Integrated Waste Management Programme

Annual**Review 2021**

Dounreay Magnox Sellafield Ltd

LLW Repository Ltd NTS Nuclear Transport Solutions Radioactive Waste Management

IWMP

A word from our CEO Designate

Corhyn Parr

I'm truly excited at the opportunity we have in front of us to think differently about how we manage waste across our nuclear industry, and to really explore more broadly what's possible for our approach to managing waste in the future.

By fundamentally re-looking at the way we manage conventional and radioactive waste, we can achieve greater flexibility and efficiency – from treatment, through to packaging and disposal. By operating in a more collaborative and integrated manner across the waste life-cycle, we are already starting to break down barriers to working more effectively- not just across our waste management organisations but also with waste producers too.

In 2020, the NDA established its integrated waste management programme (IWM) to identify and develop more flexible waste treatment options and disposal routes to make our sites safer, sooner and demonstrate greater value for the UK taxpayer. We laid out a 15-year road map outlining the near and longer-term milestones required to achieve our IWM vision. This report aims to provide a progress report against some of our objectives.

The use of thermal technologies is one option that could offer substantial benefits to our clean up mission, such as significantly reducing the volume of packaged wastes, and placing the wastes in a more passively safe form. Introducing technology such as this across the NDA group, will see huge savings by avoiding the need to construct new waste treatment and storage facilities.

We have initiated a programme of work to look at providing a new thermal treatment capability and are developing a concept design, confirming the types of waste that can be treated and benchmarking internationally to bring best practice from around the world.

Another key area of work for the IWM programme is developing our waste culture into one that supports the most effective waste management practises. This involves changing how waste is viewed across its life-cycle to progress towards a truly waste-informed culture, one where we have the right solution for the right waste at the right time. We have created a roadmap to how we'll achieve this goal. Our immediate focus is on developing a career pathway for waste professionals to ensure waste management offers exciting and rewarding careers and to secure our people capability for the future.

In February 2021, the NDA announced its intent to create a Waste Management Division to act as enabler for the IWM Programme, once it becomes operational in January 2022. I am working closely with Karen Wheeler, CEO, RWM and Martin Walkingshaw, CEO, LLWR and other key stakeholders, to shape what the new division will look like and how it will face the external world.

In establishing the single waste entity, we want to create a place of work that allows our people to grow and develop, and feel both energised and proud to be part of the waste management sector.

Corhyn Parr
CEO Designate, NDA Waste Division

A view from our Chief Strategist

James McKinney

Effective waste management is an essential requirement for the delivery of our mission and we remain committed to seeking opportunities for waste optimisation and delivering robust, cost-effective and sustainable infrastructure.

In 2019, when we committed to creating an integrated waste management (IWM) programme to deliver our Radioactive Waste Strategy, our ambition was to drive changes in overall waste management approaches, including behaviour and culture that enable waste producers greater flexibility to more effectively manage their waste and develop proportionate waste management solutions. The IWM Programme will embrace the IWM principles laid out within both the Radioactive Waste Strategy and the latest NDA Strategy 4 publication that supports the identification and development of its early activities.

I am therefore pleased that during its first year, which builds on previous work by the NDA and its businesses, the Programme has taken some significant steps forward in identifying ways to work more collaboratively with waste producers. As you will see from this Annual Review, the Programme is making solid progress in adopting an integrated cross-group approach throughout the waste management life-cycle, and in turn, this is starting to provide greater clarity around the group capabilities that will be required to deliver our waste management strategy. Progress made to date in the development of a scenario modelling tool is evidence of this, which when complete, will enable a system approach that allows us to model impacts for the entire group of potential changes to waste streams.

Of course, the programme is still in its infancy and its scope will evolve as it matures. As we move forward in managing waste across the life-cycle, the Programme can further its work with site licence companies to broaden opportunities to minimise, re-use and recycle waste, to appropriately manage environmental impacts, seek opportunities to change the destination of waste through optimised routes, while of course recognising that disposal solutions will always be required.

In overseeing the IWM Programme, the NDA will continue to ensure that effective waste plans are being safely implemented across the NDA group, recognising the need to manage risks and pursue opportunities site-wide, estate-wide or, if appropriate, across the UK.

The NDA continues to support the UK government and devolved administrations in the development of their radioactive waste management policies. Consideration is currently being given to consulting on updating some of these radioactive waste management policies which, if taken forward, could allow us to implement new management and disposal options for a proportion of our HAW inventory and for those wastes that lie at the boundary of ILW to LLW classification, while ensuring that waste minimisation activities are being pursued throughout the life-cycle.

I look forward to seeing continued progress in this area as the IWM Programme continues its journey.

James McKinney
NDA Chief Strategist, Integrated Waste Management

Waste.
It's all of our business

Waste, and how we manage it, is increasingly becoming a focal point of our work, as our sites move away from operations to full-scale decommissioning and environmental remediation.

We're generating larger volumes of lower activity radioactive wastes, as well as conventional wastes too.

This brings an opportunity for us to think differently about waste, focusing on how we can avoid, minimise, re-use or recycle waste to create a more sustainable approach to our mission. We've already diverted around 95% of the waste away from the LLWR facility in west Cumbria by thinking differently, and now it's our ambition to build on that success with some other types of wastes too.

In line with NDA's recently published Strategy four, we're looking to manage waste on the basis of its risk - its chemical, physical and radiological properties - rather than its radiological classification alone.

We call this a risk-informed approach. It will allow us to provide more flexible, long-term waste management solutions for treatment, packaging, storage and disposal of both radioactive and non-radioactive wastes, ensuring that we have the right solution for the right wastes at the right time.

The Integrated Waste Management (IWM) Programme

In November 2020, the NDA launched the IWM Programme to optimise end-to-end waste management and deliver increased value to the taxpayer. In January 2021, we announced our intent to create a single waste division as the longer-term enabler for the IWM Programme, delivering both strategic and operational benefits. We're already starting to integrate our waste management activities across the NDA group to optimise how we characterise, package, store and transport waste through to its final disposal.

We're engaging with our supply chain to look for opportunities to reduce the costs of decommissioning, avoiding unnecessary use of resources such as waste packaging and interim storage costs. We're working collaboratively within the NDA group to create a single waste management culture with a common approach to radioactive waste management, one where we put waste at the heart of our business and consider its entire life-cycle. We're seeking a culture where we can develop group-wide waste management solutions and share good practice and learning from experience – within the UK and internationally.

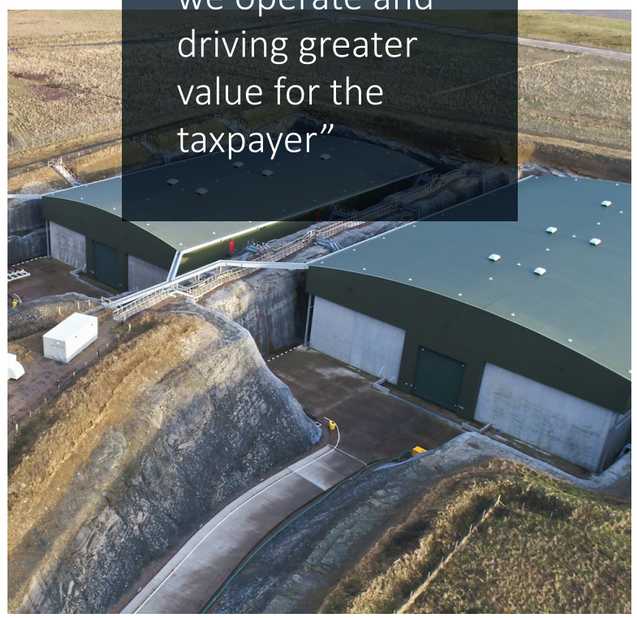
This is a major change in the way we work, and its success relies upon initial investment in new infrastructure, technology and skills. We aim to create a dynamic and flexible workforce serving the UK, while working continuously to identify more efficient ways to manage waste and demonstrate greater value for the taxpayer.

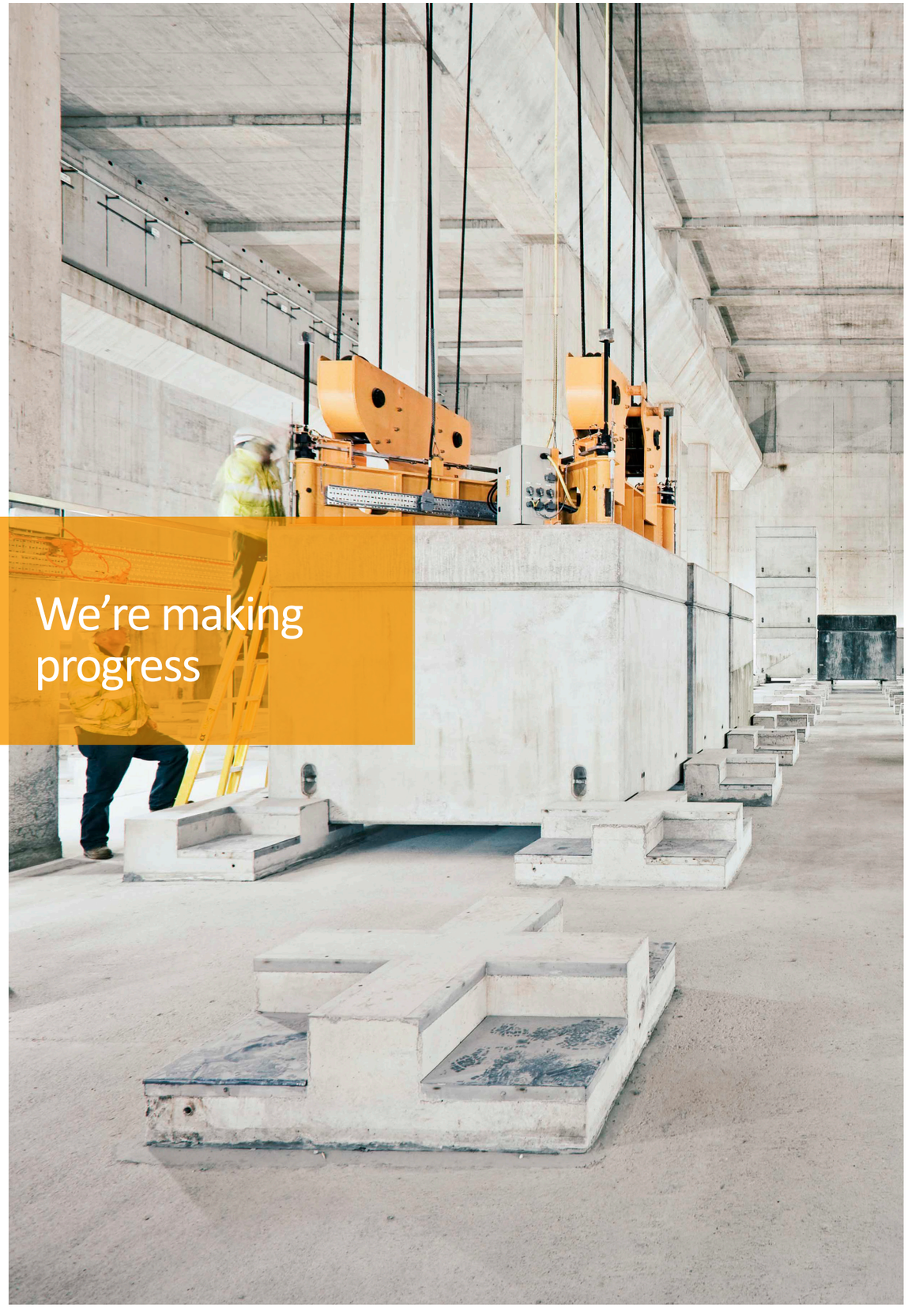
Waste management activity that falls within the IWM Programme accounts for £25bn of the total nuclear provision of £130bn. We've already identified potential savings of around £2.3bn that could be delivered through a range of new waste treatment facilities, packaging and disposal routes.

The IWM Programme adopts a system approach and comprises a broad spectrum of activities. Work programmes already under way include a scenario modelling tool that looks at the whole waste life-cycle and allows us to understand the impacts of any changes to waste streams. We're also initiating new ways of treating waste, such as thermal treatment technology where we are embarking upon a pilot programme. The size and scale of our IWM activities are varied and will extend to large scale infrastructure projects.

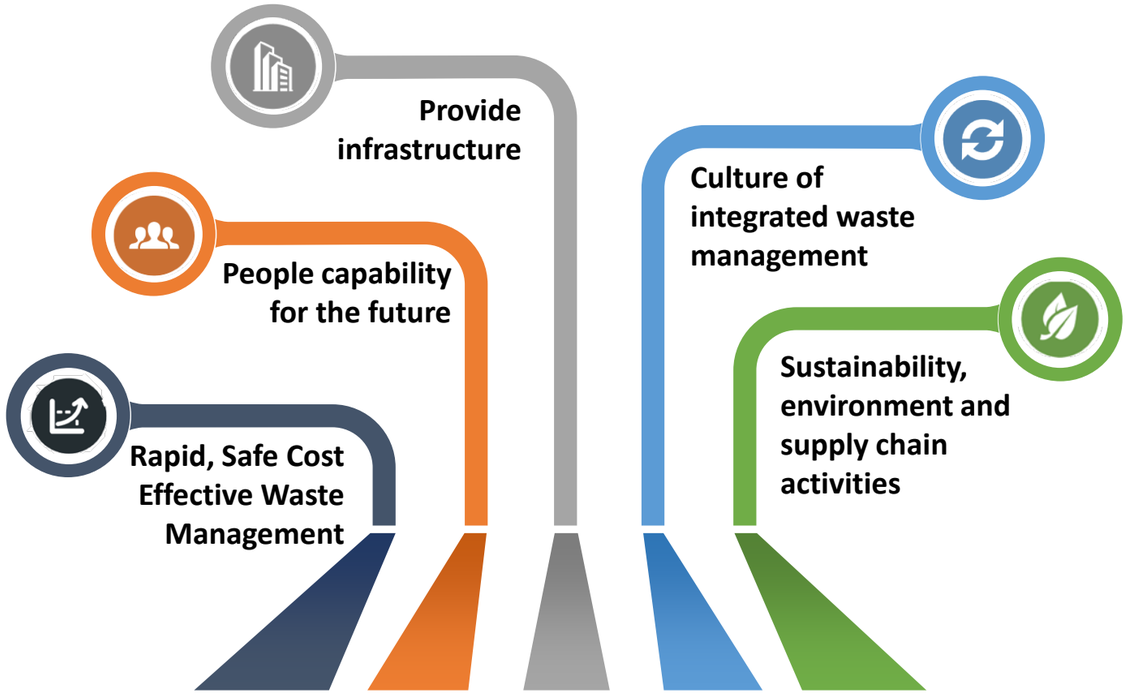
Operating across the waste management life-cycle, we're bringing together all NDA waste producers and waste management companies into a combined and truly integrated programme, supported by the supply chain, to manage the UK's radioactive waste more efficiently.

"Our intent for a single waste division is about optimising our expertise, growing capability, simplifying how we operate and driving greater value for the taxpayer"





We're making progress



Since April 2020, we've established an NDA groupwide governance approach to oversee delivery of our integrated waste management activity.

An important part of this includes the central role that our regulators play, providing independent guidance and oversight of our work.

To ensure we have alignment across our waste management activity, we have integrated our existing waste programmes, the National Waste Programme and the Strategic Waste Programme. We have also aligned our work to ensure the safe, long-term management and accessibility of radioactive waste records. Working collaboratively, we have established a common set of objectives, prioritised activity and clarified accountability across the whole of this work.

We have built upon the progress made to date on problematic waste by the NDA Integrated Project Team. We've created a forward schedule of priority wastes that need to be addressed and we have established our intent to develop group wide capability to address the business priorities.

Making progress against our strategic objectives

Rapid, Safe Cost Effective Waste Management

In striving to work more effectively, we are developing a comparative modelling capability that allows us to combine our groupwide waste inventory data with our plans for treatment, packaging, storage and disposal of waste. It will enable us to model and analyse different waste scenarios with their inherent uncertainties so that we can fully optimise our life-cycle planning for waste management. Our model is already being used across the group and has proved valuable to our Magnox business in supporting its rolling programme of reactor decommissioning.

We have started our work to adopt a more efficient approach to waste packages and containers, in line with Strategy 4, and we are continuing to explore the feasibility of additional disposal routes, including near surface disposal of ILW.

People capability for the future

Our mission is inter-generational and our immediate focus has been on developing career pathways for our waste professionals. We are examining options for chartered and professional status which will enable us to develop and ensure appropriate capability for the future.

Provide infrastructure

We are reviewing our current infrastructure to gain a comprehensive understanding of our groupwide requirements, to identify where there are gaps and also where resources and capabilities already exist that can be shared wider across the NDA group. Working with our Sellafield business, we have secured funding for work to provide new waste treatment capability known

As part of our IWM approach, we have 6 major programmes of work underway to manage waste in a more efficient and flexible way

as thermal treatment, which is aimed at treating intermediate level wastes.

We are currently developing a concept design, confirming the types of waste that can be treated and looking internationally to bring best practice from around the world.

Seeking innovation is at the heart of our IWM Programme. We're developing procurement strategies that will initially involve asbestos and evolve to our other priority areas of metals treatment and characterisation.

We are preparing an innovation partnership approach aimed at developing an innovative product, service or initiative which, subject to funding approval, will then be adopted and used as part of the IWM Programme of activities.

Culture of Integrated waste management

In creating the IWM Programme, we established 5 key strategic themes that would help us to think differently about how we can manage waste more efficiently across the waste life-cycle. We have made progress against each of these themes.

We're developing a group wide approach to how we manage waste. Our IWM Programme is resourced from across the NDA group and is truly collaborative in its approach. All of our businesses contribute to its ongoing development and delivery. Collectively, we set priorities and define the activities that our operating units need to deliver waste management rapidly and effectively.

Sustainability, environment and supply chain activities

The NDA is committed to supporting the government in its 2050 legal obligation for carbon net zero and we are establishing a roadmap to deliver this. The launch of the IWM Programme and its five key themes, including sustainability, creates a platform to embed sustainability into decision-making and the supply-chain.

Cement has been an initial area of focus for us. It is an essential ingredient in the production of one of the most used global commodities, concrete. We use significant quantities of cement in our group wide processes throughout the nuclear waste life-cycle. Alternative concretes within the NDA group are already a common feature. Exploring other lower-carbon cements could help the NDA group reduce its carbon footprint.

Culture of integrated waste management

We are committed to creating a culture where waste is at the heart of what we do. We want all our employees to feel proud to be part of a waste organisation, recognising the difference they can make today and for future generations. We have worked across our businesses to develop a waste culture vision (shown below) and roadmap for change. Our approach has identified five key areas – communication, waste profile, vision and leadership, people and processes.

The important role of waste management in the overall delivery mission is visible and articulated to all employees. Waste is 'on the agenda', and waste management expectations are clear. Successes and opportunities for learning are captured and shared widely.

Waste management strategy encompasses the full waste life-cycle. There are clear delivery structure roles, responsibilities and accountabilities, and waste management requirements. Straightforward, accessible procedures and suitable infrastructure are available to meet local needs.

Everyone is responsible for waste management and it is a key consideration for project planning and delivery. A 'waste voice' exists at Executive level and waste tasks are prioritised and incentivised appropriately.

Waste is professionalised, with targeted training, general knowledge improvement and wider professional standards. Current and future resource needs are identified and addressed, with clear career development pathways. Staff feel valued and empowered to make decisions/provide constructive challenge.

There is a clear vision, championed by senior management, that recognises site-specific context. Leaders and champions of good waste management identified to influence behaviours and win 'hearts and minds'. Cross-industry collaboration and synergy with existing culture-improvement programmes.

Focus on 2021

Our IWM Programme is a 15-year integrated waste management journey.

We're focused on both long-term and near-term plans

We have prioritised the areas which our group businesses have identified as important. These include waste characterisation, packages and containers, storage and disposal, as well as collective, waste-informed decision making.

Our focus in 2021-2022 will be to progress work in all these areas.

Packages and containers

Our approach to waste packages and containers is a key focus of our integrated waste management strategy. It is also a key consideration in waste transportation, by rail, road or sea. For this reason, we will work closely with NDA's transport business, Nuclear Transport Solutions (NTS), to co-ordinate our current activity and determine the most effective way to optimise efficiencies in the future.

Waste characterisation

Understanding the characteristics of waste is a vital step in the planning and preparation stage of the waste life-cycle; and, supported by NDA sponsored industry guidance, there's more we can do to enable early characterisation. We will assess the benefits that could be delivered by making a group wide 'mobile' capability available to different sites. We already use a range of characterisation techniques across the group and we will develop a forum to ensure knowledge capture and share best practice.

Boundary wastes

Our review of the UK Radioactive Waste Inventory has identified a broad range of wastes which could be disposed of differently, reducing the burden on our disposal facilities.

In line with current UK (England and Wales) Government policy and NDA Strategy Four, and with recommendations made by the Committee on Radioactive Waste Management (CoRWM) in 2006, we are already exploring the opportunity of near surface disposal as an option for the final disposal of some less-hazardous intermediate-level waste, recognising that the deep isolation of geological disposal will always be required for the UK's higher activity waste.

Sustainability

Sustainability can be interpreted in many ways and, over the next year, we will determine what it means in the context of Integrated Waste Management. We will also work with our supply chain to better understand the requirements for sustainable supply chain activity and how we can secure the supply of capabilities that are essential to delivering waste management well into the future.

Spotlight on the future
Non-radioactive waste management

Delivering effective, timely and sustainable non-radioactive waste management will help us deliver the scale, scope and pace of our ambitions for decommissioning and remediation of the UK's civil nuclear sites.

What is non-radioactive waste?

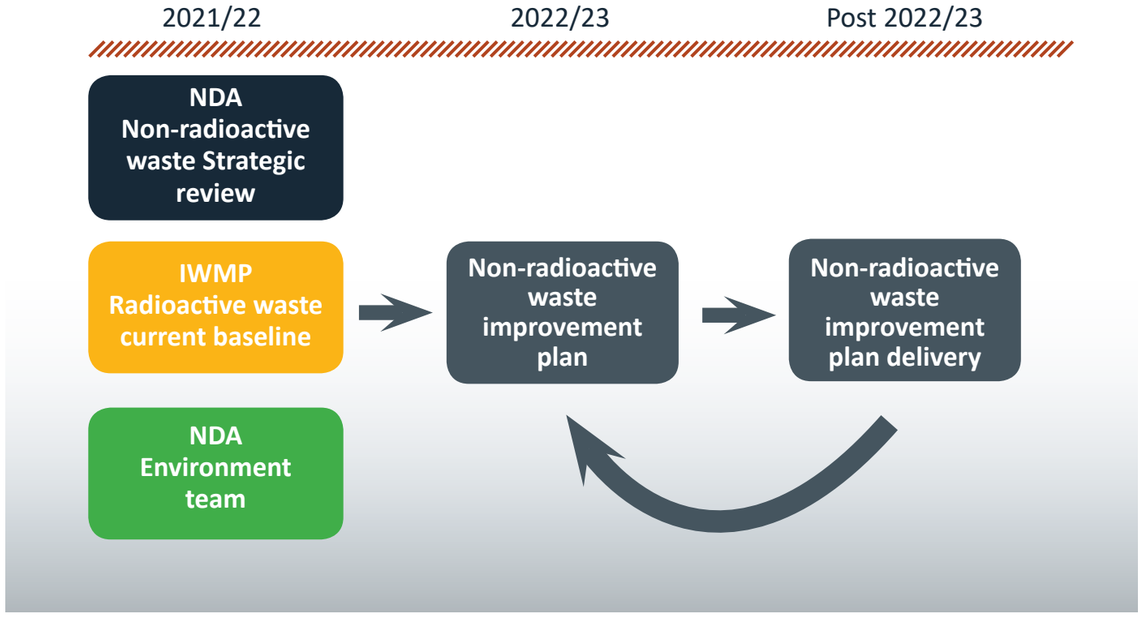
NDA sites currently generate non-radioactive wastes including demolition rubble, soil, packaging, paper and food waste. These wastes are produced from operational, site decommissioning and remediation activities.

So, no problem then?

Increasing the scale and pace of decommissioning and remediation across our sites will significantly increase the range and volumes of non-radioactive waste being generated. We need to have the right arrangements in place for these wastes to deliver the decommissioning plans for the NDA. Some non-radioactive wastes, such as asbestos, are hazardous and their management needs careful planning.

How is the IWM Programme going to help?

Next year, the IWM Programme is going to deliver a non-radioactive waste current state baseline study to better understand the current landscape for management of this waste across NDA Group. This work will support the Strategic Review being delivered by NDA Strategy (as an NDA Strategy 4 commitment) and ongoing improvement work being delivered by NDA Environment team. The teams will work together on developing an improvement plan for non-radioactive waste management and supporting the IWM Programme in initiating work on its delivery, alongside the non-radioactive waste management community.



Spotlight on success

In this section we take a look at some of the success stories that have unfolded as part of the IWM Programme over the last twelve months

Thermal waste treatment - case study

A waste treatment option that could reduce the carbon footprint of our mission and the volume of intermediate level waste for geological disposal has real potential.

A new £100m programme could deliver multi-billion-pound lifetime savings across the NDA group.
We are developing plans for 3 pilot thermal treatment facilities for our higher activity wastes, the first of which could start operating from 2023/24. The three facilities would cover plutonium contaminated material, pumpable intermediate level waste and mixed beta gamma waste.

We currently manage most of our highly active waste through tried and tested techniques such as cementitious grout encapsulation. However, this approach has its challenges and leads to an overall increase in the volume of packaged waste that must be managed. Taking radioactive sludge as an example – a 500 litre drum might only include 25 litres of radioactive sludge .

There are some potentially significant benefits of thermal treatment for our ILW. These stem from the ability to significantly reduce the volume of waste to be stored and disposed of. This leads to large financial savings and reduces our reliance on storage and disposal facilities. Flexible treatment capability could mean that we require fewer treatment and storage facilities and this could mean a reduction in the amount of decommissioning waste that would ultimately need managed.

Following on from many years of R&D, strategic and economic work, a Sellafield team evaluated implementation of thermal treatment technology in 2019 and developed an understanding of the capability that is required and the best way to deliver that, to achieve the strategic and economic benefit.

David Connolly has recently joined the team as Head of the thermal treatment programme. He said: “The development of thermal waste treatment could be the most exciting technological innovation at Sellafield in a generation. This would see a new treatment method become routine.

“Volume reduction of waste meets the waste management hierarchy and is in keeping with our waste management approach across the site, which also includes evaporation and compaction.”
“We’re delivering this programme on behalf of the NDA and the country as a whole. Our plan is to develop not only the technology, but also the skills, mindset and capability required to succeed in a new method of waste treatment.”

The three facilities would all be located on the Sellafield site. The project team are working closely with the land management and master planning teams to identify suitable locations.

The thermal treatment options would be delivered in partnership with our framework partners including the Enabling Innovation Framework, Design Service Alliance and Decommissioning Delivery Partnership.

The government’s Nuclear Sector Deal aims to help us increase industrial productivity. This includes a commitment to reducing decommissioning costs through innovation, like the development of thermal waste treatment.

In fact, thermal treatment is a key part of the NDA’s new Integrated Waste Management programme. We are leading the development of this technology on behalf of the whole NDA group and beyond. This recognises the technology and facilities wouldn’t only benefit ourselves.

Timeline

We’ve been looking at thermal treatment for some time.

- **2005 onwards: technical Investigations**
- **2014: Business case for demonstration trials**
- **2015: Inactive and active R&D trials of and in-container vitrification system• 2019: thermal treatment tiger team**
- **2020: endorsement to proceed with programme**

What is thermal treatment?

Thermal treatment refers to range of technologies where waste is heat-treated to reduce its volume. There would be a different plant with a different process for each waste type.

Waste records programme - case study

We are managing a diverse range of radioactive wastes from many sources. We need to ensure that future decision makers, regulators and other stakeholders have access to good quality information to support treatment and disposal in the future.

A significant volume of radioactive waste generated as part of the NDA mission will need to be managed for many decades. It is vital that we secure the information essential to final safe disposal.

We need to understand where wastes come from, their chemical and radiological composition, how they have been packaged, and the properties of those packages. This information must be collected, organised and available for use in the decades ahead. We will do this by providing wastes with suitable records.

Some waste has already been in storage for several decades, and without effective management, knowledge about the waste can be lost.

So, in 2014, we established a Waste Records Programme to ensure that the information is protected. In 2020, we linked this work to the NDA Integrated Waste Management Programme, to provide clear accountability and focus. Successful delivery of integrated strategies across the NDA estate relies on having this information.

Like many long-standing industries, the nuclear sector has many historic reports and records. This is often found in many places, so we're working to organise it for easy access, ensuring it is ready to use.

To ensure we have the right information, we need to understand how it would be used. We also need to identify any gaps in the assembled information, so we can understand and manage the risk such gaps pose.

RWM and the waste packagers, both within the NDA estate and the wider nuclear industry, are now working together to make sure we find, organise, and keep the right information about wastes and packages.

We're also working with the NDA nuclear archive (Nucleus) where the records will remain protected for the future and easy to access.

Good records are essential to the NDA mission, which will continue for at least another 100 years. Without them, we may be unable to provide the most appropriate waste management solutions; if we don't we may have to take expensive action in the future to replace missing information. The Waste Records Programme is helping us avoid these outcomes.

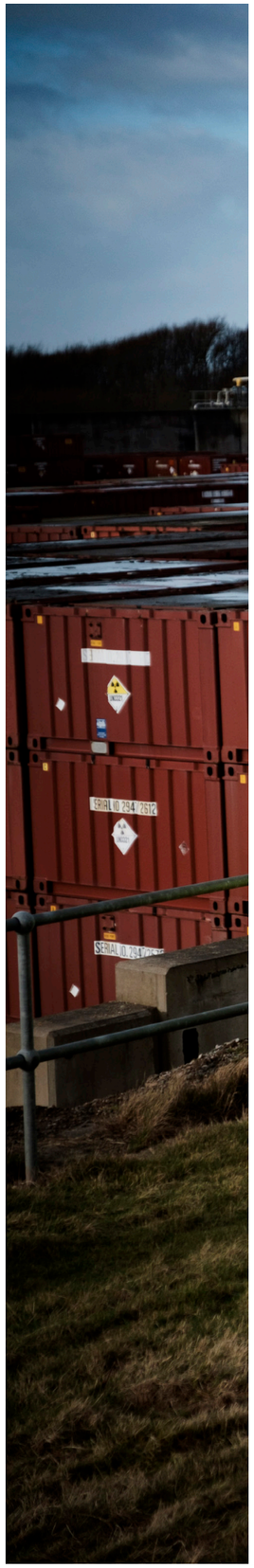
Waste records are also essential to help implement Scottish Government policy on managing higher activity wastes and for any opportunities relating to Near-Surface Disposal (NSD) of wastes.

We've been looking at waste records for some time

- **1990 onwards: packaging of HAW commences; data and information are generated during operations.**
- **2014: recognition of waste records as an important focus of the NDA Information Governance Programme; initial establishment of a records programme.**
- **2018: first records assessment to assure quality and completeness of package records.**
- **2020: formal establishment of the Waste Records Programme as a subsidiary of the Integrated Waste Management Programme; appointment of Karen Wheeler as SRO.**

What are Waste Records?

Data, information and documents required to support future management of wastes. Includes information on waste origins, composition, process development, processing and conditioning, and storage.



A waste informed culture - progress in the making

Thinking about waste as an opportunity, rather than a barrier and blocker, will help create a landscape in which early solutions, better value for the taxpayer and the best outcome for the environment, people, decommissioning and hazard reduction go hand-in-hand and become business-as-usual.

The transition from operations to decommissioning in NDA group has brought with it a recognition that good waste management practice is not only an essential enabler in preparing our sites for their intended future use, but a real opportunity to do things better and earlier, and in a way that protects our environment and people and helps accelerate rather than hinder mission progress.

Waste is someone else's problem, right?

Everyone has a part to play, whether it's ensuring that new decommissioning projects and operational activities consider waste generation and management right at the outset, and that no project is complete until the final waste has been managed. Or ensuring long-term stores are not filled with or built for wastes that, with some careful planning and investment, could be dealt with in the here and now. Or, in procurement, ensuring that standards and expectations on waste feature clearly in contracts. And in our day-to-day activity, taking a moment to consider how we can avoid creating waste in the first place, reuse and recycle items where we can and ensure quality waste products are delivered.

A cause for celebration

A focus on waste needs to become marbled through all our behaviours and practices, and our successes with waste should be celebrated.

We have started our journey with activity underway across the estate- at DSRL, for example, a waste informed approach is now central to driving forward its Waste Optimisation Programme. We are building on successes to date and will measure and incentivise progress; huge savings and benefits can be realised from finding early solutions and reducing interim storage needs.

So far, and what next?

This year, the IWM Programme has worked in collaboration with and spoken to waste and non-waste colleagues across 21 organisations to build a picture of what a positive waste culture would look like and this has been captured in the Vision (page 9) and in a Roadmap for change. To deliver this Vision, the IWM Programme Steering Group, has given the green-light to a Waste Culture Change Programme.

A number of estate-wide projects have been kicked off to look at how awareness and communications around waste could be improved, how attractive career pathways to senior management can be developed that include waste roles (Magnox led), and looking at what is meant by a risk informed approach to waste management (LLWR led). And the prize is big, Sellafield alone has identified that billions of pounds could be saved through opportunities to manage waste differently over its life-cycle.

Dialogue to deliver

Seeking ways to work differently, more creatively and more collaboratively is how we will deliver integrated waste management efficiently across the NDA group.

Open and effective dialogue is crucial to the success of the IWM Programme, building support, confidence and trust among all our stakeholders.

We officially launched the IWM journey in November 2020, at a virtual event for external stakeholders, sharing our strategic intent for the programme over the next 15 years. We listened to the views and perspectives of our communities, our regulators, our supply chain and CoRWM, and we committed to regular stakeholder dialogue as we continue to progress the programme.

We have since attended the quarterly meeting of the National Site Stakeholder Chairs and Vice-Chairs group to share progress, and we have offered to attend regional Site Stakeholder Group meetings. We've also provided updates regionally to some of the communities in which we operate, as well as attending an industry working group run by the Nuclear Industry Association, providing an update on progress and sharing future opportunities. We plan to hold our next annual IWM stakeholder event in Autumn 2021.

Our supply chain is critical to our mission

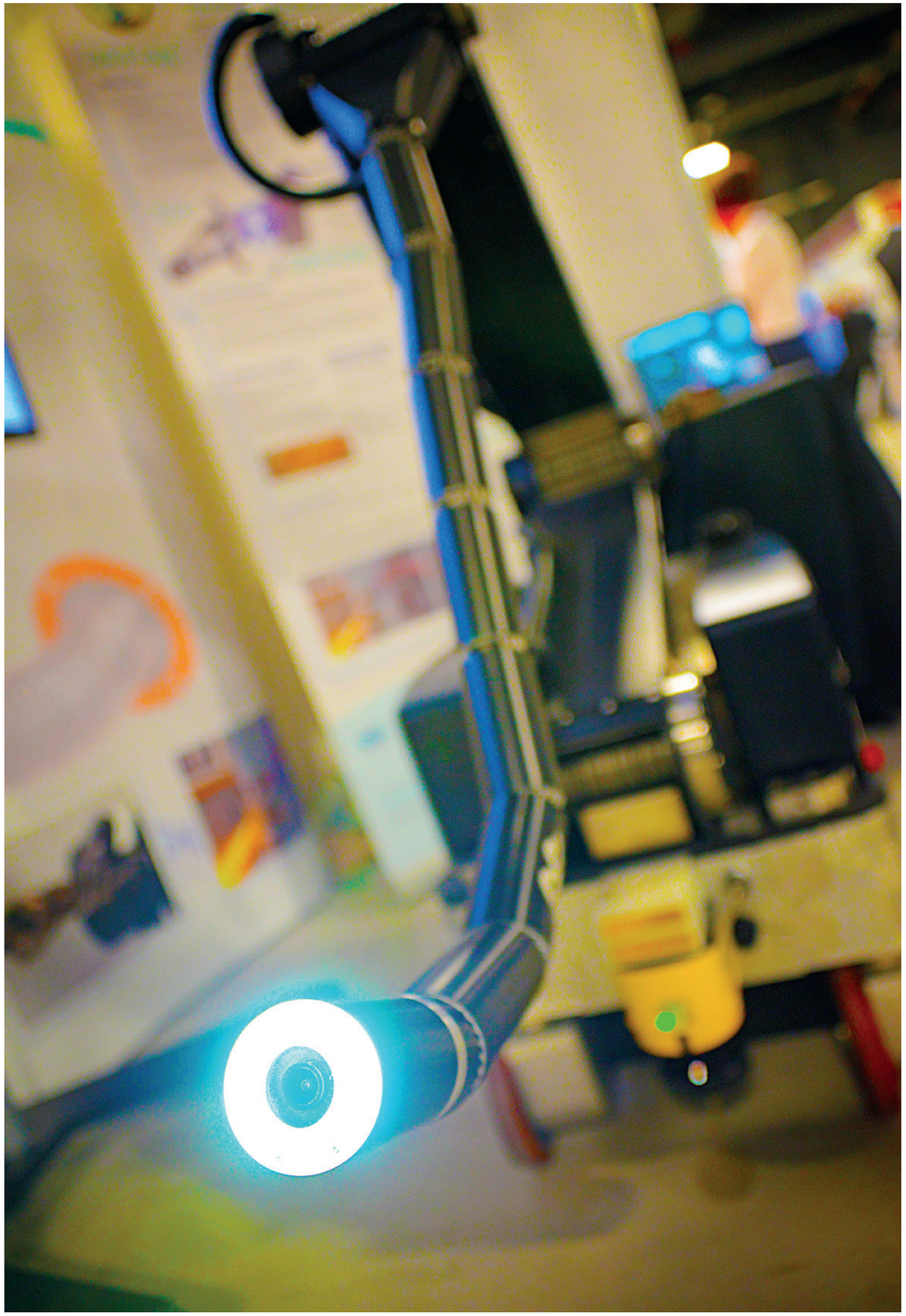
We know that we cannot deliver our mission without the capabilities and skills of our supply chain, and recognising innovation is critical to improvements in cost, schedule and quality, we delivered our first supply chain event in May 2021. Our supply chain is invited to learn more about and get involved with our innovation partnerships. We intend to hold quarterly supply chain events, with future themes including: category management, optimisation and sustainability.

Through our socio-economic and supply chain strategies we are committed to seeing greater opportunities awarded to our local communities, which, in turn will support the development of sustainable and resilient communities that enable the delivery of the NDA mission.

Working with our regulators to reduce hazards at our sites

The life-cycle of waste management involves: waste generation, treatment, packaging, storage, transport and disposal. When managing waste through these steps, we'll work with the operating companies to apply the waste hierarchy, considering opportunities to minimise, re-use and recycle.

Some technological solutions may challenge how we have done things historically, or the current regulatory framework, yet provide an opportunity to reduce our risk profile or reduce environmental impacts. To ensure such opportunities are not missed, we continue to work closely with our regulators, welcoming the support and guidance they offer to maintain an environment in which innovation is encouraged. Our priority is to ensure safety at all times and compliance with environmental standards.



IWM Roadmap

Since we launched the IWM programme, we've made good progress in establishing the processes that will lead to more effective ways of working across the NDA group. We've been working collaboratively with all our operating companies to identify key initiatives on behalf of the sector that will really make a difference to how we manage waste now and into the future.

2021

We are engaging across the sector to leverage the opportunity we have to work collectively and drive positive and progressive change in areas such as characterisation, inventory, packaging, piloting innovation and connecting our decision making across the NDA group.

We are creating a baseline for our Integrated Waste Management approach, while working to establish decisions on key infrastructure projects such as thermal treatment. We're also defining scope for other priority areas such as packaging, asbestos and a waste culture change programme.

Benefits that we aim to deliver

- Greater agility for our businesses in waste characterisation
- A positive waste culture and clear career pathways for our people
- More efficient inventory processes with visibility of mission progress
- Effective IWM decision making across the group
- A clear plan to implement cross sector management of stores
- Improved procurement of packaging and containers, standardising where appropriate
- Near surface disposal for ILW under construction (subject to government consultation on radioactive waste disposal policy).
- Thermal treatment pilot plants in operation

2025

Having established the programme and delivered key capability across the group, we will focus on embedding a significant change to our waste management culture, so that waste is seen as a quality product across the group, managed in a risk informed way. There will be standard sets of cost effective packages in place, along with standard designs for encapsulation plants across the group. We will have work ongoing to ensure we achieve our sustainability targets, including zero avoidable waste to landfill. Multiple routes will be available through the supply chain for ILW and problematic waste, and a strategy will be in place for the management of uranic residues. Research projects will be underway with international partners and there will be a simplified waste management structure established within the NDA group ensuring we are able to work effectively with the supply chain to deliver innovative waste solutions.

2035

On behalf of the NDA group, we will be working at the forefront of technology, heralded as an international exemplar for radioactive waste management and delivering solutions both inside and outside of the group. The UK will be exporting radioactive waste services. Innovation uptake will be the norm as the IWM Programme reaches its endpoint having delivered the change in waste management behaviours and culture, realising the benefits of the One NDA approach and achieving the targets for efficiency in the Nuclear Sector Deal.