University of Southampton co-ordinated response to:

The NDA group Draft Strategy 2025 for public consultation

Context:

The University of Southampton is a research-intensive Russell Group university with expertise across the nuclear lifecycle. This includes design, build and operation of reactors through to radiometric analysis with our state-of-the-art facilities operated by GAU-Radioanalytical (https://www.southampton.ac.uk/oes/research/facilities/gau.page).

GAU-Radioanalytical works with clients across nuclear decommissioning, environmental and workplace monitoring, as well as nuclear safeguarding sectors. Characterisation and management of nuclear waste – including difficult-to-measure (DTM) radionuclides is a core research strength. GAU are also a supporting laboratory for the National Nuclear Users Facility in next generation accelerated characterisation techniques (NNUF-EXACT) (https://www.southampton.ac.uk/research/institutes-centres/nnuf-exact).

The following responses have been provided by researchers at the University of Southampton and GAU-Radioanalytical Laboratories:

Professor Andy Cundy – Professor of Environmental Radiochemistry, and Research Director of the University consultancy and research unit GAU-Radioanalytical.

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Professor Bo Chen – Professor of Engineering Materials and Director of Southampton Advanced Manufacturing and Design Hub (SAMDH).

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Key Questions from the Consultation

Q1. Do you think the introduction to our Draft Strategy provides a clear and accessible overview of our purpose, challenges, and approach? Is there any other context or information you would find helpful?

Andy Cundy: The overview is generally clear and accessible, but could usefully also include challenges and opportunities around nuclear new build and fusion as part of the wider UK nuclear context – giving background for potential use of partly delicensed sites for SMRs, future waste arisings etc.

Q2. Do you agree that our Strategy embeds sustainability throughout – including alignment with the UN Sustainable Development Goals and the NDA group sustainability definition? Are there any areas where our approach could be strengthened?

Q3. Do you support the approach set out in our group strategy and its focus on collective delivery across the NDA group? Are there any significant activities or opportunities you think we should also highlight?

Q4. Do you think our aspirations for 'Safe Stewardship' – the safe and sustainable management of our estate – are clear and appropriate? What other aspirations should we consider?

Q5. Do you think our objective to optimise the use and reuse of our estate is clear and appropriate? Are there other opportunities we should explore to achieve this goal?

Andy Cundy: Iterative approaches to end-states are well-described, but the strategy could be clearer on how resilience (including resilience to climate change and sea-level rise, which will be key to on-site disposal or storage considerations) is built into the approach, and long-term community engagement to ensure effective delivery of end-states.

Q6. Do our updated set of IWM principles reflect the nature of our mission and cover the key areas of focus for waste management?

Q7. Are there any specific opportunities or considerations you think we should take into account when developing solutions for deriving value from non-radioactive materials, such as through reuse and recycling?

Bo Chen: For non-radioactive steels and their welds (e.g., those subjected to high-temperature exposure under load), research in this area could be critical in guiding the future design, construction, and operation of next-generation nuclear power systems. Establishing a digital database and associated materials archive would provide a valuable foundation for future research and innovation. Moreover, this effort would help position the UK as a leading player on the international stage, enhancing its visibility and influence in the development of Generation IV nuclear technologies. In terms of recycling and reuse of these steels, an open consultation with the key nuclear players would be advised, to ensure that we maximise the value of these materials.

Q8. Our strategy sets out the NDA's role in supporting the wider UK Nuclear Enterprise, while maintaining our focus on core mission delivery. Do you think the strategy clearly defines our position? Are there any additional areas we should consider or clarify?

Bo Chen: The decommissioning processes for non-radioactive steels from the secondary loop, in particular, warrant further clarification.

Q9. Our mission and strategy delivery is underpinned by our Critical Enablers. Do you agree with the proposed Critical Enabler Strategies and that we have focussed on the most important issues in each topic? Are there further suggestions you might have for the NDA to consider, whether general or on a specific Critical Enabler?

General Comments on Strategy or its Implementation

Andy Cundy: Academia is only mentioned three times in the entire draft strategy – this is significantly underplayed when UK Universities are global research leaders in a range of nuclear decommissioning and waste management areas. Academia will be key for supporting NDA and partners in delivering innovation and a trained workforce, including through National Nuclear User Facility laboratories and centres, which the government (via EPSRC) continues to heavily invest in.

DOI: https://doi.org/10.5258/SOTON/PP0144