Nuclear Waste Services Annual Review 2021-22

Summary

Nuclear Waste Services

This year, we'll work collaboratively with governments, partners in the supply chain, and community stakeholders to assess how we can make Britain safe, sooner – and at less cost.

Chair's Statement

By NWS Independent Chair Adrienne Kelbie CBE

Adrienne Kelbie CBE
Independent Chair
Nuclear Waste Services

I am honoured to have been chosen as the first Chair of Nuclear Waste Services (NWS), which was formed in January 2022. This year marks the start of an exciting and challenging journey, which will set the tone for our direction over the next decades.

A division of the Nuclear Decommissioning Authority (NDA) group, we, at NWS, have the purpose, professionalism, and passion to deliver Government policy to safely manage the UK's nuclear waste innovatively and sustainably. In short, we want to help decommission the country's historical nuclear facilities so that they are safe, sooner.

NWS comprises three teams – the team from Low Level Waste Repository Limited (LLWR), which manages the Low Level Waste Repository, Radioactive Waste Management Limited (RWM), which is working to deliver geological disposal, and the team managing the Integrated Waste Management Programme (IWMP). Their expertise spans many areas such as nuclear science, engineering, and community engagement, backed up with corporate enabling functions, and NDA support.

Last year's operating environment was not easy. We have all had to deal with the impacts of COVID-19, and I'm particularly proud that we maintained an enviable safety record.

We also achieved other significant progress: the saving of taxpayers millions of pounds by providing advice and guidance to waste producers; active engagement with four communities about hosting a Geological Disposal Facility (GDF); and innovative projects to sustainably manage radioactive waste.

This year, we'll work collaboratively with governments, partners in the supply chain, and community stakeholders to assess how we can make Britain safe, sooner – and at less cost.

Chief Executive's Review

By NWS Chief Executive Corhyn Parr

Corhyn Parr
Chief Executive
Nuclear Waste Services

Our mission is fundamental to the UK nuclear decommissioning journey: there are more than 4 million cubic metres of waste still to be recovered and treated, comprising more than 1,300 different streams of radioactive waste.

The expertise of NWS is central to ensuring we protect people and the environment both now and for thousands of years into the future.

Alongside the organisational transition and development of NWS, this past year (1 April 2021-31 March 2022) we have seen some extraordinary successes:

1,318
radioactive waste streams[1]

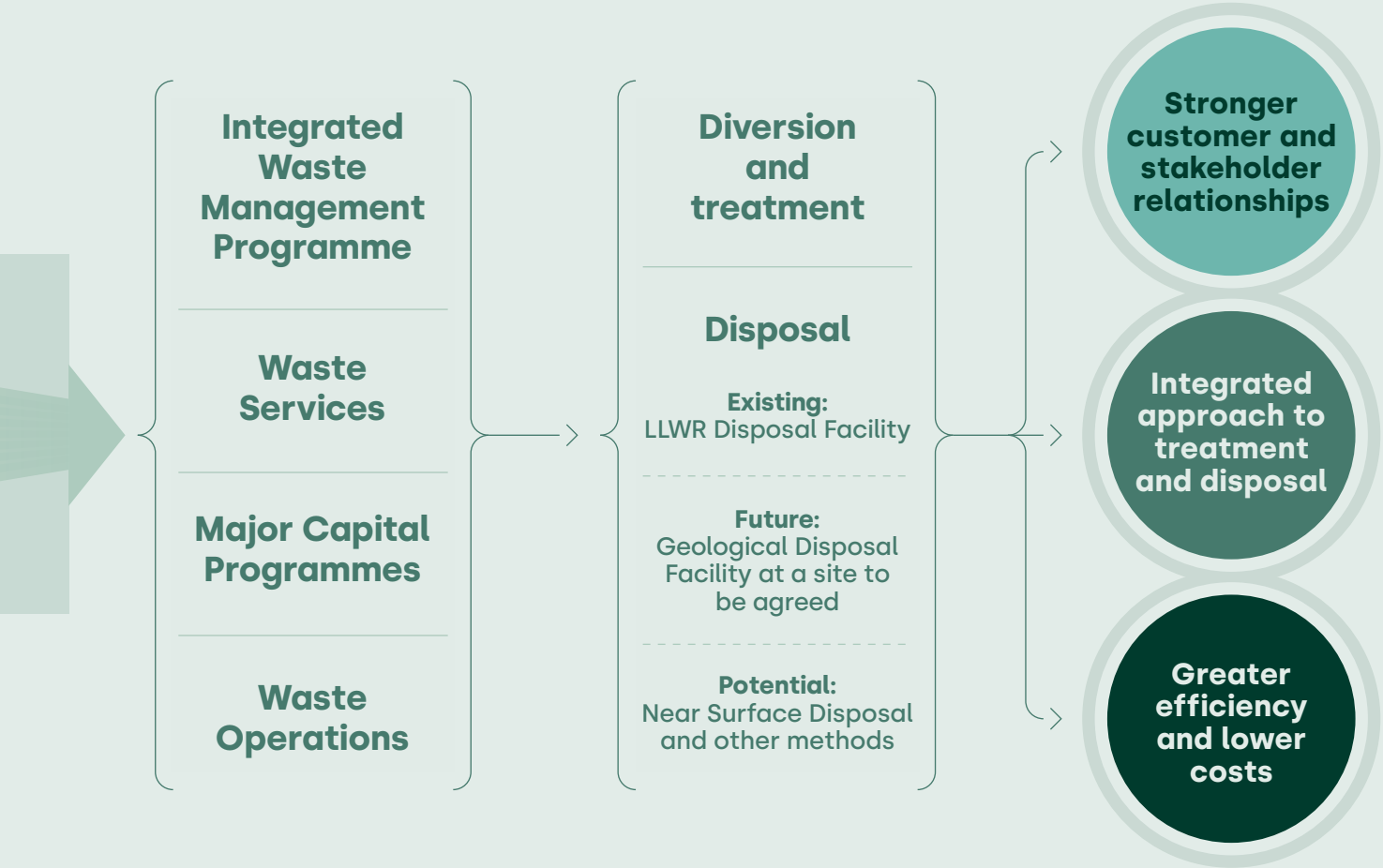
1 UK Radioactive Waste Inventory 2019

- An outstanding safety record – with zero reportable incidents at the LLW Repository Site throughout a very busy Covid impacted year.
- Real progress in the search for a suitable site and willing community for a GDF – with four search areas and community engagement in different parts of the country.
- Achieving £multi-millions savings through innovative management of nuclear waste, such as the treatment of plutonium-contaminated materials.

"The expertise of NWS is central to ensuring we protect people and the environment both now and for thousands of years into the future."

Looking ahead, we are focused on performance, efficiency, and delivering value for the taxpayer.

The next 12 months is about continuing to deliver, and making progress in transforming NWS into an organisation that can carry on delivering now and also building a new future. We will start to set out our plans, cementing our organisation as one team, and creating an ambitious strategy.



About Us

NWS is part of the NDA group, the non-departmental public body responsible for clean-up of the UK's historical nuclear sites.

At NWS, we specialise in managing and disposing of the radioactive waste produced from the nuclear technologies that have been part of our lives for more than 60 years and will continue to play a role in the UK's energy mix during the decades ahead.

Electricity generation, defence programmes, industrial, medical, and research activities have created an accumulated legacy of diverse waste materials that need careful management.

Looking ahead, we will also ensure the safe management of nuclear waste from the next generation of nuclear power stations that are set to be built as part of the UK Government's new Energy Security Strategy.

The creation of NWS in January 2022 brought together the expertise of Low Level Waste Repository Limited (LLWR), Radioactive Waste Management Limited (RWM), and the Nuclear Decommissioning Authority (NDA) group's Integrated Waste Management Programme (IWMP).

Our goal is to ensure that all this waste is managed safely and securely, through adopting more innovative and sustainable approaches to better protect people and the environment, both now and for the future.

The creation of NWS in January 2022 brought together the expertise of LLWR, RWM, and the NDA group's IWMP.

As a combined and highly specialised business, we are focused on achieving enhanced efficiency, improved sustainability, greater speed, and reduced costs.

Our vision

To secure a safer future for us all.

Our mission

Protecting people and the environment by managing the UK's nuclear waste innovatively and sustainably.

Our four core values

underpin how we conduct our business. They are ...

Action orientated.

We will deliver for our customers, communities, partners, safely and securely.

Ambitious.

We are problem solvers who embrace and act upon new challenges.

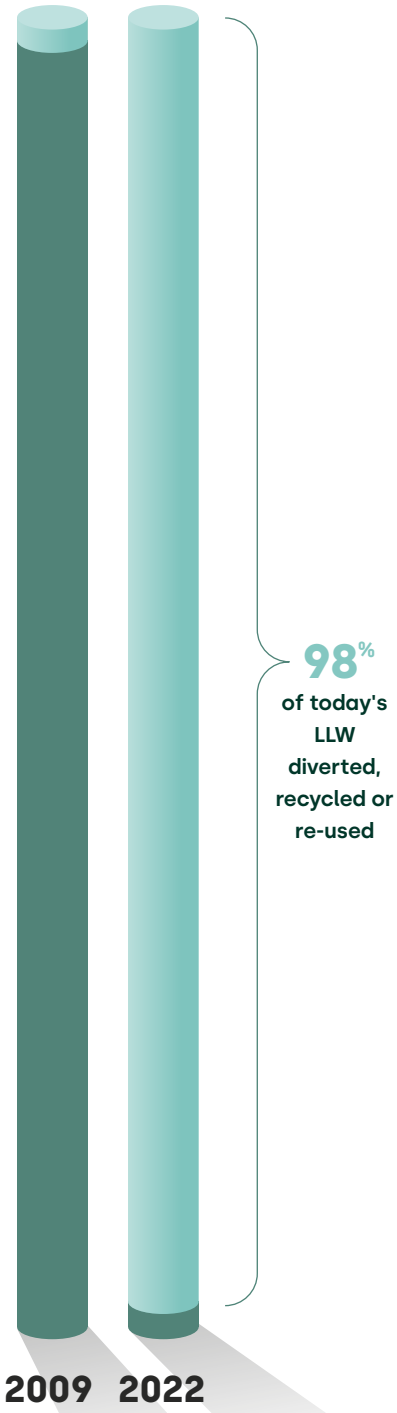
Collaborative and inclusive.

We have greater success when we work together.

Acting with integrity.

We can be trusted to build a safe, secure, and sustainable future.

in 2009, 98% of LLW was disposed of at the Repository but that figure is now reduced to just 2% as materials are diverted elsewhere, very often recycled and re-used.



Our activities provide the endpoint in the nuclear journey and are critical to the NDA's environmental clean-up mission, the largest of its kind in Europe.

To support our activities, we also carry out wide-ranging research, often in collaboration with international partners and academic institutions, into all technical details of geological disposal and waste management. We aim to achieve world-leading environmental and safety standards supported by the best available technologies.

We're supported by a combined team of around 850 people whose skills cover nuclear science, technology, engineering, safety, security, environmental protection, programme management and community engagement.

We are developing a Nuclear Waste Services corporate strategy that will take us into the future, which will be published by the end of March 2023. Our strategy will cover the full spectrum of radioactive wastes and set out how we will deliver our mission sooner and at less cost.

It will focus on how we will deliver high levels of performance and efficiencies; the development of our people, skills, and culture; and, where we can achieve value for the NDA mission through new capabilities and services.

We will grow significantly in the next few years as we work closely with partners in the nuclear industry, engineering, and construction sectors to deliver all our major programmes.

NWS Priorities

NWS is made up of four priority areas of work:

Integrated Waste Management Programme

Developing new NDA-wide capability and opportunities as part of a broader integration programme to underpin a more joined-up approach to waste management across the UK.

Waste Services

Working with customers across the UK to provide an extensive range of services, solutions, and equipment that address their waste management challenges. As well as providing expertise directly, we manage contracts and supply chain relationships across the waste lifecycle.

Waste operations

Managing and operating the LLW Repository nuclear licensed site and supporting our service offering. Focusing on safe, compliant, and effective waste management infrastructure, including design and construction of future disposal facilities on the site – and delivering the necessary closure engineering in accordance with the Environmental Safety Case.

Major Capital Programmes

Managing the delivery of large-scale capital projects, initially focused on a GDF. This GDF programme involves working with communities to find a suitable site and a willing community.

2021-22 year in review

Integrated Waste Management Programme

In Conversation with Director of Strategy and Integrated Waste Management Programme Claire Gallery- Strong.

When the NDA committed to creating an integrated programme to deliver its 2019 Radioactive Waste Strategy, the ambition was to drive changes in overall approaches, including creating a culture that allows greater flexibility for waste producers to manage their waste more effectively and develop proportionate solutions.

The Integrated Waste Management Programme (IWMP) was established as the vehicle to implement the strategy, with identification and development of early activities, re-affirmed in the NDA's subsequent group-wide Strategy 4, published in 2021.

To achieve the IWMP vision, we laid out a 15-year roadmap with milestones in both the near term and longer term, plus an initial five-year plan.

The prioritisation of waste reflects the One NDA approach, which brought group businesses closer together and removed commercial barriers which had resulted in more individual site-focused strategies. Now, we're able to take a holistic full lifecycle view across the group and achieve greater flexibility and efficiency by fundamentally re-visiting how we've previously managed both conventional and radioactive waste.

Greater collaboration and integration are already breaking down barriers across our organisations and with waste producers. Although we've dealt with waste for many years, it has moved centre-stage thanks to the NDA's progress in dismantling facilities at sites and Sellafield's transition from reprocessing to full-scale decommissioning, along with the Magnox rolling programme of decommissioning.

Establishing NWS is a logical step, uniting our waste expertise in a single organisation and as a longer-term enabler for the programme.

A number of projects are now under way, including how waste-focused career pathways can create a powerful, professional waste workforce, attracting talent, and growing the capability we need to deliver the decades of waste management yet to come.

Other projects define how we can implement an approach that reframes our perspective on waste to focus on the risk associated with the chemical and physical properties of the waste. We call this a 'risk informed' approach to waste management.

The prize is significant – Sellafield alone has identified that billions of pounds could be saved by managing waste differently over its lifecycle, without compromising safety.

There are so many exciting innovations in the pipeline, including thermal treatment for some wastes to reduce volumes and packaging requirements, new forms of encapsulation, or dispensing with cement.

"The prize is significant – Sellafield alone has identified that billions of pounds could be saved by managing waste differently over its lifecycle, without compromising safety."

2021-22 year in review

Waste Services

In conversation with Chief Operating Officer Martin Walkingshaw.

Our wide-ranging services for all producers of radioactive waste are an important element in the country's nuclear infrastructure. We provide advice and treatment or disposal options to decommissioning sites, operating nuclear power stations, defence, medicine, and research industries – in fact, wherever radioactive waste is produced.

Our remit has expanded over the last decade in support of the Government policy which emphasises the waste hierarchy, with disposal at the LLW Repository site now the last resort after other treatments have been explored. The aim is to divert waste to more environmentally sustainable options wherever possible, such as recycling of contaminated metals which we achieve through a variety of means, including chemical treatment, abrasive surface treatment, and metal melting. The radioactive contamination removed by these processes is packaged and sent to the Repository for disposal, the clean metal is then recycled.

Our 'one-stop' service takes care of everything, from advice through to waste characterisation support and selecting the right packaging. We offer integrated transport services, together with treatments that range from metallic waste recycling, super-compaction, and incineration, to disposal in specially licensed landfill sites or our Repository.

"Our 'one-stop' service takes care of everything, from advice through to waste characterisation support and selecting the right packaging."

We work closely with customers on packaging, with a range of containers for wastes including those that are re-usable, while our site teams provide inspection and maintenance for those packages. The pace is intense and our phones ring daily with new customer projects to support, which is exactly how we like it.


SERIAL NO.2947 2990
TARE 2660 KG
MAX GROSS 35000 KG
RAILS
D
2CUV

2021-22 year in review

Waste Operations

In conversation with Martin Walkingshaw

As part of the wider NDA group, we play a critical role in one of the largest long-term nuclear clean-up programmes in the world. Our work covers all aspects of waste management – from initial safety, through optioneering, characterisation, packaging, transport, treatment, and disposal.

At the LLW Repository site, we've come to the end of two major programmes in the last year. After a journey stretching back to the 1990s, we're demolishing the last of the five WW2 era 'magazines' (concrete bunkers) where plutonium- contaminated material (PCM) from sites across the UK was stored from the 1960s onwards.

Following removal of the bulk of PCM to Sellafield during the 2000s, the magazines and the associated retrieval facilities built to facilitate PCM retrieval, size reduction, and repackaging needed a lengthy programme of remediation and decontamination.

Through a process of learning from experience and continuous improvement, we saved around four years from the original 10-year programme, reducing the cost of the work by £20 million from the original estimate of £100 million.

Notably, on this hazardous work, we also achieved 400,000 hours without a single lost-time accident. This achievement is simply immense, and is the result of close collaboration with our contractors, careful forward planning, and attention to detail.

We have also completed a series of major security enhancements and officially opened the site's new Site Emergency Control Centre (SECC). The work included a new perimeter security fence and a re-designed reception area to allow vehicle searches and visitor management before entry to the site's secure area.

Our Total Reportable Incident rate, or TRI, stands at zero at 31 March '22 – no incidents or accidents at all, across a rolling 12-month target.

This achievement comes at a busy time for us. We've just passed 300,000 hours on the Repository Development Programme (RDP), one of our major developments that will include construction of a final engineered cap over Vault 8 and adjacent section of the trench cap.

As part of the RDP, we've been constructing roads, bridges and installing drainage, which involves heavy equipment and moving around large quantities of material. Trains are also constantly arriving loaded with aggregates to be unloaded and transported to different site locations.

"Through a process of learning from experience and continuous improvement, we saved around four years from the original 10-year programme, reducing the cost of the work by £20 million."

2021-22 year in review

Major Capital Programmes

In conversation with Deputy CEO and Major Capital Programmes Director Karen Wheeler.

Our major highlight in 2021-22 was the creation of a GDF Working Group in Lincolnshire (which became a GDF Community Partnership in June 2022) and the progress of discussions in west Cumbria, where there are now three longer-term Community Partnerships, each based on a different search area.

In these areas, we're beginning to forge strong relationships with people and our dialogue is moving forward at pace as we hold more community engagement events.

A GDF will create more than 4,000 jobs over the next 25 years during the early stages of siting and initial construction. And we would aim to recruit many of the roles – such as construction, engineering, science – from the region local to the site chosen for a GDF. This would follow the approach adopted by other major infrastructure projects, such as Crossrail, which have demonstrated that it's possible to train and recruit locally.

From personal conversations, I am pleased to see that many local residents acknowledge the need for a GDF. We welcome all views and are always pleased to respond to questions or point to independent sources of information.

We're delighted to see the first allocations of grant funding for local initiatives, such as mid Copeland GDF Community Partnership's support for a new BMX track at Seascale. This kind of funding is available once a Community Partnership forms and requires no commitment to host a GDF. I very much look forward to seeing more funds distributed for local projects that will have a positive impact on the lives of people in the area for years to come.

In Lincolnshire, the community around Theddlethorpe is new to nuclear, and we're hearing a wide range of views. We've held several series of public events where our specialists have been answering many questions and


Where could a GDF be built?
Agreeing where a GDF may be built is a long-term process.
No decision has been made about where in the country a GDF will be built
Theddlethorpe search area
Inshore area up to 22.2 km off the coast
e Theddlethorpe GDF W
urther consideration. As
is defined using district ele
&Theddlethorpe, and Mable
• The former gas terminal site
for the GDF surface facilities. T
(beyond the coast) will be consider
• The ward of Mablethorpe has beer
boundary of the gas terminal site
associated developments, such
• If a Community Partnership is fo
narrowed down until a specific s
be directly affected by the facilit
community is known as the 'Po
the people living within this are
Public Support.

conversations are starting to open up. A search area has been identified and, with the formation of the Community Partnership, we're hoping to continue building on those early discussions.

We continue talking to other organisations and individuals across the country, which gives us confidence that more Working Groups could emerge in time.

Looking ahead, it's important to continue raising our profile as a vital UK project, one that deals with the legacy of the past and protects the future. We need to address the many questions about nuclear waste, provide reassurance, and build understanding of why a GDF is both vital and beneficial for the country.

Looking at the technical preparations now required, we're making real progress with steps that will show us whether sites are really suitable for a GDF, including a marine geophysical survey taking place off the coast of Copeland this summer. We're well placed thanks to the huge amount of work over the last year in ensuring the business case, associated approvals, funding, planning, and procurement are all set up.

The survey will provide valuable information about the potential of an area to host a GDF, allowing us to plan further investigations such as borehole drilling.

Meanwhile, we're building a strong team of technical experts to ensure we have the capability to procure and deliver all the work associated with evaluating potential areas for a GDF.

We will also continue collaborating with international organisations who are on a similar journey to find disposal sites for their own wastes. It has been encouraging to see overseas progress, particularly in Sweden, where the government has now endorsed the Forsmark site, in Finland where construction is under way, and in Canada where borehole drilling has been completed. We have much to learn from their experiences and much to share from our own.

"We're beginning to forge strong relationships with people and our dialogue is moving forward at pace as we hold more community engagement events."

Forward Look

Priorities for 2022-2023

- **Creating Nuclear Waste Services**
  We will continue to integrate and transform our new business. A new corporate strategy will support the delivery of the NWS mission and set out future opportunities.

- **Integrated Waste Management Programme**
  Following the establishment of NWS, our 2022-23 objective is to develop an enterprise-level model and implementation strategy for the management and disposal of the UK's radioactive waste inventory, recognising the associated priority of delivering a GDF. These will demonstrate how to deliver the IWMP £2.3 billion savings target, plus identify opportunities and the assumptions to achieve them.

- **Delivering waste services**
  We will continue to support risk and hazard reduction across the NDA estate, enabling alternative uses for assets freed up and exploring the waste treatment and disposal options with potential wide-ranging benefits.

- **Delivering waste operations**
  Our key objectives include delivering the next planned operational campaign along with the associated maintenance, asset care, and project delivery work on the LLW Repository Site. We will also ensure that sustainable disposal capacity is available for waste producers across all sectors and maintain compliance with all regulatory requirements.

- **Delivering the GDF Programme**
  Our priorities are to maintain progress with the Community Partnerships and exploring whether to form additional Working Groups. We will continue working to build strong relationships and trust across whole communities and support them to develop a vision for their area, which reflects their needs and priorities. We will progress site evaluation activities and surveys, and development of the technical programme, providing input to the design management arrangements for a GDF with principles that drive technological innovation and sustainability.

Longer-term planning

Looking further ahead and out to 2024 and beyond, many of these priorities will continue. The NWS transformation programme will help to shape our organisation as a world-leading waste specialist providing services across the NDA group and wider nuclear industry.


Dounreay

Nuclear Waste Services

www.nuclearwasteservices.uk

Nuclear Waste Services is a joint trading name of LLW Repository Limited (Company Registration No. 05608448) and Radioactive Waste Management Limited (Company Registration No. 08920190). Both of these companies are registered in England and Wales with their registered office located at Pelham House, Pelham Drive, Calderbridge, Cumbria CA20 1DB.

Part of the NDA group