

Dumping of radioactive wastes at Cardiff Deep

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The Cardiff Deep area



Survey results: non-radioactive

- Mercury, Cadmium, Arsenic etc +PAH, PCB, OH, BDE
- “Action Level 1” exceeded for several subjects
- Contaminant levels above level 1 “generally trigger further investigations of the material proposed for disposal at sea”
- **No action taken**

Survey results: radioactive contaminants

- Analysis of **surface** samples (0-5cms depth)
- 3 “naturals” (Uranium, Radon and Thorium)
- 3 man made: Cs 137, Co 60 and Am 241 (*all discharged from Hinkley site over 5 decades*)
- **But:** 50+ radio nuclides listed in the liquid waste discharges from Hinkley reactors
- ***Sampling regime inadequate***

Surface samples???

- **Core** study elsewhere in Irish Sea area have shown that:
- 0-5cm surface samples hold LOWEST concentrations of man made radioactivity
- Increasing depths show increasing concentrations
- At approx 20cms depth, concentrations are 5X higher than at surface
- ***Use of “surface” samples inadequate***

Breaches of standards?

- Precautionary Principle re transport/movement of rad mats:
don't engage in un-necessary transport/movement of rad' mats as this runs risk of increasing population and environmental doses
- Precautionary Principle is also invoked when available scientific data is
" so insufficient, inconclusive, or imprecise as to make it impossible to determine with sufficient certainty the risk in question."

Bridgwater Bay = “sink” of sediments and associated pollutants

- Bridgwater Bay sediments now a major deposit of “sequestered” rad’ wastes after 50+ years of input
- Radioactivity in BB has been subject to SLOW leaching due storm, tidal surge etc...
- Dredge = major and rapid disturbance of settled and consolidated sediments
- Disposal at Cardiff Grounds = major and rapid distribution of radioactivity into Welsh coastal waters
- Radioactivity will initially disperse in water column
- BUT then re-concentrate in sedimentary deposits (coastal mudflats along Gwent levels, estuaries, and tidal areas of south Wales rivers)

Human exposure to marine radiation transfers in Wales

- Studies have shown that marine rad' transfers across the Welsh coastline and impacts the terrestrial zone
- Ceredigion coast (sea to land transfer via marine aerosols/seaspray in onshore winds)
- North Wales Towyn flooding (sea to land transfer due to extensive flooding)

Conclusions

- Welsh Government decided no EIA required
- Decision based on flawed data
- Radiological analysis is inadequate and underestimates the radiation in the dredged sediments
- The Government decision was taken without the advice of the current Welsh environmental regulator
- Sea to land transfer of radiation is of concern
- A suspension to dump Hinkley C derived waste is needed to review licensing decision and data
- Such research relevant for other new build sites