

Low Level Radioactive Waste - Where should it be managed?



Fred Barker, Executive Director of the Nuclear Legacy Advisory Forum (NuLeAF) – a Special Interest Group of the Local Government Association - highlights the need for public debate about proposed strategies for managing Low Level Radioactive Wastes (LLW).

Not surprisingly, proposals for new nuclear power stations are grabbing the headlines. But there's also a need to take a close look at how the LLW from existing plant will be managed.

There are two proposed strategies to consider:

1 The Nuclear Decommissioning Authority (NDA) is consulting on a strategy for dealing with nuclear industry LLW. It needs to find cost-effective ways of implementing the waste management hierarchy and optimising the use of the national LLW repository near Drigg in Cumbria.

2 A Government Project Board is preparing strategy for non-nuclear industry (NNI) LLW (ie from hospitals, universities etc). This strategy is likely to focus on the continued use of facilities for wastes from the municipal, industrial and commercial sectors.

For the nuclear industry, predicted total raw arisings of LLW are three million cubic metres, covering a broad spectrum of activity levels and materials (see box opposite). Approximately 60% is declared as Very Low Level Waste or mixed VLLW/LLW. The figure does not include large volumes of potentially contaminated land that is yet to be characterised. For the majority of NDA sites, the current baseline strategy is high force compaction followed by consignment to the LLW Repository (LLWR) near Drigg in Cumbria, with significant variation between sites on the practical application of the waste hierarchy.

Strong cost and disposal capacity drivers have influenced the NDA's proposed strategy. On costs, current LLW liabilities are estimated at £10 billion, with the NDA targeting a reduction of 10%.

On disposal capacity, NDA states that the remaining capacity of the LLWR is around 0.7 million cubic metres, subject to planning and regulatory approvals. Based on projected waste arisings, baseline plans and available routes, a new national LLWR could be required by the mid 2030s. NDA is very keen to push this date back as far as possible.

Against this background, the proposed strategy is based on three key themes:

- Application of the waste management hierarchy (including waste avoidance, characterisation, segregation, compaction, re-use and recycling, treatment and, where necessary, disposal)
- Making best use of existing assets (including optimised use of the LLWR)
- Opening and exploiting new disposal routes

NDA has identified a large number of initiatives that could be taken, some of which involve reliance on the supply chain to offer the use of, or develop, facilities away from existing nuclear sites, including metal treatment, incineration and landfill.

NuLeAF supports the three key themes in the proposed strategy, but points out that the challenge of WHERE to site facilities is critically important to local communities and their local authorities.

Where appropriate, NuLeAF's preference is to encourage concentration of LLW facilities at or adjacent to licensed nuclear sites. This preference does not rule out the possibility of using dispersed facilities at existing off-site locations, as long as these can be clearly demonstrated to be preferable in specific circumstances and have the consent of the local community.

There are a number of reasons why concentration of facilities at or next to existing nuclear sites can be preferable. For example at the Springfields nuclear site in Lancashire, local stakeholders favour development of on-site disposal over the continued use of a local landfill site at Clifton Marsh. This is because on-site disposal would remove the need for transport of VLLW off-site, result in disposal to a purpose-designed facility, and be under the management of the nuclear licensed site.

At some other nuclear sites, for example, Harwell in Oxfordshire, local stakeholders do not favour on-site disposal because it is not perceived to be compatible with the non-nuclear development of the site and an aspiration to move to early de-licensing.

Given the wide range of local factors that can come into play, early community input into the assessment of options for managing LLW arising at nuclear sites will be important. This is in any case a requirement of Government policy, which states that operator programmes and plans should be "developed by including wide stakeholder engagement to allow for an equitable approach" (LLW Policy Statement, March 07). Guiding principles from Government policy also include: provision for early local community input into the decision-making process; openness and transparency at all stages; and use of an iterative consultation process where appropriate.

It is also of note that the NDA's mission is to "deliver safe, sustainable and *publicly acceptable* solutions" (emphasis added). This implies that close regard should be paid to public acceptability in both the development and implementation of strategy for managing LLW.

Finally, for the much smaller quantities of non-nuclear industry LLW, the drivers for developing strategy are less to do with cost and a lack of disposal capacity per se, but with concerns that some wastes are being transported over substantial distances for management or disposal. Even with non-nuclear industry LLW there are concerns about sending the wastes to potential new conventional waste management facilities because it would present an additional hurdle to local acceptance of a facility.

This, arguably, provides a further reason for developing LLW management facilities at or adjacent to existing nuclear sites where practicable, as these could in principle also provide routes for non-nuclear industry LLW, thereby reducing the need to use existing and planned facilities for wastes from the municipal, industrial and commercial sectors.

What is LLW?

LLW includes lightly contaminated metals, soil, building rubble and organic material (such as paper towels and clothing). In the future there will be substantial volumes in the form of soil, concrete and steel, as nuclear plant are decommissioned. Much of the latter will be characterised as Very Low Level Waste (VLLW), with very low concentrations of radioactivity. VLLW is divided into Low Volume ("dustbin loads") and High Volume ("bulk disposal"). Low volume VLLW can be disposed of to unspecified destinations with municipal, commercial or industrial waste. High volume VLLW can be disposed of in specified landfill sites, with controls as specified by the environmental regulators (see box opposite).

New guidance for landfill operators

New guidance has been published by the Environment Agency (EA) for landfill operators who may want to accept low-level and very low-level radioactive waste for disposal. Its website explains that where LLW is sent to landfill it will ensure that it is managed in a way which minimises the risk to people and the environment.

Those landfill sites in England and Wales wishing to accept this type of waste will have to apply to for an authorisation. If satisfied the EA will authorise disposals and regulate the sites. "We expect landfill operators who are applying for authorisations to keep their local communities and other interested parties informed. In addition, we will consult relevant local authorities and the Health and Safety Executive on all applications we receive," the Agency says.

Authorisations granted for the controlled disposal of low-level radioactive waste at landfill will have more controls than those for very low-level radioactive waste. Sites must be strictly monitored, and the EA will publish the results.

For more information see: www.nuleaf.org.uk