



Committee on Radioactive Waste Management

**CoRWM Report: Progress
Towards the Delivery of
an Operational GDF**

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CORWM REPORT:

Progress Towards the Delivery of an Operational GDF

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Sir Nigel Thrift
Chair of CoRWM

Foreword

This is the first in a series of CoRWM Annual Reports on the progress towards the delivery of an operational Geological Disposal Facility (GDF).

The aim is to set out how the GDF project is progressing from our perspective, as an independent arm's length body which has been structured so that it can provide a wide range of advice on public engagement, planning, regulation, and scientific and technical aspects of the project.

To be maximally useful, we have made the report short and to the point, concentrating mainly on areas where we think that there are currently points of tension which merit further exploration.

This is in no way meant to detract from the areas where we have seen progress towards a GDF. Rather it is to highlight certain facets of the project where issues of one kind or another may exist and to comment on the degree to which these issues may affect the achievement of the project's overall objectives.

1 Introduction

The Nuclear Decommissioning Authority's Nuclear Waste Services (NWS) has developed a programme for the delivery of an operational geological disposal facility (GDF), with a first emplacement date for radioactive waste scheduled for the period 2050-2060.

The programme is based upon community consent and availability of a suitable site. NWS are currently undertaking work that will enable it to make a decision on which communities should progress to deep borehole characterisation. NWS expects to submit this decision to the Secretary of State for approval in 2026.

2 Organisational Capability

NWS continues to build the organisational capability necessary to meet the demands of the programme, for example, strengthening its programme management capability.

Recent experience of major UK infrastructure projects (such as Crossrail) indicates that securing the opening of any new complex facility requires skills in both systems integration and meeting interacting requirements of several regulators. There are methodologies for "right to left" planning which help reduce the risk of delay and cost growth from a range of factors and CoRWM is advising NWS on the creation of a model to enable NWS to manage such risk.

In contrast with the development of technical and programme management

capability, CoRWM notes that there is very limited social scientific capability within NWS, and thus subject-matter expertise does not steer their thinking around many of the key issues that the GDF project confronts. There is also no budget line for strategic oversight of social science research within NWS.

CoRWM is producing a discussion document that outlines the wealth of social science expertise on fundamental issues of relevance to the siting process. A workshop is planned to identify the specific areas where NWS could benefit from sustained engagement with social science. There are also important lessons to be learned, with specific reference to social science, from comparison with international GDF siting processes, and with other industrial infrastructure siting processes, both contemporary and historical.

CoRWM also notes that whilst technical capability is being built to manage the current programme, the demands of a project of the duration of the GDF would benefit from more foresight activity to identify emerging options that can enhance the design and operation of the facility and contribute to the emerging demands to meet sustainability requirements. Examples of topics for consideration include tunnelling, construction, materials, robotics and artificial intelligence.

3 Community Partnerships

The recent formation of four community partnerships is a significant achievement in progress towards an operational GDF. All of the partnerships are however at an early stage in their development and CoRWM perceives a need to clarify expectations and levels of support for Community Partnerships.

CoRWM acknowledges that NWS distinguishes the specific roles and responsibilities of its role as the developer from those of the Community Partnership. The Partnerships are expected to review and refine the general search area, to build awareness and understanding of geological disposal and the siting process in the wider community, and to consider and recommend the bids for community investment. NWS has a key role to play as a member of the Community Partnership. It acts as a source of information and expertise on geological disposal and as the developer working together in partnership with the community.

The role given to the Community Partnerships is an important element of the government policy and aligns with CoRWM's recommendations to government in 2006. These recommendations included advice that "the aim should be to progress to disposal as soon as practicable, consistent with maintaining public and stakeholder confidence".

CoRWM is aware that there have been difficulties in securing funding to create possibilities for the Partnerships to recruit, and to respond in a timely way to requests for information, for meetings, or for specific

small items. CoRWM has also recommended investment in adequate local premises from which the Community engagement teams could establish and normalise their presence in the general search areas and build trust with the wider population.

The need to learn from such experience reinforces CoRWM's view on the need to invest early and effectively in local community development so as to move towards establishing the level of local support that will be required. In this context, CoRWM notes that it will take time for the relationship between the NWS local team and the Community Partnership to form and for practical measures to evolve based on a maturing dialogue.

CoRWM is concerned that NWS's intention to submit a decision to ministers for approval in 2026 on communities in which to commence site characterisation could reduce the flexibility necessary to progress the most promising opportunities at the optimum time.

4 Suitability of Sites

CoRWM has been considering the NWS work to identify and select a suitable site and is of the view that the characterisation of the geology is of particular significance because of its potential to have a major effect upon several aspects of the evaluation considerations associated with NWS's siting factors.

NWS recognises that an assessment of the potential for the geology to meet design,

engineering and post-closure requirements will be a significant element of the decision which is submitted to ministers in 2026 and has obtained, is obtaining, or plans to obtain, information which it judges to be sufficient for it to describe the potential for the geology to be suitable, and undertake safety and engineering feasibility assessments. CoRWM will continue to monitor this work.

The option of an inshore GDF (i.e., one located under the seabed but accessed from land) has recently gained prominence. In some cases, this option is necessary to gain access to rock masses with suitable geology. CoRWM believes that where an option for onshore disposal is not precluded by geological considerations, inclusion of an alternative onshore GDF may provide a broader basis for the decision submitted to ministers for approval.

In due course, the geological site characterisation will be of major significance in securing the necessary permits for construction and operation of the GDF. International experience has shown that confidence in selection of a safe site requires various elements of investigation over a prolonged period including seismic studies, borehole drilling and underground site characterisation.

CoRWM is of the opinion that further consideration is needed of the data requirements to support the safety case, and how to obtain such data, for the specific underground conditions once a site has been identified. This will be essential to permit construction and subsequently grant

both an operating licence and, in the long term, to support the post-closure safety case.

CoRWM also believes that clear, robust and comprehensible communication on risk and uncertainty in respect of a GDF, including but not limited to underground conditions, is an essential part of the process.

5 Policy and Regulation

The National Policy Statement for Geological Disposal Infrastructure provides a secure basis for the planning decisions on the long-term management of higher activity waste.

In addition, progress is being made on legislation. The Energy Bill, laid before Parliament in 2022, will clarify that the powers to licence a GDF apply to an inshore GDF.

The submissions of planning, licensing and permitting applications for a GDF will not be made for some time and are likely to occur in the period from around 2035. CoRWM has however noted the awareness of potential legal challenge in relation to the site selection process (planned for 2026) with respect to legal fairness or other related matters. There is therefore a need for NWS to maintain full transparency and a clear audit trail to underpin the decisions it makes to build confidence and reduce the risk of legal challenge.

CoRWM understands that NWS appreciates the complexity of regulatory approvals that are required in both identifying and investigating potential locations for a GDF. This means that NWS will need to establish a robust and defensible evidence base for

key GDF programme decision stages that require third party consent, and maintaining constant vigilance, that is, both assurance and re-assurance, throughout the process. The applicability of procedures for strategic environmental assessment of plans and programmes is kept under review by NWS, which CoRWM welcomes, and notes such procedures will help with transparency and accountability in the process.

These topics will be a key element of CoRWM's work programme during the next year.

6 CoRWM Priorities for 2023/2024

In addition to the above considerations, CoRWM has identified three topics that merit increased attention to reduce risks to the programme.

The first has already been noted and relates to the definition of a plan for underground geological site characterisation that will be sufficient to underpin decisions and provide clear evidence to support the planning and permitting applications (including the safety case process).

The second relates to the multi-barrier system and the need for a methodology to review and assess the costs and benefits of different elements of the system given the potential range of in-situ geological conditions that may be present at different locations.

The third is the work necessary to ensure a full understanding of the inventory for disposal and how it affects the GDF design and the disposal sequence which is necessary to secure public confidence throughout the process and, in particular, during the test of public support.