

Response to DECC's Consultation on a Revised Siting Process for a GDF.

On the specific questions raised in the above document I would like to endorse all the opinions given in the response of Above Derwent Parish Council, a draft copy of which has come to my notice. The only point on which I might differ from ADPC is at the end their response to Q1 where they may have misunderstood the significance of the word 'intrusive'.

The 'Revised Siting Process' document does nothing to dispel the following cynical perception of the Government's position -

It is obvious to any intelligent observer that the most important factor in siting a GDF is the quality of the geology.

However the Government is scared of the political repercussions of siting a GDF in the geologically most suitable location (which might be in the Midlands or East Anglia).

Therefore they have adopted the idea of 'volunteerism' whereby certain economically disadvantaged and dependent communities may be bribed to accept a GDF regardless of the unsuitability of the geology, in return for continued employment and certain other short term financial benefits.

The first attempt at volunteerism foundered on the fact that Cumbria County Council rejected the GDF. The revised plan cynically and undemocratically excludes the County Council from the process and narrows the focus in the hope that the District Councils, being closer to and more dependant on Sellafield, will be more compliant.

The DECC seem not to understand or sufficiently appreciate the following important points.

1) The waste will remain lethally dangerous for millions of years.

It is difficult to comprehend, let alone plan for, this length of time.

Even just considering the 100,000 years in which the radioactivity will merely halve, this is a vast stretch of time - 20 times longer than all of recorded history. In that time, ice ages will come and go, civilizations and empires will rise and fall (assuming that the human race survives.)

2) West Cumberland is one of the geologically least suitable areas of Britain for a GDF on two counts.

a) the rock is riddled with faults in the south of the area and iron and coal mines to the north.

b) the heights of the Lake District produce the greatest hydrogeological gradient in all of England.

It is obvious, even to a layman, that either one of these factors on its own is sufficient to render West Cumberland unsuitable.

Taken together they produce a nightmare scenario whereby any radionuclides that escape from the engineered containment will be swiftly flushed from the repository to the nearest fault, mineshaft or borehole and thence to the surface.

A few more pertinent observations -

Uranium in the spent fuel from a once-through reactor has had only 1% of its energy consumed. More sophisticated existing (breeder) or future reactors can extract most of the remaining energy. It would be criminally wasteful to bury this rare and valuable material in a hole from which it can never be retrieved. Future reactors may be able to burn much of the problematic long half-life actinides and transmute them to actinides with shorter half-lives.

The whole concept of nuclear waste storage and or disposal needs to be thought through exhaustively and at great length. Since these materials will remain deadly for millions of years it would seem appropriate to take our time deciding how best to dispose of them before burying them irretrievably. A time-frame of 1000 years has been suggested and seems appropriate. In that time better technologies and solutions will surely emerge.

An important principle of nuclear waste management is observability. It would be highly desirable to keep an eye on the waste containers and know if they are overheating, bulging, corroding Another principle is retrievability - Containers observed to have problems should be capable of being retrieved. Also, future generations may have the technology to reuse our waste or reprocess it or otherwise render it harmless.

Another principle is provision for sudden loss of custody - there may be no next generation. If our civilization is suddenly ended by war, disease, social breakdown, asteroid strike, or some other disaster we cannot imagine, we ought to leave our waste in a state and place where it will jeopardise any future civilisation as little as possible

Investigation by boreholes destroys the integrity of the repository that is being sought. Even if boreholes are filled with concrete or bentonite they will remain a line of weakness whereby dissolved or gaseous radionuclides can quickly reach the surface, This is one of the reasons a large flat uniform unfaulted expanse of rock is the preferred lithography - any test boreholes can be located well away from the repository itself.

The analysis of intrusion risk in earlier DECC documents is naive and short sighted. In say 100,000 years, after the next glaciation, the British Isles will be re-colonised by humans. Most probably they will be technologically advanced since knowledge and technology will have survived the glaciation in more equatorial parts of the world. There is no guarantee that the knowledge that survives the next glaciation will include knowledge of the existence of and location of nuclear waste repositories.

How can we predict where, or for what reason, or to what depth or using what technology such a civilization might drill boreholes?

If for the purpose of investigating the moho or harnessing geothermal energy they may drill right through any repository however deep it may be

The proposed configuration of the repository as a horizontal layer covering up to 25 square km is highly inappropriate. It will maximise the chances of intrusion into the repository by future boreholes. A vertical repository with a very much smaller footprint and much greater depth would be better. The top layers of the repository should give some sort of warning to future drillers of the hazards that lie below

yours faithfully  
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