



## **CoRWM Position Paper: Support for Disposal rather than Indefinite Storage**

**25 October 2018**

This Position Paper reflects the Committee on Radioactive Waste Management (CoRWM) current position on disposing radioactive waste rather than storing it indefinitely. This is to respond to Consultation responses such as '*we believe that waste from such power stations should not be transported but stored on site*'. The paper will be updated and revised when more information becomes available.

---

### **1. Introduction**

Several replies to the consultations on Working with Communities have advocated continued storage over disposal in a Geological Disposal Facility (GDF). These have been couched in terms such as '*we believe that waste from such power stations should not be transported but stored on site*'. This paper outlines the process by which options for radioactive waste treatment have been evaluated, and why geological disposal has been preferred as a policy, rather than ongoing storage.

### **2. CoRWM's Recommendations to Government**

Between 2003 and 2006, the Committee on Radioactive Waste Management (CoRWM) was tasked by Government to make recommendations for the long-term management of the UK's higher activity wastes that would both protect the public and the environment and would inspire public confidence. To do this, it combined a technical assessment of options with ethical considerations, examination of overseas experience, and a wide-ranging programme of engagement both with the public and with interested parties (stakeholders).

It examined the various ethical aspects of managing existing and potential future radioactive wastes and carried these considerations into extensive involvement with stakeholders and the public. It also drew extensively on international studies and experience, so its 'views for the UK' were always set within a 'world view'. It produced an extensive series of documents and presented its final views to Government in the 2006 report "Managing Radioactive Waste Safely: CoRWM's Recommendations to Government" (CoRWM doc 700.).<sup>1</sup>

### **3. Disposal Option Shortlisting**

CoRWM developed a 'Long List' of 15 Options, and analysed all of these, with expert and stakeholder inputs.

---

<sup>1</sup> Managing Our Radioactive Waste Safely – CoRWM's Recommendations to Government, CoRWM Doc 700, July 2006

1. interim or indefinite storage on or below the surface
2. near surface disposal, a few metres or tens of metres down
3. deep disposal, with the surrounding geology providing a further barrier
4. phased deep disposal, with storage and monitoring for a period
5. direct injection of liquid wastes into rock strata
6. disposal at sea
7. sub-seabed disposal
8. disposal in ice sheets
9. disposal in subduction zones
10. disposal in space, into high orbit, or propelled into the Sun
11. dilution and dispersal of radioactivity in the environment
12. partitioning of wastes and transmutation of radionuclides
13. burning of plutonium and uranium in reactors
14. incineration to reduce waste volumes
15. melting of metals in furnaces to reduce waste volumes

The "Long List" was then screened using a set of criteria again developed with expert and stakeholder inputs. These screening criteria contained elements such as:

- It places an unacceptable burden on future generations, in terms of cost, effort or environmental damage.
- It results in unacceptable risk to the security of nuclear materials.
- It poses unacceptable risk to human health.
- It involves a risk to future generations greater than that to the present generation that has enjoyed the benefits.

Eventually, three options were shortlisted:

1. long-term interim storage
2. deep geological disposal
3. phased deep geological disposal

#### **4. Disposal versus Storage**

The key for this fact sheet is the reasons for excluding Option 1. 'interim or indefinite storage on or below the surface'. The reasons centred round the 'burdens on future generations' and 'public safety (up to 300 years)'. A great deal of time, expertise and stakeholder effort were put into this evaluation, with the result that:

*. . . . the final decision on whether or not to recommend geological disposal as an end-point for radioactive waste management depended on a comparison between the merits of geological disposal and of long-term interim storage, given that confidence in geological disposal, especially its safety characteristics, can never be absolute. The flexibility argument for continuing storage is attractive and there are ethical arguments in its favour as well. But the critical issue for most members of CoRWM, given their confidence that geological disposal would not constitute a significant burden on future generations, was that the safety of long-term interim storage depends on an expectation of continuing institutional control over several hundred years. The risk of loss of institutional control while waste is still in storage is that there may be potentially large safety and environmental consequences in the relatively near future. For the great majority of CoRWM members this was influential in judging the desirability of moving towards geological disposal as quickly as practicable while ensuring that a robust*

*programme of storage is achieved until a repository is available. All CoRWM members were prepared to endorse the wider package of recommendations presented in (the conclusions)<sup>2</sup>*

Notably, this conclusion does not mention transport however the paper itself mentions transport extensively, with quotations such as:

*For example, in the case of long-term storage, many people said that the transport of radioactive waste should be minimised, so storage at or very close to the sites where the waste is produced or currently located, as well as centralised storage, was included as a variant.*

However, the desirability of reducing transport was clearly viewed as secondary to the desirability of disposing waste, probably into a single GDF. The detriments of radioactive materials transport in the UK, and of the radioactive waste transport for movement to a GDF have been studied and were considered by CoRWM.<sup>3,4,5</sup> The overall detriment and doses were low. Reference (3) calculated that 2,000 journeys involving 820,000 miles of rail travel, would give a predicted detriment of 0.44 statistical deaths from conventional accidents, with perhaps a third of this detriment from doses to the public.

The 2003-2006 CoRWM deliberations produced a robust conclusion that geological disposal was to be preferred over indefinite storage. There is nothing obvious that has come to pass in the last decade that would have seriously modified the attributes and views considered during the analysis, and CoRWM reaffirmed its support for Geological Disposal in 2013.<sup>6</sup> More recently, CoRWM's work on the consideration of transport in the siting of radioactive waste storage and disposal sites has been examined and updated in a separate study.<sup>7</sup> This study did not bring into question the robustness of the preference for disposal over ongoing storage.

## 5. CoRWM's Current Stance

CoRWM's view based on the best evidence currently available, both in the UK and from abroad, is that Geological Disposal remains the preferred choice for the long-term management of nuclear waste. However, one of CoRWM's ongoing role was indicated in its Recommendation 5 to Government.

**Recommendation 5:** (Page 11) *The commitment to ensuring flexibility in decision making should leave open the possibility that other long-term management options (for example, borehole disposal) could emerge as practical alternatives. Developments in alternative management options should be actively pursued through monitoring of and/or participation in national or international R&D programmes.*

Though no viable alternative to Geological Disposal has developed to date, CoRWM remains committed to following world and UK developments to fulfil this recommendation.

---

<sup>2</sup> CoRWM Doc 700 Conclusions, para 34 page 109

<sup>3</sup> Survey into the Radiological Impact of the Normal Transport of Radioactive Material in the UK by Road and Rail, S J Watson et al, NRPB-W66, 2005

<sup>4</sup> Spent Fuel Management Options Working Group Report, BNFL National Stakeholder Dialogue, July 2002.

<sup>5</sup> CoRWM Task 082 – Criteria Discussion Papers - Criterion 1. Safety, IDM21-1, IDM Ltd, June 2005, page 11 [Criterion 1 safety](#)

<sup>6</sup> CoRWM Statement on Geological Disposal, CoRWM Doc 3122, June 2013

<sup>7</sup> Reference CoRWM Fact Sheet: Transport Considerations