

HEALTH AND SAFETY EXECUTIVE
HM NUCLEAR INSTALLATIONS INSPECTORATE
CONTACT REPORT

LEVEL 4 MEETING ON HINKLEY POINT B / HUNTERSTON B
GRAPHITE CORE SAFETY CASE

1. NAMES OF NSD STAFF

- a) [REDACTED]
b) [REDACTED]

2. DATES OF VISIT

- a) 20 June 2006.
b) 21 June 2006.

3. LOCATION

HSE, Redgrave Court, Bootle.

4. PURPOSE

The purpose of these meetings was for British Energy to advise NII on their response to recent correspondence on the graphite core safety case and issues relating to [REDACTED] return to service safety case for Hinkley Point B and Hunterston B.

5. NAMES OF PRINCIPAL PERSONS SEEN

- a) [REDACTED]
b) [REDACTED]

6. POINTS OF GENERIC INTEREST

None.

7. SUMMARY

- We held a long debate of BE's responses to NII letters HPB 71030R/HNB 71058R, dated [REDACTED] stated that he would consider the responses in addition to the further information presented at the meeting.

KEY POINTS OF DISCUSSION

The following were key points arising from the discussions with British Energy:

- BE presented their position on the likelihood of part-through thickness keyway-initiated cracking. BE believed that all cracks would propagate through-wall due to the stress distribution in the bricks.
- BE reported that they are investigating ways of improving core inspections that will include eddy current inspection that should be capable of detecting part-through thickness cracking.
- BE described the conservatisms that are incorporated in the whole core modelling. As a result of these conservatisms BE considered that there was no need to include any further safety margin.
- BE described the work that had been undertaken to validate the whole core predictive models. GTAC had identified discrepancies between the model and rig validation tests of up to a factor of 4. BE pointed out that this was only observed on the 4x4 brick slice tests. Other rigs did not show such discrepancies even when doubly cracked bricks were incorporated in the rig tests. In addition the whole core model was able to predict the displacements of the bricks that were loaded in the 4x4 brick slice tests to within 20%; those bricks for which the discrepancies were larger were bricks that were not directly loaded and whose displacements were bounded by the loaded bricks.
- BE described progress with the MTR experiment to obtain additional materials properties data. The task is divided into 3 phases and Phase 1 is currently progressing. [REDACTED] suggested that BE should consider the MTR experiment as having fleet-wide benefit and therefore should include materials appropriate to all stations.
- [REDACTED] expressed concern that the outage intent for Hunterston B was written, and received by NII, before the safety case that was referenced by the outage intent (and from which the inspection proposals were taken) was submitted to NII. Everyone agreed that this should be avoided in future and BE advised that they planned to have return to service safety cases one year in advance of the planned outage for which the safety case was required.
- BE reported that they were developing criteria to sentence cracks and trigger additional inspections.
- Work being undertaken to establish the "withstand capability" of the core suggest that core distortion to affect fuel cooling is of the order of tens of millimetres and more again to impede control rod entry.
- In response to an issue raised by [REDACTED] at the outage intentions meeting BE said that they had considered the impact on the outage time of increasing the number of channels to be inspected with CBMU to 18 and reducing those to be inspected by TV to 13. Due to the difference in time for the two activities BE estimated that this change would lead to an extra two days added to the outage.
- There was a debate about ALARP judgements regarding graphite core safety cases.
- BE reported that they are still working on assessment criteria that would trigger action in the event of un-towards monitoring data being obtained during core monitoring activities.

- BE reported that refurbishment of the test facilities in B13 at [REDACTED] could have an impact on testing of samples from the [REDACTED]
- [REDACTED] raised concerns regarding operation at high weight loss. BE claim that weight losses as high as 70% at the fuel channel wall are tolerable. G Heys also suggested that BE should consider the need to fast-track trepanned samples through B13 during the [REDACTED] of Hinkley Point B and Hunterston B.
- [REDACTED] questioned the basis for criteria to trigger CBMU inspection in the event of axial cracking being detected. BE agreed to review the criteria.
- British Energy expressed concern regarding NII graphite resource and possible impact on return to service dates following the periodic shutdowns [REDACTED]

CONCLUSIONS

- We held a long debate of BE's responses to NII letters HPB 71030R/HNB 71058R, dated [REDACTED] [REDACTED] stated that he would consider the responses in addition to the further information presented at the meeting.

ACTIONS ARISING

- None.

Signed..... [REDACTED] Date : 23 June 2006

CIRCULATION:

[REDACTED] }
[REDACTED] }
[REDACTED] } Paper copies
[REDACTED] }

File: NUC 452/3/2 P3 E30 Box 413/2003.
NUC 453/3/2 P3 E16 Box 282/2005.
NUC 133/15/2 P1 E 94 Box 3/2006.