

Lower Activity Waste

Topic Strategy Summary

November 2009

Current Position

The current strategy of maximising capacity at LLWR is being implemented

Ongoing Work

Selecting a preferred option for solid LLW; developing options for Liquid and Gaseous discharges

Position at Strategy II

It is anticipated that a revised Topic Strategy will be in implementation

Lower Activity Waste

Related documents:

Background

Lower Activity Waste (LAW) arises from a number of activities undertaken at NDA sites including: fuel fabrication and uranium enrichment; nuclear power generation; spent fuel reprocessing; nuclear energy research and development and decommissioning. Many of these processes also result in liquid and gaseous effluents that need to be managed. As a result the LAW Topic strategy comprises **two strands**, namely the management of:

- liquid and gaseous discharges; and,
- solid Low Level Waste (LLW)

Topic Strategy scope and boundaries

The scope of the strategy for the management of solid LLW includes the segregation, quantification, characterisation, handling, treatment, packaging, transport and sentencing and disposal of solid LLW. This comprises a full life-cycle approach to waste management, including the design, construction, operation and decommissioning of any solid LLW management facilities. Hence this topic includes the operation of the Low Level Waste Repository (LLWR) and the strategic partnership between LLW Repository Ltd and NDA, and the use of supply chain facilities for the treatment and disposal of radioactive wastes.

As noted in the UK solid LLW Policy (March 2007), the NDA is required to make LLW management and disposal facilities available to other nuclear and non-nuclear industry producers of radioactive waste under appropriate commercial agreements.

For liquid and gaseous discharges the strategy covers the characterisation, treatment, sentencing and disposal of these wastes. Again a full life-cycle approach is within scope of this topic strategy. Included in this topic strand, therefore, are: liquid waste treatment processes; gaseous waste treatment processes, and associated secondary waste management processes, operated by facility managers within the nuclear sector and by the wider supply chain where appropriate.

Radioactive waste that has been demonstrated to be exempt from regulation under the Radioactive Substances Act is not include in the scope of this topic, because in practice such materials are managed as non-radioactive and hazardous wastes.

Topic Strategy objective

For solid LLW the objective is to provide continued capability and capacity for managing solid low level radioactive waste (LLW), management systems to enable estate-wide application of the waste hierarchy and deliver UK decommissioning and operational programmes aligned to the UK Strategy for the Management of Solid LLW.

For liquid and gaseous discharges the objective is to prevent or minimise the environmental impact of radioactive liquid and gaseous discharges through proportionate and diligent application of the waste hierarchy, in alignment with the UK Strategy for Radioactive Discharges.

It is worth noting for both of these topic strands, that the waste hierarchy forms a framework in which waste producers work. In practice, waste management decisions will need to be underpinned by BAT / BPEO / BPM and 'business case' assessment which consider a broad

Lower Activity Waste

range of criteria in order to provide appropriate protection for people and the environment and obtain value for money.

Topic Strategy Interfaces

The following are key Topics that solid LLW interfaces with:

- Decommissioning & Clean Up, Non NDA Liability Management, End States and Land & Groundwater Quality Management in respect of the quantity of LLW to be managed;
- Higher Activity Wastes and non-Radioactive & Hazardous Wastes in respect of the potential for transfer between categories as a result of improved characterisation and treatment;
- Revenue Optimisation with reference to operation of the LLW Repository.

For Liquid and Gaseous discharges the key interfaces are:

- Decommissioning & Clean Up
- Site End States in respect of delivering the desired end state
- Land & Groundwater Quality Management in respect of quantities of waste generated
- Asset care to maintain appropriate levels of containment
- Magnox Fuel
- Oxide Fuel
- Exotics

The topic strategy is developed under the same guiding principles underpinning hazardous waste management and radioactive discharges in the UK, namely:

- Living within environmental limits
- Achieving a sustainable economy
- Ensuring a strong, healthy and just society
- Promoting good governance
- Using sound science responsibly

Topic Strategy credible options

Credible options and corresponding sub-options for the management of Solid LLW are as follows:

1. Manage LLW using existing facilities
2. Construct new facilities in the UK for treatment and disposal of LLW
 - 2.1 Local facilities
 - 2.2 Regional facilities
 - 2.3 National facilities
3. Use international facilities for treatment and disposal of LLW

As expressed in the consultation on the UK Nuclear Industry LLW strategy, the best option is likely to be a combination of the above rather than one particular choice, as demonstrated in the LLW Strategy Strategic Environmental Assessment. The guiding principle in the strategy is to apply the waste hierarchy to provide continued capability and capacity for LLW management. This underpins optimised use of the Low Level Waste Repository (LLWR)

Lower Activity Waste

reflecting its role as a UK asset, with a view to avoiding the need to construct a successor facility.

We are at an early stage in developing the liquid and gaseous discharges topic strategy, however, the management of these wastes is a relatively mature activity at the producer sites and a strategy for the management of discharges already exists at the UK level (the recently published UK Discharge Strategy, July 2009). This UK strategy will form the basis of this topic strategy.

There are a number of factors that that will further influence the development of the topic strategy:

- Input from key stakeholders with an interest in the strategy
- The approach will focus on the best outcome to protect people and the environment
- We need to ensure that the way forward is flexible so as to incorporate mitigating actions that result from the NDA Strategy Strategic Environmental Assessment.

Of the influences above, the UK Strategy for Radioactive Discharges is a key one. It is the product of extensive external consultation and highlights guiding principles for the management of radioactive liquid and gaseous discharges in all sectors in which they are generated.

Current Topic Strategy

The current topic strategy for solid LLW (i.e. the existing approach in place at NDA sites) is to ensure that LLW disposal capacity is maintained in the near term by maximising the operational life of LLWR and by implementation of the waste hierarchy in line with government Policy for the Long Term Management of Solid LLW.

The current topic strategy for liquid and gaseous discharges encourages the operators of NDA sites to manage the materials as part of their integrated waste planning, taking full cognisance of good practice, with the aim of achieving the best overall outcome for people, the environment and the taxpayer.

Strategy maturity and risks

The NDA Topic Strategy for solid LLW is mature and well established (in SMS space) as a result of the extensive effort in developing of the UK nuclear industry LLW strategy.

As noted above we are at the early stages of the topic strategy development process for liquid and gaseous discharges, although recognise that the UK framework is already in place. A key issue in this area is the need for flexibility in liquid and gaseous discharges as arisings may change as progress is made in the UK decommissioning programme and decisions are made on how strategic assets will be managed in the future.

Stakeholders and engagement to date

Over the last two years extensive engagement has been undertaken with stakeholders on the UK nuclear industry LLW strategy. This has included:

Lower Activity Waste

- Quarterly meetings of the LLW Strategy Group (NDA, Government, Regulators, waste producers and Local Government)
- Waste Management Steering Group meetings (NDA and Government departments)
- NDA Regulator LLW Liaison meetings
- NuLeAF seminars and officer working groups
- NDA's National Stakeholder Group, Site Stakeholder Groups and SLC supply chain meetings
- Annual LLWR Forum events
- Conferences and industry working groups

The proposed UK strategy was developed based on a large amount of work including:

- a review of the current management of LLW and the waste that needs to be managed in the future
- reviews of particular waste management topics and waste streams
- a full Strategic Environmental Assessment, including a number of sustainability considerations
- extensive stakeholder engagement through the LLW Strategy Group.

A formal public consultation on the proposed UK Nuclear Industry LLW Strategy was undertaken initially between 5 June and 11 September, with an extended period to the end of November 2009.

To date, engagement on the liquid and gaseous discharges strand has been limited. We have met with Environment Agency, SEPA and the Nuclear Directorate of HSE to agree on the scope and way forward for this topic strand. The topic has also been covered at the UK LLW Strategy Group noting the need for integrated approaches to the management of waste. There has also been significant engagement associated with the development of the UK Discharge Strategy.

Forthcoming stakeholder engagement

We will continue to engage with the LLW Strategy Group, and other appropriate forums as we conclude the UK Nuclear Industry LLW Strategy.

For the liquid and gaseous discharges strand we have determined the key stakeholders for the development of the strategy and are in the process of determining the most appropriate way to engage with those organisations. We intend to contact the stakeholders involved in the development of the UK Discharge Strategy to utilise their level of understanding of this topic.

Position at Strategy II

It is anticipated that the Lower Activity Waste Topic Strategy (both solid and liquid and gaseous strands) will be at Stage D, implementation, in the Strategy Management System by Strategy II.



Lower Activity Waste

Current position

Work is progressing towards refining the Topic Strategy with the aim of achieving Gate C for solid LLW and Liquid and Gaseous discharges early in 2010.

For more information on stages of strategy development, see the Strategy Management System Short Guide available at: <http://www.nda.gov.uk/strategy>