



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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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.

I think giving this information is essential. But I have a number of concerns as indicated below in answer to other questions. These were introduced by me in our small group work at the Bristol Workshop (14th October 2015) which we discussed but insufficient time was available to include all these in the group feedback. so I include them now. As discussed in our small group, some of these may be considered as outside the scope of the draft guidance (I leave that to you to decide!) but I have tried to think of your approach and my response as a member of a community if you approached us.

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.

I think that the information is relevant and appropriate that you provide on pages 18-19 and Figure 4 in the RWM National Geological Screening Guidance September 2015. However, I do not think it is sufficient for the very long-term storage required for the radioactive waste.

My primary concern is that no information is provided on the many effects of climate change that have been described, for example, in Sir John Houghton's book *Global Warming: The*

Complete Briefing (Fifth edition; Cambridge: Cambridge University Press, 2015). For example, we already know about the significant coastal erosion that is occurring in the north east of England and south around Lyme Regis but none of this is mentioned. So presumably, there is already some consideration, not to investigate a repository near these coastal areas? Nevertheless, section 3.11 discusses offshore disposal and presumably then having the surface facilities of the GDF as near as possible to the coast.

We need, at least, an identification of current coastal erosion sites and rates of erosion. Then we need information on the likely effects of future erosion resulting from climate change (presumably with appropriate models). From the expected more frequent and severe storms, and rising sea levels, the public will anticipate more rapid erosion than we currently have. So Figure 4 'British Geological Survey Regions' which shows the current coast line needs to be supplemented with expected future changes to the coast line over time periods.

Furthermore, with the sea becoming more acidic we need to be informed what impact, if any, this will have on any future sites and groundwater. Your section 3.23 mentions the challenges regarding groundwater screening but I think it should state explicitly something about climate change and the impact of increased acidification of the oceans on groundwater in the regional narratives (3.25) as information to be discussed.

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?

See my comments for Question 2. Looking at Table 3 'Summary of Outputs' on page 20 I am concerned that the narrative under 'Rock Types' (which was helpfully discussed in the Bristol Workshop on 14th October 2015, with examples of the rocks shown) does not mention the particular radiological hazard associated with granite rock. Members of the general public are aware that exposure to granite in some parts of the country, e.g. Cornwall, increases the radiation dose to people. Granite is also linked to the radioactive gas radon in our homes which is linked to an enhanced risk of lung cancer.

If granite rock is chosen for the GDF, or granite has to be drilled through, what procedures will be taken to protect the public and workers? And where will this radioactive granite be safely disposed once it is removed from the ground? These and related questions need to be highlighted and clearly addressed in outputs.

Another additional output not included in Table 3 'Resources' needs to be considered with the proposed storage of carbon dioxide arising from the use of CCS (carbon capture and storage). How will any GDF be protected from penetration by future CCS facilities and any potential leakage either way (CCS into the GDF and vice versa)? This is not deep resource exploration/exploitation for minerals but resources in terms of using underground sites for indefinite storage of carbon. Section 2.16 mentions routes from the GDF to surface environment activity but should include not just groundwater ingress into the GDF but gases entering through carbon storage nearby either by design or accidentally through not realising in the distant future that a GDF is present (e.g. through loss of surface facilities).

Question 4:

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

You may consider some of these comments outside the scope of the draft guidance but I include them for your consideration anyway – hope they are helpful.

Figure 3 'Artist's impression of a geological disposal facility' is potentially misleading. It shows little of the surface facilities and supporting infrastructure including how many roads, vehicle parking, rail links and stations. It all looks miles away from any human habitation but is this going to be the reality? The description in 2.12 is too brief.

No indication is given of the manpower needed to operate and protect this facility and for how long. Will there be armed guards or police?

Assuming that the GDF is almost 100% safe for its radiological contents as a member of the public I would wish to know pretty early on what would be the impact on my community, e.g. compared with the major impact of building Hinkley Point 'C' Power Station on the local community now and into the future. How many local people will potentially be killed or injured by accidents through transporting waste to the site? With vast numbers of vehicles (how many per week?) what will the local air pollution levels be like and the impact on people's health? I could add more. It seems to me that these are crucial issues for the local community that I would want to know upfront and with some clarity.

After the GDF is full (how long will this take – 100 years?) and the surface is sealed, but potentially can be reopened to recover waste, what will happen to the surface facilities in terms of monitoring? Moreover, it needs to state how long the surface facilities could be used to retrieve any waste – 50 years, 100 years or more – indefinitely? What happens if the surface facility is lost (covered by water) or damaged – what is the long term plan here?

The draft guidance is about radioactive waste management but there is surprisingly little in here on the actual radioactive waste, i.e. its nature, chemical composition and half-life, that will go into the GDF. Is it all high-level waste or intermediate-level waste? Will it include any uranium or plutonium? If so, what are the risks? Are we asking people to make a decision on hosting while they are given less than sufficient information and education on which to make a valid judgement?

I do hope these comments are useful.

RD 4/12/2015

