# Groundhog Day for the Cumbrian Ostrich

**Mike Hannis investigates the latest attempt to persuade local communities to host Britain's nuclear waste.**

The Sellafield complex in Cumbria is home to around 80% of the radioactive residue generated by seventy years of civil and military nuclear activities in Britain. Much of it was produced there in long-closed early facilities, and the laborious decontamination of the site will last well into the next century, eventually costing an estimated £162 billion.[1]

Spent fuel from all the UK's existing nuclear power stations continues to end up at Sellafield for storage and potential reprocessing, contributing to a growing stockpile of nuclear waste. Asking just *how* large the pile is leads quickly into a semantic rabbit warren. Only materials with 'no further use' are officially classed as 'waste'. This does not include the several thousand tonnes of spent fuel 'in storage', since this can in principle be reprocessed to yield uranium and plutonium for future fuel (or warhead) manufacture. Nor does it include the 100,000 tonnes of uranium and 140 tonnes of plutonium currently 'in stock'. Making a nuclear weapon requires less than ten kilos of plutonium.

## Dark Inventories

Putting it politely, this creative accounting makes the headline 'waste inventory' regularly published by the Nuclear Decommissioning Authority (NDA) somewhat conservative. This document shows reassuringly tiny amounts of 'high-level 'waste (which produces heat as it decays), dwarfed by large quantities of low-level waste which emits minimal amounts of radiation.[2]

There is however another more comprehensive document, the 'derived inventory', listing *all* the hot stuff and none of the low-level materials. It also includes the substantial amounts of waste projected to arise from new nuclear power stations yet to be constructed.[3]

This list exists to inform the planning and design of a final resting place for all the nuclear materials the government expects eventually to dispose of. No such facility yet exists, and building one is expected to take decades. So far the process has got as far as deciding that the waste should be disposed of in a sealed 'geological disposal facility' (GDF), an extensive network of tunnels several hundred metres below ground level.

The decision to plump for geological storage was long-drawn-out, and far from uncontroversial. A safer facility for 'interim' storage will be needed anyway, since some of the waste will remain too hot to be safely buried for several decades. There is an argument that the UK should focus for now on getting this stage right. This would mean storing all waste retrievably in a secure above-ground or near-surface facility for as long as it takes to come up with genuinely foolproof ways of either packaging it safely for permanent burial, or perhaps (for techno-optimists) burning it in next-generation reactors. [4]

## Time Pressure

In a sense the very existence of the waste pile provides bitter vindication for those who have always argued against nuclear power and weaponry. But saying it should never have been created does not solve the problem. The waste is here now, and needs dealing with. On this basis, successive governments have been keen for consultations on radioactive waste disposal to include the views of environmentalists and anti-nuclear campaigners. Perhaps optimistically, British policy-makers have sought to bring the opposition inside the tent rather than have them attacking it from the outside. [France box?]

One consistent message from these consultations, which has supposedly fed through into policy, was that any waste disposal strategy should not be designed or interpreted to legitimise the building of new nuclear power stations.[5] Policy-making on disposal and on new build is supposedly separate. But this is disingenuous, at best. The planning permission granted to Hinkley Point C required (and got) governmental assurance that a final destination will be ready to receive the station's waste at the end of its 60-year operating life. Other new power stations will be subject to similar requirements.

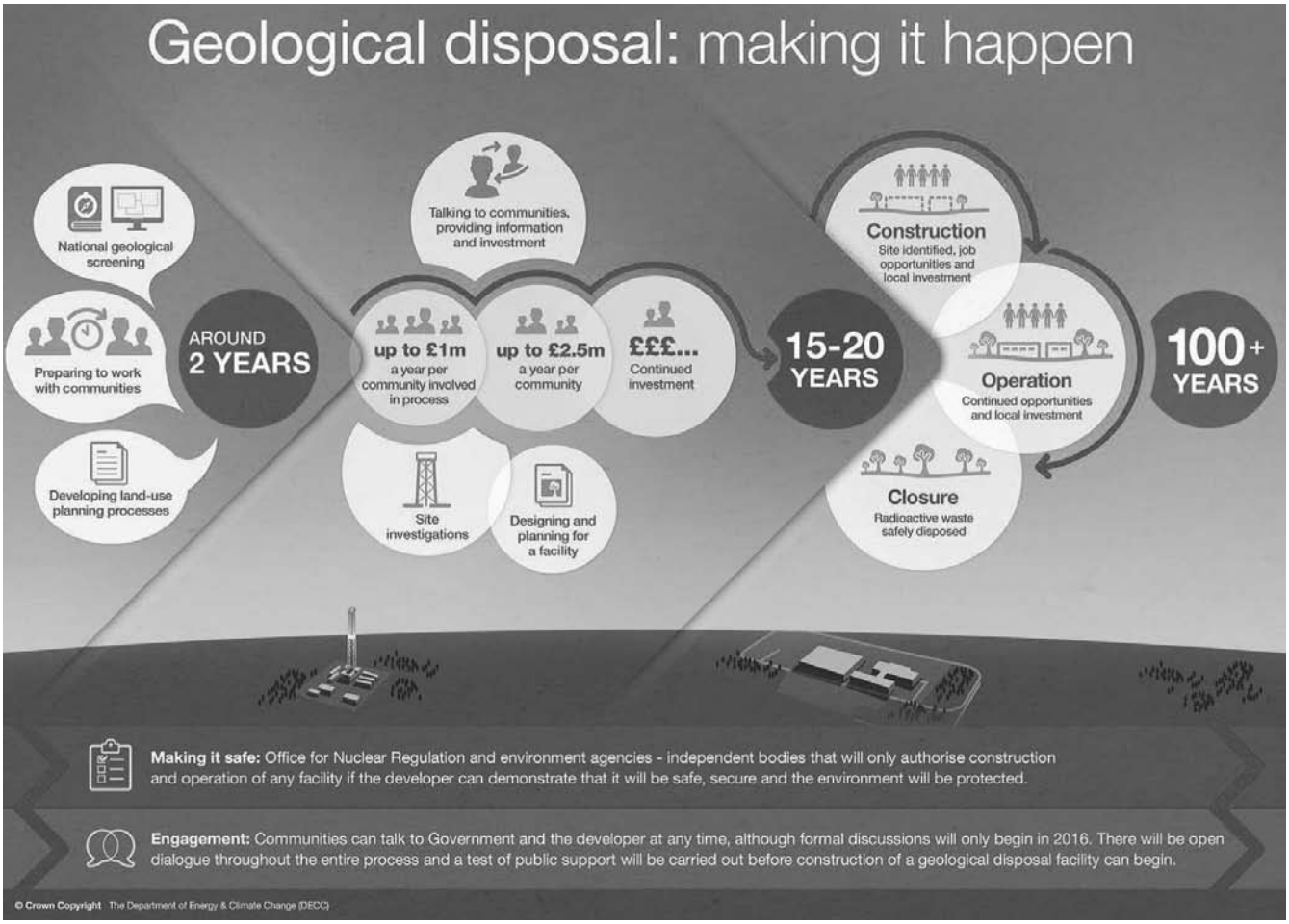
In practice, as well as making it much harder to approach the waste problem in anything like a consensual way, Britain's so-called 'nuclear renaissance' has created artificial time pressure to get GDF construction underway, undercutting arguments for prioritising interim secure storage.

## Where and How

Assuming a GDF is to be built in Britain, the next question is where could this happen? This is in reality two questions – a geophysical one and a social one.

There are agreed international standards on geological suitability for GDF siting. The local geology must be stable, predictable, and amenable to accurate modelling. Only some areas of England, or perhaps Wales, will be geologically suitable according to these criteria. (The distinct possibility that none are seems not to have received much consideration.)

Despite the existence of research programmes going back decades, only preliminary work has so far been done on identifying suitable areas. The deep clay of East Anglia is potentially ideal, the fractured granite of the Lake District,




*An encouraging graphic from the Working With Communities programme.*

not so much. Precision is lacking because site surveys require intrusive and expensive borehole drilling programmes. This kind of survey has so far only happened in one place – of which more later.

Even the initial investigatory stages are sufficiently intrusive and long-term to make imposing a GDF against local opposition politically impractical. Although current policy does leave the door open to more uncompromising approaches, it supposedly remains committed to the principle of 'voluntarism' – inviting local communities to volunteer, and only then proceeding to detailed local geological investigation.

Public consultation has just finished on the latest strategy for inviting communities to volunteer, under a programme with the splendidly anodyne name 'Working with Communities' (WWC).[6] This is run by Radioactive Waste Management, 'a wholly-owned subsidiary' of the NDA, which is itself 'an Executive Non-Departmental Public Body of the Department for Business, Energy and Industrial Strategy (BEIS)'.

As in previous versions, descriptions of the proposed process are heavily focused on the financial incentives and other 'compensation' packages available to potential host communities. Some have described the sums on offer as 'derisory' compared to those on offer in other countries such as Sweden[7], but they are nonetheless substantial, especially for the small rural communities likely to be involved. For each community on a shortlist of five, a million pounds a year is on offer for the first five years, rising to 2.5 million for the two who go forward to the test drilling stage.

## Compensation or Bribery

I have to declare an interest at this point. Some years ago, I co-wrote a book chapter with Kate Rawles of the University of Cumbria examining the ethics of compensating GDF host communities, and attempting to clarify how (if at all) it might be possible to ensure compensation in such contexts remained distinct from bribery.[8] More recently we were surprised to find our work extensively cited by public authorities in Sweden, whose public consultation on GDF siting is often held up as a model by their UK counterparts.[9]

One of our key conclusions was that it could only be ethically legitimate to offer compensation if the process was handled by a trustworthy independent body demonstrably unconnected with the nuclear industry. Another was that the process should be kept entirely separate both from any decisions about the geological suitability of the proposed site, and from any decisions about new build. None of these conditions appear to be met by current UK proposals.

## Reinventing the Community?

WWC is not the first attempt to recruit a volunteer host community. The previous version, called 'Managing Radioactive Waste Safely' (MRWS), opened in 2008 with an invitation to local councils to express an initial interest in hosting a GDF. The only local authorities to express a serious interest were Allerdale and Copeland, two neighbouring Borough Councils in West Cumbria. Sellafield is in Copeland.

In order to take the process forward the 'West Cumbria MRWS Partnership' was formed, which also included Cumbria County Council. But fearing impacts on the Lake District tourism which largely underpins the non-nuclear Cumbrian economy, the County Council voted narrowly in 2013 to withdraw its support, thus bringing the MRWS process to an end.

Despite the framing of WCC as a national call for volunteer communities, this is still all about West Cumbria. Nobody seriously expects any other area to volunteer. In fact, it's probably all about Copeland, not least because much of Allerdale is within the Lake District National Park.

This time around, however, the process has been tweaked to ensure the County Council cannot kill it off again. The WWC proposals make clear that no one tier of local government will be allowed to veto the process.[10] Moreover, expressions of interest can now come from individual landowners, and need not initially be made public.

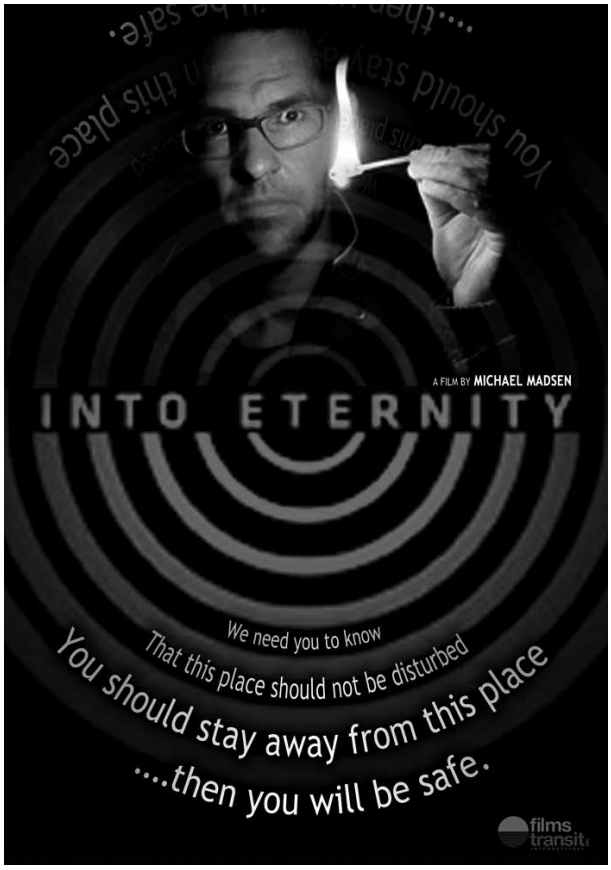
A Community Partnership would be formed to take the process forward, leading eventually to a 'Test of Public Support' before construction began. As a respected local campaign group including members of the old MRWS Partnership points out in its consultation response, there are some interesting interpretations of 'community' going on here. It is hard not to conclude that the proposed WCC process is designed to construe whatever local support exists as sufficient to legitimise the proceedings:

> 'The process appears to be designed to make it very simple to join, by allowing even individuals and landowners to express an interest, but very difficult to leave. The contrast ... is reminiscent of a timeshare scheme. …
>
> The Community Partnership could diverge very significantly from the community view without a mechanism to ensure that can't happen. The risk appears particularly great since the first and only test of public support occurs at the end of the process, some 20 years after the Community Partnership is formed.
>
> The Partnership cannot be removed and is apparently answerable to no one during the 20 year process. It seems almost inconceivable that public trust in this autonomous body will survive for such a period of time. A great deal of mistrust towards the partnership, and a divergence of views was evident during the much shorter stages of the MRWS process.'[11]

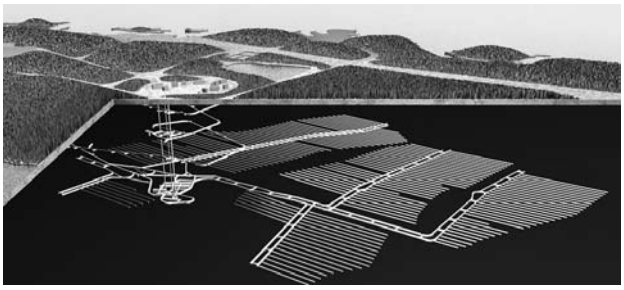
Only in Copeland is there a small enough population and a large enough nuclear economy to deliver local support for a GDF. Locals might reasonably point out that they have little to lose, since the waste is already there. The government seems prepared to risk the inevitable political fallout from over-riding the implacable opposition elsewhere in Cumbria, where the County Council's consultation response has already called the WCC process 'flawed'.[12] But Westminster, and the nuclear industry, may have an even bigger problem.

## Back to Geology

West Cumbria is not just the only area to have already considered hosting a GDF. It is also the only area to have been subject to extensive geological investigation, on which Nirex,




The award-winning 2010 documentary *Into Eternity* follows the construction of the Onkalo GDF in Finland (below).



As well as interviews and underground footage, the film covers efforts to design warning signs which will still be meaningful and effective in thousands of years' time. One surprising suggestion is to create an uninviting landscape of 'spikes':

Onkalo is situated at Olkiluoto, where EDF are building a an over-budget and long-delayed PWR reactor, like those planned for Hinkley Point C. in Somerset.

*www.wired.co.uk/article/olkiluoto-island-finland-nuclear-waste-onkalo*




*St Bees, seven miles north of Sellafield, in 1900. West Cumbrian beach culture is not now considered such an attractive proposition.*

the body then in charge, spent £400 million in the 1990s. They drilled dozens of very deep boreholes around Longlands Farm, three kilometres from Sellafield. They then applied for planning permission to excavate a large chamber several hundred metres underground as a 'rock characterisation facility', to continue their investigations.

Permission was refused, and at the ensuing high-profile public enquiry both sides deployed expert geologists to debate whether the data supported Nirex's contention that the local rock could safely host a GDF. This is not something that could happen now, as any GDF works will be categorised as a 'nationally significant infrastructure project', under the direct jurisdiction of central government.[13]

Nirex lost the appeal, in large part because they failed to convince the planning Inspector that the area was geologically suitable. He concluded that the search for a GDF site should move to an area with simpler geology and more predictable subsurface water flows, probably in the south or east of England.[14] The same conclusion would no doubt be reached again, given an impartial tribunal. In other countries where GDF siting processes are underway, it is accepted that the geology comes first. Not so in Britain, it seems.

## Heads in the Sand

Ostriches are fine and much maligned creatures. Contrary to popular belief, they do not bury their heads in the sand when danger threatens. But the image is a strong one, and the powerful but unwieldy nuclear waste industry has more than once been accused of adopting a head in the sand posture.[15] In persisting with its attempt to locate a GDF in Cumbria, it is truly living up to this caricature.

The industry's latest suggestion, known as 'offshore Copeland', is apparently to tunnel up to 20 miles out to sea from within Sellafield, and build a GDF under the Irish Sea.[16] Seasoned observers are sitting back and awaiting the response from Dublin. This is a very long show, and a whole new act is just beginning.

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