Nuclear Decommissioning Authority

Department of Energy & Climate Change

Radioactive Wastes in the UK:

A Summary of the 2013 Inventory

Preface

The 2013 United Kingdom Radioactive Waste & Materials Inventory (hereafter referred to as the 2013 Inventory) will provide comprehensive and up-to-date information on radioactive waste and materials as at 1 April 2013. It is part of an ongoing programme of research jointly conducted by the Department of Energy and Climate Change (DECC) and the Nuclear Decommissioning Authority (NDA).

DECC and NDA have commissioned the 2013 Inventory to provide information on the status of radioactive waste stocks (at 1 April 2013) and forecasts of future arisings in the United Kingdom. Additional information on radioactive materials which may become wastes is collated. Its aim is to provide data in an open and transparent manner for those interested in radioactive waste and material issues.

Information collected for the 2013 Inventory is presented in a series of reports, as listed below:

- High Level Summary
- Summary of Data for International Reporting
- Scope and Conventions
- Scenario for Future Radioactive Waste & Material Arisings
- Waste Quantities from All Sources
- Radioactive Waste Composition
- Radioactivity Content of Wastes
- Radioactive Wastes & Materials Not Reported in the 2013 UK Radioactive Waste Inventory.

All documents have been prepared on the basis of information supplied to the 2013 Inventory contractors, Pöyry Energy and Amec. This information was verified in accordance with arrangements established by Pöyry Energy and Amec.

This high level summary is written for a broad audience ranging from technical experts to interested members of the public. It outlines the current position of radioactive waste and nuclear materials in the UK, how much there is and how it is managed.

Conditions of Publication

Feedback

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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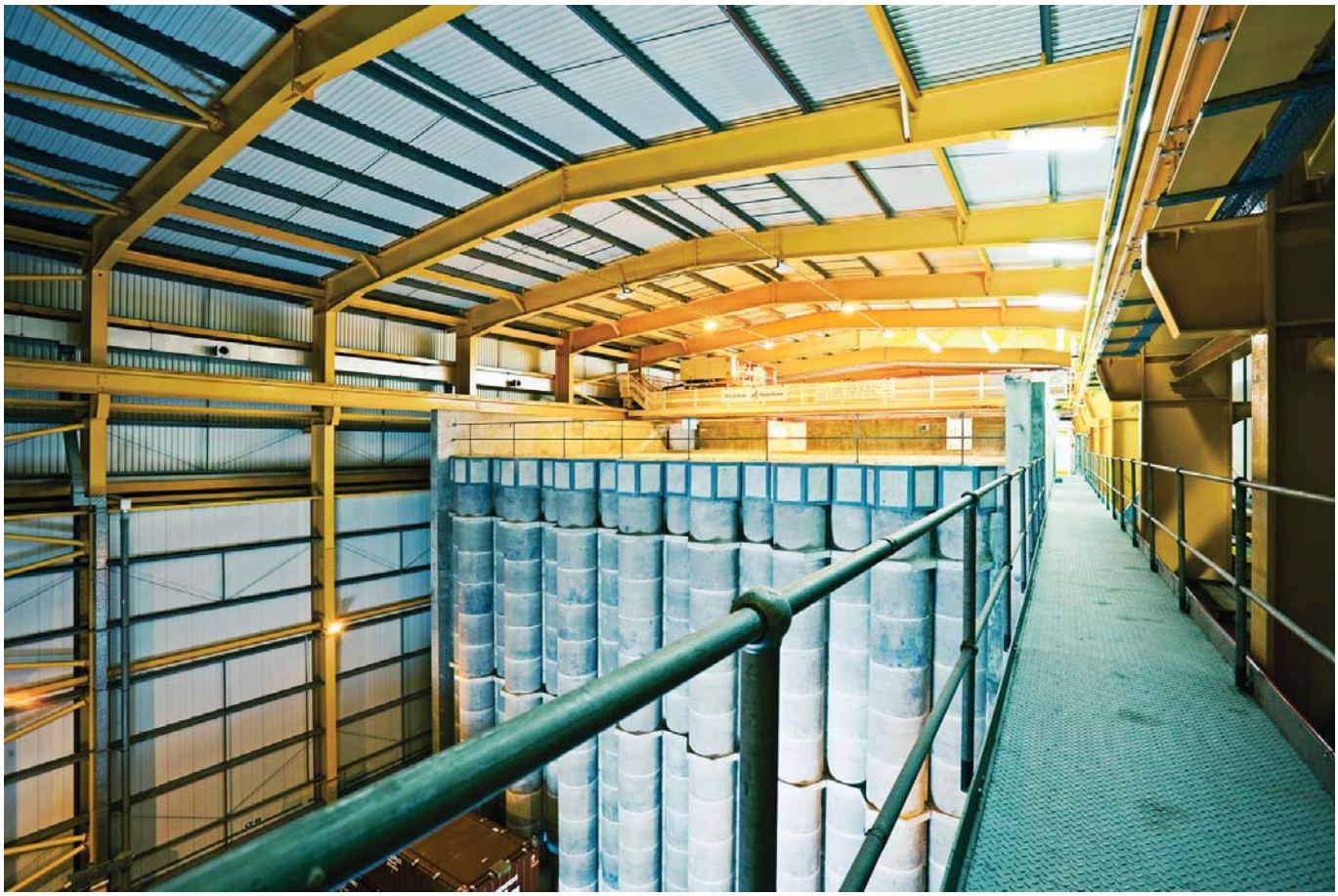
Introduction

The UK Government's Department of Energy and Climate Change (DECC) and the Nuclear Decommissioning Authority (NDA) periodically publish an inventory of radioactive waste in the UK. This inventory provides a reference source of information for Government and its agencies, and others with a role or interest in the management of radioactive waste.

This reporting output summarises the 2013 UK Radioactive Waste Inventory, which is the latest public record of information on the sources, quantities and properties of Low Level Waste (LLW), Intermediate Level Waste (ILW) and High Level Waste (HLW) in the UK. The 2013 Inventory contains details, as of 1 April 2013, of over one thousand individual wastes that have been reported by organisations responsible for their management.[1]



Inside the ILW waste store at Winfrith

[1] 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 statutory regulations. Discharges are made within authorised limits, usually after some form of treatment. 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. Also excluded are naturally occurring radioactive materials (NORM), which accumulate as scale on pipework during the extraction of oil and gas. These scales have raised levels of radioactivity and so are treated as radioactive waste. (Most NORM waste has been discharged to sea, but Government is working to develop a long-term strategy for the management and disposal of wastes containing NORM). Also excluded are waste estimates for any new nuclear power stations.

Glossary

DECC

The UK Government department that, with the devolved administrations for Scotland, Wales and Northern Ireland, sets policy for radioactive waste management.

Disposal

The emplacement of waste in a suitable facility without intent to retrieve it at a later date; retrieval may be possible but, if intended, the appropriate term is storage.

Fuel Element Debris (FED)

FED at Magnox power stations consists mainly of Magnox metal (a magnesium alloy) and graphite, with small quantities of other metallic components, removed from the irradiated fuel elements before they were sent to Sellafield for reprocessing.

Geological disposal

A long-term management option involving the emplacement of radioactive waste in an engineered underground geological disposal facility, where the geology (rock structure) provides a barrier against the escape of radioactivity and there is no intention to retrieve the waste once the facility is closed.

Low Level Waste Repository

The Low Level Waste Repository (LLWR) south of Sellafield in Cumbria has operated as a national disposal facility for LLW since 1959.

Managing Radioactive Waste Safely

The Managing Radioactive Waste Safely (MRWS) 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 wastes in the long-term (see Section 7 for latest position in Scotland).

NDA

A non-departmental public body with responsibilities for the UK's public sector civil nuclear liabilities and their subsequent management, for developing and ensuring delivery and implementation of the programmes for interim storage and geological disposal of the UK's higher activity wastes, and for developing a UK wide strategy for managing the UK nuclear industry's LLW and for securing disposal capacity for LLW from non-nuclear industry users.

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. A small proportion of the uranium atoms are converted into larger atoms (e.g. plutonium).

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.

Radioactivity

A property possessed by some atoms that split spontaneously, with release of energy through emission of a sub-atomic particle and/or radiation.

Reprocessing

The chemical extraction of reusable uranium and plutonium from waste materials in spent nuclear fuel.

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.

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.

Uranium

A heavy radioactive element that occurs in nature. Uranium is used for nuclear fuel and in nuclear weapons.

What is radioactive waste?

Material that has no further use and is above a certain level of radioactivity is known as radioactive waste. Radioactive waste can harm people and the environment, and so is carefully controlled.

Radioactive waste is divided into three main categories according to how much radioactivity it contains and the heat that this radioactivity produces (see below).

Safety - Monitor checks

Low Level Waste (LLW)

Wastes not exceeding specified levels of radioactivity.

Overall, 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. However, at the present time most LLW is from the operation of nuclear facilities, and is mainly scrap metal items, paper and plastics.

A sub-category of LLW is Very Low Level Waste (VLLW). This comprises small volumes principally from hospitals and universities that can be safely disposed of with municipal, commercial or industrial waste (either directly or after incineration), and larger volumes from nuclear sites that can be disposed of to appropriately permitted landfill facilities.

Intermediate Level Waste (ILW)

Wastes exceeding the upper boundaries for LLW that do not generate sufficient heat for this to be taken into account in the design of waste storage or disposal facilities.

The major components of ILW are metal items such as nuclear fuel casing and nuclear reactor components, graphite from reactor cores, and sludges from the treatment of radioactive liquid effluents.

High Level Waste (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 waste storage or disposal facilities.

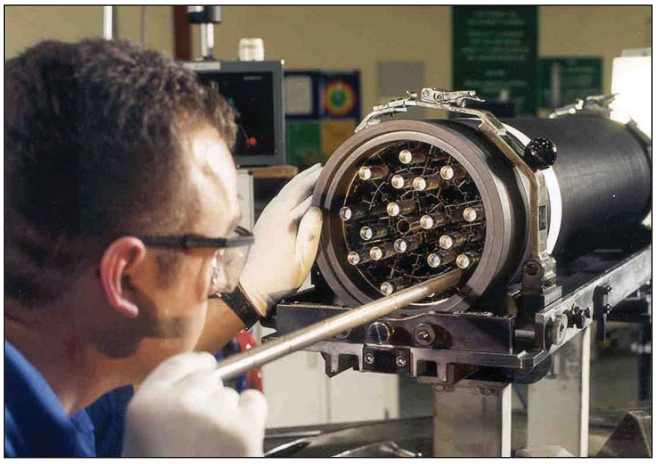
Initially HLW comprises nitric acid solutions containing the waste products of reprocessing spent nuclear fuels. These solutions are subsequently treated to form glass blocks.

How is radioactive waste produced?

As a pioneer in the development and use of nuclear technology, the UK has accumulated a substantial legacy of radioactive waste from various civil and defence programmes. Waste continues to be produced where radioactive materials are used. The nuclear power industry is the source of most radioactive waste in the UK. This includes waste from:

- manufacture of nuclear fuel;
- nuclear power stations;
- reprocessing of spent nuclear fuel; and
- research and development programmes.

The manufacture of nuclear fuels (fuel fabrication and uranium enrichment) produces low and very low level uranium contaminated radioactive waste.



Fuel manufacture

The UK has nine operating nuclear power stations, and these generate about a fifth of the UK's electricity supply. Ten others have stopped producing electricity. They are now being dismantled and their spent nuclear fuel removed for reprocessing, but so far only relatively small amounts of mainly LLW have been removed from the stations.

Much of the waste is from reprocessing spent nuclear fuels. Reprocessing now only takes place at Sellafield in Cumbria, where spent fuel from most of the UK's power stations undergoes chemical processes to recover uranium and plutonium.

Nearly all of the waste from research and development (R&D) into nuclear energy is a legacy of Government-funded programmes stretching back to the 1940s.

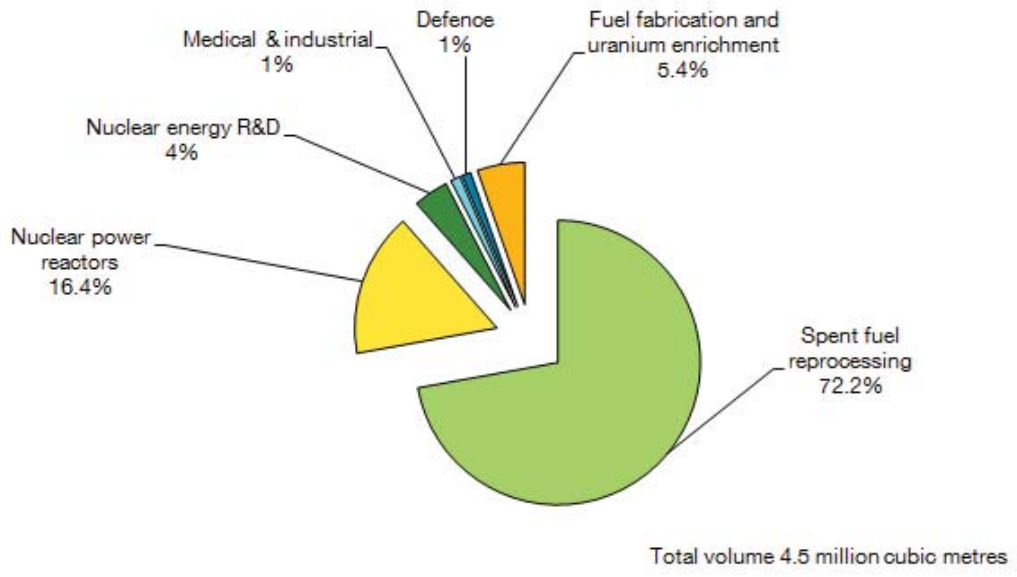
Sources outside the nuclear power industry that contribute to radioactive waste in the UK include:

- defence activities; and
- medical and industrial sources.

The main sources of defence waste are nuclear weapons production and operation of the nuclear-powered UK fleet of submarines. Smaller quantities arise from general use of radioactive materials within the armed forces and at defence establishments.

The remaining waste results from the use of radioactivity in medical diagnosis and treatment, and in industrial applications including sterilisation of medical equipment and food, and non-destructive testing of materials (for integrity, thickness, density).

Waste volumes from each activity from existing facilities



Note: Spent fuel reprocessing includes all wastes from Sellafield, where there are large waste volumes from legacy defence programmes in addition to those from commercial fuel reprocessing.

Where is radioactive waste produced?

The map shows the 35 sites of the major radioactive waste producers. Northern Ireland has no major waste producers. There are many hospitals and industrial, educational and research establishments that produce small quantities of radioactive wastes; their sites are not shown.

About 91% by volume of all radioactive wastes in the UK are produced in England, 6% in Scotland and 3% in Wales. In England the sites that produce the most waste are Sellafield and the nuclear power stations. In Scotland it is Dounreay and the nuclear power stations. In Wales it is the nuclear power stations[2].

The national LLW disposal facility, the Low Level Waste Repository (LLWR), is four miles south of Sellafield. A new LLW disposal facility has been constructed adjacent to the Dounreay site and will take LLW from the decommissioning of Dounreay and Vulcan.

[2] Note that wastes produced at Sellafield in England include those from reprocessing spent fuel from reactors in Scotland and Wales.

How much radioactive waste is there?

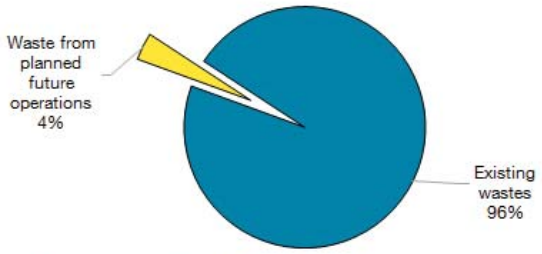
The total volume of radioactive waste that exists today or is forecast over the next century or so from existing facilities is about 4.5 million cubic metres (4.9 million tonnes). This volume would fill Wembley stadium about four times over. A further 1 million cubic metres of radioactive waste has already been disposed.

Although 4.9 million tonnes of radioactive waste is a large amount, it is small when compared to other wastes the UK produces annually. Over 300 million tonnes of other wastes are produced annually in the UK, which includes about 6 million tonnes of hazardous waste.

About 96% (4.3 million cubic metres) of the total volume of radioactive waste has already been produced. Some has been processed, and is being held in stores, but most is contained within existing nuclear facilities, including reprocessing plants and nuclear reactors, and will not be processed until these are shut down and dismantled. This waste is the legacy of past and current civil and military nuclear programmes.

About 4% (160,000 cubic metres) of the radioactive waste total has yet to be produced. This waste is that forecast from the future planned operations of the existing nuclear power industry, from ongoing defence programmes and from the continued use of radioactivity for medical and industrial purposes. The assumptions supporting the forecast future waste volume are shown in the box opposite. Should these assumptions change, which they might for technical, commercial or policy reasons, then the forecast volume would change. Should the use of radioactive materials stop tomorrow then this waste would not be produced.

The waste inventory does not include all radioactively contaminated ground. This is because much contaminated ground has yet to be well characterised, and so the quantity of radioactive waste resulting from its remediation is uncertain. The total volume of such radioactive waste could add significantly to the figure of 4.5 million cubic metres.



Total volume 4.5 million cubic metres

Below is a sequence illustrating some of the decommissioning process of the Bradwell cooling ponds


Bradwell cooling pond before


Cleaning and draining


Removal of pond platform


Decommissioning

Assumptions for future waste production as at 1 April 2013.

Nuclear power stations

- remaining operational power stations shut down over the period from 2014 to 2035
- Magnox and AGR safestores left on site for up to 100 years before final site clearance
- wastes from any new nuclear power stations are not included*

Spent fuel reprocessing

- fuel reprocessing continues until 2018

Nuclear energy R&D

- Joint European Torus fusion experiment shut down in 2018

Defence

- a continuing nuclear defence capability (waste estimated up to 2060)
- a continuing nuclear-powered submarine programme (waste estimated up to 2100)

Medical and industrial sources

- the uses of radioactivity continue as today (waste estimated up to 2080)

* While the UK Government supports new nuclear power stations and some operators are planning new stations, it is not yet clear how many reactors and of what design might be constructed.

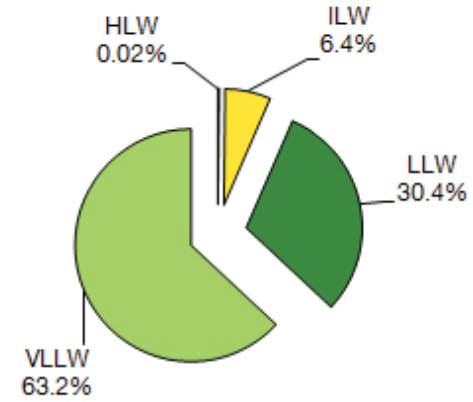
Inside the Interim Storage Facility at Bradwell

About 94% (about 4.2 million cubic metres) of radioactive waste falls into the LLW & VLLW categories. Of this volume, about 3.9 million cubic metres are from the dismantling and demolition of nuclear facilities and the clearance of contaminated ground at nuclear sites. About 6% (about 290,000 cubic metres) of radioactive waste is in the ILW category, and less than 0.1% (1,100 cubic metres) is in the HLW category.

Although the volume of HLW is relatively small, it contains about 95% of all radioactivity in radioactive wastes. LLW contains less than 0.01% of the total radioactivity. These percentage values will change gradually over future time as radioactivity decays.

Total volume by waste type

	Total cubic metres
VLLW	2,800,000
LLW	1,400,000
ILW	290,000
HLW	1,100
Total	**4,500,000**



Total volume 4.5 million cubic metres

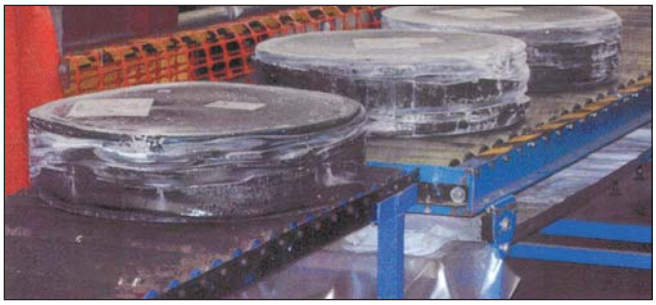
When compared with the previous 2010 Inventory, there is 220,000 cubic metres less radioactive waste in the 2013 Inventory. The volume of LLW & VLLW has decreased by about 220,000 cubic metres, the volume of ILW has decreased by about 900 cubic metres and the volume of HLW has increased by 60 cubic metres. The main reason for the lower total volume has been a change in the assumptions underpinning a reassessment of waste from decommissioning activities at Sellafield, and most of this waste falls into the VLLW sub-category of LLW.

Further information on waste volumes and changes from previous inventories can be found in the 2013 Inventory 'Waste Quantities from all Sources' reporting output.

How is radioactive waste dealt with?

The way of dealing with radioactive waste depends to a large extent on how radioactive it is. Thus:

- LLW unsuitable for re-use, recycling or incineration is sent to the LLWR in Cumbria or, for wastes with small amounts of radioactivity, to landfill type facilities soon after it is produced;
- ILW is stored in tanks, vaults and drums, with most waste requiring concrete to shield operators from the radiation. Some ILW is being cemented as it arises;
- HLW is stored as liquid in water-cooled, stainless steel tanks or as glass blocks, and needs thick concrete walls to shield operators from the high radiation.



Drums of LLW after supercompaction

Old nuclear fuel storage pond

Many radioactive wastes are treated soon after they arise to reduce their volume and so minimise the requirements for storage. Techniques include compaction and incineration (for solid wastes) and evaporation and filtration (for liquid wastes). Other radioactive wastes are stored untreated.

A particular priority is untreated historic wastes, largely created in the 1940s, 50s and 60s, held in old facilities. Records may be incomplete, meaning that the exact contents of these facilities are uncertain. Some wastes are corroding, and so are potentially mobile. Plans are being implemented to reduce the hazard posed by these wastes by retrieving, treating and packaging them, although this will take many years.

In time, most radioactive wastes will be packaged for longer-term management. This immobilises the radioactivity, and so reduces the hazard the waste presents compared to its untreated or partly treated form. The process of packaging converts the waste into a solid, stable passively safe form, within high integrity stainless steel or concrete containers.

LLW

LLW management practices are mandated by a hierarchy of options to reduce environmental impact, with waste prevention as a priority and waste disposal as a last option. Where practicable waste material is re-used or recycled following decontamination, or where suitable is incinerated. Other material, predominantly rubble and soil from nuclear plant decommissioning, with very low levels of radioactivity, can be routed to permitted landfill sites for disposal rather to the LLWR.

A LLW National Waste Programme provides the vehicle for integrating and optimising LLW management across the UK, thereby ensuring that there is sufficient future capacity at the LLWR for waste that cannot be managed using other options.

Since 1959 about 1 million cubic metres of LLW from the nuclear power industry, hospitals, research establishments and the defence programmes have been consigned to the LLWR. Suitable waste is first supercompacted to minimise its volume, and wastes are placed in large metal containers similar to shipping containers. The containers are then filled with cement and placed in concrete-lined vaults.

To date over 10,000 containers have been produced. The total vault space occupied by LLW is about 200,000 cubic metres. Up to 1995 about 800,000 cubic metres of waste had been disposed by tipping into trenches that have been capped off.

About 34,000 cubic metres of radioactive waste disposed in the past at Dounreay are to be retrieved, repackaged and consigned to the new LLW disposal facility adjacent to the site.

ILW

Most ILW has been stored since it was created. A small amount was disposed of at sea before 1983, and a small amount has decayed in storage so that it can be managed as LLW. Also Fuel Element Debris (FED) at the Dungeness power station has been treated by acid dissolution, reducing the waste volume by more than a factor of 20 while retaining most of the radioactivity in residues. This form of treatment is planned for FED at four other Magnox sites (Bradwell, Hinkley Point A, Sizewell A and Oldbury).

For most ILW, packaging consists of encapsulation in cement-based materials within 500 litre stainless steel drums or 3m^3 stainless steel boxes. Large items are packaged in higher capacity stainless steel or concrete boxes. Wastes may first be treated to reduce their water content to an optimum level for packaging. Certain materials and small items of equipment can be supercompacted, while other solid wastes are cut up to reduce their size. Encapsulated packages are placed in engineered shielded stores. Some ILW from nuclear power stations is being packaged in thick-walled cast iron containers without encapsulation of the wastes. These containers do not require a store with significant levels of shielding.

There are a number of ILW packaging plants operating at Sellafield. These plants are packaging a variety of solid wastes from spent fuel reprocessing. ILW packaging plants are also operating at Dounreay, Harwell, Trawsfynydd and Windscale. Further packaging plants are being built and planned as part of forward programmes.

To date about 28,000 cubic metres of ILW have been packaged, producing about 54,000 packages that are held in modern engineered stores. The NDA has defined standards and specifications for packages, and advises the waste producers on the packaging of ILW.

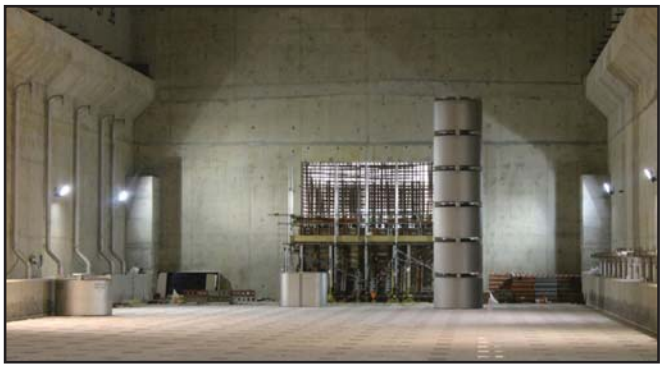
HLW

At Sellafield high level liquid waste is being incorporated into borosilicate glass, using a process called vitrification. The waste is heated to dryness leaving a fine powder, which is mixed with crushed glass in a furnace to produce a molten product incorporating the waste. This is then poured into stainless steel canisters, which hold approximately 150 litres, and a stainless steel lid is welded on.

Fresh waste from reprocessing is being blended with existing stored liquid waste and vitrified to a programme that maintains liquid waste stock levels within a specification issued by the Health and Safety Executive.

To date nearly 840 cubic metres of vitrified HLW have been produced, and the resulting 5,600 canisters placed in a modern, engineered air-cooled store.

Current practice is for vitrified HLW to be stored for at least 50 years before disposal.



Inside the ILW Store at Hunterston A

Inside the Vitrified High Level Waste Store

The Office for Nuclear Regulation (ONR) 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 ONR and every activity, including the accumulation and storage of radioactive wastes, must be undertaken in accordance with the conditions ONR attaches to the licence. NIA65 does not apply to activities carried out directly by the Ministry of Defence (MoD) 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 by the Environment Agency (EA) in England and Natural Resources Wales subject to the Environmental Permitting Regulations 2010 (EPR10) (as amended). In Scotland and Northern Ireland the regulators are respectively the Scottish Environment Protection Agency (SEPA) and the Northern Ireland Environment Agency, and the relevant legislation is the Radioactive Substances Act 1993 (RSA93) (as amended). For radioactive wastes arising on non-nuclear licensed sites, the environment agencies have regulatory responsibility for both accumulation and disposal. Although the legislative means of the devolved administrations are different, the effect of the legislation is consistent.

What is the long-term management solution?

Government radioactive waste management policy aims to ensure that all radioactive wastes are safely and appropriately managed in ways that pose no unacceptable risks to people and the environment.

Although more space is being built and there are plans for expansion in the future, the potential capacity of the LLWR is well below the forecast volume of LLW from nuclear industry decommissioning and environmental restoration that must be dealt with in the future. Also there has been limited availability of landfill sites for the lower activity LLW. Consequently, UK LLW policy has developed to provide a more flexible and sustainable approach for the long term.

Central to the UK-wide strategy for managing LLW from the nuclear industry is a more effective application of the waste hierarchy (see diagram below), with a preference for managing LLW at higher levels of the hierarchy and a move away from the past focus on disposal. The strategy makes best use of existing disposal capacity, and the extent to which other management and disposal options might be employed to accommodate the wide range in the make-up and radioactivity of LLW.

The opening up of disposal routes for VLLW together with improved waste characterisation is expected to lead to more LLW being recategorised as VLLW. Improved segregation of waste materials can allow the diversion of metals for recycling and combustibles for incineration. For example, since 2009 certain suitable LLW has been processed in a metals recycling facility at Workington in Cumbria. This facility uses size reduction and shot-blasting techniques to minimise quantities of LLW metal sent for disposal to the LLWR. The recovered material can be released back into the scrap metals market for a variety of uses. Similarly, metal smelting is being used to recycle steel from the Berkeley power station boilers.

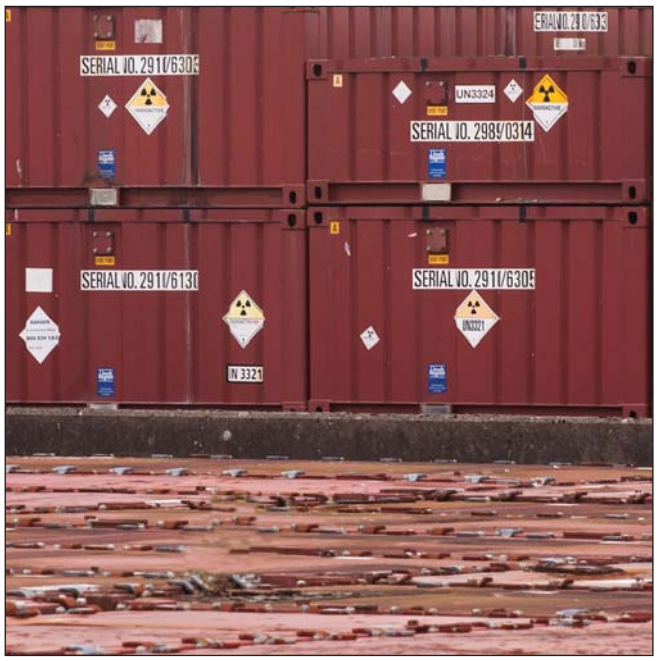
A new shallow, engineered LLW disposal facility is being constructed adjacent to the Dounreay site in Caithness. This will take wastes from decommissioning at Dounreay and the neighbouring Vulcan nuclear site that cannot be recycled. The facility is scheduled to operate from 2014 subject to regulatory consent.

In practice there is some LLW which, because of its physical/chemical properties or radionuclide content, may have to be managed along with ILW. However this amounts to less than one per cent by volume of all LLW forecast from the operation and decommissioning of current nuclear plant in the UK.

Facilities for disposing of higher activity wastes, which include LLW not suitable for near-surface disposal, ILW and HLW, have yet to be developed – at present these wastes are stored. Current practice is that vitrified HLW should be stored for at least 50 years to allow the amount of heat produced by the waste to fall, which makes it easier to transport and dispose. Most ILW is stored at the site of production, although some wastes are transferred off site to appropriate facilities (e.g. at Sellafield) when there is a clear and compelling strategic case to do so. Minor waste producers also make use of facilities at Sellafield and an ILW store at Harwell.

The challenge in managing higher activity wastes long term is to isolate their radioactivity from people and the environment for thousands of years. The policy of the UK Government and devolved administrations for Wales and Northern Ireland is geological disposal, preceded by safe and secure interim storage.

Waste Hierarchy



Containers of LLW for disposal

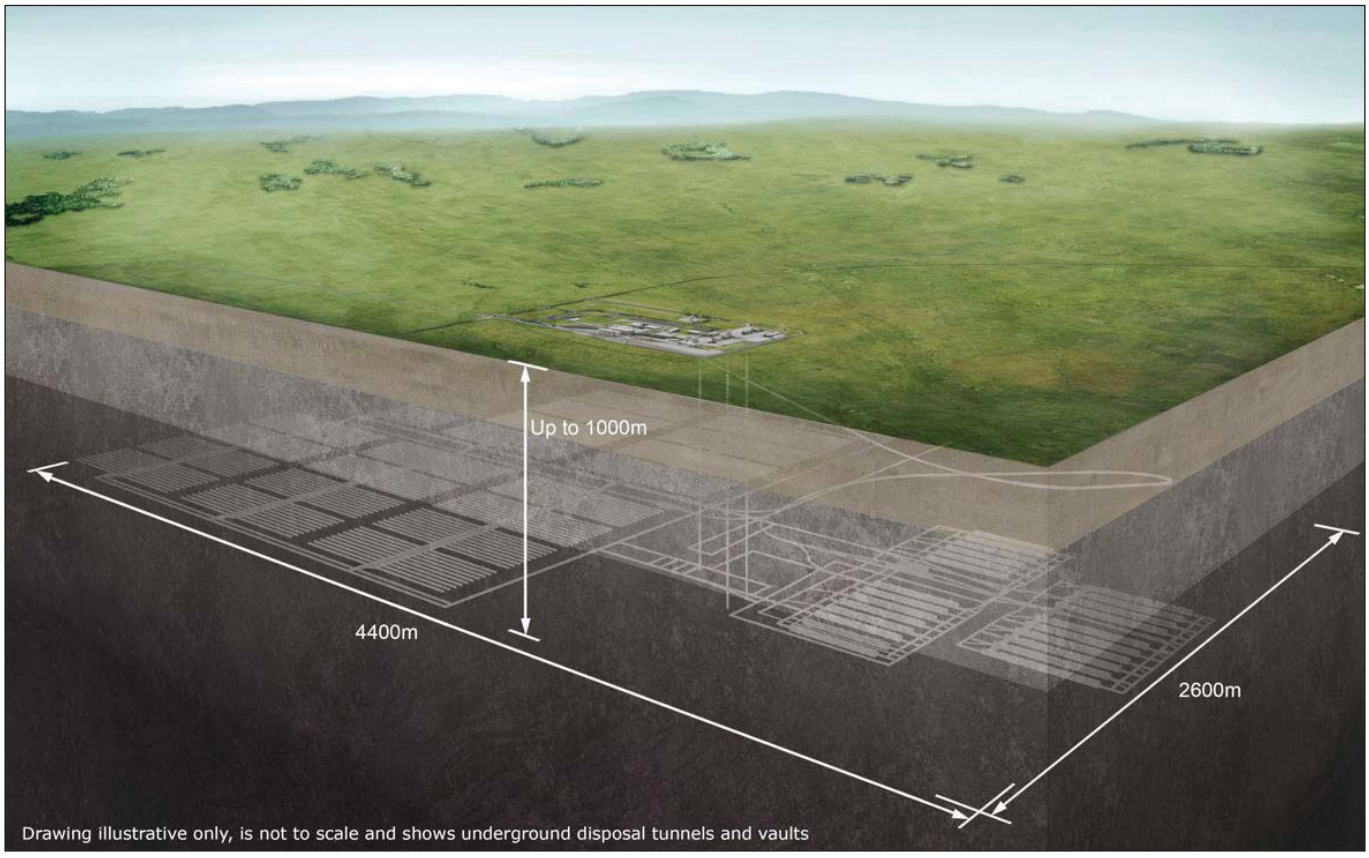
The UK Government's 2008 "Managing Radioactive Waste Safely" (MRWS) white paper sets out an approach for implementing geological disposal based on voluntarism and partnership with local communities, coupled with the use of appropriate site screening and assessment criteria as the basis for siting a geological disposal facility. A consultation on proposals to update the process to select a site ran in late 2013 and a revised policy is due in 2014.

The NDA's Radioactive Waste Management Directorate (RWMD) is responsible for planning and delivering the geological disposal facility and, as part of this process, is working with Government to engage with communities and other stakeholders. RWMD have the responsibility for securing the necessary regulatory and planning permissions involving the host community and planning authorities as necessary.

All radioactive wastes will be stored in a safe and secure manner until a suitable disposal facility becomes available.

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

[1] The MRWS programme takes into consideration some radioactive materials that are not classified as wastes in the UK (and thus are excluded for this Inventory). These materials include uranium, plutonium and spent nuclear fuel associated with civil nuclear activities. They 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, some or all of these materials might be declared surplus to requirements in the future. If so, they would need to be managed as higher activity wastes, and packaged in a way suitable for geological disposal.



An artist's cross sectional view of the GDF

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As well as this report there are a further seven reports for the 2013 UK Radioactive Waste Inventory:

Summary of Data for International Reporting

Radioactive Waste Composition

Radioactivity Content of Wastes

Radioactive Wastes and Materials Not Reported in the 2013 UKRWI

Scenario for Future Radioactive Wastes and Material Arisings

Scope and Convention

Waste Quantities from all Sources

These reports are available in electronic format.

The 2013 Inventory documents can be obtained from the NDA (see contact details below) or via the UK Radioactive Waste Inventory website **www.nda.gov.uk/ukinventory**

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Front cover images: left - waste packages at Dounreay, top - LLW vaults, bottom left - deplanting and demolition at Sizewell A, bottom right - demolition, making room for new facilities