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**31 octobre 2016**

## **UK : Nuclear reactor cracks 'challenge safety case'**

Fears have been raised that two of the UK's nuclear reactors might not be able to shut down in an emergency.

Documents show the nuclear regulator raised concerns over fractures in keyways that lock together the core of Hunterston B power station in Ayrshire.

They also show the Office for Nuclear Regulation (ONR) raised concerns that Hinkley B might have similar problems.

The regulator has agreed the stations can continue to operate after the reactor shutdown process was modified.

EDF Energy's Brian Cowell said the level of cracking is considered "reasonable" and is "far below anything which would affect the reactor's safe operation".

Hunterston B and Hinkley Point B, in Somerset, were the first of Britain's Advanced Gas Cooled Reactors [AGR], built in the 1970s.

In the documents obtained through a Freedom of Information request, the ONR raised concerns over cracks in reactor three of Hunterston B and spoke of the possibility of them being present at Hinkley B.

John Large, who helped design AGRs, believes that if the cracks get any worse it could jeopardise the reactor's stability in the event of a big disaster - such as an earthquake - and make it impossible to lower control rods to shut the reactor down.

"These keyways are beginning to fracture... that means the locking together - the way that force can be transferred from one brick to another - is lost, so it becomes a very loose stack of bricks."

Allan Jeffery, from campaign group Stop Hinkley, is concerned that when you run reactors past the design life parts will wear out or fail.

He is concerned the graphite core, which can not be repaired, has become less dense because of the effects of radiation.

"This... could end up distorting the channels the fuel and the boron control rods use.

"In cases of emergency there are sudden changes in temperature and pressure which could all end up starting to deform these channels.

"If you can't get the control rod down then you can't control the temperature inside the reactor and you're heading for accidents - possibly even meltdowns."

However, the ONR has now agreed the stations can continue operating safely after modifying the reactor shutdown process to introduce super-articulated control rods that can more easily bend down any distorted channels.

Image caption The graphite cores at both stations are held rigid by bricks that slot into keyways running down the outside of the fuel channels

Mr Cowell said : "The graphite in our reactors is behaving exactly as experts predicted it would, underlining our confidence to operate the stations safely to 2023 and beyond.

He added it was accepted that cracks will occur in some of the bricks "as part of the normal ageing process".

"Observations from our comprehensive inspection programme were anticipated and are in line with our understanding, so our view of the best estimate lifetime planning date of 2023 for Hinkley Point B and Hunterston B has not changed."

You can see the full report on BBC Inside Out on BBC One in the West, and the South West of England on Monday at 19:30 GMT, [and afterwards on the iPlayer.](#)