ITEM 5: UPDATE ON GEOLOGICAL DISPOSAL FACILITY SITING PROCESS

Report to RWPG, 21st July 2021

This report provides an update on recent developments related to the process for identifying a Geological Disposal Facility (GDF). It covers:

- RWM Update;
- CoRWM update; and
- International situation.

1. Introduction

1.1 The UK Government's policy on **Working with Communities – implementing geological disposal** was published in December 2018[1], with the equivalent policy for Wales published in January 2019[2]. The **National Policy Statement,** governing the planning aspects of the GDF in England, was published in July 2019[3].

2. RWM Update

2.1 Nuleaf's Executive Director held an introductory meeting with Simon Hughes, RWM's new **Community Engagement and Siting Director** on the 10th of May. Simon worked for the Environment Agency for 25 years on nuclear and non-nuclear regulation, and more recently in the water industry with a focus on stakeholder engagement and planning[4]. The meeting covered the work of Nuleaf and the potential ways in which we could continue to advise RWM and engage in the GDF siting process. It was agreed that Phil and Simon would meet quarterly from now on.

2.2 The initial stage of RWM's research project on boreholes has been completed successfully[5]. The project is seeking to demonstrate that deep boreholes, required in the exploratory phase of the GDF siting process, can be permanently sealed. The first demonstration was done using an existing borehole at the Harwell site in Oxfordshire, with around 1 tonne of bentonite clay used as the sealant. The project is now being evaluated by the Environment Agency, who require proof that such a system can work ahead of issuing an environmental permit.

Further demonstrations will now be undertaken in high strength rocks and evaporites.

[1] https://www.gov.uk/government/publications/implementing-geological-disposal-working-with-communities-long-term-management-of-higher-activity-radioactive-waste
[2] https://gov.wales/geological-disposal-higher-activity-radioactive-waste-guidance-communities
[3] https://www.gov.uk/government/publications/national-policy-statement-for-geological-disposal-infrastructure
[4] https://www.gov.uk/government/people/simon-hughes--2
[5] Borehole project tests seals for future disposal of radioactive waste | E&T Magazine (theiet.org)

2.3 RWM published the latest **Inventory for Geological Disposal**[6] in May. This sets out the inventory as of 2019 and is based on Government and industry plans.

It estimates the packaged volume of material destined for a GDF at 773,000m^3. Around 90% of this is low heat generating waste (LLW, ILW and depleted, natural and low enriched uranium), though this only constitutes 5% of the radioactivity. Conversely, high heat generating wastes (fuels, plutonium and highly enriched uranium) make up only 10% of the packaged volume but 95% of the activity.

3. CoRWM Update

3.1 **CoRWM** (Committee on Radioactive Waste Management) has published a new position paper on the **policy, legal and regulatory issues for a GDF**[7]. The paper considers the unique challenges of regulating a GDF and makes recommendations. These include that Government should:

- As a matter of urgency, make a clear statement of policy on matters related to a GDF, Near Surface Disposal (NSD) and other relevant aspects of radioactive waste management, preferably in a single document.
- Provide clarity as to the relationship of policy to the Radioactive Waste Inventory, including for materials not currently classified as waste.
- Subject the policy to rigorous scrutiny and public debate.
- Provide clarification on the implications of the potential earlier availability of a NSD facility for the approval and regulation of a GDF.
- Consider the policy, legal and regulatory implications of near-shore disposal, including public international law.
- Consider whether NSD, if it is to be pursued, should be brought within the 2008 Planning Act system.

3.2 The Committee has also published its **Annual Report for 2020/21**[8] and its **Programme of Work**[9] for 2021/22. During the year this is planned to include:

- Position Papers on the cost of GDF construction, the regulatory landscape and the challenges of developing an 'inshore' GDF.
- A review of the NDA's assumptions and strategy for managing the UK radioactive waste inventory, especially in terms of the use of a 'risk based' approach.

[6] https://www.gov.uk/government/publications/2019-inventory-for-geological-disposal?utm_medium=email&utm_campaign=govuk-notifications&utm_source=7f22c747-c407-4af3-bc83-8a6c4ec4be0d&utm_content=immediately

[7] Policy, legal and regulatory issues for a geological disposal facility (GDF) and associated radioactive waste management issues: CoRWM position paper - GOV.UK (www.gov.uk)

[8] Committee on Radioactive Waste Management annual report 2021 (publishing.service.gov.uk)

[9] CoRWM Proposed Programme of Work 2021 (publishing.service.gov.uk)

4. International situation

4.1 Nuleaf has been engaging with other European countries to understand their approach to **Community Partnership Agreements (CPA),** that is agreements between the nuclear industry and communities/local authorities. These are an important mechanism for setting out the investment and added value that will flow to communities. They are used in relation to GDF siting processes and wider waste management and new nuclear programmes.

As part of this work, Nuleaf's Director and RWM met on the 24th of May with Stig Bjorne of SKB NU, a subsidiary of the Swedish GDF development body. The two Swedish municipalities involved in the GDF siting process signed an agreement in 2009 which will deliver around €195 million to communities. Of this Östhammar, the proposed site of the GDF itself, will receive 25% but will benefit from the direct investment related to the development. Oskarshamn receives 75% and will also host the encapsulation plant. A decision on whether to proceed with the GDF is currently with the Swedish Government and is expected soon. It is only after a positive decision is made that most of the funding will be accessible.

4.2 Next door in Finland work has begun on the first disposal tunnel for their repository[10]. Located at Onkalo on the Baltic coast, this will be the first in the world to dispose of spent fuel. It is estimated that 100 deposition tunnels will be excavated over the century long operational phase, with a total length of 35 kilometres. Used fuel will be placed in the bedrock at a depth of around 450 metres, with emplacement beginning in the mid-2020s.

4.3 In Canada, borehole investigations have commenced at the two sites that are still under consideration for a repository[11]. These are Ignace and South Bruce, both in Ontario. The Canadian process, like its UK equivalent, is based on community consent, and there is both support and organised opposition to the proposal around the sites, including from First Nation communities. The developer (NWMO) plans to make a final decision in 2023 and has recently published a **Five Year Strategic Plan** up to 2026[12]. The plan sets out how the organisation can move into an implementation phase and has been released alongside NWMO's **Annual Report**[13].

4.4 EURAD held an online webinar on the SITEX Network on Wednesday the 30th June. **SITEX (Sustainable Network for Independent Technical Expertise on radioactive waste management)** involves a range of technical expertise, regulators and civil society bodies. The event involved a number of presentations on

[10] Work starts on first disposal tunnel at Finnish repository : Waste & Recycling - World Nuclear News (world-nuclear-news.org)
[11] Test drilling resumes for nuclear waste site near Ignace - Timmins News (timminstoday.com)
[12] Latest NWMO implementation plan looks beyond site selection | The Nuclear Waste Management Organization (NWMO)
[13] The NWMO 2020 annual report celebrates progress and resilience | The Nuclear Waste Management Organization (NWMO)

the work of SITEX, including that on GDF safety cases, boreholes and on innovative techniques for dialogue. It can be viewed here[14].

Further events are planned in October on the US Nuclear Waste Management and Disposal Strategy and the Italian GDF Siting Process, and these are open to any Nuleaf member. More information can be found here[15].

[14] Webinar: Lunch & Learn | The SITEX.Network by SCK CEN Academy (bigmarker.com)
[15] https://www.sitex.network/events-and-news/