

*I am an associate of REDACTEDREDCATEDREDACTEDREDACTED), and support our submission.*

*However, the following comments are my own. They do not necessarily form a chain in a single line of argument.*

**What aspects of the site selection process in the MRWS White Paper 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?**

Issues Raised by these questions:

- 1) Geology or Voluntarism first? Both are essential, but geology must come first. What has happened in Cumbria has exposed the danger of not doing it the right way round. The eagerness of certain local parties to move ahead to subsurface exploration of sites admitted to be mediocre is likely to mean that the money is not then available for the investigation of mainstream sites with much better prospects. This was in effect the Nirex Inspector's view<sup>1</sup>, one reason why he was not persuaded by Nirex's claim that the application was merely premature. The Inspector's Report (Section 3B) makes it clear that one legal requirement is to demonstrate that alternative sites do not exist with a better balance of benefits versus detriments. This would not be Value for Money.
- 2) DECC's case for geological disposal in the UK still rests on the statement that there is at least 30% of the UK land mass which would be suitable for a repository<sup>2</sup>. I have researched this statement, and I conclude that it is traceable back to a 1986 paper by Chapman et al (for an ILW repository)<sup>3</sup>, and that it is this same paper, with its five model regional hydrogeological environments, which is the source for Nirex' "The Way Forward" document (1987), which generated the long list of 537 sites drawn up in secret, and which, incredibly, resulted in Sellafield being chosen as the best site in Britain. Both these documents contained maps indicating the suitable areas, but these are no longer available from Government sources<sup>4</sup>.
- 3) It is the map which gives credibility to the statement that n% of the UK is suitable. Without a map, none of this theoretical knowledge can be put to use by either Government or communities. The Government doesn't supply a map to help communities know whether this invitation to participate affects them, so naturally communities do not respond, and then we have a self-fulfilling prophesy, one which very nearly happened.

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<sup>1</sup> His words were "the indications are overwhelmingly that the site is not suitable" Nirex Inquiry Inspector's Report, #8.53

<sup>2</sup> DECC Arrangements for the management and disposal of waste from new nuclear power stations. A summary of evidence, Nov.2009, para 124, refs 120 -125.

<sup>3</sup> *Geological Environments for Deep Disposal of Intermediate Level Waste* Chapman, McEwen and Beale, in *Siting, Design and Construction of Underground Repositories of Radioactive Waste*, IAEA 1986  
The key reference which makes the link is Nirex Viability Report, pp.51-52, Ref.43, (which is the Chapman 86 paper, in which Figure 9 shows the origin of the Nirex "Way Forward" map)

<sup>4</sup> However the sites, searchable by county, are available on the NDA website.

- 4) (Using the map) Studying this list of sites (searchable by county on the NDA website), is therefore still instructive. A very large proportion are disused airfields still owned by the MoD. What therefore is the procedure where a local community would express an interest in its local disused airfield being taken for a repository site?
- 5) Since then I get the impression that the Government no longer supports the Chapman '86/ Nirex Way Forward Method? If that is the case, it is disturbing. It means that a theory about the validity of geological disposal upheld by Government turned out to have a credibility life of little more than 10 years, which is not very promising for a technology which must continue to inspire confidence for 10,000 years and more. I see the EA and ONR are suggesting a re-assessment of the Nirex MADA<sup>5</sup> exercise which concluded the Nirex site search process<sup>6</sup>, that sounds like a good idea. I conclude by pointing out that many geologists would still agree with that method, which starts by assessing the regional hydrogeology and then moves inwards to search for possible sites. Does the Government not believe that this is a good strategy?
- 6) REDACTED has called for more work on the ethics of disposal. Here are some of the issues:

Equity Issues (ethics). Equity (Fairness) is often divided into two categories,

equity over space or distance,                      equity over time

Other terms are often used eg intra-generational equity, inter-generational equity  
trans-generational equity

## Equity over distance

With regard to legacy waste, and in particular ILW, I would like to suggest that, if it is true that there is a large amount >30% of suitable land available in the UK, that this waste is divided up and put into a set of underground silos<sup>7</sup> rather than into one lumpen-repository. It is fairer to share the burden among several communities, if this is possible. The other intragenerational aspect of concern is the exposure to workers, and the environmental degradation, caused by the mining and milling of uranium, which takes place outside the UK, whose negative consequences are not counted in the justification exercise.

## Equity over time

With regard to new-build waste, I think that it is unethical to build new nuclear power stations at present. The reason is that the people who will be called upon to put the spent fuel in the containers (ie in the encapsulation plants for which no design has yet been offered) will not have been born when the decision is taken to build the plant, and thereby to produce the spent fuel.

<sup>5</sup> Multi attribute decision analysis. Evidence on this technique was presented at the Nirex Inquiry by Nirex (Prof L. Phillips), and by Greenpeace (Dr. Andrew Stirling)

<sup>6</sup> ONR and EA: Regulatory scrutiny of RWMD's work relating to geological disposal of radioactive waste: Summary of work (April 2010 to March 2012) page 10

<sup>7</sup> I don't actually know what these are. EA mentions them in Review of Nirex Viability Report, Version 3.1 NWAT/Nirex/05/003 November 2005, p.7 "Choice of Disposal Concept."

Currently the spent fuel produced by the two PWR reactors on offer (EPR and AP1000) require 90 years of cooling prior to encapsulation if run at full capacity. That is beyond most people's lifetimes.

This fact is not compatible with the IAEA's Fundamental Safety Principles<sup>8</sup>, particularly Princ.s 4 and 7. Principle 7 enjoins us to protect present and future people and the environment from the risks of ionizing radiation.

Protecting people in the future cannot mean the same as "leaving people in the future with the task of clearing up radioactivity which they had no hand in producing".

Principle 4 says that all activities and facilities must be justified by their overall benefit. The overall benefit would be the value of the electricity produced. The detriment is the danger to health from radiation. But with nuclear new build this trade-off is asymmetric over time. The benefits fall to the generation which builds them, the detriment to following generations. The fact that money has been set aside to meet this work is not a sufficient answer, the question is one of freedom and liberty to decline to do the work, the same freedom we attribute to ourselves. It is arguably a human rights issue if we are relying on people three generations hence to make safe the spent fuel we have left behind. If every one refused to do this work it wouldn't get done – so somewhere along the line some people are being forced to do the work – and forced labour is prohibited by Article 4 of the Human Rights Act.

When interpreting the FSP, certain internal instructions must be taken into account, particularly the instructions to treat the principles as a set (ie "applicable in its entirety") and to apply every relevant principle when appropriate (para 2.3) It follows from this instruction that the protection of future people (called for by Princ.7) must be considered prior to making the big "overall balance judgment" called for by Principle 4.

The UK does not abide by this order of procedure. The justification of the stations (under The Justification Regulations, 2004} was agreed in Parliament well before waste arrangements were approved by the regulators in the GDA Process, an approval which has proved to be premature in the light of events in Cumbria.

REDACTED, 11 June, 2013

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<sup>8</sup>Upon which the UK's own Safety Assessment Principles are 'benchmarked'