P-05-785 Suspend Marine Licence 1245ML – Correspondence from the petitioner to the Committee, 02.01.18

"Stop the Dump Campaign" Briefing:

Comments to Senedd Petitions Committee on three radiological surveys (2009, 2013 and 2017) of Hinkley sediments proposed for dumping at Cardiff grounds.

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At the outset of the Campaign in August 2017, a single radiological survey (dated 2013) was referenced as technical support for the EDF claim that there was "de minimis" radioactivity in the Bridgwater Bay/Hinkley sediments. When this survey was reviewed and found to be inadequate by the Campaign, EDF and the Welsh Government's regulating agency the NRW introduced a second survey (dated 2009) in support of their contention. When that survey was also found to be inadequate by the Campaign, the NRW then ordered EDF to carry out a third survey (2017).

All three surveys were carried out by CEFAS. All three surveys were carried out according to protocols developed by the International Atomic Energy Agency, the Nuclear Industry's United Nations agency

The following short briefing compares and contrasts the methodology and results of the three discrete surveys.

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In summary, the Campaign review of the surveys concluded as follows:

2013 Survey: *(this subject has been discussed in earlier briefings*

A: This survey appeared to have been based on surface samples only (0 to 5cms depth) : *this has not been denied by EDF or CEFAS*

B: As a result of A (above) the survey could only detect recent deposits of radioactive contamination from the Hinkley site

C: " Core" sampling studies from other sites (taking samples from greater depths down to 1 metre) were shown to reflect historical deposition of radioactivity from a time when permitted discharges to sea were higher: *ie that samples from below 5 cms depths had higher radioactivity concentrations than surface samples.*

D: the 2013 survey only analysed for 3 named anthropogenic/man-made radio nuclides (Caesium 137, Cobalt 60 and Americium 241) whereas there was ample evidence that the existing and historical liquid discharges from the Hinkley site into the Bridgwater Bay sedimentary environment had consisted of many more (50+) radio nuclides.

E: A twenty-nine page Communication on the Precautionary Principle, issued by the European Commission (EC) in February 2000, provides detailed guidelines on when recourse to the PP should be triggered. The Communication defines the PP as a risk management tool which is to be applied only after a scientific evaluation of the available risk data (i.e., Risk Assessment). **The Communication describes two outputs from this risk assessment that are necessary to justify recourse to the PP:**
1: identify potentially negative effects resulting from the product or activity, and/or
2: the available scientific data must be so insufficient, inconclusive, or imprecise as to make it impossible to "determine with sufficient certainty the risk in question." ***(Ref: European Commission, Communication for the Commission on the Precautionary Principle (2000). Mossman & Marchant: Precautionary Principle & Radiation Protection)***

F: The Campaign concluded that, as the result of A to D above, and under the "Guidances" issued regarding the Precautionary Principle, the 2013 data set was inadequate to the task of providing scientific data for the assessment of radiological impacts to the inhabitants and users/stakeholders of the south Wales inshore waters and coastal zone.

In response to this critique EDF and the NRW then brought forward the outcomes of a 2009 vibro-core sampling campaign.

The 2009 vibro-core Survey:
The campaign has reviewed the 2009 survey and concludes as follows:
A: The vibro core investigation recovered 5 core samples down to depths between 2.16 metres and 4.8 metres. Cores were then sub-divided into 17x 1 metre sections and analysed.

B: Analysis demonstrated that the 5 vibro-core samples from the surface to 1 metre depth, held the maximum concentrations of the 3 man-made radio-nuclides, Cs 137, Co60 and Am 241.

C: Analaysis demonstrated that the 5 vibro-core samples from the lowest/deepest sections of the cores consistently held minimum concentrations of man-made radioactivity.

D: Analaysis demonstrated that the majority of the lowest sections of the cores held higher concentrations of natural radioactivity *(13 of 20 analyses)*

The 2017 Survey (Cefas Environment Report RL 05/17)
A: An additional survey, carried out in May 2017, took 12 sediment grab samples from the area of proposed dredging.

B: Sediment samples "were taken from approximately the top 2 cms of sediment surface"

C: 3 man-made radio-nuclides were analysed for: positive results for man-made radioactivity were recorded in all samples

The table below sets out the outcomes of the three surveys:

TABLE

Parameters	2009 Core study	2013 Surface samples	2017 surface samples
Depths	*surface to 1 metre*	*0 to 5cms*	*0 to "approx 2cms"*
Sample numbers	*5*	*17*	*12*
Average total Cs, Co and Am	*27 Bq/Kg*	*23.02 Bq/Kg*	*17.4 Bq/Kg*
Aggregated (man-made) rads per 300,000 tonnes	*8,100,000,000 Bqs (8.1Billion Bqs)*	*6,906,000,000 Bqs (6.9 Billion Bqs)*	*5,220,000,000 Bqs (5.22 Billion Bqs)*
Total collective dose	*not given*	*0.035manSV/year*	*0.035manSV/year*
derived total dose: members of the 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*

(calculations based on "conservative estimates" provided by the Surveys)

All surveys carried out using high purity Ge gamma spectrometry

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From the results in the above table, the Campaign concludes that :

1: Across the three surveys, the sample depth values are highly dis-similar (0 to 2 cms, 0 to 5cms,) 0 to 100 cms)

2: Across the three surveys, the sample numbers are highly dis-similar (5, 17, 12)

3: Across the three surveys, the average radioactivity concentrations are highly dis-similar (27 Bq/Kg, 23.02 Bq/Kg, 17.4 Bq/Kg) : *35% variation between maximum and minum*

4: Across the three surveys, the aggregated radioactivity results (per 300,000 tonnes) are highly dis-similar (8.1 billion Bqs, 6.9 billion Bqs, 5.2 billion Bqs) : *35% variation between maximum and minimum*

5: Across the two surveys for which individual (public) dose estimates are given, the results are dis-similar (1.6 microSv/year ; 1.9 microSv/year) : *15% difference*)

6: Across the two surveys for which dredger crew dose estimates are given, the results are dis-similar (4.8 microSv/year, 5.8 microSv/year) : *17% difference*)

7: Survey findings conclusively demonstrate that the "top metre" samples (2009 core sample study) hold higher concentrations of man-made radioactivity than both the 0 to 5cms (2013)samples

and the 0 to 2 cms (2017) samples.

8: On the basis of 1 to 7 (above) the survey findings strongly support the Campaign's original assertion that the 0 to 5cm surface samples taken in 2013 do not accurately reflect the radioactivity concentrations of the sediments proposed for disposal at Cardiff Grounds

9: On the basis of 1 to 7 (above) the campaign concludes that the latest (0 to 2 cm) surface samples taken in May 2017 do not accurately reflect the radioactivity concentrations of the sediments proposed for disposal at Cardiff Grounds.

10: and that, cross the three surveys, only 3 of the 50+ Hinkley derived radio-nuclides known to have been discharged into the Bridgwater Bay sedimentary environment have been analysed for

11: The issue of the un-analysed, un-sought for radio-nuclides remains outstanding

12: In the context of

a: the significant discrepancies between survey methodology *(number of samples, depth of samples)* and

b: the significant discrepancies between analytical outcomes *(average man-made radioactivity per Kg, aggregated radioactivity per 300,000 tonnes, estimated dose to members of the public, estimated dose to dredger crews etc :) and the lack of data concerning un-monitored for radio-nuclides*

13: and in the context of the previously submitted Senedd Petitions Committee Briefing: **BASELINE DATA : or "What we still don't know about the proposed Dump of Hinkley sediments at Cardiff Grounds"**

14: and also, in the context of EU "Guidances" issued regarding the Precautionary Principle:

the three surveys have failed to provide sufficient, coherent, conclusive and precise scientific data for the assessment of radiological impacts to the inhabitants and users/stakeholders of the south Wales inshore waters and coastal zone (ie: to make it possible to " identify potentially negative effects resulting from the product or activity", and/"to determine with sufficient certainty, the risk in question"

15: The Campaign concludes that the proposal to dump Bridgwater Bay sediments, contaminated with Hinkley derived sea-discharged radioactivity, into Welsh coastal waters at Cardiff Grounds is strongly contra-indicated under the Precautionary Principle.

16: In the context of the above conclusions the Campaign reiterates its conclusion that, had an Environmental Impact Assessment(EIA) been required for the proposal to dump 300,000 tonnes of radioactively contaminated sediment at the Cardiff grounds site, and had that EIA been scoped after a Public Consultation, it is possible that the relevant radiological data could have been acquired.

The Campaign continues to strongly recommend that a full EIA, followed by a risk assessment, should be initiated by the Welsh Government and that the process should be open, transparent and subject to a full pre and post scoping, and a fully responsive Public Consultation.

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