CoRWM Response to NDA consultation on Radioactive Waste Management Strategy

The key trigger for this document appears to be the success of work by LLWR Ltd in examining the sentencing of waste at the LLW/VLLW/Out of Scope boundaries, achieving a large reduction in waste which has to be defined as LLW and sent to the Low Level Waste Repository (LLWR). It has been realised that an analogous approach at the LLW/ILW boundary might significantly reduce the amount of waste which must be routed to the Geological Disposal Facility (GDF).

NDA are therefore examining the potential for a more disposal-risk-based approach with questioning of the ILW classification where this is justified: 'The current system of waste categorisation and waste disposal does not readily support waste management decisions based on the risk posed by the waste or material'. However, there is nowhere any information about how this will be approached, and what the likely effects will be (except, of course, that the LLW/VLLW successes are quoted).

It is noted that a project examining Near Surface Disposal has been initiated, with a vision of allowing earlier decommissioning and associated waste disposal. The 2009 paper 'Guidance on Requirements for Authorisation of Near-surface Disposal Facilities on Land for Solid Radioactive Wastes' is referenced without comment. No more recent papers are referenced.

CoRWM has not examined the work undertaken at the LLW/VLLW/Out of scope boundary, but in principle the extension in capacity and life of a national asset (LLWR) while maintaining existing regulatory standards must be approved of. The aims as stated in the paper seem eminently sensible.

- *risk-based waste management with greater emphasis placed on the nature of the waste rather than classification to aid in identifying the most appropriate waste management route*
- *enable a lifecycle approach to the management of radioactive wastes which will help identify the most appropriate waste management route determined by the risk posed by the waste*

However, there is little information about what the 'proportionate, risk-based waste management approaches' will consist of, and there could be particular concerns that any activity in this area pays due regard to the current GDF initiatives and the processes being used to obtain consent-based GDF disposal.

There is an emphasis on the benefit of and for other waste producers taking part in, and conforming with, the overall strategy, and a clear and useful 'invitation to join in' to other waste producers where appropriate. In its 2016-17 Annual Report,[1] CoRWM noted that it 'concludes that there is convincing evidence of increased 'cross-estate' influence of NDA in working to align the different site radioactive waste strategies, and the move of Sellafield Ltd to 'GOGO' status appeared to be helping this'. It would seem that this welcome process continues to progress.

One area of weakness is the ability to clearly identify and report progress in waste treatment and storage in a manner easily understood by stakeholders. The UK Radioactive Waste Inventory is quoted as providing 'the best available information on all categories of radioactive wastes and materials in the United Kingdom' but measuring and reporting progress is not simple and currently merits work on improvement. NDA is working on this area and has engaged with CoRWM to examine methods and possible progress.

The latest CoRWM progress report in this area (from April 2018) is appended here, and further meetings have been arranged for Autumn 2018 to take matters forward.

[1] CoRWM Annual Report 2016-17, CoRWM doc. 3341, 30 June 2017

Appendix: Progress in NDA-CoRWM dialogue on HAW treatment and storage to April 2018

CoRWM met NDA in September 2017 and March 2018 to discuss HAW treatment and storage. The 'NDA Higher Activity Waste Strategy' of May 2016 was being progressed, and several detailed examples of progress were noted both in waste re-categorisation (items previously assumed to be ILW being recategorised as LLW) and waste retrieval from legacy facilities. There have also been positive developments in the selection of waste containers to minimise both procurement cost and the requirements for new store construction. As mentioned in the 2016-7 Annual Report, NDA initiatives are also in progress to examine Thermal Treatment and Problematic Waste

It is, however, difficult to quantify overall progress because of the multitude of waste streams, the changes in categorisation noted above, and the fact that security concerns prevent public reporting of waste retrieval, conditioning, and storage location in any level of detail. Thus, any updating mechanism would need to address the sheer complexity of waste types and movements, the change in estimated waste volumes and radiological content, as well as reporting mass/container movements and locations in a way which meets security requirements. It is clear that the answer to the simple question 'what is a desirable level of detail' is itself very far from simple.

A comprehensive examination of the radioactive waste in the UK is, of course, carried out triennially in the UK Radioactive Waste Inventory Report, with the last edition for 2016.[2] Here, some 1,337[3] waste streams (from LLW to HLW) are detailed, with their reported volume at a fixed date (1.4.2016 for the current inventory) together with the volume of estimated future arisings, the packaged volume and the number of packages. This breakdown is also given on a site-by-site basis, with a time profile of the estimated future arisings. There is also a dedicated website area, which contains all this information together with further information.

Although there is a wealth of information provided (the 2016 inventory report runs to 205 pages), the three-year gap between inventories makes 'progress tracking' difficult, as figures can change for many reasons both connected and unconnected with real progress. As examples, reported change could be the result of:

- Re-estimation of raw waste volume and packaging assumptions
- Effective application of the waste hierarchy including waste recategorisation, waste minimisation activities including sort/segregation techniques and reuse/recycle
- Changes in container types resulting in changes in container number

[2] See https://ukinventory.nda.gov.uk/the-2016-inventory/2016-inventory-reports/

[3] Some 991 (74%) of these waste streams are attributed to the NDA

- Movements of waste containers between sites for storage.

Thus, the current reporting system will show up change at the waste stream and site level and will reveal macroscopic changes in the UK inventory. However, it will not easily allow any attribution of the causes of these changes. Put simply, the inventory plots whether the amount of existing and/or expected waste is moving up or down but will give little indication of why this is happening.

The ideal situation would be to have access to information outlining the current state of radioactive waste treatment and storage across the NDA estate on a more frequent (or even continuous) basis a frequency not exceeding a year. Deciding the most 'attainable fit for purpose' system will not be easy and will need to take into account that most of the data will be relatively static on short timescales. Some NDA publications do give updates and examples of wastes being put into different containers, stored in different types of store, and planned to be transported to other sites to maximise efficiency. However, the currently published material is not holistic, is compiled on different times for different sites and site groupings and makes it difficult to assess how the NDA estate as a whole is performing.

The NDA is well aware of this problem and is examining whether it would be possible to achieve some sort of a 'State of the NDA HAW Nation' database which could provide up-to-date assessments of waste volumes, radiological content, containers and storage. There would be a need to address security concerns, beginning by gaining an appreciation of what the objectives of particular security procedures are in the HAW area. CoRWM would strongly support such an initiative, though it does not underestimate the challenge this will involve. CoRWM and NDA have agreed to meet in June 2018 to further discuss this concept.

The last major review by CoRWM of 'Interim Storage of Higher Activity Wastes and The Management of Spent Fuels, Plutonium and Uranium' was Paper 2500 published in March 2009. Given reasonable progress in the initiative outlined by NDA, a 10-year update of this paper is feasible and would be a useful insight into a decade of progress in one aspect of dealing with the UK's nuclear legacy. Therefore, the work plan for this Sub-Group (SG7 if we stay with that terminology) for FY 18-19 will be to explore the 'State of the HAW Nation' concept with the NDA and update Paper 2500 with the progress made over the last ten years.