

Meeting:	NuLeAF Steering Group, 3 February 2009
Agenda Item:	4
Subject:	Developing Strategies for Managing Low Level Wastes (LLW)
Author:	Fred Barker
Purpose:	To report on issues arising in the development of draft strategies for managing LLW

Introduction

This report covers:

- The development of NDA LLW strategy and NuLeAF's response
- The development of non-nuclear industry (NNI) LLW strategy
- Environment Agency (EA) guidance on the regulation of LLW management
- Plans for NuLeAF seminars on draft LLW strategies in May 2009
- NuLeAF case studies on developments in LLW management.

Recommendations

That the Steering Group:

- 1 Endorse promotion of discussion of a 'hierarchy of siting preferences' for management facilities for nuclear industry LLW.
- 2 Encourage member authorities to participate in the seminars in May on draft LLW strategies.
- 3 Commend the case studies on LLW management to member authorities.

Contribution to Achieving Strategic Objectives

The actions are intended to contribute to the achievement of the following NuLeAF objectives:

- To seek to ensure that LLW Strategy is developed and implemented in ways that can inspire local authority and public confidence.
- In the context of implementation of the waste hierarchy and subject to suitability of the nuclear licensed site in question, to encourage development of local or regional LLW management facilities at existing nuclear sites, rather than at non-nuclear sites.

1 The Development of NDA LLW Strategy and NuLeAF's Response

The paper attached as Annex 1 provides an outline of the way the NDA's LLW strategy is developing. Key points are:

- There are strong drivers to implement the waste hierarchy and open up new disposal routes (including costs and limited disposal capacity).
- There are a large number of initiatives that could be taken, some of which involve the development or use of facilities away from existing nuclear sites, including metal treatment, incineration and landfill.
- NDA intends to place considerable emphasis on "energising the supply chain" to deliver off-site initiatives.
- The emphasis on off-site initiatives raises significant concerns and conflicts with NuLeAF strategic objectives (about inspiring public confidence and concentrating facilities at or adjacent to existing nuclear sites).

In the light of this, NuLeAF's Strategy Review Group (see item 6 for a note of the meeting) agreed to promote discussion of a proposed 'hierarchy of siting preferences':

- I. Development of 'local' facilities on or adjacent to an existing (or proposed) nuclear site that deal with LLW from that site or from neighbouring stations at multi-station sites
- II. Development of 'regional' facilities on or adjacent to an existing (or proposed) nuclear site that also takes LLW from other nuclear sites in the region (requires local agreement that benefits outweigh detriments)
- III. Development of local, regional or national facilities at new sites (as with GDF siting this would require an approach based on voluntarism, partnership and benefits packages)
- IV. Use of facilities at off-site locations that manage non-nuclear wastes (the use of such facilities should not be imposed on unwilling communities).

The intention of adopting such a hierarchy in LLW strategy would be to encourage concentration of LLW facilities at or adjacent to licensed nuclear sites, whilst not ruling out other sites, including the possibility of using dispersed facilities at existing off-site locations (as long as such an approach has the consent of the local community and it can be clearly demonstrated that it is preferable in specific circumstances).

It is recommended that the Steering Group endorse promotion of discussion of the 'hierarchy of siting preferences' for nuclear industry LLW management facilities.

The following actions have also been taken as a result of discussion at the Strategy Review Group (SRG):

- Comments based on Annex 1 have been submitted to the NDA team undertaking the Strategic Environmental Assessment/Sustainability Appraisal of LLW strategy

options, so that strategic choices on the 'where' of LLW management can be addressed in that assessment.

- A meeting is being arranged with the Chair and waste portfolio holders on the LGA Environment Board to brief them on developments and seek their views.
- The Planning Officers Society Waste Advisory Group has been contacted and their views sought.
- Arrangements have been made for a series of seminars on LLW strategies during the consultation period on NDA and NNI LLW strategies (see further detail below).

Since the meeting of the SRG, the Executive Director has been invited to participate in the NDA's strategic Best Practicable Environmental Option study for high volume VLLW. This involves participation in workshops on 22 January and 12 February. A verbal report of the 22 January workshop will be provided at the meeting.

It is expected that formal consultation on the NDA's draft LLW Strategy will take place in the Spring, starting in early April.

2 The Development of Non-Nuclear Industry (NNI) LLW Strategy

This is being overseen by a Government led Project Board. Annex 2 outlines the position as at the end of November 2008. There is an expectation that strategy will identify optimum use by the NNI of existing and planned facilities for wastes from the municipal, industrial and commercial sectors, and that optimisation will need to be judged against a background of minimising transport of NNI wastes versus using appropriate facilities. Key to longer-term aspects of the strategy will be the NDA's plans for development of national and regional facilities for LLW management and the extent to which these could also be made available to the NNI.

The Project Board has identified a need to:

- increase public and stakeholder understanding of the key roles that the NNI plays within society and the acceptability of NII waste management routes from a safety and environmental protection perspective.
- ensure that NNI waste producers properly consider all realistic management routes and pay due regard to the proximity principle.
- ensure that provision for NNI VLLW/LLW management is addressed in regional and local plans.

Formal consultation on the NNI LLW strategy is to take place at the same time as consultation on the NDA's LLW strategy.

3 Environment Agency (EA) Guidance on the Regulation of LLW Management

The Environment Agency's main guidance will be available as Guidance for Regulatory Authorisations (GRAs). Guidance for (a) geological disposal and (b) near surface disposal will be available as separate documents. As reported to the Steering Group in July 2008, the EA has consulted on drafts. It is due to publish final versions in the near future.

The guidance for **near surface disposal facilities** applies to existing and proposed facilities, to facilities solely for the disposal of radioactive waste, and to facilities for the

co-disposal of solid radioactive wastes with conventional wastes. The types of solid radioactive wastes that might be suitable for disposal in near-surface facilities include very low level waste, low level waste and short-lived intermediate level waste.

The summaries of the **draft** guidance explained that the developers of:

... facilities for solid radioactive waste disposal have to demonstrate to us that the facilities will properly protect people and the environment. To do this, they will need to show that the approach to developing and operating their facilities, and also the location, design, construction, operation and closure of the facilities, will meet a series of principles and requirements. This guidance sets out these principles and requirements, and how we are likely to interpret them.

The EA has also recently issued an additional Guidance Note on ‘Disposing of Radioactive Waste to Landfill’ (see [EA Guidance Note](#)). The EA website explains:

New guidance has been published ... by the Environment Agency for landfill operators who may want to accept low-level and very low-level radioactive waste for disposal.

Last year the Department for Environment, Food and Rural Affairs (Defra) introduced a more flexible policy approach allowing for the disposal at landfill of certain categories of low-level radioactive waste and very low-level radioactive waste like rubble and soil from decommissioning activities. This new guidance produced by the Environment Agency for landfill operators in England and Wales explains the rules and process.

David Bennett, Strategic Policy Manager for Radioactive Substances Regulation at the Environment Agency, said: “It’s the Environment Agency’s job to ensure that where waste, including low-level radioactive waste, is sent to landfill it is managed in a way which minimises the risk to people and the environment.

“We understand the public may be concerned about a landfill site near them which potentially could accept this type of waste. However, we will tightly regulate the level of radioactivity allowed to be disposed of to ensure it remains well within the safe, national limits so there is no impact on the public.”

Those landfill sites in England and Wales wishing to accept this type of waste will have to apply to the Environment Agency for an authorisation, and in doing so to justify the suitability of their sites. The Environment Agency will then properly assess their applications, and if satisfied authorise disposals and regulate these sites.

David Bennett continued: “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.”

Authorisations granted for the controlled disposal of low-level radioactive waste at landfill will to have additional requirements and controls, compared to those for the disposal of very low-level radioactive waste. The Environment Agency will require sites authorised for disposal to be strictly monitored, and will ensure the results from this are published.

The EA has also published a Q&A Briefing on disposal of LLW to landfill (see [EA Q&A](#)).

4 Plans for NuLeAF Seminars on the Draft LLW Strategies

In view of the importance of LLW management issues, the SRG agreed that a series of seminars should be organised to coincide with the formal consultations on NDA and NNI LLW strategies. The aims of the seminars are to:

- Brief local authorities on the draft strategies and the approach to regulation of LLW management
- Enable NDA, the NNI Project Board and EA to receive direct feedback from a local authority audience
- Inform the preparation of NuLeAF's responses to the consultations.

Target audiences are NuLeAF member and officer contacts, and senior planning officers and councillors from planning committees (from all local authorities). The LGA is assisting with circulation of invitations.

The seminars are being timed so that they fall within the consultation period on the draft strategies, but take place before the local elections on 3 June. The locations and dates are as follows:

7 May Manchester
12 May London
14 May Taunton

The proposed agenda for the seminars is:

11.00 Introduction
11.05 NDA Draft LLW Strategy (NDA invited)
11.30 NNI Draft LLW Strategy (DECC presentation)
11.55 Regulation of LLW Management (EA presentation)
12.20 Panel Q&A in plenary (all three presenters)
1.00 Lunch
1.30 Small Group Discussions on Key Consultation Questions: Session A (two groups discuss NDA draft strategy and two groups discuss NNI draft strategy)
2.15 Small Group Discussions on Key Consultation Questions: Session B (each group switches to the other draft strategy)
3.00 Concluding remarks

It is recommended that member authorities be encouraged to participate in the seminars.

5 NuLeAF Case Studies on LLW Management

A series of case studies have been published on the NuLeAF website to help promote understanding, learning and good practice in the way local authorities address developments in nuclear legacy management (see [Case Studies](#)). The first three studies are on LLW issues.

It is recommended that the SG commend the case studies to member authorities. Suggestions for further topics for case studies should be raised with the Secretariat.

ANNEX 1: STRATEGIC CHOICES IN THE MANAGEMENT OF LOW LEVEL RADIOACTIVE WASTE FROM THE NUCLEAR INDUSTRY

1 Introduction

This annex highlights the way the Nuclear Decommissioning Authority's strategy for Low Level Waste (LLW) management is developing. It points to some fundamental choices about the 'where' of LLW management, raising important issues for local government.

2 NDA'S Preliminary Assessment of Potential Strategic Initiatives

NDA has updated its Strategic Review of "synergies and opportunities" in LLW management¹. The primary objective is to reduce its LLW liabilities by more than 10%. That liability is currently estimated at just under £10 billion.

Predicted total raw arisings of LLW are 3 million cubic metres, covering a broad spectrum of activity levels and materials. 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.

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 (LLWR2) could be required by the mid 2030s.

The NDA has identified 54 potential strategic initiatives to reduce its LLW liabilities and, if possible, avoid the need for LLWR2. It has carried out a qualitative evaluation of these initiatives using criteria such as the ease of implementation, potential timescales and cost-benefits. Based on this, initiatives have been prioritised and separated into 'quick-wins' (relatively easy and quick implementation) and those that require further study on how best to implement the initiative.

The NDA presented the findings to the LLW Strategy Group at its November meeting (see in particular slides 29 and 34-37 in [Strategic Review Presentation](#)), and sought feedback on views on priorities. Subject to the review of discussion and further assessment, the outcome of the Strategic Review will inform the NDA's draft LLW Strategy and LLW Management Plan, which will be subject to formal consultation in Spring 2009.

3 Strategic Choices on the 'Where' of LLW Management

Although not articulated as such by the NDA, the Strategic Review points to some fundamental choices about the 'where' of LLW management. In essence, there are four categories of potential location for the use or development of LLW management facilities:

- a) On existing nuclear licensed sites
- b) Adjacent to existing nuclear licensed site

¹ Currently, LLW consists largely of paper, plastics and scrap metal items that have been used in hospitals, research establishments and the nuclear industry. In future there will be large volumes in the form of soil, concrete and steel, as nuclear plants are decommissioned. LLW does not normally require shielding during handling or transport. A sub-category of LLW – known as Very Low Level Waste (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 to specified landfill sites when authorised by the Environment Agency.

- c) At existing off-site facilities (eg existing incinerators or landfill)
- d) At new off-site locations

In addition, proposals for new nuclear build could be required to incorporate on-site facilities for managing the LLW generated at the site.

The strategic choices about ‘where’ could be characterised as ‘concentrate’ (at or next to existing nuclear sites) or ‘disperse’ (throughout communities).

Although many of the initiatives identified as medium to high priority in the NDA’s evaluation would be implemented at or adjacent to existing nuclear sites, a significant number of so-called ‘quick-wins’ could fall into ‘disperse to existing off-site facilities’ (c):

Initiative number	‘Quick-Win’ Initiative	Cost Benefit	Priority
14	Develop metal treatment routes (maximise use of existing capacity in the supply chain eg decontamination and melting to reduce volumes requiring disposal)	>£200m	Very high
15	Develop incineration routes (maximise use of existing capacity in the supply chain – significantly reduces volumes and stabilises combustible LLW)	>£200m	Very high
24	Develop alternative routes for exempt waste disposal (use of alternative routes in the non-nuclear industry)	£50m-£200m	High

Similarly, the following initiatives for ‘further study’ fall into ‘disperse to existing or new off-site locations’ (c and d):

NDA Number	‘Further Study’ Initiative	Cost benefit	Priority
16	Supply chain provides new treatment facilities (avoiding the need for NDA to invest in new facilities – supply chain may need sufficient market confidence in order to justify investment)	>£200m	High
25	Develop alternative routes for VLLW disposal (maximise use of available landfill capacity or identify new sites)	>£200m	High
23	Re-use/recycle exempt wastes in new construction projects outside the nuclear industry (eg recycling rubble as aggregate for new roads, waste stores, power stations etc)	£50m-£200m	Medium

It is clear from comments at the LLW Strategy Group and the NuLeAF seminar on 2 December that NDA intends to place considerable emphasis on “energising the supply chain” to deliver off-site initiatives.

This is likely to raise a number of significant concerns, including:

- Opposition from communities living near proposed off-site facilities²
- Transport of VLLW/LLW within local communities between nuclear sites and off-site facilities
- Increased pressure on the limited remaining capacity at existing landfill sites³
- The potential to jeopardise the continued use of landfill and incineration for VLLW/LLW from the non-nuclear industry (NNI)⁴
- Potential adverse economic impacts on a local area caused by negative perceptions of the use of facilities for LLW treatment or disposal.

It appears that key aspects of the NDA's emerging LLW strategy are likely to be in conflict with two of NuLeAF's strategic objectives⁵ for LLW management, namely:

- To seek to ensure that LLW Strategy is developed and implemented in ways that can inspire local authority and public confidence.
- In the context of implementation of the waste hierarchy and subject to suitability of the nuclear licensed site in question, to encourage development of local or regional LLW management facilities at existing nuclear sites, rather than at non-nuclear sites.

Discussion with planning officers from NuLeAF member authorities indicates that individual authorities are more likely to support the development of local LLW management facilities at or adjacent to existing nuclear sites in their area, rather than see the dispersal of LLW management to existing or new non-nuclear sites⁶.

4 A Potential Hierarchy of Siting Preferences

In the context of support for implementation of the waste hierarchy, NuLeAF's Strategy Review Group has requested that the NDA Strategic Environmental Assessment on LLW management consider the case for a 'hierarchy of siting preferences'. This proposed hierarchy of preferences is as follows:

² Note that where local stakeholders have considered the relative pros and cons of continued disposal of VLLW to landfill and development of a disposal facility at a nuclear site they have favoured the latter (see Springfields case study at [Case Study 1](#)).

³ The Municipal Journal reports that there is 3-5 years landfill capacity remaining in the East and South East, and 5-13 Years elsewhere (MJ, 4 December 2008).

⁴ There is an expectation that non-nuclear industry strategy will identify optimum use of existing and planned facilities for waste from the municipal, industrial and commercial sectors as the way forward. The draft NNI strategy will be consulted upon alongside consultation on the NDA LLW strategy.

⁵ See [Strategic Objectives for 2009](#).

⁶ Authorities are more likely to support the concentration of facilities at or near existing nuclear sites if the wastes to be managed only come from that site or neighbouring stations at multi-station sites. Most authorities are unlikely to support the use of on-site facilities for wastes imported from nuclear sites outside their area ('regional facilities'). The availability of Community Funds might encourage more authorities to consider that it would be appropriate to develop 'regional' facilities at a nuclear site in their area. Discussion has also established that it would be possible for waste planning authorities to adopt local planning policy in MWDFs that encourages the concentration of LLW management at or next to existing nuclear sites, in preference to the use or development of facilities further from the site, as long as due regard is paid to Government policy⁶ and the local planning policy is justified by the findings of local sustainability appraisal.

- I. Development of 'local' facilities on or adjacent to an existing (or proposed) nuclear site that deal with LLW from that site or from neighbouring stations at multi-station sites
- II. Development of 'regional' facilities on or adjacent to an existing (or proposed) nuclear site that also takes LLW from other nuclear sites in the region (requires local agreement that benefits outweigh detriments)
- III. Development of local, regional or national facilities at new sites (as with GDF siting this would require an approach based on voluntarism, partnership and benefits packages)
- IV. Use of facilities at off-site locations that manage non-nuclear wastes (the use of such facilities should not be imposed on unwilling communities).

The intention of adopting such a hierarchy in LLW strategy would be encourage concentration of LLW facilities at or adjacent to licensed nuclear sites, whilst not ruling out other sites, including the possibility of using dispersed facilities at existing off-site locations (as long as such an approach has the consent of the local community and it can be clearly demonstrated that it is preferable in specific local circumstances).

ANNEX 2: UPDATE ON NON-NUCLEAR INDUSTRY (NNI) LLW STRATEGY DEVELOPMENT

Introduction

A Programme Board has been established, led by DEFRA. The principle objective is to develop and recommend to Government a NNI waste strategy for the whole of the UK. Strategy development is being informed by data collection on national waste arisings.

When the Board was established it was envisaged that the strategy would need to address: increasing difficulties with securing disposal routes for NNI LLW; ways of discouraging unnecessary transport of NNI waste; and encouraging communities to take greater responsibility for arisings in their areas.

FB attended a Board workshop on 24 November. This reported progress to date and sought to identify the options that should be addressed in the sustainability appraisal accompanying strategy development. *The notes below should not be taken as a definitive record of the issues addressed at the workshop.*

Data collection

As the NNI generally creates comparatively small quantities of waste at low activity levels, their disposal often takes place at the same facilities used for commercial and industrial waste and municipal solid waste. Most NNI wastes are therefore sent to:

- Incinerators registered under RSA93 (combustible LLW)
- Non RSA93-registered incinerators (combustible VLLW)
- Local landfills (VLLW and small amount of LLW for controlled burial)
- The LLWR near Drigg

A study was commissioned to identify the geographical pattern of NNI arisings and available management routes. Of 766 authorised facilities contacted, the study received 268 replies, which was considered to be a disappointing response. Nonetheless, it was reported that some trends are evident, including

- Overall waste volumes and masses have been steady but are expected to fall.
- The spatial distribution of average 'waste miles' travelled relative to waste disposal capacity in an area varies significantly. Some areas have high landfill and incinerator capacity but NNI wastes travel large distances for disposal or incineration.
- Very few respondents indicated that there were any short-term problems in finding waste disposal routes.

Sustainability Appraisal

A draft scoping report for a sustainability appraisal has been prepared for consultation. In addition to setting out baseline data, this identifies key sustainability issues and sustainability objectives. The schedule for consultation on the scoping report has not yet been decided.

Draft sustainability issues are stated to include:

- Lack of information on LLW and VLLW arisings
- Limited capacity and uncertain future of the LLWR
- Limited opportunities for LLW and VLLW disposal to landfill
- Barriers to LLW and VLLW incineration

- Lack of certainty about options for managing LLW from the off-shore oil and gas industry ('NORM')
- Disincentives to dispose of LLW locally, resulting in increased transport
- Climate change consequences
- Cumulative effects resulting from radionuclide accumulation

Draft sustainability objectives include:

- Protect the health and well-being of the population
- Promote implementation of the waste management hierarchy
- Encourage self sufficiency in waste management
- Prevent radioactive contamination of soils and water, and protect air quality
- Ensure safe transportation
- Minimise effects on wildlife and habitats
- Minimise GHG emissions
- Ensure climate change consequences are addressed
- Promote cost effective management
- Support high and stable levels of employment and economic development
- Promote the development of innovation and technological advancement

The draft scoping report states that there is an expectation that strategy is likely to identify optimum use by the NNI of existing and planned facilities for wastes from the municipal, industrial and commercial sectors, and that optimisation will need to be judged against a background of minimising transport of NNI wastes versus using appropriate facilities. It adds that key to longer-term aspects of the strategy will be the NDA's plans for development of national and regional facilities for LLW management and the extent to which these could also be made available to the NNI.

Strategic Options

The w/s discussed the reasons why some areas are not using existing local facilities for managing NNI VLLW/LLW. This was thought to include: attitudes of some local operators (concern about public reaction); the confidence levels that waste producers have in different operators; and commercial arrangements.

With regard to potential new conventional waste management facilities, concerns were expressed that inclusion of radioactive wastes in the inventory of wastes to be managed would provide a major barrier to local political acceptability of the facility.

With regard to the potential management of NNI wastes in facilities developed as a result of emerging NDA strategy on LLW management, it was thought that this could not be relied on, but should be considered a fall-back.

Against this backdrop, the workshop identified a need:

- To increase public and stakeholder understanding of the key roles that the NNI plays within society and the acceptability of NII waste management routes from a safety and environmental protection perspective.
- To ensure that NNI waste producers properly consider all realistic management routes and pay due regard to the proximity principle.
- To ensure that provision for NNI VLLW/LLW management is addressed in regional and local plans.