioactive Waste and the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management.

The Euratom Plan of Action requires the Commission to provide the Council periodically with an analysis of the situation and prospects in the field of radioactive waste management in Member States. This is based on data provided by the Member States, including the amounts of the various categories of waste disposed or in interim storage, and an estimate of future arisings. The latest report was published in February 2003 [2].

The Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management came into force in June 2001 and requires each Contracting Party to submit a report on the measures taken to implement the obligations of the Convention. These national reports contain an inventory of radioactive waste that is held in storage, that has been disposed or that has resulted from past practices. The UK's second national report for the Convention was provided to the International Atomic Energy Agency (IAEA) in October 2005 [3].

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[1] The integration of United Kingdom Nirex Limited (Nirex) into the NDA in March 2007 means that the NDA is now responsible for providing, in partnership with Defra, an inventory of radioactive waste in the UK.

The Inventory also provides a consistent reference source of information on radioactive wastes used by:

- Government Departments and Agencies responsible for the national strategy for radioactive waste management and for regulation of waste management operations and disposal;
- NDA, a public body set up by the Government in April 2005 with responsibilities for overseeing the decommissioning and clean up of the UK's public sector civil nuclear liabilities and, more recently, for developing, delivering and implementing programmes for interim storage and geological disposal of UK higher activity wastes;
- Those concerned with the planning, operation and performance of systems and facilities for the management of radioactive wastes in the UK;
- Other interested parties.

The structure of the remainder of this report is as follows. Chapter 2 describes the sources and categories of radioactive waste, the scope of the Inventory and the terms and conventions used in reporting Inventory data, and the data collection and processing procedures used. It also provides an overview of how radioactive wastes are managed in the UK. Chapter 3 describes the scenario that forms the basis of the forecast of future waste arisings. Chapter 4 presents waste volumes in total from all sources and a comparison with the 2004 Inventory. Chapter 5 gives information on the material content of wastes, and Chapter 6 gives information on their radioactivity. All references are listed in Chapter 7.

Annexes 1-4 provide supplementary information on waste volumes at different levels of detail: in total from all sources (Annex 1), from each business activity (Annex 2), from each site (Annex 3) and for each waste stream (Annex 4). Annex 5 provides a glossary of terms and abbreviations.

In addition to the report giving information on UK civil nuclear materials and other potential radioactive waste [1], three companion reports have also been issued. *Radioactive Wastes in the UK - A Summary of the 2007 Inventory* [4] provides an overview of radioactive wastes and their management in the UK, and gives a summary of their quantities and characteristics. *The 2007 UK Radioactive Waste Inventory - A Summary of Information for International Reporting* [5] provides an overview of the quantities of radioactive wastes in the UK to facilitate international reporting obligations. *A Review of the Processes Contributing to Radioactive Wastes in the UK* [6] describes how and why radioactive wastes are produced in the UK.

All reports, and further detailed information on waste volumes, radioactivities, radionuclide concentrations, the physical components of the wastes and their chemical properties, and current or planned waste treatment and packaging processes, are on the 2007 Inventory CD-ROM available from NDA.

2.1 SOURCES OF RADIOACTIVE WASTE

Radioactive wastes are produced in the UK as a result of the generation of electricity in nuclear power stations and from the associated production and processing of the nuclear fuel, from the use of radioactive materials in industry, medicine and research, and from military nuclear programmes.

Radioactive wastes may contain naturally occurring radioactive materials, generally uranium, thorium and the products into which they decay, and radioactive materials arising from the activities of man. Most of the “man-made” radioactive materials result from the fission (splitting) of uranium atoms in nuclear reactors. They include fission products themselves (and their radioactive decay products), and activation products (and their radioactive decay products) produced in reactor internal and structural materials by the absorption of neutrons released during the fission process. Some of the radioactive materials used in medicine, industry and research, which can give rise to radioactive wastes, are produced in particle accelerators rather than nuclear reactors.

Figure 2.1 shows the sites of the major radioactive waste producers. Labels indicate the type or principal type of activity at a site, in terms of six areas covering all uses of radioactive materials in the UK. Many “small users” of radioactive materials such as hospitals and industrial, educational and research establishments produce small quantities of radioactive wastes; their sites are not shown. In the Inventory these establishments are collectively referred to as *Minor Waste Producers*.

The major producers of radioactive wastes in the UK are the following organisations.

2.1.1 Nuclear Decommissioning Authority (NDA)

As part of the recent restructuring of the UK civil nuclear industry, the NDA has taken responsibility for overseeing continuing operations and the decommissioning and clean up at 20 former British Nuclear Fuels Ltd (BNFL) and United Kingdom Atomic Energy Authority (UKAEA) sites:

- There are eleven Magnox power station sites. Reactors are still operating at Oldbury in South Gloucestershire and Wylfa in Anglesey. Nine Magnox power stations are no longer operational and are being decommissioned: Chapelcross near Annan in Dumfries and Galloway; Berkeley in Gloucestershire[1]; Bradwell in Essex; Calder Hall on the Sellafield site; Dungeness A in Kent; Hinkley Point A in Somerset; Hunterston A in Ayrshire; Sizewell A in Suffolk and Trawsfynydd in Gwynedd.
- Sellafield is a large, complex nuclear chemical facility in Cumbria. The site undertakes spent nuclear fuel reprocessing, mixed oxide (MOX) fuel fabrication and provides LLW treatment services.
- At Springfields near Preston in Lancashire nuclear fuel products are manufactured for the UK’s nuclear power stations and for international customers. Natural uranium hexafluoride is supplied to Urenco and other organisations for enrichment.
- At Capenhurst in Cheshire the redundant uranium enrichment diffusion plant is being decommissioned.

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[1] Berkeley Power Station and that part of Berkeley Centre originally containing the R&D active handling facilities are now combined as a single site known as Berkeley Nuclear Licensed Site.

- At Dounreay in Caithness, Harwell in Oxfordshire[2], Windscale adjacent to the Sellafield site in Cumbria and Winfrith in Dorset, research and development in support of nuclear fuel cycle operations has been carried out. Most of the plants at these sites, which include research and prototype reactors, and fuel examination and reprocessing facilities, have now been closed down, and have either already been decommissioned or are currently being decommissioned.
- Culham in Oxfordshire is the UK centre for fusion research and hosts the European Fusion Development Agreement (EFDA) Joint European Torus (JET) facility[3].
- The LLWR near the village of Drigg in Cumbria has operated as a national disposal facility for Low Level Waste since 1959.

2.1.2 British Energy

British Energy through its licence holder company British Energy Generation Ltd operates Advanced Gas-cooled Reactor (AGR) power stations at seven sites: Dungeness B in Kent; Hartlepool in County Durham; Heysham 1 and 2 in Lancashire; Hinkley Point B in Somerset; Hunterston B in Ayrshire and Torness in East Lothian. The company also operates the Sizewell B Pressurised Water Reactor (PWR) power station at Sizewell in Suffolk.

2.1.3 Ministry of Defence

MoD is a major user of radioactive materials in its naval nuclear propulsion and atomic weapons programmes, and in other activities. Whilst the management of major MoD sites and facilities has been subject to a process of contractorisation or privatisation, MoD remains the legal owner of all defence wastes.

- The Atomic Weapons Establishment (AWE) at Aldermaston in Berkshire undertakes research and development, design, manufacturing, servicing and decommissioning of nuclear warheads.
- Naval dockyards at Devonport in Devon, Rosyth near Dunfermline in Fife and Portsmouth in Hampshire, and the Clyde submarine base at Faslane near Helensburgh in Dunbartonshire, support the operation, refuelling, refitting and decommissioning of the nuclear submarine fleet. Development of nuclear propulsion systems is carried out at the Naval Reactor Test Establishment (NRTE) Vulcan at Dounreay in Caithness. At Derby in Derbyshire, Rolls-Royce Marine Power Operations Ltd (RRMPOL) develops and manufactures reactor cores and associated equipment for the nuclear submarine fleet. At Barrow-in-Furness in Cumbria, BAE Systems Marine Ltd (BAESM) builds, tests and commissions nuclear powered submarines.
- Ranges at Eskmeals in Cumbria are used for test firing of depleted uranium projectiles.
- The Defence Storage and Distribution Agency's (DSDA) regional centre located at Donnington in Shropshire stores radioactive wastes.
- Defence Estates manages a major programme to assess and remediate contaminated lands at MoD sites in the UK.

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[2] The Harwell site is owned by UKAEA and leased to the NDA.

[3] Although the Culham site is currently owned and operated by UKAEA, the NDA understands that the part of the site occupied by the JET facility will transfer to NDA ownership from the date when JET operation ceases.

Figure 2.1: Major waste producers' sites

(1) The national LLW disposal facility, the LLWR, is located near the village of Drigg, four miles south of Sellafield.

(2) There are 36 major waste producer sites (including the LLWR). There are no major waste producer sites in Northern Ireland.

2.1.4 GE Healthcare Ltd

GE Healthcare Ltd is a health science company providing products and services for use in healthcare and life science research. The company is a supplier of radioisotopes for medical, research and industrial uses. In the UK the company sites are The Grove Centre at Amersham in Buckinghamshire and The Maynard Centre at Cardiff. The company also has facilities on NDA's site at Harwell in Oxfordshire.

2.1.5 Urenco

Urenco is engaged in uranium enrichment at Capenhurst in Cheshire. The site receives natural uranium hexafluoride from Springfields for U235 enrichment in gas centrifuge plants. Enriched uranium hexafluoride is returned to Springfields for conversion into uranium dioxide, which is used in the fabrication of nuclear fuel and intermediate products.

2.2 CATEGORIES OF RADIOACTIVE WASTE

Material that has no further use, and is contaminated by, or incorporates, radioactivity above certain levels defined in UK legislation, is known as radioactive waste. Radioactive wastes cover a wide range, from those that contain high concentrations of radioactivity to general industrial and medical wastes that are only lightly contaminated with radioactivity.

In the UK radioactive wastes are classified in terms of the nature and quantity of radioactivity they contain and their heat-generating capacity, as High Level Wastes, Intermediate Level Wastes or Low Level Wastes.

High Level Wastes (HLW)

Wastes in which the temperature may rise significantly as a result of their radioactivity, so this factor has to be taken into account in the design of storage or disposal facilities.

Intermediate Level Wastes (ILW)

Wastes exceeding the upper boundaries for LLW, but which do not require heating to be taken into account in the design of storage or disposal facilities.

Low Level Wastes (LLW)

Wastes having a radioactive content not exceeding 4 GBq (gigabecquerels) per tonne of alpha, or 12 GBq per tonne of beta/gamma activity.

The lower activity limit for LLW, below which waste is not required to be subject to specific regulatory control, is:

- For certain natural radionuclides in the uranium and thorium decay chains, the levels specified in Schedule 1 of the Radioactive Substances Act 1993 (RSA93) [7], below which the substances are outside the scope of the Act; or
- For other artificial or man-made radionuclides, the levels laid down in the current suite of Exemption Orders issued under RSA93, below which controls additional to those specified in the Exemption Order, are not required. The most notable of these is the Substances of Low Activity (SoLA) Exemption Order. This specifies a

level for exemption from regulatory control of 0.4Bq (Becquerels) per gram for wastes which are substantially insoluble in water.

Very Low Level Waste (VLLW) is a sub-category of LLW that comprises:

- Low Volume VLLW (‘dustbin loads’) - wastes that can be safely disposed of to an unspecified destination with municipal, commercial or industrial waste, each 0.1 cubic metre of material containing less than 400kBq (kilobecquerels) of total activity, or single items containing less than 40kBq of total activity. There are additional limits for carbon-14 and tritium in wastes containing these radionuclides.
- High Volume VLLW (bulk disposals) – wastes with maximum concentrations of 4MBq (megabecquerels) per tonne of total activity that can be disposed of to specified landfill sites. There is an additional limit for tritium in wastes containing this radionuclide.

The principal difference between the two VLLW categories is the need for controls on the total volumes of high volume VLLW being deposited at any one particular landfill site. Low Volume VLLW is generated principally by so called “small users”, while most High Volume VLLW is produced at nuclear licensed sites.

2.3 SCOPE OF THE INVENTORY

The UK Radioactive Waste Inventory includes HLW, ILW and LLW, and some High Volume VLLW where there is reasonable certainty of the total waste arisings. This is illustrated in Table 2.1 below.

Table 2.1: Wastes reported in the Inventory

Category	Major waste producers	Minor waste producers
HLW	🟩	None produced
ILW	🟩	🟩
LLW	🟩	🟩 See Note 1
VLLW sub category	🟩 See Note 2	See Note 3

🟩 Wastes included in 2007 Inventory

Note 1: Excludes low volumes of waste that can be disposed of by “controlled burial” at landfill sites.

Note 2: Includes High Volume VLLW where there is reasonable certainty in the volume that might arise. Where there remains considerable uncertainty these wastes are not included in the Inventory, as this may give a false and misleading estimate of total waste volumes. Such wastes are included in the Radioactive Materials report [1].

Note 3: Not reported in the Inventory. Such VLLW is of low volume and is routinely disposed of with municipal, commercial and industrial wastes at landfill sites.

While some low activity waste (<4MBq per tonne) had been included in the previous inventory, the 2007 Inventory includes for the first time information on High Volume VLLW from existing facilities on UK nuclear licensed sites. The 2007 Inventory also includes for the first time LLW held in Vault 8 at the LLWR. Although this waste has been emplaced for disposal, it will not be declared “disposed” until the vault and its waste is suitably capped and the UK Government authorises this change of status.

Some potentially radioactive waste arisings have yet to be well characterised, and so any volume estimates are preliminary and very uncertain. For this reason they are included in a separate document [1]. They comprise principally low activity waste from land remediation (see Chapter 4.9).

The Inventory does not include liquid and gaseous wastes containing very low concentrations of radioactivity that are routinely discharged to the environment in accordance with Government-approved arrangements. Discharges are made within authorised limits, usually after some form of treatment. Also excluded are small quantities of solid wastes with very low concentrations of radioactivity typically from hospitals, universities and the non-nuclear industry (small users) that can be disposed of with domestic refuse to landfill, either directly or after incineration.

The Inventory covers radioactive wastes that existed on 1 April 2007 and those forecast to arise in the future. It gives, for each radioactive waste its:

- Name;
- Waste classification;
- Volume;
- Radioactivity concentration;
- Material composition;
- Current or planned treatment and packaging.

This report also gives the volumes of past and anticipated future LLW consigned to the LLWR.

2.4 CONVENTIONS

Radioactive wastes arise from diverse sources, and in a large number of different forms. A number of conventions have been adopted in order to collate and report information on the wastes in a consistent manner.

2.4.1 Waste stream identification

The fundamental designation used in the Inventory is that of the *waste stream*. Waste streams are designated to summarise waste or a collection of waste items at a particular site, usually in a particular facility and/or from particular processes or operations. It is often distinguishable by its radionuclide content and in many cases also by its physical and chemical characteristics.

Each waste stream in the Inventory is allocated a unique identifier. This consists of a digit indicating the custodian of the waste[4], followed by a letter indicating the site of storage, followed by a two- or three-digit number. Numbers in the range 01 to 99 identify operational wastes, and a three-digit number identifies decommissioning wastes.

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[4] The custodian is the licensee of the site where the waste is currently stored or will arise. The custodian has all responsibilities for the safe and environmental compliant management of the waste. For a very small number of waste streams, some of the waste has been generated at another site.

For example:

Waste stream 5B02:	**5**	(Custodian = UKAEA)
	B	(Site = Dounreay)
	02	(Waste stream; operational)

A waste stream that has been conditioned in a suitable container for long-term management, or is being conditioned directly it arises, includes a /C suffix (e.g. 2D02/C).

A complete list of waste streams in the 2007 Inventory, and their identifiers, is given in Annex 4. Numbers are not sequential because over previous inventories some waste streams have been amalgamated, others split up and renumbered. Others have been disposed, or are not now expected to arise.

2.4.2 Waste classification

Every waste stream in the Inventory is classified as HLW, ILW or LLW (see Chapter 2.2). The LLW classification includes waste streams that fall into the VLLW sub-category.

Some practices can result in an ILW stream becoming a LLW stream. Thus, a small number of ILW streams are being interim-stored to allow time for radioactive decay to take place. Also, some ILW streams may be decontaminated to allow classification as LLW, with the radioactivity concentrated in a much smaller volume of ILW. Such waste streams are included as ILW, because convention is to classify existing waste according to its radioactivity at a reference time (for this Inventory 1 April 2007) and to classify future wastes according to its radioactivity at the time it is forecast to arise. The volumes of ILW that are expected to become LLW are given in Chapter 4.

Other waste streams have specific activities close to the upper limits for LLW. If waste streams cannot be classified definitively they are designated ILW.

2.4.3 Operational and decommissioning wastes

In general, the wastes that are produced in a nuclear power station or other facility during its operating lifetime are different in nature and radioactivity content from those wastes that remain after the facility is shut down.

Operational wastes arise during the normal day-to-day operations of a plant or facility, from its start-up to its final shutdown. They consist principally of organic materials such as cellulose and plastic, metals and various inorganic materials. Examples of operational wastes are redundant equipment, fuel element components, filters, change room wastes, ion exchange resins and sludges from the treatment of liquid effluents. Wastes from defuelling nuclear reactors, and wastes from Post-Operational Clean Out (POCO) activities that prepare a plant for decommissioning, are designated as operational wastes because they are of a similar nature to those that arise during operation. Future arisings of operational wastes can often be based on experience of past production rates.

Decommissioning wastes arise after shutdown of a facility, although the radioactivity already exists. They consist mainly of building materials such as reinforced concrete, blockwork and steelwork, larger items of plant and equipment including pipework, process vessels and ventilation systems, and soil from land remediation. Once a plant or facility processing radioactive material has started up, equipment and structures become radioactive, so decommissioning wastes are certain to arise no matter how long or short its operational life.

The precise timing of decommissioning and the procedures to be used are often yet to be finalised, so waste volumes, and the timing of their arising, are usually subject to greater uncertainty than for operational wastes.

The Inventory contains separate waste streams for operational and decommissioning wastes. While the information presented in this report does not distinguish between operational and decommissioning wastes, separate compilations for operational and decommissioning wastes are available in other 2007 Inventory documents.

2.4.4 Reporting of waste volumes

The total volume of radioactive waste in the UK changes over time as further waste is generated, and as existing wastes and new arisings are packaged for long-term storage and management.

Volumes are reported for wastes that existed on 1 April 2007 and for wastes that were forecast to be produced after this date (future arisings). Volumes are also reported for wastes once they have been packaged for long-term management. As packaging schemes are often still under development, particularly for decommissioning wastes, there is greater uncertainty in the resulting volumes.

Waste at 1 April 2007

Waste at 1 April 2007 comprises radioactive materials that had been declared as waste and were being held at this date. The volumes reported are those that the wastes occupied in tanks, vaults, silos, drums etc. in which they were contained.

Most of the wastes existed in either an untreated or partly treated state. Many wastes are treated shortly after they arise, principally to reduce volume and so minimise containment requirements. Treatments include evaporation of liquid wastes and compaction of solid wastes. As an example, the volume of liquid HLW refers to the amount of liquor stored in a tank after evaporation and not to the amount of liquor arising directly from the first stage of spent fuel reprocessing. Similarly, suitable solid LLW is routinely compacted within mild steel drums, and the number of these drums determines the volume.

At 1 April 2007 some wastes had already been conditioned in suitable containers for long-term management, mostly by encapsulation in a cement-based medium, or in the case of HLW in glass. For these wastes, designated by the /C suffix in the stream identifier, the volume reported is the conditioned volume.

Future waste arisings

These are radioactive materials that waste producers forecast will be declared as waste at some specified time in the future. Most of the radioactivity already exists (for example in reactor structures), but will only arise as waste during the decommissioning of nuclear facilities and site clean up. Other radioactive waste - that from future planned operations - has yet to be produced.

In general the volumes of future arisings reported reflect current waste management practices. So for most future arisings the volume reported is that for untreated or partly treated waste. There are a small number of waste streams where fresh arisings are being conditioned directly in suitable containers for long-term management. For these wastes, designated by the /C suffix in the stream identifier, the volume reported is the conditioned volume.

A reliable forecast of future waste arisings is required for planning waste handling, storage, transport and the capacity of waste processing facilities.

The volumes of future waste arisings are given for financial years April to March, not calendar years; although for medium and longer-term forecasts this distinction is unlikely to matter. For simplicity in presentation and discussion of waste volumes the financial year April 2007 to March 2008, for example, is referred to as '2007', and the period April 2008 to March 2010, for example, is referred to as '2008-2009'.

Packaged waste 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 waste volume is the displacement volume of the container (see Figure 2.2). It represents a "final" waste volume. Typically the packaged waste volume is between 20% and 50% greater than the conditioned waste volume, depending on the type of container. The number of packages is also reported in the Inventory[5].

It is necessary to know packaged volumes and the numbers of packages as these determine the required capacity of storage and disposal facilities.

Most LLW is packaged in large mild steel International Organisation for Standardisation (ISO) freight containers, which have a nominal capacity of 15.6m^3, and is then consigned to the LLWR.

Historically wastes that could not be disposed were stored, whilst plans for their long-term management were developed. Since the 1980s, facilities such as the Thermal Oxide Reprocessing Plant (Thorp) and the Fuel Handling Plant (FHP) at Sellafield have been designed and constructed along with purpose-built packaging plants to process wastes as they arise, and purpose-built stores to hold the waste packages.

There are a number of radioactive waste packaging plants operating in the UK. HLW is being conditioned and packaged at Sellafield in the Waste Vitrification Plant (WVP). Current arisings are being blended with historic holdings. The vitrification process converts the liquid waste into a borosilicate glass in 150-litre stainless steel canisters.

At Sellafield the Magnox Encapsulation Plant (MEP) processes Magnox swarf from FHP and other minor waste streams, the Waste Packaging and Encapsulation Plant (WPEP) processes floc from the treatment of liquid effluents, the Wastes Encapsulation Plant (WEP) processes wastes from Thorp, and the Waste Treatment Complex (WTC) processes plutonium contaminated materials. All these plants immobilise waste in a cement-based medium in 500-litre stainless steel drums.

Other packaging plants are operating at Dounreay, Windscale, Harwell and Trawsfynydd. The Dounreay Cementation Plant (DCP) immobilises Materials Testing Reactor (MTR) liquors in a cement matrix within 500-litre stainless steel drums, and the site Waste Receipt Assay Characterisation and Supercompaction (WRACS) facility processes and packages solid LLW. The Windscale Advanced Gas-cooled Reactor (WAGR) Packaging Plant immobilises operational and decommissioning wastes from the reactor in a cement matrix in large concrete boxes. At Harwell, solid ILW is being retrieved from existing stores, monitored and inspected, and packaged in 500-litre stainless steel drums. The wastes will be immobilised in cement within the drums at a future date. At Trawsfynydd the Resin Solidification Plant immobilises ion exchange material in a polymer within Type 1803 drums, and the Miscellaneous Activated Components (MAC) Encapsulation Plant and Fuel Element Debris (FED) Retrieval & Processing Plant immobilise MAC and FED in cement within 3m^3 stainless steel boxes. A mobile facility (Transportable Intermediate Level Waste

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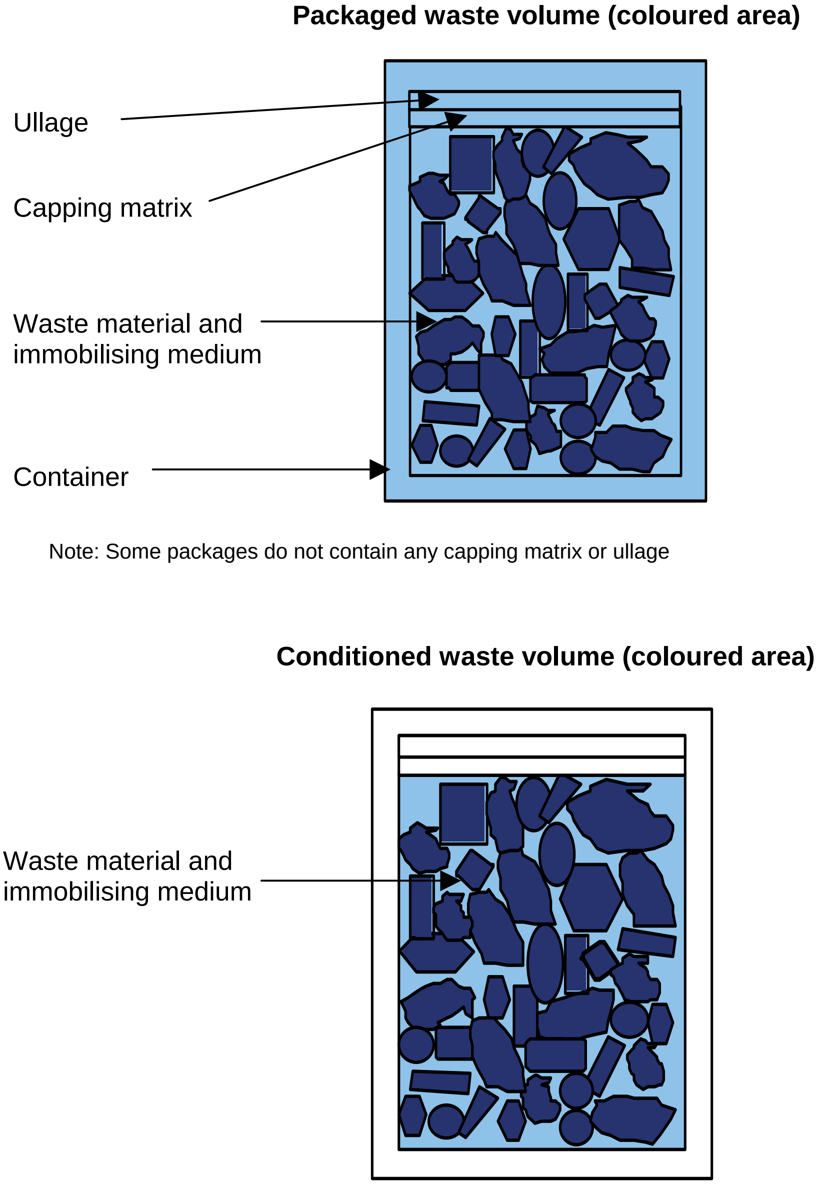
[5] For those streams where the waste producer has not specified the type of package, it has been assumed in calculations that operational and early stage decommissioning ILW would go into 500 litre drums, final stage decommissioning ILW into 4m boxes (capacity 11m^3), and all LLW into half height ISO containers (nominal capacity 15.6m^3).

Solidification Plant - TILWSP) is being used at the site to immobilise sludges in cement in 3m^3 stainless steel drums.

Figure 2.2: Illustration of packaged waste and conditioned waste volumes



Conditioned waste volume

Conditioning is immobilisation of radioactive waste in a suitable medium, such as a cement-based material, glass or polymer, to produce a solid and stable wasteform within a container. Immobilising the waste reduces the hazard it presents compared with its untreated or partly treated form. The conditioned waste volume is the volume of the wasteform (waste plus immobilising medium) within the container (see Figure 2.2).

Waste held in Vault 8 at the LLWR is conditioned by immobilising it in cement grout. Suitable waste is first supercompacted to minimise its volume, in facilities such as the Waste Monitoring and Compaction (WAMAC) plant at Sellafield. The WRACS facility at

Dounreay supercompacts LLW from that site and from the adjacent Vulcan (MoD) site, and there is a supercompaction service on the Winfrith site.

Conditioned volumes are needed for the development of safety cases for waste disposal.

Rounding of numerical data

Individual waste stream volumes cover a wide range, from less than 1m^3 to more than 1,000,000m^3, and there are uncertainties in the volumes associated with the methods of measuring existing wastes and calculating future arisings. Therefore summed waste stream volumes throughout this report 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 2007 where the actual numbers being held are reported.

Summed waste stream masses and activities are rounded to two significant figures.

Rounding errors affecting the last significant figure can occur if totals are compared with the sums of individual values within tables of data; this is purely an arithmetical effect and has no practical significance.

2.5 DATA COLLECTION AND PROCESSING

2.5.1 Data compilation

Preparation of this Inventory has involved the collation of detailed numerical and descriptive data for 1,269 radioactive waste streams produced in the UK. Information on these wastes was gathered by requesting the data in a standard form for each waste stream [8, 9]. Over 200 persons across all waste producing sites were involved in providing the data.

The number of waste streams is 150 more than in the previous (2004) Inventory. Most notably there have been increases at Sellafield, where LLW is now reported in greater detail (the 2X set of waste streams replaces the small number of waste streams containing consolidated data), and at some Magnox stations undergoing decommissioning where low volume wastes are being identified as separate streams for management purposes.

2.5.2 Data assessment

The authors independently assessed all information supplied for each waste stream. The assessment included:

- Checking for internal consistency and completeness;
- Comparison of the information with data for related waste streams;
- Comparison of the information with that in the 2004 Inventory;
- Evaluation of the adequacy and validity of the information.

Feedback was provided, as a result of which some revisions to data were made by waste producers.

2.5.3 The Inventory database

Following the completion of data assessment, the information for each waste stream was transferred into a database. This information was then processed to produce summary and detailed outputs for the 2007 Inventory documents. The data providers have approved the publication of their data in the 2007 Inventory reports.

2.6 RADIOACTIVE WASTE MANAGEMENT

The UK Government's radioactive waste management policy is supported by a regulatory framework that aims to ensure that all radioactive wastes are safely and appropriately managed in ways that pose no unacceptable risks to people or the environment.

No disposal route is currently available for the UK's higher activity wastes, which include HLW and ILW. Current Government policy is that vitrified HLW should be stored for at least 50 years before disposal. The period of storage allows the amount of heat produced by the waste to fall, which makes it easier to transport and dispose. Most ILW is stored at the producing sites, although some waste producers, including minor waste producers, make use of an ILW store at Harwell and facilities at Sellafield.

"Managing Radioactive Waste Safely" is the programme established by the UK Government and the Devolved Administrations for developing and implementing a policy for managing the UK's higher activity wastes in the longer term that has widespread public support. An independent Committee on Radioactive Waste Management (CoRWM) was appointed to oversee the review of long-term waste management options and recommend a strategy to the Government. CoRWM reported in July 2006 with a package of recommendations including geological disposal, preceded by safe and secure interim storage [10]. The UK Government has accepted that secure interim storage is essential, and has consulted on a framework for implementing geological disposal [11].

The UK Government is looking to use an approach based on voluntarism and partnership with local communities, coupled with the use of appropriate site screening and assessment criteria as the basis for siting a geological disposal facility. The Government also acknowledges that there should be a programme of ongoing research and development for which NDA will have primary responsibility. The next stages in implementing geological disposal will be set out in a Government White Paper.

In contrast to the higher activity wastes, methods for disposing of solid low activity radioactive wastes already exist in the UK. Most low activity waste is sent to the LLWR near Drigg in Cumbria or in certain cases to specific landfill sites.

However, there is a lack of long-term capacity at the LLWR, and a diminishing availability of other disposal routes. It was for these reasons that the UK Government and the Devolved Administrations initiated a review of policy. A new policy was announced in March 2007 that sets out a more flexible approach for managing solid low level waste in the long-term [12]. UK-wide strategies for managing low activity waste from the nuclear industry and from the non-nuclear sector will be developed in conjunction with the NDA. This includes at what point in the future a replacement (or replacements) for the LLWR might be required and planned, and the extent to which other disposal options might be employed to accommodate the wide range of low activity waste.

In practice there is some LLW which, because of its radionuclide content or its physical/chemical properties, may have to be managed along with ILW. Of the total amount of LLW forecast from the operation and decommissioning of current nuclear plant, less than one per cent by volume is unsuitable for the LLWR.

The Health and Safety Executive (HSE) regulates the safety of nuclear installations in the UK. It does so through a system of licensing of nuclear sites. All nuclear installations as defined in the Nuclear Installations Act 1965 (as amended) (NIA65) require a licence from HSE and every activity, including the accumulation and storage of radioactive wastes, must be undertaken in accordance with the conditions HSE attaches to the licence. NIA65 does not apply to activities carried out directly by the Ministry of Defence or the armed forces. However, regulation of such operations at MoD sites is to the same standards as at nuclear sites.

The disposal of radioactive wastes from nuclear and non-nuclear sites – including the transfer of solid wastes for burial, incineration or storage elsewhere, as well as the discharge of liquid and gaseous wastes to the environment – is regulated under RSA93 [7]. The regulatory bodies are the Environment Agency (EA) in England and Wales, the Scottish Environmental Protection Agency (SEPA) in Scotland, and the Environment and Heritage Service of the Department of Environment in Northern Ireland. For radioactive wastes arising on non-nuclear licenced sites, the environment agencies have regulatory responsibility for both accumulation and disposal.

3 SCENARIO FOR FUTURE WASTE ARISINGS

3.1 INTRODUCTION

The figures given in the 2007 Inventory for future waste arisings are projections made by the organisations that operate sites where radioactive waste is generated on the basis of their assumptions as to the nature, scale and timing of future operations and activities. These projections represent their planning positions at 1 April 2007, which have been constructed for the purpose of preparing data for the 2007 Inventory. Projections may need to be amended as plans and arrangements are developed or are changed for commercial, policy or funding reasons, or if improved data become available.

Since the 1 April 2007 there have been developments in the forward plans at a number of sites. This means that certain assumptions used in preparing data for the 2007 Inventory have already been revised or are being reviewed, and there will be or are likely to be some changes to waste estimates. Revisions can affect either or both the quantity and timing of future arisings.

Chapter 3.8 describes how certain changes in the assumptions used to prepare 2007 Inventory data could affect projections of future waste arisings.

3.2 NUCLEAR DECOMMISSIONING AUTHORITY (NDA) SITES

3.2.1 Sellafield

Sellafield is a large, complex nuclear chemical facility, which has supported the civil nuclear power programme since the 1940s. Operations at Sellafield include spent fuel reprocessing, mixed oxide (MOX) fuel fabrication; and the storage of nuclear materials and radioactive wastes.

The scenario assumptions described below were constructed for the 2007 Inventory. Actual quantities of fuel to be reprocessed and/or stored are subject to contractual arrangements to be agreed between NDA and its customers.

The Magnox Reprocessing plant at Sellafield reprocesses spent fuel from the UK's Magnox stations. At 1 April 2007, the total quantity of fuel reprocessed was approximately 49,000tU. This includes spent fuel from the overseas Magnox reactors at Latina in Italy and Tokai Mura in Japan, which the authors estimate, from publicly available sources, to total about 3,000tU. It is anticipated that all spent fuel from the continuing operation of Magnox stations in the UK will be reprocessed, and that the reprocessing plant will continue to operate until 2012/13. The lifetime throughput of the plant is expected to be approximately 55,000tU.

The Thermal Oxide Reprocessing Plant (Thorp) reprocesses spent fuel from the UK's Advanced Gas-cooled Reactor (AGR) power stations, as well as spent fuel from overseas Light Water Reactor (LWR) power stations. In addition, Thorp will reprocess the smaller quantities of spent fuel from the Windscale AGR (WAGR) and the Winfrith Steam Generating Heavy Water Reactor (SGHWR). At 1 April 2007, the total quantity of fuel reprocessed was about 5,700tU. Thorp has an order book that currently extends to around 2011, and the lifetime throughput of the plant is expected to be approximately 7,800tU. Any new business for Thorp will depend upon the plans of customers and the NDA, and subsequent ministerial approval.

The estimate of lifetime waste arisings from Thorp has assumed the reprocessing of approximately 3,300tU of AGR fuel. All other spent fuel generated during the lifetimes of the UK's seven AGR power stations will be held in long-term storage at Sellafield. Measures including the reuse of pond furniture and continuing improvements in pond management practices will result in only small volumes of wastes being generated during fuel storage. Estimated arisings of such wastes are included in the Inventory. It is anticipated that spent fuel would be stored on site until about 2085, pending disposal in a purpose built repository.

Waste arisings from overseas LWR spent fuel reprocessing in Thorp are based on a total throughput of approximately 4,400tU. Spent fuel from the Pressurised Water Reactor (PWR) station at Sizewell is not included (see Chapter 3.3).

Waste arisings from Thorp also include those from reprocessing 30tU of WAGR fuel and 124tU of SGHWR fuel, plus a small amount of other Post Irradiation Examination (PIE) type materials.

MOX fuel fabrication in the Sellafield MOX Plant (SMP) started in 2002. The facility uses plutonium separated from reprocessing, and blends it with uranium to make MOX fuel. Waste arisings are based on fuel fabrication continuing until 2020.

In addition to the wastes from the reprocessing plants and SMP, there are routine waste arisings on the Sellafield site from waste packaging plants, effluent treatment plants, plutonium and fuel handling plants, other facilities and site construction activities.

Decommissioning activities for nuclear chemical plants at Sellafield are broken down into the following phases:

Initial Decommissioning	This activity seeks to remove or fix further loose radioactive material with the intention of enabling useful manual access for interim decommissioning. This may typically involve decontamination of pipework and vessels to reduce dose rates and thus facilitate access for further decommissioning activities. Ancillary equipment may be removed and systems installed for surveillance and maintenance. As part of the development of the Integrated Strategy for Sellafield, it has been recognised that currently available technologies will not be able to provide sufficient decontamination of some higher active areas to allow useful manual access. In such areas, initial decommissioning will either not exist or have a minimal scope to fix activity. Additionally, as part of the Integrated Strategy, there is a proposal to combine the majority of the clean up activities of initial decommissioning into the POCO phase (the so-called "Enhanced POCO"), thus enabling a single, more efficient decontamination of site facilities.

Surveillance and Maintenance (S&M)	This activity is a period of supervision of a plant or facility that may occur from the end of POCO up to the end of the Initial Decommissioning phase. In such cases, it would be recognised that activity and radiological hazards could still be present. S&M would typically include operation and maintenance of radiological monitoring and ventilation systems in addition to the more general maintenance of the fabric of the building. This phase will only occur in the event of a requirement to delay further decommissioning.
Interim Decommissioning	This activity involves the removal of the active plant, equipment and associated systems. In general, the end-point of this phase is a building shell that contains only traces of activity, which are assumed to be localised LLW as a worst case. However, Integrated Strategy work has identified that decontamination may not be effective, so there may now be significantly more remote decommissioning activities than were previously planned.
Care and Maintenance	This activity is the period of supervision of a building shell, at minimal cost. This would normally entail minimum maintenance of the fabric of the building with the objective of ensuring that it presents no physical hazard to individuals or adjacent plants, while preventing any significant deterioration of the building. As with the S&M phase, plants and facilities only undergo this phase when there is a requirement to delay further decommissioning.
Final Decommissioning	This is the final activity associated with bringing a plant or facility to its agreed or assumed end-point (but excluding any contaminated land or groundwater remediation). This is assumed to be the demolition/deconstruction to base slab or ground level depending on the principles of ALARP (As Low As Reasonably Practicable). It is assumed that this will be carried out using predominantly conventional techniques.
Groundwater Remediation	Activities necessary to remediate any contaminated groundwater.
Contaminated Land Remediation	Activities necessary to remediate any contaminated land.
Site Close Out	Post decommissioning activities carried out on sites. Examples would include final site survey, landscaping, visitors' centres and any post closure indemnification and insurance requirements.

There is a wide range of facilities on the Sellafield site, and the development of a decommissioning strategy takes into account both plant specific and site wide considerations. The decommissioning plan for each facility is considered individually, but basic strategies can be summarised as follows:

Reprocessing and Associated Plant

These plants contain radionuclides that emit significant gamma radiation and some of these have comparatively short half-lives. Therefore, there can be safety and cost benefits in deferral of decommissioning for some of these particular plants. For older plants that are not built to current construction standards, the initial and possibly interim decommissioning phases of these plants will be prioritised to reduce the risk that they represent.

The current plan shows that most plants, other than those that are still in use at the time, will have been dismantled by about 2060.

Demolition will be deferred until most dismantling is complete to allow conventional demolition methods to be used without the constraint of adjacent plant with radiological inventories. With a few exceptions, demolition of significant facilities is not scheduled to begin until around 2045.

Plutonium Plants

It is not expected that plutonium plants will benefit from the proposed re-phasing of decommissioning activities.

Decommissioning of plutonium plants currently in operation will begin promptly following the cessation of operations and the completion of POCO. All equipment from these plants will therefore be removed on an early timescale with minimal duration of S&M in order to remove any hazard and to restrict the additional radiological constraints that are posed by the in-growth of, for example, americium.

Key Dates

- All commercial activities, including POCO, will cease by about 2020;
- Prior to 2045, contaminated land and groundwater activities are assumed to be based around monitoring and characterisation;
- Construction of new facilities that will enable the progression of the site close out strategy will begin in 2045;
- Start of mass demolition will be 2045;
- Significant contaminated land and groundwater activities will commence at 2050;
- Decommissioning activities will be largely complete (waste stored on site) by 2060;
- All buildings/waste stores (except product stores) will be demolished by 2120;
- It is assumed that institutional control will be maintained after 2120.

3.2.2 Capenhurst

The Capenhurst Uranium Diffusion Plant operated from 1961 to 1982, and the site now stores uranium tails from the enrichment operations and other uranium stocks. The current objectives of the site are to reduce progressively and remove historical hazards from the site and undertake the necessary arrangements to hold a UK strategic stock of uranium to 2120 and beyond.

This will include retrieval, processing and packaging of legacy low-level wastes, and consignment to the LLWR and the Clifton Marsh landfill site; the de-planting and demolition of buildings that are not required for uranium storage operations; investigation and implementation of a management strategy for any contaminated ground; and, preparing the site and buildings for remaining storage operations.

During the storage period, the uranium will be converted from uranium hexafluoride to oxide form, starting no later than 2020. Longer term, any remaining ground contamination under the storage buildings will be investigated and removed when the stores are replaced in 2050.

3.2.3 Springfields

Operations at Springfields comprise the final fabrication of uranium metal fuel for the Magnox reactors, oxide fuels for AGRs and LWRs, and intermediate fuel products such as powders, granules and pellets. 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 via residues recovery facilities.

Estimates of future arisings at the site are based on a number of projections. Magnox fuel manufacture has continued until 2008 to supply the remaining two operational Magnox power stations before they are shut down. The final recovery of natural and enriched uranium residues is planned for 2009/10, and the enriched uranium residues legacy stocks are currently scheduled to be processed by 2015. Uranium hexafluoride (Hex) production will continue until 2016 at about 5,000tU per year.

Oxide manufacturing will continue until 2023 supplying AGR fuel in line with the current planned closure dates of the AGR power stations, and uranium dioxide products for UK and overseas customers. The annual capacity for AGR fuel manufacture is approximately 260tU, with current demand at 215tU. Intermediate oxide product annual demand is between 200 and 400tU.

The decommissioning of the Magnox and Residue Recovery plants is due to be completed by 2012, the Hex Plant by 2020, and the Oxide Fuels Complex by 2028. All site demolition and remediation work will be completed by 2031.

3.2.4 Magnox stations

Eleven Magnox power stations came into operation over the period 1956 to 1971. At 1 April 2007 two stations were still operating: Oldbury and Wylfa, which are scheduled to operate until the end of 2008 and 2010 respectively. Nine stations are shut down: Berkeley, Bradwell, Calder Hall, Chapelcross, Dungeness A, Hinkley Point A, Hunterston A, Sizewell A and Trawsfynydd.

A timetable for the operation and decommissioning of all Magnox stations is given in Table 3.1.

Table 3.1: Proposed timetable for Magnox power stations

Station	Operation	Defuelling & Care and Maintenance Preparations	Care and Maintenance	Final Site Clearance
Calder Hall	1956 – 2003	2003 – 2023	2023 – 2105	2105 – 2115
Chapelcross	1959 – 2004	2005 – 2017	2017 – 2116	2116 – 2128
Berkeley	1962 – 1989	1989 – 2012	2012 – 2074	2074 – 2083
Bradwell	1962 – 2002	2002 – 2017	2017 – 2095	2095 – 2104
Hunterston A	1964 – 1990	1990 – 2016	2017 – 2081	2081 – 2090
Trawsfynydd	1965 – 1993	1993 – 2015	2015 – 2088	2088 – 2097
Hinkley Point A	1965 – 2000	2000 – 2024	2024 – 2095	2095 – 2104
Dungeness A	1965 – 2006	2007 – 2021	2021 – 2102	2102 – 2111
Sizewell A	1966 – 2006	2007 – 2019	2019 – 2102	2102 – 2110
Oldbury	1967 – 2008	2009 – 2020	2020 – 2109	2109 – 2118
Wylfa	1971 – 2010	2011 – 2025	2025 – 2116	2116 – 2125

(1) The dates in the table refer to calendar years and not to financial years. All future dates for operation, defuelling and care and maintenance preparations are under review and could change. Dates given are those used in preparing waste volumes data for inclusion in the Inventory.

The decommissioning strategy for the Magnox reactor sites is “Deferred Site Clearance”:

Defuelling & Care and Maintenance Preparations:	Removing the fuel from the reactor; removing most plants and structures other than the reactor buildings. This takes about 10 to 30 years.
Care and Maintenance:	A period of deferment, planned to extend to between about 60 and 100 years.
Final Site Clearance:	Dismantling of all remaining structures, clearing and restoring the site. This is assumed to take between 8 and 12 years.

After defuelling, exterior cladding on the reactor containment building would be replaced as necessary with high-integrity materials and un-needed openings would be in-filled to create a low-maintenance structure.

Wastes that arise during the defuelling of Magnox reactors are the same as those that arise during operation. For this reason they are included with operational wastes.

3.2.5 Berkeley Centre

Berkeley Centre used to provide research and development facilities including a post-irradiation examination service. Operations ended in 2005, and the facilities are undergoing decommissioning that is scheduled for completion in 2012, but this date is under review.

The facilities that will produce radioactive waste when decommissioned now are part of the Berkeley Nuclear Licensed Site together with the former Berkeley Power Station.

3.2.6 Dounreay

The three reactors on the Dounreay site are shut down. The Prototype Fast Reactor (PFR) and Dounreay Fast Reactor (DFR) are undergoing decommissioning. The Dounreay Materials Test Reactor (MTR) is currently under a Care and Maintenance regime, Stage 1 decommissioning having been completed.

Both the PFR and MTR fuel reprocessing plants are shut down, and there will be no further arisings of raffinates. MTR raffinate is being conditioned in the Dounreay Cementation Plant. Existing stocks of DFR raffinate and PFR raffinate will be conditioned in the planned Remote Handled Intermediate Level Waste (RHILW) Encapsulation, Immobilisation and Storage Facilities.

The Dounreay Shaft will be emptied of waste. Some decontamination of the rock may be undertaken, but some residual very low level contamination will remain. The Silo will be emptied and decontaminated, and the structure will be removed. Shaft and Silo waste will be conditioned in the planned Waste Treatment Plant.

Solid ILW currently in store and other decommissioning ILW will be conditioned in the planned RHILW Encapsulation, Immobilisation and Storage Facilities, or in dedicated reactor packaging plants.

The current site plan is that all redundant facilities will be decommissioned by 2032. The conditioned waste stores will remain until a national long-term management solution is available.

The timetable for the operation and decommissioning of the major facilities on the Dounreay site is shown in Table 3.2 below.

Table 3.2: Proposed decommissioning timetable for major Dounreay facilities

Facility	Operation	Decommissioning – Key Dates
PFR	1974 – 1994	PFR decommissioning complete by 2028
DFR	1959 – 1977	DFR decommissioning complete by 2024
MTR	1958 – 1969	MTR decommissioning complete by 2014
PFR fuel reprocessing plant	1980 – 2001	Demolish cells 2015 – 2016 Demolition 2019 – 2021
MTR fuel reprocessing plant	1959 – 1998	Remove internals, pond, cell structure 2007 - 2010 Demolition 2010
Development laboratory	1985 – 2021	Radioactivity reduction 2025 – 2026 Facility dismantling 2026 - 2027 Demolition 2027
ILW Shaft	1959 – 1971	Retrieval and packaging 2019 – 2024 Shaft decommissioning 2024 onwards
Wet Silo	1971 – 1998	Retrieval and packaging 2019 – 2024 Silo decommissioning 2024 onwards

(1) The decommissioning dates refer to accelerated programmes that may not be met (see Chapter 3.8.4).

3.2.7 Harwell

Three redundant reactors remain on the Harwell site since GLEEP decommissioning was completed in 2005. The BEPO 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 regime.

The reference strategy at 1 April 2007 was to decommission and remediate the site so that by 2020 the only licensed facilities remaining would be stores for packaged operational and decommissioning ILW. Stage 3 decommissioning of BEPO was scheduled to start in 2010; and for PLUTO and DIDO in 2010 and 2013 respectively.

The radiochemical facility ceased operations in 2004, although parts of the building are now being used to treat certain historic wastes and for the interim storage of contact-handled ILW in drums. Stage 1 decommissioning of certain laboratories was undertaken before full shutdown, and under the reference plan, the whole of the building should be decommissioned by 2015.

The timetable for the operation and decommissioning of the remaining major facilities on the Harwell site is shown in Table 3.3 below. This is based on assumptions for the programme of work and funding at 1 April 2007.

Table 3.3: Proposed decommissioning timetable for major Harwell facilities

Facility	**Operation**	**Decommissioning**		
		Stage 1	**Stage 2**	**Stage 3**
BEPO	1948 – 1968	Complete	Complete	2010 – 2015
DIDO	1956 – 1990	Complete	Complete	2012 – 2015
PLUTO	1957 – 1990	Complete	Complete	2010 – 2013
Radiochemical facility	1947 – 2004	Complete 2010	2010 – 2015	

(1) The decommissioning dates refer to accelerated programmes that may not be met (see Chapter 3.8.4).

Decommissioning is divided into three stages:

Stage 1: For reactors: remove fuel, coolant and non-fixed items of plant such as process materials and rigs. For other facilities: remove all radioactive sources and readily removable equipment. Prepare facility for a period of Care and Maintenance if required.

Stage 2: Dismantle and remove most of the remaining fixed radioactive material. Prepare facility for a further period of Care and Maintenance if required.

Stage 3: Return facility to a condition where no significant hazard remains.

3.2.8 Windscale

There are three shutdown reactors on the Windscale site: the Windscale Advanced Gas-cooled Reactor (WAGR), Pile 1 and Pile 2. WAGR, which was operated until 1981, is currently undergoing interim decommissioning, scheduled to be complete by 2007. Final decommissioning (Stage 3) of WAGR will be complete by 2015.

The two pile reactors were operated until 1957 when a fire damaged the Pile 1 core. Stage 2 decommissioning will be complete for Pile 1 in 2016 and by 2007 for Pile 2. Stage 3 decommissioning (removal of core and bioshield) will be complete by 2023 for Pile 1 and by 2020 for Pile 2.

Responsibility for the management of the Windscale site will be handed back to the operators of the main site (Sellafield) in 2008 as part of the NDA's arrangements.

LLW will be consigned for disposal as it arises, although decay storage to allow disposal as Exempt waste is also an option. ILW will be repackaged appropriately and stored on site until a national long-term management solution is available.

The timetable for the operation and decommissioning of remaining major facilities on the Windscale site is shown in Table 3.4 below.

Table 3.4: Proposed decommissioning timetable for major Windscale facilities

Facility	Operation	Decommissioning		
		Stage 1	**Stage 2**	**Stage 3**
Pile 1	1950 – 1957	Ends 2016		2020 – 2023
Pile 2	1950 – 1957	Ends 2007		2017 – 2020
WAGR	1962 – 1981	Complete	Ends 2007	Ends 2015

(1) For an explanation of the three stages of decommissioning see Chapter 3.2.7.
(2) The decommissioning dates refer to accelerated programmes that may not be met (see Chapter 3.8.4).

3.2.9 Winfrith

There are two remaining shutdown reactors on the Winfrith site: the SGHWR and the Dragon high temperature gas-cooled reactor. Most of the secondary facilities associated with these buildings have been decommissioned, and SGHWR has begun preparation for Stage 3 decommissioning scheduled to begin between 2008 and 2012. The Dragon reactor is scheduled to begin Stage 3 decommissioning between 2008 and 2012.

The timetable for the operation and decommissioning of remaining major facilities on the Winfrith site is shown in Table 3.5 below. This is based on assumptions for the programme of work and funding at 1 April 2007.

Table 3.5: Proposed decommissioning timetable for major Winfrith facilities

Facility	Operation	Decommissioning		
		Stage 1	**Stage 2**	**Stage 3**
SGHWR	1968 – 1990	Complete	Ends 2007	Ends 2015
Dragon	1964 – 1975	Complete	Ends 2008	Ends 2015

(1) For an explanation of the three stages of decommissioning see Chapter 3.2.7.
(2) The decommissioning dates refer to accelerated programmes that may not be met (see Chapter 3.8.4).

The reference plan has been developed on the assumption that all ILW can be moved to an alternative storage location by 2015, enabling delicensing of the entire site.

3.2.10 Culham

Small quantities of ILW and LLW will continue to be produced from the operational phase of the JET fusion experiment. The reference decommissioning strategy at 1 April 2007 assumes that operations cease at the end of 2010, and the facility moves immediately into decommissioning. However, the length of future operations is uncertain. UKAEA's contract to operate JET is dependent on the experimental requirements, the performance of the JET machine and on EU funding, and operations are expected to continue for some time in support of ITER. 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, and this has been used to define a bounding inventory for the wastes.

UKAEA has been investigating possible treatment and packaging options for JET ILW streams including options for reduction of the tritium inventory to enable its return to source. On the basis of a start date of January 2011 for the decommissioning, removal of the torus facility is programmed for completion in 2017. The Active Gas Handling System needs to remain operational during the dismantling of the JET machine, but should then be fully decommissioned by 2019, and the JET site completely cleared by the end of 2020. It is assumed that there will be an off-site storage facility for the packaged ILW since all the JET facilities must be removed by a specified date (currently the end of 2022) to satisfy the current temporary planning consents. Therefore it is unlikely that planning permission could be obtained to construct such a store at Culham.

3.2.11 LLWR

The Low Level Waste Repository (LLWR) near the village of Drigg is the national disposal site for 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.

Operations at the site are forecast to continue until 2050, and will generate small quantities of LLW.

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. During 2007 all remaining PCM was retrieved and removed from the site for long-term storage at nearby Sellafield. The redundant magazines and drum store are to be decommissioned and demolished by 2010.

3.3 BRITISH ENERGY SITES

British Energy through its licence holder company British Energy Generation Ltd operates seven AGR power stations and one PWR power station.

The AGR stations came into operation in the UK over the period 1976 to 1988, and the PWR station in early 1995. All eight stations are still operating. Predicted waste arisings from AGR stations assume an operational lifetime of 30 or 35 years, dependent on the station. The PWR station is assumed to operate for 40 years.

A timetable for the operation and decommissioning of stations is given in Table 3.6[1].

Table 3.6: Proposed timetable for British Energy power stations

Station	Operation	Defuelling & Care and Maintenance Preparations	Care and Maintenance	Final Site Clearance
AGR				
Hinkley Pt B	1976 – 2011	2011 – 2019	2019 – 2096	2096 – 2104
Hunterston B	1976 – 2011	2011 – 2019	2019 – 2096	2096 – 2104
Dungeness B	1983 – 2018	2018 – 2026	2026 – 2103	2103 – 2111
Heysham 1	1983 – 2014	2014 – 2022	2022 – 2099	2099 – 2107
Hartlepool	1983 – 2014	2014 – 2022	2022 – 2099	2099 – 2107
Heysham 2	1988 – 2023	2023 – 2031	2031 – 2108	2108 – 2116
Torness	1988 – 2023	2023 – 2031	2031 – 2108	2108 – 2116
PWR				
Sizewell B	1995 – 2035	2035 – 2045	Not applicable	2045 – 2055

(1) The dates in the table refer to calendar years and not to financial years.

British Energy has proposed an “Early Safestore” strategy for AGR decommissioning, with the start of final reactor dismantling deferred for a period of at least 85 years after the end of generation for AGRs. The decommissioning strategy is divided into three stages as follows:

Defuelling & Care and Maintenance Preparations:	The reactor is defuelled and the fuel transferred for reprocessing or storage. Non-radioactive buildings and plant external to the reactor area are dismantled. Accumulated operational waste is retrieved and packaged. A Safestore is constructed to retain all of the active plant and materials on the site in a safe and secure state. These activities are assumed to take about 8 years. Significant plant decommissioning activities that were planned to take place coincident with reactor dismantling (about 85 years after end of generation) are now to be carried out in the first few years following reactor shutdown.
Care and Maintenance:	There is a period of care and maintenance with inspection and repair as necessary. The duration is assumed to be at least 77 years for the AGRs.
Final Site Clearance:	Safestore dismantling and final site clearance is envisaged to start about 85 years after reactor shutdown. All activities are assumed to take about 8 years.

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[1] Since 2007 Inventory data was compiled, British Energy has announced operational life extensions for Hinkley Point B and Hunterston B of 5 years to 2016. Further studies will be conducted by 2013 regarding the potential for additional life extension beyond 2016. The potential for life extensions at the company’s other nuclear power stations will be considered in due course.

For the Sizewell B PWR the strategy 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.

Wastes arising during the defuelling of the reactors are the same as those which arise during operation. For this reason they are included with the operational wastes.

British Energy has contracts that cover the management of spent fuel generated during the lifetimes of the AGR power stations. The contracts provide for a mixture of long-term storage and reprocessing at Sellafield, and the radioactive wastes generated are included in wastes reported for Sellafield site.

For the Sizewell B PWR, the strategy is to store spent fuel until a disposal route is available, although this does not foreclose potential alternative options.

3.4 MINISTRY OF DEFENCE SITES

The figures for future waste arisings are projections made by MoD and/or its site operators on the basis of assumptions as to the nature and scale of future operations and activities, and reflect the most likely national defence strategy.

Many of MoD’s sites are operated on its behalf by contractor organisations. For some sites ownership has also been transferred. However the ownership of radioactive wastes at all sites rests with the MoD, which also bears the cost of waste management and decommissioning.

No further radioactive waste is forecast from the Defence Science and Technology Laboratory (DSTL) Fort Halstead site, which therefore no longer appears in the Inventory.

3.4.1 Atomic Weapons Establishment (AWE) Aldermaston

The Government has decided (Cm 6994) [13] to take the steps necessary to sustain a credible deterrent capability in the 2020s and beyond. The existing nuclear warhead design will last into the 2020s. The MoD does not yet have sufficient information to know whether it can, with some refurbishment, be extended beyond that point or whether it will need to develop a replacement warhead: a decision is likely to be necessary in the next Parliament.

The Atomic Weapons Establishment (AWE) sites at Aldermaston and Burghfield undertake research and development, design, manufacturing, servicing and decommissioning of nuclear warheads. The AWE sites are operated under a Government Owned Contractor Operated (GOCO) arrangement. AWE plc operates the sites on behalf of MoD which owns the sites and assets. Wastes from Burghfield are included with those from Aldermaston, from where radioactive waste storage and disposal is co-ordinated.

Legacy sea disposal packages suitable for disposal at the LLWR will be overpacked and consigned. Many older facilities have come to the end of their operational lives, and are either under Care and Maintenance pending decommissioning or are actually being decommissioned.

3.4.2 Her Majesty's Naval Base (HMNB) Devonport

The Devonport site comprises the Naval Base (owned and operated by the MoD) and its co-located Dockyard (owned and operated by Devonport Management Limited).

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 refuelling. Since 2004 all UK nuclear submarine refitting work has been carried out at Devonport.

Operational waste arisings from Devonport have been derived by extrapolation of historical data and are forecasted up to 2100.

3.4.3 Rosyth Royal Dockyard

Submarine refitting and refuelling activities at Rosyth ceased in 2003. Progressive site decommissioning has started, and is forecast to continue until 2013.

3.4.4 HMNB Clyde (Faslane)

HMNB Clyde provides maintenance and support services for the operational UK nuclear submarine squadrons. It deals with radioactive wastes arising from the operation at sea and the maintenance ashore of submarine nuclear propulsion systems.

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 thus subject to change.

3.4.5 Decommissioned nuclear powered submarines

When nuclear powered submarines leave Naval service the nuclear fuel is removed, equipment taken off and the vessel prepared for storage afloat. This process is called decommissioning, but in the Naval sense, and is distinct from the decommissioning of nuclear power stations. After Naval decommissioning, radioactivity remains contained within the reactor compartment structures.

To date 14 nuclear-powered submarines have left naval service, and 11 have been defuelled. They are being stored afloat at Rosyth and Devonport dockyards.

Future arisings of submarine decommissioning wastes assume a continuing naval nuclear propulsion programme with a fleet of up to 8 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 cut up and the waste processed. Future arisings of submarine decommissioning wastes are forecast up to 2100.

MoD's Project ISOLUS (Interim Storage Of Laid Up Submarines) is reviewing options for interim storage of decommissioned nuclear submarines pending the implementation of a UK strategy for the long-term management of ILW. The chosen interim storage route may affect the current 30-year afloat storage policy, which may in turn affect the rate at which the waste is processed.

3.4.6 HMNB Portsmouth

HMNB Portsmouth 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.

3.4.7 Dounreay (Vulcan)

The Naval Reactor Test Establishment (NRTE) Vulcan at Dounreay is involved in development work, acting as the test bed for prototype submarine nuclear reactors. Operations are forecast to continue to the end of core life in 2015. Decommissioning is assumed to take place from 2040.

3.4.8 Rolls Royce Marine Power Operations Ltd (RRMPOL) Derby

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 fuel for the Navy’s nuclear powered submarines, and operates the low energy Neptune reactor used to develop submarine reactor designs.

The future of the sites is inextricably linked to the future operational requirements of the submarine fleet. It is envisaged that both of the nuclear licensed sites will operate at the current levels of activity for at least the next six years.

3.4.9 BAE Systems Marine Ltd (BAESM) Barrow-in-Furness

BAESM Ltd builds, tests and commissions nuclear submarines in support of the MoD nuclear submarine programme. The site generates only small quantities of radioactive waste associated with the commissioning of submarine nuclear reactors.

3.4.10 Eskmeals

The Eskmeals site, operated by QinetiQ on behalf of MoD, has been used for proof firing of a wide range of different calibre weapons by the UK’s armed services. This included test firing of projectiles made up in part of depleted uranium, and the use of ‘hard targets’ for testing the effectiveness of armour plating containing depleted uranium.

The firing programme using depleted uranium projectiles is currently suspended, but there are no plans to close the site.

QinetiQ are in the early planning stage for the first phase of decommissioning, but do not yet know how much LLW and VLLW this is likely to produce.

3.4.11 Defence Storage and Distribution Agency

The Defence Storage and Distribution Centre (DSDC) at Donnington holds redundant equipment containing radioactive materials pending a decision on their future use, and when declared as waste are disposed of as soon as possible in accord with current legislation.

The future strength of the army will govern waste arisings. It is assumed that waste will continue to arise at current levels.

3.4.12 Defence Estates

Defence Estates is an agency of the MoD that manages MoD owned land and buildings, as well as being responsible for a broad range of training support services.

Defence Estates manages a major programme to assess and remediate contaminated land from MoD sites in the UK. Volumes of low level waste soil and rubble from the remediation of radium contaminated sites are expected.

3.5 GE HEALTHCARE LTD SITES

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.

3.6 URENCO SITE

Future arisings at Urenco's Capenhurst site will be dependent on the commercial contracts won by the group and the installation of new enrichment capacity. The use of either natural uranium or recycled uranium from reprocessing as the enrichment feedstock will be a commercial and regulatory decision. Waste volumes are estimated up to 2030. Uranium recovery routes are in place for some waste materials, and it is assumed that these will remain open in the short term. In the long term it is envisaged that uranium recovery will be undertaken at Capenhurst.

3.7 MINOR WASTE PRODUCERS

The rates of arisings from the numerous minor waste producers 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. Most LLW is consigned to the LLWR near Drigg. The rate of future LLW arisings is assumed to be the same as current arisings, and is estimated up to 2050.

3.8 DISCUSSION OF SCENARIO

3.8.1 Fuel manufacturing and uranium enrichment

The UK fuel business at Springfields is currently manufacturing the final uranium metal fuel requirements for Magnox reactors. Springfields also manufactures oxide fuels for AGRs, intermediates for export and has the potential to manufacture LWR fuel. Uranium hexafluoride continues to be manufactured and exported. The final Magnox reactor station at Wylfa is scheduled to shut down by the end of 2010, and as a result Magnox fuel production will cease by 2008. Future operations at Springfields will depend on commercial strategies and the outlook for the worldwide nuclear power industry. The 2007 Inventory scenario assumes that oxide fuel and product manufacture and uranium enrichment operations do not continue beyond 2030.

Urenco's business at Capenhurst supplies enriched uranium for oxide fuel manufacture. Future operations at Capenhurst will depend on the outlook for the worldwide nuclear power industry. The 2007 Inventory scenario assumes that uranium enrichment operations do not continue beyond 2030.

Fabrication of MOX fuel in the SMP at Sellafield will also depend on the future level of business. SMP is currently scheduled to operate up to 2020.

Assumptions could be revised to accommodate an extension of AGR lifetimes or the renaissance of nuclear energy generation in the UK and overseas.

3.8.2 Nuclear power station operation

Power station operating lifetimes are those in operator's existing corporate plans. However, market conditions or technical and safety issues could result in revisions to lifetimes.

There are currently no plans to construct further nuclear power stations in the UK. However the UK Government believes it is in the public interest that nuclear power should have a role in the UK's future energy strategy, and has recently announced that it is taking steps to open up the way to the construction of new nuclear power stations in the UK [14].

The lifetime assumptions of the remaining operational Magnox stations (Oldbury and Wylfa) correspond with the latest dates for end of generation. Consequently, alternative operational scenarios are those limited to earlier closure. In the case of the AGR and PWR stations, possible alternatives to current lifetime assumptions are early closure or extended operation[2].

To illustrate the impact of power station lifetime changes, the authors have estimated waste volumes from one year's operation of Magnox, AGR and PWR stations (see Table 3.7). The figures do not include wastes from the reprocessing of one year's discharged fuel.

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.

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[2] Since 2007 Inventory data was compiled, British Energy has announced operational life extensions for Hinkley Point B and Hunterston B of 5 years to 2016. Further studies will be conducted by 2013 regarding the potential for additional life extension beyond 2016. The potential for life extensions at the company's other nuclear power stations will be considered in due course.

Table 3.7: Predicted waste volumes from 1 year's operation of power station

Waste type	Station	Volume arising (m^3)	When all waste has been packaged	
			Packaged volume (m^3)	Conditioned volume (m^3)
ILW	Magnox (1)	14	19	18
	AGR (2)	22	45	34
	PWR (3)	8.1	17	13
LLW	Magnox (1)	37	36	29
	AGR (2)	45	48	39
	PWR (3)	35	91	73

(1) Average annual arising for remaining periods of operation at Oldbury and Wylfa
(2) Average annual arising for period 2007-2012 at AGR stations
(3) Average annual arising for period 2007-2012 at Sizewell B

3.8.3 Reprocessing of spent fuel from nuclear power stations

Waste volumes in the 2007 Inventory are based on a scenario that assumes the reprocessing of all spent Magnox fuel, SGHWR and WAGR fuel, about 3,300tU of AGR fuel and about 4,400tU of overseas LWR fuel. Any new business for Thorp will depend upon the plans of customers and the NDA, and ministerial approval.

This does not include about 5,500tU of AGR fuel that are forecast to arise over UK power station lifetimes, and Sizewell B fuel. There are no current plans to reprocess fuel from Sizewell B. It is assumed that these fuels will be held in long-term storage. However they could be treated in a number of ways, including reprocessing. To illustrate the impact of such reprocessing, the authors have estimated waste volumes using 2007 Inventory data for reprocessing operations in Thorp.

If the 5,500tU of AGR fuel were to be reprocessed, packaged waste volumes are estimated to be about 400m^3 of HLW, 11,000m^3 of ILW and 11,000m^3 of LLW. Additional volumes of LLW will arise from waste treatment and site services facilities.

If Sizewell B fuel were to be reprocessed, packaged waste volumes are estimated to about 90m^3 of HLW, 3,000m^3 of ILW and 4,500m^3 of LLW. These figures assume the reprocessing of 1,200tU of fuel. Additional volumes of LLW will arise from waste treatment and site services facilities.

3.8.4 Nuclear research and development

Nearly all of the major facilities built in the UK over more than 50 years to undertake research and development in support of nuclear energy generation and fuel cycle operations have been closed down, and have either already been decommissioned or are currently being decommissioned.

The JET fusion facility is assumed to operate until the end of 2010. However, the extent of future operations is uncertain, and JET could well operate beyond this date for several years in support of ITER. Because annual operational arisings are low, any change to the 2010 date will not have a significant effect on overall radioactive waste volumes.

The timetables and waste arisings provided by UKAEA for the operation and decommissioning of the major facilities at Dounreay, Harwell, Windscale, Winfrith and

Culham are based upon the accelerated programmes originally presented to the NDA at the end of 2006. However, the implementation of these programmes will be subject to sufficient available funding from the NDA.

3.8.5 Ministry of Defence activities

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

While MoD has stated that Eskmeals will be maintained for the foreseeable future, no comment has been made about the future of the battery. There have not yet been any steps taken to estimate the volume of defence wastes likely to arise from decommissioning of the battery.

ISOLUS addresses the process for deciding and implementing future policy for managing the hulls, and particularly the reactors, of decommissioned nuclear submarines. Any change in this programme would affect future waste arisings.

All MoD land is subject to a detailed contamination survey, including that of potential radioactive contamination, termed a Land Quality Assessment (LQA). In light of the ongoing LQA programme, the current volume estimate for contaminated land in the UK Inventory is subject to potential significant change.

3.8.6 Nuclear materials

In addition to commercial spent fuel for which there are no current plans to reprocess (see Chapter 3.8.3), the UK has large stocks of spent nuclear fuel from research and demonstration reactors with no current reprocessing route. There are also uranic materials, plutonium (from the reprocessing of spent nuclear fuel), Magnox Depleted Uranium (MDU – a by-product of Magnox spent fuel reprocessing) and “Hex tails” (a by-product of the uranium enrichment process).

Government in consultation with NDA and other stakeholders will consider the most effective management strategies for nuclear materials, including what proportions of these materials should be retained as a strategic stock and what proportions might be regarded as waste.

The quantities of UK civil nuclear materials are given in a separate document [1].

4 WASTE QUANTITIES FROM ALL SOURCES

4.1 INTRODUCTION

This chapter presents summary information on the volumes of radioactive wastes in the 2007 Inventory, and on corresponding masses and numbers of waste packages. The information is derived from the volumes, densities and packaging plans for each individual waste stream. The volumes of LLW disposals in the UK are also given.

Annexes 1-4 provide further and more detailed information on volumes of wastes at 1 April 2007, estimated volumes of future waste arisings, and the numbers of packages, with corresponding packaged and conditioned volumes. Annex 1 gives information on wastes from all sources. Annex 2 gives information on wastes from each business activity, including separately for Magnox, AGR and PWR stations. Annex 3 gives information on wastes from each site, and for the organisations that own the sites. Annex 4 provides information for each waste stream in the 2007 Inventory.

4.2 TOTAL FOR ALL WASTES

The total volume of radioactive waste from all sources is 3,430,000m^3. Of this waste, 93.1% by volume is LLW, (3,190,000m^3), 6.9% is ILW (236,000m^3) and less than 0.1% is HLW (1,090m^3).

Table 4.1 gives these waste volumes and corresponding masses. Figure 4.1 illustrates the relative contributions of HLW, ILW and LLW to the total radioactive waste volume from all sources.

HLW is generated from reprocessing spent nuclear fuel at Sellafield. The volume and mass of HLW reported do not include waste from reprocessing overseas fuel that will be exported to the country of origin, and they assume substitution arrangements are implemented (see Chapter 4.7 for more information).

Table 4.1: Wastes at 1 April 2007 and estimated for future arisings Volumes and masses

	HLW	ILW	LLW	Total
Volume (m^3)	1,090	236,000	3,190,000	3,430,000
Mass (t)	2,900	270,000	3,600,000	3,900,000

(1) For HLW conditioned volume and mass are reported. Quantities of ILW and LLW are for untreated or partly treated waste, apart from conditioned waste streams (i.e. those with a /C in the identifier) where the conditioned volume and mass are reported.

(2) HLW conditioned volume and mass are net of exports of HLW and assume substitution arrangements are implemented.

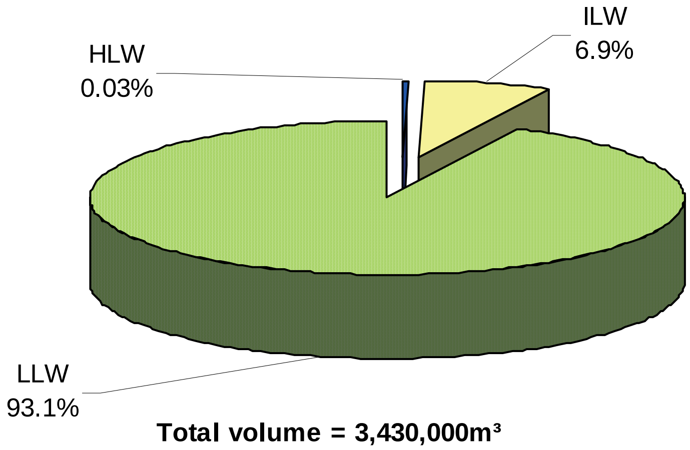
(3) ILW includes 13,000m^3 (12,000t) of waste that are expected to become LLW as a result of decontamination or decay storage.

(4) LLW includes 1,410,000m^3 (1,500,000t) of VLLW and a further 385,000m^3 (630,000t) of mixed VLLW/LLW.

(5) LLW includes 156,000m^3 (230,000t) held in Vault 8 at the LLWR, as well as 33,600m^3 (33,600t) previously disposed at Dounreay that is to be retrieved and repackaged. It does not include waste already disposed in the trenches at the LLWR (see Chapter 4.8).

Over half of all LLW volume (1,800,000m^3) falls into the VLLW sub-category or is mixed VLLW/LLW. Much of this waste is forecast to arise from decommissioning existing facilities. In general current arisings of VLLW are disposed of to landfill shortly after they arise.

Figure 4.1: Proportions of waste volumes by type



All HLW and ILW will be packaged for long-term management. It is estimated that 7,250 HLW packages will be produced and retained in the UK, equivalent to a packaged volume of 1,420m^3, and 200,000 ILW packages will be produced, equivalent to a packaged volume of 364,000m^3.

Excluding wastes that are suitable for landfill disposal, and assuming that all remaining LLW is packaged, an estimated 89,200 waste packages would be produced. This includes the 8,272 packages in Vault 8 at the LLWR at 1 April 2007. The volume of all LLW after packaging is about 3,470,000m^3.

4.3 WASTES AT 1 APRIL 2007

Table 4.2 gives the volumes and masses of HLW, ILW and LLW from all sources at 1 April 2007. The volumes and masses of wastes not yet conditioned and those already conditioned for long-term management are given separately. The table also gives the numbers of waste packages in stores at 1 April 2007.

At 1 April 2007 the volume of radioactive waste in the UK was 290,000m^3. About 196,000m^3 is LLW, of which about 156,000m^3 is waste that has already been conditioned and is in Vault 8 at the LLWR near Drigg. The larger volumes of the remaining LLW are at Sellafield (11,200m^3), Capenhurst (10,700m^3) and Dounreay (6,860m^3). At Dounreay LLW is being stored pending the planned opening of a new disposal facility at the site in 2013. At Sellafield, Capenhurst and other sites, most LLW at 1 April 2007 was in temporary storage awaiting either consignment to the LLWR, or if suitable disposal to landfill. Other wastes are being held for characterisation, processing and/or repackaging before being consigned to the LLWR. A small fraction of LLW, about 300m^3, was unsuitable for consignment to the LLWR or disposal to landfill because the wastes do not meet current acceptance criteria. These wastes are managed in much the same way as ILW.

ILW and HLW are accumulating in stores, as there are no current disposal routes for these waste types. At 1 April 2007 the volume of ILW was about 92,500m^3, of which about 63,900m^3 was at Sellafield. Most of the other ILW was at Aldermaston, Dounreay, Harwell and the Magnox and AGR power stations.

At 1 April 2007 the volume of HLW was about 1,730m^3, all of which was at Sellafield.

Table 4.2: Wastes at 1 April 2007 Volumes, masses and package numbers

Waste Type	At 1.4.2007	Volume (m^3)	Mass (t)	No of packages
HLW	**Total**	**1,730**	**3,300**	
	Not yet conditioned	1,090	1,600	0
	Already conditioned	648	1,700	4,319
ILW	**Total**	**92,500**	**110,000**	
	Not yet conditioned	71,500	73,000	820
	Already conditioned	21,000	40,000	39,977
LLW	**Total**	**196,000**	**280,000**	
	Not yet conditioned	36,300	51,000	252
	Already conditioned	160,000	230,000	8,275

(1) Volume and mass "not yet conditioned" are for untreated or partly treated waste; volume and mass "already conditioned" 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 conditioned" includes 2,420m^3 (1,800t) of waste that is expected to become LLW as a result of decontamination or decay storage.

(3) LLW includes 19,200m^3 (24,000t) of VLLW and a further 210m^3 (320t) of mixed VLLW/LLW.

(4) ILW package numbers include 1,709 1803-type mild steel drums. These drums are expected to be overpacked in larger capacity boxes (6 drums per box).

(5) LLW package numbers exclude those in short-term storage before consignment to the LLWR.

The quantity of conditioned waste is increasing, as a significant fraction of current arisings is being conditioned. Most LLW is immobilised in cement within mild steel ISO containers at the LLWR. 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. Conditioned HLW is liquid waste that is dried and then vitrified in stainless steel canisters.

At 1 April 2007 there were 8,275 packages of conditioned LLW. These were at the LLWR, apart from three packages at Windscale. A further 252 LLW packages containing unconditioned waste were in temporary storage at Dounreay. These packages will be immobilised in cement and transferred to the new site LLW disposal facility once this is operational.

There were 39,977 packages of conditioned ILW and 4,319 packages of conditioned HLW in long-term storage facilities. There were also 820 packages containing ILW that are being stored unconditioned at Sellafield and Harwell. All HLW packages and 36,645 of the ILW packages were at Sellafield.

4.4 FUTURE ARISINGS

Table 4.3 gives the volumes and masses of HLW, ILW and LLW from all sources projected to arise after 1 April 2007. Future arisings are forecast on the basis of information given in Chapter 3.

Table 4.3: Estimated future waste arisings
Volumes and masses

	HLW	ILW	LLW	Total
Volume (m^3)	-646	143,000	3,000,000	3,140,000
Mass (t)	-440	160,000	3,400,000	3,500,000

(1) Quantities of HLW represent the change in volume and mass at 1 April 2007 once all HLW is conditioned. Quantities of ILW and LLW are for untreated or partly treated waste, apart from conditioned waste streams (i.e. those with a /C in the identifier) where the conditioned volume and mass are reported.

(2) HLW conditioned volume and mass are net of exports of HLW and assume substitution arrangements are implemented.

(3) ILW includes 10,600m^3 (10,000t) of waste that are expected to become LLW as a result of decontamination.

(4) LLW includes 1,390,000m^3 (1,500,000t) of VLLW and a further 385,000m^3 (630,000t) of mixed VLLW/LLW.

4.4.1 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 2007 Inventory scenario Magnox reprocessing is scheduled to end in 2013, and oxide reprocessing around 2011.

Information for HLW is reported in a different way to that for ILW and LLW because volumes will actually fall in the future. The Nuclear Installations Inspectorate has placed a legal requirement upon Sellafield to reduce the volume of liquid HLW in storage tanks over the next 10 years by converting this liquid to a passively safe waste form (solid glass blocks). Consequently Sellafield is committed to a programme that will result in a progressive fall in the total volume of HLW as existing and fresh arisings of liquid waste are conditioned to produce a solid glass product of lower volume.

The figure of -646m^3 is the anticipated decrease in the HLW volume existing at 1 April 2007 once all HLW has been conditioned. Sellafield forecasts that all liquid waste will be conditioned by 2015, although some further waste will arise during subsequent POCO of high level waste plants. The figure of -440 tonnes is the corresponding decrease in mass once all liquid HLW has been conditioned.

The volume and mass of HLW are net of exports of HLW and assume substitution arrangements are implemented (see Chapter 4.7 for more information).

4.4.2 Intermediate Level Waste

The forecast future arisings of ILW are about 143,000m^3. About 37% (52,300m^3) is from Sellafield. Most of the other ILW is from Magnox (44,900m^3) and AGR power stations (21,600m^3).

About 71% (101,000m^3) of all forecast future arisings are from decommissioning of existing reactors and other facilities.

Forecast annual arisings of ILW are on average 3,800m^3 in the period up to 2010. Thereafter annual arisings fall, because by 2013 spent fuel reprocessing is assumed to have ceased, and by 2025 and 2031 all Magnox and AGR power stations respectively will be shut down, defuelled and under a Care and Maintenance regime. By 2040 annual arisings are predicted to have fallen to about 500m^3. Facility decommissioning in the period from 2040 to 2050, primarily at Sellafield, results in increased annual arisings. Between 2055 and 2075 annual arisings average only 50m^3. However final dismantling and site clearance activities at power stations between about 2077 and 2125 give rise to larger annual volumes of waste, which peak in the period 2100-2112 at about 2,500m^3 per year.

4.4.3 Low Level Waste

The forecast future arisings of LLW are about 3,000,000m^3. More than half of this volume comprises either waste that falls into the VLLW sub-category (1,390,000m^3) or mixed VLLW/LLW waste from Springfields (385,000m^3).

About 56% (1,660,000m^3) of all forecast future LLW arisings is from Sellafield. Much of the other LLW is from Magnox power stations (425,000m^3) and Springfields (387,000m^3), with smaller contributions from AGR power stations (105,000m^3), Dounreay (91,200m^3) and Harwell (85,800m^3).

Approximately 87% (2,600,000m^3) of all forecast future arisings are from decommissioning of existing reactors and other facilities and the remediation of contaminated ground. Only about 13% (400,000m^3) is from operations, about half of which is from Sellafield.

About 56% (1,460,000m^3) of decommissioning and site remediation wastes is associated with the dismantling and demolition of spent fuel reprocessing and other facilities at Sellafield. The decommissioning of uranium processing and fabrication facilities at Springfields is forecast to produce 345,000m^3, and final stage decommissioning of reactors and ancillary plant at Magnox and AGR power stations is forecast to produce 319,000m^3 and 61,500m^3 respectively.

Forecast annual arisings of LLW are on average about 50,000m^3 in the period up to 2030. The rate of arisings does not fall off after 2010 as it does for ILW, because as plant operations end and power stations shut down LLW continues to arise from POCO and decommissioning activities. Arisings after 2030 are largely determined by the timing of decommissioning programmes - first at Sellafield and then at the power stations - and can fluctuate quite markedly from one year to the next. The forecast peak annual volume arising is over 100,000m^3. Between 2030 and 2049 the average annual arising is about 20,000m^3, and between 2050 and 2069 is over 30,000m^3. During the period of final dismantling and site clearance activities at power stations between about 2077 and 2125 the average annual volume of LLW is about 16,000m^3.

4.5 COMPARISON WITH PREVIOUS INVENTORIES

Inventories of radioactive wastes in the UK have been prepared periodically since 1984. During this time wastes have been accumulated, estimates of future arisings have changed as new information became available and plans were amended, and increasing quantities of waste have been packaged for long-term management. The information presented here summarises the changes compared with volumes in the 2004 Inventory report [15]. The principal reasons for differences in waste volumes are outlined. The trends in projected waste volumes are also illustrated, with information from Inventory reports published over the past 10 years.

For wastes at 1 April 2007, most remain in an untreated or partly treated state. However, certain historic wastes at Sellafield, Dounreay, Harwell, Windscale and Trawsfynydd are being retrieved from stores and packaged for long-term management. Furthermore, current arisings from the Fuel Handling Plant and the Magnox and Thorp reprocessing plants at Sellafield, and from WAGR decommissioning at Windscale, are being packaged.

Progress in the packaging of wastes, as indicated by the build up in the number of waste packages produced, is illustrated in Table 4.4. Packaging of HLW and ILW began on the Sellafield site in 1990 with the start-up of the Waste Vitrification Plant and the Magnox Encapsulation Plant. Since then further ILW conditioning facilities have been built and are operating at Sellafield and at a number of other sites.

The number of LLW packages at 1 April 2007 includes for the first time those in Vault 8 at the LLWR, which numbered 8,272. LLW packages at Dounreay are being stored temporarily pending the opening of a new disposal facility at the site.

Table 4.4: Numbers of waste packages produced

Number of packages	HLW	ILW	LLW	Total
At 1.4.1994	529	4,466	-	4,995
At 1.4.1998	1,633	17,027	-	18,660
At 1.4.2001	2,281	21,654	23	23,958
At 1.4.2004	3,037	31,557	123	34,717
At 1.4.2007	4,319	40,797	8,527	53,643

(1) Packages at 1.4.1994 are estimates based on reported conditioned volumes in the 1994 Inventory.

(2) LLW package numbers exclude those in short-term storage before consignment to the LLWR. Packages at 1.4.2007 include those held in Vault 8 at the LLWR.

(3) At 1.4.2007 HLW packages were at Sellafield, ILW packages were at Sellafield, Dounreay, Harwell, Windscale, Winfrith and Trawsfynydd, and LLW packages were at the LLWR, Dounreay and Windscale.

4.5.1 High Level Waste

Table 4.5 gives the volume changes in accumulated HLW and estimated future arisings compared with the 2004 Inventory. Future arisings are reported in a way to show the planned fall in the total accumulated volume of HLW as existing and fresh arisings of liquid waste are conditioned to produce a solid glass product of lower volume.

The total conditioned volume of HLW is forecast to be about 1,090m^3, which is 254m^3 less than in the 2004 Inventory. The principal reason for this decrease is that the Inventory no longer includes conditioned HLW that is to be exported. There has also been a very small overall decrease as a result of adjustments to the Magnox and oxide reprocessing programmes.

Table 4.5: Changes in HLW volumes between the 2007 and 2004 Inventories

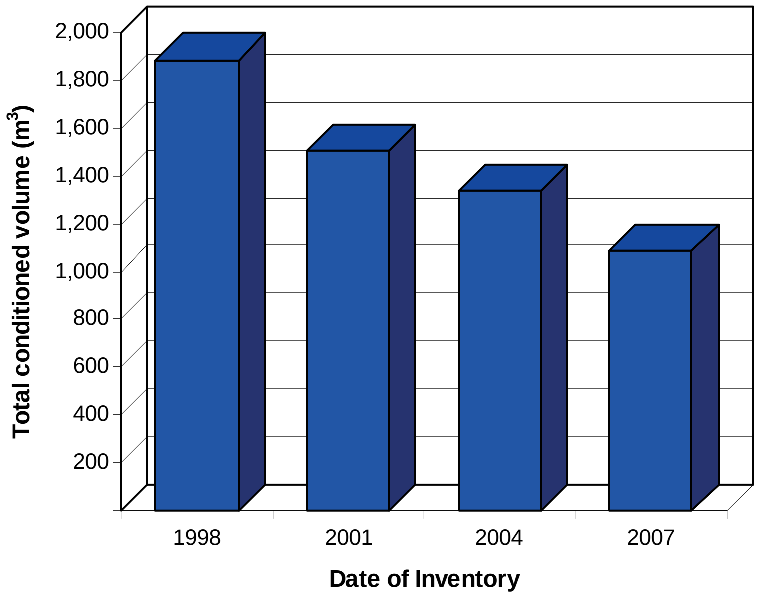
Volume (m^3)	2007 Inventory	2004 Inventory	Change
At 1 April (already conditioned)	648	456	+192
At 1 April (not yet conditioned)	1,090	1,430	-340
Total at 1 April	1,730	1,890	-152
Future arisings (1)	-646	-545	-102
Total (conditioned)	**1,090**	**1,340**	**-254**

(1) Future arisings is the anticipated decrease in the volume existing at 1 April once all liquid HLW at 1 April and arising in the future has been conditioned.

The total volume of HLW at 1 April 2007 was 1,730m^3, a decrease of 152m^3 compared with waste at 1 April 2004. This decrease is the net result of two factors: a decrease of 344m^3 in liquid waste and an increase of 192m^3 in conditioned waste from Magnox and oxide fuel reprocessing at Sellafield.

Figure 4.2 shows that forecasts of HLW volume have changed significantly in past inventories as assumptions regarding the scale of fuel reprocessing have been revised.

Figure 4.2: HLW past and current volume projections (conditioned waste)



4.5.2 Intermediate Level Waste

Table 4.6 gives the volume changes in accumulated ILW and estimated future arisings compared with the 2004 Inventory.

Table 4.6: Changes in ILW volumes between the 2007 and 2004 Inventories

Volume (m^3)	2007 Inventory	2004 Inventory	Change
At 1 April (already conditioned)	21,000	16,400	+4,600
At 1 April (not yet conditioned)	71,500	66,100	+5,400
Total at 1 April	92,500	82,500	+10,000
Total in future arisings	143,000	134,000	+9,000
Total	**236,000**	**217,000**	**+19,000**

(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 total volume of ILW is forecast to be 236,000m^3, which is 19,000m^3 more than in the 2004 Inventory. There are revised estimates of ILW volumes throughout the 2007 Inventory as a result of changes in the scale of future activities and re-evaluations of future arisings.

The principal reasons for the increase in the total volume of ILW are:

- The reclassification of much of final stage decommissioning graphite waste at Magnox power stations from LLW to ILW, giving a further 12,800m^3;
- A revised decommissioning strategy at the Sizewell B PWR, where the reactor is dismantled sooner after shutdown, giving a further 3,840m^3;
- Revised estimates of fuel assembly components at Sellafield as a result of the decision to dismantle AGR fuel prior to long-term storage, giving a further 3,710m^3;
- Revised estimates of waste based on a better understanding and more experience of facilities decommissioning at Aldermaston, giving a further 2,790m^3;
- Revised estimates of PCM from operations and current decommissioning projects at Sellafield, giving a further 2,700m^3;
- Revised estimates of waste from facilities decommissioning at Windscale, giving a further 2,270m^3.

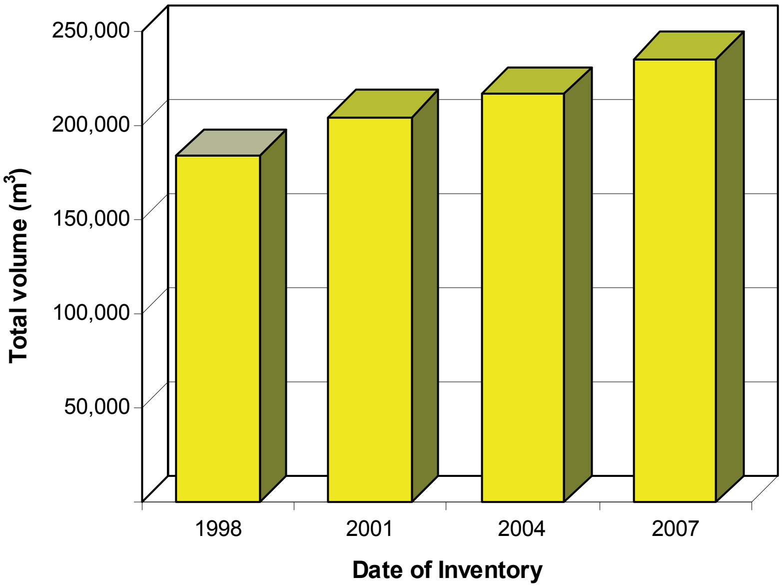
Some estimates of ILW volumes are lower than in the 2004 Inventory. The principal change is:

- A revised estimate of decommissioning wastes at Sellafield, resulting in a reduction of 4,800m^3.

The total volume of ILW at 1 April 2007 was 92,500m^3, an increase of 10,000m^3 or about 12% compared with waste at 1 April 2004. Conditioned wastes were 4,600m^3 greater at 21,000m^3, while accumulations of wastes yet to be conditioned were 5,400m^3 greater at 71,500m^3. Projected future arisings of ILW are 143,000m^3. This is about 9,000m^3 more than future arisings reported in the 2004 Inventory.

Figure 4.3 shows that forecasts of ILW volume have changed in past inventories as the scale of projected future activities and estimates of waste arisings have been revised. Changing oxide fuel reprocessing assumptions and revisions in decommissioning waste estimates as programmes have been refined have been particularly significance.

Figure 4.3: ILW past and current volume projections



4.5.3 Low Level Waste

Table 4.7 gives the volume changes in accumulated LLW and estimated future arisings compared with the 2004 Inventory.

Table 4.7: Changes in LLW volumes between the 2007 and 2004 Inventories

Volume (m^3)	2007 Inventory	2004 Inventory	Change
At 1 April (already conditioned)	160,000	1,870	+158,000
At 1 April (not yet conditioned)	36,300	19,000	+17,300
Total at 1 April	196,000	20,900	+175,000
Total in future arisings	3,000,000	2,030,000	+970,000
Total	**3,190,000**	**2,060,000**	**+1,140,000**

(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.

(2) Volume at 1 April already conditioned (2007 Inventory) includes wastes held in Vault 8 at the LLWR.

The total volume of LLW is forecast to be 3,190,000m^3, which is 1,140,000m^3 more than in the 2004 Inventory. Newly-reported wastes are included in the 2007 Inventory, and there are revised estimates of LLW volumes as a result of re-evaluation and reclassification of future arisings and changes in the scale of future activities.

The principal reasons for the increase in the total volume of LLW are:

- The inclusion in the inventory of newly reported VLLW with a volume totalling about 1,760,000m^3 – made up of waste from Sellafield (1,260,000m^3) Springfields (385,000m^3), Harwell (82,500m^3), Devonport (18,000m^3) and Capenhurst (10,000m^3);
- The inclusion in the inventory for the first time of LLW in Vault 8 at the LLWR (156,000m^3)[1];
- The inclusion of future arisings of empty uranium hexafluoride containers at Capenhurst, giving a further 57,900m^3;
- A reassessment of the decommissioning wastes anticipated to arise at Chapelcross during Care & Maintenance preparations, giving a further 51,300m^3;
- About 33,600m^3 of LLW previously disposed of at Dounreay has now been included as future arisings, as it is planned to recover this material and package it for disposal in the proposed new facility.

Some estimates of LLW volumes are lower than in the 2004 Inventory. The principal changes are:

- Contaminated soil and building foundations at Sellafield, which totalled 508,000m^3 in the 2004 Inventory, are now included in a separate document [1] because they are not yet well characterised and therefore there is considerable uncertainty in the volume that might arise;
- A reassessment of contaminated land at Aldermaston. More detailed land characterisation work has led to a greater understanding of volumes and activity levels at the AWE sites, and a consequent large reduction in the volume of long-lived alpha contaminated land requiring extraction and disposal on site closure. A much smaller land area is long-lived alpha contaminated and to a lesser depth than reported in the 2004 Inventory. In addition there are soils contaminated with relatively short-lived tritium, but the levels of contamination are close to background levels and predicted not to form part of the disposal inventory on site closure. The overall result is a volume estimate that is lower by about 365,000m^3. Information on land at AWE sites that has the potential to be contaminated, but has yet to be well characterised is included in a separate document [1].
- A reassessment of LLW arisings at Sellafield. Discounting the increase from the inclusion of VLLW and the decrease from the removal of contaminated land (see above), estimates of LLW from operations and decommissioning are lower by about 61,900m^3.

The total volume of LLW at 1 April 2007 was 196,000m^3, an increase of about 175,000m^3 compared with waste at 1 April 2004. The principal reason for this increase is the inclusion in the Inventory for the first time of 156,000m^3 of waste in Vault 8 at the LLWR. At other sites, volumes in temporary storage largely determine accumulations at any particular date. There have been significant accumulations of decommissioning VLLW at Sellafield and Capenhurst – also included in the inventory for the first time. There were also higher volumes of LLW at Dounreay, where waste is being stored until a planned new LLW disposal facility at the site is operational, and at Harwell from the recent decommissioning of GLEEP.

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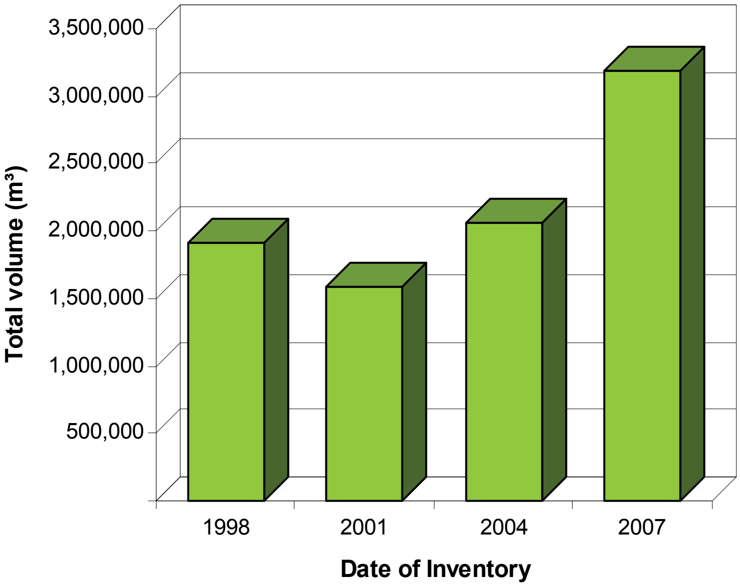
[1] Although this waste has been emplaced for disposal, it will not be declared "disposed" until the vault and its waste is suitably capped and the UK Government authorises this change of status.

Projected future arisings of LLW are 3,000,000m^3. This is about 970,000m^3 more than future arisings reported in the 2004 Inventory.

Figure 4.4 shows that forecasts of LLW volume have changed in past inventories as the scale of projected future activities and estimates of waste arisings have been revised. Of most significance have been lower estimates of decommissioning wastes in 2001, particularly those at Sellafield, and the inclusion of some contaminated land at a number of sites in 2004. The reasons for the increase in 2007 are explained above.

Figure 4.4: LLW past and current volume projections



4.6 WASTES FOR ENGLAND, SCOTLAND AND WALES

On 1 July 1999 responsibility for radioactive waste management in Scotland and Wales was devolved to the Scottish Executive and the National Assembly for Wales respectively. In England responsibility continues to rest with the UK Government.

Table 4.8 overleaf gives volumes of waste separately for England, Scotland and Wales at 1 April 2007, in projected future arisings and in total. The volumes for England include wastes currently held in Vault 8 at the LLWR near Drigg in Cumbria – these wastes originated from sites throughout the UK. Also, some of the radioactive wastes produced in England are from the reprocessing of spent fuel from reactors in Scotland and Wales.

Approximately 89% of all radioactive wastes in the UK are located in England, 8% in Scotland and 3% in Wales.

There are currently no nuclear licensed sites in Northern Ireland; only very small quantities of radioactive waste are produced there from hospitals and industry.

Table 4.8: Wastes at 1 April 2007 and estimated for future arisings

England

Waste Type		Volume (m^3)	Mass (t)
HLW	**Total**	**1,090**	**2,900**
	1.4.2007	1,730	3,300
	Future arisings	-646	-440
ILW	**Total**	**193,000**	**220,000**
	1.4.2007	80,700	95,000
	Future arisings	112,000	120,000
LLW	**Total**	**2,860,000**	**3,200,000**
	1.4.2007	186,000	270,000
	Future arisings	2,670,000	3,000,000

Scotland

Waste Type		Volume (m^3)	Mass (t)
HLW	**Total**	**0**	**0**
	1.4.2007	0	0
	Future arisings	0	0
ILW	**Total**	**26,100**	**35,000**
	1.4.2007	8,670	13,000
	Future arisings	17,400	22,000
LLW	**Total**	**249,000**	**310,000**
	1.4.2007	9,480	12,000
	Future arisings	240,000	300,000

Wales

Waste Type		Volume (m^3)	Mass (t)
HLW	**Total**	**0**	**0**
	1.4.2007	0	0
	Future arisings	0	0
ILW	**Total**	**17,000**	**21,000**
	1.4.2007	3,100	5,900
	Future arisings	13,900	15,000
LLW	**Total**	**84,100**	**110,000**
	1.4.2007	697	330
	Future arisings	83,400	110,000

(1) The totals for HLW are conditioned volume and mass. Quantities of ILW and LLW are for untreated or partly treated waste, apart from conditioned waste streams (i.e. those with a /C in the identifier) where the conditioned volume and mass are reported.

4.7 WASTES FROM OVERSEAS MATERIALS

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 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 that would otherwise be returned.

Exports of vitrified HLW are scheduled to commence in 2009 and continue until 2015/16. In total 268m^3 of vitrified HLW (about 1,790 packages) is planned for export, and this volume assumes that substitution arrangements are implemented. The 2007 Inventory does not include HLW for export.

During the 1990’s about 1,000 tonnes of materials test reactor fuel was reprocessed at Dounreay for customers in Europe 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. The radioactive waste will be returned as cemented raffinate. The arrangements for returning wastes are currently being finalised. The Inventory includes 65m^3 of raffinate (210m^3 when packaged) subject to return.

4.8 DISPOSALS OF WASTE

Between 1949 and 1982 about 33,000m^3 of radioactive waste were disposed of in the North Atlantic and UK coastal waters.

Since 1959 most of the UK’s solid LLW has been transported to the near-surface disposal facility, the LLWR, near the village of Drigg in Cumbria. Between 1959 and 1995 about 800,000m^3 of waste was disposed in a series of clay-lined trenches and covered with soil.

Since 1988 most waste has been placed in large metal containers, similar to shipping containers. These are then filled with cement and placed in an engineered concrete vault (Vault 8). Suitable LLW is first supercompacted to minimize its volume. In this process drums or boxes of waste are compacted under high pressure of up to 2,000 tonnes per square metre.

At 1 April 2007 the containers occupied nearly 200,000m^3 of vault space. Vault 8 waste is included in the LLW quantities presented throughout this report.

Consignments to the LLWR over the past 10 years have totalled about 105,000m^3 (see Table 4.9).

Waste for consignment to the LLWR must comply with the site’s Conditions for Acceptance (CfA). The CfA stipulates that certain materials must not be present in the waste, and places limits on the maximum concentration of certain radionuclides for which the LLWR has authorised annual disposal limits. To comply with the CfA wastes must also have a valid Waste Stream Characterisation Document (WSCD) at the time of disposal. The

WSCD describes the physical, chemical and radionuclide content, gives estimated arisings, conditioning and packaging information, and a justification of assessment methodology.

The capacity of the LLWR is subject to an authorisation from the Environment Agency for further waste disposals, and planning consent for an additional engineered concrete vault. For current operational planning purposes, it is currently assumed that the site will be full by 2050.

Table 4.9: Annual consignments to the LLWR 1997-2006

Year	Total volume (m^3)
1997	9,200
1998	12,600
1999	8,000
2000	8,400
2001	6,100
2002	10,800
2003	11,400
2004	12,900
2005	12,800
2006	12,900

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

There is a disposal facility at Dounreay consisting of six shallow trenches, which has been used for LLW from the site and from the adjacent Vulcan site. Total disposals are about 33,600m^3. As the facility does not meet current standards, the waste is to be retrieved, packaged into containers, and consigned to a planned new site solid LLW disposal facility. Current LLW arisings are being stored on site as an interim measure while this new facility is developed.

Some bulk wastes from the major waste producers at the lower end of the LLW activity range are classified as high volume VLLW and where authorised are disposed of to off-site landfill, and a few nuclear licensed sites have authorised on-site disposal for certain solid LLW. However, these arrangements are not widespread. High volume VLLW is included in the 2007 Inventory where there is reasonable certainty in the volume arisings.

Table 4.10 gives a projection of waste consignments to the LLWR over the next few years. The values are packaged volumes for waste streams that are identified in the 2007 Inventory as routinely consigned to the LLWR or in interim storage pending future consignment to the LLWR. The former category accounts for about 99% of the waste. A further 70,000m^3 are identified as "expected to be disposed of to the LLWR" over the same period. Most of this waste is concrete, steel, rubble and soil from facilities decommissioning.

There are no disposal facilities in the UK for HLW and ILW. These wastes are being accumulated in stores.

Table 4.10: Projected future consignments to the LLWR 2007 – 2012

Year	Total volume (m^3)
2007	15,400
2008	14,500
2009	14,600
2010	14,500
2011	14,900
2012	13,200

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

4.9 UNCERTAINTY IN WASTE VOLUMES

For most existing wastes there is a high level of confidence in the volume, based on measurement.

In general there is reasonable confidence in estimates of future arisings from operations over the next 5 years. Uncertainty increases the further that operational waste arisings are projected into the future.

The greatest uncertainty rests with future arisings of waste from facilities decommissioning and site clean up. This is particularly the case for wastes at the lower end of the LLW activity range, where uncertainty about regulatory requirements and disposal routes, lack of definition of site decommissioning and clean up plans, and the fact that much characterisation work remains to be carried out, all make estimation of waste volumes somewhat speculative. Furthermore the benefit of decontamination that might allow waste volume to be below the lower threshold level for LLW must be considered against the cost.

The 2007 Inventory includes some High Volume VLLW from facilities decommissioning and site clean up, but only where the waste has been sufficiently well characterised. It is recognised that the total quantity of such waste could be significantly higher than that in the 2007 Inventory. Thus the additional volume of potentially contaminated ground for remediation is reported to be about 13,000,000m^3 [1].

As decommissioning projects progress through initial scoping studies, detailed planning and then implementation, and as ground contamination surveys are extended and refined, volume estimates can be determined with increasing certainty.

The Inventory reports waste volumes once they have been packaged for long-term management. As packaging schemes are still under development for many wastes, particularly decommissioning wastes, there is greater uncertainty in the resulting volumes than there is in waste volumes at the point of generation.

5 MATERIAL CONTENT OF WASTE

5.1 INTRODUCTION

This chapter presents summary information on the material content of radioactive wastes in the 2007 Inventory. The values for material content are derived from data on the materials composition of each individual waste stream. For each waste stream, the total mass of each material is calculated from the mass fraction of each constituent material multiplied by the waste bulk density and the total waste volume. The resulting masses for individual wastes are then summed for all relevant waste streams. Where a complete quantified breakdown of a waste stream is unavailable, the mass fraction of the stream for which there is no numerical data is designated "unspecified".

For waste that has been conditioned, the material content includes the encapsulating matrix, but excludes the container and any capping material. Similarly for the small quantity of waste that has been packaged but has not been encapsulated, the material content is that of the waste, and excludes the container.

5.2 WASTE CONDITIONING

The material composition of waste changes when it is conditioned. It is therefore necessary to distinguish between those wastes that are being conditioned (i.e. waste streams with a /C in the identifier) and all other wastes.

Conditioning of liquid HLW at Sellafield commenced in 1990 with the start-up of the Waste Vitrification Plant. The vitrification process converts the highly active liquid into a borosilicate glass. The process results in a significant reduction in waste volume because the liquid waste is first heated to dryness. The final conditioned waste form is made up of about 25% calcined waste oxide and 75% glass by mass.

Increasing quantities of ILW at Sellafield and at other sites are being conditioned for safe longer-term storage by immobilising the wastes in cement-based or polymer matrices. On 1 April 2007 there were accumulations of conditioned ILW at:

- Sellafield – Magnox fuel cladding, EARP floc, AGR and LWR fuel cladding, PCM, centrifuge cake, barium carbonate slurry and MEB crud, and maintenance scrap, all in cement-based matrices;
- Dounreay – MTR liquors in a cement-based matrix;
- Harwell – sludges and liquors in cement-based matrices;
- Windscale – fuel stringer debris and decommissioning wastes from WAGR in a cement-based matrix;
- Winfrith – sludges in a cement-based matrix;
- Trawsfynydd – ion exchange material in an organic polymer, and miscellaneous activated components and pond debris in cement-based matrices;

The composition of conditioned ILW is governed by the nature of the waste, but varies between about 50% and 80% encapsulating material by mass.

At the LLWR all containers of solid LLW are first grouted using low viscosity cement before being placed in Vault 8. In addition to the conditioned waste at the LLWR, at 1 April 2007 there were small volumes of LLW that had been immobilised in cement-based matrices at:

- Berkeley and Hunterston A – sludge;

- Hinkley Point A – filters;
- Harwell – sludge;
- Windscale – decommissioning waste from WAGR;
- Aldermaston – sludge;
- Devonport – sludge, ion exchange material and filters;

The proportion of cement that makes up these conditioned products varies between about 40% and 80% by mass depending on the particular waste.

5.3 MATERIAL COMPONENTS

Table 5.1 gives the total mass of materials in HLW, ILW and LLW. This includes wastes at 1 April 2007 that had been conditioned as well as future arisings that are reported as conditioned waste. The materials are categorised as metals, organics, inorganics, soil, and unspecified. Where waste is reported to be metal, but the type of metal is not given, its mass is included with "other metals". The same approach is adopted for organics and inorganics where the type of material is not given. Where the composition of waste is not reported, its mass is designated "unspecified".

5.3.1 High Level Waste

HLW is initially produced as a concentrated nitric acid solution containing fission products from the primary stage of reprocessing spent nuclear fuel. The Inventory includes liquids that are awaiting conditioning, the glass product of conditioning, and small quantities of contaminated scrap items from the vitrification plant, which consist mostly of metal and ceramic and which are treated as HLW because they are contaminated with small quantities of vitrified HLW glass.

The mass of conditioned HLW at 1 April 2007 was 1,700 tonnes. A further 1,600 tonnes of liquid waste remained to be conditioned. Once all waste at 1 April 2007 and projected future arisings of liquid waste and contaminated scrap items are conditioned the total mass will be 2,900 tonnes. This does not include HLW that will be exported.

5.3.2 Intermediate Level Waste

The major components are steels, graphite, concrete, cement and rubble, and sludges 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 "concrete, cement, sand and rubble" is cement associated with conditioned waste. The remainder is mostly concrete and rubble from building decommissioning. Most sludge and floc waste is from the treatment of liquid effluents and from the corrosion of stored Magnox fuel cladding waste.

Figure 5.1 illustrates the materials content of the conditioned ILW reported in the Inventory (i.e. waste streams with a /C in the identifier), and that of unconditioned ILW. The major mass fraction of ILW is unconditioned. The principal material components are metals (mainly steels), graphite, concrete and rubble, and sludges and flocs.

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 being encapsulated in cement-based matrices account for nearly 85% of the conditioned waste mass. These streams include Magnox fuel cladding and associated sludge, steel fuel cladding, Zircaloy fuel cladding and EARP floc.

Table 5.1: Material components of wastes from all sources

Material	Mass (tonnes)		
	HLW	ILW	LLW
METALS:			
Stainless steel	3.2	27,000	160,000
Other steel	5.3	45,000	870,000
Magnox	0	7,800	130
Aluminium	0	1,200	30,000
Zircaloy	0	1,500	40
Other metals	91	3,200	90,000
ORGANICS:			
Cellulosics	0	1,900	90,000
Plastics	0	5,600	80,000
Rubbers	0	1,200	23,000
Other organics	0	1,400	24,000
INORGANICS:			
Concrete, cement, sand & rubble	0	58,000	1,700,000
Graphite	0	79,000	20,000
Glass & Ceramics	2,200	1,000	15,000
Sludges, flocs & liquids	0	32,000	19,000
Other inorganics	640	2,800	31,000
SOIL	0	86	330,000
UNSPECIFIED	0	4,100	130,000
TOTAL	**2,900**	**270,000**	**3,600,000**

(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.

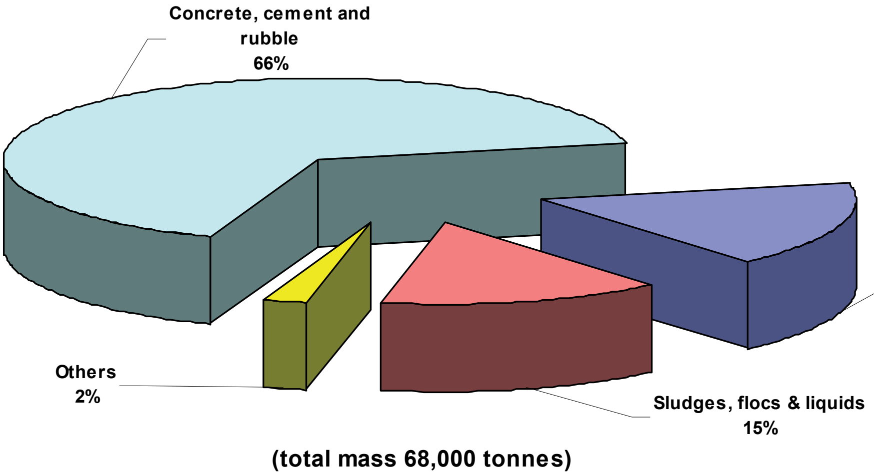
(2) Other metals include unspecified metals; other organics include unspecified organics and other inorganics include unspecified inorganics. Unspecified metals, organics and inorganics are likely to comprise the materials listed in the table, but have not been apportioned to specific materials by waste producers.

5.3.3 Low Level Waste

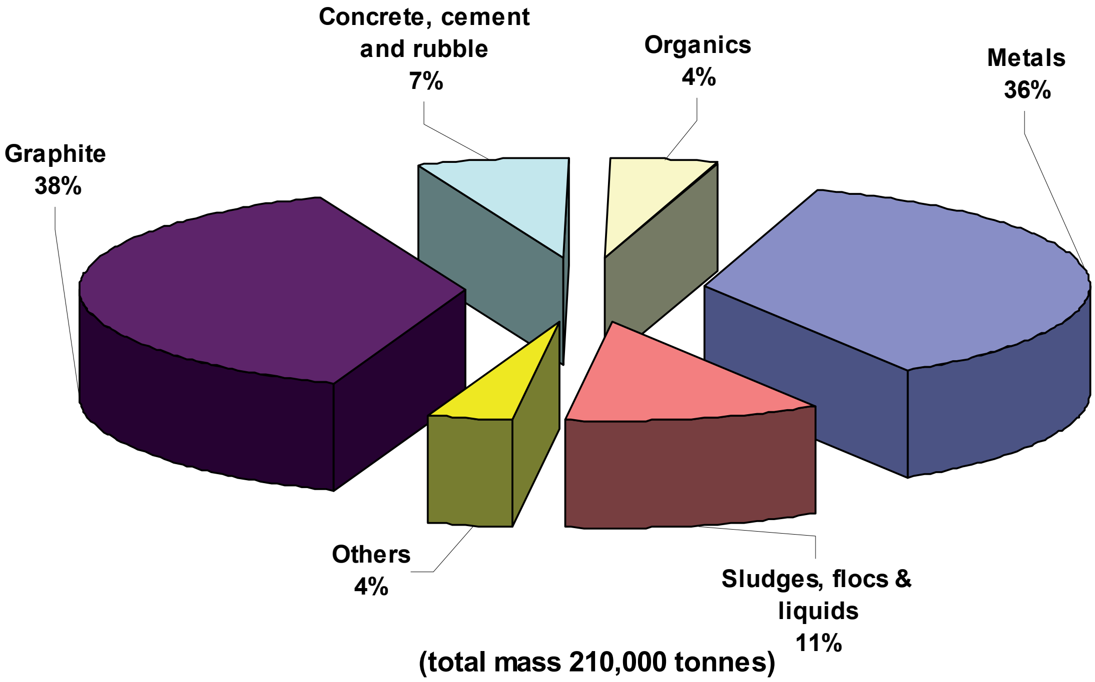
The major components of LLW are building rubble, soil and steel items such as framework, pipework and reinforcement from the dismantling and demolition of nuclear reactors and other nuclear facilities and the clean up of nuclear sites.

Figure 5.2 illustrates the materials content of unconditioned LLW reported in the Inventory. This represents most LLW, as only about 230,000 tonnes (6% by mass) is reported as conditioned waste. Nearly all of this conditioned waste is that currently held in Vault 8 at the LLWR, which has been encapsulated with a cement grout, and has a cement content of about 50%.

Figure 5.1: Material composition of ILW from all sources

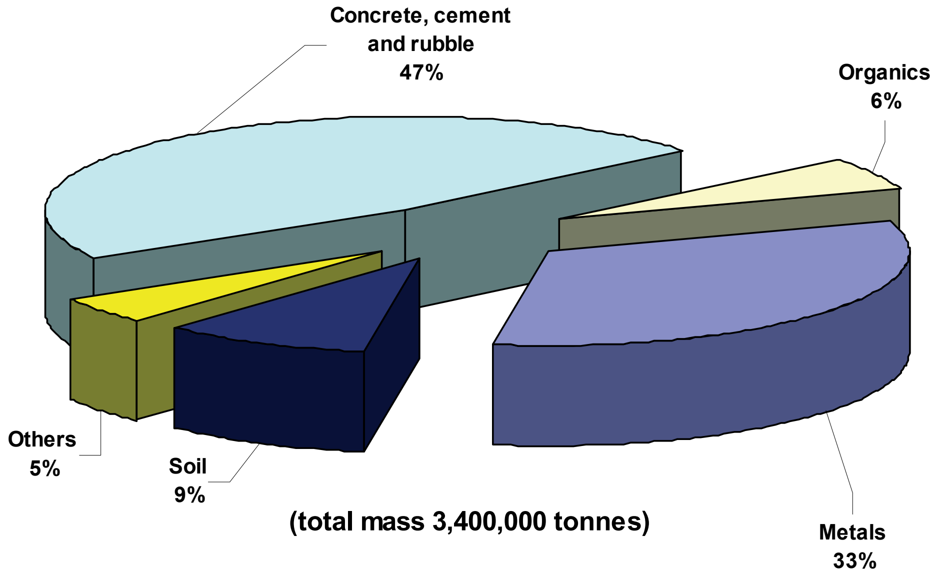


Composition of conditioned waste



Composition of unconditioned waste

Figure 5.2: Material composition of LLW from all sources



Composition of unconditioned waste

5.4 COMPARISON WITH THE 2004 INVENTORY

The principal reasons for changes in the masses of materials compared with those reported in the 2004 Inventory [15] are the same as those for changes in waste volumes (see Chapter 4.5).

The material composition of HLW is very similar, reflecting the glass and waste oxide make up of the vitrified product. The material compositions of conditioned and unconditioned ILW are very similar, but there is now proportionally more conditioned ILW.

There has been a significant change in the total mass and in the composition of LLW, with a higher mass and proportion of concrete, cement and rubble and of metals, and a lower mass and proportion of soil. The total mass of LLW has increased by about 800,000 tonnes. The proportions of concrete, cement and rubble (46%) and of metals (33%) are about twice their previous values, while the proportion of soil has fallen from about 58% to about 10%. The reasons are that the 2007 Inventory now includes high volume VLLW streams from facility decommissioning (principally steel and cementitious building materials) and less soil. All soil previously reported, but which is not yet well characterised, is now included in a separate document because of the considerable uncertainty in the volumes of waste that might come forward [1].

6 RADIOACTIVITY CONTENT OF WASTE

6.1 INTRODUCTION

This chapter presents summary information on the radioactivity (hereafter shortened to 'activity') content of wastes in the 2007 Inventory.

Activities (in TBq) are derived from the specific activity (in TBq/m^3) and volume (in m^3) of each waste stream. Values are given using scientific notation (e.g. 16,000TBq is expressed as 1.6E+04TBq). In the 2007 Inventory there are a number of ILW and LLW streams where specific activity is not quantified. In the case of ILW, the number of waste streams is small, all are of low volume, and specific activities are not anticipated to be significant. However, in the case of LLW, a number of decommissioning waste streams have high forecast volumes and therefore potentially significant total activities even though their specific activities are likely to be very low. Consequently, the total activity of LLW streams in the 2007 Inventory may be underestimated. Nonetheless, this activity remains a very small fraction of the total activity from all wastes.

Before reporting the activities of wastes, some background information is provided on the sources of radioactivity and the radionuclides to be found in radioactive wastes.

6.2 RADIONUCLIDE PRODUCTION

6.2.1 Introduction

The term radionuclide is used to describe an atom or nucleus of an element that undergoes radioactive decay. There are about 2,300 known radionuclides, most of which are not naturally occurring. Several hundred of these are produced in nuclear reactors; many are of short half-life and so decay completely or to very low levels before they can appear in wastes.

The 2007 Inventory includes information on 112 radionuclides that have the potential to impact on the safe handling, transport, storage and disposal of radioactive waste generated in the UK [16]. Clearly, not each of these 112 radionuclides will exist in every waste stream. The list of the so-called relevant radionuclides is regularly reviewed to ensure it remains valid and applicable.

Radionuclides are specified by the symbol of their chemical element and their atomic mass (for example Cl36 is the radioactive nuclide of chlorine with an atomic mass of 36). Some radionuclides exist in a metastable state: this is indicated by a suffix "m" or "n" (for example Ag110m).

The principal radioactive decay modes of radionuclides are:

- **Alpha**, which involves emission of an alpha particle;
- **Beta -**, which involves emission of a negative beta particle (electron);
- **Isomeric transition**, which involves the transition of a nuclide from one energy state to another accompanied by the emission of a gamma ray;

- **Electron capture / Beta +**, which involves the conversion of a proton into a neutron either by the proton capturing an orbital electron or emitting a positive beta particle (positron).

In general gamma ray, X-ray and Auger electron emission are associated with alpha, beta minus and electron capture / beta plus decay processes.

6.2.2 Production

The radionuclides in the wastes can be divided into three broad groups, according to the ways in which they are produced: *Fission products, Activation products* and *Actinides* (including their decay products).

Fission products

Fission products are produced from the fission (splitting) of heavy nuclei present in nuclear fuels. Fission products include those produced directly by the fission process or by the decay of fission fragments. The main source of fission products in both natural uranium and enriched uranium fuels is thermal-neutron binary fission of U235. This produces nuclides with mass numbers ranging from approximately 70 to 160, with peaks occurring at mass numbers around 95 (e.g. Sr90, Tc99) and 140 (e.g. Cs137, Ce144). A substantial fraction of fission products is also produced from fission of Pu239 produced from uranium during fuel irradiation in nuclear reactors. Fission products predominantly undergo beta/gamma decay.

Reprocessing of spent nuclear fuel separates the fission products from reusable uranium and plutonium, and results in a number of process waste streams that contain fission product contamination. In addition, where nuclides of the more volatile elements (e.g. iodine, caesium) have been released from the fuel while it is in the reactor or in store at the reactor site before being transported for reprocessing, these radionuclides will appear in reactor waste streams.

Activation products

Activation products arise from the neutron activation of stable isotopes of all masses. Reactions involving the absorption of a neutron followed by the emission of a gamma ray tend to produce the largest amounts of activation products. Since fission products mostly have atomic masses in the range 70 to 160, radionuclides outside this atomic mass range normally arise as activation products. Activation reactions will be the primary source of radionuclides in the mass range 70 to 160 when the fission product yield of the radionuclide is low. Examples of radionuclides that arise predominantly as activation products are: C14, Cl36, Co60, Ni63 and Nb94. Activation products predominantly undergo beta/gamma decay.

Actinides and their decay products

Actinides consist of actinium (atomic number 89) and the elements of higher atomic number. They include thorium, protactinium, uranium, neptunium, plutonium, americium and curium.

The actinides in the wastes are principally of two types: uranium and its decay products, and actinides of higher atomic number, such as plutonium, produced from uranium by neutron capture reactions during fuel irradiation in nuclear reactors. The higher actinides also undergo radioactive decay. In general, as the burnup of the fuel is increased the total quantities of the higher actinides also increase. Actinides predominantly undergo alpha decay.

The reprocessing of spent nuclear fuel separates uranium and plutonium from the other actinides and fission products. Wastes arising from fuel reprocessing operations will contain varying quantities of these radionuclides.

6.3 TOTAL FOR ALL WASTES

To determine total activities in waste at 1 April 2007, the activities of all relevant waste streams are summed. This is valid, because the activities of waste at 1 April 2007 refer to a particular point in time. However, this is not true for future arisings, where the specific activity of a waste stream is that estimated to exist at the time the waste arises. As different waste streams are generated over different periods of time, between 2007 and 2130, summed activities will not represent the actual total activity content of the wastes at any particular time.

To overcome this, the total activity of accumulated wastes at times after the reference date of 1 April 2007 is calculated by taking account of the radioactive decay of each waste stream. The period of decay for wastes that existed at 1 April 2007 is from that date, and for waste arisings after 1 April 2007 is from the time that the waste arises.

The activities given in Table 6.1 are those for accumulated wastes at 1 April 2007, 2050, 2100 and 2150. The values show that most of the activity in radioactive waste is in HLW.

Table 6.1: Total activity of all wastes

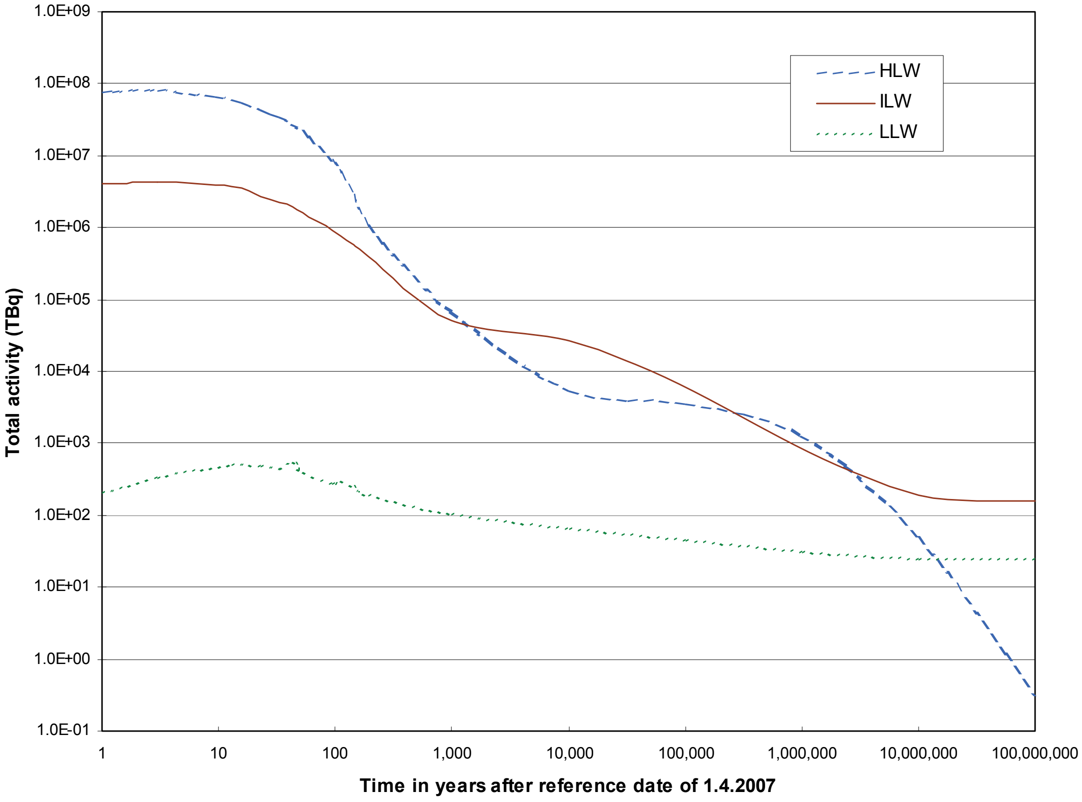
Waste type	Total activity (TBq)			
	At 1.4.2007	At 1.4.2050	At 1.4.2100	At 1.4.2150
HLW	7.7E+07	2.7E+07	8.7E+06	2.9E+06
ILW	4.1E+06	2.0E+06	9.3E+05	5.7E+05
LLW	1.1E+02	5.6E+02	2.8E+02	2.5E+02
Total	8.1E+07	2.9E+07	9.6E+06	3.5E+06

Figure 6.1 illustrates how the total activities of accumulated HLW, ILW and LLW change with time after 1 April 2007.

For HLW, ILW and LLW total activities initially increase, as the additional activity in projected future arisings is greater than the reduction in activity from radioactive decay of the waste as a whole.

Once all projected waste has arisen, total activities fall in a manner that reflects the decay of the major radionuclide species. No HLW is projected to arise after 2023. There are no further arisings of ILW and LLW beyond 2130 when the final stage decommissioning of all power reactors and reprocessing plants, and associated site clean up activities are forecast to be complete.

Figure 6.1: Total activity of HLW, ILW and LLW as a function of time



In time the total activity of HLW falls below that of ILW and LLW because of the lower quantities of uranium, which with its daughter products is the major contributor to total activities beyond about 1 million years. LLW shows a markedly smaller decrease in activity over time from its peak level than either HLW or ILW. This is because a relatively high proportion of the activity of LLW at the time of arising is from uranium, which has a long half-life (see Figure 6.6).

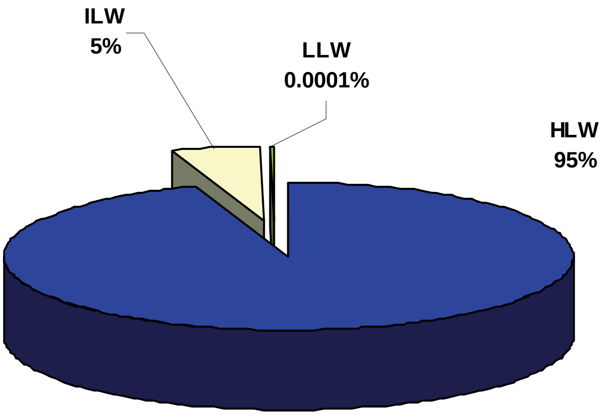
Figures 6.4-6.6 at the end of this chapter show those radionuclides that are the major contributors to the activity of HLW, ILW and LLW, and how these contributions change with time.

6.4 WASTES AT 1 APRIL 2007

For most waste streams existing at 1 April 2007, the specific activities relate to that date. These activities take into account radioactive decay from the time the waste was generated. For a very few waste streams, the specific activities reported by waste producers relate to earlier dates. The activities of these streams have been decayed so that they relate to 1 April 2007.

Figure 6.2 shows the relative contributions of HLW, ILW and LLW to the activity in waste at 1 April 2007 from all sources at that date. Most of the activity (7.7E+07TBq) was contained in HLW. The total activity in ILW was lower (4.1E+06TBq), while the activity content of LLW was very much lower still (1.1E+02TBq).

Figure 6.2: Proportions of activity by waste category at 1 April 2007



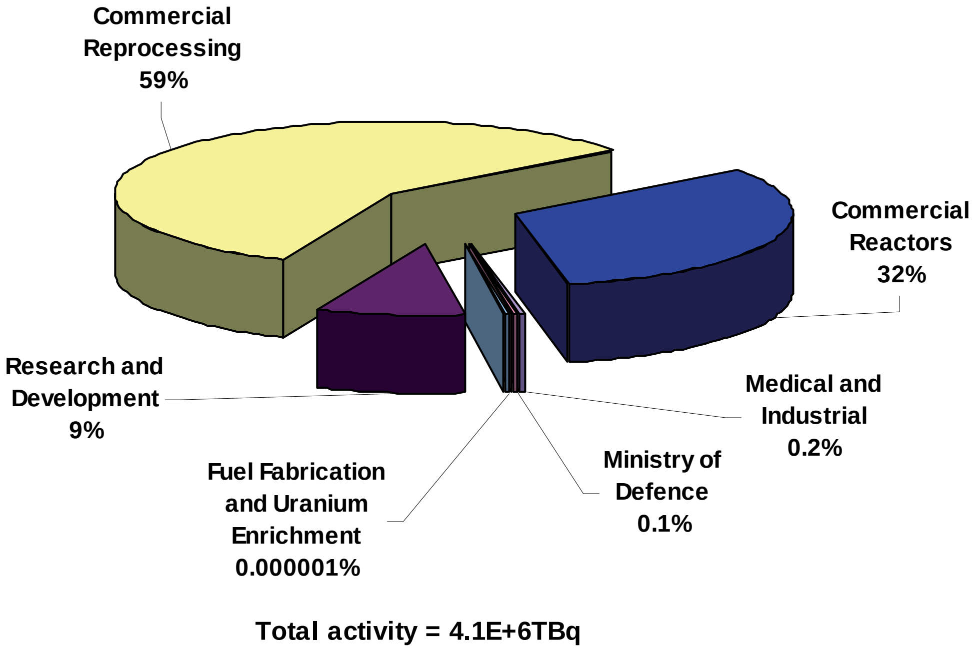
Total activity = 8.1E+7TBq

About 99% of the activity in waste at 1 April 2007 was from beta/gamma-emitting radionuclides. The total alpha and beta/gamma activities were 4.5E+05TBq and 8.1E+07TBq respectively.

All HLW is generated from spent fuel reprocessing at Sellafield.

Figure 6.3 illustrates the contributions of the different business activities to total activity in ILW at 1 April 2007. Spent fuel reprocessing and nuclear power reactors accounted for about 90% of the activity. For spent fuel reprocessing the activity is primarily from fission products that along with residual uranium etc. are transferred in varying degrees to wastes. In the case of nuclear power reactors most of this activity arises as activation products in fuel element and reactor core components that have been subjected to neutron irradiation.

Figure 6.3: Proportions of activity by business activity in ILW at 1 April 2007



About 80% of all LLW at 1 April 2007 is stored in Vault 8 at the LLWR. The remainder is from the different business activities. Before LLW is consigned to the LLWR, or in a few cases to landfill, it is usually held in interim storage on site for a short period only, so the proportion from each activity at any date is subject to continual change. For these reasons an analysis of the activity source has not been undertaken.

Table 6.2 on pages 66 and 67 gives the total activities of radionuclides in HLW, ILW and LLW at 1 April 2007. The table lists only those radionuclides that have a quantified activity.

6.5 COMPARISON WITH THE 2004 INVENTORY

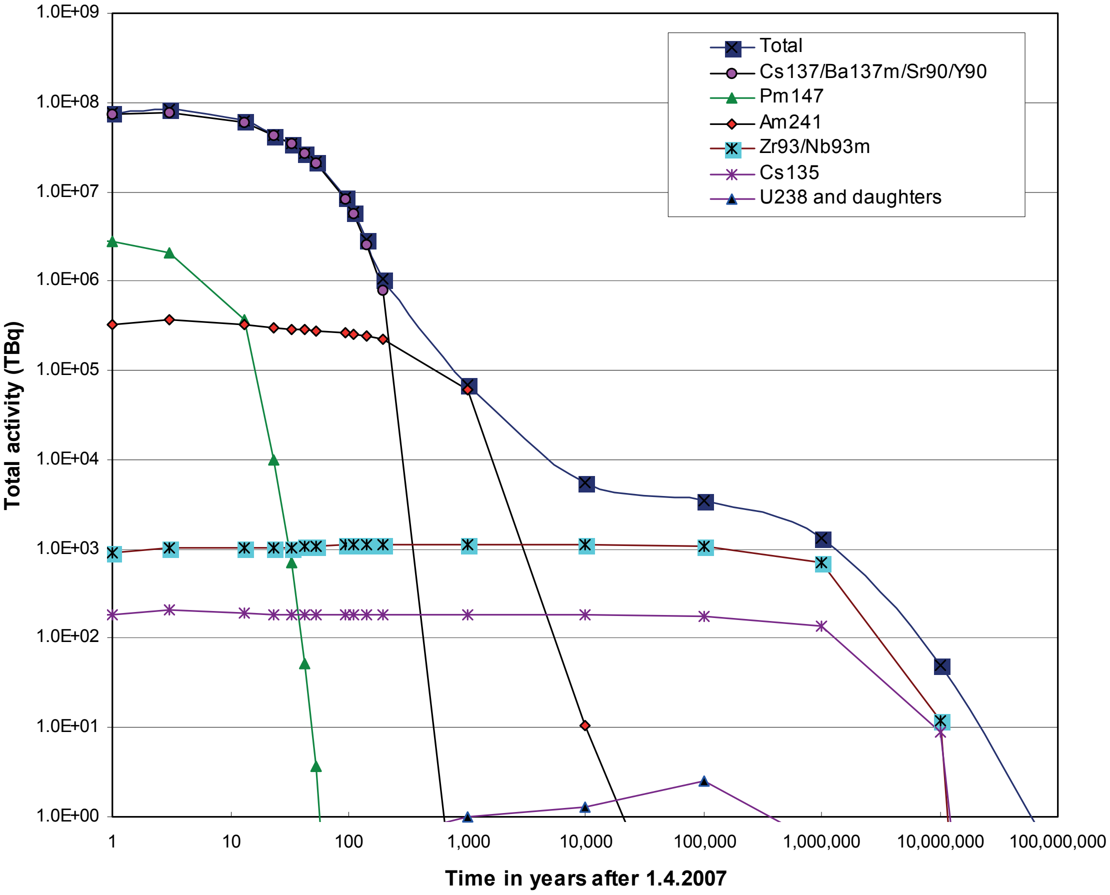
Compared with wastes at 1 April 2004, the total activities of HLW and ILW at 1 April 2007 are very similar, indicating that additional activity in further accumulations has been balanced by a decrease in activity from radioactive decay or from more recent and improved data. In contrast the total activity of LLW at 1 April 2007 has increased by about 350%, because LLW in Vault 8 at the LLWR is included as a waste stream in the Inventory for the first time.

The calculated total activity of HLW at 2150 is 35% lower than the corresponding activity in the 2004 Inventory. The major factors in this decrease are that the Inventory no longer includes HLW that is to be exported, and that the forecast total quantity of spent oxide fuel reprocessed at Sellafield is about 1,700tU less than in the 2004 Inventory.

In contrast the calculated total activity of ILW at 2150 is 9% higher than the corresponding activity in the 2004 Inventory as a result of new wastes.

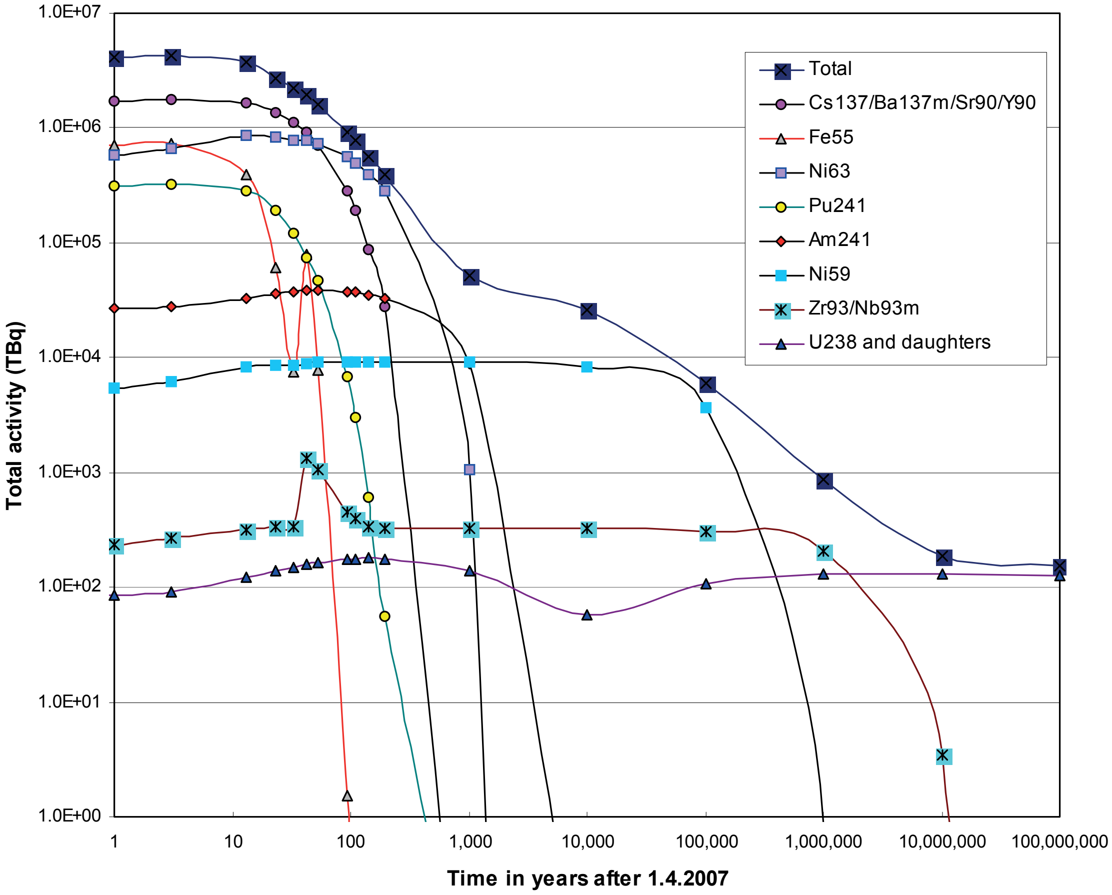
In spite of the inclusion of new wastes in the 2007 Inventory, the calculated total activity of LLW at 2150 is 24% lower than the corresponding activity in the 2004 Inventory as a result of revised activity estimates.

Figure 6.4: Total activity of HLW as a function of time



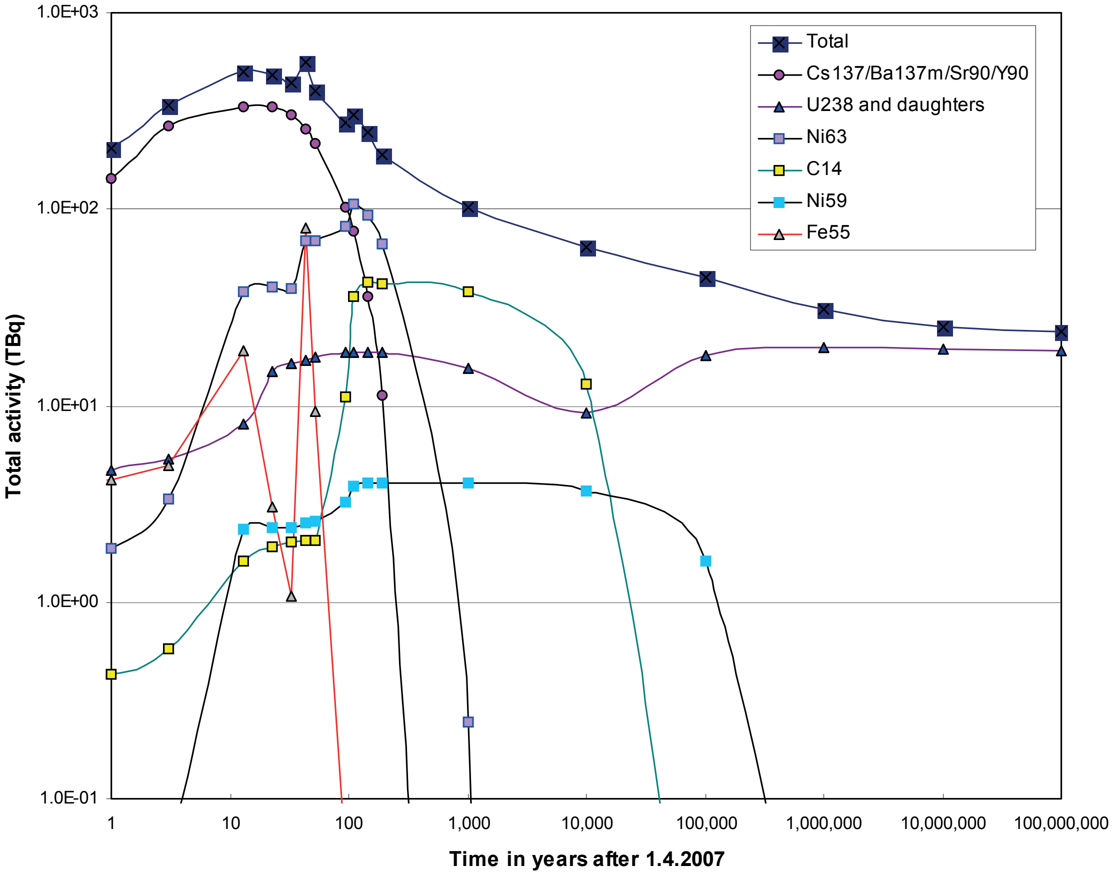
(1) The activities of Cs137 and Sr90 include the equilibrium activities of their short-lived daughter radionuclides Ba137m and Y90.

Figure 6.5: Total activity of ILW as a function of time



(1) The activities of Cs137 and Sr90 include the equilibrium activities of their short-lived daughter radionuclides Ba137m and Y90.

Figure 6.6: Total activity of LLW as a function of time



(1) The activities of Cs137 and Sr90 include the equilibrium activities of their short-lived daughter radionuclides Ba137m and Y90.

Table 6.2: Radionuclide activities in all wastes

Nuclide	Half life (years)	Radionuclide activity (TBq)					
		At 1.4.2007			At 1.4.2150		
		HLW	ILW	LLW	HLW	ILW	LLW
H3	1.23E+01	2.2E+2	2.4E+4	2.1E+1	8.0E-2	4.4E+1	1.6E+0
Be10	1.60E+06	3.7E-2	3.8E-1	7.2E-7	3.7E-2	3.9E-1	6.0E-6
C14	5.73E+03	1.3E+1	7.2E+2	4.4E-1	1.3E+1	7.3E+3	4.2E+1
Cl36	3.02E+05	1.3E+0	9.1E+0	3.9E-1	1.3E+0	3.5E+1	1.8E+0
Ar39	2.69E+02	-	6.9E-1	1.3E-10	-	2.2E+0	2.7E-3
Ar42	3.30E+01	-	8.0E-7	9.1E-16	-	1.4E-5	6.6E-12
K40	1.28E+09	6.1E-15	3.3E-3	2.6E-3	7.1E-15	9.3E-2	1.2E-2
Ca41	1.03E+05	1.1E-1	3.4E+0	1.1E-2	1.1E-1	1.9E+1	6.4E+0
Mn53	3.70E+06	1.1E-7	2.8E-6	2.0E-10	1.1E-7	3.3E-3	2.3E-9
Mn54	8.56E-01	8.3E+0	4.2E+3	1.5E-1	-	-	3.2E-15
Fe55	2.70E+00	6.6E+3	7.2E+5	3.9E+0	9.4E-13	4.1E-6	3.8E-6
Co60	5.27E+00	2.3E+4	5.4E+5	4.9E+0	1.7E-4	1.0E-1	1.9E-3
Ni59	7.49E+04	2.9E+0	5.1E+3	5.1E-2	2.8E+0	9.2E+3	4.1E+0
Ni63	1.00E+02	3.3E+2	5.6E+5	1.2E+0	1.2E+2	4.0E+5	9.3E+1
Zn65	6.69E-01	1.8E-2	2.3E+2	7.8E-1	-	-	6.5E-19
Se79	6.50E+04	9.5E+1	4.7E+0	1.5E-6	9.6E+1	5.1E+0	7.7E-5
Kr81	2.10E+05	-	2.7E-4	1.6E-12	-	8.1E-2	4.2E-6
Kr85	1.07E+01	-	5.6E+3	7.3E-2	-	5.9E-1	9.4E-6
Rb87	4.80E+10	6.5E-3	1.8E-5	6.4E-11	6.5E-3	7.0E-4	7.0E-4
Sr90/Y90	2.91E+01	3.0E+7	6.5E+5	1.5E+1	1.0E+6	2.8E+4	9.2E+0
Zr93	1.53E+06	5.5E+2	1.5E+2	2.8E-3	5.6E+2	1.6E+2	5.0E-1
Nb91	6.80E+02	3.9E-12	3.0E-3	2.1E-8	3.5E-12	4.4E-2	5.1E-7
Nb92	3.50E+07	8.9E-10	1.8E-5	6.9E-13	9.0E-10	4.0E-5	4.0E-8
Nb93m	1.64E+01	2.9E+2	7.2E+1	6.0E-5	5.6E+2	1.8E+2	5.0E-1
Nb94	2.03E+04	1.6E-1	1.2E+2	4.2E-4	1.6E-1	2.2E+2	4.0E-2
Mo93	3.50E+03	1.8E-1	4.2E+1	1.0E-5	1.7E-1	6.7E+1	8.0E-1
Tc97	2.60E+06	7.7E-9	7.1E-9	2.3E-13	7.9E-9	1.7E-6	1.9E-8
Tc99	2.13E+05	2.4E+3	3.9E+2	2.4E+0	2.5E+3	1.1E+3	1.5E+1
Ru106/Rh106	1.01E+00	4.8E+5	3.2E+4	2.5E+0	-	8.9E-16	9.5E-12
Pd107	6.50E+06	2.8E+1	4.9E-1	3.6E-7	2.9E+1	5.1E-1	9.9E-6
Ag108m	4.18E+02	2.4E-3	1.4E+3	3.7E-3	1.9E-3	1.6E+3	1.4E-1
Ag110m	6.84E-01	5.1E+1	1.6E+2	4.7E-2	-	-	6.9E-19
Cd109	1.27E+00	1.7E-2	1.2E+1	6.1E-2	-	-	-
Cd113m	1.41E+01	2.5E+3	3.2E+2	3.7E-5	2.3E+0	6.1E-1	5.3E-6
Sn119m	8.02E-01	3.7E+0	4.9E-2	7.9E-5	-	-	-
Sn121m	5.00E+01	4.9E+3	1.8E+2	1.6E-3	6.9E+2	3.5E+1	8.8E-2
Sn123	3.54E-01	1.3E+0	3.9E-4	3.2E-10	-	-	-
Sn126	1.00E+05	2.1E+2	5.1E+0	2.5E-6	2.1E+2	5.7E+0	2.8E-4
Sb125	2.73E+00	1.6E+5	1.2E+4	2.6E-1	3.5E-11	2.8E-10	3.1E-6
Sb126	3.39E-02	2.9E+1	6.1E+0	6.5E-4	2.9E+1	8.0E-1	3.9E-5
Te125m	1.59E-01	3.9E+4	1.3E+4	2.2E-3	3.7E-11	3.0E-10	3.3E-6
Te127m	2.98E-01	1.9E+0	3.2E-5	1.0E-4	-	-	-
I129	1.57E+07	8.6E-2	5.2E-1	3.4E-3	7.9E-2	7.1E-1	3.9E-1
Cs134	2.06E+00	2.8E+5	5.4E+3	5.6E-1	6.6E-16	2.3E-10	7.7E-7
Cs135	2.30E+06	1.8E+2	6.6E+0	1.5E-4	1.8E+2	8.3E+0	1.1E-3
Cs137/Ba137m	3.00E+01	4.1E+7	1.1E+6	4.3E+1	1.5E+6	6.0E+4	2.7E+1
Ba133	1.05E+01	4.4E-4	8.4E-1	1.6E-1	3.7E-8	5.9E-3	1.4E-4
La137	6.00E+04	4.3E-4	1.0E-2	2.0E-9	4.4E-4	2.0E-2	1.1E-6
La138	1.05E+11	1.5E-8	1.4E-10	4.1E-15	1.5E-8	1.8E-8	2.5E-9
Ce144/Pr144	7.80E-01	3.3E+5	3.2E+4	1.7E+0	-	6.4E-20	6.0E-15
Pm145	1.77E+01	2.0E-2	4.1E-1	1.5E-8	9.5E-5	2.8E-3	5.7E-5
Pm147	2.62E+00	3.3E+6	3.2E+4	7.5E-1	1.7E-10	6.7E-11	4.5E-7
Sm147	1.06E+11	2.5E-3	1.3E-5	9.7E-12	2.5E-3	1.8E-5	7.9E-8
Sm151	8.87E+01	1.2E+5	4.6E+3	9.1E-3	3.8E+4	1.7E+3	4.7E-1
Eu152	1.33E+01	1.2E+3	3.5E+4	4.9E-1	7.4E-1	2.0E+1	1.4E-1
Eu154	8.60E+00	3.2E+5	6.2E+3	1.4E-1	3.7E+0	1.1E-1	4.9E-3
Eu155	4.96E+00	9.3E+4	2.9E+3	3.3E-2	2.2E-4	2.4E-5	3.1E-4
Gd153	6.61E-01	2.7E-1	2.1E-4	7.0E-3	-	-	-
Ho163	4.57E+03	7.6E-6	1.8E-3	1.3E-10	7.6E-6	2.7E-3	9.0E-5
Ho166m	1.20E+03	7.6E-2	3.4E-1	3.8E-8	7.3E-2	7.3E-1	2.0E-2
Tm170	3.52E-01	1.3E-5	3.5E-6	4.0E-15	-	-	-

Nuclide	Half life (years)	Radionuclide activity (TBq)					
		At 1.4.2007			At 1.4.2150		
		HLW	ILW	LLW	HLW	ILW	LLW
Tm171	1.92E+00	1.7E+0	1.4E-3	1.0E-7	-	-	-
Lu174	3.31E+00	-	9.8E-5	2.8E-10	-	1.6E-15	-
Lu176	3.61E+10	-	1.1E-7	4.2E-14	-	3.4E-7	2.3E-7
Hf178n	3.10E+01	-	2.1E-1	4.8E-8	-	5.8E-2	6.6E-5
Hf182	8.99E+06	1.8E-10	3.6E-8	4.3E-14	1.9E-10	5.1E-5	9.2E-13
Pt193	5.07E+01	-	3.4E-2	2.1E-6	-	1.0E+0	6.3E-5
Tl204	3.78E+00	-	2.3E+2	2.2E-2	-	2.9E-8	2.9E-12
Pb205	1.52E+07	4.2E-7	1.3E-4	4.6E-5	3.9E-7	2.0E-4	3.0E-4
Pb210	2.23E+01	8.6E-5	1.5E-1	1.0E-2	2.8E-3	4.4E+1	3.7E+0
Bi208	3.68E+05	-	5.1E-7	1.7E-12	-	7.1E-6	2.3E-9
Bi210m	3.00E+06	1.0E-11	6.4E-7	2.6E-10	9.8E-12	2.1E-5	6.5E-8
Po210	3.79E-01	8.2E-5	1.1E-4	5.6E-2	2.8E-3	4.4E+1	3.7E+0
Ra223	3.13E-02	2.6E-3	5.2E-3	1.9E-7	6.7E-3	3.3E-1	1.8E-3
Ra225	4.08E-02	1.4E-5	2.1E-3	2.1E-6	1.6E-4	3.1E-2	4.6E-5
Ra226	1.60E+03	3.5E-4	4.6E+1	2.0E+0	3.5E-3	4.4E+1	3.7E+0
Ra228	5.75E+00	2.8E-8	1.7E-1	3.3E-2	3.7E-8	4.3E-1	2.9E-1
Ac227	2.18E+01	2.6E-3	1.2E+1	3.7E-4	6.7E-3	3.3E-1	1.8E-3
Th227	5.12E-02	2.5E-3	5.2E-3	1.9E-7	6.6E-3	3.2E-1	1.8E-3
Th228	1.91E+00	3.2E-1	6.2E-1	3.4E-2	1.8E-4	8.6E-1	2.9E-1
Th229	7.34E+03	1.4E-5	6.1E-3	1.2E-7	1.6E-4	3.1E-2	4.6E-5
Th230	7.54E+04	5.2E-2	7.1E-2	4.3E-3	5.3E-2	1.1E-1	1.2E-2
Th232	1.41E+10	3.6E-8	1.9E-1	2.2E-2	3.7E-8	4.3E-1	2.9E-1
Th234	6.60E-02	2.6E-2	1.7E+1	8.9E-3	2.5E-2	2.2E+1	3.2E+0
Pa231	3.28E+04	6.5E-3	1.7E-1	4.2E-4	6.7E-3	1.8E-1	1.9E-3
Pa233	7.39E-02	2.8E+1	5.8E+1	7.1E-4	4.1E+1	1.1E+2	1.0E+0
U232	6.98E+01	5.4E-4	8.5E-1	9.6E-4	1.7E-4	4.1E-1	2.5E-3
U233	1.59E+05	8.6E-4	1.6E+0	1.1E-3	2.3E-2	1.8E+0	3.6E-3
U234	2.46E+05	5.9E-2	1.8E+1	3.5E-1	4.0E-1	2.5E+1	4.6E+0
U235	7.04E+08	9.3E-4	5.6E-1	1.3E-2	9.5E-4	7.8E-1	1.8E-1
U236	2.34E+07	6.0E-3	1.5E+0	3.5E-2	8.9E-3	1.9E+0	2.1E-1
U238	4.47E+09	2.6E-2	1.8E+1	2.2E-1	2.5E-2	2.2E+1	3.2E+0
Np237	2.14E+06	2.8E+1	6.1E+1	3.4E-2	4.1E+1	1.1E+2	1.0E+0
Pu236	2.90E+00	2.6E-3	8.0E+0	2.7E-5	7.5E-18	4.9E-14	3.9E-20
Pu238	8.77E+01	9.0E+2	4.3E+3	6.6E-1	6.8E+2	2.0E+3	6.2E-1
Pu239	2.41E+04	2.4E+2	9.6E+3	1.1E+0	2.4E+2	1.2E+4	1.1E+1
Pu240	6.56E+03	4.1E+2	9.6E+3	2.5E-1	7.2E+2	1.2E+4	1.7E+0
Pu241	1.44E+01	2.4E+4	3.2E+5	7.8E+0	4.8E+1	6.1E+2	4.0E-1
Pu242	3.74E+05	7.9E-1	5.3E+0	8.9E-4	8.9E-1	7.4E+0	1.3E-3
Am241	4.33E+02	3.0E+5	2.7E+4	7.3E-1	2.4E+5	3.5E+4	4.5E+0
Am242m	1.41E+02	9.4E+2	2.0E+2	3.1E-4	4.9E+2	1.0E+2	3.0E-3
Am243	7.36E+03	1.4E+3	1.9E+1	7.5E-5	1.6E+3	2.1E+1	3.3E-4
Cm242	4.46E-01	8.5E+2	4.2E+2	4.6E-3	4.0E+2	8.6E+1	2.5E-3
Cm243	3.00E+01	1.1E+3	4.7E+1	4.0E-4	4.6E+1	1.8E+0	1.5E-4
Cm244	1.81E+01	1.0E+5	7.4E+2	1.3E-2	5.4E+2	4.8E+0	1.5E-3
Cm245	8.50E+03	1.8E+1	3.9E-2	2.0E-7	2.2E+1	4.8E-2	4.3E-6
Cm246	4.73E+03	3.7E+0	7.5E-3	1.1E-7	4.9E+0	8.7E-3	1.5E-6
Cm248	3.40E+05	2.9E-5	7.8E-3	1.3E-13	4.3E-5	7.8E-3	5.1E-4
Cf249	3.51E+02	2.3E-4	4.8E-4	6.0E-9	2.7E-4	3.6E-4	5.8E-9
Cf250	1.31E+01	8.4E-4	8.0E-4	2.6E-6	7.3E-7	4.3E-7	1.4E-9
Cf251	8.98E+02	1.0E-5	8.0E-8	1.1E-5	1.5E-5	1.4E-7	9.5E-6
Cf252	2.65E+00	6.7E-5	8.6E-3	1.9E-4	1.0E-20	4.6E-19	1.0E-20

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

(2) Activities at 1.4.2150 are decayed values.

(3) For Sr90, Ru106, Cs137 and Ce144 the equilibrium activities of the short-lived daughter radionuclides (Y90, Rh106, Ba137m and Pr144) are included. Reported half-lives are those of the parent radionuclides.

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ANNEX 1 WASTE VOLUMES FROM ALL SOURCES

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

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

Content	**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 waste volumes at 1 April 2007 and estimated for future time periods.

(2) Tables A1.2, A1.4, A1.6 and A1.8 give the number of packages, packaged volumes and conditioned volume existing at 1 April 2007, and the number of packages, packaged volume and conditioned volume once all wastes at 1 April 2007 and future arisings have been packaged.

(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
Volume at 1 April 2007 and estimated for future arisings (m^3)

	HLW	ILW	LLW	Total
Total	**1,090**	**236,000**	**3,190,000**	**3,430,000**
At 1.4.2007	1,730	92,500	196,000	**290,000**
Future arisings	-646	143,000	3,000,000	**3,140,000**
Arisings 2007	-30	3,700	46,000	**49,700**
Arisings 2008-2009	10.3	7,830	80,900	**88,800**
Arisings 2010-2014	-775	16,300	372,000	**388,000**
Arisings 2015-2019	288	14,900	225,000	**241,000**
Arisings 2020-2029	-140	14,800	451,000	**466,000**
Arisings 2030-2039	0	6,740	252,000	**259,000**
Arisings 2040-2059	0	15,700	335,000	**351,000**
Arisings 2060-2099	0	16,500	810,000	**827,000**
Arisings post 2100	0	46,700	423,000	**470,000**

(1) Quantities are for untreated or partly treated waste, apart from conditioned wastes (i.e. waste streams with a /C in the identifier) where the conditioned volume is reported.

(2) Future arisings of HLW have negative volumes. This is because Sellafield has reported future arisings of HLW to show that the volume of accumulated waste (liquid plus vitrified product) will fall as liquid waste existing at 1.4.2007 and forecast in the future is conditioned to a vitrified product. Thus, the volume of 1,730m^3 at 1.4.2007 is expected to fall by 646m^3, to 1,090m^3, by 2023 when all liquid waste (plus IFP residues) is expected to be conditioned.

(3) ILW includes 13,000m^3 of waste that are expected to become LLW as a result of decontamination or decay storage. This comprises 2,420m^3 at 1.4.2007 and 10,600m^3 for future arisings.

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

	HLW	ILW	LLW	Total
At 1.4.2007				
Number of packages	4,319	39,977	8,527	**52,823**
Packaged volume	847	29,000	200,000	**230,000**
Conditioned volume	648	21,000	160,000	**182,000**
When all wastes at 1.4.2007 and future arisings are packaged				
Number of packages	7,260	200,000	89,200	**296,000**
Packaged volume	1,420	364,000	3,470,000	**3,830,000**
Conditioned volume	1,090	275,000	3,180,000	**3,450,000**

(1) Package numbers and volumes at 1.4.2007 are for those wastes that had been conditioned (i.e. waste streams with a /C in the identifier). In addition there were 820 ILW packages with waste that is being stored unconditioned. The number of LLW packages at 1.4.2007 excludes those in short-term storage before transfer to the LLWR. The 8,527 packages in longer-term storage, of which 8,272 are at the LLWR, have packaged and conditioned volumes of 200,000m^3 and 160,000m^3.

(2) ILW packages at 1.4.2007 include 1,709 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) All wastes at 1.4.2007 and future arisings includes 1,180 packages, 22,900m^3 packaged volume and 18,300m^3 conditioned volume of ILW that are expected to become LLW as a result of decontamination or decay storage.

(4) For Sellafield LLW, the conditioned waste volume is underestimated by about 15%. The packaged volume and number of packages are correct.

Table A1.3: Wastes at sites in England
Volume at 1 April 2007 and estimated for future arisings (m^3)

	HLW	ILW	LLW	Total
Total	**1,090**	**193,000**	**2,860,000**	**3,050,000**
At 1.4.2007	1,730	80,700	186,000	**269,000**
Future arisings	-646	112,000	2,670,000	**2,780,000**
Arisings 2007	-30	3,100	42,500	**45,500**
Arisings 2008-2009	10.3	6,870	74,500	**81,400**
Arisings 2010-2014	-775	14,900	319,000	**333,000**
Arisings 2015-2019	288	14,100	186,000	**200,000**
Arisings 2020-2029	-140	11,500	387,000	**398,000**
Arisings 2030-2039	0	5,670	244,000	**250,000**
Arisings 2040-2059	0	15,700	335,000	**350,000**
Arisings 2060-2099	0	8,710	729,000	**738,000**
Arisings post 2100	0	31,300	356,000	**387,000**

(1) Quantities are for untreated or partly treated waste, apart from conditioned wastes (i.e. waste streams with a /C in the identifier) where the conditioned volume is reported.

(2) Future arisings of HLW have negative volumes. This is because Sellafield has reported future arisings of HLW to show that the volume of accumulated waste (liquid plus vitrified product) will fall as liquid waste existing at 1.4.2007 and forecast in the future is conditioned to a vitrified product. Thus, the volume of 1,730m^3 at 1.4.2007 is expected to fall by 646m^3, to 1,090m^3, by 2023 when all liquid waste (and IFP residues) is expected to be conditioned.

(3) ILW includes 11,800m^3 of waste that are expected to become LLW as a result of decontamination or decay storage. This comprises 1,630m^3 at 1.4.2007 and 10,200m^3 for future arisings.

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

	HLW	ILW	LLW	Total
At 1.4.2007				
Number of packages	4,319	36,352	8,275	**48,946**
Packaged volume	847	22,100	195,000	**218,000**
Conditioned volume	648	18,600	156,000	**175,000**
When all wastes at 1.4.2007 and future arisings are packaged				
Number of packages	7,260	174,000	64,600	**246,000**
Packaged volume	1,420	298,000	2,980,000	**3,280,000**
Conditioned volume	1,090	222,000	2,760,000	**2,980,000**

(1) Package numbers and volumes at 1.4.2007 are for those wastes that had been conditioned (i.e. waste streams with a /C in the identifier). In addition there were 820 ILW packages with waste that is being stored unconditioned. The number of LLW packages at 1.4.2007 excludes those in short-term storage before transfer to the LLWR. The 8,275 packages in longer-term storage, of which 8,272 are at the LLWR, have packaged and conditioned volumes of 195,000m^3 and 156,000m^3.

(2) All wastes at 1.4.2007 and future arisings includes 1,060 packages, 20,700m^3 packaged volume and 16,600m^3 conditioned volume of ILW that are expected to become LLW as a result of decontamination or decay storage.

(3) For Sellafield LLW, the conditioned waste volume is underestimated by about 15%. The packaged volume and number of packages are correct.

Table A1.5: Wastes at sites in Scotland
Volume at 1 April 2007 and estimated for future arisings (m^3)

	ILW	LLW	Total
Total	**26,100**	**249,000**	**276,000**
At 1.4.2007	8,670	9,480	**18,200**
Future arisings	17,400	240,000	**257,000**
Arisings 2007	482	3,230	**3,720**
Arisings 2008-2009	723	5,510	**6,230**
Arisings 2010-2014	852	51,200	**52,100**
Arisings 2015-2019	233	37,600	**37,900**
Arisings 2020-2029	2,240	62,400	**64,600**
Arisings 2030-2039	52.7	5,940	**5,990**
Arisings 2040-2059	0	249	**249**
Arisings 2060-2099	3,160	24,000	**27,200**
Arisings post 2100	9,700	49,800	**59,500**

(1) Quantities are for untreated or partly treated waste, apart from conditioned wastes (i.e. waste streams with a /C in the identifier) where the conditioned volume is reported.

(2) ILW includes 1,250m^3 of waste that are expected to become LLW as a result of decontamination or decay storage. This comprises 796m^3 at 1.4.2007 and 452m^3 for future arisings.

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

	ILW	LLW	Total
At 1.4.2007			
Number of packages	1,862	252	**2,114**
Packaged volume	1,060	4,970	**6,040**
Conditioned volume	931	3,980	**4,910**
When all wastes at 1.4.2007 and future arisings are packaged			
Number of packages	23,500	19,600	**43,200**
Packaged volume	44,500	385,000	**429,000**
Conditioned volume	34,700	320,000	**355,000**

(1) Package numbers and volumes at 1.4.2007 are for those wastes that had been conditioned (i.e. waste streams with a /C in the identifier). The number of LLW packages at 1.4.2007 excludes those in short-term storage before transfer to the LLWR. The 252 packages in longer-term storage have packaged and conditioned volumes of 4,910m^3 and 3,930m^3.

(2) All wastes at 1.4.2007 and future arisings includes 115 packages, 2,230m^3 packaged volume and 1,780m^3 conditioned volume of ILW that are expected to become LLW as a result of decontamination or decay storage.

Table A1.7: Wastes at sites in Wales
Volume at 1 April 2007 and estimated for future arisings (m^3)

	ILW	LLW	Total
Total	**17,000**	**84,100**	**101,000**
At 1.4.2007	3,100	697	**3,790**
Future arisings	13,900	83,400	**97,300**
Arisings 2007	124	357	**481**
Arisings 2008-2009	237	875	**1,110**
Arisings 2010-2014	560	2,020	**2,580**
Arisings 2015-2019	507	1,830	**2,330**
Arisings 2020-2029	1,010	2,060	**3,080**
Arisings 2030-2039	1,010	1,890	**2,900**
Arisings 2040-2059	0	80	**80**
Arisings 2060-2099	4,650	56,900	**61,500**
Arisings post 2100	5,750	17,400	**23,200**

(1) Quantities are for untreated or partly treated waste, apart from conditioned wastes (i.e. waste streams with a /C in the identifier) where the conditioned volume is reported.

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

	ILW	LLW	Total
At 1.4.2007			
Number of packages	1,763	0	**1,763**
Packaged volume	5,820	0	**5,820**
Conditioned volume	1,440	0	**1,440**
When all wastes at 1.4.2007 and future arisings are packaged			
Number of packages	2,010	4,910	**6,920**
Packaged volume	21,900	104,000	**125,000**
Conditioned volume	18,100	97,000	**115,000**

(1) Package numbers and volumes at 1.4.2007 are for those wastes that had been conditioned (i.e. waste streams with a /C in the identifier).

(2) ILW packages at 1.4.2007 include 1,709 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.

ANNEX 2 WASTE VOLUMES FROM EACH BUSINESS ACTIVITY

This annex provides a breakdown of waste volumes and package numbers for HLW, ILW and LLW, and in total, in terms of the following business activities:

- **Fuel fabrication and uranium enrichment**, which includes activities carried out at Springfields and Capenhurst;
- **Nuclear power reactors**, which includes all Magnox, AGR and PWR nuclear power stations sites;
- **Spent fuel reprocessing**, which includes all activities at Sellafield[1];
- **Nuclear energy R & D**, which includes activities at Dounreay[2], Harwell[3], Windscale, Winfrith, Culham and Berkeley Centre;
- **Defence**, which includes activities at sites throughout the UK supporting Ministry of Defence activities;
- **Medical and industrial**, which includes the activities of GE Healthcare Ltd at Amersham, Cardiff and Harwell, the LLWR near Drigg, and minor waste producers.

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

Business activity	**Table(1-3)**
All activities (all wastes)	A2.1
All activities (wastes at 1.4.2007)	A2.2
All activities (all wastes)	A2.3

(1) Table A2.1 gives waste volumes at 1 April 2007 and a consolidated estimate for future arisings.

(2) Table A2.2 gives the number of packages, packaged volume and conditioned volume existing at 1 April 2007.

(3) Table A2.3 gives the number of packages, packaged volume and conditioned volume once all wastes at 1 April 2007 and for future arisings have been packaged.

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[1] Includes wastes arising at Sellafield associated with defence activities, R & D work and MOX fuel fabrication.

[2] At Dounreay fast reactor and materials testing reactor spent fuel reprocessing was carried out in the past. These activities were on a much smaller scale than those at Sellafield.

[3] Excludes waste from the activities of GE Healthcare Ltd.

A2 Waste Volumes from Each Business Activity

Table A2.1: Volume at 1 April 2007 and estimated for future arisings (m^3)

Business activity			**HLW**	**ILW**	**LLW**	**Total**
Fuel fabrication & uranium enrichment		**Total**	**0**	**2.5**	**461,000**	**461,000**
		1.4.2007	0	0.66	10,900	**10,900**
		Future arisings	0	1.8	451,000	**451,000**
Nuclear power reactors	**Magnox**	**Total**	**0**	**56,900**	**431,000**	**488,000**
		1.4.2007	0	12,000	4,960	**17,000**
		Future arisings	0	44,900	426,000	**471,000**
	AGR	**Total**	**0**	**24,400**	**106,000**	**130,000**
		1.4.2007	0	2,810	579	**3,390**
		Future arisings	0	21,600	105,000	**127,000**
	PWR	**Total**	**0**	**4,490**	**17,100**	**21,500**
		1.4.2007	0	82.7	309	**392**
		Future arisings	0	4,410	16,700	**21,200**
Spent fuel reprocessing		**Total**	**1,090**	**116,000**	**1,670,000**	**1,790,000**
		1.4.2007	1,730	63,900	11,200	**76,900**
		Future arisings	-646	52,300	1,660,000	**1,720,000**
Nuclear energy R & D		**Total**	**0**	**16,600**	**250,000**	**266,000**
		1.4.2007	0	7,860	9,530	**17,400**
		Future arisings	0	8,690	240,000	**249,000**
Defence		**Total**	**0**	**12,400**	**63,400**	**75,800**
		1.4.2007	0	4,980	2,270	**7,250**
		Future arisings	0	7,410	61,200	**68,600**
Medical & Industrial		**Total**	**0**	**4,740**	**190,000**	**194,000**
		1.4.2007	0	849	156,000	**157,000**
		Future arisings	0	3,890	33,100	**37,000**
Total		**Total**	**1,090**	**236,000**	**3,190,000**	**3,430,000**
		1.4.2007	**1,730**	**92,500**	**196,000**	**290,000**
		Future arisings	**-646**	**143,000**	**3,000,000**	**3,140,000**

(1) Quantities are for untreated or partly treated waste, apart from conditioned wastes (i.e. waste streams with a /C in the identifier) where the conditioned volume is reported.

(2) Future arisings of HLW have negative volumes. This is because Sellafield has reported future arisings of HLW to show that the volume of accumulated waste (liquid plus vitrified product) will fall as liquid waste existing at 1.4.2007 and forecast in the future is conditioned to a vitrified product. Thus, the volume from spent fuel reprocessing of 1,730m^3 at 1.4.2007 is expected to fall by 646m^3, to 1,090m^3 when all liquid waste (plus IFP residues) has been conditioned.

Table A2.2: Wastes at 1 April 2007
Number of packages, packaged volume and conditioned volume

Business activity		At 1.4.2007	HLW	ILW	LLW	Total
Fuel fabrication & uranium enrichment		Number of packages	0	0	0	**0**
		Packaged volume	0	0	0	**0**
		Conditioned volume	0	0	0	**0**
Nuclear power reactors	**Magnox**	Number of packages	0	1,763	0	**1,763**
		Packaged volume	0	5,820	155	**5,970**
		Conditioned volume	0	1,440	124	**1,560**
	AGR	Number of packages	0	0	0	**0**
		Packaged volume	0	0	0	**0**
		Conditioned volume	0	0	0	**0**
	PWR	Number of packages	0	0	0	**0**
		Packaged volume	0	0	0	**0**
		Conditioned volume	0	0	0	**0**
Spent fuel reprocessing		Number of packages	4,319	35,950	0	**40,269**
		Packaged volume	847	20,500	0	**21,400**
		Conditioned volume	648	17,800	0	**18,400**
Nuclear energy R & D		Number of packages	0	2,264	255	**2,519**
		Packaged volume	0	2,670	4,950	**7,630**
		Conditioned volume	0	1,770	3,950	**5,720**
Defence		Number of packages	0	0	0	**0**
		Packaged volume	0	0	42.7	**42.7**
		Conditioned volume	0	0	34.2	**34.2**
Medical & Industrial		Number of packages	0	0	8,272	**8,272**
		Packaged volume	0	0	195,000	**195,000**
		Conditioned volume	0	0	156,000	**156,000**
Total		**Number of packages**	**4,319**	**39,977**	**8,527**	**52,823**
		Packaged volume	**847**	**29,000**	**200,000**	**230,000**
		Conditioned volume	**648**	**21,000**	**160,000**	**182,000**

(1) Package numbers and volumes are for those wastes that had been conditioned (i.e. waste streams with a /C in the identifier). In addition there were 695 and 125 ILW packages with waste that is being stored unconditioned from spent fuel reprocessing and nuclear energy R & D respectively. The number of LLW packages at 1.4.2007 excludes those in short-term storage before transfer to the LLWR for disposal. The 8,527 packages in longer-term storage, of which 8,272 are at the LLWR, have packaged and conditioned volumes of 200,000m^3 and 160,000m^3.

(2) ILW packages from Magnox nuclear power reactors include 1,709 1803-type 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

Business activity		When all wastes at 1.4.2007 and future arisings are packaged	HLW	ILW	LLW	Total
Fuel fabrication & uranium enrichment		Number of packages	0	5.3	2,690	**2,690**
		Packaged volume	0	3.0	437,000	**437,000**
		Conditioned volume	0	2.5	427,000	**427,000**
Nuclear power reactors	**Magnox**	Number of packages	0	8,160	27,900	**36,100**
		Packaged volume	0	80,100	555,000	**635,000**
		Conditioned volume	0	68,800	500,000	**569,000**
	AGR	Number of packages	0	3,570	5,800	**9,370**
		Packaged volume	0	49,800	115,000	**165,000**
		Conditioned volume	0	30,600	101,000	**132,000**
	PWR	Number of packages	0	1,100	706	**1,800**
		Packaged volume	0	3,330	13,800	**17,100**
		Conditioned volume	0	2,360	11,000	**13,400**
Spent fuel reprocessing		Number of packages	7,260	148,000	16,400	**172,000**
		Packaged volume	1,420	180,000	1,600,000	**1,780,000**
		Conditioned volume	1,090	139,000	1,540,000	**1,680,000**
Nuclear energy R & D		Number of packages	0	27,400	22,800	**50,200**
		Packaged volume	0	40,600	438,000	**479,000**
		Conditioned volume	0	25,700	349,000	**375,000**
Defence		Number of packages	0	9,030	3,320	**12,300**
		Packaged volume	0	9,270	82,200	**91,500**
		Conditioned volume	0	7,210	69,300	**76,500**
Medical & Industrial		Number of packages	0	1,940	9,540	**11,500**
		Packaged volume	0	1,150	225,000	**226,000**
		Conditioned volume	0	957	181,000	**182,000**
Total		**Number of packages**	**7,260**	**200,000**	**89,200**	**296,000**
		Packaged volume	**1,420**	**364,000**	**3,470,000**	**3,830,000**
		Conditioned volume	**1,090**	**275,000**	**3,180,000**	**3,450,000**

(1) For Sellafield LLW (i.e. Spent fuel reprocessing LLW), the conditioned waste volume reported is underestimated by about 15%. The packaged volume and number of packages are correct.

ANNEX 3 WASTE VOLUMES FROM EACH SITE

This annex provides a breakdown of waste volumes and package numbers for HLW, ILW and LLW for each site and by site ownership. The site owners are:

- **Nuclear Decommissioning Authority (NDA)**[1]**;**
- **British Energy;**
- **Ministry of Defence** (includes contractor owned and contractor operated sites)**;**
- **GE Healthcare Ltd;**
- **Urenco;**
- **Minor producers.**

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

Site Owner	**Table**(1-4)
All site owners (all wastes)	A3.1
All site owners (wastes at 1.4.2007)	A3.2
All site owners (all wastes)	A3.3
By site (wastes at 1 April 2007 and all wastes)	A3.4

(1) Table A3.1 gives waste volume at 1 April 2007 and a consolidated estimate for future arisings.

(2) Table A3.2 gives the number of packages, packaged volume and conditioned volume existing at 1 April 2007.

(3) Table A3.3 gives the number of packages, packaged volume and conditioned volume once all wastes at 1 April 2007 and for future arisings have been packaged.

(4) Table A3.4 gives waste volume at 1 April 2007, and gives the number of packages, packaged volume and conditioned volume once all wastes at 1 April 2007 and for future arisings have been packaged.

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[1] Comprises all sites previously attributed to British Nuclear Fuels (BNFL) and United Kingdom Atomic Energy Authority (UKAEA). This includes Harwell, where NDA leases the site from UKAEA, and Culham where ownership of the JET facilities will transfer to NDA from the date that JET operation ceases.

Table A3.1: Volume at 1 April 2007 and estimated for future arisings (m^3)

Site owner		HLW	ILW	LLW	Total
NDA	**Total**	**1,090**	**190,000**	**2,970,000**	**3,160,000**
	1.4.2007	1,730	84,100	193,000	**278,000**
	Future arisings	-646	106,000	2,780,000	**2,880,000**
Ministry of Defence	**Total**	**0**	**12,400**	**63,400**	**75,800**
	1.4.2007	0	4,980	2,270	**7,250**
	Future arisings	0	7,410	61,200	**68,600**
British Energy	**Total**	**0**	**28,900**	**123,000**	**152,000**
	1.4.2007	0	2,900	889	**3,790**
	Future arisings	0	26,000	122,000	**148,000**
GE Healthcare	**Total**	**0**	**3,940**	**21,200**	**25,100**
	1.4.2007	0	393	0	**393**
	Future arisings	0	3,550	21,200	**24,700**
Urenco	**Total**	**0**	**2.5**	**5,510**	**5,510**
	1.4.2007	0	0.7	35.3	**36.0**
	Future arisings	0	1.8	5,470	**5,470**
Minor Producers	**Total**	**0**	**97.5**	**9,130**	**9,230**
	1.4.2007	0	97.5	467	**565**
	Future arisings	0	0	8,670	**8,670**
Total	**Total**	**1,090**	**236,000**	**3,190,000**	**3,430,000**
	1.4.2007	**1,730**	**92,500**	**196,000**	**290,000**
	Future arisings	**-646**	**143,000**	**3,000,000**	**3,140,000**

(1) Quantities are for untreated or partly treated waste, apart from conditioned wastes (i.e. waste streams with a /C in the identifier) where the conditioned volume is reported.

(2) Future arisings of HLW have negative volumes. This is because the NDA Sellafield site has reported future arisings of HLW to show that the volume of accumulated waste (liquid plus vitrified product) will fall as liquid waste existing at 1.4.2007 and forecast in the future is conditioned to a vitrified product. Thus, the volume of 1,730m^3 at 1.4.2007 is expected to fall by 646m^3, to 1,090m^3, when all liquid waste (plus IFP residues) has been conditioned.

Table A3.2: Wastes at 1 April 2007
Number of packages, packaged volume and conditioned volume

Site owner	**At 1.4.2007**	**HLW**	**ILW**	**LLW**	**Total**
NDA	Number of packages	4,319	39,977	8,527	**52,823**
	Packaged volume	847	29,000	200,000	**230,000**
	Conditioned volume	648	21,000	160,000	**182,000**
Ministry of Defence	Number of packages	0	0	0	**0**
	Packaged volume	0	0	42.7	**42.7**
	Conditioned volume	0	0	34.2	**34.2**
British Energy	Number of packages	0	0	0	**0**
	Packaged volume	0	0	0	**0**
	Conditioned volume	0	0	0	**0**
GE Healthcare	Number of packages	0	0	0	**0**
	Packaged volume	0	0	0	**0**
	Conditioned volume	0	0	0	**0**
Urenco	Number of packages	0	0	0	**0**
	Packaged volume	0	0	0	**0**
	Conditioned volume	0	0	0	**0**
Minor Producers	Number of packages	0	0	0	**0**
	Packaged volume	0	0	0	**0**
	Conditioned volume	0	0	0	**0**
Total	**Number of packages**	**4,319**	**39,977**	**8,527**	**52,823**
	Packaged volume	**847**	**29,000**	**200,000**	**230,000**
	Conditioned volume	**648**	**21,000**	**160,000**	**182,000**

(1) Package numbers and volumes are for those wastes that had been conditioned (i.e. waste streams with a /C in the identifier). In addition there were 820 ILW packages with waste that is being stored unconditioned from NDA sites. The number of LLW packages at 1.4.2007 excludes those in short-term storage before transfer to the LLWR for disposal. The 8,527 packages in longer-term storage, of which 8,272 are at the LLWR, have packaged and conditioned volumes of 200,000m^3 and 160,000m^3.

(2) ILW packages from NDA include 1,709 type 1803 drums. These drums are expected to be overpacked in 4m boxes (6 drums per box).

Table A3.3: All wastes when packaged
Number of packages, packaged volume and conditioned volume

Site owner	**When all wastes at 1.4.2007 and future arisings are packaged**	**HLW**	**ILW**	**LLW**	**Total**
NDA	Number of packages	7,260	185,000	78,400	**270,000**
	Packaged volume	1,420	301,000	3,230,000	**3,530,000**
	Conditioned volume	1,090	234,000	2,970,000	**3,210,000**
Ministry of Defence	Number of packages	0	9,030	3,320	**12,300**
	Packaged volume	0	9,270	82,200	**91,500**
	Conditioned volume	0	7,210	69,300	**76,500**
British Energy	Number of packages	0	4,670	6,510	**11,200**
	Packaged volume	0	53,100	129,000	**182,000**
	Conditioned volume	0	33,000	112,000	**145,000**
GE Healthcare	Number of packages	0	1,230	293	**1,520**
	Packaged volume	0	745	11,100	**11,900**
	Conditioned volume	0	608	9,970	**10,600**
Urenco	Number of packages	0	5.3	0	**5.3**
	Packaged volume	0	3.0	5,510	**5,510**
	Conditioned volume	0	2.5	5,510	**5,510**
Minor Producers	Number of packages	0	99.7	620	**720**
	Packaged volume	0	57.0	12,200	**12,200**
	Conditioned volume	0	40.0	9,650	**9,690**
Total	**Number of packages**	**7,260**	**200,000**	**89,200**	**296,000**
	Packaged volume	**1,420**	**364,000**	**3,470,000**	**3,830,000**
	Conditioned volume	**1,090**	**275,000**	**3,180,000**	**3,450,000**

(1) For Sellafield LLW (included in NDA LLW), the conditioned waste volume reported is underestimated by about 15%. The packaged volume and number of packages are correct.

Table A3.4 Location of wastes
Volume at 1 April 2007 and quantities of all wastes when packaged

Location	Site owner	Waste type	Waste volume at 1.4.2007 (m^3)	When all wastes at 1.4.2007 and future arisings are packaged		
				Number of packages	Packaged volume (m^3)	Conditioned volume (m^3)
Amersham	GE	ILW	115	525	343	279
		LLW	0	245	4,760	3,810
AWE Aldermaston	MoD	ILW	4,280	8,810	5,040	4,380
		LLW	1,150	2,690	52,400	41,900
BAESM Barrow-in-Furness	MoD	LLW	0	3.0	50.0	40.0
Berkeley (BNLS)	NDA	ILW	1,600	1,050	6,820	6,120
		LLW	381	1,430	28,500	26,500
Bradwell	NDA	ILW	1,080	759	6,620	5,990
		LLW	685	2,550	50,800	46,700
Calder Hall	NDA	ILW	2.9	297	5,910	3,250
		LLW	235	2,190	43,900	41,100
Capenhurst	NDA	LLW	10,700	2,520	43,100	33,800
	Urenco	ILW	0.7	6.0	3.0	2.5
		LLW	35.3	0	5,510	5,510
Cardiff	GE	ILW	278	705	402	328
		LLW	0	44.0	6,250	6,080
Chapelcross	NDA	ILW	113	566	6,610	6,010
		LLW	1,410	7,160	141,000	118,000
HMNB Clyde	MoD	LLW	23.4	42.0	803	643
Culham	NDA	ILW	35.0	118	886	397
		LLW	150	410	7,670	6,080
Defence Estates	MoD	LLW	241	36.0	684	547
RRMPOL Derby	MoD	LLW	20.0	244	4,740	3,790
HMNB Devonport	MoD	ILW	28.6	17.0	328	263
		LLW	139	95.0	19,800	19,500
DSDC North Donnington	MoD	LLW	0	2.0	28.8	23.0
Dounreay	NDA	ILW	4,580	20,500	15,400	12,500
		LLW	6,860	8,810	172,000	137,000
Dungeness (A & B)	NDA (A)	ILW	327	549	5,930	5,490
		LLW	206	1,680	33,600	31,000
	BE (B)	ILW	394	534	6,660	4,110
		LLW	96.3	972	19,200	17,000
Eskmeals	MoD	LLW	6.2	18.0	43.3	37.6
Hartlepool	BE	LLW	275	396	7,150	4,260
		LLW	19.3	658	13,000	11,300

A3 Waste Volumes from Each Site

Location	Site owner	Waste type	Waste volume at 1.4.2007 (m^3)	When all wastes at 1.4.2007 and future arisings are packaged		
				Number of packages	Packaged volume (m^3)	Conditioned volume (m^3)
Harwell	NDA	ILW	2,020	4,200	5,450	4,110
		LLW	2,210	9,110	178,000	142,000
	GE	ILW	0.1	1.0	0.1	0.1
		LLW	0	6.0	101	80.8
Heysham (1 & 2)	BE (1)	ILW	292	633	7,280	4,370
		LLW	42.3	693	13,700	11,900
	BE (2)	ILW	269	506	7,240	4,470
		LLW	39.0	936	18,500	16,400
Hinkley Point (A & B)	NDA (A)	ILW	1,790	958	7,480	6,790
		LLW	630	2,920	58,300	53,500
	BE (B)	ILW	578	440	6,870	4,310
		LLW	74.1	748	14,800	13,000
Hunterston (A & B)	NDA (A)	ILW	2,940	1,410	7,670	6,800
		LLW	760	1,770	35,300	32,300
	BE (B)	ILW	819	666	7,650	4,890
		LLW	230	798	15,800	13,800
LLWR near Drigg	NDA	ILW	358	616	351	309
		LLW	156,000	8,630	202,000	162,000
NRTE Vulcan	MoD	ILW	8.5	8.0	156	124
		LLW	0	4.0	62.4	49.9
Oldbury	NDA	ILW	586	616	5,270	4,800
		LLW	36.3	1,580	31,300	28,100
HMNB Portsmouth	MoD	ILW	0.1	1.0	0.2	0.2
		LLW	6.8	1.0	17.9	14.4
Rosyth & Devonport (Submarines)	MoD	ILW	640	184	3,610	2,340
		LLW	570	147	2,850	2,280
Rosyth Royal Dockyard	MoD	ILW	23.9	8.0	139	110
		LLW	116	43.0	671	512
Sellafield (Sellafield Ltd)	NDA	HLW	1,730	7,260	1,420	1,090
		ILW	63,900	148,000	180,000	139,000
		LLW	11,200	16,300	1,600,000	1,540,000
Sellafield (Nexia Solutions)	NDA	LLW	0	50.0	973	778
Sizewell (A & B)	NDA (A)	ILW	791	670	6,300	5,850
		LLW	161	1,820	36,200	32,800
	BE (B)	ILW	82.7	1,100	3,330	2,360
		LLW	309	706	13,800	11,000
Springfields	NDA	LLW	222	163	388,000	387,000
Torness	BE	ILW	186	402	6,930	4,200
		LLW	78.4	999	19,800	17,400
Trawsfynydd	NDA	ILW	2,060	865	13,200	10,000
		LLW	593	3,650	72,900	68,300

Location	Site owner	Waste type	Waste volume at 1.4.2007 (m^3)	When all wastes at 1.4.2007 and future arisings are packaged		
				Number of packages	Packaged volume (m^3)	Conditioned volume (m^3)
Windscale	NDA	ILW	759	1,190	17,000	7,540
		LLW	17.3	3,480	64,900	50,600
Winfrith	NDA	ILW	437	1,410	1,880	1,070
		LLW	43.8	943	15,300	11,700
Wylfa	NDA	ILW	759	444	8,270	7,760
		LLW	104	1,220	24,400	22,600
MWP (Various Sites)	MWP	ILW	97.5	100	57.0	40.0
		LLW	467	621	12,200	9,650
Flasks & Flatrols (Magnox)	NDA	LLW	0	5.0	80.7	64.6
Flasks & Flatrols (AGR)	BE	LLW	0	3.0	485	474

(1) Waste volumes at 1.4.2007 are for untreated or partly treated waste, apart from conditioned wastes (i.e. waste streams with a /C in the identifier) where the conditioned volume is reported.

(2) Berkeley Power Station and that part of Berkeley Centre originally containing the R&D active handling facilities are now combined as a single site known as Berkeley Nuclear Licensed Site (BNLS).

(3) For Sellafield LLW, the conditioned waste volume reported is underestimated by about 15%. The packaged volume and number of packages are correct.

ANNEX 4 LIST OF WASTE STREAMS IN THE INVENTORY AND THEIR VOLUMES

The table below shows the number of waste streams in the 2007 Inventory for each waste type from each waste producer.

Number of waste streams in the 2007 Inventory

Site owner	HLW	ILW	LLW	Total
GE Healthcare Ltd	-	10	9	19
NDA	5	508	444	957
British Energy	-	83	123	206
Minor producers	-	2	4	6
MoD	-	25	52	77
Urenco	-	1	3	4
	5	**629**	**635**	**1,269**

All 1,269 waste streams in the 2007 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; the volume of waste at 1 April 2007; the forecast total number of waste packages, the forecast total packaged volume and the forecast total conditioned volume when all wastes at 1 April 2007 and projected future arisings have been packaged.

The forecast number of waste packages, the packaged volume and the conditioned volume are determined from reported packaging plans. For waste streams where waste packaging plans are not yet fully defined, assumptions have been made so that package numbers, and packaged and conditioned volumes, can be estimated. These assumptions are given in Chapter 2.

The volume of waste at 1 April 2007 is the reported value in cubic metres (m^3) to 1 decimal place. Volumes of less than $0.05m^3$ are displayed as “<0.1”. The number of waste packages and the packaged and conditioned volumes for all wastes at 1 April 2007 and future arisings are calculated values given to 3 significant figures, or, for values below 10, to the nearest 0.1. Fractional package numbers 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.

For Sellafield LLW streams, the conditioned waste volume reported is underestimated by about 15%. The packaged volume and number of packages are correct.

A4 List of Waste Streams in the Inventory and their Volumes

Site Owner – Waste Custodian - Site		Waste type	Waste volume at 1.4.2007 (m^3)	When all wastes at 1.4.2007 and future arisings are packaged		
Stream Identifier	Title			Number of packages	Packaged volume (m^3)	Conditioned volume (m^3)
GE Healthcare Limited – GE Healthcare Limited - Amersham						
1A01	LLW Compactable Drummable	LLW	0	28.2	549	439
1A02	LLW Non-Compactable Drummable	LLW	0	58.7	1,140	915
1A03	LLW Non-Compactable Non-Drummable	LLW	0	136	2,660	2,120
1A04	LLW Non-Compactable Drummable (Spoil)	LLW	0	21.2	413	330
1A07	ILW	ILW	80.0	476	272	222
1A08	Decay Stored Waste	ILW	14.0	2.3	44.9	35.9
1A09	Incinerated Waste	LLW	0	0	0	0
1A10	ILW Containing Radium	ILW	20.0	42.9	24.5	20.0
1A11	Sealed Sources	ILW	1.0	2.8	1.6	1.3
GE Healthcare Limited – GE Healthcare Limited – Cardiff						
1B02	LLW Non-Compactable Drummable	LLW	0	1.1	21.5	17.2
1B03	LLW Non-Compactable Non-Drummable	LLW	0	42.3	825	660
1B04	ILW Containing Tritium	ILW	200.0	466	266	217
1B05	ILW Containing Carbon-14 Excluding Free Liquid	ILW	10.0	21.5	12.3	10.0
1B07	ILW Containing Tritium and Carbon-14	ILW	3.0	6.4	3.7	3.0
1B08	Incinerated Waste	ILW	0	0	0	0
1B09	Very Low Level Waste	LLW	0	0	5,400	5,400
1B10	ILW Containing Carbon-14 Free Liquid	ILW	65.0	210	120	98.0
GE Healthcare Limited - GE Healthcare Limited - Harwell						
1C01	High Beta/Gamma Sources	ILW	0.1	0.1	0.1	0.1
1C02	Miscellaneous Low Level Waste	LLW	0	5.2	101	80.8
Nuclear Decommissioning Authority - Sellafield Limited - Calder Hall						
2A01	Redundant Activated Control Rods ILW	ILW	2.9	1.5	6.9	5.1
2A03	General LLW	LLW	2.0	2.2	42.4	33.9
2A04	Calder Hall LLW Lagging	LLW	20.4	1.3	24.9	19.9
2A06	Redundant Activated Control Rods LLW	LLW	7.6	0.5	9.2	7.4
2A07	Redundant Fuel Transport Flasks & Liners	LLW	27.2	0.3	5.3	4.2
2A30	Waste Oils	LLW	93.6	0	0	0
2A100	Care & Maintenance : General Reactor LLW	LLW	0	3.4	65.6	52.5
2A910	Care and Maintenance Preparation (Reactor LLW)	LLW	0	38.7	754	603
2A911	C&M Preparation; Control Rod Mechanism Workshop Dismantling LLW	LLW	0	0.7	13.4	10.7
2A912	C&M Preparation (LLW Compaction Plant Dismantling) LLW	LLW	0	0.1	2.4	2.0
2A914	C&M Preparations Calder Hall Lagging LLW	LLW	83.7	38.5	751	601
2A303	Final Dismantling & Site Clearance : Graphite LLW	LLW	0	106	2,130	2,010
2A304	Final Dismantling & Site Clearance : Mild Steel (Reactor) LLW	LLW	0	529	10,600	9,980
2A305	Final Dismantling & Site Clearance : Stainless Steel (Reactor) LLW	LLW	0	0.4	7.8	7.4
2A306	Final Dismantling & Site Clearance : Mild Steel (Non-Reactor) LLW	LLW	0	275	5,510	5,190
2A307	Final Dismantling & Site Clearance Concrete (Reactor & Non-Reactor) LLW	LLW	0	1,080	21,600	20,300
2A308	Final Dismantling & Site Clearance: Misc Metals & Materials (Reactor and Non-Reactor) LLW	LLW	0	46.8	938	884
2A309	Final Dismantling & Site Clearance : Secondary Wastes LLW	LLW	0	72.3	1,450	1,360
2A310	Final Dismantling & Site Clearance : Graphite ILW	ILW	0	214	4,290	2,360

Site Owner – Waste Custodian - Site		**Waste type**	**Waste volume at 1.4.2007 (m^3)**	**When all wastes at 1.4.2007 and future arisings are packaged**		
Stream Identifier	**Title**			**Number of packages**	**Packaged volume (m^3)**	**Conditioned volume (m^3)**
2A311	Final Dismantling & Site Clearance : Mild Steel (Reactor) ILW	ILW	0	69.6	1,390	765
2A312	Final Dismantling & Site Clearance : Stainless Steel (Reactor) ILW	ILW	0	8.5	170	93.6
2A313	Final Dismantling & Site Clearance : Miscellaneous Metal (Reactor) ILW	ILW	0	2.2	44.7	24.6
Nuclear Decommissioning Authority - Sellafield Limited - Capenhurst						
2B03	Empty Uranium Hexafluoride Containers	LLW	57.2	2,470	32,200	23,000
2B17	Incinerator Ash and Sorbent - HVVLLW	LLW	56.3	0	56.3	56.3
2B102	Capenhurst Decommissioning Waste - Tc Contaminated LLW	LLW	383.9	28.7	489	380
2B103	Capenhurst Decommissioning Waste - Tc Contaminated HVVLLW	LLW	4,084.0	0	4,080	4,080
2B107	Capenhurst Decommissioning Waste - Tc Free LLW	LLW	157.0	20.2	394	315
2B108	Capenhurst Decommissioning Waste - Tc Free HVVLLW	LLW	748.0	0	748	748
2B109	Tritium Contaminated Building Materials - HVVLLW	LLW	5,200.0	0	5,200	5,200
Nuclear Decommissioning Authority - Magnox Electric Ltd - Chapelcross						
2C01	Ion Exchange Resins AW500 (Zeolite)	ILW	48.8	48.8	160	132
2C02	Miscellaneous Activated Components, Activated Liners	ILW	1.5	3.3	1.9	1.5
2C03	Miscellaneous Reactor Components	ILW	24.9	11.0	51.8	38.6
2C05	Sludge	ILW	6.6	2.3	10.8	8.1
2C06	Ceramic Pellets	ILW	9.7	20.8	11.9	9.7
2C07	Contaminated Plant Components	ILW	3.6	1.0	4.8	3.6
2C08	Hydraulic Fluid	LLW	0.9	0.1	1.1	0.9
2C10	Chapelcross Process Plant Tritiated Waste	LLW	4.0	11.3	221	177
2C11	Reactor and Associated Areas LLW	LLW	42.5	60.8	1,190	948
2C12	Cooling Ponds LLW	LLW	4.8	1.8	34.3	27.4
2C13	Large Items from Reactor Areas	LLW	757.0	111	2,170	1,740
2C14	Large Items from Ponds	LLW	13.9	7.2	140	112
2C15	Rotary Pump Oil	ILW	0.3	0.5	0.3	0.3
2C16	UO3 Contaminated Low Level Waste	LLW	8.8	1.0	18.8	15.0
2C18	Miscellaneous Beta/Gamma Waste	ILW	17.7	8.0	37.5	28.0
2C19	Fuel Skips in Pond	ILW	0	1.0	18.8	15.0
2C20	Fuel Skips in Pond	ILW	0	9.1	178	142
2C21	Pond Skip Decontamination Sludge	ILW	0	0.1	0.3	0.2
2C22	Pond Skip Decontamination Sludge	ILW	0	1.1	5.1	3.8
2C23	Desiccant	ILW	0.4	0.4	1.0	1.0
2C920	Care and Maintenance Preparation (Reactor LLW)	LLW	364.2	3,590	70,100	56,100
2C921	Care and Maintenance Preparation Ponds LLW	LLW	194.2	758	14,800	11,800
2C922	Care and Maintenance Preparation (Pipeline Concrete LLW)	LLW	0	270	5,270	4,220
2C923	Care and Maintenance Preparation (Pipeline Steel LLW)	LLW	0	24.7	482	386
2C924	Care and Maintenance Preparation (North Site LLW)	LLW	22.5	186	3,630	2,910
2C925	Care and Maintenance Preparation (Chapelcross Processing Plant Dismantling) LLW	LLW	0	160	3,120	2,500
2C926	Care and Maintenance Preparation (Chapelcross Processing Plant Dismantling ILW)	ILW	0	182	597	492
2C100	Care & Maintenance : General Reactor LLW	LLW	0	6.5	127	102
2C303	Final Decommissioning Contaminated Soil	LLW	0	61.7	1,240	1,170
2C304	Final Dismantling & Site Clearance : Graphite LLW	LLW	0	0.4	7.4	7.0
2C305	Final Dismantling & Site Clearance : Mild Steel (Reactor) LLW	LLW	0	503	10,100	9,480

A4 List of Waste Streams in the Inventory and their Volumes

Site Owner – Waste Custodian - Site		Waste type	Waste volume at 1.4.2007 (m^3)	When all wastes at 1.4.2007 and future arisings are packaged		
Stream Identifier	**Title**			**Number of packages**	**Packaged volume (m^3)**	**Conditioned volume (m^3)**
2C306	Final Dismantling & Site Clearance : Stainless Steel (Reactor) LLW	LLW	0	0.4	7.4	7.0
2C307	Final Dismantling & Site Clearance : Mild Steel (Non-Reactor) LLW	LLW	0	261	5,240	4,930
2C308	Final Dismantling & Site Clearance : Concrete (Reactor and Non-Reactor) LLW	LLW	0	1,020	20,500	19,300
2C309	Final Dismantling & Site Clearance : Miscellaneous Metals and Materials (Reactor and Non-Reactor) LLW	LLW	0	44.4	890	839
2C310	Final Dismantling & Site Clearance : Secondary Wastes LLW	LLW	0	68.8	1,380	1,300
2C311	Final Dismantling & Site Clearance : Graphite ILW	ILW	0	225	4,510	4,250
2C312	Final Dismantling & Site Clearance : Mild Steel (Reactor) ILW	ILW	0	40.4	808	763
2C313	Final Dismantling & Site Clearance : Stainless Steel (Reactor) ILW	ILW	0	8.5	170	92.8
2C314	Final Dismantling & Site Clearance : Miscellaneous Metal (Reactor) ILW	ILW	0	2.2	44.7	24.4
Nuclear Decommissioning Authority - Sellafield Limited - Sellafield						
2D02	High Level Liquid Waste	HLW	1,086.7	0	0	0
2D02/C	Vitrified High Level Waste - Magnox	HLW	288.6	3,880	760	581
2D03	Plutonium Contaminated Materials; Drums	ILW	8,310.0	11,400	6,530	5,770
2D03/C	Encapsulated Plutonium Contaminated Materials	ILW	817.0	1,620	926	817
2D06	Plutonium Contaminated Materials; Crates and Filters	ILW	4,220.6	4,830	2,760	2,410
2D07	Pile Fuel Cladding and Miscellaneous Solid Waste	ILW	3,231.0	2,020	6,660	4,240
2D08	Magnox Cladding and Miscellaneous Solid Waste	ILW	3,455.0	2,830	9,350	6,090
2D09	Magnox Cladding and Miscellaneous Solid Waste	ILW	2,865.0	2,350	7,750	5,050
2D11	Pond Sludge	ILW	323.0	1,150	659	577
2D12	Miscellaneous Solid Waste in Pond and Bays	ILW	326.0	326	1,080	701
2D13	Ion Exchange Material in Skips (AW500)	ILW	283.0	223	735	479
2D14	Miscellaneous Beta/Gamma Waste	ILW	2,380.0	1,110	3,650	2,380
2D16	Magnox Fuel Storage Pond Sludge	ILW	1,169.0	913	3,010	1,960
2D17	Cemented Wastes in Skips	ILW	62.0	28.8	95.2	62.0
2D18	Settling Pond Sludge	ILW	40.0	160	91.4	80.0
2D19	Aluminium-Ferric Floc from Effluent Treatment	ILW	5,923.0	0	0	0
2D21	Stored Miscellaneous Beta/Gamma Active Solid Waste	ILW	330.0	118	389	330
2D22	Magnox Cladding and Miscellaneous Solid Waste	ILW	1,040.0	852	2,810	1,830
2D23	Filters in Concrete Box	ILW	16.0	34.3	19.6	16.0
2D24	Magnox Cladding and Miscellaneous Solid Waste	ILW	1,370.0	1,120	3,710	2,410
2D25	Miscellaneous Solid Waste	ILW	395.0	324	1,070	696
2D26	Ion Exchange Material (Clinoptilolite) and Sand	ILW	839.0	9,560	5,460	4,780
2D27/C	Encapsulated Floc from Effluent Treatment	ILW	5,634.0	26,000	14,900	13,000
2D30	Waste Oils	LLW	149.4	0	0	0
2D31	Redundant Transport Flasks Magnox Fuel	LLW	106.6	0.3	6.5	5.2
2D33	Fuel Handling Plant Sludges	ILW	11.0	60.0	34.3	30.0
2D34	Sludge from Sand Filters and Transfers	ILW	811.0	5,060	2,890	2,530
2D35	Magnox Cladding and Miscellaneous Solid Waste	ILW	738.0	605	2,000	1,300
2D35/C	Encapsulated Retrieved Magnox Cladding	ILW	1,203.4	2,470	1,410	1,200
2D38/C	Encapsulated Magnox Cladding	ILW	6,997.0	24,900	14,200	12,100
2D39	Miscellaneous Beta/Gamma Waste Store	ILW	2,432.5	1,680	7,880	5,870
2D42	Magnox Pond Furniture	ILW	0	308	6,000	4,800
2D43	Pond Skips	LLW	1,246.0	79.9	1,560	1,250
2D45	Magnox Fuel End Crops	ILW	27.6	65.7	37.5	32.1
2D55	Stored Filters	ILW	14.0	30.0	17.2	14.0
2D57	Hydrocyclone Solids from Effluent Treatment	ILW	1.8	14.3	8.2	7.1
2D58	Uranium Residues in Pile Fuel Storage Pond	ILW	39.2	18.2	60.2	39.2

Site Owner – Waste Custodian - Site		Waste type	Waste volume at 1.4.2007 (m^3)	When all wastes at 1.4.2007 and future arisings are packaged		
Stream Identifier	**Title**			**Number of packages**	**Packaged volume (m^3)**	**Conditioned volume (m^3)**
2D59	Magnox Fuel End Crops	ILW	21.0	9.8	32.2	21.0
2D72	Sludge Settling Tank	ILW	44.0	176	100	88.0
2D73	Miscellaneous Beta/Gamma Waste in Voids	ILW	10.0	21.5	12.3	10.0
2D74	Pile Fuel Storage Pond Ion Exchange Material	ILW	0	13.5	44.6	29.0
2D75	Decanner Flatrols	LLW	0	1.0	19.6	15.7
2D76/C	Encapsulated Retrieved Pond Sludge	ILW	0	1.1	0.6	0.5
2D77/C	Encapsulated Retrieved Miscellaneous Beta/Gamma Waste	ILW	0	1,090	622	545
2D78	Decanner Settling Tank Sludge	ILW	35.0	75.1	42.9	35.0
2D79	Magazines in Magnox Fuel Storage Pond	ILW	37.0	17.2	56.8	37.0
2D108	Miscellaneous Plants Initial/Interim Decommissioning: Ponds	LLW	0	214	4,410	3,580
2D109	Miscellaneous Plants Initial/Interim Decommissioning: Processing Plants, Tanks, Silos etc.	LLW	0	2,160	55,500	47,100
2D110	Miscellaneous Plants Initial/Interim Decommissioning: Product Stores	LLW	0	139	2,710	2,170
2D111	Plutonium Plants Initial/Interim Decommissioning: Processing Plants	LLW	0	35.8	827	688
2D112	Plutonium Plants Initial/Interim Decommissioning: Stores	LLW	0	3.0	59.1	47.3
2D113	Uranium Plants Initial/Interim Decommissioning: Processing Plants	LLW	0	13.4	329	277
2D115	Miscellaneous Plants Initial/Interim Decommissioning: Ponds	ILW	0	548	1,980	1,480
2D116	Miscellaneous Plants Initial/Interim Decommissioning: Processing Plants, Tanks, Silos etc.	ILW	39.4	8,090	29,200	21,900
2D117	Miscellaneous Plants Initial/Interim Decommissioning: Product Stores	ILW	0	66.3	239	179
2D118	Plutonium Plants Initial/Interim Decommissioning: Processing Plants	ILW	0	33.4	120	90.1
2D120	Uranium Plants Initial/Interim Decommissioning: Processing Plants	ILW	0	59.6	215	161
2D122	Miscellaneous Plants Final Decommissioning: Ponds	LLW	0	775	15,100	12,100
2D123	Miscellaneous Plants Final Decommissioning: Processing Plants, Tanks, Silos, etc.	LLW	0	4,310	84,000	67,200
2D124	Miscellaneous Plants Final Decommissioning: Product Stores	LLW	0	1,120	21,800	17,500
2D125	Plutonium Plants Final Decommissioning: Processing Plants	LLW	0	176	3,430	2,740
2D126	Plutonium Plants Final Decommissioning: Stores	LLW	0	132	2,580	2,070
2D127	Uranium Plants Final Decommissioning: Processing Plants	LLW	0	55.8	1,090	870
2D130	Miscellaneous Plants Initial/Interim Decommissioning: Processing Plants, Tanks, Silos, etc (PCM)	ILW	0	456	260	230
2D132	Plutonium Plants Initial/Interim Decommissioning: Processing Plants (PCM)	ILW	0	1,050	602	531
2D136	Miscellaneous Plants Final Decommissioning: Ponds	ILW	0	72.2	260	195
2D137	Miscellaneous Plants Final Decommissioning: Processing Plants, Tanks, Silos, etc.	ILW	0	4,110	14,800	11,100
2D148	HVVLLW from Final Decommissioning	LLW	0	0	1,170,000	1,170,000
Nuclear Decommissioning Authority - Springfields Fuels Ltd - Springfields						
2E15	Drummed Waste for Disposal at LLW Repository	LLW	12.2	0.8	15.3	12.2
2E20	Process Residues for Disposal at LLW Repository	LLW	0	4.7	91.0	72.8
2E90	General Waste for Clifton Marsh Disposal	LLW	0	0	40,900	40,900
2E91	Process Wastes for Clifton Marsh	LLW	210.0	0	1,820	1,820
2E101	Decommissioning LLW	LLW	0	158	3,070	2,460
2E191	Decommissioning Wastes for Clifton Marsh Disposal	LLW	0	0	342,000	342,000

Site Owner – Waste Custodian - Site		**Waste type**	**Waste volume at 1.4.2007 (m^3)**	**When all wastes at 1.4.2007 and future arisings are packaged**		
Stream Identifier	**Title**			**Number of packages**	**Packaged volume (m^3)**	**Conditioned volume (m^3)**
Nuclear Decommissioning Authority - Sellafield Limited - Sellafield						
2F01/C	Vitrified High Level Waste	HLW	359.3	2,180	427	327
2F02	Plutonium Contaminated Materials; Drums	ILW	116.0	397	226	200
2F03/C	Encapsulated AGR Cladding	ILW	833.6	2,650	1,510	1,340
2F04/C	Encapsulated LWR Cladding	ILW	1,496.0	3,740	2,140	1,900
2F06/C	Encapsulated Barium Carbonate Slurry/MEB Crud	ILW	308.0	1,030	589	487
2F07	AGR Graphite Fuel Assembly Components	ILW	4,277.7	17,200	9,850	8,040
2F08	AGR Stainless Steel Fuel Assembly Components	ILW	609.7	2,250	1,280	1,050
2F10/C	Encapsulated Centrifuge Cake	ILW	403.6	1,210	693	572
2F14	AGR Pond Furniture (Containers, Skips, Racks)	LLW	0	290	10,600	9,450
2F15	LWR Pond Furniture (MEBs)	ILW	0	421	8,210	6,570
2F17	Redundant Excellox Flasks	LLW	1,509.6	5.1	99.4	79.5
2F18	Redundant TN Flasks	LLW	998.2	3.1	60.8	48.7
2F20	LWR Pond Furniture (Racks and Frames) from First Generation Oxide Storage Pond	LLW	0	157	3,050	2,440
2F21/C	Encapsulated Maintenance Scrap	ILW	74.0	230	131	115
2F22/C	High Level Contaminated Waste	HLW	0	200	39.2	30.0
2F24/C	Encapsulated WEP Scrap	ILW	0	616	352	308
2F26	LWR Pond Sludge	ILW	15.0	50.2	28.7	23.4
2F27	AGR Pond Sludge	ILW	4.3	15.1	8.6	7.0
2F31	Oxide Fuel Hulls from Early Reprocessing	ILW	74.4	61.0	201	131
2F34	Plutonium Contaminated Materials; Drums	ILW	188.0	327	187	165
2F35	Excellox-Type Transport Flasks and French-Design Dry Flasks	LLW	104.9	1.2	44.4	39.9
2F36	LWR Pond Furniture (MEBs)	LLW	0	409	7,980	6,380
2F37	Oxide Fuel Transport Flasks & Basket Transfer Containers	LLW	0	1.3	25.6	20.5
2F38/C	Vitrified High Level Waste from POCO	HLW	0	1,000	196	150
2F39	LWR Pond Furniture (Racks and Frames) from Thorp Receipt and Storage Pond	LLW	0	87.1	1,700	1,360
2F40	Fuel Support Frames	LLW	17.7	3.0	58.5	46.8
Nuclear Decommissioning Authority - LLWR SLC Ltd - LLWR (near Drigg)						
2N01	Plutonium Contaminated Material; Drummed (Original Inventory)	ILW	80.0	147	83.7	73.9
2N02	Plutonium Contaminated Material; Crated	ILW	193.9	194	111	97.0
2N03	Plutonium Contaminated Material; Drummed (Operational Soft Waste)	ILW	84.0	250	143	126
2N04	LLW from PCM Operations	LLW	0	27.9	544	435
2N05/C	Vault Eight LLW	LLW	155,959.5	8,270	195,000	156,000
2N06	LLW from Site LLW Operations	LLW	0	328	6,390	5,110
2N100	Plutonium Contaminated Material; Drummed (Decommissioning Hard Waste)	ILW	0	25.0	14.3	12.6
Nuclear Decommissioning Authority - Nexia Solutions Ltd - Sellafield						
2P01	Main Laboratories LLW	LLW	0	0.3	5.3	4.3
2P02	BTC Rig Hall	LLW	0	9.2	179	143
2P03	BTC Level 3 Laboratories and Other General Active Areas	LLW	0	21.3	416	333
2P04	BTC Alpha Development Laboratories	LLW	0	8.1	157	126
2P05	BTC HA Cells	LLW	0	11.1	216	173

Site Owner – Waste Custodian - Site		**Waste type**	**Waste volume at 1.4.2007 (m^3)**	**When all wastes at 1.4.2007 and future arisings are packaged**		
Stream Identifier	**Title**			**Number of packages**	**Packaged volume (m^3)**	**Conditioned volume (m^3)**
Nuclear Decommissioning Authority - Sellafield Limited - Sellafield						
2X01	PCM Stores and WTC LLW	LLW	0	31.1	607	485
2X02	Magnox Plutonium Finishing Lines & Plutonium Stores LLW	LLW	0	74.1	1,450	1,160
2X03	Decontamination Centre LLW	LLW	0	25.1	490	392
2X05	Site Clearance LLW	LLW	0	1,470	28,600	22,900
2X07	Demolition of Development Centre B and Ancilliary buildings	LLW	0	21.5	420	336
2X08	Reprocessing Plant LLW (excluding PS1 and Dissolver Tower Area)	LLW	0	99.0	1,930	1,540
2X09	Reprocessing Plant: PS1 and Dissolver Tower Area LLW	LLW	0	43.8	854	684
2X10	Reprocessing Plant: Thermal Denitration Plant Area and UO3 Rework Facility LLW	LLW	0	29.8	581	465
2X11	Reprocessing Plant: MA Evaporator Area	LLW	0	92.2	1,800	1,440
2X13/1	Sludge from Laundry Sumps	LLW	0	18.4	358	287
2X14	Separation Area Change Rooms LLW	LLW	0	166	3,230	2,580
2X15	HLW Plants: HA Evaporation & Storage LLW	LLW	0	139	2,710	2,160
2X16	Low Active Effluent Management Group: Salt Evaporator LLW	LLW	0	172	3,360	2,680
2X17	Low Active Effluent Management Group: MA Tanks LLW	LLW	0	5.2	102	81.3
2X18	Low Active Effluent Management Group: LA Treatment & Sludge Tanks	LLW	0	37.2	725	580
2X19	Low Active Effluent Management Group: LA Effluent Treatment Plant and SETP	LLW	0	21.5	419	335
2X20	Magnox Ponds West: Magnox Storage Pond and Decanning Facility	LLW	0	306	5,980	4,780
2X21	Magnox Ponds West: Magnox Flask Maintenance LLW	LLW	0	95.3	1,860	1,490
2X25	Ponds East River: Fuel Handling Plant LLW	LLW	0	124	2,430	1,940
2X26	Ponds East River: SIXEP LLW	LLW	0	48.1	939	751
2X27	Ponds East River: AGR Dismantler & Store LLW	LLW	0	11.6	226	181
2X29	LWR Storage Pond	LLW	0	41.1	801	641
2X30	AGR Storage Pond	LLW	0	24.9	486	389
2X31	Oxide Ponds: THORP Flask Maintenance LLW	LLW	0	47.4	924	739
2X32	THORP Receipt & Storage LLW	LLW	0	153	2,990	2,390
2X35	MEP LLW	LLW	0	15.0	293	234
2X36	WEP LLW	LLW	0	16.5	322	258
2X37	Miscellaneous Beta Gamma Waste Store LLW	LLW	0	25.6	499	399
2X39	WVP: Vitrification Process LLW	LLW	0	190	3,710	2,970
2X44	Operational Sealines	LLW	0	0.7	13.1	10.5
2X49	Safety Equipment Workshop and Medium and High Active Laundry Waste	LLW	0	282	5,490	4,390
2X50	New Effluent Plants	LLW	0	38.6	752	602
2X51	Feed Pond LLW	LLW	0	9.2	179	143
2X52	Head End LLW	LLW	0	32.9	641	512
2X53	Uranium Purification/Finishing LLW	LLW	0	17.1	333	266
2X54	Plutonium Purification/Finishing LLW	LLW	0	12.3	240	192
2X55	Uranium (IV) LLW	LLW	0	3.1	60.9	48.7
2X57	Chemical Separation Effluents LLW	LLW	0	16.6	324	259
2X59	Mixed Trash from MDF	LLW	0	1.7	32.5	26.0
2X61	WAMAC LLW	LLW	0	25.3	494	395
2X62	SMP LLW (Uranium Areas)	LLW	0	1.8	34.5	27.6
2X63	SMP LLW (Pu Areas)	LLW	0	0.1	1.8	1.5
2X64	SMP LLW (MOX)	LLW	0	43.0	839	671
2X65	Radioactive Sources	LLW	0	<0.1	0.1	0.1
2X66	Dosimetry Services LLW	LLW	0	0.9	16.9	13.5
2X68	Analytical Services Facilities	LLW	0	541	10,500	8,430

Site Owner – Waste Custodian - Site		Waste type	Waste volume at 1.4.2007 (m^3)	When all wastes at 1.4.2007 and future arisings are packaged		
Stream Identifier	Title			Number of packages	Packaged volume (m^3)	Conditioned volume (m^3)
2X71	Solvent Treatment Plant LLW	LLW	0	15.4	300	240
2X72	Oxide Transport Containers (Baskets and Stools)	LLW	0	23.0	559	460
2X74	Mixed Oxide Areas of MDF	LLW	0	0.7	12.8	10.2
2X75	LAEMG HEPA Filters	LLW	0	1.3	25.1	20.1
2X76	Salt Evaporator Plant HEPA Filters	LLW	0	0.3	6.2	5.0
2X80	Railways Monitoring & Decontamination Facilities LLW	LLW	0	239	4,660	3,730
2X108	Separation Head End Plant Outcell Clearance	LLW	0	58.2	1,140	909
2X109	Separation Head End Plant Filters and LLW	LLW	0	15.9	311	249
2X114	Caesium Extraction Plant Decommissioning	LLW	0	9.1	178	142
2X115	Pile Chimney Decommissioning	LLW	0	24.3	474	379
2X116	PFR Plant Decommissioning	LLW	0	106	2,060	1,650
2X117	Pond Decommissioning	LLW	0	72.3	1,410	1,130
2X118	Purification Plant (Shutdown) - Decommissioning	LLW	0	7.4	143	115
2X119	Thorp Miniature Pilot Plant Clearance and Decommissioning	LLW	0	83.4	1,630	1,300
2X120	Purification Plant Decommissioning	LLW	0	31.3	609	488
2X122	Research & Development Laboratories 54 & 54A	LLW	0	1.0	18.8	15.1
2X123	Research & Development Laboratory - Pilot Plant Decommissioning	LLW	0	0.1	2.9	2.3
2X124	Dry Silo Retrievals Project	LLW	0	237	4,620	3,690
2X125	Silo Decommissioning	LLW	0	292	5,720	4,590
2X127	Workshop & Incident Control Centre	LLW	0	25.8	504	403
2X128	Decontamination Plant & Compound Final Decommissioning	LLW	0	0	61.0	61.0
2X131	Stored Miscellaneous Beta/Gamma Active Solid Waste	LLW	110.0	7.1	138	110
2X133	Magnox Sludge Settling and Transfer Facility LLW	LLW	0	17.7	346	277
2X140	Miscellaneous Demolition Waste	LLW	0	39.5	771	617
2X927	Wheelabrator Operations LLW	LLW	0	259	5,050	4,040
Nuclear Decommissioning Authority - Sellafield Limited - Sellafield						
2Y21	Separation Area Ventilation Plant Operational LLW	LLW	0	1.5	30.0	24.0
2Y48	Separation Head End Plant Stack	LLW	0	0.2	4.0	3.2
2Y49	Analytical Services Process Facilities - Laboratory 188C	LLW	0	1.8	34.3	27.4
2Y50	Analytical Services Process Facilities - Laboratory 195	LLW	0	1.2	23.7	19.0
2Y51	Analytical Services Process Facilities - North Labs	LLW	0	0.5	9.8	7.8
2Y52	Separation Area Ventilation Plant Construction	LLW	0	0.2	4.4	3.5
2Y53	Separation Area Ventilation Plant Decommissioning	LLW	0	12.5	244	195
2Y54	Separation Area Ventilation Plant Preparation Duct Removal	LLW	0	2.9	55.6	44.5
2Y55	Island Site Creation - Legacy & HWLWP - Island Site Preparation Works	LLW	0	12.2	238	190
2Y56	Analytical Services Process Facilities - LA Labs	LLW	0	4.8	94.4	75.5
2Y57	Excavated Soil and Putrescible Waste - High Volume Very Low Level Waste (HVVLLW)	LLW	7,000.0	0	94,000	94,000
British Energy Generation - British Energy Generation - Dungeness B						
3J01	Ion Exchange Material	ILW	17.8	127	72.2	59.5
3J02	Sludge	ILW	9.3	73.6	42.0	34.6
3J03	Miscellaneous Contaminated Items	ILW	2.0	6.3	20.6	17.0
3J04	Desiccants ILW	ILW	77.6	25.8	504	403
3J09	Miscellaneous Activated Components	ILW	7.6	1.0	19.9	14.2
3J11	Reactor Vessel Internals and Dry Fuel Route LLW	LLW	7.4	6.9	134	107
3J12	General Reactor LLW	LLW	73.7	24.4	476	381
3J13	Wet Fuel Route LLW	LLW	14.7	4.9	95.2	76.1

Site Owner – Waste Custodian - Site		**Waste type**	**Waste volume at 1.4.2007 (m^3)**	**When all wastes at 1.4.2007 and future arisings are packaged**		
Stream Identifier	**Title**			**Number of packages**	**Packaged volume (m^3)**	**Conditioned volume (m^3)**
3J19	Catalysts LLW	LLW	0.5	0.5	9.9	7.9
3J20	Catalysts ILW	ILW	1.0	0.3	5.3	4.2
3J21	Fuel Stringer Debris	ILW	278.9	50.8	1,020	726
3J110	Care & Maintenance Preparations: Stainless Steel LLW	LLW	0	33.0	643	514
3J111	Care & Maintenance Preparations: Mild Steel LLW	LLW	0	54.0	1,050	843
3J112	Care & Maintenance Preparations: Secondary Waste LLW	LLW	0	74.0	1,440	1,150
3J113	Care & Maintenance Preparations: Miscellaneous Metals and Materials LLW	LLW	0	41.3	804	644
3J114	Care & Maintenance: Miscellaneous Materials LLW	LLW	0	5.0	97.6	78.1
3J311	Decommissioning Stage 3: Stainless Steel (Reactor) ILW	ILW	0	1.3	26.3	18.8
3J312	Decommissioning Stage 3: Mild Steel (Reactor) ILW	ILW	0	33.1	662	473
3J313	Decommissioning Stage 3: Graphite ILW	ILW	0	214	4,290	2,360
3J314	Decommissioning Stage 3: Stainless Steel (Reactor) LLW	LLW	0	184	3,690	3,470
3J315	Decommissioning Stage 3: Mild Steel (Reactor) LLW	LLW	0	219	4,390	4,140
3J317	Decommissioning Stage 3: Graphite LLW	LLW	0	113	2,260	2,130
3J318	Stage 3 Decommissioning: Concrete (Reactor and Non-Reactor) LLW	LLW	0	56.2	1,130	1,060
3J319	Stage 3 Decommissioning: Miscellaneous Metals and Materials (Reactor and Non-Reactor) LLW	LLW	0	3.9	79.0	74.5
3J320	Stage 3 Decommissioning: Secondary Wastes LLW	LLW	0	151	2,940	2,350
British Energy Generation - British Energy Generation - Hartlepool						
3K01	Pond Water Ion Exchange Material	ILW	2.7	24.5	14.0	11.5
3K02	Active Effluent Filtration Sludges	LLW	0	1.4	27.5	22.0
3K03	Miscellaneous Contaminated Items	ILW	0	4.1	13.3	11.0
3K04	Desiccant	ILW	67.6	23.9	465	372
3K09	Miscellaneous Activated Components - Mixed Items	ILW	12.3	1.7	34.8	24.8
3K10	Fuel Stringer Debris - Steel & Nimonic	ILW	55.5	7.9	158	113
3K14	Reactor Area LLW - Group 1 Areas	LLW	10.3	3.3	64.6	51.7
3K15	Fuel Route Areas LLW - Group 2 Areas	LLW	4.0	1.3	25.4	20.3
3K16	Wet Fuel Route LLW	LLW	1.6	1.8	34.3	27.4
3K17	Incinerator Ash	LLW	2.6	1.8	35.4	28.3
3K18	Pond Water Filtration Sludge	ILW	2.6	11.2	6.4	5.3
3K20	Gas Circulator Maintenance Sludge	LLW	0.8	0.1	2.4	1.9
3K22	Catalyst	ILW	2.2	0.2	4.6	3.7
3K23	Miscellaneous Activated Components - Control Rods	ILW	0.5	<0.1	0.8	0.6
3K24	Miscellaneous Activated Components - Spalled Oxide & Dust	ILW	7.1	0.9	18.2	13.0
3K25	Fuel Stringer Debris - Graphite & Associated Metals	ILW	124.8	16.6	333	238
3K110	Care & Maintenance Preparations: Stainless Steel LLW	LLW	0	16.7	325	260
3K111	Care & Maintenance Preparations: Mild Steel LLW	LLW	0	61.0	1,190	952
3K112	Care & Maintenance Preparations: Secondary Waste LLW	LLW	0	81.5	1,590	1,270
3K113	Care & Maintenance Preparations: Miscellaneous Metals and Materials LLW	LLW	0	48.9	953	762
3K114	Care & Maintenance: Miscellaneous Materials LLW	LLW	0	5.0	97.3	77.8
3K311	Decommissioning Stage 3: Stainless Steel (Reactor) ILW	ILW	0	18.0	359	257
3K312	Decommissioning Stage 3: Mild Steel (Reactor) ILW	ILW	0	17.1	343	245
3K313	Decommissioning Stage 3: Graphite ILW	ILW	0	270	5,400	2,970
3K314	Decommissioning Stage 3: Stainless Steel (Reactor) LLW	LLW	0	81.4	1,630	1,540
3K315	Decommissioning Stage 3: Mild Steel (Reactor) LLW	LLW	0	94.9	1,900	1,790
3K317	Decommissioning Stage 3: Graphite LLW	LLW	0	30.2	605	570

Site Owner – Waste Custodian - Site		Waste type	Waste volume at 1.4.2007 (m^3)	When all wastes at 1.4.2007 and future arisings are packaged		
Stream Identifier	**Title**			**Number of packages**	**Packaged volume (m^3)**	**Conditioned volume (m^3)**
3K318	Stage 3 Decommissioning: Concrete (Reactor and Non-Reactor) LLW	LLW	0	111	2,220	2,090
3K319	Stage 3 Decommissioning: Miscellaneous Metals and Materials (Reactor and Non-Reactor) LLW	LLW	0	3.9	78.0	73.5
3K320	Stage 3 Decommissioning: Secondary Wastes LLW	LLW	0	114	2,220	1,770
British Energy Generation - British Energy Generation - Heysham 1						
3L01	Pond Water Ion Exchange Material	ILW	7.9	68.8	39.3	32.3
3L02	Pond Water Filtration Sludge	ILW	3.3	20.2	11.5	9.5
3L03	Miscellaneous Contaminated Items	ILW	0	4.8	15.8	13.0
3L04	Desiccant	ILW	49.0	21.6	420	336
3L09	Miscellaneous Activated Components - Mixed Items	ILW	10.2	1.2	24.3	17.3
3L10	Fuel Stringer Debris - Steel and Nimonic	ILW	52.2	7.7	154	110
3L11	Dry Fuel Route LLW	LLW	12.8	8.9	174	139
3L12	Wet Fuel Route LLW	LLW	2.6	1.8	34.8	27.8
3L13	General Reactor LLW	LLW	26.0	13.7	267	214
3L14	Incinerator Ash	LLW	0.9	1.1	21.4	17.1
3L15	Active Effluent Ion Exchange Material	ILW	4.8	37.0	21.1	17.4
3L16	Active Effluent Filtration Sludges	ILW	24.9	135	76.8	63.2
3L17	Gas Circulator Maintenance Sludge	ILW	1.2	9.2	5.2	4.3
3L18	Fuelling Machine Maintenance Sludge	ILW	0.5	2.1	1.2	1.0
3L19	Catalyst	ILW	1.6	0.2	4.1	3.3
3L20	Miscellaneous Activated Components - Control Rods	ILW	0	2.2	45.0	32.1
3L21	Miscellaneous Activated Components - Spalled Oxide and Dust	ILW	7.1	0.9	17.6	12.5
3L22	Fuel Stringer Debris - Graphite and Associated Metals	ILW	129.6	17.3	346	247
3L110	Care & Maintenance Preparations: Stainless Steel LLW	LLW	0	16.7	325	260
3L111	Care & Maintenance Preparations: Mild Steel LLW	LLW	0	61.1	1,190	952
3L112	Care & Maintenance Preparations: Secondary Waste LLW	LLW	0	81.5	1,590	1,270
3L113	Care & Maintenance Preparations: Miscellaneous Metals and Materials LLW	LLW	0	48.9	953	763
3L114	Care & Maintenance: Miscellaneous Materials LLW	LLW	0	5.0	97.4	77.9
3L311	Decommissioning Stage 3: Stainless Steel (Reactor) ILW	ILW	0	18.0	360	257
3L312	Decommissioning Stage 3: Mild Steel (Reactor) ILW	ILW	0	17.1	343	245
3L313	Decommissioning Stage 3: Graphite ILW	ILW	0	270	5,400	2,970
3L314	Decommissioning Stage 3: Stainless Steel (Reactor) LLW	LLW	0	81.4	1,630	1,540
3L315	Decommissioning Stage 3: Mild Steel (Reactor) LLW	LLW	0	94.9	1,900	1,790
3L317	Decommissioning Stage 3: Graphite LLW	LLW	0	30.2	605	570
3L318	Stage 3 Decommissioning: Concrete (Reactor and Non-Reactor) LLW	LLW	0	110	2,210	2,080
3L319	Stage 3 Decommissioning: Miscellaneous Metals and Materials (Reactor and Non-Reactor) LLW	LLW	0	3.9	78.0	73.5
3L320	Stage 3 Decommissioning: Secondary Wastes LLW	LLW	0	134	2,610	2,090
British Energy Generation - British Energy Generation - Heysham 2						
3M01	Pond Ion Exchange Material	ILW	0.8	14.0	8.0	6.6
3M02	Pond Water Filter Sludge	ILW	10.5	50.0	28.6	23.5
3M03	Miscellaneous Contaminated Items	ILW	1.0	7.8	25.5	21.0
3M04	Desiccant	ILW	55.8	28.8	562	450
3M06	Miscellaneous Activated Components	ILW	10.9	2.0	40.9	29.2
3M07	Fuel Stringer Debris - Steel and Nimonic	ILW	62.3	10.9	218	156
3M08	Active Effluent Ion Exchange Material	ILW	0.2	9.8	5.6	4.6
3M09	Active Effluent Filters Sludge	ILW	5.3	52.4	29.9	24.6

Site Owner – Waste Custodian - Site		Waste type	Waste volume at 1.4.2007 (m^3)	When all wastes at 1.4.2007 and future arisings are packaged		
Stream Identifier	**Title**			**Number of packages**	**Packaged volume (m^3)**	**Conditioned volume (m^3)**
3M10	Oily Sludge	ILW	0.8	13.9	8.0	6.6
3M13	Wet Fuel Route - Low Level Waste	LLW	5.0	1.0	20.2	16.1
3M14	Gas Circulator Maintenance - Low Level Waste	LLW	4.0	0.9	17.2	13.8
3M15	Waste Sorting - Low Level Waste	LLW	14.0	2.7	52.0	41.6
3M16	Incinerator Ash - Low Level Waste	LLW	1.0	2.9	57.0	45.6
3M17	Catalysts	ILW	0	1.7	33.2	26.5
3M18	Fuel Stringer Debris - Graphite	ILW	121.7	21.3	427	305
3M19	Reactors and Dry Fuel Route - Low Level Waste	LLW	15.0	5.4	106	84.5
3M110	Care & Maintenance Preparations: Stainless Steel LLW	LLW	0	24.1	469	375
3M111	Care & Maintenance Preparations: Mild Steel LLW	LLW	0	67.6	1,320	1,050
3M112	Care & Maintenance Preparations: Secondary Waste LLW	LLW	0	86.8	1,690	1,350
3M113	Care & Maintenance Preparations: Miscellaneous Metals and Materials LLW	LLW	0	56.9	1,110	887
3M114	Care & Maintenance: Miscellaneous Materials LLW	LLW	0	4.9	96.2	77.0
3M311	Decommissioning stage 3: Stainless Steel (Reactor) ILW	ILW	0	11.6	232	165
3M312	Decommissioning Stage 3: Mild Steel (Reactor) ILW	ILW	0	47.8	957	683
3M313	Decommissioning Stage 3: Graphite ILW	ILW	0	233	4,670	2,560
3M314	Decommissioning Stage 3: Stainless Steel (Reactor) LLW	LLW	0	74.7	1,500	1,410
3M315	Decommissioning Stage 3: Mild Steel (Reactor) LLW	LLW	0	219	4,380	4,120
3M317	Decommissioning Stage 3: Graphite LLW	LLW	0	43.6	873	823
3M318	Stage 3 decommissioning: Concrete (Reactor and Non-Reactor) LLW	LLW	0	190	3,800	3,580
3M319	Stage 3 Decommissioning: Miscellaneous Metals and Materials (Reactor and Non-Reactor) LLW	LLW	0	37.0	740	698
3M320	Stage 3 Decommissioning: Secondary Wastes LLW	LLW	0	118	2,310	1,850
British Energy Generation - British Energy Generation - Hinkley Point B						
3N01	Ion Exchange Material	ILW	7.0	45.0	25.7	21.2
3N02	Sludge	ILW	14.0	52.7	30.1	24.8
3N04	Desiccants and Catalysts	ILW	160.4	35.7	697	558
3N09	Miscellaneous Activated Components	ILW	68.2	7.0	141	100
3N10	Fuel Stringer Debris: Steel and Nimonic	ILW	213.7	22.2	445	318
3N12	Gas Circulator LLW	LLW	10.0	3.8	73.4	58.7
3N13	Wet Fuel Route LLW	LLW	25.0	3.7	71.4	57.1
3N14	General Reactor LLW	LLW	30.0	10.9	213	171
3N15	Dry Fuel Route LLW	LLW	5.0	0.7	13.3	10.7
3N16	Decontamination LLW	LLW	0.1	0.9	17.1	13.7
3N17	Fuel Stringer Debris: Graphite	ILW	114.9	11.9	239	171
3N33	Incinerator Ash	LLW	1.0	1.5	29.8	23.8
3N34	Waste Sorting - LLW	LLW	3.0	1.6	31.9	25.5
3N110	Care & Maintenance Preparations: Stainless Steel LLW	LLW	0	13.1	256	205
3N111	Care & Maintenance Preparations: Mild Steel LLW	LLW	0	41.5	809	647
3N112	Care & Maintenance Preparations: Secondary Waste LLW	LLW	0	71.7	1,400	1,120
3N113	Care & Maintenance Preparations: Miscellaneous Metals and Materials LLW	LLW	0	52.4	1,020	817
3N114	Care & Maintenance: Miscellaneous Materials LLW	LLW	0	5.1	98.5	78.8
3N311	Decommissioning Stage 3: Stainless Steel (Reactor) ILW	ILW	0	15.9	319	228
3N312	Decommissioning Stage 3: Mild Steel (Reactor) ILW	ILW	0	48.5	971	693
3N313	Decommissioning Stage 3: Graphite ILW	ILW	0	200	4,010	2,200
3N314	Decommissioning Stage 3: Stainless Steel (Reactor) LLW	LLW	0	84.6	1,700	1,600
3N315	Decommissioning Stage 3: Mild Steel (Reactor) LLW	LLW	0	160	3,210	3,030

Site Owner – Waste Custodian - Site		Waste type	Waste volume at 1.4.2007 (m^3)	When all wastes at 1.4.2007 and future arisings are packaged		
Stream Identifier	**Title**			**Number of packages**	**Packaged volume (m^3)**	**Conditioned volume (m^3)**
3N317	Decommissioning Stage 3: Graphite LLW	LLW	0	31.1	623	587
3N318	Stage 3 Decommissioning: Concrete (Reactor and Non-Reactor) LLW	LLW	0	71.9	1,440	1,360
3N319	Stage 3 Decommissioning: Miscellaneous Metals and Materials (Reactor and Non-Reactor) LLW	LLW	0	57.5	1,150	1,090
3N320	Stage 3 Decommissioning: Secondary Wastes LLW	LLW	0	135	2,630	2,110
British Energy Generation - British Energy Generation - Sizewell B						
3S03	Spent Cartridge Filters (ILW)	ILW	20.0	334	191	40.1
3S04	Sludges and Concentrates	LLW	13.0	3.6	70.0	56.0
3S05	Miscellaneous Contaminated Items	ILW	40.0	94.4	309	255
3S06	Spent Resins (LLW)	LLW	84.2	140	2,740	2,190
3S07	Station Maintenance and Operations LLW	LLW	180.0	44.3	864	691
3S08	Secondary Cartridge Filters (LLW)	LLW	32.0	5.9	114	91.5
3S09	Miscellaneous Activated Components	ILW	5.4	3.5	71.1	50.8
3S12	CVCS Resins and Spent Resins (ILW)	ILW	17.3	544	311	272
3S101	Decommissioning: Station Maintenance LLW	LLW	0	4.2	81.7	65.4
3S301	Decommissioning: Mild Steel LLW	LLW	0	242	4,720	3,770
3S302	Decommissioning: Mild Steel ILW	ILW	0	107	2,150	1,540
3S303	Decommissioning: Concrete LLW	LLW	0	47.1	919	735
3S304	Decommissioning: Secondary Wastes LLW	LLW	0	192	3,740	2,990
3S305	Decommissioning: Stainless Steel LLW	LLW	0	26.3	512	410
3S306	Decommissioning: Stainless Steel ILW	ILW	0	11.9	239	171
3S307	Decommissioning: Concrete ILW	ILW	0	2.7	54.4	38.8
British Energy Generation - British Energy Generation - Flasks & Flatrols						
3Z202	AGR Fuel Transport Flasks	LLW	0	0	428	428
3Z203	Rail Flatrols	LLW	0	2.9	57.1	45.7
British Energy Generation - British Energy Generation - Hunterston B						
4B01	Ion Exchange Resin and Sand	ILW	15.8	153	87.1	71.7
4B04	Sludge	ILW	21.0	138	78.5	64.6
4B06	Desiccants and Catalysts	ILW	245.0	51.3	1,000	800
4B11	Miscellaneous Activated Components	ILW	537.0	55.0	1,100	787
4B12	Wet Fuel Route LLW	LLW	14.0	5.0	96.5	77.2
4B13	General Reactor LLW	LLW	144.0	51.6	1,010	805
4B14	Laundry LLW	LLW	72.0	20.2	394	315
4B110	Care & Maintenance Preparations: Stainless Steel LLW	LLW	0	10.9	213	170
4B111	Care & Maintenance Preparations: Mild Steel LLW	LLW	0	35.8	697	558
4B112	Care & Maintenance Preparations: Secondary Waste LLW	LLW	0	72.8	1,420	1,140
4B113	Care & Maintenance Preparations: Miscellaneous Metals and Materials LLW	LLW	0	51.8	1,010	808
4B114	Care & Maintenance: Miscellaneous Materials LLW	LLW	0	5.1	98.7	79.0
4B311	Decommissioning Stage 3: Stainless Steel (Reactor) ILW	ILW	0	15.9	319	228
4B312	Decommissioning Stage 3: Mild Steel (Reactor) ILW	ILW	0	48.5	971	693
4B313	Decommissioning Stage 3: Graphite ILW	ILW	0	205	4,100	2,250
4B314	Decommissioning Stage 3: Stainless Steel (Reactor) LLW	LLW	0	84.6	1,700	1,600
4B315	Decommissioning Stage 3: Mild Steel (Reactor) LLW	LLW	0	160	3,210	3,030
4B317	Decommissioning Stage 3: Graphite LLW	LLW	0	31.1	623	587
4B318	Stage 3 Decommissioning: Concrete (Reactor and Non-Reactor) LLW	LLW	0	71.9	1,440	1,360

Site Owner – Waste Custodian - Site		**Waste type**	**Waste volume at 1.4.2007 (m^3)**	**When all wastes at 1.4.2007 and future arisings are packaged**		
Stream Identifier	**Title**			**Number of packages**	**Packaged volume (m^3)**	**Conditioned volume (m^3)**
4B319	Stage 3 Decommissioning: Miscellaneous Metals and Materials (Reactor and Non-Reactor) LLW	LLW	0	57.5	1,150	1,090
4B320	Stage 3 Decommissioning: Secondary Wastes LLW	LLW	0	139	2,710	2,170
British Energy Generation - British Energy Generation - Torness						
4C01	Catalyst	LLW	0	1.5	30.0	24.0
4C02	Desiccant	ILW	18.5	21.2	414	331
4C03	Pond Water Filtration Resin	ILW	4.2	56.0	32.0	26.3
4C05	Active Effluent Filtration Sludge	LLW	3.1	4.5	87.2	69.8
4C06	Active Effluent Filtration Resin	LLW	0.3	0.5	9.2	7.4
4C12	Miscellaneous Activated Items	ILW	163.5	30.6	613	438
4C13	Active Effluent and Workshop LLW	LLW	25.0	25.7	501	401
4C14	Fuel Route LLW	LLW	30.0	19.1	373	299
4C15	Gas Systems LLW	LLW	20.0	9.9	192	154
4C110	Care & Maintenance Preparations: Stainless Steel LLW	LLW	0	23.6	461	369
4C111	Care & Maintenance Preparations: Mild Steel LLW	LLW	0	69.5	1,360	1,080
4C112	Care & Maintenance Preparations: Secondary Waste LLW	LLW	0	93.6	1,830	1,460
4C113	Care & Maintenance Preparations: Miscellaneous Metals and Materials LLW	LLW	0	63.5	1,240	990
4C114	Care & Maintenance: Miscellaneous Materials LLW	LLW	0	4.8	93.4	74.7
4C311	Decommissioning Stage 3: Stainless Steel (Reactor) ILW	ILW	0	11.6	232	165
4C312	Decommissioning Stage 3: Mild Steel (Reactor) ILW	ILW	0	43.5	871	622
4C313	Decommissioning Stage 3: Graphite ILW	ILW	0	238	4,770	2,620
4C314	Decommissioning Stage 3: Stainless Steel (Reactor) LLW	LLW	0	74.7	1,500	1,410
4C315	Decommissioning Stage 3: Mild Steel (Reactor) LLW	LLW	0	219	4,380	4,120
4C317	Decommissioning Stage 3: Graphite LLW	LLW	0	43.6	873	823
4C318	Stage 3 decommissioning: Concrete (Reactor and Non-Reactor) LLW	LLW	0	190	3,800	3,580
4C319	Stage 3 Decommissioning: Miscellaneous Metals and Materials (Reactor and Non-Reactor) LLW	LLW	0	37.0	740	698
4C320	Stage 3 Decommissioning: Secondary Wastes LLW	LLW	0	118	2,310	1,850
Nuclear Decommissioning Authority - United Kingdom Atomic Energy Authority - Dounreay						
5B01	PFR Raffinate	ILW	206.5	794	454	397
5B02	Low Alpha RHILW	ILW	476.9	2,510	1,430	1,260
5B03	Operational RHILW	ILW	190.8	333	190	166
5B04	MTR Raffinate	ILW	513.0	0	0	0
5B04/C	Cemented MTR Raffinate	ILW	931.0	4,660	2,660	2,330
5B05	DFR Raffinate	ILW	213.8	1,190	678	594
5B15	Supercompactable Operational LLW	LLW	228.0	30.2	590	472
5B15/C	Compacted LLW	LLW	2,636.4	169	3,300	2,640
5B16	Bulk Operational LLW	LLW	0	24.6	480	384
5B16/C	Conditioned Bulk Operational LLW	LLW	811.2	52.0	1,010	811
5B19	Uranium Contaminated Materials	ILW	40.8	45.8	26.2	18.3
5B20	Contaminated Solvent and Oils	LLW	148.6	0	0	0
5B22	ADU Floc	ILW	116.0	414	237	207
5B23	DFR Breeder	ILW	4.8	220	126	110
5B24	Operational CHILW	ILW	839.2	844	482	337
5B25	ILW Shaft (Contents)	ILW	633.4	3,520	2,010	1,760
5B26	LLLETP Sludge	LLW	13.9	1.7	32.8	26.3
5B27	Thorium Nitrate	ILW	5.9	227	129	113
5B28	Graphite/THTR Waste	ILW	88.6	354	202	177

Site Owner – Waste Custodian - Site		Waste type	Waste volume at 1.4.2007 (m^3)	When all wastes at 1.4.2007 and future arisings are packaged		
Stream Identifier	Title			Number of packages	Packaged volume (m^3)	Conditioned volume (m^3)
5B29	LSA Scale	ILW	232.0	71.4	730	535
5B30	Development Laboratory Irradiated Dissolver Liquor	ILW	<0.1	0.2	0.1	0.1
5B31	Plutonium Nitrate Waste	ILW	0.5	2.5	1.4	1.2
5B32	Irradiated Thorium Fuel Pin Pieces	ILW	<0.1	6.3	3.6	3.0
5B301	Prototype Fast Reactor LLW	LLW	126.6	911	17,800	14,200
5B301/C	Conditioned Prototype Fast Reactor, LLW	LLW	234.0	15.0	293	234
5B302	Prototype Fast Reactor ILW	ILW	2.0	1,650	2,900	2,410
5B303	Dounreay Fast Reactor LLW	LLW	26.0	122	2,370	1,900
5B303/C	Conditioned Dounreay Fast Reactor LLW	LLW	171.6	11.0	215	172
5B304	Dounreay Fast Reactor ILW	ILW	0	101	1,040	355
5B305	Site Drains and Ducts LLW	LLW	0	130	2,530	2,030
5B307	PFR Reprocessing Plant LLW	LLW	0	29.6	578	463
5B308	PFR Reprocessing Plant ILW	ILW	10.0	187	107	92.2
5B309	Materials Test Reactor LLW	LLW	1.0	30.0	584	468
5B310	Materials Test Reactor ILW	ILW	0	3.7	38.1	20.8
5B311	Development Laboratory LLW	LLW	5.2	19.2	375	300
5B312	Development Laboratory ILW	ILW	41.6	148	84.7	71.4
5B313	HAL Store and Evaporation Plant LLW	LLW	0	24.5	478	382
5B314	HAL Store and Evaporation Plant ILW	ILW	0	896	512	448
5B315	MTR Reprocessing Plant LLW	LLW	16.2	14.2	278	222
5B316	Pu Laboratory LLW	LLW	28.2	15.6	303	243
5B316/C	Conditioned Pu Laboratory LLW	LLW	46.8	3.0	58.5	46.8
5B317	Pu Laboratory ILW	ILW	16.6	17.0	9.7	6.8
5B323	Decommissioning Contaminated Soil	LLW	187.2	1,470	28,600	22,900
5B324	ILW Shaft Decommissioning ILW	ILW	0	758	433	379
5B325	DFR Ion Exchange Columns	ILW	0	8.0	4.6	4.0
5B326	MTR Reprocessing Plant ILW	ILW	0	2.2	1.3	1.1
5B327	Low Alpha RHILW Silo LLW	LLW	0	0.9	17.2	13.7
5B328	Low Alpha RHILW Silo ILW	ILW	0	1,240	708	620
5B329	CHILW Retrievable Drum Store LLW	LLW	0	3.2	61.7	49.3
5B330	CHILW Retrievable Drum Store ILW	ILW	0	0.5	0.3	0.3
5B331	RHILW Retrievable Drum Store LLW	LLW	0	23.3	454	363
5B332	RHILW Retrievable Drum Store ILW	ILW	0	14.1	8.1	7.0
5B333	DCP Vault Store and Extension LLW	LLW	0	24.8	483	386
5B334	DCP Vault Store and Extension ILW	ILW	0	35.3	20.2	17.7
5B335	Analytical Laboratories LLW	LLW	9.8	45.4	885	708
5B336	Analytical Laboratories ILW	ILW	11.4	58.8	33.6	26.9
5B337	Decontamination and Waste Services LLW	LLW	0	24.3	473	378
5B338	Decontamination and Waste Services ILW	ILW	0	0.5	0.3	0.2
5B339	PIE Facility LLW	LLW	12.4	16.4	320	256
5B341	Pu Fuels Examination Facility LLW	LLW	0	4.7	92.3	73.8
5B342	Pu Fuels Examination Facility ILW	ILW	2.0	75.2	42.9	32.6
5B343	Other Facilities Decommissioning LLW	LLW	3.0	27.1	528	422
5B344	Other Facilities Decommissioning ILW	ILW	0	43.4	24.8	17.4
5B345	Service Corridor and Tank Farm LLW	LLW	0	0.9	18.1	14.5
5B347	MTR Fuel Fabrication Plant LLW	LLW	76.6	15.4	301	241
5B347/C	Conditioned MTR Fuel Fabrication Plant LLW	LLW	31.2	2.0	39.0	31.2
5B348	Effluent Treatment Plant LLW	LLW	0	120	2,330	1,870
5B349	Uranium Recovery Plant LLW	LLW	0	24.3	474	379
5B350	Uranium Recovery Plant ILW	ILW	0	24.0	13.7	9.6
5B351	Changerooms LLW	LLW	0	<0.1	<0.1	<0.1
5B352	Waste Receipt, Assay, Characterisation and Supercompaction Facility LLW	LLW	0	13.9	272	217
5B353	Active Laundry LLW	LLW	0	1.0	19.7	15.8

Site Owner – Waste Custodian - Site		Waste type	Waste volume at 1.4.2007 (m^3)	When all wastes at 1.4.2007 and future arisings are packaged		
Stream Identifier	Title			Number of packages	Packaged volume (m^3)	Conditioned volume (m^3)
5B354	PFR SDP Ion Exchange Columns	ILW	3.4	19.0	10.8	9.5
5B355	High Volume Low Activity Decommissioning Waste	LLW	2,050.0	2,030	39,600	31,700
5B356	PFR Absorbers	ILW	3.3	6.6	3.8	3.3
5B357	DFR Pond Ion Exchange Columns	ILW	0	8.0	4.6	4.0
5B358	Previously Disposed LLW to be Retrieved	LLW	0	3,360	65,600	52,400
Nuclear Decommissioning Authority - United Kingdom Atomic Energy Authority - Harwell						
5C02	Stored Legacy ILW Sludges	ILW	55.0	183	105	88.0
5C02/C	Encapsulated ILW Sludges	ILW	4.0	8.3	4.8	4.0
5C08	ILW Sea Disposal Packages	ILW	862.0	597	2,250	1,770
5C18	Stored Legacy ILW Liquors	ILW	1.0	5.6	3.2	2.1
5C18/C	Encapsulated ILW Liquors	ILW	38.5	99.7	57.0	38.5
5C30	Harwell Remote Handled ILW	ILW	179.0	573	327	229
5C33	Harwell Contact Handled ILW	ILW	807.7	2,020	1,150	809
5C38	Radiochemical Lab Operational LLW	LLW	10.4	1.6	31.5	25.2
5C39	Operational LLW	LLW	137.5	8.8	172	137
5C41	Operational LLW Sludge	LLW	40.0	12.3	239	191
5C45	GLEEP Fuel	ILW	1.9	43.2	24.7	17.3
5C46	Uranic Residues	ILW	5.0	11.5	6.6	5.1
5C47	Organic Wastes	LLW	15.0	0	0	0
5C49	Ionium Sludge	ILW	0.9	14.1	8.0	7.0
5C50	Dragon Fuel	ILW	3.4	8.5	4.9	3.4
5C51	LLW Sea Disposal Packages	LLW	15.6	1.6	30.4	24.3
5C52	Processed RHILW	ILW	62.5	156	89.2	62.5
5C53	Stored Legacy LLW Sludges	LLW	17.0	3.3	65.0	52.0
5C53/C	Encapsulated LLW Sludges	LLW	2.0	0.2	4.8	3.8
5C54	Zenith Fuel	ILW	1.0	3.1	1.8	1.2
5C300	High Volume Low Activity Waste from Decommissioning and Site Remediation	LLW	0	8,250	161,000	129,000
5C301	BEPO Research Reactor LLW	LLW	0	83.6	1,630	1,300
5C302	BEPO Research Reactor ILW	ILW	0	92.0	941	806
5C303	Radiochemical Building Decommissioning LLW	LLW	22.8	117	2,290	1,830
5C304	Radiochemical Laboratory Decommissioning RHILW & CHILW	ILW	0	239	136	106
5C305	Dido Reactor Decommissioning LLW	LLW	0	13.7	266	213
5C306	Dido Reactor Decommissioning ILW	ILW	0.2	15.5	153	60.2
5C307	Pluto Reactor Decommissioning LLW	LLW	5.2	14.3	278	223
5C308	Pluto Reactor Decommissioning ILW	ILW	0	12.1	119	47.0
5C309	Minor Decommissioning LLW Arisings	LLW	77.5	49.2	959	768
5C310	Decommissioning Other Facilities ILW	ILW	0	114	64.9	52.5
5C311	GLEEP LLW	LLW	1,828.0	105	2,060	1,650
5C312	Western Storage Area LLW	LLW	40.0	5.6	108	86.7
5C313	Co60 Ponds Decommissioning LLW	LLW	0	10.0	195	156
5C314	LETP Decommissioning LLW	LLW	0	159	3,090	2,470
5C315	Active Handling Facility Decommissioning LLW	LLW	0	23.7	462	370
5C316	Solid Waste Complex Decommissioning LLW	LLW	0	253	4,920	3,940
Nuclear Decommissioning Authority - United Kingdom Atomic Energy Authority - Windscale						
5F02	Mixed Trash from PIE Work and Supporting Operations	LLW	0	50.6	987	790
5F09	Waste from P.I.E. Operations	ILW	43.8	89.5	76.7	53.7
5F10/C	WAGR Stringer Graphite Debris - Conditioned	ILW	34.6	6.0	71.1	34.6
5F11	Windscale Uranic Residues	ILW	0.1	0.3	0.2	0.1
5F300	Windscale Contaminated Land	LLW	0	1,000	19,500	15,600

Site Owner – Waste Custodian - Site		Waste type	Waste volume at 1.4.2007 (m^3)	When all wastes at 1.4.2007 and future arisings are packaged		
Stream Identifier	**Title**			**Number of packages**	**Packaged volume (m^3)**	**Conditioned volume (m^3)**
5F301	Windscale Pile 1 LLW	LLW	0	352	6,860	5,490
5F302	Windscale Pile1 and Pile 2 Graphite and Aluminium Charge Pans	ILW	0	420	8,420	2,960
5F303	Windscale Pile 2 LLW	LLW	0	299	5,830	4,660
5F304	Windscale Piles Fuel and Isotopes	ILW	0	168	96.0	63.9
5F307	Windscale Advanced Gas-Cooled Reactor (WAGR) Decommissioning LLW	LLW	0	642	9,720	6,410
5F307/C	Conditioned Windscale Advanced Gas-Cooled Reactor (WAGR) Decommissioning LLW	LLW	17.3	3.0	35.6	17.3
5F308	Windscale Advanced Gas-Cooled Reactor (WAGR) Decommissioning ILW	ILW	10.0	96.2	1,140	554
5F308/C	Conditioned WAGR Decommissioning ILW	ILW	662.4	115	1,360	662
5F309	AGR Examination Caves LLW	LLW	0	28.5	555	444
5F310	AGR Examination Caves ILW	ILW	0	0.5	10.1	5.5
5F311	Other Facilities Decommissioning LLW	LLW	0	1,100	21,400	17,200
5F312	Other Facilities Decommissioning ILW	ILW	1.0	13.0	254	166
5F313	Windscale Piles Miscellaneous ILW	ILW	6.8	279	5,580	3,040
Nuclear Decommissioning Authority - United Kingdom Atomic Energy Authority - Winfrith						
5G01	Miscellaneous Reactor Hardware ILW	ILW	0.8	1.8	18.2	6.2
5G03	SGHWR Sludges	ILW	329.8	940	537	470
5G03/C	Conditioned SGHWR Sludges	ILW	98.0	196	112	98.0
5G04	Miscellaneous ILW	ILW	0	2.4	1.4	0.1
5G10	ILW Sea Disposal Packages	ILW	3.3	7.1	4.0	3.3
5G11	LLW Sea Disposal Packages	LLW	23.8	1.5	29.7	23.8
5G16	Uncompactable Operational LLW	LLW	0	20.2	335	258
5G21	Uranic Residues	ILW	3.9	68.4	39.1	34.2
5G23	Winfrith Thorium Metal	ILW	1.0	84.5	48.2	42.2
5G300	Winfrith Contaminated Land	LLW	0	11.0	215	172
5G301	SGHWR Decommissioning LLW	LLW	0	523	8,660	6,670
5G302	SGHWR Decommissioning ILW	ILW	0	91.3	934	316
5G303	Dragon Reactor Decommissioning LLW	LLW	0	230	3,000	2,140
5G304	Dragon Reactor Decommissioning ILW	ILW	0	18.3	187	101
5G307	Other Facilities Decommissioning LLW	LLW	20.1	156	3,050	2,440
United Kingdom Atomic Energy Authority - United Kingdom Atomic Energy Authority - Culham						
5H06	LLW Soft Compactable Materials	LLW	50.0	38.1	743	595
5H07	LLW Hard Non-Compactable Materials	LLW	100.0	14.0	182	130
5H08	ILW Hard Non-Compactable Materials	ILW	15.0	32.2	18.4	15.0
5H09	ILW Soft Compactable Materials	ILW	20.0	10.7	109	48.1
5H301	JET Decommissioning Non-Activated ILW	ILW	0	15.2	155	68.3
5H302	JET Decommissioning Tritiated Non-Activated LLW	LLW	0	50.9	966	768
5H304	JET Decommissioning Tritiated Activated LLW	LLW	0	127	2,280	1,790
5H305	JET Decommissioning Concrete LLW	LLW	0	179	3,500	2,800
5H306	JET Decommissioning Activated ILW	ILW	0	59.0	603	265
5H307	LLW Organic Waste	LLW	0	0	0	0
Minor Waste Producers - Minor Waste Producers - Harwell						
6C31	NDS Contact Handled ILW	ILW	97.0	98.1	56.0	39.4
6C32	NDS Remote Handled ILW	ILW	0.5	1.6	0.9	0.7
6C37	National Disposal Service LLW	LLW	14.4	2.7	52.7	42.1
6C38	ICI Thoria Decommissioning Residues	LLW	3.0	0.5	9.9	7.9

Site Owner – Waste Custodian - Site		Waste type	Waste volume at 1.4.2007 (m^3)	When all wastes at 1.4.2007 and future arisings are packaged		
Stream Identifier	**Title**			**Number of packages**	**Packaged volume (m^3)**	**Conditioned volume (m^3)**
Minor Waste Producers - Minor Waste Producers - Various sites						
6H02	LLW (Minor Users)	LLW	0	604	11,800	9,320
Minor Waste Producers - Minor Waste Producers - Sheffield						
6J01	Contaminated Slag and Other Materials	LLW	450.0	13.0	324	277
Ministry of Defence - AWE plc - AWE Aldermaston						
7A07	Effluent Sludges/Floc	LLW	775.0	129	2,520	2,020
7A13	Sea Disposal Packs (Coffins)	ILW	478.0	1,020	581	478
7A21	Operational ILW Plutonium Contaminated	ILW	1,976.0	1,910	1,090	957
7A22	Operational ILW Tritium Hard Waste	ILW	27.0	48.3	27.6	24.2
7A24	Operational LLW Suitable for Disposal at the LLWR - Depleted/Natural Uranium	LLW	0	46.0	896	717
7A25	Operational Tritiated LLW Suitable for Disposal at the LLWR	LLW	0	28.6	558	447
7A26	Operational LLW Suitable for Disposal at the LLWR - Enriched Uranium	LLW	0	40.9	797	638
7A27	Operational LLW Suitable for Disposal at the LLWR - Plutonium	LLW	0	1,190	23,200	18,600
7A28	Operational LLW Suitable for Disposal at the LLWR - Miscellaneous Radionuclides	LLW	0	31.3	611	489
7A29	Uranium Contaminated Operations ILW	ILW	79.0	114	65.3	57.2
7A31	Operational ILW Tritiated (Water)	ILW	0	7.1	4.0	3.5
7A32	LLW Closed Sources	LLW	1.3	0.8	15.9	12.7
7A33	Radioactive Contaminated Land	LLW	348.0	340	6,640	5,310
7A34	LLW Contaminated Oil	LLW	16.0	1.1	21.3	17.0
7A35	ILW Contaminated Oil	ILW	2.6	0	0	0
7A36	Pyrochemical Wastes	ILW	21.1	45.3	25.9	21.1
7A37	Contaminated Mercury	LLW	5.6	0	0	0
7A39	ILW Closed Sources	ILW	<0.1	0	<0.1	<0.1
7A109	Decommissioning Waste from Reactors ILW	ILW	6.0	1.9	6.1	5.0
7A110	Decommissioning Waste Tritium Bearing ILW	ILW	7.0	72.1	41.2	36.0
7A111	Decommissioning Waste PCM ILW	ILW	1,680.0	4,760	2,720	2,380
7A112	Decommissioning LLW Suitable for Disposal at the LLWR - Natural / Depleted Uranium	LLW	0	144	2,810	2,250
7A113	Decommissioning LLW Suitable for Disposal at the LLWR - Tritiated	LLW	0	102	1,990	1,590
7A114	Decommissioning LLW Suitable for Disposal at the LLWR - Enriched Uranium	LLW	0	76.7	1,500	1,200
7A115	Decommissioning LLW Suitable for Disposal at the LLWR - Plutonium	LLW	0	348	6,790	5,430
7A116	Decommissioning LLW Suitable for Disposal at the LLWR - Miscellaneous	LLW	0	207	4,030	3,220
7A117	Decommissioning Waste Uranium Contaminated ILW	ILW	0	838	479	419
Ministry of Defence - Devonport Management Limited - HMNB Devonport						
7D22	Soft Trash from Nuclear Repair Activities	LLW	14.6	8.0	156	125
7D23	Hard Trash from Nuclear Repair Activities	LLW	9.4	9.2	180	144
7D24	ILW Reactor Components	ILW	3.0	0.7	14.4	11.5
7D26/C	Conditioned Low Level Ion Exchange Resin (excl. Plant Decontamination)	LLW	5.6	36.8	718	575
7D28	Low Level Waste Resin from Plant Decontamination (MODIX)	LLW	23.1	8.2	159	127
7D29	Intermediate Level Waste Resin from Plant Decontamination (MODIX)	ILW	19.6	4.4	84.9	67.9
7D30/C	Conditioned Sludge from Tank Cleaning Operations	LLW	1.8	3.4	67.2	53.7
7D31/C	Supercompacted Low Level Filters (from Effluent Treatment Processes)	LLW	3.2	1.4	27.6	22.1

Site Owner – Waste Custodian - Site		Waste type	Waste volume at 1.4.2007 (m^3)	When all wastes at 1.4.2007 and future arisings are packaged		
Stream Identifier	**Title**			**Number of packages**	**Packaged volume (m^3)**	**Conditioned volume (m^3)**
7D32	Intermediate Level Filters from Plant Decontamination Processes	ILW	0.4	0.1	1.9	1.5
7D33	TSSBN Refitting: Filters	LLW	0	0.1	1.9	1.5
7D34	Ion Exchange Resin from Primary Circuit Decontamination	LLW	2.1	2.5	48.5	38.8
7D35	Boronated LLW Ion Exchange Resin	LLW	0	0.9	17.3	13.9
7D36	Low level Waste - LLRF Ion Exchange Resin	LLW	0	0.3	5.2	4.2
7D37	Low Level Waste - LLRF Concentrate	LLW	0	0.3	6.5	5.2
7D38	Low Level Waste - PWR 1&2 Boron Concentrate	LLW	0	4.7	91.0	72.8
7D39/C	LLW Submarine Ion Exchange Resin	LLW	2.8	15.0	293	235
7D40	ILW PCD Ion Exchange Resin	ILW	1.4	5.6	109	87.4
7D41	ILW Submarine Ion Exchange Resin	ILW	4.2	6.0	118	94.3
7D90	Very Low Level Waste (VLLW) Generated from Nuclear Repair Activities	LLW	30.0	0	18,000	18,000
7D100	Solid LLW arising from Plant Decommissioning	LLW	46.8	4.1	80.2	64.1
Ministry of Defence - Babcock International Group - Rosyth Royal Dockyard						
7E22	Submarine Refitting Wastes (Soft Trash)	LLW	20.0	3.6	70.1	56.1
7E23	Metallic Waste	LLW	18.0	23.0	324	238
7E24	Intermediate Level Waste - Steel	ILW	5.0	0.5	7.0	5.0
7E26	Low Level Resin from Submarines & Effluent Treatment Plant	LLW	3.6	2.1	41.7	33.4
7E27	Submarine Ion Exchange Resin	ILW	2.1	1.0	18.6	14.9
7E28	Ion Exchange Resin from Submarine Decontamination Process	LLW	2.1	0.7	14.1	11.3
7E29	Intermediate Level Ion Exchange Resin (Decontamination)	ILW	16.8	5.8	113	90.4
7E101	Site and Facilities Decommissioning Waste: Steel and Building Rubble	LLW	72.0	12.6	221	173
Ministry of Defence - Ministry of Defence - Clyde Submarine Base						
7F22	Submarine Reactor Wastes (Non-metallic)	LLW	16.6	16.8	327	262
7F23	Submarine Reactor Wastes (Metallic LLW)	LLW	4.0	3.2	62.4	49.9
7F26/C	Conditioned Ion Exchange Resin from Nuclear Effluent Plants	LLW	0	10.2	199	159
7F28	Tritiated Desiccant	LLW	2.8	11.0	215	172
Ministry of Defence - Babcock and Ministry of Defence - Rosyth & Devonport (Submarines)						
7G102	Short-Lived ILW from Decommissioned Submarines	ILW	443.9	114	2,220	1,780
7G103	LLW from Decommissioned Submarines	LLW	570.2	146	2,850	2,280
7G104	Long-Lived ILW from Decommissioned Submarines	ILW	195.9	69.3	1,390	561
Ministry of Defence - Ministry of Defence - HMNB Portsmouth						
7J23	Miscellaneous LLW sent to LLWR	LLW	0.8	<0.1	0.4	0.3
7J25	Low Level Luminised Waste sent to LLWR	LLW	6.0	0.9	17.6	14.0
7J27	Intermediate Level Tritium Waste	ILW	0.1	0.3	0.2	0.2
Ministry of Defence - QinetiQ - Eskmeals						
7L02/C	Target Washings Contaminated with Depleted Uranium	LLW	0	5.0	2.3	2.0
7L03	Filters Contaminated with Depleted Uranium	LLW	1.2	<0.1	0.8	0.6
7L05	Redundant Equipment Contaminated with Depleted Uranium	LLW	5.0	12.5	40.3	35.0
Ministry of Defence - Ministry of Defence - DSDC North Donnington						
7N03	DSDA Donnington Miscellaneous LLW	LLW	0	1.5	28.8	23.0

Site Owner – Waste Custodian - Site		Waste type	Waste volume at 1.4.2007 (m^3)	When all wastes at 1.4.2007 and future arisings are packaged		
Stream Identifier	**Title**			**Number of packages**	**Packaged volume (m^3)**	**Conditioned volume (m^3)**
Ministry of Defence - Ministry of Defence - Defence Estates (Various)						
7S01	Contaminated Soil, Ash & Rubble	LLW	241.0	35.1	684	547
Ministry of Defence - Ministry of Defence - Dounreay (Vulcan)						
7V24	Metallic ILW from Vulcan	ILW	5.9	7.6	149	119
7V25	Resin from Decontamination Operations	ILW	2.6	0.4	6.9	5.5
7V26	Vulcan Supercompactable Drummed Low Level Waste	LLW	0	3.2	62.4	49.9
Ministry of Defence - Rolls Royce Marine Power Operations Limited - RRMPOL Derby						
7X01	RRMPOL Low Level Wastes	LLW	20.0	243	4,740	3,790
Ministry of Defence - BAE Systems Marine Limited - BAESM Barrow-in-Furness						
7Y01/C	Ion Exchange Resins	LLW	0	0	0	0
7Y02	Redundant Equipment	LLW	0	0	0	0
7Y100	Decommissioning of Redundant Facilities	LLW	0	2.6	50.0	40.0
Urenco - URENCO - Capenhurst						
8A01	Feed Filter Material	ILW	0.7	5.3	3.0	2.5
8A03	Contaminated Combustible Waste	LLW	17.5	0	4,470	4,470
8A04	Contaminated Non-Combustible Waste	LLW	5.8	0	776	776
8A101	Centrifuge Plant Decommissioning	LLW	12.0	0	262	262
Nuclear Decommissioning Authority - Magnox Electric Ltd - Berkeley Nuclear Licensed Site						
9A03	Ion Exchange Material	ILW	12.4	17.0	44.3	37.4
9A18	Desiccant ILW	ILW	10.3	54.2	31.0	25.5
9A25	Ion Exchange Material in Drums	ILW	13.5	18.5	48.2	40.7
9A27	Sludge	ILW	10.6	9.6	25.1	21.2
9A31	FED Graphite	ILW	150.7	62.8	206	166
9A32	FED Graphite	ILW	225.2	93.8	307	249
9A33	FED Graphite	ILW	265.2	110	362	293
9A34	FED Graphite	ILW	156.1	65.0	213	172
9A35	FED Graphite	ILW	65.1	27.1	88.8	71.9
9A36	Miscellaneous Contaminated Items	ILW	0.2	0.1	0.3	0.2
9A37	Miscellaneous Contaminated Items	ILW	0.2	0.1	0.2	0.2
9A38	Miscellaneous Contaminated Items	ILW	10.9	4.0	13.2	10.9
9A39	FED Magnox	ILW	16.0	6.6	21.7	17.6
9A40	FED Magnox	ILW	24.0	10.0	32.6	26.4
9A41	FED Magnox	ILW	28.0	11.7	38.2	30.9
9A42	FED Magnox	ILW	17.0	7.1	23.2	18.8
9A43	FED Magnox	ILW	7.0	2.9	9.5	7.7
9A44	Miscellaneous Activated Components	ILW	37.6	11.1	36.2	29.9
9A45	Miscellaneous Activated Components	ILW	10.0	0.6	12.4	11.7
9A46	Miscellaneous Activated Components	ILW	10.0	0.6	12.4	11.7
9A47	FED Stainless Steel	ILW	0.3	0.1	0.4	0.3
9A48	FED Stainless Steel	ILW	0.4	0.2	0.6	0.5
9A49	FED Stainless Steel	ILW	0.5	0.2	0.7	0.6
9A50	FED Stainless Steel	ILW	0.3	0.1	0.4	0.3
9A51	FED Stainless Steel	ILW	0.1	0.1	0.2	0.1
9A52	FED Zirconium	ILW	2.2	0.9	3.0	2.4
9A53	FED Zirconium	ILW	3.3	1.4	4.5	3.6
9A54	FED Zirconium	ILW	4.0	1.7	5.5	4.4

Site Owner – Waste Custodian - Site		Waste type	Waste volume at 1.4.2007 (m^3)	When all wastes at 1.4.2007 and future arisings are packaged		
Stream Identifier	**Title**			**Number of packages**	**Packaged volume (m^3)**	**Conditioned volume (m^3)**
9A55	FED Zirconium	ILW	2.4	1.0	3.2	2.6
9A56	FED Zirconium	ILW	1.0	0.4	1.4	1.1
9A57	Sludge (filter-precoat) from Berkeley Centre	ILW	48.5	52.7	138	116
9A58	Sludge (filter-precoat) from Berkeley Centre	ILW	14.3	15.5	40.6	34.2
9A59	Sludge (filter-precoat) from Berkeley Centre	ILW	0.5	0.5	1.4	1.2
9A60	FED Magnox from BC	ILW	0.7	0.3	0.9	0.7
9A61	FED Magnox from BC	ILW	61.9	25.8	84.4	68.3
9A62	FED Magnox from BC	ILW	1.9	0.8	2.6	2.1
9A63	FED Magnox from BC	ILW	0.1	<0.1	0.2	0.1
9A64	FED Magnox from BC	ILW	6.8	2.8	9.3	7.5
9A65	FED Magnox from BC	ILW	0.5	0.2	0.6	0.5
9A66	Miscellaneous Contaminated Items from BC	ILW	0.1	<0.1	0.1	0.1
9A67	Miscellaneous Contaminated Items from BC	ILW	0.1	<0.1	0.1	0.1
9A68	Miscellaneous Contaminated Items from BC	ILW	53.2	19.9	64.9	53.6
9A69	Miscellaneous Contaminated Items from BC	ILW	27.5	10.3	33.6	27.7
9A70	Miscellaneous Contaminated Items from BC	ILW	30.8	11.5	37.6	31.0
9A71	BPS ILW Sludge in Drums	ILW	38.6	35.1	91.6	77.2
9A72	BPS ILW Sludge in Drums	ILW	7.6	6.9	18.0	15.2
9A73	Contaminated Gravel	ILW	47.0	17.4	57.0	47.0
9A74	Contaminated Gravel	ILW	47.0	17.4	57.0	47.0
9A75	Contaminated Gravel	ILW	47.0	17.4	57.0	47.0
9A76	Contaminated Gravel	ILW	21.6	8.0	26.2	21.6
9A77	BPS Sludge in Drums	ILW	13.5	12.3	32.0	27.0
9A78	BPS Sludge in Drums	ILW	12.7	11.5	30.1	25.4
9A80	Drummed Sludge	ILW	4.7	4.3	11.1	9.4
9A81	Vaults Furniture	LLW	0	1.8	35.0	28.0
9A82	Ion Exchange Material in Drums	ILW	3.0	4.1	10.7	9.0
9A83	Miscellaneous Contaminated Items	ILW	0.1	<0.1	0.2	0.1
9A84	Miscellaneous Contaminated Items from BC	ILW	0.1	0.1	0.2	0.1
9A85	Desiccant LLW	LLW	0.7	0.1	2.2	1.8
9A86	AETP SPF Aloxite	LLW	8.5	1.0	18.6	14.9
9A916	Care & Maintenance Preparation : Empty BPS Sludge Cans	ILW	0	14.1	46.1	38.0
9A917	Care & Maintenance Preparation : Empty Drums and Liners	ILW	0	8.9	29.1	24.0
9A920	Care & Maintenance Preparation : Reactor LLW	LLW	3.8	0.6	11.6	9.3
9A921	Care & Maintenance Preparation : AETP and Decontamination LLW	LLW	106.1	46.8	913	731
9A923	Care & Maintenance Preparation : AETP Sludge	LLW	0	2.6	50.4	40.3
9A925	Care & Maintenance Preparation: Pond Sludge	LLW	2.5	0.7	13.5	10.8
9A927	Care & Maintenance Preparation : Vault Scabbling Wastes	LLW	0	6.2	120	96.0
9A928	Care & Maintenance Preparation: Contaminated Soil	LLW	0	8.3	163	130
9A929	Active Waste Vault Retrieval HEPA Filters	LLW	0	0.3	5.8	4.6
9A930	Care & Maintenance Preparation: Active Waste Vault Retrieval Decommissioning.	LLW	0	9.0	176	141
9A931	Active Waste Vault Retrieval: Secondary LLW	LLW	0	3.3	65.0	52.0
9A980	Care & Maintenance Preparation: Caesium Removal Plant Decommissioning.	LLW	12.2	4.1	79.1	63.2
9A105	Care & Maintenance : Reactor LLW	LLW	0	4.1	80.6	64.5
9A310	Final Dismantling & Site Clearance : Stainless Steel (Reactor) ILW	ILW	0	3.2	64.3	60.7
9A311	Final Dismantling & Site Clearance : Mild Steel (Reactor) ILW	ILW	0	16.7	334	315
9A312	Final Dismantling & Site Clearance : Miscellaneous Metal (Reactor) ILW	ILW	0	4.2	85.0	60.7
9A313	Final Dismantling & Site Clearance : Stainless Steel (Reactor) LLW	LLW	0	0.3	6.9	6.5

Site Owner – Waste Custodian - Site		Waste type	Waste volume at 1.4.2007 (m^3)	When all wastes at 1.4.2007 and future arisings are packaged		
Stream Identifier	Title			Number of packages	Packaged volume (m^3)	Conditioned volume (m^3)
9A314	Final Dismantling & Site Clearance : Mild Steel (Reactor) LLW	LLW	0	286	5,730	5,400
9A315	Final Dismantling & Site Clearance : Mild Steel (Non-Reactor) LLW	LLW	0	213	4,270	4,030
9A316	Final Dismantling & Site Clearance : Graphite LLW	LLW	0	2.0	40.8	38.4
9A317	Final Dismantling & Site Clearance : Concrete (Reactor and Non-Reactor) LLW	LLW	0	601	12,000	11,300
9A318	Final Dismantling & Site Clearance : Miscellaneous Metals and Materials (Reactor and Non-Reactor) LLW	LLW	0	107	2,140	2,010
9A319	Final Dismantling & Site Clearance : Secondary Wastes LLW	LLW	0	68.9	1,380	1,300
9A320	Final Dismantling & Site Clearance: Contaminated Soil LLW	LLW	0	3.1	61.8	58.3
9A321	Final Dismantling & Site Clearance: Graphite ILW	ILW	0	193	3,860	3,640
Nuclear Decommissioning Authority - Magnox Electric Ltd - Bradwell						
9B02	Ion Exchange Material	ILW	20.3	27.5	71.7	60.4
9B10	Reactor LLW	LLW	302.0	16.1	315	252
9B13	Desiccant	ILW	18.0	20.0	52.2	44.0
9B15	Sludge	ILW	18.0	16.4	42.7	36.0
9B16	Sludge	ILW	2.0	0.6	10.8	8.7
9B16/C	Sludge	LLW	34.4	4.7	90.9	72.7
9B17	Miscellaneous Contaminated Items	ILW	20.8	10.1	33.1	27.3
9B18	Miscellaneous Contaminated Items	ILW	32.3	13.7	45.0	37.1
9B19	FED Magnox	ILW	66.0	31.6	98.3	80.3
9B20	FED Magnox	ILW	55.0	26.3	81.9	66.9
9B21	FED Magnox	ILW	54.5	26.1	81.2	66.3
9B22	FED Magnox	ILW	55.0	28.1	87.9	71.7
9B23	FED Magnox	ILW	52.5	24.6	76.9	62.8
9B24	FED Magnox	ILW	46.5	22.2	69.3	56.6
9B25	FED Magnox	ILW	44.0	21.0	65.5	53.5
9B26	FED Magnox	ILW	46.4	22.2	69.1	56.4
9B28	Miscellaneous Activated Components - R1	ILW	81.0	5.0	100	94.5
9B29	Miscellaneous Activated Components - R2	ILW	81.0	5.0	100	94.5
9B30	Miscellaneous Activated Components - R1	ILW	3.2	0.2	4.0	3.7
9B31	Miscellaneous Activated Components - R2	ILW	3.2	0.2	4.0	3.7
9B33	Contaminated Gravel	ILW	2.0	0.9	2.8	2.3
9B34	Contaminated Gravel	ILW	2.9	1.3	4.1	3.4
9B35	Contaminated Gravel	ILW	2.8	1.2	3.9	3.2
9B36	Contaminated Gravel	ILW	2.9	1.3	4.1	3.4
9B37	Contaminated Gravel	ILW	2.8	1.2	3.9	3.2
9B38	Contaminated Gravel	LLW	1.6	0.1	2.0	1.6
9B39	Contaminated Gravel	LLW	1.6	0.1	2.0	1.6
9B40	Contaminated Gravel	ILW	1.1	0.5	1.6	1.3
9B41	Contaminated Gravel	ILW	1.1	0.5	1.6	1.3
9B42	Contaminated Gravel	ILW	1.1	0.5	1.6	1.3
9B43	Operational Waste: Contaminated Soil	LLW	1.0	0.1	1.4	1.1
9B48	Asbestos LLW	LLW	180.0	12.0	234	187
9B51	Ponds and Laundry LLW	LLW	152.0	6.8	133	106
9B52	Flask Washdown Bay LLW	LLW	12.6	1.0	20.0	16.0
9B53	Fuel Skips in Pond	ILW	210.0	13.5	263	210
9B55	Pond Skip Decontamination Sludge	ILW	0.2	0.7	1.8	1.5
9B56	FED Magnox	ILW	33.9	16.2	50.5	41.2
9B57	FED Magnox	ILW	43.5	20.8	64.8	52.9
9B58	FED Magnox	ILW	48.5	23.2	72.3	59.0

Site Owner – Waste Custodian - Site		**Waste type**	**Waste volume at 1.4.2007 (m^3)**	**When all wastes at 1.4.2007 and future arisings are packaged**		
Stream Identifier	**Title**			**Number of packages**	**Packaged volume (m^3)**	**Conditioned volume (m^3)**
9B59	FED Magnox	ILW	12.1	5.8	18.0	14.7
9B60	Contaminated Gravel	ILW	2.8	1.2	3.9	3.2
9B61	Contaminated Gravel	ILW	2.8	1.2	3.9	3.2
9B62	Contaminated Gravel	ILW	2.7	1.2	3.8	3.2
9B63	Contaminated Gravel	ILW	2.7	1.2	3.8	3.2
9B64	Ion Exchange Resin PWTP	ILW	0	6.7	17.4	14.7
9B65	Sand and Gravel in Sand Pressure Filters - PWTP	ILW	0	4.3	11.5	9.6
9B910	Care & Maintenance Preparation : Reactor LLW	LLW	0	374	7,300	5,840
9B913	Care & Maintenance Preparation : Pond Scabbling Wastes	ILW	0	43.2	141	117
9B914	Care & Maintenance Preparation : miscellaneous Contaminated Items PWTP & AETP decommissioning	ILW	0	82.9	271	224
9B915	Care & Maintenance Preparation: Miscellaneous Activated Components	ILW	0	5.3	107	76.2
9B916	Care & Maintenance Preparation: Miscellaneous Activated Components Circulator Hall Waste	ILW	0	0.8	16.4	11.7
9B951	Care & Maintenance Preparation : Ponds and Laundry LLW	LLW	0	12.0	234	187
9B960	Care & Maintenance Preparation: Redundant Sealed Sources	LLW	0.1	<0.1	0.1	0.1
9B105	Care & Maintenance : Reactor LLW	LLW	0	5.3	103	82.2
9B310	Final Dismantling & Site Clearance: Stainless Steel (Reactor) ILW	ILW	0	10.3	206	195
9B311	Final Dismantling & Site Clearance: Mild Steel (Reactor) ILW	ILW	0	25.4	509	481
9B312	Final Dismantling & Site Clearance : Graphite ILW	ILW	0	186	3,730	3,520
9B313	Final Dismantling & Site Clearance : Miscellaneous Metal (Reactor) ILW	ILW	0	0.4	8.7	8.2
9B314	Final Dismantling & Site Clearance : Mild Steel (Reactor) LLW	LLW	0	197	3,940	3,720
9B315	Final Dismantling & Site Clearance : Mild Steel (Non-Reactor) LLW	LLW	0	229	4,580	4,320
9B316	Final Dismantling & Site Clearance : Graphite LLW	LLW	0	13.3	266	250
9B317	Final Dismantling & Site Clearance : Concrete (Reactor and Non-Reactor) LLW	LLW	0	1,490	29,900	28,200
9B318	Final Dismantling & Site Clearance : Miscellaneous Metals and Materials (Reactor and Non-Reactor) LLW	LLW	0	38.6	774	729
9B319	Final Dismantling & Site Clearance : Secondary Wastes LLW	LLW	0	64.1	1,280	1,210
9B320	Final Dismantling & Site Clearance : Stainless Steel (Reactor) LLW	LLW	0	<0.1	0.2	0.2
9B321	Final Dismantling & Site Clearance : Contaminated Soil LLW	LLW	0	80.2	1,610	1,510
Nuclear Decommissioning Authority - Magnox Electric Ltd - Dungeness A						
9C02	PWTP Ion Exchange Material	ILW	28.9	41.3	108	90.8
9C11	Reactor and Boiler Systems LLW	LLW	66.9	6.2	120	96.1
9C12	Effluent Treatment Plant, Ponds and Decontamination LLW	LLW	63.5	7.1	138	110
9C13	Magnox Dissolution Plant LLW	LLW	64.3	3.5	68.5	54.8
9C14	Desiccant	ILW	0	10.2	26.7	22.5
9C15	Incinerator Ash	LLW	10.5	1.0	19.8	15.8
9C16	PWTP Sludge	ILW	9.0	9.2	24.0	20.2
9C17	Magnox Dissolution Plant Sludge	ILW	4.2	8.8	23.0	19.4
9C20	AETP Sludge	ILW	34.7	42.5	111	93.4
9C21	AETP Sludge	ILW	34.7	42.5	111	93.4
9C24	FED Magnox (Lugs)	ILW	19.0	0.3	0.9	0.8
9C25	FED Magnox (Lugs)	ILW	22.2	0.4	1.1	0.9
9C30	Miscellaneous Activated Components	ILW	51.9	3.2	64.4	60.8

Site Owner – Waste Custodian - Site		Waste type	Waste volume at 1.4.2007 (m^3)	When all wastes at 1.4.2007 and future arisings are packaged		
Stream Identifier	**Title**			**Number of packages**	**Packaged volume (m^3)**	**Conditioned volume (m^3)**
9C32	Miscellaneous Activated Components	ILW	8.4	0.5	10.4	9.8
9C33	Miscellaneous Activated Components	ILW	57.9	3.6	71.8	67.8
9C35	Miscellaneous Activated Components	ILW	6.2	0.4	7.7	7.3
9C36	Ion Exchange Resin from Ponds	ILW	24.5	35.6	92.9	78.4
9C38	Ion Siv Unit Pre Filters	ILW	1.1	14.5	8.7	4.4
9C39	Ion Siv Unit Cartridges	ILW	0.1	4.0	2.4	0.4
9C40	Ion Siv Unit Post Filters	ILW	0.7	22.0	13.2	6.6
9C41	Ion Siv Unit Pre Filters	ILW	0.7	11.0	6.6	3.3
9C42	Ion Siv Unit Cartridges	ILW	0.1	4.0	2.4	0.4
9C43	Ion Siv Unit Post Filters	ILW	0.9	26.0	15.6	7.8
9C44	Fuel Skips in Pond	ILW	0	5.6	110	87.9
9C45	Fuel Skips in Pond	ILW	0	4.9	95.9	76.7
9C47	Nimonic Springs and Thermocouples	ILW	0.1	<0.1	0.1	0.1
9C48	Pond Skip Decontamination Sludge	ILW	0	1.6	4.3	3.6
9C49	Pond Skip Decontamination Sludge	ILW	0	1.4	3.6	3.0
9C50	Asbestos and Man-Made Mineral Fibre LLW	LLW	0	13.2	257	206
9C51	Contaminated Zinc Bromide	LLW	<0.1	<0.1	<0.1	<0.1
9C52	Contaminated Sand	LLW	1.1	0.9	17.9	14.3
9C53	Miscellaneous Contaminated Items	ILW	4.0	1.5	4.8	4.0
9C54	Catalyst	ILW	0	2.5	6.5	5.5
9C55	Doulton Filters	ILW	0	1.6	5.1	4.2
9C56	Miscellaneous Activated Components	ILW	9.8	0.6	12.1	11.4
9C57	Miscellaneous Activated Components	ILW	8.3	0.5	10.3	9.7
9C58	Cationic Resin - AEWTP	LLW	0	0.8	16.3	13.0
9C59	Anionic Resin - AEWTP	LLW	0	0.8	16.3	13.0
9C61	Contaminated Sand from AETP and PWTP Sand Filters	LLW	0	1.8	34.4	27.5
9C62	Contaminated Gravel from AETP and PWTP Sand Filter	LLW	0	0.4	7.5	6.0
9C911	Care & Maintenance Preparation : Reactor and Boiler Systems LLW	LLW	0	124	2,420	1,930
9C912	Care & Maintenance Preparation : Effluent Treatment Plant, Ponds and Decontamination LLW	LLW	0	55.9	1,090	872
9C944	Care and Maintenance Preparation : Contaminated Insulation	LLW	0	7.6	148	118
9C945	Care & Maintenance Preparations : Pond Scabblings	LLW	0	4.5	88.6	70.9
9C946	Care & Maintenance Preparations : Pond Scabblings	LLW	0	4.5	88.6	70.9
9C950	Redundant Sealed Sources	LLW	0	0.1	1.6	1.3
9C105	Care & Maintenance : Reactor and Boiler Systems LLW	LLW	0	5.7	111	88.4
9C310	Final Dismantling & Site Clearance : Stainless Steel (Reactor) ILW	ILW	0	8.8	177	167
9C311	Final Dismantling & Site Clearance : Mild Steel (Reactor) ILW	ILW	0	28.1	564	532
9C312	Final Dismantling & Site Clearance : Graphite ILW	ILW	0	211	4,230	3,990
9C313	Final Dismantling & Site Clearance : Stainless Steel (Reactor) LLW	LLW	0	0.1	2.0	1.9
9C314	Final Dismantling & Site Clearance : Mild Steel (Reactor) LLW	LLW	0	203	4,070	3,830
9C315	Final Dismantling & Site Clearance : Mild Steel (Non-Reactor) LLW	LLW	0	223	4,460	4,200
9C317	Final Dismantling & Site Clearance : Concrete (Reactor and Non-Reactor) LLW	LLW	0	851	17,000	16,100
9C318	Final Dismantling & Site Clearance : Miscellaneous Metals and Materials (Reactor and Non-Reactor) LLW	LLW	0	47.2	944	890
9C319	Final Dismantling & Site Clearance : Secondary Wastes LLW	LLW	0	62.9	1,260	1,190
9C320	Final Dismantling & Site Clearance : Miscellaneous Metals (Reactor) ILW	ILW	0	<0.1	0.1	0.1

Site Owner – Waste Custodian - Site		**Waste type**	**Waste volume at 1.4.2007 (m^3)**	**When all wastes at 1.4.2007 and future arisings are packaged**		
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9C321	Final Dismantling & Site Clearance : Contaminated Soil LLW	LLW	0	57.4	1,150	1,080
Nuclear Decommissioning Authority - Magnox Electric Ltd - Hinkley Point A						
9D11	Incinerator Ash	LLW	5.0	0.2	3.3	2.6
9D15/C	PWTP Fine Filters LLW	LLW	2.0	0.3	5.4	4.3
9D17	PWTP Fine Filters (ILW)	ILW	34.5	30.6	100	82.7
9D18	Desiccant	ILW	4.5	10.4	27.2	23.0
9D22	Sludge	ILW	22.2	32.0	83.6	70.5
9D23	Sludge	ILW	2.4	6.6	17.2	14.5
9D24	Sludge	ILW	10.9	17.0	44.4	37.4
9D25	Ion Exchange Material	ILW	37.2	51.0	133	112
9D26	Ion Exchange Material	ILW	13.0	17.8	46.5	39.2
9D27	Ion Exchange Material	ILW	26.7	36.6	95.5	80.5
9D28	Ion Exchange Material	ILW	25.5	35.9	93.8	79.1
9D29	Ion Exchange Material	ILW	24.3	44.3	115	97.4
9D30	Miscellaneous Contaminated Items	ILW	25.7	9.5	31.2	25.7
9D31	Fuel Skips (ILW)	ILW	113.0	14.4	45.6	37.7
9D32	Contaminated Sand	ILW	1.0	0.9	2.4	2.0
9D33	FED Magnox R1	ILW	207.0	85.9	281	228
9D34	FED Magnox R2	ILW	218.0	90.5	296	240
9D35	Miscellaneous Activated Components R1	ILW	68.0	4.2	84.1	79.3
9D36	Miscellaneous Activated Components - R2	ILW	68.0	4.2	84.1	79.3
9D37	Miscellaneous Activated Components R1	ILW	2.1	0.1	2.6	2.5
9D38	Miscellaneous Activated Components R2	ILW	2.1	0.1	2.6	2.5
9D39	FED Nimonic R1	ILW	0.4	0.2	0.5	0.4
9D40	FED Nimonic R2	ILW	0.4	0.2	0.5	0.4
9D41	FED Magnox - R1	ILW	165.0	62.3	204	165
9D42	FED Magnox - R2	ILW	155.0	58.5	191	155
9D43	FED Nimonic - R1	ILW	0.1	<0.1	0.1	0.1
9D44	FED Nimonic - R2	ILW	0.1	<0.1	0.1	0.1
9D45	Contaminated Gravel - R1	ILW	10.0	3.7	12.1	10.0
9D46	Contaminated Gravel - R2	ILW	10.0	3.7	12.1	10.0
9D47	Contaminated Sand	ILW	6.8	6.2	16.1	13.6
9D48	Miscellaneous Contaminated Items	LLW	34.0	3.1	60.3	48.2
9D49	Ion Siv Unit Pre Filters	ILW	4.9	0.8	15.0	12.0
9D50	Ion Siv Unit Cartridges	ILW	0.3	5.3	17.5	14.4
9D51	Ion Siv Unit Post Filters	ILW	1.5	0.2	4.5	3.6
9D52	Miscellaneous Activated Components R1	ILW	6.0	2.2	7.3	6.0
9D53	Asbestos and MMMF LLW	LLW	480.0	16.0	312	250
9D54	Miscellaneous Activated Components R2	ILW	7.0	2.6	8.5	7.0
9D58	Fuel Skips	ILW	166.0	3.2	62.3	49.8
9D59	Fuel Skips	ILW	249.0	4.8	93.4	74.7
9D60	Sand in Sand Pressure Filters - PWTP	ILW	0	2.6	49.9	39.9
9D61	Fuel Skips (LLW)	LLW	68.0	1.3	25.5	20.4
9D62	Pond Skip Decontamination Sludge	ILW	0	1.2	3.1	2.6
9D63	Pond Skip Decontamination Sludge	ILW	0	1.9	5.0	4.2
9D64	Contaminated Gravel	ILW	6.6	2.4	8.0	6.6
9D65	Ion Exchange Material	ILW	3.4	4.7	12.2	10.2
9D66	Contaminated Gravel	ILW	2.2	0.8	2.7	2.2
9D67	FED Sludge - R1	ILW	5.0	4.5	11.9	10.0
9D68	FED Sludge - R2	ILW	5.0	4.5	11.9	10.0
9D69	FED Sludge - R1	ILW	10.0	9.1	23.7	20.0

Site Owner – Waste Custodian - Site		Waste type	Waste volume at 1.4.2007 (m^3)	When all wastes at 1.4.2007 and future arisings are packaged		
Stream Identifier	**Title**			**Number of packages**	**Packaged volume (m^3)**	**Conditioned volume (m^3)**
9D70	FED Sludge - R2	ILW	10.0	9.1	23.7	20.0
9D71	Ion Exchange Material	LLW	0	2.1	41.3	33.0
9D72	Sludge/resin from operational clean-up	ILW	0	1.7	4.5	3.8
9D73	Miscellaneous Activated Components R1	ILW	30.0	1.9	37.1	35.0
9D74	Miscellaneous Activated Components - R2	ILW	30.0	1.9	37.1	35.0
9D912	Care & Maintenance Preparation: Laundry LLW	LLW	0	3.5	68.3	54.6
9D913	Care & Maintenance Preparation: Pond & Effluent Treatment Plant LLW	LLW	20.0	267	5,200	4,160
9D914	Care & Maintenance Preparation : General Reactor LLW	LLW	10.0	165	3,220	2,570
9D916	Care & Maintenance Preparation : Decontamination Building LLW	LLW	10.0	28.3	552	441
9D917	Care & Maintenance Preparation: Sludge/Resin from Post Operational Clean Out	ILW	0	2.3	6.0	5.0
9D918	Care & Maintenance Preparation : Ponds and Magnox Vault Wall Scabblings	ILW	0	10.1	33.2	27.4
9D919	Care & Maintenance Preparation: Settling Tank Bitumen Linings	ILW	0	0.8	2.7	2.3
9D920	Care & Maintenance Preparation: Miscellaneous Decommissioning ILW from Plant Items.	ILW	0	3.7	12.1	10.0
9D921	Care & Maintenance Preparation: Sludge Canning Building Plant Items	ILW	0	0.7	2.4	2.0
9D922	Care & Maintenance Preparation: Sludge Canning Building Decommissioning	LLW	0	4.2	82.5	66.0
9D923	Care & Maintenance Preparation: Redundant Sealed Sources	LLW	1.0	0.1	1.6	1.3
9D924	Care & Maintenance Preparation: Contaminated Soil LLW	LLW	0	19.2	375	300
9D106	Care & Maintenance : General Reactor LLW	LLW	0	4.7	92.3	73.8
9D310	Final Dismantling & Site Clearance : Stainless Steel (Reactor) ILW	ILW	0	3.8	75.4	71.2
9D311	Final Dismantling & Site Clearance : Mild Steel (Reactor) ILW	ILW	0	23.7	475	448
9D312	Final Dismantling & Site Clearance : Graphite ILW	ILW	0	219	4,390	4,150
9D313	Final Dismantling & Site Clearance : Miscellaneous Metal (Reactor) ILW	ILW	0	0.7	14.8	14.0
9D314	Final Dismantling & Site Clearance : Mild Steel (Reactor) LLW	LLW	0	209	4,190	3,950
9D315	Final Dismantling & Site Clearance : Mild Steel (Non-Reactor) LLW	LLW	0	283	5,660	5,330
9D316	Final Dismantling & Site Clearance : Graphite LLW	LLW	0	2.9	58.1	54.8
9D317	Final Dismantling & Site Clearance : Concrete (Reactor and Non-Reactor) LLW	LLW	0	1,720	34,400	32,500
9D318	Final Dismantling & Site Clearance : Miscellaneous Metals and Materials (Reactor and Non-Reactor) LLW	LLW	0	85.3	1,710	1,610
9D319	Final Dismantling & Site Clearance : Secondary Wastes LLW	LLW	0	65.4	1,310	1,230
9D320	Final Dismantling & Site Clearance : Stainless Steel (Reactor) LLW	LLW	0	<0.1	0.1	0.1
9D321	Final Dismantling & Site Clearance : Contaminated Soil LLW	LLW	0	43.8	878	827
9D322	Reactor Neutron Sources R1	ILW	0	<0.1	0.6	0.6
9D323	Reactor Neutron Sources R2	ILW	0	<0.1	0.6	0.6
9D324	Debris in Debris Removal Ducts R1	ILW	0	0.1	1.2	1.2
9D325	Debris in Debris Removal Ducts R2	ILW	0	0.1	1.2	1.2
Nuclear Decommissioning Authority - Magnox Electric Ltd - Oldbury						
9E01	Sludge	ILW	13.9	22.9	59.8	55.0
9E13	AETP LLW	LLW	6.0	0.9	17.9	14.3
9E14	Ponds and Other Wet Fuel Routes LLW	LLW	4.8	0.9	18.0	14.4
9E17	Sludge	ILW	24.8	62.8	164	151

A4 List of Waste Streams in the Inventory and their Volumes

Site Owner – Waste Custodian - Site		Waste type	Waste volume at 1.4.2007 (m^3)	When all wastes at 1.4.2007 and future arisings are packaged		
Stream Identifier	**Title**			**Number of packages**	**Packaged volume (m^3)**	**Conditioned volume (m^3)**
9E20	Ion Exchange Material	ILW	14.2	55.1	144	132
9E22	Miscellaneous Contaminated Items	ILW	4.0	3.0	9.7	8.0
9E23	Miscellaneous Contaminated Items	ILW	9.1	14.3	37.2	34.2
9E24	FED Magnox	ILW	81.4	30.7	101	81.4
9E25	FED Magnox	ILW	81.4	30.7	101	81.4
9E26	FED Magnox	ILW	85.3	32.2	105	85.3
9E27	FED Magnox	ILW	85.3	32.2	105	85.3
9E28	FED Magnox	ILW	40.2	28.8	94.4	76.4
9E31	Miscellaneous Activated Components	ILW	41.8	3.1	61.6	58.1
9E32	Miscellaneous Activated Components	ILW	68.6	4.3	86.0	81.2
9E39	Miscellaneous Activated Components	ILW	1.0	0.1	1.6	1.5
9E40	FED Nimonic	ILW	0.1	<0.1	0.1	0.1
9E41	FED Nimonic	ILW	0.2	0.1	0.2	0.2
9E43	FED Nimonic	ILW	0.1	<0.1	0.1	0.1
9E45	Sludge	ILW	15.6	29.4	76.8	70.6
9E47	Desiccant	ILW	6.2	6.2	16.2	14.9
9E49	Contaminated Gravel	ILW	4.0	1.5	4.8	4.0
9E50	Contaminated Gravel	ILW	4.0	1.5	4.8	4.0
9E55	IONSIV Unit Pre Filters	ILW	3.4	34.0	20.4	10.2
9E56	IONSIV Unit Cartridges	ILW	0.3	9.1	29.8	24.5
9E57	IONSIV Unit Post Filters	ILW	0.9	9.0	5.4	2.7
9E58	Dry Fuel Route (excl BCD) LLW	LLW	22.2	3.4	65.5	52.4
9E59	BCD LLW	LLW	0.5	0.1	1.1	0.9
9E60	Active Waste Store, Active Laundry LLW	LLW	2.8	0.5	9.2	7.3
9E61	Fuel Skips in Pond	ILW	0	3.8	73.3	58.7
9E62	Pond Skip Decontamination Sludge	ILW	0	3.3	8.5	7.8
9E913	Care & Maintenance Preparation : AETP LLW	LLW	0	99.5	1,940	1,550
9E914	Care & Maintenance Preparation : Ponds and Other Wet Fuel Routes LLW	LLW	0	70.8	1,380	1,100
9E958	Care & Maintenance Preparation : Dry Fuel Route (excluding BCD) LLW	LLW	0	310	6,040	4,830
9E959	Care & Maintenance Preparation : BCD LLW	LLW	0	0.1	1.5	1.2
9E960	Care & Maintenance Preparation : Active Waste Store, Active Laundry LLW	LLW	0	3.8	74.5	59.6
9E104	Care & Maintenance : Dry Fuel Route LLW	LLW	0	5.7	112	89.4
9E310	Final Dismantling & Site Clearance : Stainless Steel (Reactor) ILW	ILW	0	9.1	183	99.6
9E311	Final Dismantling & Site Clearance : Mild Steel (Reactor) ILW	ILW	0	9.3	186	176
9E312	Final Dismantling & Site Clearance : Stainless Steel (Reactor) LLW	LLW	0	3.4	67.6	63.7
9E313	Final Dismantling & Site Clearance : Mild Steel (Reactor) LLW	LLW	0	504	10,100	9,510
9E315	Final Dismantling & Site Clearance : Graphite LLW	LLW	0	131	2,630	2,480
9E316	Final Dismantling & Site Clearance : Concrete (Reactor and Non-Reactor) LLW	LLW	0	299	5,990	5,650
9E317	Final Dismantling & Site Clearance : Miscellaneous Metals and Materials (Reactor and Non-Reactor) LLW	LLW	0	6.1	122	115
9E318	Final Dismantling & Site Clearance : Secondary Wastes LLW	LLW	0	74.4	1,490	1,410
9E319	Final Dismantling & Site Clearance : Graphite ILW	ILW	0	179	3,590	3,390
9E320	Final Dismantling & Site Clearance : Miscellaneous Metals (Reactor) ILW	ILW	0	<0.1	0.1	0.1
9E321	Final Dismantling & Site Clearance : Contaminated Soil LLW	LLW	0	61.7	1,240	1,170

Site Owner – Waste Custodian - Site		Waste type	Waste volume at 1.4.2007 (m^3)	When all wastes at 1.4.2007 and future arisings are packaged		
Stream Identifier	**Title**			**Number of packages**	**Packaged volume (m^3)**	**Conditioned volume (m^3)**
Nuclear Decommissioning Authority - Magnox Electric Ltd - Sizewell A						
9F02	Ion Exchange Material	LLW	2.0	0.8	16.3	13.0
9F10	Reactor Area LLW	LLW	10.5	2.1	40.4	32.4
9F11	Ponds and Effluent Treatment Plant LLW	LLW	55.1	10.8	210	168
9F12	Active Laundry LLW	LLW	0.7	0.1	2.4	1.9
9F13	Incinerator Ash and Other Debris	LLW	0.9	0.2	3.1	2.5
9F14	Desiccant and Catalyst from Gas Conditioning Plant	ILW	9.9	39.6	22.6	19.8
9F17	Sludge	LLW	7.0	6.0	118	94.3
9F18	Miscellaneous Drummed Contaminated and Activated Items	ILW	90.0	5.6	111	105
9F19	Miscellaneous Drummed Contaminated and Activated Items	LLW	50.2	3.1	62.1	58.5
9F20	FED Magnox	ILW	122.0	50.6	166	134
9F21	FED Magnox	ILW	144.0	59.8	196	158
9F22	FED Magnox	ILW	20.0	8.3	27.2	22.0
9F25	Miscellaneous Activated Components	ILW	145.8	9.2	184	174
9F26	Miscellaneous Activated Components - R1	ILW	142.0	8.8	177	167
9F27	Miscellaneous Activated Components - R2	ILW	113.0	7.0	141	133
9F28	Shield Cooling Air Filters - R1	LLW	12.7	0.8	15.7	14.8
9F29	Shield Cooling Air Filters - R2	LLW	15.6	1.0	19.3	18.2
9F31	Ion Siv Unit Pre Filters	LLW	4.4	0.3	6.7	5.4
9F32	Ion Siv Unit Cartridges	ILW	0.3	216	4.8	0.7
9F33	Ion Siv Unit Post Filters	LLW	0.9	0.1	1.3	1.0
9F37	Sludge	LLW	1.0	4.0	77.1	61.7
9F38	PWTP Filters - Sand and Gravel	ILW	0	0.6	11.9	9.5
9F39	Fuel Skips in Pond	ILW	0	13.3	260	208
9F42	AETP Filters - Sand and Gravel	ILW	3.6	1.4	28.1	22.5
9F43	FED Nimonic	ILW	<0.1	0.4	0.2	<0.1
9F910	Care & Maintenance Preparation : Reactor Area LLW	LLW	0	253	4,930	3,950
9F911	Care & Maintenance Preparation : Ponds and Effluent Treatment Plant LLW	LLW	0	190	3,700	2,960
9F950	Care & Maintenance Preparation : Redundant Sealed Sources	LLW	0	<0.1	0.6	0.5
9F105	Care & Maintenance LLW	LLW	0	5.5	108	86.3
9F310	Final Dismantling & Site Clearance : Stainless Steel (Reactor) ILW	ILW	0	1.2	23.5	22.2
9F311	Final Dismantling & Site Clearance : Mild Steel (Reactor) ILW	ILW	0	24.6	492	464
9F312	Final Dismantling & Site Clearance : Graphite ILW	ILW	0	223	4,460	4,210
9F313	Final Dismantling & Site Clearance : Miscellaneous Metal (Reactor) ILW	ILW	0	0.1	3.0	2.8
9F314	Final Dismantling & Site Clearance : Stainless Steel (Reactor) LLW	LLW	0	0.1	1.5	1.4
9F315	Final Dismantling & Site Clearance : Mild Steel (Reactor) LLW	LLW	0	228	4,560	4,300
9F316	Final Dismantling & Site Clearance : Mild Steel (Non-Reactor) LLW	LLW	0	171	3,430	3,230
9F318	Final Dismantling & Site Clearance : Concrete (Reactor and Non-Reactor) LLW	LLW	0	783	15,700	14,800
9F319	Final Dismantling & Site Clearance : Miscellaneous Metals and Materials (Reactor and Non-Reactor) LLW	LLW	0	86.0	1,720	1,620
9F320	Final Dismantling & Site Clearance : Secondary Wastes LLW	LLW	0	64.4	1,290	1,220
9F321	Final Dismantling & Site Clearance : Contaminated Soil LLW	LLW	0	12.3	247	233

Site Owner – Waste Custodian - Site		Waste type	Waste volume at 1.4.2007 (m^3)	When all wastes at 1.4.2007 and future arisings are packaged		
Stream Identifier	**Title**			**Number of packages**	**Packaged volume (m^3)**	**Conditioned volume (m^3)**
Nuclear Decommissioning Authority - Magnox Electric Ltd - Trawsfynydd						
9G04/C	Ion Exchange Material Conditioned Waste	ILW	300.0	65.2	1,310	711
9G14	Desiccant	ILW	15.0	9.4	30.7	25.3
9G15	FED Drummed Magnox	ILW	39.6	13.0	260	142
9G16	Sludge	ILW	5.0	4.2	11.1	10.2
9G16/C	Sludge - Conditioned Material	ILW	67.2	28.0	73.1	67.2
9G17	Sludge	ILW	4.8	4.0	10.5	9.7
9G18/C	Ion Exchange Material - Conditioned Waste	ILW	656.0	143	2,860	1,550
9G19	Ion Exchange Material	ILW	19.9	14.2	285	155
9G19/C	Ion Exchange Material - Conditioned Waste	ILW	155.7	33.8	678	369
9G20/C	Ion Exchange Material - Conditioned Waste	ILW	188.0	40.9	818	772
9G21	Miscellaneous Contaminated Items	ILW	3.4	1.3	4.1	3.4
9G22	Miscellaneous Contaminated Items	ILW	2.9	1.1	3.5	2.9
9G23	Miscellaneous Contaminated Items	ILW	1.5	0.6	1.8	1.5
9G24	Miscellaneous Contaminated Items	ILW	5.1	1.9	6.2	5.1
9G25	Miscellaneous Contaminated Items	ILW	4.7	1.7	5.7	4.7
9G26	Miscellaneous Contaminated Items	ILW	4.8	1.8	5.8	4.8
9G34	FED Magnox	ILW	177.4	58.2	190	157
9G34/C	FED Magnox	ILW	13.5	5.0	16.4	13.5
9G35	FED Magnox	ILW	191.0	62.6	205	169
9G36	Miscellaneous Activated Components	ILW	0.5	0.2	0.6	0.5
9G36/C	Conditioned Miscellaneous Activated Components	ILW	43.2	16.0	52.4	43.2
9G37	Miscellaneous Activated Components	ILW	40.6	15.0	49.2	40.6
9G37/C	Conditioned Miscellaneous Activated Components	ILW	5.4	2.0	6.5	5.4
9G38	Miscellaneous Activated Components	ILW	21.0	1.3	26.0	24.5
9G39	Miscellaneous Activated Components	ILW	21.0	1.3	26.0	24.5
9G40	FED Nimonic	ILW	0.3	0.1	0.3	0.3
9G41	FED Nimonic	ILW	0.3	0.1	0.3	0.3
9G46	Miscellaneous Activated Components	ILW	22.5	7.5	23.6	19.8
9G48/C	Encapsulated Skips and Debris from Fuel Cooling Pond	ILW	8.1	3.0	9.8	8.1
9G50	Miscellaneous Activated Components	LLW	9.0	0.3	5.9	4.7
9G53	Miscellaneous Contaminated Items	LLW	1.4	0.1	1.8	1.4
9G55	Oil	ILW	1.8	3.9	2.2	1.8
9G56	Miscellaneous Contaminated Items	ILW	1.5	0.6	1.8	1.5
9G59	Miscellaneous Contaminated Items	LLW	14.2	0.9	17.8	14.2
9G63	Miscellaneous Contaminated Items	LLW	0.4	<0.1	0.5	0.4
9G64	Miscellaneous Contaminated Items	ILW	5.7	7.9	6.9	5.7
9G65	Ponds - Acceptance Bays	LLW	4.0	2.1	40.0	32.0
9G66	Miscellaneous Contaminated Items	LLW	28.4	1.8	35.5	28.4
9G68	Sludge Residues from base of Vault	ILW	5.0	4.2	11.1	10.2
9G69	Miscellaneous Contaminated Items - Debris from Fuel Cooling Ponds	ILW	0.7	0.2	0.8	0.7
9G70	Asbestos - Main Active Waste Vault	LLW	6.2	0.2	4.0	3.2
9G104	Care & Maintenance Preparation : Resin Vaults LLW	LLW	12.0	3.7	72.2	57.7
9G105	Care & Maintenance Preparation : Reactor LLW	LLW	204.0	29.5	575	460
9G106	Care & Maintenance Preparation : Ponds LLW	LLW	302.2	60.0	1,170	936
9G107	Care and Maintenance Preparation : Ion Exchange Material	ILW	27.3	21.6	433	236
9G109	Care & Maintenance Preparation : Pond Scabbling Wastes	LLW	11.0	40.0	780	624
9G110	Care & Maintenance : Reactor LLW	LLW	0	5.1	98.8	79.0
9G309	Final Dismantling & Site Clearance : Stainless Steel (Reactor) ILW	ILW	0	5.5	111	60.5
9G310	Final Dismantling & Site Clearance : Mild Steel (Reactor) ILW	ILW	0	71.5	1,430	1,350

Site Owner – Waste Custodian - Site		Waste type	Waste volume at 1.4.2007 (m^3)	When all wastes at 1.4.2007 and future arisings are packaged		
Stream Identifier	Title			Number of packages	Packaged volume (m^3)	Conditioned volume (m^3)
9G311	Final Dismantling & Site Clearance : Graphite ILW	ILW	0	212	4,240	4,000
9G312	Final Dismantling & Site Clearance : Miscellaneous Metal (Reactor) ILW	ILW	0	1.1	22.2	12.1
9G313	Final Dismantling & Site Clearance : Stainless Steel (Reactor) LLW	LLW	0	0.8	16.3	15.4
9G314	Final Dismantling & Site Clearance : Mild Steel (Reactor) LLW	LLW	0	301	6,030	5,680
9G315	Final Dismantling & Site Clearance : Mild Steel (Non-Reactor) LLW	LLW	0	214	4,300	4,050
9G316	Final Dismantling & Site Clearance : Graphite LLW	LLW	0	3.0	59.3	55.9
9G317	Final Dismantling & Site Clearance : Concrete (Reactor and Non-Reactor) LLW	LLW	0	2,670	53,500	50,400
9G318	Final Dismantling & Site Clearance : Miscellaneous Metals and Materials (Reactor and Non-Reactor) LLW	LLW	0	47.3	947	892
9G319	Final Dismantling & Site Clearance : Secondary Wastes LLW	LLW	0	67.4	1,350	1,270
9G320	Final Dismantling & Site Clearance : Contaminated Soil LLW	LLW	0	198	3,960	3,730
Nuclear Decommissioning Authority - Magnox Electric Ltd - Wylfa						
9H02	Desiccant	ILW	29.3	35.0	91.2	83.9
9H11	Pile Cap, Dry Fuel Store and Associated Areas LLW	LLW	50.0	7.7	150	120
9H12	Flask Handling Area, AETP and Laundry LLW	LLW	20.0	5.9	116	92.7
9H13	Incinerator Ash LLW	LLW	2.0	0.4	7.8	6.3
9H14	Auxiliary Gas Systems LLW	LLW	10.0	1.4	26.6	21.3
9H15	Sludge	LLW	7.9	1.4	27.5	22.0
9H16	Sludge	LLW	2.1	0.3	6.5	5.2
9H17	Sludge	LLW	2.1	0.3	6.5	5.2
9H18	Miscellaneous Activated Components	ILW	235.0	16.4	328	309
9H19	Miscellaneous Activated Components	ILW	235.0	16.4	328	309
9H20	Miscellaneous Activated Components	ILW	260.0	18.3	366	345
9H22	Asbestos LLW	LLW	10.0	0.6	12.5	10.0
9H911	Care & Maintenance Preparation : Pile Cap, Dry Fuel Store and Associated Areas LLW	LLW	0	5.3	103	82.1
9H912	Care & Maintenance Preparation : Flask Handling Area and AETP LLW	LLW	0	11.3	220	176
9H914	Care & Maintenance Preparation : Auxiliary Gas Systems LLW	LLW	0	5.7	110	88.2
9H922	Care & Maintenance Preparation : Mild Steel (Non-Reactor) LLW	LLW	0	68.8	1,340	1,070
9H923	Care & Maintenance Preparation : Concrete (Non-Reactor) LLW	LLW	0	29.5	575	460
9H924	Care & Maintenance Preparation : Miscellaneous Metals and Materials (Non-Reactor) LLW	LLW	0	0.3	6.5	5.2
9H926	Care & Maintenance Preparation : Redundant Sealed Sources	LLW	0	<0.1	0.8	0.7
9H104	Care & Maintenance LLW	LLW	0	6.3	124	98.8
9H309	Final Dismantling & Site Clearance : Stainless Steel (Reactor) ILW	ILW	0	5.5	110	78.8
9H310	Final Dismantling & Site Clearance : Mild Steel (Reactor) ILW	ILW	0	10.5	211	199
9H311	Final Dismantling & Site Clearance : Graphite ILW	ILW	0	339	6,790	6,410
9H312	Final Dismantling & Site Clearance : Stainless Steel (Reactor) LLW	LLW	0	2.1	42.2	39.7
9H313	Final Dismantling & Site Clearance : Mild Steel (Reactor) LLW	LLW	0	596	11,900	11,300
9H315	Final Dismantling & Site Clearance : Graphite LLW	LLW	0	205	4,110	3,870
9H316	Final Dismantling & Site Clearance : Concrete (Reactor and Non-Reactor) LLW	LLW	0	92.5	1,850	1,740
9H317	Final Dismantling & Site Clearance : Miscellaneous Metals and Materials (Reactor and Non-Reactor) LLW	LLW	0	7.8	156	147

Site Owner – Waste Custodian - Site		Waste type	Waste volume at 1.4.2007 (m^3)	When all wastes at 1.4.2007 and future arisings are packaged		
Stream Identifier	**Title**			**Number of packages**	**Packaged volume (m^3)**	**Conditioned volume (m^3)**
9H318	Final Dismantling & Site Clearance : Secondary Wastes LLW	LLW	0	97.0	1,940	1,830
9H319	Final Dismantling & Site Clearance : Miscellaneous Metals (Reactor) ILW	ILW	0	2.4	47.2	25.7
9H320	Final Dismantling & Site Clearance : Contaminated Soil LLW	LLW	0	6.2	124	117
9H321	Final Dismantling & Site Clearance : Charge Chutes (Reactor) LLW	LLW	0	68.1	1,360	1,280
Nuclear Decommissioning Authority - Magnox Electric Ltd - Hunterston A						
9J03	Ion Exchange Resins	ILW	7.2	9.0	23.5	21.6
9J18	FED Graphite	ILW	4.0	1.5	4.9	4.0
9J19	FED Graphite	ILW	501.3	189	619	501
9J20	FED Graphite	ILW	460.3	174	569	460
9J21	FED Graphite	ILW	447.2	169	552	447
9J22	FED Graphite	ILW	86.9	32.8	107	86.9
9J23	FED Magnox	ILW	563.7	226	723	592
9J24	FED Magnox	ILW	1.1	0.4	1.4	1.2
9J25	FED Magnox	ILW	0.4	0.2	0.5	0.4
9J26	Miscellaneous Contaminated Items	ILW	26.7	16.6	46.8	40.1
9J27	Miscellaneous Contaminated Items	ILW	22.5	17.0	45.2	41.1
9J28	Miscellaneous Contaminated Items	ILW	16.2	12.9	34.0	31.1
9J29	Miscellaneous Contaminated Items	ILW	17.9	13.0	34.9	31.5
9J30	Miscellaneous Contaminated Items	ILW	16.7	10.4	29.1	25.7
9J33	CCP Sludge	ILW	75.0	62.5	163	150
9J34	CCP Sludge	ILW	87.0	72.5	189	174
9J35	FED Fuel Channel Components	ILW	0.2	0.1	0.2	0.2
9J36	FED Fuel Channel Components	ILW	26.6	10.0	32.9	26.6
9J37	FED Fuel Channel Components	ILW	24.7	9.3	30.5	24.7
9J38	FED Fuel Channel Components	ILW	23.3	8.8	28.8	23.3
9J39	FED Fuel Channel Components	ILW	5.2	2.0	6.4	5.2
9J40	Miscellaneous Activated Components	ILW	0.8	0.3	1.0	0.8
9J41	Miscellaneous Activated Components	ILW	8.7	3.3	10.7	8.7
9J42	Miscellaneous Activated Components	ILW	0.4	0.2	0.5	0.4
9J44	Miscellaneous Activated Components	ILW	0.2	0.1	0.2	0.2
9J45	Miscellaneous Activated Components R1	ILW	0.8	0.1	1.0	0.9
9J46	Miscellaneous Activated Components R2	ILW	0.6	<0.1	0.7	0.7
9J50	Aluminium Pond Skips	ILW	500.0	16.7	325	260
9J52	Desiccant	ILW	3.4	2.1	7.0	5.7
9J59	IONSIV Cartridges	ILW	0	8.4	27.5	22.7
9J60	IONSIV Unit Post Filters	ILW	0	4.2	13.7	11.3
9J61	Pond Skip Decontamination Liquor	ILW	0	125	326	300
9J948	Care and Maintenance Preparation : Reactor and Auxiliary Building LLW	LLW	404.6	115	2,230	1,790
9J949	Care & Maintenance Preparation : Pond and Effluent Treatment Plant LLW	LLW	333.0	235	4,590	3,670
9J950/C	Care & Maintenance Preparation: Miscellaneous Sludge - AETP Clean Up	LLW	21.6	3.0	58.5	46.8
9J951	Care and Maintenance Preparations : CCP Sludge	ILW	10.1	32.9	85.9	79.0
9J952	Redundant Sealed Sources	LLW	1.0	0.1	1.3	1.0
9J100	Care & Maintenance : General Reactor LLW	LLW	0	4.3	83.2	66.6
9J301	Final Dismantling & Site Clearance : Graphite ILW	ILW	0	175	3,510	3,320
9J302	Final Dismantling & Site Clearance : Concrete (Reactor and Non-Reactor) LLW	LLW	0	574	11,500	10,800
9J303	Final Dismantling & Site Clearance : Mild Steel (Reactor) ILW	ILW	0	0.4	7.4	7.0

Site Owner – Waste Custodian - Site		Waste type	Waste volume at 1.4.2007 (m^3)	When all wastes at 1.4.2007 and future arisings are packaged		
Stream Identifier	Title			Number of packages	Packaged volume (m^3)	Conditioned volume (m^3)
9J306	Final Dismantling & Site Clearance : Stainless Steel (Reactor) ILW	ILW	0	4.4	87.8	82.8
9J310	Final Dismantling & Site Clearance : Stainless Steel (Reactor) LLW	LLW	0	0.6	11.1	10.5
9J311	Final Dismantling & Site Clearance : Mild Steel (Reactor) LLW	LLW	0	349	6,980	6,580
9J312	Final Dismantling & Site Clearance : Mild Steel (Non-Reactor) LLW	LLW	0	262	5,240	4,940
9J313	Final Dismantling & Site Clearance : Graphite LLW	LLW	0	35.7	715	673
9J314	Final Dismantling & Site Clearance : Miscellaneous Metals and Materials (Reactor and Non-Reactor) LLW	LLW	0	119	2,390	2,250
9J315	Final Dismantling & Site Clearance : Secondary Wastes LLW	LLW	0	76.2	1,530	1,440
9J316	Final Dismantling & Site Clearance : Miscellaneous Metals (Reactor) ILW	ILW	0	0.8	16.1	15.2
Nuclear Decommissioning Authority - Magnox Electric Ltd - Berkeley Nuclear Licensed Site						
9R02	Miscellaneous ILW	ILW	11.0	4.1	13.3	11.0
9R04	LLW Mixed Trash	LLW	2.6	0.1	1.7	1.4
9R07	LLW Large Items	LLW	64.8	4.6	90.3	72.2
9R10	ILW Ion Exchange Material	ILW	0.5	0.7	1.8	1.5
9R13	Steel Surveillance Canisters	ILW	0.4	0.1	0.5	0.4
9R14	Depleted Uranium	LLW	0.1	<0.1	0.1	0.1
9R15	Natural Uranium	LLW	<0.1	<0.1	<0.1	<0.1
9R16	Low Enriched Uranium	LLW	<0.1	<0.1	<0.1	<0.1
9R17	Irradiated Uranium	ILW	<0.1	<0.1	<0.1	<0.1
9R18	Thorium	LLW	<0.1	<0.1	<0.1	<0.1
9R19	Graphite Samples	ILW	0.1	<0.1	0.1	0.1
9R101	Berkeley Centre Decommissioning : Primary ILW	ILW	10.2	13.3	43.4	35.8
9R102	Berkeley Centre Decommissioning : Primary LLW	LLW	147.3	46.6	908	726
9R103	Berkeley Centre Decommissioning : Secondary LLW	LLW	14.0	1.6	31.9	25.5
9R105	Berkeley Centre Decommissioning: AETP LLW	LLW	6.1	3.2	62.8	50.3
9R106	Berkeley Centre Decommissioning: LLW HEPA Filters	LLW	11.6	2.0	38.6	30.9
9R111	Berkeley Centre Decommissioning: LLW Ion Exchange Material	LLW	0.4	0.1	2.3	1.8
Nuclear Decommissioning Authority - Magnox Electric Ltd - Sellafield						
9Z201	Magnox Fuel Transport Flasks	LLW	0	1.5	30.0	24.0
9Z203	Rail Flatrols	LLW	0	2.6	50.7	40.6

The glossary contains a list of specialised terms and abbreviations used in this report.

3.4E09, 4E-05 etc.	This is a convenient format that can represent very large and very small numbers. Its value is the number preceding E multiplied by 10 to the power of the number following E. For example: 3.4E09 = 3.4 x 10^9 = 3,400,000,000 4E-05 = 4 x 10^{-5} = 0.00004
<	Less than.
<<	Very much less than.
Actinides	A series of 15 radioactive elements with increasing atomic numbers from actinium to lawrencium, including thorium, uranium and plutonium.
Activation products	Radionuclides produced in materials as a result of neutron capture by atoms that constitute either the materials or impurities in those materials.
ADU	Ammonium Diuranate.
AETP	Active Effluent Treatment Plant (at reactor site).
AGR	Advanced Gas-cooled Reactor.
ALARP	As Low As Reasonably Practicable.
Alpha activity	Radioactivity associated with the emission of alpha particles.
Alpha particle	Nucleus of helium atom, consisting of two neutrons and two protons, emitted from the nucleus of a decaying atom.
Auger electron	Outer electron ejected by an atom that has been ionised by the prior ejection of an inner electron.
AW500	A proprietary zeolite used in ion exchange processes.
AWE	The Atomic Weapons Establishment. A Government owned, contractor-operated company concerned mainly with nuclear weapons technology. Located at Aldermaston, but with a smaller establishment at Burghfield.
BAESM	BAE Systems Marine Ltd.
BC	Berkeley Centre. Formerly known as Berkeley Technology Centre, and before that Berkeley Nuclear Laboratories.
BCD	Burst Cartridge Detection.
BEPO	British Experimental Pile O. Air-cooled graphite-moderated pile (at Harwell site; shut down in 1968).
Becquerel	Bq; the standard international unit of measurement of radioactivity – equivalent to one disintegration per second (see also kBq, GBq and TBq).
Beta/gamma activity	Radioactivity associated with the emission of beta particles and/or gamma radiation.

Beta particle	An electron or positron emitted from the nucleus of a decaying atom.
BNFL	British Nuclear Fuels plc. The holding company for Sellafield Ltd, British Nuclear Group Project Services and Nexia Solutions. Company activities cover nuclear site decommissioning and clean-up, and technology services across the nuclear fuel cycle.
BNLS	Berkeley Nuclear Licensed Site. The former Berkeley Power Station Site plus part of the former Berkeley Centre Site.
BPS	Berkeley Power Station.
British Energy	A UK private sector company that operates nuclear power stations.
BTC	British Technology Centre (at Sellafield).
C & M	Care and Maintenance.
Capping material	Cement or other substance forming inactive cover over conditioned waste in a container.
CCP	Cartridge Cooling Pond.
CfA	Conditions for Acceptance.
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, e.g. by encapsulation in cement.
Conditioning matrix	The material used to contain and/or stabilise waste for disposal. This 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.
CoRWM	The Committee on Radioactive Waste Management. An independent body set up by Government to recommend a strategy for the long-term management of higher activity radioactive wastes in the UK. The Committee reported in July 2006. CoRWM has been re-constituted with modified terms of reference and membership to scrutinize the Managing Radioactive Waste Safely (MRWS) programme and its implementation.
Crud	Any deposits of impurity or corrosion product within a reactor, storage vessel or chemical plant.
CVCS	Chemical Volume and Control System (PWR station).
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.
Defra	Department for Environment, Food and Rural Affairs. The UK Government department which, with the environment departments of Wales, Scotland and Northern Ireland, sets policy for UK radioactive waste management.
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.)
DRAGON	Experimental high temperature reactor project sited at Winfrith and funded by the Organisation for Economic Cooperation and Development (shut down in 1976).
DSDA	Defence Storage and Distribution Agency. An agency of the MoD
DSDC	Defence Storage and Distribution Centre.
DSTL	Defence Science and Technology Laboratory. Formed in July 2001 as a new organisation within the MoD. Part of the former Defence Evaluation and Research Agency (DERA).
EA	Environment Agency.
EARP	Enhanced Actinide Removal Plant (at Sellafield).
EFDA	European Fusion Development Agreement.
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.
EU	European Union.
Euratom	European Atomic Energy Community.
FED	Fuel Element Debris.
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*.
GBq	Gigabecquerel, one thousand million (10^9) Becquerels.
GE Healthcare Ltd	Previously Amersham plc. A company that provides products and services for use in healthcare and life science research. This includes radioisotopes for medical and research users.
GLEEP	Graphite Low Energy Experimental Pile. Low energy, graphite reactor (at Harwell site; shut down in 1990).
GOCO	Government Owned Contractor Operated.
Government	A collective term for the central government bodies responsible for setting radioactive waste management policy within the UK. It includes the Houses of Parliament and the Devolved Administrations.
HA	High Activity.
HAL	Highly Active Liquor.
HEPA filter	High Efficiency Particulate Air filter.
HLW	High Level Waste
HLWP	High Level Waste Plants area (at Sellafield).
HMNB	Her Majesty's Naval Base.
HSE	Health and Safety Executive.
HVVLLW	High Volume Very Low Level Waste.
IAEA	International Atomic Energy Agency.
IFP	Insoluble Fission Products
ILW	Intermediate Level Waste.
Irradiated material	Material that has been exposed to radiation. In the nuclear industry this commonly refers to material that has been exposed to and has captured neutrons, and thus contains activation products.
ISO	International Organisation for Standardisation.
ISOLUS	Interim Storage of Laid Up Submarines.
JET	Joint European Torus - the internationally funded fusion project sited at Culham.
kBq	Kilobecquerel, one thousand (10^3) Becquerels.
LA	Low Activity.
LAEMG	Low Active Effluent Management Group area (at Sellafield).
LETP	Liquid Effluent Treatment Plant.
LLLETP	Low Level Liquid Effluent Treatment Plant.
LLRF	Low Level Refuelling Facility.
LLW	Low Level Waste.
LLWR	The Low Level Waste Repository, near the village of Drigg, 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^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.
MBq	Megabecquerel, one million (10^6) Becquerels.
MDF	MOX Demonstration Facility (at Sellafield).
MEB	Multi-Element Bottle. Container used to hold irradiated LWR fuel in cooling ponds prior to reprocessing.
MEP	Magnox Encapsulation Plant (at Sellafield).
Metastable state	A higher energy state of a nuclide that exists in different long-lived energy states with different radioactive properties. A metastable state will frequently decay by isomeric transition.
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.
MRWS	The Managing Radioactive Waste Safely programme was established by the UK Government and the Devolved Administrations for Scotland, Wales and Northern Ireland for developing and implementing a policy for managing the UK's higher activity radioactive wastes in the long-term.
MTR	Materials Testing Reactor.
MWP	Minor Waste Producers
NDA	Nuclear Decommissioning Authority. A public body set up by the Government in April 2005 with responsibility for the UK's public sector civil nuclear liabilities, and their subsequent management. In October 2006, the Government also gave the NDA the responsibility for developing and ensuring delivery and implementation of the programmes for interim storage and geological disposal of the UK's higher activity wastes. From March 2007, the NDA was also given responsibility for developing a UK wide strategy for managing the UK nuclear industry's LLW and for securing disposal capacity for LLW generated by non-nuclear

	industry users.
NDS	Commercial disposal service formerly operated by AEA Technology Harwell, sometimes referred to as the National Disposal Service.
Nexia Solutions	A science and technology services company, part of the BNFL group.
NIA65	Nuclear Installations Act 1965.
Nimonic	An alloy of the elements nickel, chromium and other minor constituents.
Nirex	United Kingdom Nirex Limited, a Government owned company that was incorporated into the NDA on 1 April 2007.
NRTE	Naval Reactor Test Establishment (at Vulcan, Dounreay).
Nuclear fuel	Fuel used in a nuclear reactor. Most fuel is made of uranium, and produces heat when the uranium atoms split into smaller fragments.
Operational waste	Wastes arising from the day-to-day operations of a facility associated with the use or handling of radioactive materials.
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).
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).
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.
RRMPOL	Rolls-Royce Marine Power Operations Ltd.
Safestore	A strategy for decommissioning gas-cooled power stations that involves the construction of containments around all buildings containing active plant. The purpose is to protect the buildings and their contents from deterioration due to weathering so that complete dismantling can be deferred.
SDP	Sodium Disposal Plant.
SEPA	Scottish Environmental Protection Agency.
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.
SoLA	Substances of Low Activity.
SPF	Sand Pressure Filter.
SSBN	Ship Submersible Ballistic Nuclear. A nuclear powered submarine armed with ballistic missiles.
SSN	Ship Submersible Nuclear. A nuclear powered (hunter-killer) submarine.
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.
TBq	Terabecquerel, one million million (10^{12}) Becquerels.
Tc	Technetium, an element atomic number 43.
tHM	Tonnes of Heavy Metal – a measure of mass.

Thorp	Thermal Oxide Reprocessing Plant (at Sellafield site).
THTR	Thorium High Temperature Reactor.
TILWSP	Transportable Intermediate Level Waste Solidification Plant.
TN	Transnucleaire; a company name.
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.
TSSBN	Trident Ship Submersible Ballistic Nuclear. A nuclear powered submarine with Trident ballistic nuclear missiles.
tU	Tonnes of Uranium – a measure of mass.
UKAEA	United Kingdom Atomic Energy Authority. A UK Government owned organisation responsible for the operation of a number of sites used originally for the UK’s nuclear research and development programme.
Ullage	The space remaining within a container above the conditioned waste matrix and any capping material.
Uranium	A radioactive element that occurs in nature. Uranium is used for nuclear fuel and in nuclear weapons.
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, located adjacent to UKAEA’s Dounreay site on the north coast of Scotland.
WAGR	Windscale Advanced Gas-cooled Reactor (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).
WPEP	Waste Packaging and Encapsulation Plant (at Sellafield).
WRACS	Waste Receipt Assay Characterisation and Supercompaction facility (At Dounreay).
WSCD	Waste Stream Characterisation Document.
WTC	Waste Treatment Complex (at Sellafield).
WVP	Waste Vitrification Plant (at Sellafield).
Zircaloy	An alloy of the element zirconium used for the cladding of nuclear fuel – particularly in water reactors.

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Front cover images: top left - Wylfa site, top right - Low Level Waste Repository, bottom left - Harwell site, bottom right - Hunterston A site