

Welsh Assembly Debate on the proposal to dump 300,000 tonnes of radioactively contaminated sediment into the Cardiff Grounds marine dispersal site

As Assembly Members, you have to make a decision which will have implications for years to come: should EdF be allowed to dump radioactively contaminated sediment off Cardiff Bay ?

As we know from the Chernobyl and Fukushima disasters, once radioactivity is released into the environment it is impossible to predict where it will end up and how it will affect people and the environment.

What's the problem ?

Electricité de France (EdF) wants to dredge 300,000 tons of sediment from Bridgewater Bay and dump it off Cardiff Bay. The sediment contains everything that has come out of the outflow pipes from the Hinkley Point A and B nuclear power stations over the last 50 years!

Insufficient research has been conducted to ensure that the sediment is **not** contaminated by radioactive particles. Consequently opposition to the dumping of the sediment in Cardiff Bay is vital, as the radioactivity will affect the marine and coastal environment and population.

Despite numerous surveys and reports the following questions remain unanswered :

What concentrations and types of man-made and natural radioactivity are present in the sediment ?

Where would radioactively contaminated material end up after being dumped at the "dispersal" site ?

What are the potential impacts on human and environmental health along the South Wales coast and the coastal zone ?

What benefit will accrue to Welsh people and the environment as a result of the proposed dump ?

Until these questions are answered satisfactorily no dumping should be allowed and EdF should store the dredged sediment above ground on site, where it could be easily contained and monitored.

Why is this happening ?

EdF want to dredge Bridgewater Bay in order to lay the inflow and outflow pipes from the proposed Hinkley Point C nuclear power station, and to lay foundations for a jetty at the site so that parts for the power station can be brought directly to site. The Cardiff Grounds marine “dispersal” site is the closest marine “dispersal” site to Hinkley C, and using it will keep EdF’s costs down.

According to Greenpeace, the UK government has agreed to subsidise Hinkley C by over £40 billion over the next 35 years – approximately £15 / year per household in the UK – yet instead of storing the sediment on site safely, they just want to dump it and forget all about it.

What is a marine “dispersal” site ?

A marine “dispersal” site is so called because material dumped there will not build up creating an artificial island or mud bank, but will instead be dispersed by the sea and deposited elsewhere!

Where will the sediment be dispersed to ?

This is a crucial question and the truth is that nobody knows! It seems most unlikely that the sediment will **not** be disturbed by the tides in the Bristol Channel; will it be swept up the channel or drawn down the channel ? Will it be widely dispersed, or will it tend to concentrate and create radioactive hotspots at a few locations along the coastline ?

To date, no credible answers to these very serious questions have been provided by EdF, Natural Resources Wales (NRW) or the UK government’s Centre for Environment, Fisheries and Aquaculture Science (CEFAS). All that NRW has said is they have no concerns that radioactively contaminated muds will end up on the south Wales coast. It’s almost as if they all believe that once it’s been dumped into the sea, the problem will disappear ...

One thing that’s certain is that if the sediment is dumped, the radioactive particles could never be recaptured and removed from the environment.

There is no existing data on radioactivity levels along the south Wales coast, so it would be hard to establish if any radioactivity measured in the future was due to the dumping, or was due to other, early, radioactive discharges into the sea.

What's in the sediment ?

It is clear that nobody knows for certain !

EdF commissioned CEFAS to survey the sediment in 2013. EdF used this survey, together with an earlier 2009 survey, when they applied to the then Environment Agency Wales for a licence to dump the sediment in Cardiff Bay. The licence was granted, on the same day that the Environment Agency Wales transformed into NRW, and required no Environmental Impact Assessment. Following opposition to the proposal, CEFAS conducted another survey in 2017. All three surveys tested for gamma radiation only.

What did the surveys find ?

(The table below sets out the outcomes of the three surveys)

	2009 Core Survey	2013 Surface sample Survey	2017 Surface sample Survey
Depth of sampling	Surface to 1m	0 to 5 cms	0 to "approx. 2cms"
Number of samples	5	17	12
Average total Cs, Co and Am Bq / kg	27 Bq / kg	23.02 Bq/Kg	17.4 Bq/Kg
Aggregated (man-made) radioactivity per 300,000 tonnes	8,100,000,000 Bq (8.1 billion Bq)	6,906,000,000 Bq (6.9 billion Bq)	5,220,000,000 Bq (5.2 billion Bq)
Total collective dose	not given	0.035 manSv / year	0.035 manSv / year
Derived total dose, to public	not given	1.6 microSv / year	1.9 microSv / year
Derived total dose, dredger crew	not given	4.8 microSv / year	5.8 microSv / year

Cs= Caesium 137 Co=Cobalt 60 Am=Americium 241

(figures based on "conservative estimates" provided by the surveys)

EdF and NRW claim that these levels of radioactivity are so low as to pose no danger to the public or the environment – but there is no safe level of radioactivity. And these figures grossly under-estimate the level of radioactivity in the sediment, partly due to the depth of the sampling, partly due to only measuring gamma radiation, and partly due to the figures in the table measuring the radioactivity of only the three radio-nuclides Caesium, Cobalt, and Americium.

Why is the depth of the samples important ?

The 2009 survey, which sampled from the surface to a depth of 1 metre, gives the maximum concentrations of the three man-made radio-nuclides Caesium 137, Cobalt 60 and Americium 241. Previous research in the Irish Sea suggests that the highest concentration of radioactive activity occur about 15 – 25 cm below the surface, often at levels five times the surface concentration radioactivity. So the figures given by the 2013 and 2017 surface surveys are likely to grossly **under-estimate** the amount of radioactivity that is present.

Additionally, surface surveys would only detect more recent deposits of radioactive contamination from Hinkley B, and do not reflect the higher levels of radioactive discharges that were permitted during the 1960s and 70s.

What's special about Caesium, Cobalt and Americium ?

These are three man-made radioactive elements that are fairly easy to detect in surveys, and which are known to have been discharged in the liquid wastes of Hinkley A and B ... **But there are over 50 other radio-nuclides on the list of known radioactive waste discharges from these nuclear power stations which have not been measured in the surveys.**

The presence of Americium 241 strongly implies the presence of Plutonium, as these two nuclides are inevitably found together in UK marine environments whenever both are tested for. Hinkley Point A was deliberately modified to produce plutonium for Britain's nuclear weapons programme:

"the Central Electricity Generating Board has agreed to a small modification in the design of Hinkley Point (A) ... to enable plutonium suitable for military purposes to be extracted should the need arise."

"Atomic Power Stations (Plutonium Production)", Hansard UK Parliament, HC Deb 24 June 1958 vol 590 cc 246-8

It is therefore highly likely that the sediment contains some plutonium nuclides. This source of radioactivity, as well as radioactivity from many other radio-nuclides, has not been measured in the surveys,

All three surveys were carried out using Gamma Spectrometry only, which is unable to detect pure alpha emitters like Plutonium and Curium, or pure beta emitters like Strontium and Tritium. Since these other types of man-made radioactivity have not been detected, the calculated doses to the Welsh public and dredger workers are unlikely to be accurate – a full analysis of the sediment should be carried out before any decision is made.

What are the benefits of this proposal to Wales ?

None! There is no radioactive dose that is absolutely without impact. Wales will be taking all the risks without receiving any benefits, to enable EdF to continue to maximise their profit margin.

What about the Precautionary Principle ?

“Prevention is better than cure”. The Precautionary Principle, *(as detailed in Article 191 of the Treaty on the Functioning of the European Union)*, aims to ensure a higher level of environmental protection, essentially by turning down proposals that pose too much risk.

The Precautionary Principle should be applied only after a scientific evaluation of the available risk data. If that evaluation

A: identifies potentially negative effects resulting from the product or activity, and/or

B: concludes that the available scientific data is so insufficient, inconclusive, or imprecise as to make it impossible to "determine with sufficient certainty the risk in question"

then the Precautionary Principle should be applied and the proposal turned down.

Given that there is no radioactive dose that is absolutely without impact to humans, the available data in this instance is so insufficient, inconclusive, or imprecise as to make it impossible to determine, with sufficient certainty, the risk in question.

Therefore the Precautionary Principle should be invoked until the scientific data is suitably sufficient, conclusive and precise as to determine **with sufficient certainty** the risk in question.

People across the whole of Wales are concerned about EdF's proposal to dump the dredged mud in Cardiff Bay – not just for themselves but for future generations. They will be expecting you as their representative to address the following questions:

Are you absolutely convinced that you know the concentrations and types of man-made and natural radioactivity present in the sediment?

Are you satisfied that we don't know where the radioactively contaminated material will end up after being dumped at the "dispersal" site ?

Do you agree with NRW that there are no potential harmful impacts on human and environmental health along the South Wales coast and the coastal zone ?

What benefit will accrue to Welsh people and the environment as a result of the proposed dump ?

If you have any concerns about radioactivity levels, 'dispersal', or impact on people and the environment, and can see no benefit to Wales from this proposal, then **you must vote against it.**

Brian Jones, C N D Cymru Vice Chair, 2018