



NFLA Radioactive Waste Policy Briefing Number 76: NFLA Fact Sheet – Overview of the Deep Waste Repository debate and NFLA's views

Prepared for NFLA member authorities, March 2019

The Search for a Deep Nuclear Waste 'Disposal' Site – a factsheet from the NFLA on this process and our concerns

i. Overview of Policy Briefing

This edition of the NFLA Radioactive Waste Policy provides councillors and council officers with an overview of the long-standing process that has tried to find a deep underground nuclear waste repository – called by the industry and the UK Government a Geological Disposal Facility (GDF) – over the past four decades. It outlines the NFLA's concerns in this area and the alternatives to such a facility. It is designed to assist Councils in England, Wales and Northern Ireland who have received letters from the UK and Welsh Government's to consider 'expressing an interest' in joining the process for hosting such a facility.

The NFLA's detailed response to the consultations on these new policy processes around developing such a facility can be found in NFLA Radioactive Waste Policy Briefing 71, which is very much reading in conjunction with this overview briefing – http://www.nuclearpolicy.info/wp/wp-content/uploads/2018/04/Rad_Waste_Brfg_71_UK_Welsh_radwaste_policy.pdf

This briefing also outlines there are alternatives to this type of facility – most notably in the Scottish Government's approach to managing higher activity radioactive waste. It also includes embedded web-links that can take the reader to some of the wider policy processes.

1. Over 40 years seeking a radioactive waste solution

In December 2018 the Government [launched](#) its [6th attempt](#) to find a home for extremely dangerous, higher level radioactive waste. The Government organisation, [Radioactive Waste Management \(RWM\)](#) says it is searching for a "willing" community with a suitable site to host a Geological Disposal Facility (GDF). The process of finding a site will take 15 to 20 years. Then, if a test of public support is positive and permission is received from the independent regulators construction will begin.

2. NFLA's core concerns about the current policy process

- The plans weaken the power of county councils - making it harder for them to prevent a community from agreeing to host the GDF. In areas with two tiers of local government the plans [prevent any one council](#) from vetoing discussions on hosting the dump.
- The final decision to go-ahead with building a GDF will be subject to a "test of public support", but the right to a say could be restricted to a small area around the proposed site.
- Communities nearby or on the transport routes for waste won't be given a say.

- The plans could also mean that a local authority is locked into the process for up to 20 years – unable to tackle any associated planning blight.
- The government is offering communities up to £1 million a year for about five years to take part in discussions, rising to £2.5 million a year for up to 15 years while test boreholes are drilled. RWM is hoping that a GDF will be ready to receive waste in the 2040s. The government's history of underfunding of infrastructure in peripheral areas, led to promises of substantial community benefits being treated with scepticism in Cumbria [and has been cited as one of the reasons](#) why Cumbria County Council withdrew from the last process.

3. NFLA's core concerns about 'Deep Disposal'

- Deep disposal of nuclear waste relies on the concept of multiple barriers: - the waste containers themselves; the grout surrounding the containers; the surrounding rocks; and dispersal of any radioactivity penetrating the above barriers away from sources of water.
- No matter how effective the barriers some of the radioactivity will eventually reach the surface. RWM will have to produce a [safety case](#) which demonstrates why they think the radiation doses to people living on the surface will be at acceptable levels into the far future. One geologist likened this to predicting the weather on one particular day in hundreds or thousands of years' time.
- Supporters of deep disposal argue that it puts dangerous waste out of harm's way, removing a potential target for terrorist attack, and avoid leaving a problem of our making for future generations to deal with.
- Opponents argue that the rate at which radioactivity would leak from a GDF is poorly predictable, and likely to remain so for an indefinite period, despite many decades of expensive research. Rather than solving a problem for future generations it could be leaving them a legacy of a nuclear waste dump gradually releasing radioactivity into the environment, and cutting off their options for deciding how to deal with this waste.
- Once you start to delve into the complicated science which needs to be resolved in order to produce a safety case for a GDF, it starts to become clear how things could easily go wrong. The interaction of groundwater chemistry, the behaviour of radionuclides, microbes and geology can be extremely complex. For instance a disposal facility will produce a large quantity of hydrogen gas which might need a pathway to be released to avoid a build-up of pressure. Such a release pathway would also provide an escape route for radionuclides. (See [Nuclear Waste Advisory Associates Issues Register](#)) Another example is the scientific debate over how fast [copper waste canisters](#) are likely to corrode.
- After a public inquiry which ended in 1996, the then Secretary of State for the Environment, John Gummer, told Nirex, the forerunner of RWM he was "... *concerned about the scientific uncertainties and technical deficiencies in the proposals presented [and] your company does not understand the regional hydrogeological system well enough.*"

4. NFLA's core concerns about 'Geology'

- Some GDF supporters want to see a national (UK) geological survey which would establish the areas which are most geologically suitable. In other words putting geology and safety first, instead of waiting for a local authority to volunteer. The trouble is the area with the best geology might not be a willing host.
- [Cumbria Trust](#) says one of the clearest lessons from the 1996 Inquiry is that complex geology makes it difficult or impossible to model groundwater flow, even over modest distances. Yet the screening report which RWM has [now published](#), ignores this expensive lesson. Major faults are mapped, and acknowledged, but the significance of simple geology in site characterisation is not well communicated.

5. Why is the UK planning to build new reactors before it knows what to do with the waste?

- After three years of deliberation, the Committee on Radioactive Waste Management (CoRWM) decided that geological disposal is the best available approach for the long-term management of higher level waste, but lots of caveats and important recommendations were ignored by the Government. It specifically said it did not want its recommendations seized upon as providing a green light to build new nuclear reactors which raise different political and ethical issues when compared with wastes which already exist. In other words it might be morally defensible to look for the ‘least-worst option’ to bury dangerous waste already created, but we really shouldn’t be creating any more.
- The spent fuel from new reactors will be much more radioactive than spent fuel from existing reactors and require cooling for a period of about 100 years before it can be emplaced in a repository underground which could mean spent fuel stored on new reactor sites for up to 160 years (i.e. 100 years after the reactor closes).
- Just one new nuclear station, Hinkley Point C, will produce about 80% of the total radioactivity already created. If all the proposed new nuclear reactors get built this will at least quadruple the amount of radioactive waste we have to deal with. (See Table 5 in this [NDA report](#))

6. Alternatives to ‘deep disposal’

- The Scottish Government is opposed to deep geological disposal and has proposed “near surface, near site storage facilities so that waste is monitorable and retrievable and the need for transporting it over long distances is minimal.
- Opponents of deep disposal favour storage on the surface in dry above-ground, attack-resistant, stores where it can be monitored and retrieved and repackaged if necessary. This would allow time for further research and give future generations a choice about how our nuclear legacy is managed.