GE Nuclear Energy

Fuels and Facilities Licensing
General Electric Company
P. O. Box 780, Wilmington, NC 28402

April 25, 1997
RJR–97–048
MFN–016–97

Document Control Desk
US Nuclear Regulatory Commission
Washington, DC 20555

ATTN: A. S. Gautam

Subject: **Rod Block Monitor Operability Requirements for BNP-1, Cycle 10 and DAEC, Cycle 14**

Reference: 1. R. J. Reda (GE) to A. S. Gautam (NRC), March 12, 1997, RJR-97-023.

This letter is to formally document the GE position regarding Rod Block Monitor (RBM)operability requirements for Brunswick -1 (BSEP-1), Cycle 10 and Duane Arnold (DAEC), Cycle 14. The confusion surrounding this issue has resulted in at least one utility notifying the NRC of their intent to file a report per 10CFR50.72. The following chronology describes the background of this situation and explains the origin of the ensuing confusion, and how GE ultimately concluded that in neither case was the RBM needed to provide protection against the licensing limit for cladding plastic strain. All this information has been provided orally to Kombiz Salehi of NRR.

Confirmatory calculations to conclusively demonstrate that the RBM was not needed to provide protection against the licensing limit for cladding plastic strain have been completed for BNP-1, cycle 10 and are being performed for DAEC, cycle 14. The DAEC result will be provided upon completion of the calculations. Both of the subject operating cycles have been completed. For the current operating cycles, the RBM operability requirements are adequate to satisfy the cladding plastic strain licensing basis.

In March, 1997, the NRC notified GE that they would inspect GE's Wilmington NC facility with regard to Rod Withdrawal Error (RWE) analyses and the cladding plastic strain licensing requirement. In preparation for the inspection, GE undertook to review all the available reload licensing Design Record Files (DRFs) to determine which plant/cycles may have lacked a definitive analysis to demonstrate that the plastic strain requirement would be satisfied with the RBM inoperable. When the review was completed, eight plants had been identified as lacking a definitive analysis based on actual calculated local powers for the RWE

A001
0

A:\RJR9748_.DOC 020016

event[1]. The affected utilities were duly notified of the pending NRC inspection and that GE expected the NRC to request information regarding these reloads.

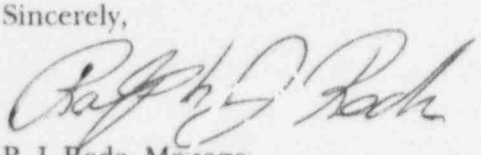
During the NRC inspection, the inspection team asked GE: "Identify all plants/reload cycles that needed to take credit for RBM or needed adjustment to RBM applicability in T/S." In responding to this question, GE checked the list of eight plant/cycles previously identified. This more thorough evaluation revealed that for two of the original eight cases, the generic analysis for 8x8 fuel designs[2] was applicable. Therefore the RBM was not needed to protect against violation of the cladding plastic strain limit. Hence, only six plant/cycles were identified to the NRC. However, GE did not inform the two plants (BSEP-1 & DAEC) that a subsequent review had indicated that the RBM was not needed. On March 31, 1997 Carolina Power & Light filed Event Number: 32058 with the NRC.

The other six plant/cycles are identified in Reference 1 and those situations were discussed in detail during your inspection.

To demonstrate unequivocally that the RBM was not needed to protect against violation of the cladding plastic strain licensing basis, GE has performed specific plastic strain calculations for the RWE event for BNP-1, Cycle 10 and is performing identical calculations for DAEC, Cycle 14. The results of the BNP-1, cycle 10 evaluations have now been verified (per Appendix B to 10CFR50). The largest calculated cladding plastic strain was 0.5%. The DAEC, cycle 14 calculations are expected to yield similar results, and a revision of this letter will be provided as soon as the results have been verified.

If you have further questions, please phone me at (910) 675–5889 or Jim Rash of my staff at (910) 675–5612.

Sincerely,



R. J. Reda, Manager,
Fuels and Facility Licensing
(910)675–5889/Mail Code J26

---

[1] GE uses a very conservative screening criteria to assure compliance with the cladding plastic strain limit. This conservative screening is referred to as the Mechanical Over Power (MOP) check and involves a relatively simple evaluation of the local rod powers throughout the transient. The eight plant/cycles identified showed local power increases during the RWE greater than the conservative MOP guidelines.

[2] A generic analysis of a large data base of RWEs for 8x8 fuels was used by GE to demonstrate with a high degree of confidence that the cladding plastic strain limit would not be violated during an unblocked RWE for cores with only 8x8 fuel having certain GE Proprietary characteristics. Both these plants were loaded with 8x8 fuel having the aforementioned characteristics.

cc: K. Salehi (NRC)
C. J. Monetta
L. E. Phillips (NRC)
C P & L c/o G. R. Hull
IES Utilities c/o T. R. Brohaugh

A:\RJR:748_DOC