

Docket No. 50-346

License No. NPF-3

Serial No. 1-320

February 3, 1983



RICHARD P. CROUSE
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Mr. C. E. Norelius, Director
Division of Engineering and Technical Programs
United States Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Dear Mr. Norelius:

Toledo Edison acknowledges receipt of your December 21, 1982, letter (Log No. 1-718 Inspection Report No. 50-346/82-25) summarizing the inspection activities at the Davis-Besse Nuclear Power Station Unit 1. The Inspection Report contained a Notice of Violation concerning the accounting for cross-core shuffling of the fuel for Cycle 3 in our safety evaluation to determine whether an unreviewed safety question was involved. Toledo Edison believes that the reload pattern did not entail an unreviewed safety question for the reasons given in the following response.

Violation: As a result of the inspection conducted on September 15, 29-30, 1982, and in accordance with NRC Enforcement Policy, 47 FR 9987 (March 9, 1982), the following violation was identified:

Technical Specification 6.5.2.7.a states in part that "The Company Nuclear Review Board shall review the safety evaluations for changes to procedures, equipment or systems completed under the provision of Section 50.59, 10 CFR, to verify that such actions did not constitute an unreviewed safety question."

10 CFR 50.59(a)(1) states in part that, "The holder of a license authorizing operation of a production or utilization facility may (i) make changes in the facility as described in the safety analysis report, without prior Commission approval, unless the proposed change involves a change in the technical specifications incorporated in the license or an unreviewed safety question."

Contrary to the above, the licensee did not account for cross-core shuffling of fuel for Cycle 3 in its safety evaluation to determine whether an unreviewed safety question was involved. The fuel shuffle resulted in a core power tilt in excess of that predicted by design.

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Response:

The driving force for the quadrant power tilt in the reactor core need not be fuel related as demonstrated by the existence of tilt during the Beginning of Cycle 1 (BOC-1) when all fuel was non-irradiated. Although this perturbation may be accentuated due to the reload shuffling scheme, this does not constitute an unreviewed safety question. In the case of Davis-Besse the quadrant power tilt was caused by a feedwater flow and temperature mismatch between loops 1 and 2, which occurred through both Cycles 1 and 2 and resulted in a positive tilt in the WX quadrant ranging from .5 to 1% through both cycles. The safety evaluation for Cycle 3 reload analysis modeled the cross core shuffle that was used in Cycle 3. The safety evaluation assumed that Cycles 1 and 2 had been run with symmetric core power distributions and that any carry-over effect of burnup mismatches between core quadrants would be small and would be within the technical specification limits.

The Davis-Besse Technical Specifications, Section 3.2.4, provides a Quadrant Power Tilt Steady State Limit. This limit accommodates tilt induced by any mechanism. The shuffling schemes are designed to minimize hot channel factors and power peaking problems such that the tilt limit becomes bounding. The steady state quadrant power tilt limit in Cycle 3 Technical Specifications was evaluated against the Cycle 3 reload pattern and was found to be acceptable. Even though this limit was exceeded at BOC-3, appropriate actions stipulated in Davis-Besse Technical Specifications were undertaken to restore the tilt within limits. At no time was operation of the core conducted outside the safety limits and the Technical Specification actions were adequate to restore the tilt within limits. Pursuant to this we have concluded that an unreviewed safety question was never involved. Also, since the cross-core shuffle reload pattern was modeled in the Cycle 3 reload analysis, the safety evaluation thereof did consider this core configuration to ensure core operation within the safety limits.

Very truly yours,



RPC:SCJ:JAE
cj c/2

cc: DB-1 NRC Resident Inspector