

NDA Research Board – NDA Response to Position Paper Recommendations

NDARB026

NDA Response to Recommendations – Review of NDA’s Higher Activity Waste Pre-Disposal Treatment R&D (NDARB020)

Issue 1

November 2016

About the Independent NDA Research Board

Despite its title, the Research Board has terms of reference which cover the Research and Development (R&D) interests for waste management and decommissioning of the UK, not just the that of the NDA. Given the scale of the NDA’s work in this sphere however, much of its time is dedicated to the NDA’s own programme. Although the Board works cooperatively with the NDA, which provides the secretariat, it is independent. Neither its programme of work or published opinions have to be agreed with the NDA. Its membership comprises experts in the field and senior representatives of key stakeholder organisations such as Government departments and regulatory bodies. Its role is advisory only, reporting to Government departments via their Chief Scientific Advisors and to the main NDA Board. Further information on the Board can be found at www.gov.uk/nda

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1 Introduction

The following text details the NDA responses to the recommendations published in NDA Research Board Position Paper 'Review of NDA's Higher Activity Waste Pre-Disposal Treatment R&D' (NDARB020). The original review document and further information on the NDA Research Board can be found on the NDA public website www.gov.uk/nda

2 NDA Response

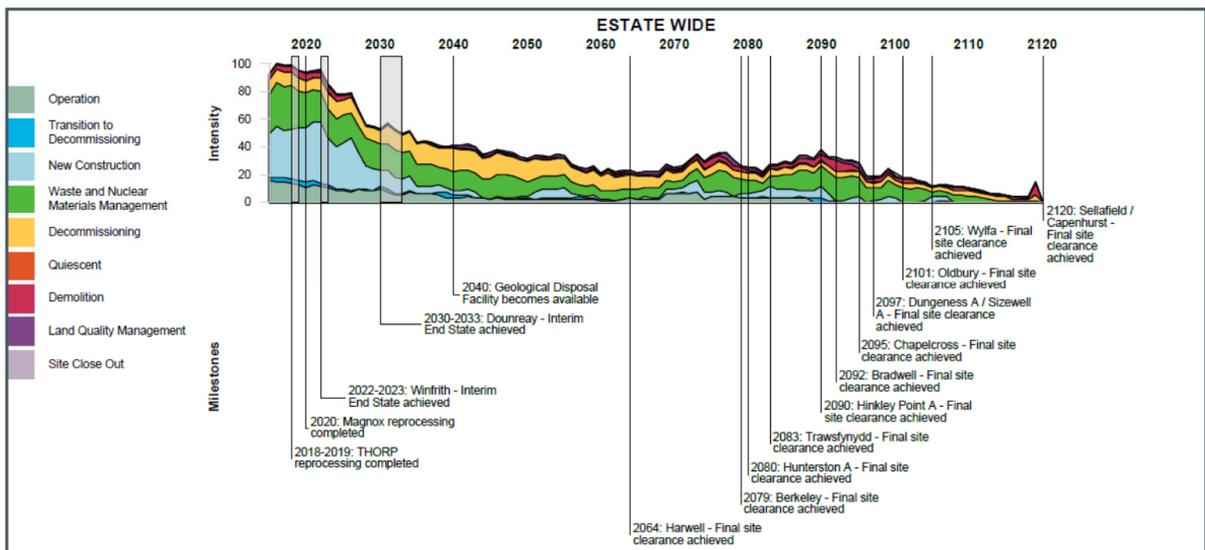
Recommendation	Detail	Response
1 (Page 5)	The NDA should consider carefully the relationship between NDA Strategy sponsored R&D tasks and the RWM Upstream Options programme, particularly at a time when RWM has recently become a wholly owned subsidiary of the NDA.	<p>Accepted</p> <p>The NDA (Integrated Waste Management) IWM team are now the Client for RWM where NDA directly sponsor certain strategic tasks delivered by RWM that may contain a R&D element. NDA have in place an overarching RWM Client Specification that includes a section on RWM. Also, RWM are a member of NDA's internal R&D Board and actively support NWDRF and the waste packaging and storage working group. Hence there is a clear understanding of the relationship between RWM and NDA led R&D tasks and how they align to the overall NDA strategic objectives.</p>
2 (Page 9)	Where R&D results indicate significant benefit could be gained to NDA but SLC's are reluctant to adopt the technology, NDA could consider an incentive payment, as has been employed by the French CEA.	<p>Noted (at time of meeting)</p> <p>Under the current contractual agreements between NDA and the SLCs the adoption of R&D that would significantly benefit NDA would in turn result in a benefit for the SLCs, for example in terms of cost savings.</p>
3 (Page 12)	The evaluation of the life cycle cost of a unit of waste is a key input to evaluating the potential value of R&D and should be prioritised by NDA.	<p>Agreed</p> <p>NDA has now developed a Waste Lifecycle Cost Calculator to be used by its SLCs only. The cost calculator is currently being updated and will be reviewed on a periodic basis and is to be used to support optioneering work only.</p>
4 (Page 12)	The NDA and (Site Licence Companies) SLCs should assess and publish the Technology Readiness Levels of the technologies under development in the R&D programme.	<p>Accepted</p> <p>As part of the TBUrD process SLCs are required to assess the TRL of the technologies they are developing and record this in the process wiring diagram (PWD) and R&D table. SLCs are required to publish this information subject to security and commercial considerations. SLCs are currently looking to address how to fulfil this issue.</p>

Recommendation	Detail	Response
5 (Page 12)	<p>The NDA should assess the possible insertion points for new technologies into the overall site remediation programme to establish whether they will be available in time to be of real benefit. This would also help prioritise R&D spend. This is of generic relevance, not just the IWM programme, but it appears to the Board that IWM opportunities may be closing fast.</p>	<p>Accepted</p> <p>The NDA is currently developing strategic roadmaps (for an example see Appendix 1) which highlight key stages of the SLC programmes. In addition the NDA works closely with the SLCs who have developed ‘decision calendars’ that identify key decision points for SLC and NDA consideration. The NDA technical sponsors take into consideration the strategic roadmaps, decision calendars as well as other important documents such as TBuRDs, IWS (Integrated Waste Strategy), and NDA HAW Treatment Framework. In addition there is considerable ongoing dialogue between NDA, SLCs and the wider industry via the NWDRF and relevant working groups where high priority tasks are being identified and addressed as appropriate.</p> <p>The above mentioned tools, documents and dialogue allow NDA to more easily identify when there are opportunities to insert new technologies.</p> <p>For IWM opportunities for the management of waste from high hazard facilities are closing fast as we are in the process of implementing our existing plans. However, opportunities for management of decommissioning waste will continue for a number of years.</p>
6 (Page 12)	<p>The NDA should continue to sponsor R&D tasks that support the effective implementation of the waste hierarchy including characterisation techniques, segregation and pre-treatment methods.</p>	<p>Accepted</p> <p>The NDA’s 5 Year R&D Plan identifies the effective implementation of the Waste Hierarchy as a key area of interest. It was acknowledged that many of the technical tasks previously sponsored by NDA were focussed on treatment and storage rather than waste diversion opportunities by better waste characterisation and/or sort/segregation. Subsequent to the R&D Board presentations three NDA Direct Research Portfolio (DRP) proposals on waste characterisation have been developed, approved and are now tasks in progress (two will be completed by the end of FY 2015/2016). Please see Appendix 2 for further information. A further DRP work stream in action is investigating segregation techniques.</p>

Recommendation	Detail	Response
7 (Page 12)	The NDA should consider whether there is merit in adding some work on waste retrieval, collecting and refining the evidence accumulated, with a view to producing a guidance document on best practices.	<p>Agreed</p> <p>NDA have now sponsored a review of retrieval technologies, via the NDA DRP, in response to this recommendation and the task will be completed next financial year (FY 2016/2017). Following this review NDA will ascertain if there is a case for developing strategic or estate wide guidance.</p>

Appendix 1

Timeline with key milestones and the relative intensity of work (manpower and resources) required for the different phases of decommissioning across the NDA estate (Taken from NDA Strategy, effective from April 2016 Page 14)



Appendix 2

Direct Research Portfolio FY 2015/16 Quarter 3 Update for Lot 2 – Integrated Waste management (Updated January 2016)

Projects relevant to the NDA response to Recommendation 6 are highlighted in yellow

Title	5 year plan R&D Topic	Lead Supplier	Full PO Value	R&D Driver	Project Status
Review of solid waste characterisation challenges and opportunities	Application of the Waste Hierarchy - <i>Development of technologies to improve the application of the Waste Hierarchy (e.g. waste characterisation technologies, sorting and segregation technologies, understanding technical barriers to material re-use)</i>	Amec Foster Wheeler	£74,488	Maintaining Key Skills/Informing Strategy	Ongoing*
A Technical Review of the Status of Remote Systems for the Monitoring of Contaminated Land Water (Ground-Water)		NNL	£43,939	Informing Strategy	Ongoing*
Development of an Optimised Protocol for the Analysis of Strontium-90 in Decommissioning Wastes employing a Novel Technology for Inductively-Coupled Plasma Mass Spectrometry.		NSG Environmental / Unity Consortium	£88,200	Innovation/Maintaining Key Skills	Ongoing
Review of available solid radioactive waste size reduction technologies	Higher Activity Wastes - Alternative Waste Treatment - with a particular focus on volume reduction - <i>Understanding and, where appropriate, addressing the technical barriers to implementation of new thermal, mechanical and chemical treatment technologies across the NDA estate</i>	Amec Foster Wheeler	£30,746	Innovation / Informing Strategy / Maintaining Key Skills	Ongoing
Active Demonstration of Geomelt In-Container Vitrification of Contaminated Soils		NNL	£150,000	Innovation / Maintaining Key Skills	Ongoing
Non-active stabilisation of elemental mercury and leach testing trials to support identification of a technology for management of radiologically contaminated elemental mercury.		TBC	TBC	Innovation / Informing Strategy	Pending

Title	5 year plan R&D Topic	Lead Supplier	Full PO Value	R&D Driver	Project Status
New uses of cementitious grouts (Reactive Encapsulants)	Higher Activity Wastes - Alternative Encapsulants - <i>Consolidate work and understanding on improving existing encapsulation technology</i>	NSG Environmental / Unity Consortium	£216,487	Innovation / Maintaining Key Skills	Ongoing
Development of an Asset Management Programme for HAW Stores	Underpinning of Interim Storage - <i>Technologies for monitoring waste packages and stores</i>	Cavendish Nuclear	£78,222	Informing Strategy	Ongoing
Value assessment process for materials and samples, and supporting procedures for the disposal and transfer of unwanted materials and samples	UK Radioactive Waste & Materials Inventory	NNL	£62,574	Knowledge Transfer & Resources	Complete
Cross-check of WP_B2_12 "Review of materials archives and stores at NDA SLC sites" and inventory of NDA-owned materials and samples held at NNL facilities		NNL	£19,990	Knowledge Transfer & Resources	Complete

*Project to be completed by end of FY 2015/16