

September 26, 1990

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U. S. Nuclear Regulatory Commission
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Subject: Arkansas Nuclear One - Unit 1
Docket No. 50-313
License No. DPR-51
Technical Specification Bases Change Request
LOCA Limited Maximum Allowable Linear Heat Rate

Gentlemen:

Arkansas Nuclear One (ANO) has identified a change to Figure 3.5.2-5 which is in the ANO-1 Technical Specification Bases 3.5.2. This figure shows the LOCA analysis defined maximum allowable heat rate, which provides the bases for the power-imbalance envelope. The proposed change will reduce the heat rate at axial locations between four feet and eight feet from the bottom of the core only.

As reported by Babcock & Wilcox (B&W) Nuclear Technologies, in B&W letter JHT/90-43, dated March 19, 1990, from J. H. Taylor to T. E. Morley (NRC), a new analytical methodology using a more conservative critical heat flux correlation yielded peak cladding temperatures greater than the 10CFR50.46 limit of 2200°F. This methodology assumed a 16.5 kw/ft heat rate at the six foot elevation at the beginning of life (BOL).

Recent analysis performed specifically for ANO-1 by B&W Nuclear Services, reduced the LOCA linear heat rate limits at the six foot elevation to 16.1 kw/ft at the BOL and middle of life (MOL). This reduction results in restoring the margin for the peak cladding temperature such that when Technical Specification allowed quadrant tilt, rod insertion and axial imbalance limits are considered, the peak cladding temperature does not exceed the 2200°F limit. B&W determined in previous fuel cycle reload analyses for other B&W designed plants that a reduction in the six foot elevation linear heat rate limit to 16.1 kw/ft did not impact the plant operating margins, i.e. rod insertion or axial imbalance limits.

C. S. W. J.

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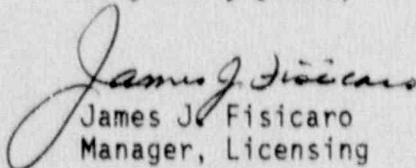
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Further investigation by B&W concluded that the same considerations should be applied to later core life - after 1000 MWd/mtU. Specifically, the LOCA linear heat rate limit at the six foot elevation should be reduced from 18 kw/ft to 16.5 kw/ft.

As this is a change to the Bases of the Technical Specifications, a "No Significant Hazards Determination" is not required. A review of this change, in accordance with 10CFR50.59, has concluded that an unreviewed safety question is not involved as a result of this change.

We request that this change be issued with the next scheduled amendment. If you have any questions pertaining to this request, please feel free to contact me.

Very truly yours,


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