

Meeting:	NuLeAF Steering Group, 29 th January 2015
Agenda Item:	6
Subject:	An update on Nuclear Decommissioning Authority (NDA) Strategy and Operations
Author:	Philip Matthews
Purpose:	To provide updates on developments in NDA Strategy and Operations

Introduction:

This report briefly updates on:

- Update on NDA Strategies
- Reports on NDA Theme Overview Groups (TOGs)
- Low Level Waste Regulators meeting
- NDA International Plan
- NDA Business Plan Consultation

Recommendation:

This report is for noting.

Background information

For background information on the classification of radioactive waste see NuLeAF Briefing Paper 28¹.

You can read more about Small Modular Reactors in the Parliamentary Energy & Climate Change report².

Links to other reference material can be found throughout the paper.

¹ <http://www.nuleaf.org.uk/wp-content/uploads/2014/11/Briefing-Paper-28-RWM-Elected-Members-Briefing.pdf>

² <http://www.publications.parliament.uk/pa/cm201415/cmselect/cmenergy/347/34702.htm>
Steering Group, Item 6, NDA Strategy & Operations, 29 January 2015

1. Update on Nuclear Decommissioning Authority (NDA) Strategies

A number of key strategies are under development.

The meetings of the Integrated Waste Management Theme Overview Group (IWM TOG) on the 13th January and a joint meeting of the IWM and Spent Fuels and Nuclear Materials TOGs on the 14th January provided an update on progress with **Strategy III** and an opportunity to discuss some key issues. Strategy III will be the overarching strategy of the NDA for the 5 year period from 2016. It is intended to be similar in structure to Strategy II and to be a concise document focussed on high level commitments. It is expected that a draft will be available for comment in early September 2015, with discussion at the TOGs part of a first round of engagement.

Consultation on the nuclear **Low Level Waste Strategy** is due to start on the 27th January and run for 12 weeks. It will be accompanied by a parallel consultation on the Strategic Environmental Assessment of the strategy. If the consultation documents are issued on 27th January, the Executive Director will provide a brief verbal update to the Steering Group.

NDA is also developing a **Higher Activity Waste (HAW) Strategy**, something that NuLeAF has been pressing for. James McKinney of NDA will be speaking to Steering Group on the development of the HAW Strategy and there will be an opportunity to question him.

2. Reports on Nuclear Decommissioning Authority (NDA) Theme Overview Group meetings

NDA convenes four Theme Overview Groups (TOGs) to facilitate NDA strategy implementation. NuLeAF has representation on three of these groups covering Site Restoration (SR), Integrated Waste Management (IWM), and Critical Enablers (CE). NuLeAF also received update reports from the fourth TOG, on Nuclear Materials/Spent Nuclear Fuel (NM/SNF).

Over the recent period there have been a number of TOG meetings. Those on the 13th and 14th of January focused on the development of Strategy III (see above). A number of other TOGs were held in December.

2.1 Site Restoration Theme Overview Group (TOG) 2nd December

The meeting covered a range of work on interim and end states that NDA is currently undertaking, along with a discussion of how these issues affect local authorities.

Interim states

At the meeting, Anna Clark and ARUP consultants lead a discussion on interim states based around work on Site Restoration Roadmaps and the planned development of guidance on interim states.

In terms of definition, an interim state is one where there is:

Steering Group, Item 6, NDA Strategy & Operations, 29 January 2015

- A stepped reduction in risk or hazard;
- A stable state;
- Where there is potential for a reduction in regulatory control; and
- Marks the end of a common phase of work, e.g. end of operations.

The benefits of defining interim states are that:

- They are a good communication tool which can provide a focus to stakeholders and the supply chain;
- Help to manage uncertainty;
- Help inform and guide work plans; and
- Encourage stabilisation of risks and to identify opportunities.

The aim of the **guidance** is to define what is meant by an interim state, help identify risks and opportunities and to also provide clarity as to the planned interim states for each site, using clear and accessible terminology.

ARUP's research has looked at the validation of **Site Restoration Roadmap** templates. The Roadmaps visually represent the lifetime plans for each of the nuclear sites, assisting stakeholder engagement and enable comparison across sites. Phase 1 of the work has considered a wide range of factors for each site and has resulted in a range of visual representations of the timelines for site restoration at each site. In Phase 2 they intend to undertake stakeholder engagement to seek views on whether the graphical representation is understandable and if it contains the right level of detail.

The presentations lead into a discussion on the best way to present interim states. This highlighted that different groups preferred different terms and definitions of interim states. For example regulators are interested in points that reflected changes in regulatory controls, whereas from a NuLeAF point of view what was most important was to define clearly understood stages for their local site which affect the ability of the community to plan for or consider future uses.

It was felt that the graphical outlines prepared by ARUP were useful for those working on site but that other forms of communication might be better if engaging with wider stakeholders. The next steps are for the NDA to develop guidance on Interim States and identify site level interim states to guide Site Restoration Roadmaps.

NuLeAF presentation

NuLeAF's Executive Director delivered a presentation on local authority interest in site end states. The presentation noted that there is some uncertainty at present as to whether plans for site end states or timetables for site restoration are changing and also that it is important to engage NuLeAF and to speak to local authority planners as well as the Site Stakeholder Groups.

The presentation was followed by a useful discussion. In particular there was an interest in how NDA can best engage with planners and how both NuLeAF

and the NDA could assist in the drafting of local plans that supported the best future uses of NDA sites.

Next uses of Nuclear Decommissioning Authority (NDA) sites

Kim Baines of the NDA outlined current work on site end states. This work is seeking to understand how the site end state might affect action taken now on site restoration. It is also motivated by a desire to provide support in cases where the site end state has not yet been defined.

The study has defined a list of generic future land uses for sites, from arable farming to retail to new nuclear. For each NDA site the physical characteristics (such as soil quality or risk of flooding) will be considered, as well as other factors such as whether a possible use fits in with local plans or any public consultation.

From this a picture is being built up for each site as to what uses are likely, possible or unlikely. For example, a rural site would be unlikely to be redeveloped for retail use while a site adjoining an area with an ecological designation might be best suited to nature conservation or recreation.

2.2 Integrated Waste Management Theme Overview Group (TOG) 4th December

A significant part of the meeting was devoted to a presentation and discussion on the Gate A paper on **Credible Options for Decay Storage** which has just been produced.

Decay storage is widely used in reactor decommissioning – the question being considered is whether it can be more widely used and whether there would be benefits to such an approach. A related issue is what is the most appropriate disposal method for such materials – is it a Geological Disposal Facility or could other options be employed? As this was a UK wide study consideration was also given to the potential for decay storage to assist the Scottish policy of near surface disposal.

RWM³ has undertaken related work on **Upstream Optioneering** which had identified four areas of opportunity concerning management of wastes near the Intermediate Level Waste/Low Level Waste (ILW/LLW) boundary. These were:

- Decay storage of short lived ILW to allow disposal to near surface facilities;
- Waste management based on a safety case rather than classification (e.g. some LLW needs to be treated as ILW and so it doesn't make particular sense to manage based on the simple LLW or ILW categories);
- New routes for tritiated dessicants; and
- The benefits and dis-benefits of the various existing and potential LLW and ILW disposal routes.

³ RWM is a wholly owned subsidiary of NDA. It is tasked with delivering the Geological Disposal Facility for the management of higher activity radioactive wastes.

From that project four tasks have been identified to be taken forward:

- Preparation of an inventory of waste that is amenable to diversion from a Geological Disposal Facility – a total of 247 waste streams within the 2013 Inventory have been identified that will decay to Low Level Waste (LLW) or Very Low Level Waste (VLLW) within 300 years. The study also looked at non-radioactive factors that affect disposal.
- Examination of the potential to manage waste based on the safety case rather than classification. This considered non-Geological Disposal Facility disposal options for some waste streams including (a) a Low Level Waste Repository type surface facility (b) a Low Intermediate Level Waste surface facility such as the French have at l'Aube (b) a mid-depth facility e.g. 50m below surface.
- Establishment of solutions for tritiated wastes so that some may be diverted to Low Level Waste.
- Identification of opportunities for LLW/ILW boundary wastes – case studies were commissioned to look at the advantages and disadvantages of disposing of boundary wastes to the different types of facilities e.g. near surface, mid depth or Geological Disposal Facility⁴.

The conclusions of the work so far are:

- Opportunities for decay storage have not been strategically evaluated across the NDA estate;
- Baseline Higher Activity Waste management strategies often do not consider decay storage and the current baseline for HAW may not be optimised unless there is a proper examination; and
- Decay storage can minimise the amount of waste disposed of to a Geological Disposal Facility.

The benefits of a new approach will be:

- Less management of waste as Intermediate Level Waste (ILW);
- Less demand for ILW treatment and thus an environmental gain in terms of energy and material use;
- Lower cost – although this is uncertain until more work is done as it may prove that alternative disposal options are at least as costly as a Geological Disposal Facility (GDF); and
- A wider range of disposal options and potentially smaller GDF.

Studies so far have indicated that only a limited number of waste streams may benefit from decay storage within the timescales required. As noted above the economic case also needs to be made and further work in this is ongoing. There is a clear commitment to a programme of stakeholder engagement to explain NDA work in this area and the site specific issues it may raise.

A presentation on **Problematic Wastes** was also provided which outlined ongoing work on specific waste streams. There were also brief updates from

⁴ In a Geological Disposal Facility waste will be deposited at depths of between 200 and 1000 metres.

Low Level Waste Repository and on the Low Level Waste Strategy and its associated Strategic Environmental Assessment.

2.3 Critical Enablers Theme Overview Group (TOG) 11th December

A Critical Enablers TOG meeting was held in Penrith on the 11th December. NuLeAF's Executive Director was unable to attend the meeting due to travel disruption caused by storms.

The meeting included discussion of:

The Nuclear Decommissioning Authority's (NDA's) **Innovation Strategy**. This is intended to support delivery of the Research and Development Strategy published in 2011, along with a University Strategy and a Communication Strategy to explain the work more widely. The innovation strategy is intended to help create more opportunities for Small and Medium Enterprises (SMEs) to deliver innovative technology, and to create an environment conducive to innovation.

The publication of a Gate C paper on the NDA's **People Strategy 2015-2020**. This is intended to provide an analysis of the UK Government's approach to economic development and skills and to highlight three priority areas for action within the NDA estate. These are to:

- Ensure the right supply of people in the right place at the right time at optimum cost and quality;
- Maintain and develop a competent and skilled workforce across the estate in a manner that provides value for money; and
- Optimise and enable mobility and transferability across and within Site Licensee Companies and with the wider nuclear industry.

The rest of the meeting involved updates on Socio-economics and Stakeholder engagement, Contracting, Asset Management and Health, Safety, Security and Environmental Quality (HSSSEQ).

2.4 NuLeAF engagement with Nuclear Materials and Spent Nuclear Fuels Theme Overview Group (TOG)

A phone discussion with Danny Fox of NDA was held on the 15th December to update NuLeAF on the last two meetings of the Nuclear Materials and Spent Nuclear Fuel TOG. Key points were:

EDF Estate

There have been ongoing discussions with EDF concerning the decommissioning of the Advanced Gas-cooled Reactor (AGR) fleet, as NDA has a contract to manage all the fuel from these sites.

Plans are now for lifetime extensions of up to 10 years for these reactors and this has implications for NDA and for facilities on the Sellafield site, as it means that the defueling of these power stations could run until the mid-late 2030s. A clear decision has been taken to close THORP⁵ in 2018 and NDA

⁵ THORP (THERmal Oxide Reprocessing Plant) reprocesses spent oxide fuel from nuclear power stations both in the UK and abroad.

believes it is not feasible to extend its life until the time at which its use would be required for the AGRs.

Nuclear fuel reprocessing

A number of factors, including the situation with fuel from EDF, has lead NDA to consider the desired final outcome and timetable for management of nuclear fuel from Magnox sites and Dounreay. This is based around an assessment of three factors:

End State – what is the tolerable end state? Given the constraints of the end date it is not now possible to reprocess all spent fuel.

End Date – what can be achieved by 2020 when key facilities at Sellafield such as THORP will have closed?

End Game – What is the programme of activities to get to the desired end state?

As the end date for THORP is now agreed, the NDA is considering what can be achieved by then and therefore what will the implications be for the storage of waste that is not reprocessed in THORP. Strategy III will set out the NDA's thinking on how to deal with this issue, noting the implications for Sellafield and Copeland/Cumbria.

Plutonium

The UK currently holds 140 tonnes of Plutonium (Pu), of which 115t is of UK origin with the rest from overseas, largely from Japan. Work is ongoing on the three proposals for plutonium, namely those made by CANDU⁶, GE Hitachi⁷ and AREVA⁸, and it is intended that a report on these options will go to the Minister in March 2015. Based on this report it is intended that the new Minister (post-election) will design a procurement process intended to identify how to take this work forward. Given the fact that this next stage will run for a considerable period it is unlikely that Strategy III will provide more than an overview on this.

The TOG is also taking forward work on uranium and exotics⁹ (such as those from Dounreay) and also considering the implications of the MOD's Submarine Dismantling Project.

3. Low Level Waste Regulators meeting 10th December

The Executive Director was unable to attend the meeting due to a diary clash with NuLeAF's Radioactive Waste Planning Group meeting in London. Iain Fairlamb of Cumbria County Council did attend and reported back to the Director.

⁶ <http://www.candu.com/en/home/default.aspx>

⁷ <http://gehitachiprism.com/what-is-prism/>

⁸ <http://uk.areva.com/>

⁹ Exotic fuels are non-standard fuel types and are generally a legacy from earlier nuclear industry activities such as development of prototype reactors.

National Waste Programme

Overall progress with the Low Level Waste National Programme has been good with 88% of waste diverted from the Low Level Waste Repository. The National Programme has also been engaged in work on the update of the LLW Strategy and in delivering a review of the National Strategic BAT (Best Available Techniques) for metallic wastes.

Low Level Waste Repository (LLWR) site

The Environmental Permit for the LLWR site is now intended to be published for consultation in January 2015 with the expectation that the Permit will be granted in autumn 2015. At time of writing the consultation has not yet been published but a verbal update will be given to the meeting if it emerges in time.

Cumbria County Council is working with LLWR to identify a mutually agreeable position regarding planning permission for the site, which is likely to be based around a number of vaults rather than a set time period. This would provide an assurance to the nuclear industry that sufficient capacity will be available for the first phase of UK decommissioning.

Other issues

The Environment Agency has been in discussion with Auger over the extension of their permit for disposal of Low Level Waste at the East Northants Resources Management Facility at King's Cliffe and it is expected that an application for the revision of the permit will be made in early 2015.

Cumbria County Council is in the process of reviewing their Minerals and Waste Local Plan. It is likely to be significantly amended, reflecting the new planning and policy framework and incorporating the proximity principle and BAT.

4. Nuclear Decommissioning Authority (NDA) International Plan

The NDA is currently in the process of reviewing its International Relations Plan, published in 2011¹⁰. NuLeAF provided comments on the draft, broadly welcoming it but suggesting that more recognition could be made of the value of the non-technical aspects of international co-operation, such as the exchange of information between local authorities in different countries.

5. Nuclear Decommissioning Authority (NDA) Business Plan Consultation

NDA is currently consulting on its draft Business Plan 2015-18¹¹. The Business Plan covers 3 years and is updated annually on a rolling basis. The Plan is a high level document which outlines key activities on the NDA sites. NuLeAF will submit a consultation response – the deadline in the 30th January 2015.

¹⁰ <http://www.nda.gov.uk/publication/international-relations-strategy-february-2011/>

¹¹ <https://www.gov.uk/government/consultations/nuclear-decommissioning-authority-nda-draft-business-plan-2015-2018>