

## **NDA Research Board**

**14<sup>th</sup> April 2015 10:00 – 16:00**

**Central Hall Westminster, Storey's Gate, Westminster, London SW1H 9NH**

### MINUTES – Draft

#### **Attendees**

- 1) Chair of NDA Research Board, Independent
- 2) Director, Strategy & Technology, NDA
- 3) Head of Technology, NDA
- 4) Head of Research, Radioactive Waste Management Ltd (RWM)
- 5) Chair of RWM Technical Advisory Panel, Independent
- 6) Superintending Inspector, Office for Nuclear Regulation (ONR)
- 7) Radioactive Substances Principal Policy Officer, Scottish Environment Protection Agency (SEPA)
- 8) Head of Technology – Civil Nuclear, Rolls - Royce
- 9) Senior Technical Advisor, Nuclear Generation, EDF Energy
- 10) Chief Technologist, Atomic Weapons Establishment (AWE)
- 11) Head of Integrated Waste Management (IWM), NDA - Invited
- 12) Technical Assurance Manager, NDA – Invited
- 13) Research Manager, NDA - Technical Secretary
- 14) Director, Nuclear Innovation and Research Office (NIRO) – Observer
- 15) Chief Scientific Advisor, Department of Energy and Climate Change (DECC)
- 16) Research Councils Nuclear Fission Network Champion Representative, University of Leeds
- 17) Deputy Chair of Committee on Radioactive Waste Management (CoRWM) – Observer
- 18) Co-Chair of Nuclear Waste and Decommissioning Research Forum Technical Baseline and underpinning Research and Development (TBuRD) Working Group, Magnox Ltd – Invited

#### **Main Purposes of the Meeting**

- To discuss NDA's response to recommendations in the Research Board's Review of Radioactive Waste Management Directorate's (RWMD) R&D Programme.
- To confirm members' view of the UK's Integrated Waste Management (IWM) R&D programme with respect to pre-disposal treatment of Higher Activity Wastes (HAW) and agree the Research Board's Position Statement.
- To review the NDA's Technical Baseline and underpinning R&D (TBuRD) process and associated programme of analysis and assurance.

#### **[1] Members Only Discussion**

An overview of the Board was given for the benefit of new members and feedback on New Members Induction Pack was requested. The Chair noted that it is the NDA's intention to formally respond to the Board's Position Paper recommendations.

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## [2] Welcome & Apologies

- 2.1 Chair welcomed everyone to the 9<sup>th</sup> meeting of the NDA Research Board (NDARB).
- 2.2 A number of apologies had been received prior to this meeting:
  - Head of Nuclear Energy, Transport, Decommissioning & Waste Management, Directorate for Energy, European Commission
  - Radioactive Substances Regulation Manager, Environment Agency (EA)
  - HM Deputy Chief Inspector, Office for Nuclear Regulation (ONR) – Superintending Inspector attending as nominated representative
  - Chief Technical Officer – Existing Nuclear, EDF Energy – Senior Technical Advisor, Nuclear Generation attending as nominated representative
  - Government Chief Scientific Advisor
  - Chief Scientific Adviser for Scotland – Position currently vacant
  - Chief Scientific Advisor, Department for Business, Innovation & Skills (BIS) – Position currently vacant
  - Chief Scientific Advisor, Ministry of Defence (MOD)
  - Principal Investigator (PI) – Nuclear Champion, Research Council Energy Programme (RCEP) - Research Councils Nuclear Fission Network Champion, University of Leeds attending as nominated representative
  - Director Assistant, Nuclear Energy Directorate – Clean up Division, CEA
  - Co-Chair, Nuclear Waste and Decommissioning Research Forum (NWDRF), Sellafield Ltd
- 2.3 Members of the Board introduced themselves.
- 2.4 The Chair invited any relevant declarations of interest – none were received.

## [3] Agenda

- 3.1 The agenda was agreed.
- 3.2 Any Other Business (AOB) items – None
- 3.3 A provisional timeframe and location for the next NDA Research Board meeting was agreed outside of the Board meeting: 10<sup>th</sup> November 2015 in Central London.

## [4] Review of 8<sup>th</sup> meeting

- 4.1 Minutes of 8<sup>th</sup> Meeting

The minutes were approved with no amendments.
- 4.2 Outstanding actions from previous meetings:

The Technical Secretary reviewed the status of the outstanding actions from the previous meetings. The Chair noted that for future meetings the outstanding actions list would be distributed prior to the meeting.

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**Action 09/01:** Circulate updated actions lists prior to future NDA Research Board meetings – Research Manager, NDA prior to each NDA Research Board Meeting.

- **Action 03/05:** Board members to review draft report when circulated and provide comments back to NDA within one month.

Draft Technical Baseline report was shared with NDA Research Board members on 30<sup>th</sup> March 2015. Comments on the report were requested by email on 2<sup>nd</sup> April 2015 with deadline of one month. Action Ongoing.

- **Action 03/08:** Chair and NDA to undertake a comparison with the TBuRD output and report back to the Board on its conclusions.

The TBuRD output report was shared with the NDA Research Board Members by email on 30<sup>th</sup> March 2015. The comparison still needs to be carried out. Action Ongoing.

- **Action 08/01:** Share the Regulatory Interface Protocol – HM Deputy Chief Inspector, ONR.

Protocol was shared with the NDA Research Board members on 2<sup>nd</sup> April 2015 by email. Action Complete.

- **Action 08/02:** Develop induction material for new NDA Research Board members – Chair & Head of Technology, NDA by next meeting.

The Welcome Pack has been developed and sent to new NDA Research Board members and invited attendees. Action Complete.

**Action 09/02:** Request feedback, by email, on the NDA Research Board Members Welcome Pack from new Board Members – NDA Research Manager by 30<sup>th</sup> June 2015.

- **Action 08/03:** Consider using small groups of NDA Research Board members to review and finalise position statements.

Draft position paper was circulated to all NDA Research Board members by email. The Chair will consider on a case-by-case basis. Action Complete.

- **Action 08/04:** Compare the Research Board Terms of Reference with the NWDRF Terms of Reference to ensure compatibility – Head of Technology, NDA and Co-Chair of NWDRF, Sellafield Ltd by 31<sup>st</sup> December 2014.

Co-Chair of NWDRF is currently updating the NWDRF Terms of Reference following the members discussion at the NWDRF in January 2015. Comparison still needs to be completed. Action Ongoing.

- **Action 08/05:** Circulate the action list – Head of Technology, NDA by 30<sup>th</sup> October 2014.

Action list was circulated by email. Action Complete.

- **Action 08/06:** Evaluate where R&D funds are being spent to identify whether the funding is directed against the areas where R&D would have the greatest impact. Circulate findings to the Board – Head of Technology, NDA and Co-Chair of NWDRF, Sellafield Ltd for discussion at next meeting.

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The information is presented in the TBuRD presentation (Agenda item 13). NDA Research Board member's views are required. Action Complete.

- **Action 08/07:** Share current work on TRLs and other metrics e.g. System Readiness Levels – Head of Technology, NDA at next meeting.

"Guide to TRLs" and SRL scope of work documents were circulated to the NDA Research Board members by email on 30<sup>th</sup> March 2015. Action Complete.

- **Action 08/08:** Update the Board with respect to ONR updated strategy and interfaces with this Board – HM Deputy Chief Inspector, ONR by next meeting.

An initial update has been provided by ONR and circulated to NDA Research Board members by email on 2<sup>nd</sup> April 2015. ONR is still in the process of developing a revised strategy for Regulatory Research; the Research Board will be kept informed. Action Ongoing.

- **Action 08/09:** Clarify final recommendations from Board position paper on RWM Research Programme. Confirm date on paper to account for snapshot in time – Chair by 31<sup>st</sup> January 2015.

The position paper has been updated and published on NDA website. Action Complete.

- **Action 08/10:** Circulate the spent fuel note to Board members – Co-Chair of NDWRF, Sellafield Ltd by 30<sup>th</sup> November 2014 (completed in meeting). Action Complete.
- **Action 08/11:** Consider whether any relevant comments are required for the Position Paper regarding NDA's archiving strategy for samples – Chair by next meeting.

All relevant comments have been included in an updated position paper. Action Complete.

- **Action 08/12:** Amend the Position Statement on NDA's Spent Fuel R&D programme and circulate to members – Chair by 30<sup>th</sup> November 2014.

The position paper has been amended and shared with NDA Research Board members by email on 30<sup>th</sup> March 2015. Action Complete.

- **Action 08/13:** Members to provide final approval to the amended Position Paper - All by 31<sup>st</sup> December 2014.

The NDA Research Board members discussed the amended paper and agreed that the position paper reflects the Board position. The paper will be published on the NDA website. Action Complete.

- **Action 08/14:** NWDRF co-chairs to consider with NWDRF working groups what support they would like from NDA Research Board and what metrics may be appropriate and report outcomes back to NDA Research Board – Co-chairs of NWDRF by next meeting

A note has been provided by NWDRF Co-Chairs and shared by email with NDA Research Board members on 2<sup>nd</sup> April 2015. Action Complete.

A discussion resulted from which the following new action was agreed.

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**Action 09/03:** Write a letter to the NWDRF Working Group Co-Chairs to express support from the NDA Research Board – Chair by 31<sup>st</sup> May 2015.

- **Action 08/15:** NWDRF co-chairs to ensure that working groups have a prioritised list of R&D needs and opportunities that they will be focussing on and a 2 year forward plan of their activities.

A note has been provided by NWDRF Co-Chairs and shared by email with NDA Research Board members on 2<sup>nd</sup> April 2015. Action Complete.

Head of Technology, NDA presented the NWDRF Co-Chairs note to the Board on behalf of NWDRF Co-Chair, Sellafield Ltd and the following points were noted:

- NWDRF Co-Chairs have prepared 2-year forward plans which include key activities. Progress against the forward plans will be monitored and reported in the NWDRF annual report.
- NWDRF Co-Chairs are planning to establish a Co-Chairs forum for sharing best practice. The forum will meet on an annual basis.
- There has been good attendance at working groups and NWDRF meetings from core members. A number of research proposals have been initiated and supported by NWDRF; support to specific designated tasks (e.g. NDA Bursary Review) has also been received.
- Use of the Knowledge Hub is growing and will continue in Financial Year 2015/16.

A discussion resulted from which the following new action was agreed.

**Action 09/04:** Circulate NWDRF Forward Programme document with consolidated Working Group metrics when finalised to the Board – Co-Chair NWDRF, Sellafield Ltd by 30<sup>th</sup> June 2015.

**Action 09/05:** Circulate a copy of the NWDRF Annual Report for Financial Year 2014/15 to the NDA Research Board – Co-Chair NWDRF, Sellafield Ltd before the November 2015 Meeting.

- **Action 08/16:** Circulate the “Industry Guidance – Interim Storage of Higher Activity Waste Packages – Integrated Approach” and the NDA Graphite Strategy to Members – Head of Integrated Waste Management, NDA by 30<sup>th</sup> November 2014.

The document was shared by email on 18<sup>th</sup> December 2014 with NDA Research Board members. Document is also available on NDA website. Action Complete.

- **Action 08/17:** Prepare Position Statement for IWM with support from NDA, AWE and CEA – Chair by 31<sup>st</sup> January 2015.

The Position Statement has been prepared and shared with NDA Research Board members on 30<sup>th</sup> March 2015 by email. Action Complete.

### [5] NDA Research Board's Annual Report FY 14/15

- 5.1 The Chair presented the NDA Research Board's Annual Report FY 2014/15. The Board approved the report. The Annual Report will be presented to the NDA Board on 24<sup>th</sup> June 2015 and subsequently published on the NDA website.

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**Action 09/06:** Review the current NDARB Annual Report to ensure support for NWDRF is appropriately captured – Chair by 31<sup>st</sup> May 2015.

### [6] NDA's Response to the Recommendations in the Research Board's Review of Radioactive Waste Management Directorate's (RWMD) R&D Programme

6.1 Head of Research, Radioactive Waste Management Ltd (RWM) presented RWM's response to the recommendations.

6.2 Members noted that there was potential for confusion regarding the use of the SRL acronym to represent Scientific Readiness Levels as System Readiness Levels has been widely used for some considerable time.

**Action 09/07:** Consider an appropriate alternative acronym for Scientific Readiness Levels e.g. SciRL – Head of Research, RWM.

6.3 A discussion regarding social science research issues in relation to the wider nuclear industry (response to recommendation 4) resulted in the following action.

**Action 09/08:** Raise social science research issues in relation to nuclear at the June 2015 NIRAB meeting to determine if a wider discussion is necessary - Head of Technology, NDA and Director, NIRO.

6.4 The Chair noted that the style of response presented by the Head of Research RWM Ltd would be used for future responses to the Board. The Board was in agreement.

**Action 09/09:** Publish RWM responses to the NDA Research Board review – Research Manager, NDA by 31<sup>st</sup> May 2015.

### [7] Research Board's view on the UK's Integrated Waste Management (IWM) R&D programme with respect to pre-disposal treatment of Higher Activity Wastes and discussion of draft Research Board Position Statement

7.1 A draft Research Board position paper on the UK's IWM R&D programme with respect to the pre-disposal treatment of Higher Activity Wastes had been prepared by the Chair based upon the presentation and members' discussion at the previous meeting. A number of specific edits were recommended and resulted in the following actions.

**Action 09/10:** Generate alternative wording for the recommendation on page five of "Review of NDA's Higher Activity Waste Pre-Disposal Treatment R&D" Position Paper – Head of Integrated Waste Management, NDA by 31<sup>st</sup> May 2015.

**Action 09/11:** Generate alternative wording and contextualise the bullet point on page ten of "Review of NDA's Higher Activity Waste Pre-Disposal Treatment R&D" Position Paper starting with "The NDA has work planned on strategic guidance....." – Head of Integrated Waste Management, NDA and Radioactive Substances Principal Policy Officer, SEPA by 31<sup>st</sup> May 2015.

**Action 09/12:** Generate alternative wording for the recommendation on page eleven of "Review of NDA's Higher Activity Waste Pre-Disposal Treatment R&D"

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Position Paper starting with "The guidance on the use of the Waste Hierarchy....." – Head of Integrated Waste Management, NDA by 31<sup>st</sup> May 2015.

**Action 09/13:** Redraft the "Review of NDA's Higher Activity Waste Pre-Disposal Treatment R&D" Position Paper in line with Actions 09/10, 09/11 and 09/12 and circulate to the Board for agreement – Chair by 30<sup>th</sup> June 2015.

**Action 09/14:** Approve, if appropriate, redrafted version of "Review of NDA's Higher Activity Waste Pre-Disposal Treatment R&D" Position Paper – Board by next meeting.

### [8] Update on NIRAB/NIRO activities

- 8.1 The Director, Nuclear Innovation and Research Office (NIRO) gave an update on the NIRAB/NIRO activities.
- 8.2 NIRAB have published their first Annual report. Their activities to date have focussed on identifying gaps in the UK's nuclear R&D programme to enable the UK to meet the strategic vision and objectives of the Nuclear Industrial Strategy. A programme to address these identified gaps has been proposed which would require additional funding. NIRAB's priority for 2015 is to review current government funded R&D programmes; this is to include NDA and SLC programmes for decommissioning.
- 8.3 Discussions were held regarding UK R&D funding in general, the level of funding proposed by NIRAB and NIRAB's role in coordinating international collaborations. The Board confirmed this overall coordination activity is highly desirable to maximise the benefit to the UK, as had been identified at an earlier Board meeting and recommended in the Board's Annual Report for 2012/13.
- 8.4 The Chair asked for an update on progress on the nuclear materials archive work discussed at a previous meeting. A separate NDA programme of work is investigating material currently stored in archives across the NDA estate. It was noted that a physical document archive will be located in Wick. A decision on an archive of relevant R&D materials has yet to be taken.

### [9] Update on NDA's R&D Strategy

- 9.1 Head of Technology, NDA presented an update on NDA's R&D Strategy. This included a recap of Strategy II and considerations for Strategy III. The following issues were covered in the discussion.
  - Is the current R&D strategy still appropriate? Why?
  - What should be the role of i) NDA and ii) SLCs in international collaborative R&D on nuclear decommissioning?
  - What should be the role of i) UK National Laboratories and ii) SMEs in delivery of NDA's R&D strategy?
  - What other issues should the NDA R&D strategy should address?
  - Are there areas which members would like to investigate further?

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- 9.2 The Board confirmed that it continued to support the high level R&D strategy, in that it matched NDA's needs while enabling the SLC sponsored research to be managed closest to where the outcomes were needed, and it was also supportive of the general direction of the changes under consideration for the revised strategy. Members were supportive of NDA and SLC involvement in international collaboration using whichever expert was the most appropriate for the matter under consideration, but there was a need to ensure that any learning was also shared amongst those across the NDA estate who could most benefit. Members recognised the utility of using both National Laboratories and SME's to deliver the programme. This widened the supply and skill bases and, as a secondary benefit, was helping UK organisations to be competitive in winning work internationally.
- 9.3 Members also acknowledged NDA's existing support of postgraduate level research as part of a wider STEM agenda in building a supply of future expertise for both it and the wider industry's needs. The Board were supportive of NDA considering how best to extend this support to the STEM agenda at school level and advised NDA to link in with organisations already working in this area.

### **[10] Introduction to review of the NDA's Technical Baseline and underpinning R&D (TBuRD) process and associated programme of analysis and assurance**

- 10.1 The Chair introduced the item to the Board and reminded the group that NDA Research Board had asked specific questions regarding the NDA programme of analysis and assurance, namely:
- Question 1: Is the approach soundly based?
  - Question 2: Are the mechanisms for review adequate?
  - Question 3: Is the TBuRD adequately communicated to stakeholders?
  - Question 4: Is the programme robust to future change?
  - Question 5: Are there areas which members would like to investigate further?

### **[11] Role of TBuRD in NDA's approach to technical assurance**

- 11.1 Head of Technology, NDA gave a brief presentation on the role of TBuRD in NDA's approach to technical assurance. The key points presented were as follows:
- It is essential for NDA to understand the processes and associated technologies that SLCs and subsidiaries are using and/or proposing to use for their nuclear decommissioning – technical baselines. This includes understanding the maturity of the technologies, the required R&D, any residual technical risks and potential technical innovations.
  - The SLC and subsidiary TBuRD submissions provide this information in a structured manner that supports both NDA assurance and cross-industry analysis. Together they enable NDA to ensure that NDA's mission is technically underpinned by sufficient and appropriate R&D *i.e.* R&D strategic objective being met.
  - NDA provides guidance on good practice in R&D management. This includes the use of a gated process for sanctioning which specifically addresses technology and engineering aspects, a consistent system for assessing technology maturity using Technology Readiness Levels (TRLs) and a whole system approach to eliminate gaps and identify interdependencies.



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- 11.2 The Chair highlighted the role of the TBuRD process in supporting the reduction of the cost of completing the NDA sites restoration mission.

### [12] NDA Technical Baseline – Updated approach

- 12.1 NDA Technical Assurance Manager gave a presentation covering the NDA R&D communication and stakeholder engagement plan, structure and content of the draft NDA Technical Baseline report, additional information that could be included and options for the timing and frequency of publication.
- 12.2 A detailed discussion on the Technical Baseline document was held. The outcome of this is summarised as follows:
- Members were supportive of publishing a Technical Baseline document and the use of Process Wiring Diagrams (PWDs).
  - The Technical Baseline is intended to provide a high level overview and is aimed at interested external parties (e.g. academia, the supply chain). The document should therefore include a clear statement at the start outlining the document's purpose. This would help with improving the accessibility of the document.
  - The language used in the document should be clear, concise and positive in tone; there was an excellent story to tell and the presentation in the document should reflect this.
  - Where possible details on planned R&D activities should be included in order to provide confidence in the proposed approach and that the required R&D will be delivered at the appropriate time.
  - Whilst colour is useful for communicating the status of a particular process, it can easily convey the wrong message (e.g. considerable technical risk perceived rather than considerable scale of R&D required). The use of colour should therefore be carefully considered and clearly defined within the report.

### [13] Technical Baseline and underpinning R&D (TBuRD)

- 13.1 NDA Technical Assurance Manager gave a presentation covering the TBuRD and associated assurance process, latest analysis of SLCs' TBuRD submissions and future developments.
- 13.2 The Board was very supportive of the TBuRD process and noted that it was best practice nationally and internationally. It was also noted that there may be further opportunities to share good practice with the Ministry of Defence (MoD).
- 13.3 The following action was agreed.

**Action 09/15:** Disseminate the outputs of the Cogentus TBuRD review relevant to the NWDRF Working Groups to the respective Co-Chairs – Technical Assurance Manager, NDA by 31<sup>st</sup> May 2015.

### [14] Nuclear Waste and Decommissioning Research Forum (NWDRF) TBuRD Working Group

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- 14.1 Co-Chair of NWDRF TBUrD working group gave a presentation reviewing SLC feedback on the TBUrD process. This working group has members from the NDA estate but also wider UK nuclear decommissioning industry (e.g. EDF and AWE). The presentation covered the development of the TBUrD process, how TBUrDs are used and integrated by the SLCs, benefits and challenges for the SLCs, the non-NDA perspective on TBUrDs and the work of the NWDRF TBUrD working group.
- 14.2 The benefits of the TBUrD process were highlighted to be clarity associated with the proposed technical approach to nuclear decommissioning, monitoring progress of the R&D programme, identification of technology gaps requiring R&D and improved technical risk management. For larger SLCs maintaining consistency of approach across multiple project teams is difficult, particularly with regard to the appropriate level of detail. The TBUrD Working Group provides a forum for discussing any problems with the TBUrD process and supports, via the peer review process, the identification of common technical issues and best practise in TBUrD production. The use of a common TBUrD specification facilitates cross-industry analysis. It was noted that non-NDA sites also generally adopt the principles of the TBUrD process following best practice and produce a similar R&D table.
- 14.3 The Board noted that the main benefits of TBUrDs are the demonstration of the technical underpinning of the current plans and the identification of risks and gaps in R&D. The identification of synergies can also lead to cost savings for the NDA estate.
- 14.4 Superintending Inspector, Office for Nuclear Regulation (ONR) noted that from a regulatory perspective a structured approach to R&D leads to the generation of a sound safety case which in turn reduces societal and regulatory risk. Technical underpinning of technology is therefore essential for regulatory approval.
- 14.5 Director, Strategy & Technology, NDA noted that the TBUrD process can support SLCs in making commercial decisions between different technologies.

### **[15] Discussion regarding NDA's Technical Baseline and underpinning R&D (TBUrD) process and associated programme of analysis and assurance**

- 15.1 The Chair asked the group if they knew of any alternative processes that could supplement the TBUrD process and associated programme of analysis and assurance.
- 15.2 It was noted that gated sanctioning processes that use systems for measuring readiness are used extensively in other technology industries (e.g. automotive, aerospace) and are seen as best practice. The most common system is Technology Readiness Levels but other complementary approaches are used (e.g. System Readiness Levels, Manufacturing Readiness Levels). The NDA TBUrD process is therefore in-line with processes used in other sectors. Technical Assurance Manager, NDA commented that NDA was currently investigating the use of System Readiness Levels and would continue to investigate other approaches through the TBUrD Working Group.
- 15.3 The Chair referred members to their observations and recommendations from the Board's first look at the TBUrD process in April 2012. These included:
- o Noting that the percentage of R&D related to opportunities was relatively low (~15%) and whether there was more that could be done to identify additional opportunities.
  - o Suggesting analysis of the NDA's liability costs against technical areas so that high cost sub-divisions could be considered for opportunity related R&D.

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- o Noting that the percentage of R&D directed at risk reduction or amelioration was some 16%, almost all of which was related to the Sellafield site; was there more to be done at other sites?

These points should be borne in mind in the present discussion.

- 15.4 The Board discussed the level of contingency required in “needs” based R&D programmes. Head of Technology, NDA stated that “needs” and “opportunities” are defined by the TBuRD process and that additional assurance can identify contingency. Work is ongoing to improve SLC identification of contingency via the NDA Strategy and Client Specifications.
- 15.5 A discussion was held regarding the level of NDA expenditure on opportunity based R&D. The Technical Assurance Manager, NDA noted that NDA funds opportunity based research via its Strategic Portfolio through collaboration with Innovate UK.
- 15.6 The Board discussed the high cost of nuclear R&D and whether this limited opportunity-based R&D in the nuclear supply chain. The Technical Assurance Manager, NDA commented that the processes associated with identifying opportunity-based R&D will be reviewed by the TBuRD Working Group over the coming year.
- 15.7 The Chair commented that R&D directed at reduction of risk was still mainly occurring at Sellafield and asked how to further increase risk reduction at other sites. The Technical Assurance Manager, NDA commented that this is mainly due to the scope of the Sellafield programme which includes a number of very technically challenging projects. Other SLCs do however identify technical risks within their TBuRD submissions.
- 15.8 Research Councils Nuclear Fission Network Champion Representative, University of Leeds queried whether the current approach for producing the TBuRD was a barrier for its usage and if a web-based tool would be more appropriate. The Technical Assurance Manager, NDA commented that other approaches had been considered but at the moment had been ruled out due to the time and cost of implementing them. The hyperlinked document produced by Dounreay Site Restoration Ltd was identified as an example of good practice. Best working practices and improving accessibility of the process are discussed and shared at the TBuRD working group. The TBuRD process is expected to continue to evolve to ensure maximum benefit to all users.
- 15.9 The Chair noted that the Cogentus “Summary of Independent Peer Review and Analysis of SLC’s Technical Baseline and Underpinning Research & Development (TBuRD) Submission” provides a good source of information on potential R&D topics which is of value to those interested in supporting NDA’s R&D programme. Technical Assurance Manager, NDA commented that it was NDA’s intention to publish this document.
- 15.10 The Chair request the Board consider the questions posed under Item 10.

- Question 1: Is the approach soundly based?

The Board noted that the TBuRD process was an exemplar of good practice both nationally and internationally.

- Question 2: Are the mechanisms for review adequate?

The Board agreed that the mechanisms for review are adequate but that further analysis of the output is required by SLCs themselves in order for them to understand the overall

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status of their R&D programmes. The TBuRD working group can look at how to how to achieve this.

The following actions were agreed.

**Action 09/16:** Respond on how the Working Groups have taken into consideration the specific output from the Cogentus Independent Peer Review and Analysis of the TBuRDs in their forward programmes – Co-Chair NWDRF, Sellafield Ltd by 30<sup>th</sup> September 2015.

**Action 09/17:** Discuss the TBuRD process with the Co-Chair NWDRF, Sellafield Ltd and Technical Assurance Manager, NDA – Chair by 31<sup>st</sup> July 2015.

- Question 3: Is the TBuRD adequately communicated to stakeholders?

The Board indicated that the TBuRD process is adequately communicated to stakeholders and supported the intention to publish the component documents where possible. The information the R&D tables contain in particular will be useful to a wide range of stakeholders. A discussion was held regarding the level of SLC Board interest in the TBuRD submissions. It was noted that TBuRD submissions are used at gate reviews and sanctioning meetings.

- Question 4: Is the programme robust to future change?

The TBuRD process is robust to change. It was noted that TBuRDs are a tool to develop future options and that some project PWDs identify multiple end options which leads to robustness. The identification of generic programmes of work and R&D risks also introduce robustness. Collaboration with Innovate UK to fund opportunity based decommissioning R&D was also supported and aligns with the opportunities identified in the TBuRDs and the peer review. The NDA future R&D programme of work is published at [www.nda.gov.uk](http://www.nda.gov.uk).<sup>1</sup>

- Question 5: Are there areas which members would like to investigate further?

A further discussion was held regarding the use of Work Breakdown Structures to track SLC spending. The NDA had found it did not have the data to respond to this recommendation and could not easily obtain it without considerable work and expense. The Chair noted that the technical area breakdown categories used as guidance for producing the TBuRDs were at least part way to a categorisation system that could be used for the type of cost breakdown structure the Board had recommended in its April 2012 discussion, and that even a rough and ready system would be better than nothing. The Board members were still of the opinion that the NDA should know how much it costs to undertake specific technical activities providing this could be achieved without excessive cost.

The Board was otherwise satisfied that there were no areas requiring further investigation.

15.11 The following action was agreed.

**Action 09/18:** Prepare a TBuRD Position Paper by mid October 2015 and circulate for discussion at the November 2015 Board meeting – Chair.

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<sup>1</sup> 5 Year Research and Development Plan, issue 1, December 2013, EDRMS No. 20809159

## NDA Research Board

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14<sup>th</sup> April 2015 10:00 – 16:00

Central Hall Westminster, Storey's Gate, Westminster, London SW1H 9NH

### [16] Observations on Meeting 8

16.1 Chair asked the CoRWM member whether he had any observations with regard to the meeting. He responded that Board's process regarding the production of Position Papers is efficient. The discussion regarding the TBuRD process was both frank and illuminating and the Board were very constructive in their comments. He looks forward to the next Board meeting.

### [17] Review of Actions

17.1 The following action was agreed

**Action 09/19:** Circulate the action list – Research Manager, NDA by 6<sup>th</sup> May 2015.

### [18] Any Other Business

18.1 The following topics were suggested as themes for forthcoming meetings:

- Underpinning R&D for long term storage of nuclear materials
- Condition monitoring – packages, equipment, facilities
- The use of robotics and autonomous systems in decommissioning

18.2 Head of Technology, NDA drew Members attention to NDA's recently published R&D brochure highlighting NDA's directly funded R&D portfolio and welcomed feedback. A subsequent brochure is planned to highlight R&D examples from the NDA estate.

18.3 The Chair thanked the speakers and Board for their contributions.

18.4 The Chair also thanked Technical Assurance Manager, NDA for his work during his time as Technical Secretary to the NDA Research Board. The Technical Assurance Manager, NDA is stepping down from the role as Technical Secretary and has handed over to the Research Manager, NDA.

**CLOSE**

## NDA Research Board

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### APPENDIX 1 – Outstanding and New Actions

- Action 03/05:** Board members to review draft report when circulated and provide comments back to NDA within one month – Ongoing
- Action 03/08:** Chair and NDA to undertake a comparison with the TBuRD output and report back to the Board on its conclusions – Ongoing
- Action 08/03:** Chair to consider using a small group of members to review and finalise position statements – Ongoing
- Action 08/04:** Head of Technology, NDA and Co-Chair of NWDRF to compare the Research Board Terms of Reference with the NWDRF Terms of Reference to ensure compatibility – Ongoing
- Action 08/06:** Head of Technology, NDA and Co-Chair of NWDRF, Sellafield Ltd to evaluate where R&D funds are being spent to identify whether this matches the challenge areas and therefore potential for R&D to have greatest impact. Circulate findings to the Board – Ongoing
- Action 08/08:** HM Deputy Chief Inspector, ONR to update the Board with respect to ONR updated strategy and interfaces with this Board – Ongoing
- Action 09/01:** Circulate updated actions lists prior to future NDA Research Board meetings – NDA Research Manager prior to each NDA Research Board Meeting.
- Action 09/02:** Request feedback, by email, on the NDA Research Board Members Welcome Pack from new Board Members – NDA Research Manager by 30<sup>th</sup> June 2015
- Action 09/03:** Write a letter to the NWDRF Working Group Co-Chairs to express support from the NDA Research Board – Chair by 31/5/15
- Action 09/04:** Circulate NWDRF Forward Programme documents with consolidated metrics when finalised to the Board – Co-Chair NWDRF, Sellafield Ltd by 30/6/15
- Action 09/05:** Circulate a copy of the NWDRF Annual Report for Financial Year 2014/15 to the NDA Research Board – Co-Chair NWDRF, Sellafield Ltd by before the November Meeting
- Action 09/06:** Review the current NDA Research Board Annual Report to ensure support for NWDRF is appropriately captured – Chair by 31/5/15
- Action 09/07:** Consider an appropriate alternative acronym for Scientific Readiness Levels e.g. SciRL – Head of Research, RWM
- Action 09/08:** Raise social science research issues in relation to nuclear at the June 2015 NIRAB meeting for information to determine if a wider discussion is necessary – Head of Technology, NDA and Director, NIRO
- Action 09/09:** Publish RWM responses to the NDA Research Board review – Research Manager, NDA by 31/5/15

## **NDA Research Board**

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**14<sup>th</sup> April 2015 10:00 – 16:00**

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- Action 09/10:** Generate alternative wording for the recommendation on page five of "Review of NDA's Higher Activity Waste Pre-Disposal Treatment R&D" Position Paper – Head of Integrated Waste Management, NDA by 31/5/15
- Action 09/11:** Generate alternative wording and contextualise the bullet point on page ten of "Review of NDA's Higher Activity Waste Pre-Disposal Treatment R&D" Position Paper starting with "The NDA has work planned on strategic guidance....." – Head of Integrated Waste Management, NDA and Radioactive Substances Principal Policy Officer, SEPA by 31/5/15
- Action 09/12:** Generate alternative wording for the recommendation on page eleven of "Review of NDA's Higher Activity Waste Pre-Disposal Treatment R&D" Position Paper starting with "The guidance on the use if the Waste Hierarchy....." – Head of Integrated Waste Management, NDA by 31/5/15
- Action 09/13:** Redraft the "Review of NDA's Higher Activity Waste Pre-Disposal Treatment R&D" Position Paper in line with Actions 09/10, 09/11 and 09/12 and circulate to the Board for agreement – Chair by 30/6/15
- Action 09/14:** Approve, if appropriate, redrafted version of "Review of NDA's Higher Activity Waste Pre-Disposal Treatment R&D" Position Paper – Board by next meeting
- Action 09/15:** Disseminate the outputs of the Cogentus TBUrd review relevant to the NWDRF Working Groups to the respective Co-Chairs – Technical assurance Manager, NDA by 31/5/15
- Action 09/16:** Respond on how the Working Groups have taken into consideration the output from TBUrd review in their forward programmes – Co-Chair NWDRF, Sellafield Ltd by 30/9/15
- Action 09/17:** Discuss the TBUrd process with the Co-Chair NWDRF, Sellafield Ltd and Technical Assurance Manager, NDA – Chair by 31/7/15
- Action 09/18:** Prepare a TBUrd Position Paper by mid October 2015 and circulate for discussion at the November 2015 Board meeting – Chair
- Action 09/19:** Circulate the action list – Research Manager, NDA by 06/05/15