Cyfoeth Naturiol Cymru
Natural Resources Wales

Environment Agency

nuclear sector plan

2015 environmental performance report

We are the Environment Agency. We protect and improve the environment.

Acting to reduce the impacts of a changing climate on people and wildlife is at the heart of everything we do.

We reduce the risks to people, properties and businesses from flooding and coastal erosion.

We protect and improve the quality of water, making sure there is enough for people, businesses, agriculture and the environment. Our work helps to ensure people can enjoy the water environment through angling and navigation.

We look after land quality, promote sustainable land management and help protect and enhance wildlife habitats. And we work closely with businesses to help them comply with environmental regulations.

We can't do this alone. We work with government, local councils, businesses, civil society groups and communities to make our environment a better place for people and wildlife.

Natural Resources Wales is the largest Welsh government sponsored body, employing 1,900 staff across Wales. We were formed in April 2013, largely taking over the functions of the Countryside Council for Wales, Forestry Commission Wales and the Environment Agency in Wales, as well as certain Welsh government functions.

It is our job to protect, maintain and improve the environment and natural resources of Wales now and in the future.

Published by:

Environment Agency
Horizon House, Deanery Road,
Bristol BS1 5AH
Email: enquiries@environment-agency.gov.uk
www.gov.uk/environment-agency

Further copies of this report are available from our publications catalogue:
www.gov.uk/government/publications

or our National Customer Contact Centre:
T: 03708 506506

Email: enquiries@environment-agency.gov.uk.

Foreword

We are pleased to introduce this annual report on the environmental performance of the nuclear industry in England and Wales. It shows how the industry performed in 2015 against the objectives and targets in Issue 3 of the nuclear sector plan. This is the 11th annual performance report since the nuclear sector plan was created in 2005.

We are pleased with the nuclear industry's support for the nuclear sector plan over the past 11 years. However, we have decided that this will be the last time that we will publish the performance report for the following reasons:

(i) Although the nuclear sector plan was valuable in communicating shared environmental objectives, raising awareness and in driving improvements, its impact as a driver of change has diminished with time as objectives have been achieved.

(ii) All aspects of the nuclear sector plan are now embedded into company management arrangements, with the aim of continuously improving environmental performance.

(iii) The significance of the report is reduced by information similar to, or duplicating that, in the performance report being readily available (for example, UK Discharge Strategy reports). At the same time, the Environment Agency is seeking to direct limited resources to the areas where we will achieve the greatest impact.

(iv) An ongoing requirement for operators to supply data for the nuclear sector plan report is contrary to the government's push to reduce regulatory burden on business.

In 2015, the industry continued to perform well against most objectives of the nuclear sector plan. Highlights included:

- Sector-wide liquid discharges decreased by 6.8% on a dose weighted basis.
- All land quality management indicators showed improvements.

Looking back over the last 11 years, we are delighted that the industry has participated willingly in the project and made great strides in working to achieve environmental objectives. We have included in this report a summary of progress made. We want the nuclear sector to use the information in this performance report to learn lessons and to encourage new ideas to further improve its environmental performance.

Where possible, we have signposted where equivalent data will be published in the future. We do not plan to update the nuclear sector plan and its objectives, but we do encourage industry to continue to set its own improvement objectives and to report progress in meeting these.

Recognising the joint effort between the regulators and the nuclear industry, where we use 'we' in the main part of this document, we are referring to the Environment Agency, Natural Resources Wales and the nuclear industry. Organisations involved in the nuclear sector plan are shown below.

Jo Nettleton – Environment Agency

Isobel Moore – Natural Resources Wales

Summary

1. Minimise resource consumption and carbon footprint

In 2015, the nuclear sector used 4.89 terawatt-hours (TWh) of energy. This is an increase of 6.2% since 2014 and is largely associated with the electricity generation sub-sector, which increased supplies by 11.9% to 47.8 TWh. The ratio of energy consumed to electricity produced by the electricity generation sub-sector improved from 14.2% to 13.5%.

13,197,000m^3 of water was consumed, an increase of 2.9% against 2014 because of operational demands at sites in the defence sub-sector and fuel reprocessing sector. The electricity generation sub-sector used 1.5% less water.

There was a calculated 14% decrease in the total volume of carbon dioxide (CO_2) emissions in 2015. The estimate is sensitive to changes from year to year in the different fuel sources used to generate electricity nationwide.

2. Minimise discharges to air and water

Liquid discharges weighted by dose impact fell by 6.8% across the industry compared with 2014. Changes in liquid discharge dose are largely driven by fuel reprocessing sub-sector performance, although all sub-sectors performed well in 2015 against this measure.

Gaseous discharges weighted by dose impact increased by 2.9% compared with 2014 levels, due largely to emissions associated with the electricity generation sub-sector, which were 16.2% higher in 2015 than in 2014.

3. Promote use of the waste hierarchy

Larger volumes of inert and non-hazardous waste were disposed of in 2015 compared with the previous year. Recycling rates of inert waste declined marginally, by 0.3%. Recycling rates for non-hazardous waste improved by 10%. Changes in these figures largely depend on the extent and nature of work carried out at decommissioning sites.

The total volume of low level waste (LLW) disposed of in 2015 was largely unchanged from 2014 at 25,108 m^3. The amount of active waste sent to the Low Level Waste Repository (LLWR) in 2015 was 2,932 m^3 or 11.7% of all low level waste, up from 9.6% in 2014. It is an objective of the nuclear sector to divert LLW waste disposals from the LLWR where possible, although diversion rates fluctuate depending on the type of waste produced during the year. The proportion of LLW consigned to the LLWR since 2011 has been below 13% every year. This diversion rate is considerably better than it was before 2010, when additional disposal routes for some types of LLW became available. In 2009, 33% of LLW was sent to the LLWR for disposal.

4. Demonstrate environmental management and leadership

All of the sites have training for staff and contractors to make them consider the environmental aspects of the work that is being done.

A number of sites have implemented career development schemes to help develop and assist with accreditation of environmental professionals.

Examples of sustainable procurement policies and long-term strategic environmental goals of firms operating in the nuclear sector have been provided in this report.

5. Progress decommissioning and manage land quality

In 2015, as decommissioning and waste packaging work progressed, the quantity of conditioned intermediate level waste increased by 1,084 m^3 or 3.8% on 2014 levels. The total volume of conditioned intermediate level waste with a final letter of compliance for a future geological deep disposal facility now stands at 29,694 m^3.

90% of operators recognised land quality in their corporate arrangements in 2015, up from 86% in 2014. All 7 land quality management indicators improved in 2015.

6. Maintain or improve a very high level of regulatory compliance

All sites and operators continue to consistently comply with national regulations. The total number of minor permit breaches, 69, recorded in 2015 was slightly higher than the 68* scored in 2014. (*60 breaches were reported for 2014 in the 2014 performance report. This number increases to 68 when including breaches that occurred in 2014 but were not recorded on the Environment Agency's Compliance Classification System until 2015.)

7. Further implement better regulation

Three actions by the regulators are ongoing and one is complete. Ongoing work relates to simplifying requirements for record keeping, reducing operators' reporting obligations and improving regulator feedback on non-compliance. These tasks will be built into the regulators' annual planning cycle.

The environmental regulators have continued to evaluate their performance at providing written feedback to operators and sites about non-compliances. In 2015, they provided 60% of written feedback within 2 months of receiving operators' investigation reports. The regulators are working to improve their performance against this measure.

Introduction

The nuclear industry is diverse, comprising licensed nuclear sites involved with generating electricity, decommissioning and clean-up of redundant facilities, waste management, research and development, defence and medical and bioscience. The changing nature of activities on these sites results in variable levels of discharges and use of resources from year to year.

In 2015, the nuclear sector generated 21% of electricity produced in the UK. Generating capacity has reduced since then because Wylfa Power Station closed on 30 December 2015 after nearly 45 years of operation.

The Environment Agency and Natural Resources Wales (Cyfoeth Naturiol Cymru) regulate the disposal of radioactive waste at and from nuclear sites in England and Wales. The Environment Agency also provides nuclear regulatory services to nuclear sites in Wales on behalf of Natural Resources Wales, ensuring a consistent approach to nuclear regulation across England and Wales. Published by the Environment Agency and Natural Resources Wales, this report has been prepared with the input from nuclear site operators, and presents the latest information on environmental performance for the nuclear industry in England and Wales.

This report includes a section on new nuclear sites for the first time. Due to the difficulty in comparing their environmental performance measures with those from operational or decommissioning sites, their performance is not reported in 2015. Instead, information on the arrangements made by the developers of new nuclear sites to minimise their impact on the environment is provided in Section 2 of this report.

We have decided that this will be the last time that we will publish the performance report for the reasons given in the foreword.

We have signposted where equivalent data will be published in the future. We do not plan to update the nuclear sector plan and its objectives, but we do encourage industry to continue to set its own improvement objectives and to report progress in meeting these.

Section 1: Objectives

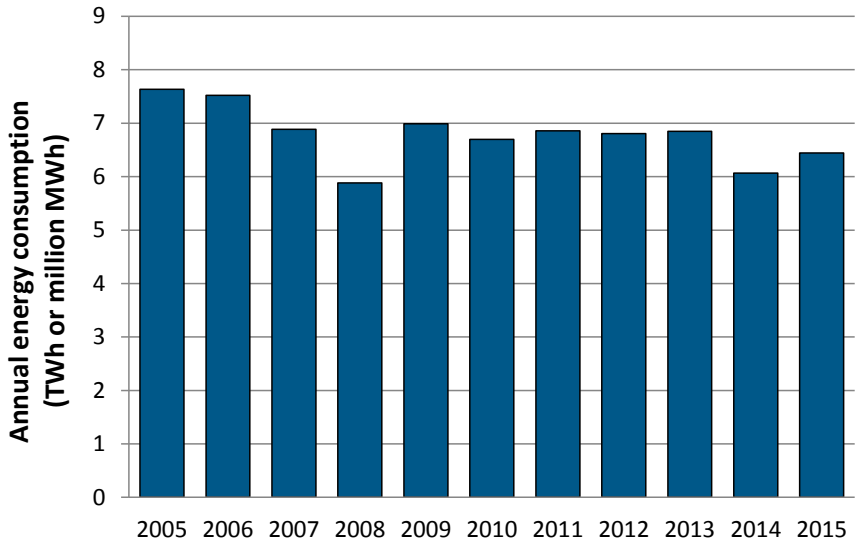
Objective 1: Minimise resource consumption and carbon footprint

Both water and energy are important resources. The amount of resources used largely depends on the nature of the site and the work being carried out. Some projects and technologies require large amounts of water and/or energy.

There are a number of ongoing initiatives to increase energy efficiency and reduce greenhouse gas emissions. These include the Carbon Reduction Commitment (CRC) framework for energy efficiency improvements, the EU emissions trading scheme and the Energy Savings Opportunity Scheme (ESOS).

Minimise energy use

Figure 1: Total energy use



In 2015, the nuclear sector used 6.44 terawatt-hours (TWh) of energy. This is a net increase of 0.379 TWh or 6.2% compared with 6.07 TWh used in 2014.

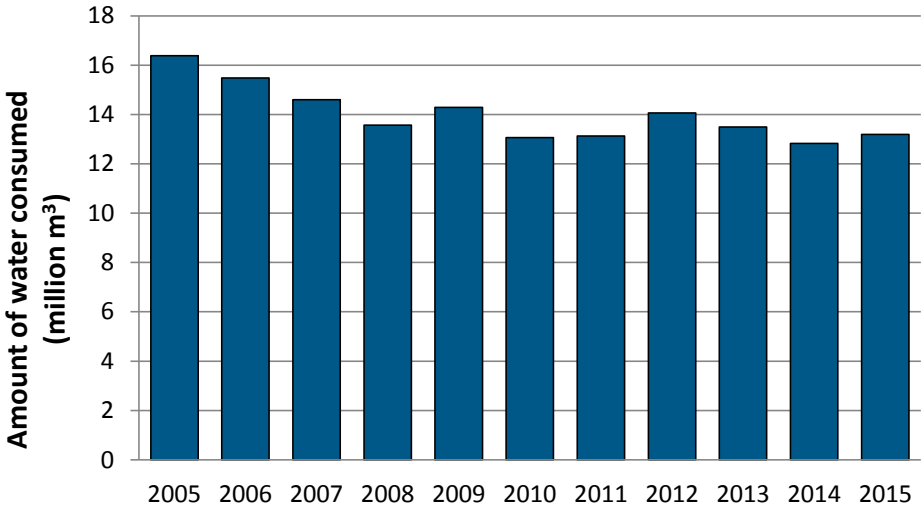
The increase is mainly due to the increase in energy used by the electricity generation sub-sector. Energy consumption by this sector rose by 0.471 TWh or 10.6% to 4.89 TWh in 2015. Electricity generation by nuclear power stations increased by 11.9% to 47.8 TWh, largely due to higher plant utilisation rates at Dungeness B and Wylfa, while the ratio of energy consumed to energy generated improved from 14.2% in 2014 to 13.5% in 2015.

Energy used by the fuel fabrication and enrichment sub-sector decreased by 98.8 GWh, an 18% reduction. This was largely due to the UF_6 (Hex) Plant at Springfields closing, which meant a combined heat and power plant gas turbine could be switched off.

Increases of less than 10% on 2014 figures were recorded by the fuel reprocessing and medical and bioscience sub-sectors. Energy used by the defence and research sub-sectors decreased.

Minimise amount of water used

Figure 2: Total water used (excluding cooling water)



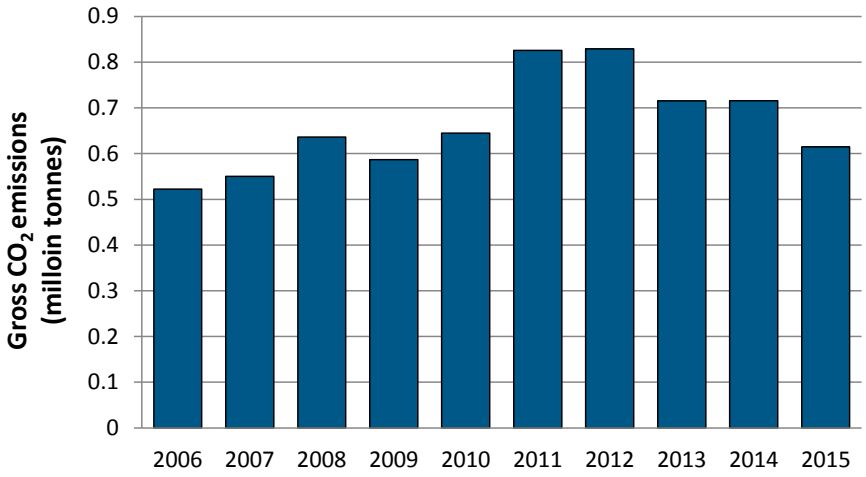
Water, excluding cooling water, used by the nuclear sector in 2015 increased by 2.9% on 2014's figures to 13.2 million m^3. The fuel fabrication and enrichment sub-sector's metered water consumption increased by 15% to 69,115 m^3. Borehole flow meters at the largest site in the sub-sector were recalibrated during 2015. As a result, figures for 2015 are not comparable with 2014's values. Water used by the fuel reprocessing sub-sector increased by 4.9%, to 296,000 m^3, and the defence sector by 4.7%, to 88,000 m^3, as a result of operational requirements.

The waste management sub-sector achieved a 74% reduction in the amount of water it used due to a large decrease in water used by LLWR because its grouting plant was closed for refurbishment for most of the year.

The electricity generation sub-sector reduced the amount of water it used by 1.5% to 67,605 m^3.

Minimise the amount of greenhouse gases generated

Figure 3: Total greenhouse gas emissions



Overall, the nuclear industry greenhouse gas emissions in 2015 decreased by 14% compared with 2014 despite the sector using more energy because of decreases in emission factors.

Carbon dioxide (CO_2) emissions are estimated by multiplying energy used by a constant called an 'emission factor'. Emission factors are based on the typical products of combustion of a fuel source and vary depending on the chemical composition of the fuel. In the case of electricity, the CO_2 emission factor is a composite value. It depends on the mix of energy sources (for example, nuclear, coal, gas, or solar) used to generate electricity across the UK. The coefficient decreases when the contribution from the nuclear sector or renewables sector increases. The coefficient increases when the proportion of the national total supplied by coal-fired power stations increases.

The CO_2 emission factor for electricity used by the nuclear electricity generation sub-sector is low, as most energy is sourced from its own (nuclear) power generation. More information on energy generated and used is given in the Digest of UK Energy Statistics (DUKES) reports, published annually in July and available at:

https://www.gov.uk/government/collections/digest-of-uk-energy-statistics-dukes

Objective 2: Minimise discharges to air and water

Both the Environment Agency and Natural Resources Wales regulate radioactive discharges to air and water by issuing site-specific permits to nuclear operators. The permit holders must meet specific conditions and agreed discharge limits set within the permit and use best available techniques (BAT) to minimise releases to the environment. The Environment Agency and Natural Resources Wales carry out regulatory work that includes detailed site inspections and audits to verify that the permit holders are complying with the permit conditions.

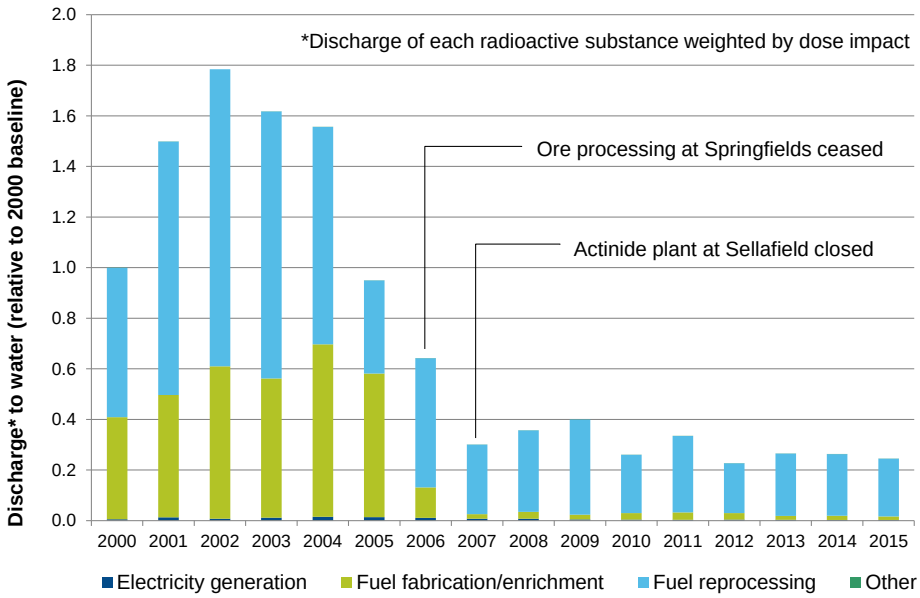
Data on radioactivity in the environment is collected by the environment agencies and the Food Standards Agency and reported annually. The data for 2015 is presented in Radioactivity in Food and the Environment (RIFE) Report 21. The highest dose from radioactive discharges to people living near a nuclear site is 0.42 mSv, to people eating shellfish near Sellafield. This dose includes a 0.35 mSv contribution from historical discharges from a closed phosphate processing plant at Whitehaven. In comparison, the average total dose from all sources received by someone living in the UK is 2.7 mSv. RIFE Report 21 is available at https://www.gov.uk/government/publications/radioactivity-in-food-and-the-environment-2015-rife-21

Minimise discharges to water

In 2009 the 'UK Strategy for Radioactive Discharges' set a number of expected outcomes for discharges to water (liquid discharges) for each of the nuclear sub-sectors. A more detailed description of radioactivity and the discharges from the nuclear industry is available in the strategy document.

Figure 4 shows the total discharge weighted by (potential) dose impact or by radiotoxicity. This figure is calculated by taking the total activity of each radionuclide discharged to controlled waters and multiplying it by a specific 'dose per unit release' factor, which takes into account the likely concentration in the environment and the different potential effects of each radionuclide discharged. The total is then compared to the year 2000 levels to show the trend over time. The graph is, therefore, comparative and does not have any units. The 'other' category is the collected discharges from the medical and bioscience, defence, research and waste management industry sub-sectors. These are negligible when compared with the fuel reprocessing sub-sector.

Figure 4: Trends in radioactive discharges to water



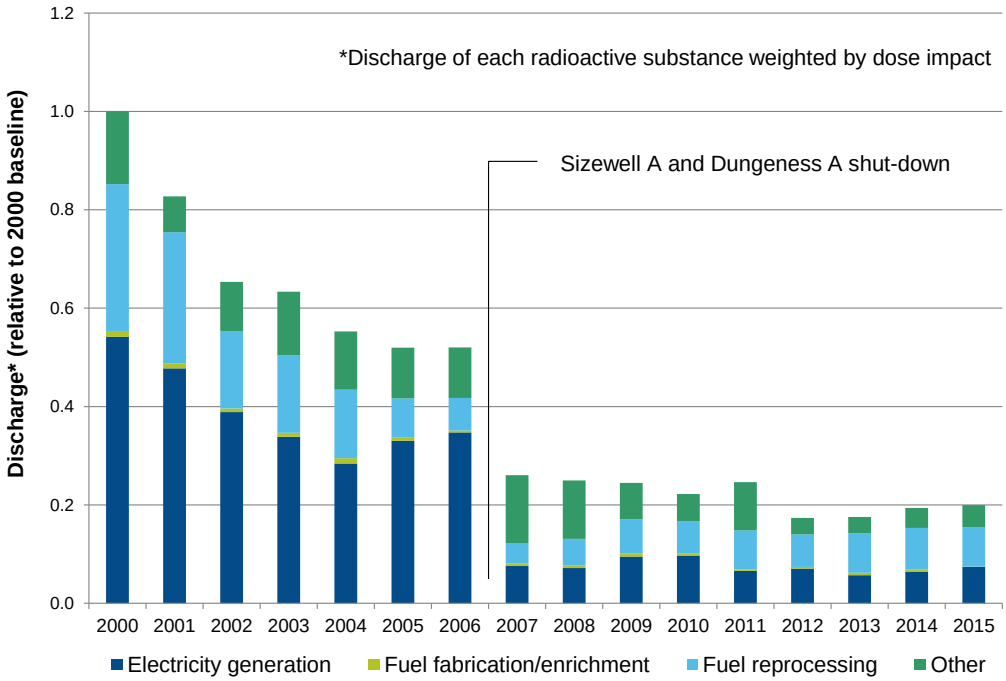
- Total dose-weighted discharges by the whole nuclear sector fell by 6.8% in 2015 compared to 2014. Discharges by all sub-sectors declined, except for the electricity generation sub-sector, where discharges increased by 0.1% on the back of increased electricity production.

- Carbon-14 discharges by the fuel reprocessing sub-sector dominate discharges by the nuclear sector, and were responsible for 93% of all dose-weighted discharges in 2015. Discharges are related to throughput at the Magnox fuel reprocessing plant. Fuel reprocessing at Sellafield is scheduled to cease around 2020.
- Discharges fluctuate year-on-year depending on projects and programmes of work being implemented across the diverse sub-sectors of the industry.
- Discharges from the electricity generation, research, medical, and defence, other sub-sectors are too low to be shown in Figure 4.

Minimise discharges to air

The chart below shows the total nuclear sector discharge to atmosphere weighted by potential dose impact ('radiotoxicity') using standard values of dose per unit inhaled and divided by the value obtained in 2000.

Figure 5: Total assessed radioactive discharges to air



- Discharges fluctuate year-on-year depending on projects and programmes of work being implemented across the diverse sub-sectors of the industry. In 2015, discharges were 2.9% higher than in 2014. Discharges from the electricity generation sub-sector increased by 16% and comprise 37.1% of the sector total. This increase was counterbalanced to some extent by a 5% reduction in emissions from the fuel reprocessing sub-sector, which made up 40.4% of the sector total in 2015.
- A noteworthy development in 2015 was the closure of the UF_6 (Hex) Plant at Springfields. This resulted in a 94% decrease in dose-weighted emissions to air by the fuel fabrication and enrichment sub-sector. Before it closed, this plant made a 2.5% contribution to total nuclear sector emissions to atmosphere.

General information on the Department for Business, Energy and Industrial Strategy (DBEIS), the department responsible for producing the UK Discharge Strategy is available at: http://www.gov.uk/government/organisations/department-for-business-energy-and-industrial-strategy
Data from the Pollution Inventory on radioactive and non-radioactive emissions is provided at: https://data.gov.uk/dataset/pollution-inventory

Objective 3: Promote use of the waste hierarchy

The nuclear industry generates a range of radioactive and non-radioactive solid waste from activities at its sites. Decommissioning and clean-up of sites produces large amounts of waste, most of which will be lightly contaminated building materials or soils. Waste is disposed of in accordance with permits granted by the Environment Agency and Natural Resources Wales.

Operators apply the 'waste hierarchy' (in order of preference: prevention, preparing for re-use, recycling, recovery, and lastly, disposal of waste), which is designed to prioritise different ways of disposing of all types of waste based on the benefit to the environment. One of the benefits of this approach is to minimise the need for specialised waste disposal facilities that have limited capacity.

The nuclear sector plan objectives encouraged operators to try and limit the amount of waste they dispose of at these facilities and to make sure they dispose of the waste at a facility that is appropriate for the hazard the waste presents. In future, environmental permit BAT conditions and the Nuclear Decommissioning Authority (NDA) requirement for each of its sites to implement an integrated waste strategy will continue to drive improvements.

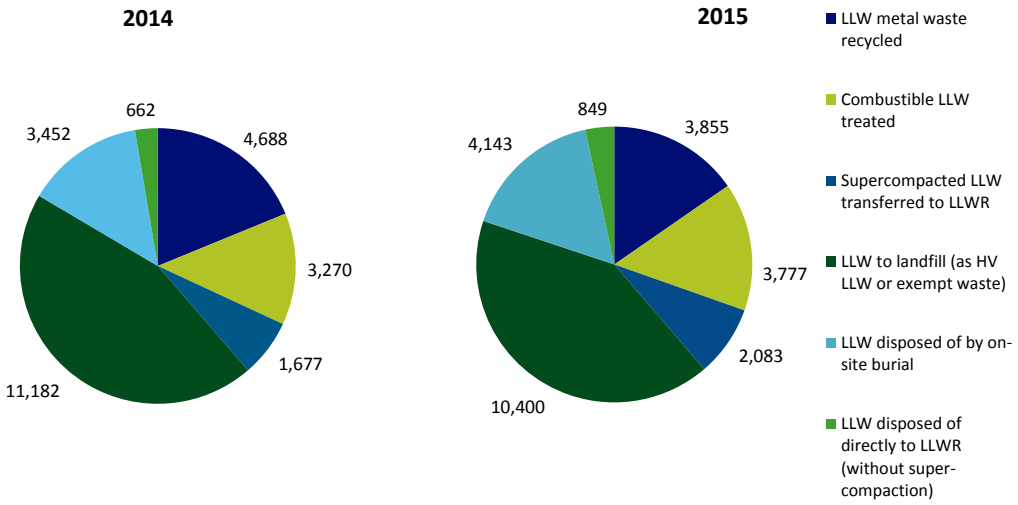
Minimise amount of waste disposed of at the Low Level Waste Repository

Low level radioactive waste (LLW) consists of material that has been contaminated by small amounts of radioactive material. 90% of the volume and 1% of activity of the world's radioactive waste is classified as LLW. In the past, most LLW was disposed of at the Low Level Waste Repository (LLWR) near Drigg in Cumbria due to a lack of alternative disposal routes.

Since 2010, more options have become available for disposing of LLW. Some categories of LLW can now be disposed of at permitted landfill sites. You can find the UK Low Level Waste Strategy on the Low Level Waste Repository website. The strategy encourages operators to use the waste hierarchy, preferring, where practicable, to prevent, reuse or recycle waste. The charts in Figure 6 compare 2014 and 2015 disposals of LLW and the routes used.

The regulators are now encouraging the nuclear industry to reduce the amount of waste it sends to the LLWR by using the waste hierarchy and other ways of disposing of waste (using incinerators for certain waste or landfill sites permitted to accept LLW). This helps to protect the capacity of the LLWR, a vital national resource.

Figure 6: 2015 LLW disposals (m^3) by method of disposal



The charts in Figure 6 show relatively little change from 2014 to 2015 in the quantity of waste disposed of or the disposal routes used. In 2015, the total volume of LLW disposed of was 25,108 m^3, fractionally more than 2014 volumes of 24,930 m^3.

It is an objective of the nuclear sector to divert LLW waste disposals from the LLWR, where possible, by improving segregation and characterisation and using all fit-for-purpose disposal routes. Diversion rates fluctuate from year to year depending on the type of waste disposed of. 11.7% of LLW (2,932m^3) was sent to the LLWR for disposal in 2015, either as super-compacted waste or by direct disposal, compared with 9.6% (2,397 m^3) in 2014. The increase may be linked to sites disposing of more 'difficult' waste, following an initiative beginning in 2012 to 2013, to reduce waste accumulations, starting with less problematic waste.

The amount of metal recycled depends on the quantities of suitable waste generated over the year, and fell by 832 m^3 from 2014 figures. Thermal treatment of LLW rose by 507 m^3 and disposals by permitted on-site burials increased by 691 m^3.

Sellafield, the largest single site in the nuclear sector, makes the largest contribution to annual disposal volumes on several disposal routes, including super-compaction and transfer to LLWR (66% of the nuclear sector total) and metals recycling (60% of the sector total). The majority of the waste disposed of directly to LLWR or to an incinerator is comprised of relatively small disposals by a large number of consignors. Sellafield is still the largest individual contributor, although its contribution falls to 45% of the sector total of direct disposals to LLWR, and to 33% of the total for LLW incineration. Springfields Fuels Limited was the largest source of disposals to VLLW landfill, consigning 6,809 m^3, or 65% of the nuclear sector total.

For on-going information on LLW management refer to the National Waste Programme dashboard: http://llwrsite.com/national-waste-programme/programme-governance/waste-metric-dashboard/

Managing non-radioactive waste

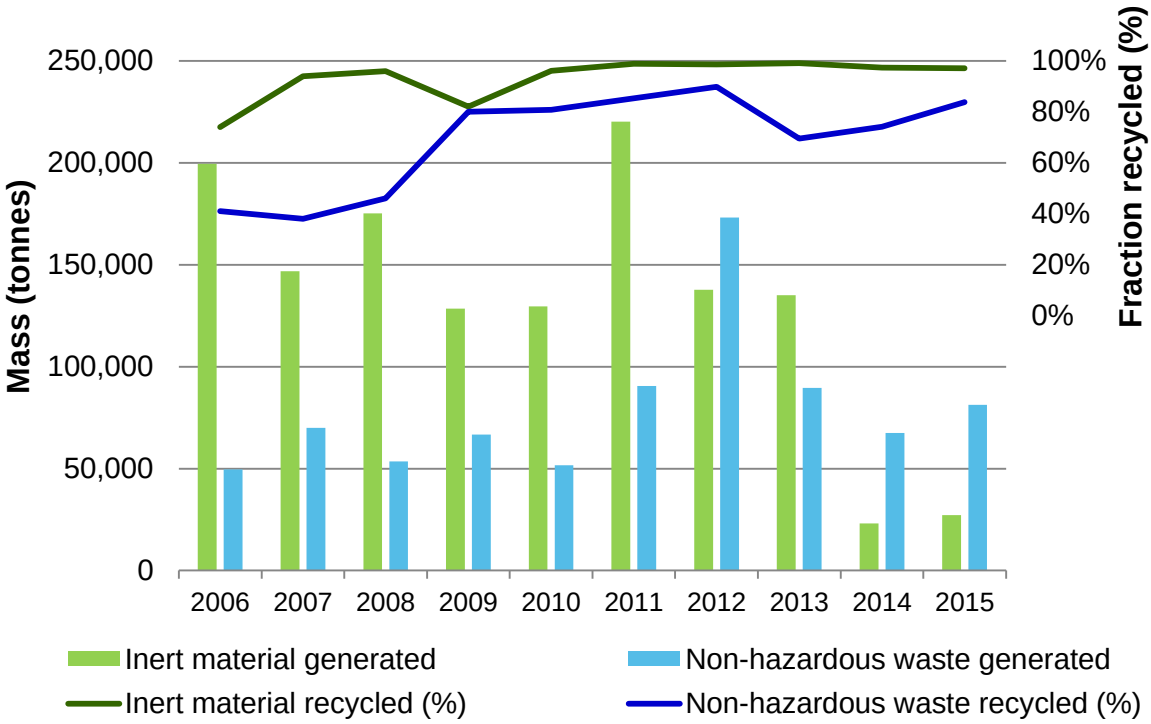
Most of the waste the nuclear industry generates is non-radioactive. Non-radioactive waste is divided into 3 categories: hazardous, inert and non-hazardous waste.

Hazardous waste is harmful to people and the environment and has to be disposed of using a specific technical treatment or sent to a specialist landfill site. Examples include asbestos, solvents, oil and pesticides. There are no performance indicators for hazardous waste in the nuclear sector plan.

Inert waste has no hazardous properties and does not undergo any significant physical, chemical or biological transformations. Sand is an example of inert waste.

Non-hazardous waste, although it doesn't have any hazardous properties, is not inert and could present challenges if not dealt with properly as it may biodegrade. Examples of non-hazardous waste include paper, cardboard and plastic.

Figure 7: Amounts of inert and non-hazardous waste generated and recycled



Comparing data for 2014 to 2015, shown in Figure 7, there was an overall increase in non-radioactive waste disposals. 27,189 tonnes of inert waste (18% increase) and 68,160 tonnes of non-hazardous waste (36% increase on 2014) were disposed of in 2015. The increases are largely attributable to increased disposals of inert waste or non-hazardous waste by the defence sub-sector and the fuel reprocessing sub-sector. Increased disposals of non-radioactive waste arising from improvement projects at operating nuclear powers stations made a smaller contribution to the nuclear sector increase.

The fraction of inert waste recycled declined slightly from the 2014 figure of 97.4% to 97.1% in 2015. The pattern of disposals was similar in 2014 and 2015. Relatively small disposals of inert waste to landfill were made from a number of sites and, in the majority of cases, 90% or more of the inert waste from each site was recycled.

Non-hazardous waste recycling rates increased. 84% of non-hazardous waste was recycled in 2015 compared with 74% in 2014. In 2015, most sites achieved recycling rates close to the 6-year average since 2009 of 82%, with few below 60%. In 2014 (and 2013) a few instances of disposals of relatively large volumes of waste where less than 50% of the waste was recycled, reduced the average recycling rate below the longer term trend line.

Information on LLW strategy and the national waste programme is provided at the following website, maintained by LLWR Ltd: http://llwrsite.com/national-waste-programme/

Quantitative data on waste disposal is given on the LLW Dashboard, updated at monthly intervals and available at http://llwrsite.com/national-waste-programme/programme-governance/waste-metric-dashboard/

The NDA provides information on integrated waste strategy: www.gov.uk/government/collections/managing-waste

Objective 4: Demonstrate environmental management and leadership

All of the industry operators have displayed a clear commitment to making sure that they maintain a high level of environmental management, as well as working to share good practice within the industry. Issue 3 of the nuclear sector plan set out a number of challenges for industry. These challenges, and a summary of the industry's response to them, are set out below.

Contractual requirements placed by the NDA on site licence holders place emphasis on environmental leadership and accountability, as does the recently revised standard ISO14001:2015.

Long-term strategic environmental goals

All operators can point to strategies, sustainability plans or vision statements that include long and medium-term environmental goals. A number of these have been included below:

- Each of EDF's power stations maintains a rolling 5-year environmental plan, detailing 4 areas of focus: 'Aspects and Impacts', 'Radioactive Waste Management', 'Leak Management', and 'Behaviours for Success'. Individual sites regularly evaluate and report their progress.
- The Atomic Weapons Establishment (AWE) reviewed its 2012-2030 Sustainability Plan and produced a 2013-2015 review. This showed that 72% of objectives had been achieved. The review highlighted those areas that remain for further focus as a part of a refreshed corporate responsibility approach.
- Sellafield Limited has a baseline plan that sets out the strategic goals for high hazard and risk reduction on the Sellafield site. The plan addresses safety and environmental challenges on the site, particularly with respect to legacy plants. Progress against this plan is reported to the NDA. Sellafield Ltd is currently developing and integrating environmental strategy into overall business strategy, aligning with the forthcoming change in business focus from reprocessing to site decommissioning and remediation.

Demonstrate environmental awareness throughout the organisation

All sites have training programmes in place to educate staff. Some operators have organised events, such as photography competitions, to encourage staff to maintain a suitable level of environmental awareness.

Retain accredited management systems

All operators have stated that they have a suitable environmental management system in place. 26 of 29 sites have an environmental management system that has been, or is in the process of being, independently certified to an international standard (such as ISO 14001). The remaining sites have chosen alternative arrangements, which they maintain to equivalent high standards.

Develop sustainable procurement

All operators and sites either have sustainable procurement procedures or are in the process of implementing a scheme to continue to develop sustainable procurement. For example:

- Sellafield Ltd considers the following elements within the tendering process: a potential contractor's history of compliance with environmental legislation; how the contractor ensures compliance with forthcoming environmental legislation; previous remedial action taken by a contractor to address non-compliance; the identification of a person responsible for environmental compliance within the contractor organisation and whether the potential contractor is accredited to ISO14001/ BS8555. Sellafield Ltd has sight of the environmental policy and important management system documentation of their contractors. The assessment extends to any improvements or innovations their contractors have made to decrease their environmental impact; implementation of the waste management hierarchy

by contractors and how contractors assess and improve the environmental performance of their sub-contractors.

- The Springfields parent company, Westinghouse, has developed green procurement guidelines at corporate level and is currently following these. If all other factors are equal, preference is given to the more sustainable option.
- Magnox Ltd has a policy of supporting small and medium-sized enterprises (SMEs) and, in particular, locally based SME suppliers. The policy is supported by measures such as dividing tenders into lots that include opportunities for niche suppliers, encouraging SMEs to team up with larger suppliers, and requiring SME content and policy to be included in tender applications. The company supports initiatives to develop sustainable supply chains and operates a system to monitor the health of the supply chain and reduce the risk of supply interruptions. Magnox is currently reviewing procurement practices and, as work progresses, will share this knowledge with other operators via forums that the company attends.
- All EDF nuclear power stations follow corporate governance for acquiring goods and services. The corporate specification includes supplier appraisal criteria, which, in turn, reference specific sustainability criteria. EDF Energy has committed to working with all its suppliers to promote the high standards of human rights, labour standards, ethical conduct and environmental management enshrined within the 10 principles of the UN Global Compact. EDF Energy has developed a practical guide to educate suppliers about the Compact.
- MoD sites work according to the ‘Sustainable Procurement Flexible Charter’. The charter has led to specific business unit actions covering placement and training of staff, communication of the objectives of the framework, development of procurement processes considering whole life costs, working with suppliers to improve performance, and developing measuring and reporting the impacts of the procurement process.
- LLWR has produced a revised version of its ‘Procurement and Supply Chain Policy and Strategy’ to further enhance its consideration of sustainable procurement, updated its sourcing strategy template and developed a new sustainable procurement guide. Harm to the environment (environmental detriment) has been considered as part of major procurements carried out throughout the year and related to waste treatment.
- Capenhurst Nuclear Services (CNS) assesses the environmental credentials of potential suppliers as part of the tender evaluation process. When on site, contractors are expected to demonstrate environmental management practices that meet CNS standards.
- Urenco UK considers a balance of social, ethical, environmental and economic impacts when it evaluates suppliers’ sustainable practices. Urenco assesses the policies and procedures of the supplier and its supply chain upstream and assesses whether high value/high risk suppliers pose any risks to the locality or the industry in which they operate. Strategic partners are actively managed to make sure that they comply with their contractual obligations. Sustainability targets, practices and policies are monitored as part of this process.
- AWE has continued to work towards its objectives and targets for sustainable procurement as set out within the sustainability plan. AWE has a sustainable procurement policy and sets procedures and requirements for suppliers to address sustainable procurement. AWE rolled out refresher training in 2015 to supply chain staff and attended MoD and wider industry events. It considers environmental and sustainability requirements within the full procurement life cycle and supports the use of small and medium sized enterprises (SMEs).

Share good environmental practice

A number of the site operators stated that they share good practice both internally and externally, either through industry forums, such as the Environment Agencies' Requirements Working Group (EARWG) and the Nuclear Industry Liaison Group for Land Quality (NILG LQ), the Safety Directors' Forum, the MoD Sustainability Working Group, the NDA SME/LLWR working groups or with other sites and operators.

Objective 5: Progress decommissioning and manage land quality

The UK has a diverse nuclear legacy, ranging from the complex issues at Sellafield to smaller sites with nuclear research facilities. Generating and managing intermediate level radioactive waste (ILW) has become challenging. One of the areas for improvement identified in the nuclear sector plan version 3 is managing 'legacy' waste, which is awaiting conditioning and packaging so it can be disposed of safely.

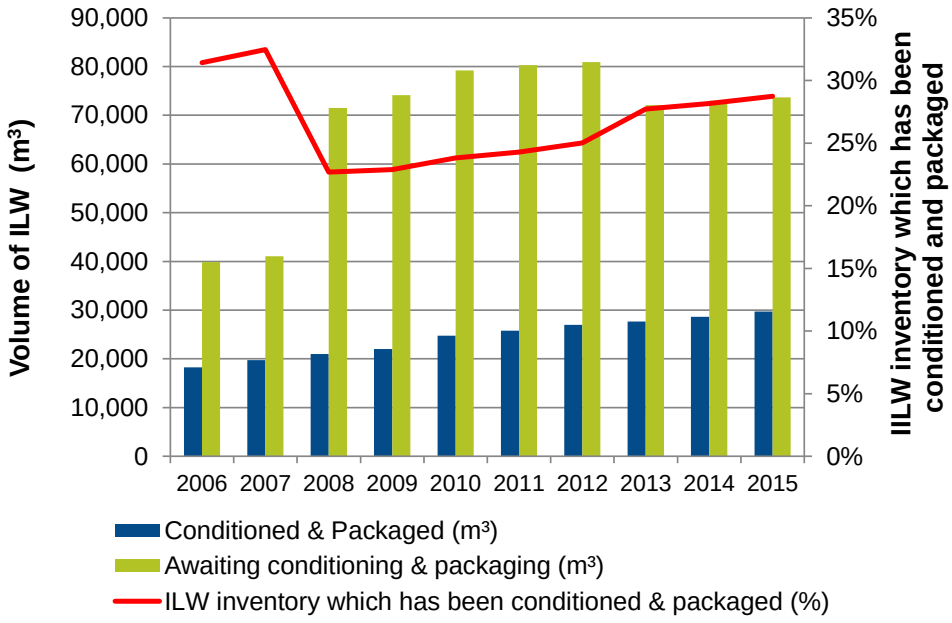
A common method of evaluating the industry's performance in managing ILW is the percentage of the total ILW that has been packaged and issued with a final letter of compliance (FLoC) from Radioactive Waste Management Ltd. The purpose of the FLoC is to certify that the packaged waste meets all requirements and standards and is in a safe and stable state for eventual disposal in a geological disposal facility.

Continue to retrieve and package intermediate level waste (ILW)

The current NDA strategy for higher activity waste is to condition ILW waste to a stable and safe form and package it in suitable containers. (A copy of the NDA strategy is available at: www.gov.uk/government/uploads/system/uploads/attachment_data/file/522435/NDA_Higher_Activity_Waste_Strategy_2016.pdf.) The packaged waste is then stored in 'fit-for-purpose' stores until a suitable final disposal route is identified.

Radioactive Waste Management Ltd provided the data displayed in Figure 8.

Figure 8: Total volume of raw and conditioned/packaged ILW and percentage of ILW inventory that has been conditioned and packaged*



***Figures are based on the UK Radioactive Waste Inventory on 1 April 2016, rounded to whole numbers.**

In 2015, with ongoing decommissioning and packaging work, the total ILW inventory increased by 661 m^3 to 73,659 m^3 - an increase of 0.9% on 2014 figures. The percentage of packaged and conditioned waste is at an 8-year high of 28.7% of the total inventory, an increase of 3.8% on last year's inventory. The total volume of conditioned waste is 29,694 m^3.

Final disposal is currently not possible for most of the current ILW inventory due to the lack of a national geological disposal facility (GDF). Interim waste stores have been constructed on some nuclear sites to store the waste safely until it can be finally disposed of in the GDF. Nuclear site operators plan to optimise the number and location of these interim stores to minimise impact on the environment.

Some ILW, especially waste with short half-lives, will not need to be consigned to the GDF for final disposal. This waste has different waste conditioning and packaging requirements and may be consigned to alternative waste treatment and disposal schemes. For example, consideration is being given to consigning ILW that will decay to LLW levels in a few years directly to the LLWR. The industry continues to research methods and technologies to treat various types of ILW through groups such as the Nuclear Waste and Decommissioning Research Forum.

Information on the UK's radioactive waste inventory is available at the following website: http://ukinventory.nda.gov.uk/. The inventory is updated at 3-yearly intervals. An update is due to be published this year (2016).

Record progress in managing land quality

The Office for Nuclear Regulation (ONR) regulates radioactive aspects of land quality management on nuclear licensed sites. As part of their stewardship of their sites, nuclear operators are required to must make sure that the land would be suitable for any reasonable foreseeable future use once nuclear related activities stop and the site is released from regulation. Seven criteria intended to reflect the standard of various aspects of land quality management were agreed in version 3 of the nuclear sector plan. Table 1 below shows the percentage of nuclear sites meeting these criteria.

Table 1: Land quality management indicators

	Land quality management indicator	Percentage of sites meeting criterion	
		2014	2015
1.	Recognising land quality arrangements in corporate procedures.	86	90
2.	Having people trained and skilled in land quality management.	90	97
3.	Having a register of known or potential land quality hazards on site.	76	79
4.	Having a formal process for reviewing known or potential hazards.	86	93
5.	Having or developing a prioritised action list for dealing with known or suspected land quality hazards.	59	68
6.	Having systems for keeping land quality records up to date that they can easily access.	89	93
7.	Reported to the public (including local liaison groups) on land quality during the year.	28	31

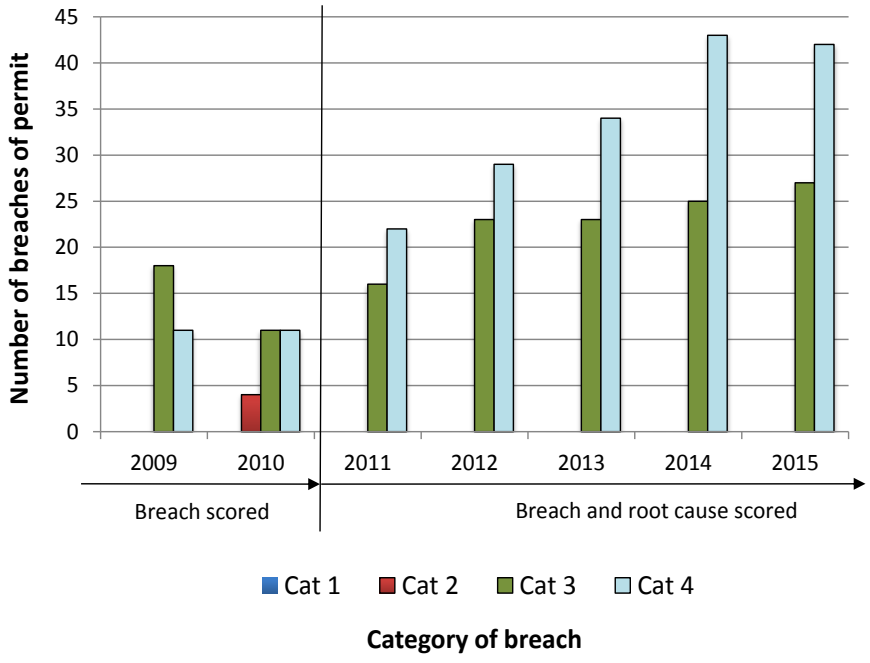
Trends across all indicators were positive in 2015: On 9 out of 10 sites, corporate procedures include land quality arrangements. These sites employ staff trained and skilled in land quality management. However, there is work still to be done on preparing registers of land quality hazards and then developing plans to deal with the hazards identified. Only two-thirds of sites have prepared these plans.

Objective 6: Maintain or improve a very high level of regulatory compliance

The nuclear industry continues to achieve a high standard of regulatory compliance. It is a heavily regulated industry, reflecting the significant hazards and risks associated with activities on its sites. Both the Environment Agency and Natural Resources Wales work with industry and the Office for Nuclear Regulation (ONR) to ensure a high level of compliance and to provide support and guidance. In the event that a site is non-compliant, it is committed to responding promptly to understand how this occurred and to prevent it happening again.

The Environment Agency and Natural Resources Wales monitor breaches of permit conditions using the Compliance Classification Scheme (CCS). This ranks breaches on a 1 to 4 scale. Category 1 breaches are the most severe. For radioactive substances this means an incident that could potentially result in significant and extensive radioactive contamination that needs major intervention and measures to deal with it. It could also refer to an incident in which a member of the public receives a significant dose of radiation. Category 2 breaches are used when the permit breach could result in localised contamination requiring limited intervention and countermeasures, or an incident that could potentially deliver a significant radiation dose. Category 3 breaches are non-conformances that could cause minor harm to, or pollute, the environment, such as discharge or disposal by unauthorised route, but within site discharge limits. Category 4 breaches have no impact or potential impact on the environment. This could include a minor failure in record keeping or other failings in process or procedure.

Figure 9: Total number of permit breaches



No category 1 or 2 breaches occurred on a nuclear site in 2014 or 2015. The total number of minor (CCS 3 or CCS 4) breaches increased by one in 2015 compared to 2014. (See Figure 9)

A total of 27 category 3 breaches were recorded for the nuclear sector in 2015, compared with 25 category 3 breaches in 2014[1]. 42 category 4 breaches occurred in 2015, while there were 43 category 4 permit breaches in 2014. Table 2 gives the numbers of non-compliance cases and the CCS scores allocated to these cases, by regulatory regime.

Table 2: Number of nuclear sector cases of non-compliance and breaches scored, by regulatory regime

Regime:	EPR-Installations			EPR-Discharges to controlled waters			EPR-Radioactive substances		
Year	Non-compliance cases	Breach CCS 3	Breach CCS 4	Non-compliance cases	Breach CCS 3	Breach CCS 4	Non-compliance cases	Breach CCS 3	Breach CCS 4
2014	13	6	7	6	2	4	28	17	32
2015	10	8	6	11	9	4	26	10	32

In 2010, the Environment Agency changed its internal guidance on scoring non-compliance with environmental permits for radioactive substances activities, although this guidance was not extended uniformly to other regulatory regimes. The guidance advises that officers should assign CCS scores to both breaches of permit and the root cause of the breach. Using this root-cause analysis has contributed to the year-on-year increase of permit breaches identified, because 2 or more CCS scores could be allocated in each case of a permit non-compliance. Another contributing factor since 2010 has been an increase in operators self-reporting incidents to regulators. The data in 2014 and 2015 suggests the annual number of non-compliance cases is stabilising.

While the nuclear industry has a number of unique risks and challenges, it is important to view permit breaches in context with other regulated industrial sectors. The nuclear industry had no serious permit breaches in 2015. Apart from the mineral products sector, no other sector equalled the performance of the nuclear sector. (See Table 3)

Table 3: Comparison with other industries in England

Industry sector	Serious breaches of permit in 2015*	Number of permits, 2015*	% serious breaches to permits
Nuclear	0	38	0.0
Water	262	23561	1.1
Chemicals	11	444	2.5
Waste	122	22205	0.5
Mineral products	0	33	0.0
Farming	13	1209	1.1
Food and drink	16	356	4.5
Paper and textiles	2	70	2.9

*'Serious' breaches of permits are classified as category 1 or category 2. For sectors other than nuclear, figures are for England only. For the nuclear sector figures are for English and Welsh sites.

[1] 60 breaches in total were reported for 2014 in the 2014 performance report. This number increases to 68 when breaches are included that occurred in 2014 but were not recorded on the Environment Agency's Compliance Classification System until 2015.

Enforcement

There were no events or incidents resulting in formal caution or prosecution in 2015.

In future, data on compliance may be obtained from the Environment Agency via the NRG-South email address: nrg.south@environment-agency.gov.uk.

Objective 7: Further implement better regulation

Reduce requirements for operators to supply data – ongoing

The Environment Agency reduced some reporting obligations in 2014. In the future, it will review the method operators use to report pollution and waste inventories, although no work on this programme is currently underway.

Simplify requirements for keeping records – ongoing

The Environment Agency is working with operators to help them develop guidance to support compliance with Environmental Permitting Regulations (EPR) requirements for keeping records. In October 2015, the Environment Agency wrote to the Environment Agencies' Requirements Working Group (EARWG) identifying the principles required. This has now led to development of a full retention schedule at one operator. We will be speaking with all operators about this during 2016 to 2017.

Review requirements for monitoring – completed

In 2015, the Environment Agency ran a project to review its own environmental monitoring programmes for nuclear sites in England and Wales. The review has been completed and updated site environmental monitoring programmes are now in place for 2016.

The environment agencies are in the process of changing permit and Compilation of Environment Agency Requirements (CEAR) conditions to allow site operators greater flexibility to develop and implement discharge and environmental monitoring programmes. Environmental monitoring programmes will no longer be specified exhaustively in the CEAR but will be regulated through the environmental permit (Radioactive Substances Regulation) condition requiring the operator to apply best available techniques (BAT) when designing the programme. Regularly reviewing these programmes may reveal opportunities to improve the link to site life cycle and even reduce the burden on operators' own programmes in relation to their activities and discharges.

Non-compliance feedback - ongoing

The nuclear sector plan tasks regulators with providing feedback to operators on incidents and permit breaches within 2 months of being told about an event. The Environment Agency has continued to evaluate its performance at providing written feedback to operators and sites about non-compliances.

Detailed investigations by both operators and regulators are needed. These investigations often take longer than 2 months, which, in the past, has led to delays in giving feedback to the operator.

In 60% of cases in 2015, Environment Agency regulators provided written feedback on an incident or permit breach within 2 months of the investigation report being available, or agreed in writing with the site that the feedback would take longer due to continuing investigations. This is a relative improvement in performance compared with 2014 when written feedback was provided within 2 months in 45% of cases. The regulators are working to further improve their performance in this area.

In future, data on the Environment Agency's progress in implementing better regulation may be obtained from the Environment Agency via the Nuclear Regulation Group (South) email address: nrg.south@environment-agency.gov.uk .

Section 2: New nuclear build (NNB)

New nuclear build (NNB) operators are aware of the objectives of the nuclear sector plan, including optimising resources used, minimising emissions and waste generated and providing environmental leadership.

Although in the early stages of providing new nuclear power stations, NNB operators are seeking to develop organisational cultures that minimise the environmental risks posed by future operations by having clear environmental strategies, adopting best practice and learning from experience and from others. They are looking ahead: developing land quality strategies and employing staff competent in land quality management. They are developing integrated management systems to meet ISO9001 and 14001 standards. They intend to develop supply chains that operate in a similar, sustainable way.

New build operators currently use few resources and generate little waste, but levels will increase as NNB projects progress.

More information on nuclear new build projects is available at the following websites:

Nugen: http://nugeneration.com/

Horizon Nuclear Power: http://www.horizonnuclearpower.com/

NNB Genco: https://www.edfenergy.com/energy/nuclear-new-build-projects

Section 3: Conclusions

The nuclear industry maintained a good level of environmental performance in 2015. The industry progressed well on almost all sector plan objectives, with highlights listed in the Foreword and Summary of this report.

Since 2005, the nuclear sector plan has provided a framework for the nuclear industry's environmental objectives and for the environment agencies' performance as regulators. It acted as a driver for progress and a means of reporting on that progress.

It has helped drive improved measurement of aspects of resource use, recycling and disposal rates. It has provided a publicly available set of objectives and indicators and, through production of both operator reports and this national sector performance report, it has improved transparency of the industry's impacts on the environment.

Nuclear site operators have responded to the challenges of the nuclear sector plan by seeking performance improvements. The plan has acted as a driver for innovation, and improvements have been seen in many areas.

Eleven years summary review

The first nuclear sector plan, published in 2006, opened with a description on the history and structure of the nuclear sector. It went on to identify main challenges:

- reducing radioactive discharges
- progressing site restoration and clean-up
- optimising waste management
- maximising biodiversity on site
- extending stakeholder engagement

From these main challenges, 8 objectives were developed. These objectives evolved over the years as earlier objectives were met or higher priorities became apparent.

Table **4** summarises the objectives of the 3 versions of the nuclear sector plan:

Table 4: Nuclear sector plan (NSP) objectives

NSP Version 1 (2005)	NSP Version 2 (2009)	NSP Version 3 (2012)
1 Reduce the consumption of natural resources.	1 Minimise the amount of natural resources used.	1 Minimise resource consumption and carbon footprint.
2 Minimise and manage solid wastes.	4 Minimise and manage solid waste.	3. Promote use of the waste hierarchy.
3 Reduce discharges to air and water.	3 Minimise discharges to air and water.	2. Minimise discharges to air and water.
4 Reduce greenhouse gas emissions.		
5 Develop site restoration and biodiversity action plans.	6 Manage land quality and biodiversity.	5. Progress decommissioning and manage land quality.
6 Improve transparency, understanding and engagement between the Environment Agency, industry and other stakeholders.		
7 Promote product stewardship and wider supply chain benefits.		
	2 Recognise the impact of climate change.	
	5 Demonstrate sound environmental management and leadership.	4. Demonstrate environmental management and leadership.
8 Work to risk-based regulatory and environmental management systems.	7 Improve or maintain a very high level of regulatory compliance.	6. Maintain or improve a very high level of regulatory compliance.
	8 Achieve better regulation.	7. Further implement better regulation.

A significant introduction in the second version added a more strategic objective for operators; sound environmental management and leadership. This version of the plan also looked at compliance monitoring, and included a strategic objective of ‘better regulation’ for the environmental regulators.

Some of the indicators selected to measure progress towards objectives were revised over time as experience was gained. Insufficiently differentiating, impractical or ambiguous indicators were dropped. In Table 5, the values of the quantitative indicators that were retained throughout the lifetime of the NSP are presented for 2007 and the most recent year, 2015. (Performance in 2007, rather than in 2005, the first year for which data was collected under the nuclear sector plan, has been selected for comparison with performance in 2015 because similar amounts of electricity were generated in 2007 and 2015.)

Referring to Table 5, it can be seen that considerable improvements have been made in most aspects of optimising resource use and waste management. Recycling rates of non-hazardous waste more than doubled from 38% to 84% between 2007 and 2015. Decreases of over 60% were achieved for disposals of low level waste to the LLWR. The relative harm (potential dose) of emissions to the atmosphere or controlled waters decreased by 26% and 19% respectively.

In the 2 cases where indicators show a deterioration:

- Greenhouse gas emissions are calculated from emission factors based on energy use and, in the case of electricity, are sensitive to annual changes in the mix of energy sources in the UK used to generate electricity. As these changing emissions factors have not been tracked across the 11-year history of the nuclear sector plan, we cannot draw useful conclusions from the increase in greenhouse gas emissions from 2007 to 2015.

- ILW total volume packaged has increased by 50%, but the fraction of accumulated packaged waste has declined by 12%. This is due to waste production exceeding packaging rate, particularly in 2008 to 2009. Since then, the fraction of ILW packaged has increased steadily because of programmes to package waste and to improve segregation and characterisation of legacy waste, enabling waste previously classified as ILW to be disposed of as LLW.

Table 5: Quantitative performance indicators, 2007 compared with 2015

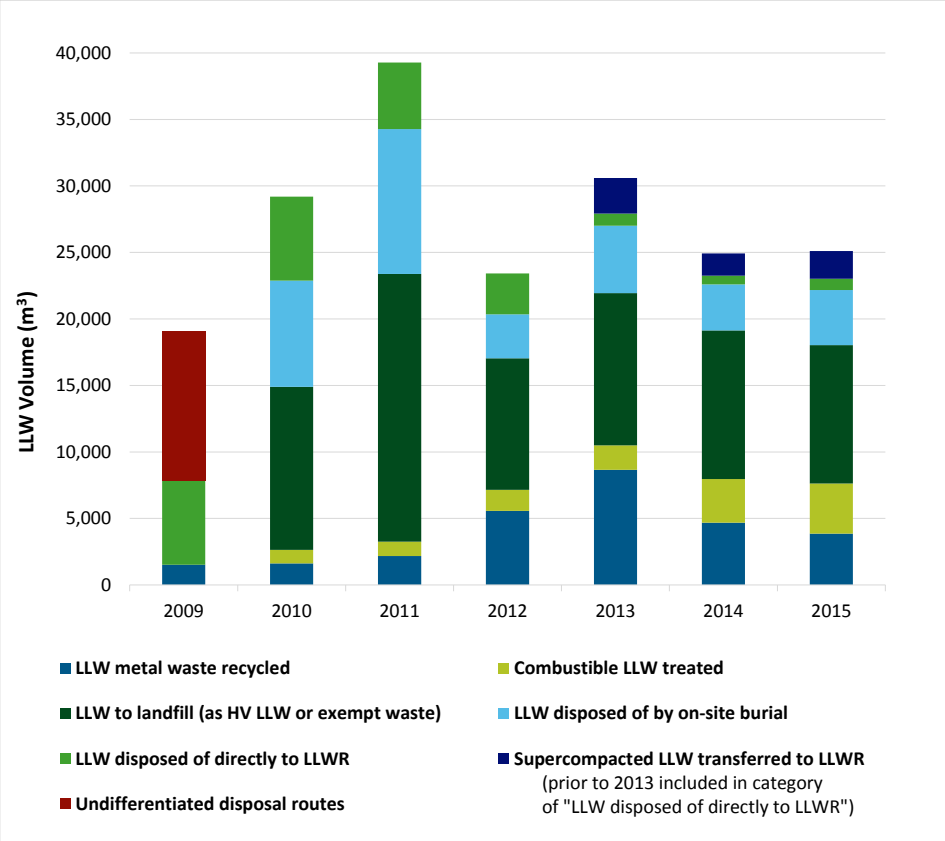
Performance Indicator	Base Year[2]	Unit	Base Value	Current (2015) Value	Relative Change[3] (%)
Electricity consumption	2007	TWh	6.89	6.44	-7
Water consumption	2007	m^3	5.07E+06	4.32E+06	-15
Greenhouse gas emissions	2007	Mt $CO_{2\ eq}$	5.50E-01	6.15E-01	12
Relative harm (dose) emissions to atmosphere	2007	(no units)	1866	1389	-26
Relative harm (dose) liquid effluent	2007	(no units)	2970	2417	-19
Low level waste: consignments to LLWR	2009[4]	%	33	11.8	-64
Inert waste: recycling rate	2007	%	94	97	3
Non-hazardous waste: recycling rate	2007	%	38	84	121
ILW volume conditioned and packaged	2007	m^3	19737	29694	50
ILW fraction (by volume) conditioned and packaged	2007	%	33	29	-12
Shading key:	Improvement		Relative Change	Deterioration	
			0-25%		
			25-50%		
			> 50%		

More detail on LLW disposals over the lifetime of the nuclear sector plan is given in

.

[2] 2007 and 2015 have been selected for comparison because similar amounts of electricity were generated. In 2007, 46.92 TWh of electricity was generated or 98% of the 47.77 TWh produced in 2015.
[3] Relative change is calculated by the formula: 'final value/initial value -1' and expressed as a percentage.
[4] No data was collected on LLW disposal routes in 2007. The data collected in 2009 is the earliest available as a component of the nuclear sector plan.

Figure 10: LLW disposals (m^3) by method of disposal from 2009 to 2015



Quantitative data was first collected as part of the nuclear sector plan in 2009. The nuclear sector has considerably reduced disposals to the LLWR over the lifetime of the plan. In 2009, 33% of LLW was sent to the LLWR for disposal while the proportion consigned to the LLWR from 2011 onwards has been below 13% each year.

It is evident from Figure 10 that, since 2010, landfill has been a significant disposal route and volumes of LLW incinerated are increasing year-on-year. This demonstrates how the nuclear sector has responded to government policy changes made in 2008. A greater volume of metal has been recycled each year since 2012 than previously, although quantities fluctuate depending on the type of waste disposed of in each year. Disposals to LLWR and on-site burial volumes have generally declined, although these fluctuate depending on the amount of 'difficult' waste disposed of each year.

Many significant milestones have been noted in nuclear sector plan performance reports since 2006. For example:

- 2008: A new LLW management policy is approved.
- 2009: Studsvik Metals Recycling Facility (now operated by Cyclife UK Ltd) opens at Lillyhall. Some large consignments of metallic waste are subsequently sent overseas for recycling including:
    - 2010: Calder Hall, 40 tonnes, Sellafield: 200 tonnes of LLW.
    - 2012: Berkeley consigns 5 boilers weighing 300 tonnes each, a total of 15 boilers are consigned by March 2013.
- 2010: Wylfa records an 85% decrease in water consumption since the site started sub-metering and determining minimum use targets.
- 2010: the Sellafield Site Ion Exchange Plant celebrates its 25th anniversary of operation. The plant contributed to reducing liquid effluent discharges from the site to 1% of 1970's levels.
- 2012: The Bradwell turbine hall is demolished, producing 12,000 tonnes of waste. 600 tonnes of this waste is sent to landfill, the remaining 95% of the waste is recycled.

These and the many other advances since 2005 are the result of multiple influences, some recent and some predating the nuclear sector plan, making it difficult to pick out the contribution of the nuclear sector plan from among the other drivers of change. However, environmental practitioners involved with the nuclear sector plan over many years generally agree that the plan has been the main influence on the following advances:

- identifying and quantifying all significant discharges from nuclear sites and helping to identify opportunities for improvement
- better monitoring of resources used and better reporting by the nuclear industry, again supporting improvements
- development and implementation of biodiversity action plans
- greater involvement with the public
- moving beyond a culture of compliance to a culture of continuous improvement

Some sub-sectors intend to continue to collect nuclear sector plan data to drive internal improvements in future. Although the nuclear sector plan performance report will no longer be published, it is expected that, in its absence, continuous improvements will continue to be driven by numerous corporate, sector-wide or national initiatives. Nuclear sector performance will be reported in a number of publications that have been signposted in this report.

Significant challenges ahead: beyond the nuclear sector plan

The UK government is still working with communities to identify potential sites for a deep geological disposal facility (GDF). Geological disposal is the preferred way of disposing of higher activity radioactive waste from England and Wales. In July 2013, the UK government published a new White Paper 'Implementing Geological Disposal'. This sets out a revised process for selecting a site for a geological disposal facility for higher activity radioactive waste. It mainly focuses on public consultation and the need for community buy-in. Preparatory work will include producing a National Policy Statement for geological disposal and a national screening process.

In Wales, following its own public consultation, the Welsh government issued a revised policy in May 2014, which supports geological disposal for the storage of higher activity radioactive waste. Following this, the Welsh government held a public consultation to seek views on the processes by which a GDF might be sited in Wales, and to provide information to potential volunteer host communities that may want to enter discussions, without commitment, about hosting a geological disposal facility.

A new framework has been developed for metals recycling, but the national infrastructure remains fragile when comparing forecasted waste arisings with waste disposal capacity. All nuclear industry interested groups, and particularly LLWR Ltd, Tradebe-Inutec and the NDA have important roles to play in remedying this situation.

The UK Strategy for Radioactive Discharges describes how the UK aims to help meet the Oslo and Paris Convention on the Protection of the Marine Environment of the North East Atlantic (OSPAR) interim objective. The interim objective is that, by 2020, discharges, emissions and losses of radioactive substances are reduced to levels where the additional concentrations in the marine environment above historic levels, resulting from these discharges, emissions and losses, are close to zero. The UK strategy does not set individual site limits for radioactive discharges, but it does describe results by sub-sectors expected to be achieved by 2020. The strategy aims to achieve progressive and substantial reductions in radioactive discharges, to the extent needed to achieve the expected results for each sector. This takes into account uncertainties such as new nuclear power stations, plant-life extensions for existing power generating sites and closure dates of reprocessing plants. The government's UK Discharge Strategy group has an important role to play in progressing this process.

More information

You can find more information on how individual companies have performed by following the links to their websites at the end of this report.

Feedback

We welcome your views on the content and/or format of the report. If you have any queries or comments, please contact nrg.south@environment-agency.gov.uk.

Useful links

Guidance on the scope of and exemptions from the radioactive substances legislation in the UK

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69357/pb13624-rsl-guidance-110914.pdf

Implementing geological disposal - policy paper

https://www.gov.uk/government/publications/implementing-geological-disposal

Integrated Waste Strategy document specification and format

https://www.gov.uk/government/publications/eng01-specification-and-guidance-for-an-integrated-waste-strategy

Ionising Radiations Regulations 1999

http://www.legislation.gov.uk/uksi/1999/3232/contents/made

Managing Radioactive Waste Safely

https://www.gov.uk/government/publications/managing-radioactive-waste-safely-a-framework-for-implementing-geological-disposal

Natural Resources Wales

English - http://naturalresourceswales.gov.uk/?lang=en / Welsh - http://naturalresourceswales.gov.uk/?lang=cy

Nuclear sector plan performance reports

https://www.gov.uk/government/publications/nuclear-industry-environmental-performance-reports

Nuclear sector plan Issue 3

https://www.gov.uk/government/publications/nuclear-industry-environmental-performance-reports

Radioactivity in Food and the Environment (RIFE) reports

http://www.sepa.org.uk/radioactive_substances/publications/rife_reports.aspx

RGN RSR2: regulation of radioactive substances activities on nuclear licensed sites

https://www.gov.uk/government/publications/rgn-rsr-2-regulation-of-radioactive-substances-activities-on-nuclear-licensed-sites

Ten principles of the UN Global Compact

https://www.unglobalcompact.org/what-is-gc/mission/principles

UK energy in brief 2015

https://www.gov.uk/government/statistics/uk-energy-in-brief-2015

UK National Low Level Waste Strategy

http://llwrsite.com/national-waste-programme/

UK National Radioactive Waste Inventory

https://www.nda.gov.uk/ukinventory/

UK Strategy for Radioactive Discharges

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/249884/uk_strategy_for_radioactive_discharges.pdf

Links to participating organisations

http://www.awe.co.uk

http://www.babcockinternational.com

http://www.baesystems.com

http://www.edfenergy.com

http://www3.gehealthcare.co.uk/

http://www.llwrsite.com/

http://www.magnoxsites.co.uk/

http://www.nda.gov.uk

http://www.rolls-royce.com

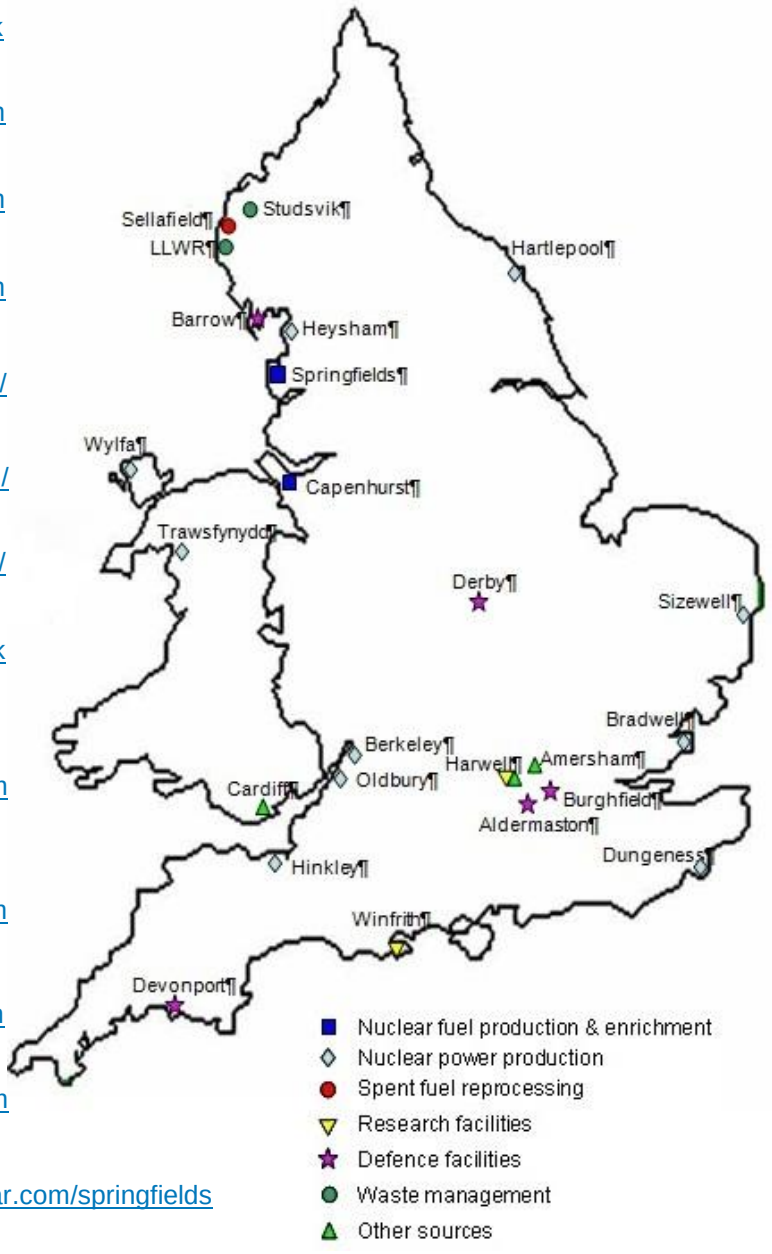
http://www.sellafieldsites.com

http://www.cyclife-edf.com

http://www.urenco.com

http://www.westinghousenuclear.com/springfields

http://nugeneration.com/



Would you like to find out more about us or about your environment?

Then call us on
03708 506 506 (Monday to Friday, 8am to 6pm)

email
enquiries@environment-agency.gov.uk

or visit our website
www.gov.uk/environment-agency

incident hotline **0800 807060** (24 hours)
floodline **0345 988 1188** (24 hours)

Find out about call charges: www.gov.uk/call-charges

Environment first: Are you viewing this on screen? Please consider the environment and only print if absolutely necessary. If you are reading a paper copy, please don't forget to reuse and recycle if possible.

LIT 10616