P-05-1003 Demand an EIA now on the dumping of radioactively contaminated mud in Welsh waters, Correspondence - Petitioner to Committee: Additional petitioner comments 1

Health effects of radioactivity and the *Uncertainty* issue in Welsh law.

Authorities in Wales are ignoring evidence of errors in estimating the risk of radiation exposure which has been presented to the Westminster and Cardiff governments. In 2018 Cardiff bounced the issue back to Westminster, where it has been blocked. Fresh communication with Cardiff has produced no dialogue. The evidence amounts to a powerful challenge to the mud dump on grounds of *uncertainty* as referred to in the Environment (Wales) Act 2016. There is potential for legal action if this continues to be ignored or misrepresented. LLRC (Richard Bramhall) has copious written material to demonstrate all the assertions.

The government and its advisors ignore significant evidence and evade dialogue. If they persist in their determination to allow the mud dump without adequate testing they will be in conflict with provisions of the Environment (Wales) Act 2016 which require wide consultation in light of *uncertainties*.

Background.

The modelling of radiation risk has long been contentious, especially as it applies to alpha-emitting particles. The CwCUK report gives an outline.[1]

History of dialogue from 2016. (There is documentary evidence for everything outlined below.)

In 2016 LLRC applied to BEIS (Westminster) for a review of the justification of Hinkley Point C.[2] We cited recent evidence in the scientific literature showing that the health effects of some kinds of radioactivity (especially alpha-emitting particles) are grossly underestimated. We submitted the same information to COMARE. In addressing BEIS we invoked a provision of EU law which constrained them to give a written answer. LLRC replied to that answer, pointing out various errors and evasions. BEIS gave a second written answer which was equally deficient. BEIS indicated that further replies would be treated as "vexatious", which closed that correspondence.

In 2017 COMARE gave its own written answer which was just as deficient as those provided by BEIS.
In 2017 LLRC wrote to the SoSs Health and BEIS to point out the problem. Minister Richard Harrington replied, hoping that COMARE would address the issues in the Church House meeting on September 12th 2017. They did not. BEIS's minutes of the meeting suggest otherwise but the minutes do not agree with the recollections of NGOs who attended, and the date of the BEIS minutes is compatible with the idea that there was collusion between COMARE and BEIS to show that matters were bilaterally discussed when in fact COMARE did not address the information LLRC spoke of.[3]

COMARE's own minutes of its subsequent meetings show that they had taken specialist advice on handling "challenging stakeholders", and that although their 118th meeting identified actions to investigate the contentious matters that LLRC presented at Church House, nothing further has been done (up to and including the 125th meeting).

In 2018 LLRC submitted the correspondence with BEIS and COMARE to Natural Resources Wales. We advised that the evidence was relevant to the type of contaminant likely to be in the mud so that BEIS's and COMARE's failure to address it required the Welsh authorities to investigate using methods capable of detecting that type of contaminant. We also advised that the risks would increase over long time-scales, and explained why. When the Chair of NRW resigned we and NuclearFree Local Authorities (Wales) sent the same material to Environment Secretary Griffiths; she has never responded.

In 2018 NRW eventually recommended that we should refer it back to BEIS since the correspondence related to discussions with BEIS. Although that assertion is only partially true we did refer it back to BEIS. In a private meeting in 2018 senior managers asked for a research proposal. LLRC complied [4] but in two BEIS/NGO Forum meetings BEIS said they cannot be involved in any investigation of the substantive issues since that would undermine COMARE.

There are two strands to LLRC's letters to the authorities in Wales: errors in the modelling of radiation risk as it applies to internal emitters, and the uncertainty about the extent to which the mud contains alpha emitting particles that could be inhaled or ingested. The only communication that addresses either topic is the 18th August letter to Cian Ciaran from Marine Licensing Manager Sharon Davies (TO/LG/01912/20). Her paragraph 10 attempts to be reassuring but is unrealistic and lacks specific information. Its reliance on spectrometry is disturbing, since the technique cannot detect particles.

It will be necessary to have a detailed discussion of all her assertions with whoever is feeding her with (dis)information. LLRC would be willing to participate in that and to have Ms. Davies mediate it if the people she is presently relying on are unwilling to have direct contact but in the present context the lack of clarity and specificity in her letter are among the uncertainties that need to be addressed, especially in view of the UNSCEAR data on historical releases of particulates from Nuclear Power Plants, the evidence adduced by Professor Barnham, and the alpha-emitting particles LLRC has found in the north Somerset car engine filter.

The overall situation of incomplete discussion has been communicated to the Well-being of Future Generations Commissioner, the First Minister and the Chair of the First Minister's Expert Group. The latest scientific information is outlined in the Children with Cancer UK report.[5]

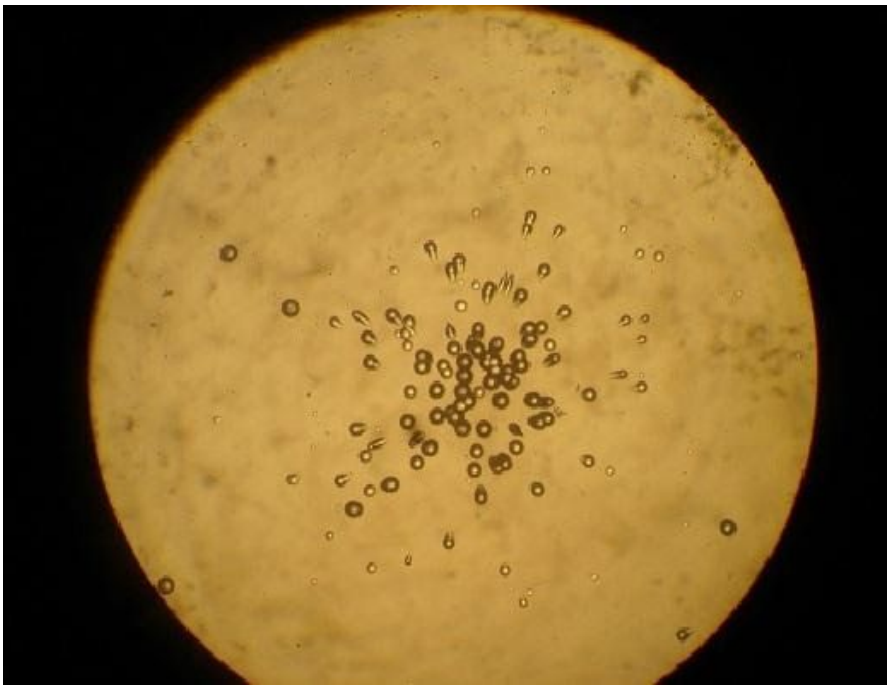
Conclusion: We have very powerful arguments relating to the high level provisions on *uncertainties* in the Environment (Wales) Act 2016. There is potential for legal action if they continue to be ignored or misrepresented.

[1] http://www.llrc.org/children.htm
[2] "Justification" is a crude cost/benefit analysis required by EU radiation protection Directives. Health detriment must be outweighed by social and economic benefits.
[3] principally congenital malformations in children born after Chernobyl - a review in the scientific literature.
[4] See Appendix 1 of CwCUK report (http://www.llrc.org/children.htm)
[5] as 2

In addition the dump would bring no benefit or compensation to Wales, though the cost of treating the health effects would fall on the Welsh Health Service. We don't know why the Welsh Government is so willing to facilitate the dump, especially in view of the fact that Wales has enough renewable resources to be self-sufficient in energy and with alternatives to dumping at sea available to EDF could dump the mud such as on land at the Hinkley Point site itself.

As far as human health is concerned, "sea-to-land transfer" is the biggest issue. It has been known for decades that radioactive micro-particles small enough to be inhaled are resuspended by wave action and can be blown inland for miles. In 2006 the *Dounreay Particles Advisory Group advised that it was unwise to disturb sediment that contained such small particles (report summary attached below).

In Wales no baseline survey was done before the 2018 dump nor since. We have this image of emission tracks from a micro-particle collected near Hinkley Point, indicative of particles that may be trapped in Hinkley mud as they are within sediments near the Dounreay discharge.



The round and oval marks in the middle are pits in the surface of a plastic sheet burned by alpha rays from a radioactive micron-sized particle. The plastic is CR39, which official bodies recommend for detecting radon gas in buildings, radon being another alpha emitter. The particle is representative of several found in dust caught inside the air filter of a car that had been driven exclusively within a few miles of Hinkley Point. The number of hits suggests a sub-micron fragment of spent nuclear fuel, containing uranium but also alpha-emitting fission products including plutonium.
In Wales, public consultation on the mud has been limited to the sampling and testing programmes. Natural Resources Wales, acting for the Government, ruled many of the responses "out of scope".

A few days ago EDF deployed a rig to take a small number of samples from the bed of the estuary. The tests they plan to use on the samples cannot detect small uranium or plutonium particles which UN data show were emitted in huge numbers by nuclear power stations along the Severn (the data are here; see Table 34). If the Welsh Government were nevertheless to grant the licence they would contravene the Environment (Wales) Act 2016, which requires special care and the widest consultation in light of uncertainties. Campaigners have also invoked the Well-being of Future Generations (Wales) Act 2015.

Wales is in a pivotal position with global implications. Westminster refuses to participate in discussions of the radiation risk model and appears to have colluded with its advisors COMARE (Committee on Medical Aspects of Radiation in the Environment) to falsify the records of what little discussion there has been. COMARE has failed to deliver on its own decisions to investigate radioactivity inside the body. New evidence underlines decades of controversy over the health effects of inhalable radioactive particles.

A very recent judicial verdict in Japan demonstrates the weakness of arguments based on the old view of radiation risk. The Hiroshima District Court recognised 84 people as hibakushas (A-bomb survivors eligible for medical support) because they were affected by internal radiation from fallout particles, whereas they were previously denied support because they were so far from the bomb that they didn't receive the external neutrons and gamma rays that previously defined the hibakushas.

The Welsh Government needs to catch up and understand the significance of the Hiroshima verdict. The First Minister has established a new "Expert Group" chaired by Jane Davidson but there is no sign that any of its members know about the problems with the old radiation risk model nor that they understand why the planned tests cannot detect small alpha-emitting particles in the mud.

The scientific evidence is summarised here including very recent papers in the peer-reviewed literature.

In 2018 the Environment Minister for Wales rejected protests against the first dump, calling campaigners "liars and scaremongers". We need another debate in the Senedd to air the real arguments. Over 10,000 signatures means a Senedd debate must now surely be more than a consideration.

*__Dounreay Particles Advisory Group: Third Report: September 2006__

FROM Summary of Main Conclusions:

Re Behaviour and fate of particles (page X1V)

11: DPAG concludes that a large proportion, especially of the significant particles discharged from Dounreay, have been buried in sediment or physically broken up to become smaller or fragmented particles and transported predominantly northeastwards from the site. [Section 4.3]

12: Currently, it is believed that about 1,000 significant, 1,000 relevant and 3,000 minor particles are present within the main particle plume offshore from Dounreay. [Sections 4.3.29 ; 4.3.34 : 4.3.35]

13: Of the significant particles present in the local marine environment, it is estimated that about 92% of these are within 0.5 km of the Old Diffuser. [Figure 4.20]

14: Of the relevant particles present in the local marine environment, it is estimated that about 95% are within 1 km of the Old Diffuser. [Figure 4.21]

15: Particles are not uniformly distributed with depth of sand. The proportion of significant particles is greater at depth than in the surface sediments, although the abundance of particles decreases with depth. [Section 4.4.21]

16: Smaller particles, generally having lower activities, are more easily mobilised and transported than physically larger (higher activity) particles. This effect may be reflected in the nature of particles detected on local beaches. [Section 4.4.15]

Re Recommendations Remedial Action to return seabed environment to “pristine condition” (page XVll

41: The extent and nature of the contamination of the environment means that it is impractical to aim to return the environment to a pristine condition. Remediation should aim to do more good than harm to the environment. DPAG recommends that serious consideration should be given to the targeted removal of significant particles in the marine environment providing that this causes only minimal disturbance to the ecosystem. [Sections 4.6.17 : 6.9.3]

I would also refer members of the Senedd Petitions Committee to the documentation submitted by campaigners in support of Petition P-05-785 "SuspendMarine Licence 12/45/ML".