

## **Implementing the National Low Level Waste Programme in the United Kingdom – An Exercise in Engagement and Communication- 11612**

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### **ABSTRACT**

This paper describes the work undertaken by the UK Nuclear Decommissioning Authority, (NDA) and the operators of the UK National Low Level Waste Repository, (LLW Repository Ltd), to develop and implement a National LLW management programme for the UK.

The paper focuses on the dialogue between various parties, including; waste producers, regulators, local and regional government and local communities to bring about an effective programme with a high degree of consensus on how it can be implemented. Once in place, this programme will extend the useful life of the UK Low Level Waste Repository site and reduce the overall cost of Low Level Waste management to the UK taxpayer.

The current focus of this programme is to prevent disposal capacity being taken up at LLWR by waste types which lend themselves to alternative treatment and/or disposition routes.

This paper describes how the NDA and LLW Repository Ltd developed the national programme in consultation with waste producers, regulators, regional authorities and local communities. The paper concludes with a summary of the ongoing effort to maintain an open and transparent stakeholder dialogue.

### **INTRODUCTION**

The UK National Low Level Waste Repository (LLWR) is located near to the village of Drigg in West Cumbria. It is the principal site for disposal of solid Low Level Radioactive Waste (LLW) in the United Kingdom.

The LLWR site is located approximately four miles from the Sellafield (formerly Windscales) nuclear complex in West Cumbria. The location of the LLWR was chosen due to its proximity to Sellafield site – Sellafield is the main UK consignor of LLW, historically and for the foreseeable future.

The LLWR was constructed on the site of a World War II munitions factory. Disposal of LLW commenced in 1959, initially using a series of shallow trenches cut into the glacial clay layer beneath the site.

As waste management standards changed over time, the methods of disposal at the LLWR developed and improved. From the mid 1990's waste has been consigned for disposal in steel ISO containers which are filled with a cement based grout, prior to emplacement in a shallow vault - a multi barrier containment structure with integral leachate collection system.

The facility has operated on a commercial basis since the formation of British Nuclear Fuels Ltd (BNFL) in 1971.

With the arrival of the UK Nuclear Decommissioning Authority (NDA) in 2004, the LLWR's pivotal role in enabling the accelerated remediation of the UK's nuclear legacy and its importance to non NDA (and non nuclear) waste consignors was recognised.

In 2008, NDA awarded the contract for the Management and Operation, (M&O), of the LLWR to UK Nuclear Waste Management Ltd (UKNWM Ltd) – a consortium led by the URS Corporation and including Studsvik UK Ltd, Areva NC and Serco Assurance Ltd. The LLWR thus became the first NDA site M&O contract to be awarded under open competition, as required by the Energy Act 2004.

On 1 April 2008, the new M&O contract came into effect with the sale of all shares in the LLW Repository Ltd Site Licence Company from British Nuclear Group Plc to UKNWM Ltd. This action transfers ownership of the Site Licence Company (SLC) to its new Parent Body Organisation (PBO).

Under the terms of the new M&O contract, the team at the LLWR became responsible for:-

- The safe and effective operation of the LLWR site, and
- The definition of a National Waste Strategy as required by the emerging UK Government policy on Low Level radioactive Waste

## **LLW MANAGEMENT IN THE CONTEXT OF UK GOVERNMENT POLICY**

In March 2007, the UK Government and devolved administrations (Scotland, Wales, and Northern Ireland) published their policy for the long-term management of solid low level radioactive waste (LLW) in the UK [1]. The overall aim of the policy was to set out the need for greater flexibility and effectiveness in managing LLW to support the decommissioning and environmental restoration mission of the newly-established Nuclear Decommissioning Authority (NDA). Government policy also directed NDA to develop a UK Nuclear Industry LLW Strategy to provide strategic guidelines for both the nuclear industry and non-nuclear industry LLW producers.

The “UK Strategy for the Management of Solid Low Level Radioactive Waste from the Nuclear Industry” [2] was issued by NDA to Government for approval in March 2010. This important deliverable represents nearly two years of significant efforts toward the development of an integrated LLW management programme in the UK. The UK LLW Strategy was approved by Government in August 2010 and officially launched for implementation by NDA.

### **Summary of the UK LLW Strategy**

The UK LLW strategy provides for the continued capability and capacity for the safe, secure, and environmentally-responsible management and disposal of LLW in the UK for both the nuclear and non-nuclear industries through:

- Application of the Waste Management Hierarchy, with emphasis on waste avoidance, re-use/recycle, and minimisation;
- Best use of existing facilities, working more efficiently and potentially extending the life of the LLW Repository as a national asset;
- Development and use of new fit-for-purpose management and disposal routes for greater flexibility and options in LLW management for waste producers.

LLW Repository Ltd. has the overall role to manage the LLW Repository in West Cumbria, UK and establish a truly integrated LLW programme that ensures continued long-term, LLW management capacity of the LLW Repository. In partnership with NDA, LLW Repository Ltd. developed numerous strategic technical documents, option studies and reviews, and plans to inform the emerging LLW strategy and underpin the potential benefits of waste management options to the NDA for strategy development and implementation. Important activities included:

- Performing a detailed Strategic Review of the current status or “baseline” of LLW management programmes at NDA sites;
- Developing LLW Topical Strategies that identify potential high-level strategic approaches to improve the application of the waste management hierarchy, waste packaging, transportation, and inventory management across the UK;
- Identifying potential opportunities for improving and integrating LLW management and ways to significantly help reduce LLW costs across all NDA sites;



Fig. 1 UK LLW Strategy, document, approved by HM Government, August 2010

### **Consultation and Engagement**

The results of these endeavours were discussed and consulted at a newly-established NDA UK LLW Strategy Group, serving as a collaborative and consultative forum to integrate the UK LLW programme on a regional and national basis. The NDA established the group in April 2008, as recommended by LLW Repository Ltd., to develop a working partnership between NDA, LLWR, Regulators, and LLW consignors for promoting innovation, value for money, and implementing the waste hierarchy by planning for effective solid waste management solutions.

Formally structured under a defined Terms of Reference, this group supports ongoing nuclear operations, the nuclear site decommissioning and remediation programme, and the LLW disposal needs of ‘non-nuclear’ organisations. The group also serves as a primary point-of-contact for integration and engagement on LLW innovations, issues, and strategy development and shares information with other applicable groups and forums.

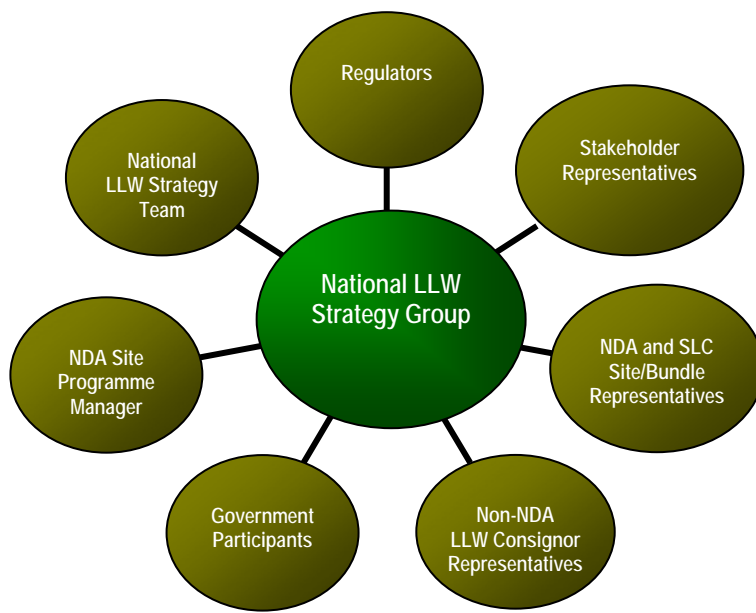


Fig. 2 National LLW Strategy Group participants

To date, eleven successful meetings have been held throughout the UK to share, inform, and discuss key strategic initiatives in LLW management. A UK LLW Strategy Group module on the LLW Repository website [3] was created to improve communications and make consultative documents more readily available.

Considerable public and stakeholder consultation, evaluation of options, and development of underpinning technical information were conducted to ensure a robust and cost-effective LLW Strategy. Completion of the strategy followed a formal and comprehensive consultation across the UK. Originally scheduled for a 14-week consultation period from 5th June to 11th September 2009, the consultation timeframe was extended until 30th November to ensure additional opportunity for comment from a wide range of stakeholders and interested parties. Fourteen (14) questions were posed in the Strategy Consultation Document to solicit specific feedback on strategic areas, including:

- Agreement with application of the waste hierarchy;
- Use of innovative waste treatment technologies, such as metal smelting and incineration;
- Community issues involved in transportation options for rail use;
- Surface landfill disposal for low concentration Very LLW;
- Optimisation of the national LLW Repository

A total of seventy-four responses and more than one thousand comments to the strategy and its accompanying Strategic Environmental Assessment were received. LLW Repository participated on an NDA Review Panel formed to address all of the responses received during the consultation period. A Post Consultation Response was generated that summarised the comments to the fourteen consultation questions on the strategy.

General observations were:

1. There is reasonable agreement with the principles set out in the draft Strategy;
2. Early dialogue with stakeholders and local communities is essential for implementing the strategy;
3. Transparency of the decision-making processes based on robust information is necessary to ensure community and stakeholder support for new projects.

The main concerns expressed in the consultation responses were largely centred on the suitability of locations for treatment and disposal facilities. While not against the principles or objectives of the proposed strategy, respondents stated a strong desire for community leaders to be involved early in the siting process for new facilities. The LLW Strategy was revised to incorporate the results from the consultation process and submitted for Government approval in January 2010. Following an initial Government review and comment period, the strategy document was revised and re-submitted to Government in March 2010 for formal approval.

## **IMPLEMENTING AN INTEGRATED LLW PROGRAMME – FURTHER ENGAGEMENT WITH WASTE PRODUCERS AND STAKEHOLDERS**

Within the UK Strategy for LLW Management, LLW Repository Ltd. is designated NDA's strategic partner and the UK Integrator for LLW management. In this role, LLW Repository Ltd has introduced a number of technical innovations, programme improvements, and waste management services for implementation across the NDA estate and non-nuclear industry. Now that the UK LLW Strategy has been consulted and completed by NDA, the focus has moved to full, widespread implementation across the NDA estate.

### **New Waste Services Contracts**

New contracts for the provision of Waste Management Services between LLW Repository Ltd. and its customers were approved by NDA and implemented on 01 April 2010. LLW Repository Ltd holds more than thirty contracts covering more than sixty sites and projects. Figure 3 illustrates the range of organisations who are party to individual Waste Services Contracts with LLW Repository Ltd.



Fig. 3 Organisations With Contractual Link to LLW Repository Ltd for the Provision of Waste Services, (not exhaustive).

Historically, contracts between the UK LLW Repository operators and the waste producers had been focused on disposal of waste at the LLWR site. However, with the arrival of UKNWM and development of a National Strategy for LLW Management, the importance of these contracts to implementing the new LLW Programme was recognised.

The new Waste Services Contract enables waste producers to access the new waste treatment, packaging, transport and waste characterisation services offered by LLW Repository Ltd. These services have been developed to support implementation of the National LLW strategy and are offered by LLW Repository Ltd in line with the national strategy.

An opportunity was identified to use the recitals section of the contract to set the tone for a new type of relationship between the Repository operator and waste producer. The wording finally selected states that;

‘The Parties agree to work together to further the aims of the UK National LLW Strategy’

The consultative approach adopted for the development of National LLW Strategy was continued into the development of the Waste Service Contracts. Workshops were held at various locations across the UK to allow waste producers to become involved in the development of the contract.

A total of twelve such workshops were held in three phases, broadly aligned with the normal development of such commercial arrangements, i.e. initial offer of contract, counter offer and final offer.

Feedback was solicited at the workshops, but further dialogue was encouraged using many different channels of communication, including email, telephone/video conferencing, letter/fax and further face to face meetings.

Feedback generally consisted of; Comments, general suggestions, proposals for alternative wording, acceptance and non acceptance of specific contract provisions. All feedback was logged and recorded on a central spreadsheet. Each specific item was addressed, the originator was informed of the decision (e.g. accept and amend, accept and agree new wording, propose alternative or reject.

The spreadsheet allowed for several iterations of an issue as negotiations developed, until eventually only a handful of contentious issues remained. These were resolved over a period of several weeks at follow up meetings where senior members of each team could focus on the final few issues.

## **ENGAGING REGULATORS, STAKEHOLDER GROUPS AND LOCAL COMMUNITIES**

In addition to the work described above, NDA and LLW Repository Ltd undertake a wide range of meetings, workshops and events to communicate their joint aims and objectives to a range of organisations. In addition, this wider engagement allows the various groups involved to comment, support and shape the implementation of the UK Strategy for LLW Management.

The significant changes to the role of LLW Repository Ltd (moving from an organisation which only supplied disposal services to a fully fledged waste management organisation) has required an enhanced level of communication and interaction with regulators, stakeholder groups and local communities.

NDA has established fifteen stakeholder groups across the UK, all of whom share a set of primary objectives;

	<b>Objective</b>	<b>Examples of how this could be delivered</b>
1	To provide an opportunity for questioning the operators, NDA and regulators on behalf of the community	Info circulated by operators or NDA on local or national issues Presentations, briefing papers and structured questioning time
2	To receive and comment on progress reports and forward plans for the sites	Receive updates on site progress Request updates on issues of interest
3	To represent the views of the local community through the provision of timely advice to NDA, operators and regulators	Represent local views at local and national level e.g. National Stakeholder Group meetings, SSG Chairs' Forum, as well as SSG meetings Raising issues of local concern Responding to NDA consultations Input on site socio-economic fund applications

Table 1 Primary Objectives of Site Stakeholder Groups [4]

Figure 4 shows the relationships between the NDA, LLW Repository Ltd and these important groups

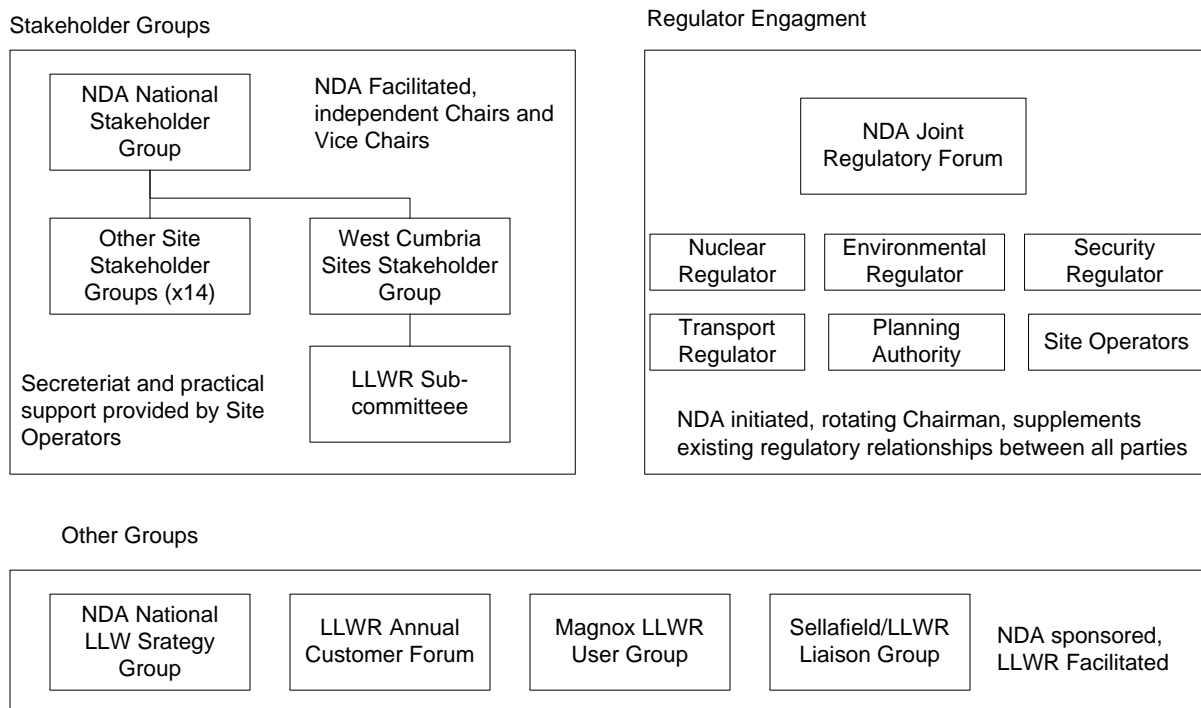


Fig 4 Stakeholder inter-relationships with NDA and LLW Repository Ltd

The key areas of responsibility of each group in relation to LLW Management are summarised below.

**Regulator Engagement**– all the regulators with whom LLW Repository Ltd is involved have proven to be proactive in their involvement with the public and local government. The regulatory community includes:-

- *Environment Agency, (EA).* Environmental Regulator, England and Wales. Ensure that safe, sustainable and effective standards of environmental protection are maintained at the LLWR site. EA also regulate waste producers in England and Wales
- *Scottish Environmental Protection Agency, (SEPA).* Environmental Regulator for Scottish sites.
- *Nuclear Installations Inspectorate, (NII).* License and regulate nuclear facilities and the work carried out on them in the UK.
- *Department for Transport, (DfT).* Regulation of transport of nuclear materials (including regulation of container licensing)
- *Office of Civil Nuclear Security, (OCNS).* Security arrangements for nuclear materials, sites and personnel

**Stakeholder Groups** – the meetings of each group are open to members of the public and are usually attended by regulators as well as site operators. The venue for the meeting is the Drigg Village Hall, approximately half a mile from the entrance to the LLWR site.

Local and regional Government are also well represented in this forum. In the case of LLW Repository Ltd this includes:-



- *Cumbria County Council, (CCC)*. Sets development and planning strategy and policy, authorises new developments and change of use of existing facilities.
- *Copeland Borough Council, (CBC)*. Local socio-economic development.
- *Drigg and Carleton Parish Council, (DCPC)*. Local concerns and impact of operations

Central Government representation tends to be limited to the National Strategy arena, unless a specific issue is under discussion. Central Government stakeholders include:-

- *Department for Energy and Climate Change, (DECC)*. Funds the activities of NDA and 'owns' the UK Strategy for LLW Management.
- *Scottish Executive*, holds devolved powers for establishing environmental policy for nuclear sites in Scotland.

### **Channels for Communication and Engagement**

NDA and LLW Repository Ltd use a diverse range of channels and modes of communication, both formal and informal. These channels have been vital to gaining support for the implementation of the National LLW Strategy. These channels include:-

*Open Public Meetings*, such as the West Cumbria Site Stakeholders Group – LLWR Sub Committee described above.

These meetings are advertised in advance in the local press and via several websites. They are usually well attended by the local community and cover a range of issues relating to the site. Senior management from NDA and LLW Repository Ltd are always in attendance.

*Supply Chain Forum* – This is a bi-annual meeting, facilitated by LLW Repository Ltd which enables suppliers of goods and services to the company to be briefed on recent developments, forthcoming contract awards and other significant procurements. It also provides an opportunity for suppliers to meet key staff and inform them of new developments in their specific markets which may be of benefit to LLW Repository Ltd.

*LLWR Customer Forum* – This is an annual event organised and hosted by LLW Repository Ltd. All current and previous customers (waste producers) are invited to send representatives to a full-day event. The attendees are given a series of presentations on a range of topics relating to LLW management. Recent developments at the LLWR site are outlined, along with more strategic topics around implementation of National Policy. Separate technical sessions are also available on a range of topics including waste characterisation, transport and packaging.

*Quarterly LLWR Newsletter; 'On the Level'* – This document is aimed at both internal and external audiences and captures the key achievements of the team at LLWR as well as forthcoming milestones. The document is produced in-house and distributed locally on hardcopy as well as electronically via the external website.

*External Website* - One of the most successful communication channels from LLW Repository Ltd has been the development of an extensive external website for the LLWR site. The llwrsite.com website is used to directly communicate; the sites strategic role in waste management, key activities and projects. It has been extended to provide a portal for customers to access the documents, processes and procedures they need in order to consign waste. Furthermore an extensive strategy and best practice guidance section has been incorporated to allow the work of the National Strategy team to be publicised and accessed.

*Open Day* – On two occasions in 2009, LLW Repository Ltd held ‘open days’ to allow members of the local community and the families and friends of employees to visit the site. The feedback from these events was highly positive. Approximately two thirds of the population of the neighbouring community, (Drigg Village), were able to visit the site. For many of our neighbours this was their first visit. Plans have been made to repeat the open day as an annual event.

## **CONCLUSION**

The UK is implementing major changes to the way its Low Level Radioactive waste is managed. NDA has recognised that LLW Repository Ltd is in a unique position to integrate and optimise waste management practice by virtue of its national perspective on waste issues. One benefit of this national perspective is its ability to enable the case to be made for treatment options, based on aggregated wastestreams received from multiple sites.

Implementation of a new LLW management strategy based on this premise requires an extensive schedule of communication and engagement with a wide range of people on a number of diverse topics. NDA and LLW Repository Ltd are using a wide range of communication routes to ensure that the message of change is delivered effectively to all who need to hear it.

LLW Repository Ltd has worked with NDA, Regulators and Stakeholders to develop and implement the optimised UK National LLW Strategy. The LLW Strategy will form part of NDA’s overall strategic approach to manage the UK’s nuclear legacy. It will also ensure that LLW management and treatment facilities are available to LLW producers who are not part of the NDA estate.

Further optimisation and deployment of new services will be initiated through further discussion and consultation under the auspices of the National LLW Strategy Group. It is envisaged that the National LLW Strategy will identify and guide developments in;

- enhanced characterisation and segregation methods,
- requirements for local, regional and national infrastructure
- optimised transport and packaging solutions

These developments are aimed at providing a sustainable, cost effective approach to LLW management in the United Kingdom.

## **ACKNOWLEDGEMENTS**

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