

Submission to Consultation: *Review of the Siting process for a Geological Disposal Facility*: by Neil Chapman

Preamble

I am a geologist who works as a consultant or strategic adviser to waste management agencies, regulatory authorities and international agencies in most of the major national radioactive waste management programmes worldwide. I managed the British Geological Survey research group that was involved in the shallow and deep geological repository programmes in the 1980s and 1990s.

I have been particularly involved in the Japanese GDF siting programme since it was initiated over ten years ago, which has many parallels with the UK MRWS process. As past Chairman of the ITC School of Underground Waste Storage and Disposal, I was responsible for providing training to many hundreds of professionals worldwide in the siting of waste disposal facilities, based on aggregated international experience.

Over the last 36 years, I have been involved in the geological considerations for all of the UK attempts at finding disposal sites for its legacy wastes. I am currently Chairman of the NDA Radioactive Waste Management Directorate's Technical Advisory Panel and a member of the NDA Research Board.

I responded to the initial round of consultation in June this year. As before, I present these additional views in an independent, personal capacity.

General Comments

I found the proposed changes and structure to be a positive development and to respond in a practical way to many of the issues raised by the lack of success of the previous MRWS siting programme. Appropriate lessons have been learned from this experience.

My main concern with the proposals is that they do not give confidence in the immediate steps that will be taken when the programme is re-initiated. There is insufficient detail on roles and activities. The process clearly needs to retain flexibility in this period, but there should be more explanation on how DECC, RWMD, district councils and local proponents are expected to interact. Has this really been thought through in detail? It will be particularly important to avoid the gaps in representation, response and advocacy that were evident in the past round.

My other major concern is that the proposals continue to avoid tackling some essential matters directly. The two principal issues are geological potential and benefits. The proposals do not have a mechanism or, apparently, the necessary information, to answer the questions that will arise almost immediately the programme is taken out to regions and districts. In particular, the proposals still avoid answering the question of benefits. If there is no clarity on this at the outset, then the project will have one foot nailed to the floor before it even moves off.

Response to Consultation Questions

1. Do you agree that a test of public support should be taken before the representative authority loses the Right of Withdrawal? If so, what do you think would be the most appropriate means of testing public support, and when should it take place? If you do not agree with the need for such a test, please explain why.

It seems unduly prescriptive to place a legal requirement on the representative authority (i.e. the District Council) to carry out any specific form of test far in the future. The last point of withdrawal would most logically be at the time that a GDF construction license is being sought (i.e. after comprehensive site investigations, design work and safety evaluation, but before any underground excavation) and this is likely to be at least 15 years from now. A defined form of test prescribed today could appear inappropriate in future circumstances.

A single 'point' test in the future is also unlikely to present the reassurance that the Government seeks. It is more informative and useful for all parties if public support is tested regularly and through a variety of means during the whole of the Focusing Phase. Reassurance should be derived from consistent trends in support over many years. Stable or

growing levels of majority support would give confidence and would allow the representative authority to decide at the time the best means of testing community support before taking its decision on continuation or withdrawal.

2. Do you agree with the proposed amendments to decision making within the MRWS siting process? If not, how would you modify the proposed phased approach, or, alternatively, what different approach would you propose? Please explain your reasoning.

There is a real lack of clarity about how the Government would manage the initiation of the Learning Phase in a community. The initiation phase is absolutely critical and the time at which the process is most likely to become derailed – the devil is in the detail, but no detail is evident in the consultation document and DECC must provide confidence that the opening steps and relevant responsibilities have been being exhaustively planned.

It seems clear that any local entity might make the first approach, but it is not clear what level of internal decision-making is foreseen as being necessary within the representative authority before RWMD commissions the two tailored information reports. The proposals are clear that unnecessary hold points should be avoided, but there seems to be a potential hurdle here. As an example, if strong interest were to be expressed by a local industrial forum or a consortium of industry, trades unions and landowners, would Government expect a vote in the District Council before initiating preparation of the information reports? The initiation period and the Learning Phase need to be highly flexible so that as much local information as possible is made available for all interested parties to assimilate, well before local officials need to address the matter formally. The engagement of communities should be via a gradual ramp-up of discussion during the Learning Process. This could take many months.

In this initiation stage, the role of RWMD and the boundary conditions under which it would operate need to be clarified. Hampering of RWMD's capacity to promote the project in this stage (e.g. by lack of clarity over DECC-RWMD roles) must be avoided (see next question).

3. Do you agree with this approach to revising roles in the siting process set out in the White Paper? If not, what alternative approach would you propose and why?

Government is historically rarely successful in an active project advocacy role. In the period of "raising awareness", it is not made clear how Government and RWMD would interact and how responsibilities and activities would be divided. I have concerns that the overall ability to promote the project will be hampered.

I commented in June that RWMD is best placed to have the pro-active role that is required for a dynamic and successful programme. Despite saying (para 2.72) that NDA "...should advocate geological disposal...", the new consultation still focuses initiation of most of the early actions on the Government, with RWMD providing information but otherwise appearing to take instructions. No space is allowed in the proposals for RWMD to have a parallel role as proponent or champion. It should be 'out there', actively promoting the project, following leads and providing strong advocacy. The weak acknowledgement of RWMD's essential role is evident in para 2.73, when its proposed inclusion in the 'Steering Group' is apparently regarded as a major and notable point.

There is a side issue here too. It relates particularly to the situation where there might be few or no volunteers, or only volunteers in marginally appropriate areas that would be difficult to develop. A fundamental consideration is whether, in its advocacy role, RWMD could begin to express some preferences for the geological and geographical environments in which they would work, and thereby prioritise a second stage of its outreach work. The reasons for preference should be expressed unambiguously to communities. One aspect of preference is that RWMD could work more effectively, efficiently and economically in certain geological environments where there is advanced experience in other countries, particularly in Europe. For example, France, Switzerland, Belgium and the Netherlands are all working in clay environments that share many characteristics with definable geological formations and environments in the UK. This should not be seen as 'screening in', or a reversion to the technically led 'nomination' approaches of the 1980s, but a sensible means of capitalising on shared European experience. In practical terms, it would mean that RWMD would utilise some of its resources to promote discussions within regions of the UK where it considers that geological conditions would allow it to move forward most effectively to meet the aims of

MRWS. It is interesting to note that, in the 10-year absence of viable volunteers in the Japanese nationwide siting programme, this approach is currently being considered.

The early inclusion of the regulators in the siting process is laudable. Experience in Sweden, for example, shows that an informed, approachable and responsive regulator can give considerable confidence to communities. The regulators should have an active and visible presence in the process and in the communities, rather than waiting for formal submission points before involvement.

Paragraphs 2.80 to 2.85 discuss the role of the regulatory authorities and the need for peer review and the availability of independent advice. As the process evolves in any location, groups of independent experts are likely to be employed by each of the implementer (RWMD – e.g. its TAP), DECC (i.e. CoRWM), the community and the regulators. The siting process needs to concentrate on ensuring that each of these players is able to recruit and maintain its own expert advisers and that there are mechanisms for each expert group to interact to address identified issues of common concern. Strong expert interaction from all parties via this mechanism should ensure that difficult issues are properly and openly addressed. A key aspect here is to ensure that the community has resources to employ its own advisers and that they can rely on support in identifying potential expert group members. Here, the learned societies have a role in providing advice to any of the players seeking to identify potential experts. The other key role of the societies is to facilitate periodic review of specific scientific issues – for example, considering whether sound scientific approaches are being adopted by the implementer and the regulator, whether uncertainty is being properly managed etc. In this model, the establishment of another, new independent group (or the extension of the remit of existing groups such as CoRWM) seems both unnecessary and counter productive.

4. Do you agree with this proposed approach to assessing geological suitability as part of the MRWS siting process? If not, what alternative approach would you propose and why?

There is a significant flaw in the proposals. More information on actual geological potential is needed at 'Launch'. The proposals unhelpfully put off answering the inevitable, immediate question of geological appropriateness until later in the process, when this is actually an immediate matter that cannot be dodged. As simple descriptions of regional geology, the proposed BGS regional guides appear to be inadequate information sources for communities and interested parties. They need contextual interpretation to answer the inevitable question that will arise when they are first consulted: *'What does this mean for us?'* If this is not done by BGS, others will fill the gap with speculation. It could be done by outlining, with appropriate caveats, which geological environments in each region could be of interest for GDF siting, perhaps by analogy with environments being progressed in other (especially European) countries. Pushing this step into the 'Learning Phase' risks appearing to avoid discussion – RWMD needs to be able to illustrate which settings could be of interest, and which factors are important to siting in such environments, obviously without committing to and without screening out any potential areas too early. Without this information, there is a risk that communities will not take the process seriously.

The fact that there will be geological uncertainties and that there are means to identify, characterise and manage them needs to be communicated at the 'Launch' stage. The existence of uncertainties does not prevent decisions from being made.

5. Do you agree with this proposed approach to planning for a GDF? If not, what alternative approach would you propose and why?

Yes, the proposed approach is much more focussed than previous attempts and gives due regard to the importance and magnitude of the GDF as a piece of essential national infrastructure.

6. Do you agree with this clarification of the inventory for geological disposal – and how this will be communicated with the volunteer host community? If not, what alternative approach would you propose and why?

The proposed revision to the Baseline Inventory is transparent and it is essential to indicate the full range of materials that could be directed to the UK's GDF, making no artificial distinction between 'legacy' wastes and future arisings. However, because the GDF will operate throughout the century, the inventory should be open and clear about the

circumstances under which the relative amounts of different materials could change, owing to possible changes in national policy or drivers from global nuclear power development over this period. This should be illustrated by giving quantitative examples for a range of variant scenarios (e.g. more or less new build; reprocessing/recycling or direct disposal etc). In this respect, setting limits to new-build capacity in the Baseline Inventory is unhelpful, as it is likely that further 'Baseline Updates' will be required in the early decades of the project (e.g. the current Reference Inventory is only a few years old and is already being modified). Presentation of quantified Variant Scenarios would provide a more realistic and robust picture of possible futures.

The inventory documentation should also address directly the circumstances under which more than one GDF might be required. This is an inevitable question that will arise in communities and needs to be answered by reference to the Baseline Inventory and the uncertainties that would arise from the Variant Scenarios and other technical, site-related factors.

7. Do you endorse the proposed approach on community benefits associated with a GDF? If not, what alternative approach would you propose and why?

The proposed approach to benefits is sound in principle, but continues to be sketchy and highly unconvincing – it is an unhelpful stumbling block to the credibility of the process. This is another matter that will arise immediately on re-launch of the programme, so a concrete and largely quantified system needs to be evident at that time. Components that need to be included are the approximate scale of the benefits, where they will come from, how and to whom they will be made available and the time breakdown of payments. The phrase "...Government would make clear, early in the revised siting process..." is feeble and does not provide any of the confidence that communities have expressly asked for.

8. Do you agree with the proposed approach to addressing potential socio-economic and environmental effects that might come from hosting a GDF? If not, what alternative approach would you propose and why?

Yes, the approach proposed is well structured and places emphasis on the need to address these issues at an early stage. Generic example material will be required at the outset of the process in the 'Launch' material (film, video, internet exploration tools, highly illustrated technical material etc – none of which, to my knowledge, exists in adequate form at present). This is a significantly greater challenge than simply showing what a GDF looks like – it needs to address more complex issues, such as public perceptions of time, risk and responsibility, as well as putting the whole project in a national energy strategy context. This needs to be given close consideration with the assistance of experts in presenting complex material to different audiences in a digestible fashion. Few scientists or technicians are good at this. This is evidenced by the frequent discussion amongst technical experts on presenting the 'Safety Case' – a largely alien concept to the public. The use of such jargon needs to be avoided and, in particular, the material on health and environmental impacts of the GDF needs to be presented in a variety of forms, useful for different audiences.

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