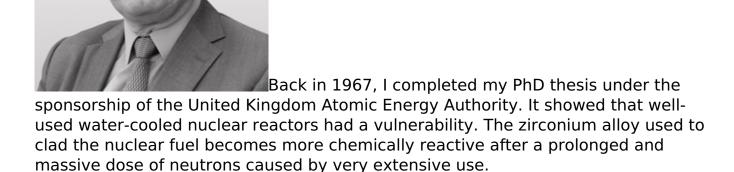
Nuclear Power Station Problem Foreseen

Dr Peter Harrop, IDTechEx



The thesis and the scientific papers resulting were quietly ignored. After all, at the time, the UK generated electricity using gas-cooled nuclear reactors considered to be far safer. It only deployed water cooled nuclear reactors where their small size was essential – in nuclear submarines – and these were unlikely to be operated for many decades or pushed to their limits. Indeed, massive over design was the order of the day for nuclear reactors in Europe and any Westerner suggesting siting a nuclear power station in an area subject to violent earthquakes would have been subject to a dry laugh.

When the outer building of the Japanese Fukushima No 1 reactor massively exploded, it was speculated that this was caused by hydrogen emitted from the overheated zirconium fuel cladding being in contact with cooling water. It is possible that, if this is true, just one of the contributory factors was that the zirconium alloy and its protective oxide film had built up neutron damage over nearly 40 years. Indeed the plant was about to be decommissioned in one month, having been commissioned in 1971.

I am now out of the nuclear business but still involved in the science of electricity generation both large and small scale. My Cambridge company IDTechEx Ltd stages the world's largest events on Printed Electronics, encompassing printed flexible solar cells that can even be wrapped around buildings, cars and ships. The next such event is Printed Electronics and Photovoltaics Europe in Dusseldorf on 5-6 April. Z

I think there will always be space for several forms of electricity generation but governments must show consistency of purpose in supporting them in the early

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stages. The Japanese and Spanish governments have suddenly collapsed financial support for photovoltaic generation in the past, destroying nascent industries and associated employment and wealth creation. It is feared that the British government and some others are about to make the same mistake. I believe that wind generators on land in counties like the UK where the wind rarely blows are merely gesture politics. I am pleased to see new ones sited in the North Sea where the wind rarely ceases to blow. However, I still support nuclear power. The UK and France, for example, have a superb record of safety with their nuclear power stations because they are correctly over designed and properly maintained and sited. Nuclear power is one of the least-worst solutions for power hungry countries wishing to avoid global warming and a sharp contrast to the massive human and planetary toll of coal power, for example. I support the UK building more nuclear power stations, including the best modern water-cooled versions which do not need those vulnerable back up diesel coolant pumps.

One day we shall be able to fully follow the advice of Edison that electricity should only be generated where it is used. Then there will be no power stations. But progress is gradual but essential on that one.

Dr Peter Harrop born 14.1.39. Chairman IDTechEx Ltd. www.idtechex.com [1] PhD Thesis "The Mechanism by Which Nuclear Radiation Enhances the Corrosion of Zirconium" Brunel University 1967

Forthcoming IDTechEx event, "Printed Electronics and Photovoltaics Europe 2011" in Dusseldorf Germany April 5-6. See http://www.idtechex.com/printed-electronics-europe-11/ [2]

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