SSG Member

3rd July 2018

Dear Member

At the last stakeholder group meeting (7th June) my colleague, Roddy Angus, gave you details of the additional inspection work we were about to undertake on reactor 3 at Hunterston B.

As part of the normal ageing process we expect to see cracks in some of the graphite bricks that make up this core, something that is well understood and is recognised in our operational safety cases. Safety cases are essentially the rulebooks for how we operate all aspects of our power stations and these safety cases are reviewed by our independent regulator the Office for Nuclear Regulation (ONR).

On 2nd May we decided that while Reactor 3 could return to operation, we would keep it shutdown to ensure that the safety case related to the core, reflected the findings of the recent inspections and would also include the results obtained from other analysis and modelling. This safety case work is progressing well.

The inspection work started on 19 June and will look at around 60 channels in the reactor making it the most intensive inspection programme we have carried out so far. Together with earlier inspections this will mean that we will have inspected around 25% of the reactor.

The cracks we have found in the past, and those we expect to confirm during these inspections, have no impact on the normal operation of the reactor and would only present a challenge in the event of a major earthquake. Even though the chances of this happening are extremely remote, it is right that we base our safety case on the most extreme possibility and it is therefore modelled for a one in 10,000 year event.

I think I should clarify how cracked bricks might affect the core in the event of such an earthquake. In such an extreme event, we need to be sure that the control rods will fall into the core and shut the reaction down. The control rod channels and fuel channels are connected and held in place by keys which fit into keyway slots in the graphite bricks. We can demonstrate that, even if some of the keyways have cracks, there is insufficient movement in the core structure during the earthquake to prevent control rod entry.

It is important that we ensure our safety arrangements can deal with that scenario, and that we can control and shutdown the reactor safely in such an event.

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Each reactor at Hunterston B has around 80 control rods that are used to manage the power in the reactor. Of these control rods only 12 are needed to shut the reactor down; the others provide even further 'strength in depth'. Taking into account the impact of any possible movement in the reactor core we have specially-designed 24 articulated or super articulated control rods, which can move around any obstruction.

In addition, the station has a further back-up system that would quickly inject nitrogen gas into the core and stop the nuclear reaction.

To ensure that we have an accurate picture of how the reactor core is ageing we take a number of measurements, including how the identified cracks in the bricks are behaving, and whether they have lengthened or increased in width. All our inspections to date have confirmed that there is no significant impact on the core in terms of distortion, and so there is no challenge to using our control rods. We expect this finding to be further supported by the additional inspections.

When we say nuclear safety is our overriding priority we mean it. We work closely with our regulators at the ONR and welcome the strict regulation that they provide. It underlines our joint determination to ensure nuclear safety.

Our inspection programme will run until 31st July and I will, of course, update you on the results of the inspections once we have completed the programme.

I would also like to reiterate Roddy's invitation to visit the station and see the inspection work as it is happening. Please contact me directly if you would like to do this or if you have any questions or concerns.

Yours sincerely

Colin Weir
Station Director