

National Waste Programme

Blueprint

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Glossary

Term	Definition
ALARP	As Low As Reasonably Practicable
BAT	Best Available Technique
BEIS	Department for Business, Energy and Industrial Strategy
BPM	Best Practicable Means
ESC	Environmental Safety Case
GDF	Geological Disposal Facility
GRR	Guidance on Requirements for Release of Nuclear Sites from Radioactive Substances Regulation
HAW	Higher Activity Waste
IPT	Integrated Project Team
IT	Information Technology
IWM	Integrated Waste Management
IWMP	Integrated Waste Management Programme
LFE	Learning from Experience
LLW	Low Level Waste
LLWR	Low Level Waste Repository
NDA	Nuclear Decommissioning Authority
NWP	National Waste Programme
POTI	Processes, Organisation, Technology, Information
UKRWI	UK Radioactive Waste Inventory
WIF	Waste Information Form

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1. Introduction

This document describes the Blueprint for the delivery of the National Waste Programme (NWP); defining the current state of Low Level Waste (LLW) management in the UK and articulating the aspirational end state for the programme in 2030. It is recognised that the NWP will transition to the NDA Integrated Waste Management Programme (IWMP) as it develops and matures; this may influence this aspirational end state. It also defines an aspirational interim state for 2025. This Blueprint has been developed in collaboration with waste producers and other NWP stakeholders. It defines the 'route map' for the NWP, describing its starting and interim positions and end destination; however, it does not describe how the NWP and the LLW management community will achieve the aspirational future states. This Blueprint is a live document that will be reviewed and revised throughout the lifetime of the programme. As the programme progresses, further intermediate states may be identified and added to this Blueprint; as well as changes to reflect progress and any changes in strategic direction. It is intended to support the UK LLW management community in identifying the work needed across the industry to achieve the aspirational future end state.

2. Context – the National Waste Programme

2.1. What is the NWP?

The NWP was established in 2011 by the Nuclear Decommissioning Authority (NDA) to implement the UK Strategy for the Management of Solid Low Level Waste from the Nuclear Industry. LLW Repository Ltd leads the delivery of the NWP on behalf of the NDA and Department for Business, Energy and Industrial Strategy (BEIS), in collaboration with a wide range of stakeholders from across the nuclear industry. The intent of the NWP is to support all stakeholders involved in LLW management to deliver effective and timely waste management. It does this through:

- Programme management to enable progress measurement and reporting, strategic risk and benefit management, and programme governance;
- Needs / problem definition, technical analysis and horizon scanning on LLW management matters, and dissemination of information through the LLW management community;
- Delivery of guidance, tools / resources, training material and improvement interventions focussed on different elements of waste management practice;
- Acting as a hub for the sharing of learning and good practice across the industry.

2.2. Background

In 2008, the NDA and LLW Repository Ltd – in conjunction with stakeholders across the industry – commenced the development of the first *UK Strategy for the Management of Solid LLW from the Nuclear Industry*, in response to the 2007 UK LLW Policy. At that time, the baseline strategy for LLW management was high-force compaction (where applicable), packaging into isofreight containers and disposal at the LLW Repository (LLWR); although some sites were using on-site infrastructure for alternative waste management in a limited way. There was limited recognition of the Waste Hierarchy principles in LLW management and an absence of alternative management routes. In 2009, 95% of LLW arisings in the UK was managed by disposal to the LLWR, and only 5% was diverted from the Repository.

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In 2010, the UK Strategy was published. The strategy advocated a transformation in the culture and practice for LLW management through application of the Waste Hierarchy, making best use of existing waste management assets and the use of new flexible waste management routes. In 2011, the NWP was established by the NDA to lead the implementation of the strategy across the UK. Also, by this time, LLW Repository Ltd had started to set up commercial frameworks to improve access to alternative waste management infrastructure and waste producers had started to embed the application of the Waste Hierarchy into their LLW management arrangements.

By 2015, there had been significant change in the LLW management environment including:

- The development and use of alternative treatment and disposal routes; this had enabled the diversion of significant LLW volumes from the LLWR;
- The application of the Waste Hierarchy by waste producers when making waste management decisions;
- The identification of opportunities for improvement and the sharing of good practice;
- The engagement of a broad range of stakeholders within the NWP.

A revised UK strategy was published in February 2016 by Department of Energy and Climate Change (now BEIS). The strategic themes from the 2010 Strategy were retained, and the strategy was updated to reflect the changes in LLW management practice since 2010.

By 2019, application of the Waste Hierarchy had become business-as-usual across the UK nuclear industry. In FY2018/19, waste diversion accounted for 97% of the LLW volume managed, with only 3% disposed of at the LLWR. Virtually all waste producers have access to the waste routes they need for waste management in line with the Strategy. Further work is required to optimise how the Waste Hierarchy is applied, to make best use of opportunities for avoidance, minimisation and recycling / re-use in a way that supports mission delivery across the UK industry.

Despite the significant progress made since the first publication of the LLW Strategy in 2010, challenges remain for the LLW management community. Waste management practice needs to remain effective and resilient to challenges from the external environment, such as changes in service provision availability or capability. The delivery of faster paced decommissioning requires waste producers to manage increasing volumes of more complex LLW. The LLW management community is also proactively exploring how it can support the Higher Activity Waste (HAW) management community through appropriate management of wastes that do not require the isolation and containment of a deep geological disposal facility (GDF). These challenges require the NWP and the wider LLW management community to continue to work together to deliver slick, effective, legally compliant and resilient waste management that supports operations, decommissioning and site restoration. The drive towards integrated waste management (IWM), and the potential benefits this could deliver, requires the LLW management community to work effectively to ensure that effective LLW management remains a key strand within the IWM environment, and that the Learning from Experience (LFE) and success of the NWP helps inform the development of a future IWM

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Programme. These pressures, and opportunities, have helped to shape the current, interim and end states for the NWP.

This fifth iteration of the NWP Blueprint updates the current state to reflect progress since Issue 4, to further define the intended programme end state (2030) and to identify a 2025 interim state for the programme.

2.3. The NWP and the NDA IWMP

It is recognised that the NWP will transition its arrangements into the developing NDA Integrated Waste Management Programme (IWMP) over the next few years. This Blueprint has been developed to articulate what the LLW management community want as a future state for LLW management and it is expected that this will help support the direction of activities within the NDA IWMP relating to LLW management; as well as providing a basis for ongoing implementation of the UK Strategy for LLW management for the nuclear sector.

2.4. Vision, mission, benefits and objectives

The vision of the NWP is:

Effective LLW management across the UK that delivers value to stakeholders.

Value to be delivered by effective LLW management is wide ranging – it may include cost avoidance or cost savings, opportunities to accelerate programmes, opportunities to retire liabilities earlier, support to hazard and risk reductions, and / or waste flow that ensures that LLW management is not a barrier to effective operations, decommissioning and environmental remediation.

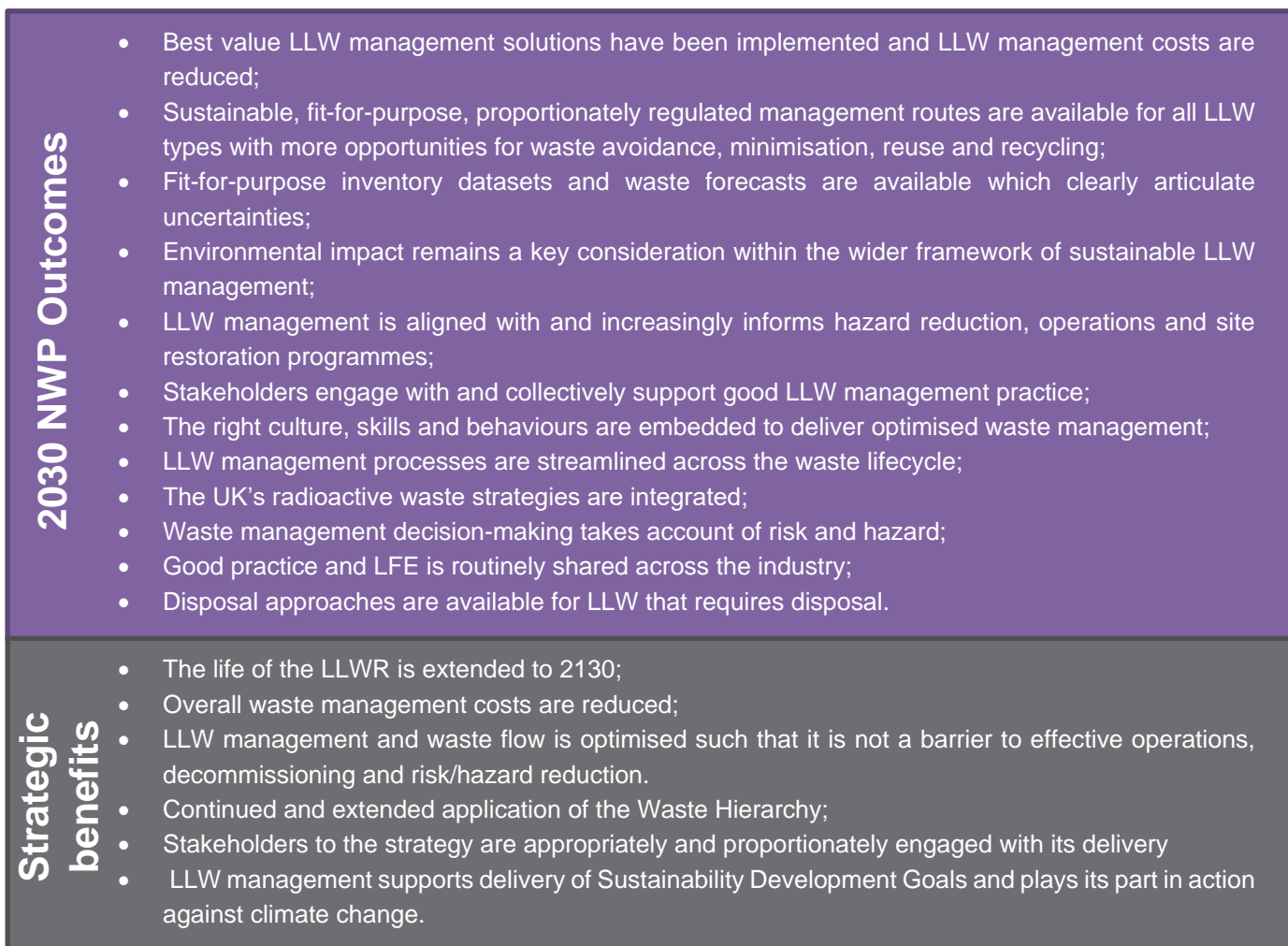
The mission of the NWP is to achieve a sustainable culture for effective LLW management across the UK, delivered through:

- a governance framework that drives the implementation of the Strategy;
- the sharing of best practice and learning from experience to support continuous improvement;
- a sustainable, Waste Hierarchy aligned infrastructure providing compliant, fit for purpose LLW management solutions that deliver value.

The purpose of the NWP is to deliver a sustainable transformation in the way that LLW is managed in the UK, in accordance with the LLW Strategy. By 2030, the wider NWP community will deliver a set of outcomes to achieve the strategic benefits illustrated in Figure 1.

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Figure 1 - NWP outcomes and strategic benefits



3. Blueprints – definition and structure

A Blueprint is a document which provides a description (a model) of the different states of a programme over time as it transitions to achieve its vision and objectives. For the NWP, this Blueprint provides a description of the LLW management environment in the UK at three stages: now (2020), in the medium term (2025) and in the long term (2030).

The development of the Blueprint for the NWP enables all those involved in the programme to understand what is needed to reach the 2030 end state and to inform the resulting actions needed by all those involved in LLW management.

A Blueprint contains three main sections:

- the start state of business operations;
- intermediate state(s) to be delivered by different phases of the programme;
- final state to be achieved at the end of the last phase of the programme.

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Blueprints utilise the Processes, Organisation, Technology and Information (POTI) model to define and describe the different states of the programme. The POTI model describes the scope of the programme and provides a description of the elements that form the programme’s scope for change. Definitions for the elements of the POTI model are provided in Table 1.

Table 1 - Summary of the Blueprint POTI model

Element	Description
Processes	The changes to processes and operational business models because of the work delivered by the programme (e.g. introduction of new ways of working).
Organisation	The people changes that arise from the programme from organisational culture to specific roles / capability that an organisation may require.
Technology	The technology requirements for the programme, including systems, tools and infrastructure (e.g. new computer systems).
Infrastructure	The information required at the different phases of the programme (e.g. changes to reports and data requirements).

Section 4 provides a high-level summary of the start, interim and end states for the NWP. Sections 5-8 details the Blueprint roadmap, providing the POTI analysis for the three states.

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4. Blueprint high-level summary

CURRENT STATE (2020)	FUTURE STATE (2030)
Description	
<p>The 'As-is' state is comprised of a series of statements that describe the current state for LLW management as of 2020.</p>	<p>The 'To-be' state identifies the aspirational future end state for the NWP, illustrating what LLW management is expected to be as of 2030 because of the NWP and external enablers / factors (aspects which are primarily external enablers are indicated by italics).</p>
Processes	
<ul style="list-style-type: none"> • Implementation of UK LLW Strategy and relevant LLW management aspects of NDA Strategy into waste producer practices is complete or underway. Integration of UK radioactive waste policy has commenced. There are separate radioactive waste programmes in the UK. • Waste management practice supports appropriate waste management, but agility and effectiveness are variable across the industry. Waste management is not fully risk-informed which may limit options and approaches for waste at the LLW / ILW boundary. • Ad-hoc process and practice for management of non-standard and problematic waste management. • LLW management approaches and practice take account of environmental impact through the application of BAT / BPM. The full lifecycle environmental impact of LLW management is not fully understood in detail and action to reduce the contribution of LLW management on climate change is fragmented. 	<ul style="list-style-type: none"> • <i>Integrated UK policy and strategy framework for radioactive waste management is in place and implemented. There is an IWM programme in place which meets the needs of the LLW management community.</i> • Waste management practice enables agile, efficient and effective waste flow management to support operations, decommissioning and site restoration. <i>Waste management is fully risk-informed, enabling effective management of waste at the LLW / ILW boundary.</i> • A proactive, systemised and streamlined process is used to manage non-standard and problematic wastes. • There is a detailed understanding of the sustainability and environmental impact of LLW management practice and arrangements; and active action is being taken to improve this.

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Organisation	
<ul style="list-style-type: none"> • Increasing recognition of waste as the tangible output or quality product of operations and decommissioning. This perspective is variable outside the waste management community. • Waste management is not adversely impacted by ‘people’ resources but there are constraints in specialist resource. There is no integrated view on waste skills requirements (quantity and type), nor forward projections across the industry. • There is active and proportionate stakeholder engagement with the NWP, but some parties do not fully participate. 	<ul style="list-style-type: none"> • Waste-informed culture is prevalent across the industry and full LLW management value chain. • Resourcing (including specialist resource) is resilient across the industry and supports effective waste management. There is a cross-industry understanding of skill sets, needs, projections, issues and opportunities. Work is undertaken to mitigate risks to the waste management sector. • Active stakeholder engagement in the NWP with appropriate participation, including New Build and other industrial sectors as appropriate. This includes participation of these organisations in NWP stakeholder fora, projects, interventions and communications networks at a frequency and approach relevant for the organisation.
Technology and Infrastructure	
<ul style="list-style-type: none"> • There is a flexible supply chain infrastructure for LLW that can adequately support current waste management requirements; this is more limited for ILW/LLW boundary wastes. • Opportunities and risks for waste not requiring the isolation and containment of a GDF and problematic wastes are being identified; with implementation of management options slowly increasing. • There is a packaging fleet available to support LLW management, but this is not wholly suitable or flexible and there are limited options for waste at the LLW / ILW boundary. 	<ul style="list-style-type: none"> • There is a diverse, resilient supply chain infrastructure with management routes for LLW <i>and waste at the LLW / ILW boundary.</i> • <i>Management of problematic wastes and wastes at the LLW / ILW boundary is business-as-usual.</i> • Packaging is developed in a coordinated cross-industry way. There is a flexible and resilient fleet available for all wastes.

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Information

<ul style="list-style-type: none">• Consignors have variable understanding of the conditions and their purpose in relation to treatment and disposal provider acceptance criteria.• Cost norm models exist but are dated and are not consistently applied in decision making.• There are different inventory data sets (such as the UKRWI, WIF and Problematic Waste Inventory) of differing levels of granularity, accessibility and value.	<ul style="list-style-type: none">• Consignors have easy access to information or specialist advice to enable understanding of acceptance criteria for treatment and disposal services.• Cost norm models for LLW management are up to date and are subject to periodic health checks. These are supported by tools and resources to facilitate their consistent application in decision making.• Reliable and appropriate local and national inventories are available that support and underpin decision making.• There is proportionate engagement with the Directive (non-radioactive) waste sector to enable effective mitigation of threats and realisation of opportunities.
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5. Blueprint – Process

2019/20 (current state)	2025 (interim state)	2030 (end state)
<p>UK LLW Strategy and NDA Radioactive Waste Strategy are integrated into waste producers' arrangements as appropriate; although these themes are less well applied to the management of LLW/ILW boundary wastes. UK radioactive waste strategy integration has commenced but is at an early stage.</p>	<p>Strategy implementation has commenced for a greater range of LLW / ILW boundary waste and problematic wastes. <i>Progress has been made on integration of radioactive waste strategy.</i> The NWP has successfully transitioned into the NDA IWM Programme.</p>	<p><i>There is a UK integrated waste management policy and strategy framework, which has been implemented across the industry. Integration is across the radiological spectrum and industrial sectors.</i> The IWM Programme is working effectively and taking full account of the needs of the LLW management community.</p>
<p>There is increasing recognition that waste is the tangible output of decommissioning and that consignor processes should result in a quality waste product. Deployment of waste-informed decommissioning is relatively immature. Arrangements and practices are variably resilient to changes in waste volume caused by decommissioning.</p>	<p><i>Waste-informed decommissioning is being practiced on large decommissioning projects across the industry, with arrangements that can tolerate changes in waste volume.</i> Decommissioning personnel are involved in waste management fora, learning / knowledge management structures etc. as appropriate.</p>	<p><i>Decommissioning is fully waste-informed</i> and waste management arrangements are suitably flexible and resilient to changes in waste volumes generated by decommissioning. The supply chain is appropriately integrated into projects at an early stage.</p>
<p>Waste management processes enable robust and effective waste management. The agility and effectiveness of processes for characterisation, sorting, segregation, packaging, storage (including decay storage) and consignment is variable but generally enables effective waste diversion.</p>	<p>LLW management processes and enabling activities have been enhanced / improved to enable effective waste minimisation, waste flow and waste diversion. The industry implements effective processes which identify potential mis-consignments before they are realised (within a collaboratively determined definition of mis-consignment) and addresses the role of human performance in consignment practice.</p>	<p>Achieved by 2025 interim state.</p>
<p>There is a perception that annualised funding and business / commercial models hinder waste management for both the NDA-estate waste producers and the supply chain.</p>	<p>An industry-wide understanding of funding models, programmes and waste management priorities to 2050 has been developed and recommendations for change proposed to the NDA that enable more efficacious LLW management. Work has commenced to improve the efficacy of business and commercial models for LLW management.</p>	<p>Work has been delivered to improve the efficacy of business and commercial models for LLW management.</p>
<p>LLW Repository Ltd Waste Services supply chain is aligned to customer needs with the ability to flex to changes in demand. Different commercial models are in place to enable access to waste management services (such as bulk orders).</p>	<p>Fewer, better and more robust commercial routes to market are in place with a more transparent demand pipeline. Commercial routes enable effective waste flow on waste producer sites.</p>	<p>Achieved by 2025 interim state.</p>
<p>Processes and practice are developing to support delivery of LLW non-standard waste projects; but these approaches are not yet streamlined in waste management organisations.</p>	<p>Improved short and medium-term demand profiles have been developed (at a proportionate level of detail) to enable early engagement and integrated opportunity management for LLW non-standard and problematic wastes across the industry.</p>	<p>There is a better understanding of the medium and longer-term opportunities and demands for LLW non-standard and problematic waste management across the industry.</p>
<p>New guidance on the management of radioactive wastes from decommissioning has been issued (GRR).</p>	<p>Initial Waste Management Plans and Site Wide Environmental Safety Cases required by the GRR have been drafted. LFE from early proposals is shared across the industry.</p>	<p>Waste producers minimise waste production and make optimal waste management choices, are utilising in-situ disposal or disposal for a purpose where these are BAT/BPM and ALARP.</p>
<p>Work has been undertaken to increase understanding on risk-based waste management approaches. Application of risk-informed management for waste that does not require the isolation and containment of a GDF is limited by the availability of waste management infrastructure and policy.</p>	<p>The LLW management community has responded to any changes in Government policy and strategy relating to radioactive waste management. Progress has been made on implementing arrangements by waste producers to deliver risk-informed waste management for LLW / ILW boundary wastes.</p>	<p>The LLW management community has responded to any changes in Government policy and strategy relating to radioactive waste management. Risk-informed waste management is business-as-usual for waste producers and the supply chain, supported by relevant information capture and dissemination, for all LLW and waste at the LLW / ILW boundary.</p>
<p>No model has been developed for increased use of rail. Restrictions on the use of mixed shipments by rail (LLW, HAW, Special Nuclear Material) remain. There is very limited usage of rail for transport of radioactive waste from a national perspective.</p>	<p>A methodology has been developed to determine the true costs of transport options (road, rail and sea) and these are used as an input to BAT/BPM decision making. Transport mode is selected based on BAT/BPM and relevant regulatory constraints.</p>	<p>Achieved by 2025 interim state.</p>

2019/20 (current state)
LLW management approaches and practice take account of environmental impact through the application of BAT / BPM. The full lifecycle environmental impact of LLW management is not fully understood in detail and action to reduce the contribution of LLW management on climate change is fragmented.

2025 (interim state)
LLW management approaches and practice take account of environmental impact through the application of BAT / BPM; and are informed by an understanding of the contribution of LLW management to climate change. Coordinated action is being taken to actively reduce the environmental impact of LLW management activities.

2030 (end state)
Achieved by 2025 interim state.

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6. Blueprint – Organisation

2019/20 (current state)	2025 (interim state)	2030 (end state)
<p>There is increasing recognition of waste as a quality product from decommissioning and operations, particularly within the waste management community. There is highly variable recognition of this concept within organisations outside of the waste management community, although there has been improvement in recent years.</p>	<p>A waste-informed culture is developing across the industry, within and outside the waste management community. There is increased recognition of the need for a quality waste product from decommissioning and operations.</p>	<p>Waste-informed culture is prevalent across the nuclear industry, including within New Build. Waste is universally seen as the key product generated by the industry (through decommissioning) in process and practice.</p>
<p>Generally, waste management is generally not adversely impacted by a lack of skilled or suitably qualified personnel, but the situation is variable across the sector. There are some constraints for specialist resources (such as characterisation and safety case). However, there is no integrated view of the skill sets required to enable optimised radioactive waste management.</p>	<p>An integrated, cross-industry view on the necessary roles and skill sets for waste management have been developed and are available for use. Benchmarking has been delivered against other highly regulated sectors. There is a good understanding of the skills / resources picture – including on forward demand, constraints and resilience – for the waste management community.</p>	<p>Effective knowledge retention / management arrangements are in place. The industry is actively ensuring that resources are available to deliver effective LLW management in line with programme demands.</p>
<p>There is no common recognised waste management professional development approach available. Existing accreditations are not universally recognised.</p>	<p>The level of demand for a common recognised waste management development approach has been ascertained and (if appropriate) work has commenced on developing / implementing a model.</p>	<p>Subject to demand being established at the interim state, a commonly recognised waste management professional development approach is available and in use. The LLW management community has actively supported delivery of the organisational objectives of the Nuclear Sector Deal (40% women in nuclear by 2030).</p>
<p>All NDA and non-NDA estate organisations within the nuclear sector are given opportunities to engage with the NWP. Engagement with the NDA estate and larger non-NDA estate organisations is relatively mature. Engagement with radioactive waste producers from other sectors is ad-hoc and immature.</p>	<p>Engagement with all waste producers across the UK nuclear sector is delivered actively and proportionately to need and waste producer programmes. The NWP is engaging with radioactive waste producers from the non-nuclear sector in a relevant and proportionate way, and engagement levels from other sectors is demonstrably improved compared to the 2020 state.</p>	<p>Achieved by 2025 interim state.</p>
<p>Many stakeholders are actively engaged with the NWP; although participation is variable depending on the topic and situation.</p>	<p>Achieved by 2020 state.</p>	<p>Achieved by 2020 state.</p>
<p>Peer Reviews, Peer Assists and Peer Learning are a valuable tool in sharing good practice and LFE; though in 2019 uptake dipped. There has been some use internally by organisations and approaches within organisations and NWP on sharing of case studies, good practices etc.</p>	<p>Needs driven deployment of peer reviews, peer assists, peer learning and continuous improvement for radioactive waste management and waste generation activities. There is a more systemised approach for sharing of good practice, learning and case studies within the LLW management community.</p>	<p>Continuous improvement tools / capability for waste management developed and shared across the nuclear industry.</p>

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7. Blueprint – Technology

2019/20 (current state)	2025 (interim state)	2030 (end state)
<p>Local LLW buffer storage is in place with suitable supporting arrangements (if needed) and additional capability is available via supply chain organisations and, in extremis, via LLWR. There is no national buffer storage capability although existing capability is considered sufficient.</p>	<p>Waste management arrangements are ‘just-in-time’, with relevant and proportionate buffer storage capability, that enables effective waste flow. Appropriate and sufficient local and national buffer storage capability is available to manage shocks and disruptions to facilitate ongoing waste flow.</p>	<p>Achieved by 2025 interim state.</p>
<p>Work has been undertaken to understand the potential opportunities, threats and options for alternative management of LLW / ILW boundary wastes. There is slowly increasing implementation of alternative management for such wastes.</p>	<p>Opportunities to manage LLW / ILW boundary wastes are being proactively identified and (where appropriate) implemented. New infrastructure and arrangements for use of existing infrastructure supports alternative management of such wastes is available or in development. Enabling processes (such as characterisation, sorting / segregation etc.) are being modified to support alternative management of such wastes.</p>	<p>Sustainable options for management of LLW / ILW boundary wastes (including risk informed disposal) are in development and are being implemented as they become available.</p>
<p>The Problematic Waste Integrated Project Team (IPT) is working with the industry to raise the profile of problematic waste management and to support delivery of management options. Some progress is being made but there is significant uncertainty on the inventory and characteristics of these wastes.</p>	<p>True problematic wastes have been identified and characterisation of problematic wastes is underway. The IPT has developed sustainable mechanisms for management of problematic waste on an industry wide basis and the industry is making progress on problematic waste management.</p>	<p>Wastes previously considered problematic are well characterised; and approaches for their management are identified and available. A sustainable problematic waste management arrangement is in place.</p>
<p>There is a flexible, sustainable supply chain infrastructure available for LLW management which includes increased options across the waste lifecycle for enabling services (characterisation, sorting, segregation, pre-treatment and conditioning) and management. There is a significantly more limited infrastructure available for management of LLW/ILW boundary wastes.</p>	<p>Supply chain diversity and resilience has developed further relative to current state. Capabilities – including those for LLW / ILW boundary wastes – are in development.</p>	<p>A diverse, resilient supply chain is available and investment decisions are enabled by certainty and visibility on the waste inventory. Capability is available for wastes at the LLW / ILW boundary and problematic wastes.</p>
<p>A packaging fleet is available for treatment and disposal of LLW. There are more limited flexible options for short-lived ILW and lower activity ILW. The approach to packaging and packaging development is not integrated on an industry basis. Suitable transport routes are available to meet existing needs.</p>	<p>Packages are developed in a coordinated way across the industry. Flexible packaging for management of LLW, problematic wastes and wastes not requiring the isolation and containment of a GDF is available or under development. There is an understanding of whether different transport arrangements are required to support waste management.</p>	<p>A flexible and resilient packaging fleet is available for management of radioactive wastes; developed in accordance with transport regulations which enable use of a versatile transport / packaging fleet. The right transport arrangements are in place for all LLW.</p>
<p>There are a diverse range of inventory management systems in use in waste management organisations; these range from ‘live’ to purely retrospective. There is no integration of approaches.</p>	<p>There are a diverse range of inventory management systems in use in waste management organisations; these range from ‘live’ to purely retrospective. The impact of such diverse systems is understood as are the cost / benefits of integration.</p>	<p>Waste producer organisations have relevant and appropriate inventory management systems available. The negative impacts of having diverse IT / inventory systems have been mitigated.</p>
<p>Horizon scanning for technology and capability need and development is relatively ad-hoc; although developments in the forward pipeline of non-standard and problematic wastes is supporting improved understanding of need.</p>	<p>A system is in place for routine technology / capability needs assessment and horizon scanning is in place. Feedback is provided across the waste management community through relevant fora and stakeholder engagements.</p>	<p>Effective arrangements and systems are in place to enable collaborative understanding and development of available / new technologies and to minimise the time to their deployment.</p>

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8. Blueprint – Information

2019/20 (current state)	2025 (interim state)	2030 (end state)
<p>The LLWR Environmental Safety Case / Waste Acceptance Criteria and supply chain acceptance criteria are available. There is variable understanding of the LLWR Environmental Safety Case across waste producing organisations and it is used in variable ways to inform waste producer operations.</p>	<p>There is a step change in waste producer understanding of the acceptance criteria for the LLWR and supply chain facilities, including understanding of the purpose and reasoning for the acceptance criteria. Consignors have easy access to information or specialist advice to enable improved understanding; with routine opportunities available for LLWR and the supply chain to engage with waste producers on acceptance criteria and capability, including appropriate and proportionate waste producer / stakeholder engagement in ESC / WAC development and implementation.</p>	<p>Achieved by 2025 interim state.</p>
<p>Intelligence and monitoring of infrastructure requirements, threats and opportunities is undertaken but communication of these is fragmented. Horizon scanning of the Directive (non-radioactive) waste sector is limited.</p>	<p>Intelligence and monitoring of infrastructure requirements, threats and opportunities is undertaken and communicated, in a proportionate appropriate way, to stakeholders routinely. Horizon scanning of the Directive (non-radioactive) waste sector is undertaken to understand implications for associated radioactive waste infrastructure.</p>	<p>Achieved by 2025 interim state.</p>
<p>The UKRWI and WIF are separate data sets with differing levels of granularity – UKRWI data is widely available and accessible, but less so for the WIF. Problematic Waste Inventory is a separate data source. Inventory and forecasts are relatively accurate in the immediately near term, with reducing confidence and accuracy over the long term; although there have been improvements in recent years in accuracy. These sources are progressively providing better information to inform and support decision making. The inventories do not provide the necessary information to reliably contribute to investment decision-making by the supply chain.</p>	<p>Local and national waste inventories are reliable and support good quality planning. There is a single national inventory exercise. Waste producers have reliable inventory systems in place that are 'live' in a way sufficient to the needs of the waste producer, which support tactical and strategic decision making. Inventory systems feed the UKRWI, the WIF (thematic inventory exercises), the LLWR pipeline and supply chain. Waste characterisation and inventory is considered earlier in the waste lifecycle. Inventory is recognised by individuals inside and outside the waste management community as an important activity; and value is placed on the quality of relevant and important inventory information.</p>	<p>Achieved by 2025 interim state.</p>
<p>Cost norm models exist for LLW management, but these are dated, and their application can lead to misinterpretation. There is variable collation of and access to historic cost information within waste producer organisations. Cost estimates are informed by inventory but are impacted by the variable quality / accuracy of inventory data. Cost estimating approaches do not take account of exceptions or variations, which can lead to further misinterpretations.</p>	<p>Cost norms for LLW diversion and disposal are subject to periodic health checks and updated as appropriate. Models and tools are available to support fit-for-purpose application of LLW cost norms.</p>	<p>Achieved by 2025 interim state.</p>
<p>There is a NDA Hub available with a growing NWP community. There are variable levels of use and engagement with this information source. Use of the knowledge hub is not yet common practice. Collation and sharing of learning and good practice is not formally systemised, although approaches such as NWP governance meetings are useful for learning sharing across the community. Non-NDA organisations have limited access to the Hub, which is hampering its usability.</p>	<p>The NDA Hub is used as part of everyday practice by the LLW management community. There are formal systems and tools in place to support the sharing of learning and good practice across the industry. Users proactively share information with each other using the platform.</p>	<p>There is a user-friendly knowledge hub routinely used by the waste management community and mature arrangements in place to share learning and good practice.</p>
<p>There are a diverse range of working groups and fora that support the sharing and dissemination of information, successes, learning and risks. Such groups (outside the NWP) are not well integrated.</p>	<p>Working groups and fora relevant to radioactive waste management have been mapped, integrated and streamlined.</p>	<p>Achieved by 2025 interim state.</p>