

ON THE LEVEL

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NEWS AND VIEWS FROM THE LLW REPOSITORY

Directors Corner



Holding steady course on a new vision for UK waste management

When UK Nuclear Waste Management Ltd (the Parent Body Organisation for LLWR), took over on 1st April 2008, the UK was facing some serious challenges in managing low level radioactive waste. Vault 8 was nearly full, there was no planning consent for construction of a follow-on vault, there was an incomplete plan relating to delivery of the safety case which is essential to support continued use of the Repository beyond Vault 8 and, most importantly, there was no National Strategy that would manage this waste through the decommissioning of the first generation nuclear plants. In short, the UK was way behind the international community in getting to grips with a very important aspect of nuclear decommissioning.

Today we have a brand new Vault that can easily manage the waste needs of the industry for the next decade. We have submitted a comprehensive Environmental Safety Case that should enable a new disposal permit by 2013 and provide for a Repository for the better part of this century. And, under the leadership of the Nuclear Decommissioning Authority (NDA), the UK now has an approved National Strategy for the management of low level waste. LLWR is leading on the implementation of that strategy across the UK - for NDA and other nuclear industry consignors. The strategy implements the Waste Hierarchy placing emphasis on minimising waste generation, maximising waste treatment options and resorting to disposal as a last resort. We are also hard at work improving shipping and disposal containers, providing standardised characterisation services and offering metal recycling, combustible treatments and Very Low Level Waste alternate disposals. The combination of all of these offerings brings about our 3 steps to success: reducing volume; increasing capacity and improving forecasts which you will be able to read more of in the centre section of this newsletter. We are confident that with much less waste coming to the Repository, the UK should be able to complete Generation One Decommissioning.

Optimised disposal of Bradwell Skips and Berkeley Boiler Treatment

LLWR has been working closely with Magnox Ltd on a number of projects in recent months; namely the optimised disposal of the Bradwell Pond Skips and the Treatment of the Berkeley Boilers



The pond skips from Bradwell, have been stored at the station in 16 Half Height ISO containers since removal from the pond several years ago. Unfortunately the skips are not suitable for metal treatment and are destined for disposal. You may think that this is the end of the story... However, there is a significant voidage (waste of space), of approximately 90%, with the direct disposal option and it does not represent the best use of capacity at the Low Level Waste Repository.

LLWR, engaged the supply chain, through its Metallic Waste Treatment Framework contract, and asked them to come up with alternative solutions. Energy Solutions, with partners Inutec proposed that the voidage in the containers was used for other low level wastes, with the repackaging of the containers taking place at Inutec's facility at Winfrith. This has reduced the voidage to 30%, and by using other low level radioactive waste to fill the voidage has resulted in saving approximately 10 containers worth of space in the Vault. LLWR has been managing the overall project for Magnox, with the first two successfully optimised containers arriving at LLWR in late July.

At Berkeley, Magnox is working with the NDA to accelerate the removal and treatment of 15 redundant boilers (heat exchangers) from the site for metal treatment. The remaining boilers will be treated over the next two years. LLWR and Magnox are working closely together to procure a service from the supply chain to lift, transport, treat and dispose of the boilers through the Metallic Waste Treatment Framework.

Three steps to success

There are three key areas of activity that when combined, could eliminate the need for a second low level waste repository, saving approximately £2 Billion, and ensure optimal use of the existing facility at the Low Level Waste Repository (LLWR). Through volume reduction, increased capacity and improved forecasts we are confident that the life of LLWR can be extended to meet both the needs of the NDA's decommissioning programme and the Nation over the next century.

Reducing volume

Through our Waste Management Services we have implemented new treatment and disposal options to reduce the volume of waste coming to the LLWR.

Since we introduced our recycling service for metallic waste we have treated over 1,000 tonnes of metal, releasing 95% back into the commercial market and reducing the volume destined for disposal at the Repository by the equivalent of 100 containers thereby extending its life by 3 months. As this treatment route becomes more established we anticipate an overall reduction of up to 500,000 tonnes over the lifetime of the facility.

In addition to metals recycling we have initiated a combustible waste treatment service that could ultimately see over 112,000 tonnes of materials diverted from the Repository. We are also developing a very low level waste (VLLW) disposal service to support customers managing high volumes of very low level radioactive waste. Government policy on managing VLLW allows a more flexible approach, including the option to dispose of this waste in suitable landfill sites. By segregating this type of lower activity waste – soil and rubble from the decommissioning programme - the capacity at LLWR can be preserved for waste that requires highly engineered Vaults. It is anticipated that this will deliver a volume reduction of approximately 3.5 million tonnes.

Developing new containers for disposal at the LLWR is also a key element in the volume reduction objective as increasing the amount of waste in each container will reduce the overall volume when the waste is placed in the vaults. We are working on more efficient containers that will achieve this by allowing containers to be stacked closer together and support customers to improve waste packing by giving them more accessible space within the container.

Increasing capacity

Providing additional capacity for the management of low level waste is a key feature of the National Waste Programme. We recently opened Vault 9 which will meet the UK's needs for the next 10 years however, the UK's requirements span many more decades and further vaults will be required.

A Site Optimisation and Closure Planning Application has been submitted to the Waste Planning Authority at Cumbria County Council which provides a strategic overview of the different phases required to efficiently and effectively manage the operational lifetime of the site, this includes:

- The permanent retention of Vault 9 for the disposal of waste (currently storage only);
- Permanent higher stacking in Vault 8 (currently temporary permission to 2013);
- Future Vaults 9a to 14 for the disposal of waste;
- Phased capping of the trenches, existing vaults and future vaults;
- Installation of a cut-off wall and secant pile wall;
- Progressive restoration to grassland in parallel with the phased cap construction

This planning application is aligned to the Environmental Safety Case (ESC) which underpins all activities at LLWR and makes the case for continued operations at the site. We have spent the last 3 years building this Safety Case and covered everything from data collection and analysis to coastal erosion and climate change forecasts. The Safety Case looks at impacts many years into the future and provides assurance that the site is safe both now and for centuries to come. We submitted our ESC to the Environment Agency in May this year. There now follows a two year review period but this is not the end of the work, it is only the beginning!

Improving forecasts

Irrespective of the nature of a business, accurate forecasts and projections are essential to deliver success!

The UK Radioactive Waste Inventory is the "bible" we use to underpin future plans and inform investment decisions. Every SLC in the nuclear estate feeds their predictions into the Waste Inventory database. Our National Waste Programme Team has been working with Magnox and Sellafield to re-assess previous assumptions about volume and the activity level of their waste streams.

Working closely with our customers, we have been able to improve the accuracy of the Radioactive Waste Inventory. This has led to the identification of up to 2,100,000m3 of exempt waste within the total estimate of 4,400,000m3 and was achieved through a combination of measures, plant walk downs and data validation.

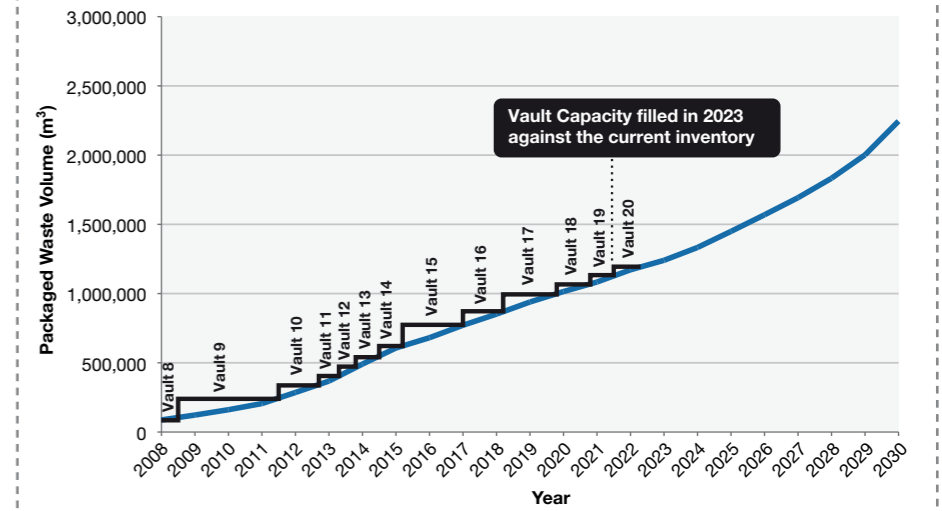
This approach will continue to be rolled out estate wide and should provide clarity for SLC's, LLWR and the supply chain on who is sending what by when and allow better planning for the future. We also hope that this work will continue to improve the accuracy of the inventory and may ultimately mean there is less waste to manage than we currently think.

LLWR Services

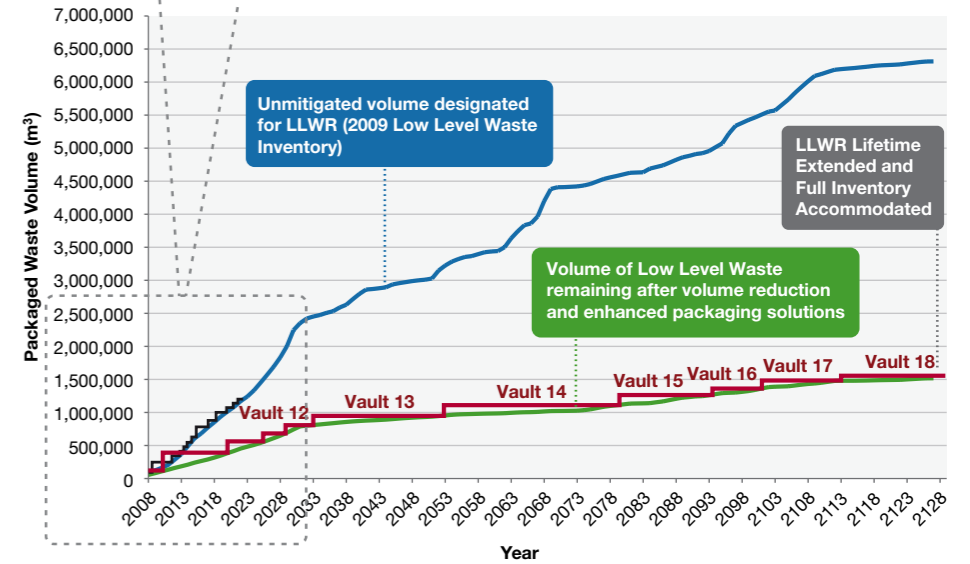
- P** packaging
- T** transport
- W** waste characterisation
- M** metallic
- C** combustible
- S** supercompactable
- V** very low level
- L** low level



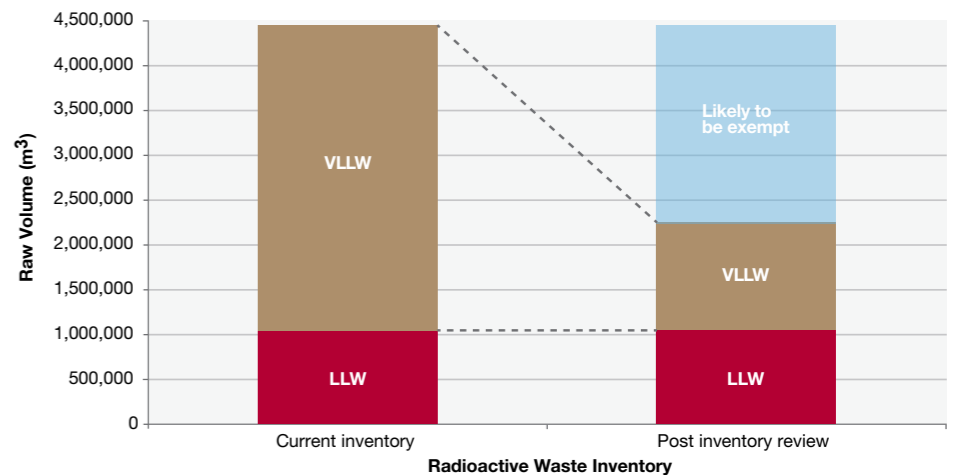
The Problem – Repository full by 2023



The Solution – Site capacity extended by over 100 years



The Key – A better understanding of waste forecasts



Interview with Joanne Van Straaten



The Nuclear Decommissioning Authority (NDA) was set up by Government in 2005 to deliver safe and cost-effective decommissioning and clean-up of the UK's civil nuclear legacy.

As the owners of 19 nuclear licensed sites across the UK, it was clear to the NDA that in order to deliver their mission, fundamental changes would have to be made. The LLWR was identified as both a critical enabler and potential bottleneck for operations and decommissioning activities across the NDA estate. So to ensure continued capability and capacity for LLW management and disposal, NDA sought to bring in world-class international expertise capable of mitigating the risks and acting as a change agent in operational excellence and culture.

A contract to manage and operate the LLWR and to assist NDA as a strategic partner in the development and implementation of the National Low level Waste Strategy was awarded in 2008. Joanne Van Straaten, National

Programme Manager for Low Level Waste was instrumental in developing the contract specification and involved in the selection process.

Since 2008, Jo has been the driving force behind the development of the National Low Level Waste Strategy, which received government approval in August 2010, and heavily involved in its implementation since its inception. To say it is a topic close to her heart would be an understatement. Jo explains that the strategy has three strategic themes: application of the waste hierarchy (avoid, reduce, recycle, re-use, dispose); gaining the best use from existing waste management assets; and encouraging the development of new, fit-for-purpose waste management routes. She says "it's not rocket science but it does require an integrated approach across all the sites, management buy-in and workforce commitment and application. We're asking for a change in low level waste management practices – business as usual is unacceptable and quite frankly unsustainable."

Whilst considerable progress has been made, Jo is under no illusions about the task ahead to implement the National LLW Strategy. She recognises the importance of broadening the consigner support role and opening up new waste routes. She also understands how important it is to build relationships, understanding and confidence. She wants LLWR to be the 'remediator of choice' for LLW services, advice, and knowledge but says "like respect, it has to be earned". She is confident that the contract has been placed with the right consortium and cites a number of successes. Jo is complementary when she says "I can't think of one thing you haven't delivered".

Implementation of the LLW National Programme is one of the NDA's top 10 projects/programmes. It may not have the profile of the high hazard work at Sellafield but it is no less important as it enables all of those other activities to take place. Defining success for a programme spanning 120 years could be perceived as daunting but not for Jo Van Straaten, she's quite clear:

- 1) ensure LLWR matches the life of the mission and that UK tax payers never have to face the £2 billion burden of a second LLW repository;**
- 2) change the basis of waste forecasting to produce accurate, robustly underpinned plans across the nuclear estate to inform and support timely business decisions.**
- 3) NDA delivering on a policy commitment to government – doing what we say we are going to do.**

In summing up Jo's attitude and approach I'd say she is a very knowledgeable, confident, result driven person who knows her subject, understands what's required and wants to get on with it. In the words of this very feisty lady "we need to get on and just do it!"



Low Level Waste Repository Site

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