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**Background**

The NDA requires each of its sites to produce an Integrated Waste Strategy (IWS) which is reviewed annually to draw out common themes and key issues. In its existing Strategy document the NDA committed to the production of a National IWS to draw together issues and propose solutions. While the NDA has been progressing numerous waste Topic Strategies as listed below, the National IWS has not yet been closed out.

**Topic Strategies**

| Higher Activity Wastes (JM)    | NDA current strategy  |
|--------------------------------|---|
| UK-owned HLW                   | Store vitrified product pending disposal to deep geological facility.   |
| Overseas-owned HLW             | Return vitrified product to customer.   |
| Wet ILW                        | The current strategy is to condition the waste into a form that is then suitable for interim storage and ultimate disposal.   |
| Solid ILW                      | For most waste arising before 2040 the strategy is to condition the waste into a form that is suitable for interim storage and ultimate disposal. Some ILW will remain in the raw form and will be conditioned prior to disposal. Most ILW arising after 2040 will be conditioned and encapsulated then transferred directly to the geological disposal facility, <i>e.g.</i> final site clearance wastes.  |
| Graphite                       | Bulk reactor graphite arising after 2040 will be conditioned for disposal and then transferred directly to the geological disposal facility.  |
| Pu Contaminated Material (PCM) | The current strategy is to repackage historical PCM into a disposable form where they are interim stored prior to transfer to the geological disposal facility. Current and future arisings will be conditioned and then interim stored before disposal.  |
| Interim storage                | The current strategy is for individual sites to ensure that their waste storage arrangements meet the current export timescales to the geological disposal facility. As a contingency all sites will need to consider the impact of the delay in the Geological Disposal Facility programme. To help with this contingency planning all new interim stores will have a design life of at least 100 years. It is also noted that Scottish Policy is long-term interim storage. |
| Waste transport                | All movements of waste must comply with Department for Transport Regulations.   |

| Lower Activity Wastes (JF)  | NDA current strategy   |
|---|--|
| Solid LLW management & disposal<br><br><i>(includes: optimum use of the LLWR; diversified solutions (UK and</i> | NDA is currently developing a UK-wide strategy for all LLW generated at nuclear sites, as required under Government policy. NDA's existing position can be summarised as follows: <ul style="list-style-type: none"> <li>• Optimise the use of the LLWR as a national facility to support the storage and disposal needs of nuclear and non-nuclear industries;</li> <li>• resolve issues on the long-term suitability of the LLWR site for disposal;</li> </ul> |

| <b>Lower Activity Wastes (JF)</b>   | <b>NDA current strategy</b>  |
|---|--|
| <i>overseas); alignment with non-nuclear industry LLW strategy; very low level waste management; transport and logistics)</i> | <ul style="list-style-type: none"> <li>• support the Dounreay LLWR development for Dounreay wastes;</li> <li>• require waste producers to follow the waste management hierarchy, investigating options other than 'LLWR-type' disposal (e.g. by pursuing waste minimisation, recycling, and re-use / other fit for purpose disposal opportunities);</li> <li>• support initiatives to investigate and consult upon potential on-site disposal of LLW at some NDA sites where this might be technically appropriate;</li> <li>• encourage supply chain service provision to support effective waste management as soon as reasonably practicable; and</li> <li>• establish a strategic partner in the new LLWR contract to work with waste producers and stakeholders to identify and evaluate alternative and diversified waste management solutions which are optimised on a national level.</li> </ul> |
| Exempt waste management   | Clearance and exemption of wastes using existing legislation and guidance is supported by NDA. The use of waste exemption orders set out in the Radioactive Substances Act 1993 should be maximised in order to minimise waste consigned to radioactive disposal facilities where appropriate to do so.  |
| Liquid and gaseous LLW management & disposal  | At present NDA's strategy on discharges is to support Site Licensee Companies in minimising discharges in line with regulatory guidance.   |

| <b>Non-radioactive &amp; hazardous wastes (JF)</b> | <b>NDA current strategy</b>  |
|--|--|
| Hazardous and mixed waste management & disposal    | <p>For hazardous non-active waste management, the method generally planned or employed by waste producers is to transfer the waste to a suitably authorised off-site facility. Disposal to special hazardous waste landfill requires consent from the relevant Environmental Regulator. Experience shows that for non-hazardous non-active wastes there is a risk that the material will not be accepted by disposal facilities or local authorities because of its nuclear site provenance.</p> <p>NDA's approach to non-active wastes is to support good practice and the use of learning networks and guidance. Waste producers explain their approach in the site Integrated Waste Strategy.</p> |
| Clean waste management & disposal                  | NDA expects that all waste generated as a result of its work programmes is managed in accordance with the waste management hierarchy.  |

| <b>Contaminated land and groundwater (JF)</b> | <b>NDA current strategy</b>  |
|---|--|
|   | The NDA Contaminated Land Strategy is currently under development but is likely to comprise the strands outlined below and interacts with other topics, e.g. end states, decommissioning and clean up, land and property management, lower activity wastes and non-radioactive and hazardous waste management. |
| Contaminated Land Liabilities                 | To characterise the nature and extent of contaminated soil and groundwater across the NDA estate and understand the full extent of associated management activities  |
| Land Quality End States                       | To gain assurance in a timely manner that land quality end state definitions are acceptable to key stakeholders and are appropriate for the preferred end use(s)   |
| Land Prioritisation                           | To engage with SLCs and their regulators to ensure that the schedule of land management activities reflects the potential risk to people and the environment, and the potential benefit of intervention  |
| Land Remediation                              | To minimise the volume of contaminated land as waste and ensure that land remediation strategies reflect international best practice and represent the Best Practicable Environmental Option for the UK tax payer  |
| Contaminated Land as Waste                    | To ensure that contaminated land as waste is managed in accordance with the waste hierarchy and that disposal routes reflect the level of risk posed by the waste  |

### **Strategic links**

Integration of individual waste strategies is important to achieve maximum synergies across the NDA portfolio (and where appropriate for other UK waste producers) to achieve safe and environmentally responsible radioactive waste management that presents value for money to the UK taxpayer. The main interactions are listed below:

- Decommissioning and clean-up strategies, particularly reactor decommissioning and final site clearance
- Asset utilisation
- Development of near surface and deeper geological disposal facilities
- Research and development, technology, and innovation
- NDA aggregated liability from its contracted and uncontracted liabilities

### **Current work**

Ongoing work programmes are aligned to NDA Strategy and Business Plan and include:

Sharing of best practice and lessons learned across the industry both nationally and internationally.

Championing research and development programmes in the pursuit of innovations in:

- Materials characterisation
- Waste processing
- Land characterisation, management and remediation methodologies

UK-wide waste storage review (now nearing completion), which will highlight a number of issues for consideration by the industry and it is envisaged that a guidance note on interim waste storage will be developed and issued to waste producers. A stakeholder forum is to be held on interim storage in the near future.

Integrated schedule of waste store emptying – This is a business plan commitment for this financial year and refers to the development of an optimised programme for site export and waste disposal for higher activity waste. A baseline schedule has been developed and the NDA is working with site representatives and will involve other key stakeholders including the Regulators.

Graphite - An alternative long-term waste management solution to the current baseline position for bulk reactor graphite is being sought. A programme is just underway to develop feasible options for graphite waste treatment and disposal and includes support to the European Union 7th Framework R&D programme 'Carbowaste'.

NDA LLW Strategy – NDA have established a National LLW Strategy Group (LSG) to develop a working partnership between NDA, LLWR, Regulators, Stakeholders and LLW consignors for promoting innovation, value for money, and implementing the waste hierarchy as well as planning for effective waste disposal solutions. The remit, programme and modus operandi was discussed at the first meeting on April 17th and this group will meet regularly, particularly over the coming months and be maintained to serve as a collaborative and consultative forum to integrate LLW Strategy on a regional and national scale.

LLWR site competition and new Parent Body Organisation (PBO) - a Preliminary UK LLW Strategic Review has been undertaken to evaluate potential strategies to manage UK LLW arisings. The following topics are now being discussed and debated with key stakeholders to inform overall NDA LLW strategy and its independent Strategic Environmental Assessment:

- Application of the waste hierarchy:
  - Waste Avoidance/Minimisation
  - Waste Characterisation
  - Waste Segregation/Categorisation
  - Waste Treatment
  - Recycle/Reuse
  - Waste Disposal (Exempt/VLLW/LLW)
- Waste Packaging
- Waste Transportation
- Waste Tracking/Inventory Management

All information used at the LSG and other relevant for a will be made available on the LLWR website in the near future.

Contaminated land - A Strategy Development Plan is currently being developed for contaminated land. To support strategy development, the following activities are ongoing:

- Review of current lifetime plans and integrated waste strategies
- Preparation of a position paper entitled "Contaminated Land as Waste" for publication on the NDA web site
- Definition of a research and development programme in the pursuit of innovative land characterisation, management and remediation methodologies
- Review of mechanisms for engaging with SLCs, Regulators and other key stakeholders specifically on contaminated land issues
- Support of the sharing of best practice and lessons learned across the industry both nationally and internationally, for example via SAFEGROUNDS

Other key programmes for this financial year will also include the development of innovative approaches to wet and solid ILW treatment and alternative LLW treatment and disposal solutions where multi-site or multi-owner delivery will be considered.