

# **Stop Hinkley response to the DECC consultation on nuclear site nomination: Hinkley Point**

## **Introduction**

**This Government consultation exercise requires respondents to reply only to set questions on particular, narrow issues. We have responded elsewhere to issues not addressed in these headings, such as the health effects of radiation in the Justification consultation. See [www.stophinkley.org](http://www.stophinkley.org)**

Jim Duffy

Stop Hinkley Coordinator

14<sup>th</sup> May 2009

## **C1. Demographics:**

We consider the site to be much too close to centres of population. Large towns such as Taunton, Bridgwater, Burnham-on-Sea, Weston-super-Mare and even Cardiff are within a 30 kilometre radius of identical size to the uninhabitable exclusion zone around Chernobyl.

Consultant engineers, Large & Associates argue that Areva's confidence in the reactor buildings being proof to a deliberate aircraft attack could be misplaced. In a presentation in Bridgwater last October he showed the plume dispersal of radioactivity should a 'containment by-pass' accident occur. The plume reached Bridgwater in half an hour and northern France in 6 hours, in one scenario:

<http://www.largeassociates.com/Hinkley/Hinkley%20-%20October-final-summary.pdf>

The Emergency Planning procedures would be totally inadequate to protect or evacuate the local populace in the event of a serious accident or act of terrorism. Potassium iodate tablets are only pre-distributed to those within 3.4 kilometres of the nuclear plant. But a nuclear plume would contaminate hundreds of thousands within an hour or so with no realistic means of them receiving the pills which could prevent just one form of cancer.

Remember Chernobyl:

- 23 years ago Chernobyl contaminated 21 percent of neighbouring Belarus and 1.5 million of its citizens with radiation.
- Chernobyl's plume was 200 times more radioactive than Hiroshima and Nagasaki combined.
- All the surviving 100,000 liquidators are now reported ill.
- Hundreds have died.
- 1.3 million hectares of Belarus farmland is contaminated.
- Half the Chernobyl radiation contaminated Belarus, Ukraine and Russia...
- Half spread over the rest of the world but was not officially studied.
- A 30 kilometre uninhabitable zone surrounds Chernobyl.
- Taunton is 25 kilometres from Hinkley Point.
- 374 UK farms including 200,000 sheep are still restricted

### **Chernobyl health predictions:**

4,000 cancer deaths in Belarus, Ukraine and Russia were estimated in a IAEA/WHO press release in 2005 which was widely publicised. But the actual WHO report predicted 9,000 cancer deaths in those countries, which remained unpublicised.

30,000 to 60,000 cancer deaths worldwide were predicted by an alternative committee of scientists: The Other Report on Chernobyl (TORCH) 2006.

“Clearly the true damage to health attributable to the Chernobyl disaster has been kept from the general public through poor and incomplete scientific investigation.”

Rosie Bertell, President of the International Institute of Concern for Public Health

Could it happen at Hinkley C

A section of a recent article, drawn from EdF documents:

Industry documents reveal modern reactors more dangerous in an accident than the ones they replace

Independent on Sunday, 8 February 2009 (extracts):

“New nuclear reactors planned for Britain will produce many times more radiation than previous reactors that could be rapidly released in an accident. The revelations – based on information buried deep in documents produced by the nuclear industry itself – call into doubt repeated assertions that the new European Pressurised Reactors (EPRs) will be safer than the old atomic power stations they replace.

Instead they suggest that a reactor or nuclear waste accident, although less likely to happen, could have even more devastating consequences in future; one study suggests that nearly twice as many people (28,000) could die.

Information in the documents shows that they produce very much more of the radioactive isotopes technically known as the "immediate release fraction" of the nuclear waste, because they could get out rapidly after an accident."

## **C2. Proximity to military activity**

The firing range at Llistock off the coast is actively used for military activities. Military aircraft regularly overfly the site.

## **C3. Flooding, tsunami and storm surge:**

The Met Office report for EdF on sea level rises seems to give an approximate margin of four metres above mean High Water Springs for the lowest ground on the proposed new site. But the IPCC gave stern warnings about increased coastal sea rise as the probability becomes a certainty of land-based ice melting in areas such as Greenland and the Antarctic. The Met Office predictions must now be out-of-date.

According to the Middlesex University Flood Hazard Research Centre (FHRC) report commissioned by Greenpeace, current storm surges top the sea defences at Hinkley A and B. They also say that the slightly higher ground of the new site is composed of material which is eroding, leaving the reactors potentially exposed as time passes, especially during the decommissioning phase. As the sea line rises, the protective nature of the beach-line fades. This process is particularly important as the spent fuel stores will contain the cooling high burn-up fuel for an estimated 100 years after the reactor(s) has stopped generating, a potential of 160 years in total.

There are some who are worried that future generations may not have the resources to fund or conduct effective and environmentally contained decommissioning. Thus the highly radioactive fuel and reactor buildings could potentially be left with little protection against the increasing levels of the sea, accelerating in its erosion process.

The precautionary principle suggests that a coastal site during this phase of sea level rise, is a poor position for such radioactive plant. The Hinkley site in particular has many draw-backs.

Report by Institution of Mechanical Engineers:

Dr Colin Brown, director of engineering at the Institution of Mechanical Engineering. "Climate-change research shows there will be significant increases in storms as global temperatures rise. These will produce more intense gales and hurricanes and these, in turn, will produce massive storm surges as they pass over the sea

...the country will also face massive disruption to its transport and energy systems unless it acts swiftly, according to a report - Climate Change, Adapting to the Inevitable - published last month by the Institution of Mechanical Engineers. Many rail lines run along river valleys that will be flooded with increased regularity while bridges carrying trains and lorries often cross shipping lanes and may have to be redesigned to accommodate rising water levels.

"Power supplies will also be affected," added Brown. "The Sizewell B nuclear plant has been built on the Suffolk coast, a site that has been earmarked for the construction of several more nuclear plants. However, Sizewell will certainly be affected by rising sea levels. Engineers say they can build concrete walls that will keep out the water throughout the working lives of these new plants. But that is not enough. Nuclear plants may operate for 50 years, but it could take hundreds of years to decommission them. By that time, who knows what sea-level rises and what kinds of inundations the country will be experiencing?"

Guardian 8th March 2009

Already the link road to Oldbury nuclear power station in South Gloucestershire has been cut off by rainwater flooding. In 2004 the site was inaccessible to staff who could neither leave the plant to go home. Emergency vehicles would have been stranded out of reach of the plant. The hold up was for four hours.

A tsunami occurred in the Bristol Channel in 1607. The event, which was catastrophic, inundated large areas of Somerset, Gloucestershire and the eastern counties of South Wales. Many lives were lost but numbers remain unrecorded. Of topical interest, the tsunami surge carved out a chunk of land in the South Gloucestershire coast which remains to this day: it is used as the cooling water reservoir to Oldbury nuclear power station! If Oldbury were in existence then it would have been inundated. As would Hinkley's A, B and C.

### **D3. Proximity to dangerous industrial facilities and operations:**

The EdF report seems to brush aside the fact that the planned reactor(s) will be built alongside existing nuclear reactors. Although Hinkley A is currently being decommissioned (very slowly due to lack of funds), Hinkley B is still operating with a licence till 2016. British Energy may wish to extend this date, which may overlap with the predicted start date of Hinkley C.

Should a serious accident occur at Hinkley B this would require the entire evacuation of Hinkley C. As Hinkley B managers have conceded that there

are numerous cracks in the graphite reactor cores, this eventuality is more likely than hitherto. The boiler tube system was found also to have age-related cracks which required a seven-month shut down two years ago to effect partially repairs. Welders needed to work in a very radioactive environment to patch up the boiler tubes. Even so the plant is currently operating at 70 percent output to reduce the pressure and temperature in the boiler system. Should a series of tubes fail, the resultant pressure wave could disrupt and distort the reactor core which is in the same housing. This in turn could trigger a nuclear fuel fire through coolant failure at one or several fuel elements.

The risk of not arresting this fuel-fire scenario is strengthened by the fact that the tertiary shut-down system assumed by many, including EU officials, to be in place, was never built in. Stop Hinkley requests through the Freedom of Information Act for details of this dangerous anomaly have been rejected. British Energy has strongly objected to the Nuclear Installations Inspectorate releasing the documents which they acknowledge they possess.

#### **D4. Proximity to civil aircraft movements:**

Although there is a 2,000 feet high and 2 nautical mile wide radius exclusion zone around Hinkley Point this has been flouted on occasions. Soon after the zone was adopted, the Western Daily Press leased an aircraft and flew it taking photographs over the nuclear plant, with complete impunity. The photos were posted on the front page of the newspaper overdrawn with a target circle, with the obvious implication that terrorists could easily fly an aircraft into the reactor.

I would add that deliberately targetting the cooling ponds containing high volumes of very radioactive spent fuel would be much more dangerous, especially given their relative lack of physical protection.

(This prevailing condition impacts also on the previous statement.)

I understand the 9/11 terrorists planned to fly into a nuclear power station in Pennsylvania. The July 7th London bombers also possessed plans of a nuclear power station.

Hinkley Point is just minutes' flight away from both Bristol and Cardiff airports. A hijack detouring a fully fuel laden airliner could wreak havoc on any nuclear plant. Our group is not convinced by EdF arguments that the EPR could withstand such an attack. It is unlikely the engineering could have evolved in such a short time since 9/11 to protect the reactor buildings.

In August 2003 Bruno Lescouer of EdF wrote to the French regulator to say that the EPR would not fully withstand such an air attack and it was the Government's responsibility to prevent such attacks. The letter was later published by French campaigners.

### **D8. Areas of cultural, heritage and landscape value:**

Within the newly formed boundaries of the EdF site exists an ancient tumulus known as Pixie Mound. This should not be touched as part of the development.

The views from the Quantock Hills, an Area of Outstanding Natural Beauty (AONB) will be badly affected by such a large scale development. At 218 hectares this is a colossal site and appears about four times or more the area of the existing A and B sites combined.

Neighbours of the site, including those who were previously pro-nuclear are finding their amenities lost behind fencing, particularly unwelcome due to the expanded size of the site. Dog-walking, rambling and horse-riding activities are necessarily being curtailed. There is some uncertainty over whether the coastal path will remain open.

### **D9. Size of site to accommodate operation:**

The 218 hectare site seems much too large for the purpose of building even two reactors. Local people are fearful of the loss of space for their previous activities such as dog-walking and horse-riding. Public foot-paths seem to be fenced off with no consultation.

### **D10. Access to suitable sources of cooling:**

Local fish and shrimp resources have diminished considerably during the operating period of Hinkley A and B. Local 'sledge-fishermen' have reported a 90 percent cut in their catches.

No doubt the raised temperature of the returned cooling water has impacted on this process. But also the use of biocide in the cooling system, which aims to prevent the build-up of limpets, mussels and weed on the inside of the tubing. In a much larger power station, this effect will be magnified. In two giant reactors it will potentially be the death-knell of mollusc and fish-life in the vicinity.

These effects are exaggerated by the fact that the Bristol Channel is very shallow, with an average height of only about 20 metres and much lower at Low Water Spring Tides.