Department
of Energy &
Climate Change

Call for Evidence

Please use this form to answer questions on the Call for Evidence on Managing Radioactive Waste Safely: Review of the Siting Process for a Geological Disposal Facility.

The closing date for the submission of responses is **10 June 2013**.

Responses can be returned by email (preferable) or post.

Email address: radioactivewaste@decc.gsi.gov.uk

Or by post to: The Managing Radioactive Waste Safely team
Department of Energy and Climate Change
55 Whitehall
London
SW1A 2EY

In order to help us analyse responses, please provide details of your organisation.

When the call for evidence ends, we may publish or make public the evidence submitted. Also, members of the public may ask for a copy of responses under freedom of information legislation.

If you do not want your response - including your name, contact details and any other personal information – to be publicly available, please say so clearly in writing when you send your response to the call for evidence. Please note, if your computer automatically includes a confidentiality disclaimer, that will not count as a confidentiality request.

Please explain why you need to keep details confidential. We will take your reasons into account if someone asks for this information under freedom of information legislation. But, because of the law, we cannot promise that we will always be able to keep those details confidential.

The responses to this Call for Evidence will inform a public consultation that will follow in the autumn.

We would like to keep stakeholders who are interested in the MRWS process up to date on developments. If you would like to be kept up to date please sign up at the end of the form.

Introduction

1. The UK Government's policy for the long-term management of higher-activity radioactive waste is geological disposal[1]. In 2008 the Managing Radioactive Waste Safely (MRWS) White Paper[2] was published which outlined a framework for implementing geological disposal based on the principles of voluntarism and partnership.

2. Three local authorities formally expressed an interest in the MRWS programme: Copeland and Allerdale Borough Councils, and Cumbria County Council. In January 2013, the three local authorities voted on whether to proceed to stage 4 of the process. The two boroughs voted in favour, but the county voted against. The Government had in 2011 given a specific undertaking that the existing site-selection process would only continue in west Cumbria if there was agreement at both borough and county level. The county's decision therefore ended the existing site selection process in west Cumbria.

3. Shepway District Council in Kent had also taken soundings from local residents, but subsequently decided against making a formal expression of interest in the current MRWS process.

4. The Government remains firmly committed to geological disposal as the right policy for the long-term safe and secure management of higher-activity radioactive waste. The Government also continues to hold the view that the best means of selecting a site for a geological disposal facility (GDF) is an approach based on voluntarism and partnership.

5. Evidence from abroad shows that this approach can work, with similar waste disposal programmes based on these key principles making good progress in countries like Canada, Finland, France and Sweden.

6. The fact that two local authorities in west Cumbria voted in favour of continuing the search for a potential site for a GDF demonstrates that communities recognise the substantial benefits that are associated with hosting such a facility – both in terms of job creation and the wider benefits associated with its development.

Purpose of the call for evidence

7. In line with the Secretary of State's written Ministerial statement of 31 January 2013[3], Government has been considering what lessons can be learned from the experiences of the MRWS programme in west Cumbria and elsewhere. We are now inviting views on the

[1] Radioactive waste disposal is a devolved matter. The Scottish Government has a separate policy and supports long-term interim storage and an on-going programme of research and development. The Welsh Government has reserved its position on geological disposal of radioactive waste while continuing to play an active part in the MRWS process. The Department of the Environment in Northern Ireland supports the MRWS programme.

[2] Managing Radioactive Waste Safely: A Framework for Implementing Geological Disposal https://www.gov.uk/government/publications/managing-radioactive-waste-safely-a-framework-for-implementing-geological-disposal

[3] See https://www.gov.uk/government/speeches/written-ministerial-statement-by-edward-davey-on-the-management-of-radioactive-waste

site selection aspects of the ongoing MRWS programme in this call for evidence, particularly from those who have been engaged in (or have been interested observers of) the MRWS process to date. The responses to this call for evidence will inform a consultation that will follow later in the year.

Background

8. Higher-activity radioactive wastes are produced as a result of the generation of electricity in nuclear power stations, from the associated production and processing of the nuclear fuel, from the use of radioactive materials in industry, medicine and research, and from military nuclear programmes.

9. As one of the pioneers of nuclear technology, the UK has accumulated a substantial legacy of higher activity radioactive materials. Some of it has already been processed and placed in safe and secure interim storage on nuclear sites. However, most will only become waste over the next century or so as existing facilities reach the end of their lifetime and are decommissioned and cleaned up safely and securely.

10. These higher-activity wastes can remain radioactive, and thus potentially harmful, for hundreds of thousands of years. Modern, safe and secure interim storage can contain all this material – but this method of storage requires on-going human intervention to monitor the material and to ensure that it does not pose any risk to human or environmental health. While the Govemment believes that safe and secure interim storage is an effective method of managing waste in the short to medium term, the Government is committed to delivering a permanent disposal solution.

11. In October 2006, following recommendations made by the independent Committee on Radioactive Waste Management, the Government announced its policy of geological disposal, preceded by safe and secure interim storage. The Government subsequently announced that it would pursue a policy of geological disposal with site selection on voluntarism and partnership. This remains Government policy.

Geological disposal

12. Geological disposal involves isolating radioactive waste in an engineered facility deep inside a suitable rock formation to ensure that no harmful quantities of radioactivity ever reach the surface environment. It is a multi-barrier approach, based on placing packaged wastes in engineered tunnels at a depth of between 200 and 1000m underground, protected from disruption by man-made or natural events.

13. Geological disposal is internationally recognised as the preferred approach for the long-term management of higher-activity radioactive waste. It provides a long-term, safe solution to radioactive waste management that does not depend on on-going human intervention.

Response form

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Or by post to: The Managing Radioactive Waste Safely team
Department of Energy and Climate Change
Room M07
55 Whitehall
London
SW1A 2EY

Name	REDACTEDREDACTED
Organisation / Company	McEwen Consulting
Organisation Size (no. of employees)	REDACTED
Organisation Type	REDACTEDREDACTEDREDACTED
Job Title	
Department	
Address	REDACTEDREDACTEDREDACTEDRE DACTEDREDACTEDREDACTEDREDA CTEDREDACTEDREDACTEDREDACT EDREDACTEDREDACTEDREDACTED
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Would you like to be kept informed of developments with the MRWS programme?	Yes
Would you like your response to be kept confidential? If yes please give a reason	No

The Government is interested in your views on the geological disposal facility site selection process outlined in the 2008 Managing Radioactive Waste Safely (MRWS) White Paper. To assist us you may wish to consider the following issues in your response:

- **What aspects of the site selection process in the MRWS White Paper do you think could be improved and how?**
- **What do you think could be done to attract communities into the MRWS site selection process?**
- **What information do you think would help communities engage with the MRWS site selection process?**

The present site selection process in the UK is based entirely on administrative regions volunteering to become involved in the MRWS process and is an obvious reaction to the site selection process carried out in the 1980s by Nirex which took place essentially in secret.

In the Introduction it is stated that this approach of voluntarism and partnership is in line with the approach followed by other countries, however, this is only partially true and ignores some very significant factors and processes which have not formed part of the MRWS programme, but have been included in almost all other countries' programmes. The approaches which have been followed or are being followed in the countries listed in the Introduction are thus not synonymous with the approach that has been followed in the UK, as is outlined below:

- The approach followed in France, Sweden and Finland was not what might be termed 'passive volunteerism', as has been followed as part the MRWS process in the UK to date, where a waste management agency or government department sends out documents to the appropriate municipal bodies and then waits for their response. In all these other countries the approach has been far more proactive and involved actions and processes which have not taken place in the UK, or have taken place here with far less input from DECC, RWMC or any other organisation and I expect with far less money being spent:
    - In France, following the Bataille Report (Bataille,1991: Rapport sur las gestion des déchets nucléaires à haute activité. Raport de l'Office Parlementaire d'Evaluation des Choix Scientifiques et Technologiques.) and the new law on the development of a potential geological disposal site and the associated research programme, a team of people, headed by M. Bataille, who was an MP, made visits to many départments to explain the process that was being followed and what would be involved in the site investigation programme and the potential development of a URL; also, the benefits that would accrue a département that agreed to be considered and where a site investigation programme and URL development then took place, which amounted to 60 million francs a year at the time. In parallel with these visits and discussions Andra carried out an analysis of where in France might be geologically suitable for developing a URL (and eventually a repository), with the result that maps were produced that showed which granites (the term used for areas of crystalline rocks in general) and areas of sedimentary rocks might be considered suitable (it was decided that there were no suitable evaporites in France). For example, fifteen areas of granitic rock were defined as being of interest to Andra and to BRGM in their research

programmes and desk-based studies were carried out on these granites. In addition, Andra involved themselves directly with URL programmes in Sweden, Switzerland and Canada and sent staff to work in these URLs. In parallel with the eventual investigations at three potential URL/repository sites, there has been an extensive R&D programme, as outlined in the various Andra Dossier reports (see references to them below). An initial requirement of the legislation was to develop a minimum of two URLs and then, having carried out years of research underground, to select which type of disposal environment was most suitable. However, following the abandonment of the site near Limoges in 1999, after an extensive site investigation, there were problems in selecting another granite site and the legal requirement of having two URL sites was dropped. The relevant government departments in France and also Andra have, for many years, during the site selection programme and also during the R&D programme, been far more proactive in promoting their work than has been the case in the UK, where both DECC and RWMD in particular appear to have been strangely reluctant to become too involved.

- In Finland, the site selection programme began many years before the foundation of Posiva in 1996 and was carried out mainly by TVO and the Geological Survey of Finland (GTK); and again the way in which the programme operated involved far more direct contact with municipalities than has been the case in the UK. The work took place over many years, beginning in 1985, following the lead given by the research programme by SKB in Sweden. It took from 1985 to 1993 eventually to come up with short-listed sites and then start site investigations – although the process was delayed considerably by the intervention of a government ministry who was concerned that TVO should not unduly restrict the potential number of sites using only their own criteria, but publish the criteria being applied so that people had the opportunity to comment on them. These criteria allowed the parts of the country that were considered to be of interest for potential investigation to be defined. Many of these criteria were geological and hydrogeological in nature (but also deliberately somewhat general in their design and application), but they also included other criteria such as population density, the environmental impact of development, transport routes, etc. (see McEwen and Äikäs, Posiva Report 2000-15: The site selection programme for a spent fuel repository in Finland – Summary report). Site investigation programmes took place at five sites over the period from 1993 – 2000. The situation in Finland and also Sweden is rather different from that in the UK in that, particularly in the case of Finland, there is only one type of potential disposal environment, crystalline rock. This meant that no initial consideration was required as to what types of geological environment needed to be considered. Delicate discussions were also held with the areas considered most promising from a geological standpoint regarding how the then existing tax system could be modified, so that a community willing to host a repository could benefit. It was only after successfully changing the local tax system that Olkiluoto was included in the list of potential repository sites, i.e. the municipality agreed to let the site be included in the short list, originally it had not been very keen on being included, even though there were already two reactors at the site, and thus they had experience of nuclear matters. So, it can be seen that the process of site selection in Finland was far from following a simple volunteer approach.
- In Sweden there was intensive discussion with the municipalities that volunteered to be considered, as is described in SKB Report TR-95-34: General

siting study - Siting a deep repository for spent nuclear fuel. SKB did not just 'sit back' and wait for something to happen, as has been the situation in the UK, and as can be seen from reading this report. Also they carried out studies as to what characteristics of the rock mass and the hydrogeological and hydrogeochemical environments were most important when considering suitable environments for deep disposal and prepared maps of Sweden where these were most likely to be found – although they did not prescribe precisely defined areas of Sweden as 'areas of search'. The site selection programme in Sweden began in the early 1990s and in 1992 a report was produced by McEwen & Balch for SKB entitled "Preview of processes used for the selection of radioactive waste sites". This report reviewed the site selection processes that had been carried out in the UK, France, Finland, USA and Canada and then discussed aspects of site selection, such as nimbyism, politics and pragmatism in site selection, the use of decision or MUA analysis and what was termed the 'typology of site selection techniques and socio-economic considerations'. It was concluded that there was one factor that was of overriding importance when considering whether an area/site could be considered for disposal purposes and that is the level of geological complexity. This factor has indeed played and is currently playing a major role in the site selection programmes in Sweden (see report referenced above), Finland (see McEwen and Äikäs, 2000), France (see, for example, Andra, 2005a: Dossier 2005 Argile - Evaluation of the feasibility of a geological repository in an argillaceous formation – Meuse/Haute Marne site; Andra, 2005b: Dossier 2005 Granite - Assets of granite formations for deep geological disposal. This information is presented in more detail in French in a series of Dossier and other reports – the most relevant being: Andra, 2005: Dossier argile - Évaluation de sûreté du stockage géologique; Andra, 2009: Stockage réversible profond - Proposition d'une zone d'intérêt pour la reconnaissance approfondie et de scénarios d'implantation en surface, JALON 2009 HA-MAVL.), Germany (see AkEnd report, referred to below), Japan (see NUMO, 2002: Siting Factors for the Selection of Preliminary Investigation Areas) and Switzerland (see Nagra references below). This very important subject is considered in more detail below. As part of this report to SKB, I had several meetings with Claes Thegerstom, who at the time was in charge of their site selection programme, and we discussed such matters, that were then included in SKB's site selection programme. Again, it can be seen that SKB was very far from being 'passive' in their approach to site selection and that the volunteer nature of the process was very different from that that has been applied to date in the UK.

  - In Japan, although not referred to by DECC, a considerable amount of work was carried out by NUMO as part of their programme in defining which parts of the country were most geologically suitable and, in particular, in defining which geological attributes might make an area definitely unsuitable. These were enshrined in Japan's Atomic Law and relate to volcanic activity and to the presence of active faults (see, for example, NUMO, 2002: Siting Factors for the Selection of Preliminary Investigation Areas; NUMO, 2004: Evaluating Site Suitability for a HLW Repository - Scientific Background and Practical Application of NUMO's Siting Factors. Report TR-04-04).

- In all these countries and in other countries such as Switzerland (see discussion below of the current Swiss site selection programme) the geological environment for disposal is taken into account from the outset, not in the way it has been considered in the UK via a series of relatively simple screening criteria (Sub-surface exclusion criteria for

geological disposal: Joint report of the criteria proposals group (CPG) and the criteria review panel (CRP), 2007), but as a method of trying to define areas that would have sufficient geological potential. The exclusion criteria applied in the UK only define areas that are obviously unsuitable, e.g. the presence of coal resources at depth, but still leave areas in which it would be very difficult to make a convincing safety case, whilst not highlighting areas where making such a convincing safety case would be considerably easier and far more likely to succeed. Whilst it is not possible to define the 'best areas' for disposal purposes, it is perfectly possible to define areas that are most likely to possess the necessary potential. Although in the introduction to the development of these screening criteria there was discussion regarding matters such as geological and hydrogeological complexity, these were not treated with sufficient gravitas in the report, nor was the importance that needs to be attached to the necessary requirement to have sufficient, suitable host rock in which to locate a repository. It is easier to define this for sedimentary environments (e.g. the presence of a suitably thick, low permeability sedimentary formation with sufficient lateral extent, etc.) than is the case for basement rocks, where the location, orientation and separation of large fracture zones, etc. may be poorly known, especially if such rocks are not exposed. In any case, only defining areas that are unsuitable is, in itself, probably insufficient, unless it is done in a more sophisticated manner - what it is better to do is to suggest areas that are likely to have sufficient potential – even if this is done in what might be termed a rather general, non-prescriptive manner, i.e. taking an almost opposite approach to that applied by AkEnd in Germany where highly prescriptive criteria were developed. This approach does not, however, guarantee that any such area thus defined will be suitable, it just increases the likelihood to the greatest extent possible in advance of any site investigation and thus limits the likelihood of a community offering to enter the process of site selection with a geological environment that is unlikely to be suitable.

- Defining areas that are considered to have such a potential is essentially what took place in the 1980s in the UK at the beginning of Nirex's site selection programme for deep disposal of I/LLW (i.e. Chapman, McEwen and Beale, 1986: Geological environments for deep disposal of intermediate level radioactive wastes in the UK. Proceedings of International Symposium on the Siting, Design and Construction of Underground Repositories for Radioactive Wastes, IAEA, Hanover, March 1986, Paper IAEA-SM-289/37) – although the main problem here was that the site selection programme took place almost entirely in secret, at the behest of not only the nuclear industry but also the government. In fact there was little support from the various Ministries and Departments at the time – I attended meetings with the Ministry of Defence and the Department of Energy and they were very far from wanting to co-operate (at the time I worked for the BGS and was responsible for supplying all the geological information to Nirex in their site selection programme – as part of this work I attended many tens of meetings with Nirex). It was this secrecy and lack of government support that was the downfall of Nirex's site selection programme – and a similar situation was reached in France in the late 1980s which led to the preparation of the Bataille Report referred to above. Nirex received all the blame for this secrecy, however I know that the government was probably equally to blame, although this was, of course, never discussed or admitted to in public. The apparent desire not to define areas of the UK with geological potential could, therefore, be seen as an overreaction to the previous site selection programme. There is, however, a definite requirement to define geologically suitable areas of the UK before approaching communities:
    - A good, recent example of the potential problems that accrue if you do not

consider the geological environment from the outset is the situation which took place in Shepway District Council in Kent, which for a time considered the possibility of volunteering. Had they decided to continue, it would have wasted many people's time and energy as there are no potentially suitable disposal environments at depth in the area. I can state this, as I know the approximate 3D distribution of potentially suitable environments in the UK – or perhaps more correctly, I know where it would not be feasible to consider locating a deep repository and Shepway is one such area.

- There are two RWMD reports: 'Post-Closure Performance Assessment: Example Approaches for Groundwater Modelling of Generic Environments (2008)' and an earlier report 'Identification of How Aspects of the Nirex PGRC Would Differ if Adapted to Alternative Geologies (2007)', which were prepared by Quintessa and which include six different geological environments (defined by Uisdean Michie and myself, including all the anticipated properties of the various rocks types) which are potentially suitable for the deep disposal of long-lived waste. These environments are all based on actual locations and real geological environments in the UK, although these are disguised. It would be useful if these were examined by people outside RWMD, so that the range of potential geological disposal environments in the UK could be appreciated (although the distribution of these environments in the UK is not considered in the report). The environments are (not in order of preference): (i) basement (crystalline or metasedimentary) rocks in an area of subdued relief; (ii) basement under sedimentary cover, where the sedimentary cover has a relatively high permeability; (iii) basement under sedimentary cover, where the sedimentary cover has a relatively low permeability: (iv) bedded evaporites; (v) low permeability sediments in an area of subdued relief and simple geological structure and (vi) low permeability Chalk in an area of simple structure underlain by other low permeability sediments.
- There are three NEA reports, two of which I prepared, which discuss, sometimes in considerable detail, the importance of having a relatively simple and stable geological environment for deep disposal, in order to be able to make a convincing safety case, which in turn requires that the site investigation programme has to be able to supply the necessary information within the required uncertainty bounds – and thus the site has to be as geologically simple as possible. For example: NEA, 2010. Geoscientific information in the safety case: Main messages from the AMIGO project; NEA, 2009. Stability and buffering capacity of the geosphere for long-term isolation of radioactive waste: Application to crystalline rock. Workshop Proceedings, Manchester, UK, 13-15 November 2007; NEA, 2005. Stability and buffering capacity of the geosphere for long-term isolation of radioactive waste: Application to argillaceous media, "Clay Club" Workshop Proceedings (Braunschweig, Germany, 9-11 December 2003). It is immediately apparent from such reports and from the work carried out over many decades by waste management organisations in many countries that a geological environment that is relatively simple to investigate and that is stable over the long term (with the term 'stable' referring to all forms of stability, not just mechanical stability) is an absolute necessity for hosting a repository. The requirement to have such geological environments for deep disposal was first discussed in detail by Nagra in 1991 as part of an NEA project and later amplified as part of the development of Nagra's Opalinus Clay safety case.
- A very useful summary of which factors are important in defining a suitable

disposal environment is provided by Nagra as part of the AMIGO project (NEA, 1994). These are defined under the title of: Favourable characteristics of the geosphere that could be cited in a safety case, using the example of the Opalinus Clay in Switzerland, as presented at the AMIGO 1 workshop (Gautschi et al. in NEA, 2004: Geological disposal: Building confidence using multiple lines of evidence. Proceedings of the First AMIGO workshop, Yverdon-les-Bains, Switzerland, June 2003.) Although these were defined in relation to the Opalinus Clay, the general principles apply to all potential disposal environments:

- Long-term geological stability, implying, for example, a low rate of uplift and erosion and an insensitivity of the geochemical and hydrogeological environment to geological and climatic changes;
- Favourable physical, chemical and structural properties, including thickness of the host formation, low rates of groundwater movement, a geochemical environment that is beneficial in terms of radionuclide retention and protection of the engineered barrier system, and rock mechanical properties that support the feasibility of construction (although not strictly part of the safety case, engineering feasibility is relevant in that the system described in the safety case must be one that can be realised in practice);
- Sufficient lateral extent, which gives flexibility in the location and layout of the repository;
- Absence of, low likelihood of, or insensitivity to detrimental phenomena and perturbations, including climatic and geological events and processes, perturbations caused by the repository itself (gases, chemical alterations), and future human intrusion;
- Explorability, or the ability to characterise the rock at any stage of the project to a degree that is adequate to support a decision to proceed (or not) to the next stage (e.g. site characterisation from the surface can provide sufficient evidence to support the decision to proceed with further characterisation from underground tunnels); and
- Predictability, meaning that the range of possible geological evolution scenarios is sufficiently limited over the time scale for which the geological environment plays a role in the safety case (perhaps, for example, a million years).

- These requirements thus mean that only certain parts of the UK could ever host a deep repository and so a much better approach to site selection would be to define potentially suitable areas of the UK, as was done in the Nirex site selection programme. In fact the need for a suitable disposal environment is even more significant in the UK than it is in many other countries, as we have relatively large volumes of waste and a complex mix of ILW types that makes finding a suitable geological environment for disposal and developing a convincing safety case more difficult than is the case in, say, Sweden, Finland, Belgium or Switzerland. Such an approach to defining suitable areas for disposal was suggested in quite recent reports prepared by CoRWM and for NuLeAf (e.g. Blowers, Dutton, Warren, Richardson and Kemp (2006): Moving Forward; CoRWM's Proposals For Implementation, CoRWM Document 1703; Miller, Richardson, Wylie and Bond (2006): The Implementation of a National Radioactive Waste Management Programme in the UK - Implications for Local Communities and Local Authorities, Enviros Report for NuLeAF), based on considerable evidence from what

had and was taking place in other countries' disposal programmes. In order to define potentially suitable areas it would be necessary to set up a group, perhaps similar to AkEnd, that existed in Germany over a three year period, though with the remit of taking a more nuanced approach to the problem, as the final report from AkEnd was, quite rightly, criticised for being quantitatively prescriptive and for re-introducing what have been termed 'sub-system criteria' (AkEnd Report: Site Selection Procedure for Repository Sites - Recommendations of the AkEnd - Committee on a Site Selection Procedure for Repository Sites, 2002. A new group is currently being proposed in Germany to re-investigate this subject, perhaps considering a less prescriptive approach). This group, which would obviously have to include the BGS and experts on radioactive waste disposal, and there are many of these in the UK with the relevant knowledge (the majority of them are not, however, within RWMD) would set out what types of geological environment could be considered suitable for deep disposal (with the BGS then defining their distribution in the UK for different depth ranges), present their ideas and have them extensively reviewed, both nationally and internationally in a completely open manner. This could not be carried out rapidly, however, without such work I am convinced that deep disposal in the UK is very unlikely ever to take place. There would obviously be uncertainties in the definition of such 'areas of search', as outlined above, but this could easily be explained and managed. Examination of the current site selection programme in Switzerland provides extensive evidence of what it is possible to achieve in defining such areas – although in the Swiss case they have only defined potentially suitable areas of the Opalinus Clay, their preferred host rock for a deep repository, and also separate potentially suitable areas for the disposal of l/LLW (see reports: Nagra Technischer Bericht 08-03: Darlegung der Anforderungen, des Vorgehens und der Ergebnisse; Nagra Technischer Bericht 10-01: Beurteilung der geologischen Unterlagen fur die provisorischen. Sicherheitsanalysen in SGT Etappe 2 Klärung der Notwendigkeit ergänzender geologischer Untersuchungen; Nagra Technischer Bericht 11-01: Vorschläge zur Platzierung der Standortareale fur die Oberflächenanlage der geologischen Tiefenlager sowie zu deren Erschliessung. Genereller Bericht. See also (in English): Department of the Environment, Transport, Energy and Communications DETEC, 2008: Sectoral Plan for Deep Geological Repositories - Conceptual Part). Nagra Technischer Bericht 10-01, in particular, shows the very extensive analysis that has been carried out in defining potentially suitable areas of the Opalinus Clay. The 'geological siting areas' defined by Nagra for HLW and, separately, for l/LLW can be seen on Nagra's website, including the proposed locations for surface facilities. Several members of Nagra's staff have been having extensive discussions with the communities within these siting areas and the process is continuing at present. It would be useful to discuss with Nagra their experience of these matters.

- Regarding the willingness of communities to become involved in the MRWS process, the potential benefits of taking parts in the process, in accepting a site investigation programme and possibly later a repository need to be far more clearly specified, as does the absolute right of the community to withdraw from the process up to an agreed stage. Neither of these have been considered sufficiently to date – the potential benefits have been imprecisely defined, unlike the situation in France and Switzerland in particular, and the recent decision to allow communities to benefit to a much greater extent from having wind farms in their neighbourhood is a good example of how this might be achieved. Also, the absolute right to withdraw from the process has also been insufficiently well defined, as was found in the lack of clarity in this matter that was evidenced from the situation in Cumbria.

- It would also be useful to consider, particularly with reference to the situations in France and Switzerland, the legal situation regarding how a 'community' can be defined with respect to which area can benefit from hosting a repository and which administrative areas can take part in any referendum; also what the most appropriate methods are for discussing matters with communities. The cantonal law in Switzerland was changed regarding this and other important matters, following the failure to receive acceptance to develop the Wellenberg I/LLW disposal site several years ago, and the Bure URL site lies on the boundary between the départments of Meuse and Haute Marne and there have been extensive discussions regarding who can potentially benefit from any future development of the site as the Cigeo repository. A six month public debate started in France on the Cigeo project on May 1^{5th} which has been initiated and will be managed by la Commission nationale du débat public (CNDP) which was set up in 1995 with a mission to ensure public participation in decisions on environmental matters (see **www.debatpublic-cigeo.org** for information – all in French, although there is another website which discusses the Cigeo project in general and which is in English – www.cigeo.com).
- There is much we can learn from radioactive waste management programmes in other countries, many of which have been considerably more successful than we have been. I often find it strange that some staff in RWMD, in particular, often do not appear to have the detailed knowledge I would have expected them to have of other countries' programmes, with the result that the UK programme is not as successful as it could be. Since I started on my career in radioactive waste disposal in 1978 I have been intimately involved in all the unsuccessful UK programmes. The majority, if not all of these, often failed due to a lack of political will or to political interference. There would now appear to the political will to succeed, but this would appear to be tempered with a desire to spend little money and effort on the site selection process. When you consider the amount of money that was effectively wasted due to the failure to develop a repository for I/LLW at Sellafield, which amounted to several hundred million pounds, it seems strange that there is so little understanding of the need to invest more money and effort in the earlier parts of the MRWS programme, as this could result in considerably greater savings over the coming decades and allow the programme to accelerate – something that the government would appear to desire.