



Radioactive Waste Management

National Geological Screening

Public consultation response

When complete, please email to NGSconsultation@nda.gov.uk or send by post to: National Geological Screening Consultation, Radioactive Waste Management, Building 587, Curie Avenue, Harwell, Didcot OX11 0RH.

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Organisation	Independent consultant & part time member of staff (Visiting Professor of Hydrogeology) at the School of Civil Engineering and Geosciences at Newcastle University

Question 1:

To what extent do you think our proposed approach to providing national-scale existing information about geology relevant to long-term safety is appropriate? Please give your reasons.

It is a good idea to provide technical geological and hydrogeological evidence to the public to allow them to make up their minds about radioactive waste disposal. I can't see a better way of doing it than the approach you have taken although it is fraught with difficulty. At the meeting I attended in Manchester (5th November) there were three types of people: those who are absolutely against nuclear waste; those who think that they might be and want to find out more; and people with some technical understanding who want to find out more. It is likely that the geoscience/engineering community is (almost) entirely within the latter group.

There were only a small number of people (it may have been only one or two!) in the first group but one of them managed to dominate parts of the meeting and consequently reduced the value for the others although she did appear to convince some of the people in the second group to her view.

It is important to have a forum where strong views are expressed but equally it is important to have a way of involving those who have a more open mind, even though they may eventually decide to oppose the eventual proposals.

Your document *Providing Information on Geology* sets things out quite clearly and so makes up for this loss.

Question 2:

To what extent do you think that the proposed national information sources are appropriate and sufficient for this exercise? Please give your reasons.

As I see it you are relying largely on BGS and the Environment Agency as the providers of information. In addition, although the information is based on all (or most) of the available data sets it is looked at in a general way that is equivalent to the BGS Regional Guides to the geology of the UK. That is OK for the non-geoscientists but geologists are likely to be thinking in more detail and at best may be frustrated by this approach.

However, for your purpose of providing information that is understandable by the general public your approach is fine although it is very important that you state that greater detail will come later once specific site(s) have been identified.

Question 3:

To what extent do you agree or disagree with the proposed form of the outputs from geological screening? What additional outputs would you find useful?

I have read the information you set out in Section 3 of the *Providing Information on Geology* booklet and that given in Appendix 2 of the same document. I agree with your proposed form of the outputs from the geological screening.

During the day at Manchester it occurred to me that suitable areas for the GDF may be ones with deep saline brines that have little chance of moving in the foreseeable future on a geological time-scale. These are not seawater intrusions but areas where the saline groundwater has been stuck at depth and is too deep for removal by normal groundwater circulation. This aspect could be set out more clearly in the outputs. For example, instead of saying *locations of features likely to permit rapid flow of deep groundwater to near-surface environments* which are clearly to be avoided, you could emphasize the need to demonstrate that there are groundwater bodies of extensive size that can be shown to have not moved for significant periods on the geological time scale. For example, the deep brine (EC ~50,000 $\mu\text{S}/\text{cm}$) shown to exist at depths of 400 – 850 m in the NCB Collinge borehole (SJ47SW23) drilled in 1980 through Kinnerton Sandstone in the bottom 600 m. However the BGS details do not include a copy of the dual laterolog that was reported by Brassington *et al* 1992.

Brassington, FC, Lucy, PA & Peacock AJ. 1992 The use of down-hole focused electric logs to investigate saline groundwaters. *Quarterly Journal of Engineering Geology*, **25**, 343-349.

Question 4:

Do you have any other views on the matters presented in the draft Guidance?

No.