

September 23, 2004

Mr. Lew W. Myers
Interim Site Vice President-Nuclear and
Chief Operating Officer
FirstEnergy Nuclear Operating Company
Perry Nuclear Power Plant
P. O. Box 97, A210
Perry, OH 44081

SUBJECT: PERRY NUCLEAR POWER PLANT - REQUEST FOR ADDITIONAL
INFORMATION (RAI) FOR THE REVIEW OF LICENSE AMENDMENT REQUEST
TO REVISE THE MINIMUM CRITICAL POWER RATIO SAFETY LIMIT
(TAC. NO. MC2599)

Dear Mr. Myers:

By letter dated April 5, 2004, FirstEnergy Nuclear Operating Company, requested approval of a license amendment for the Perry Nuclear Power Plant (PNPP) to revise the Minimum Critical Power Ratio Safety Limit.

During the review, the U.S. Nuclear Regulatory Commission staff has identified that additional information is needed in order to complete the review. Specific questions are presented in the enclosed RAI.

The enclosed questions have already been discussed with your staff. In order to accommodate PNPP's need for this change, please respond to this RAI by October 15, 2004. If you have any questions concerning our review, or additional time is needed to respond to the RAI, please contact me at (301) 415-3154.

Sincerely,

/RA/

Stephen P. Sands, Project Manager, Section 2
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-440

Enclosures: Request for Additional Information

cc w/encl: See next page

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Perry Nuclear Power Plant, Unit 1

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REQUEST FOR ADDITIONAL INFORMATION

PERRY NUCLEAR POWER PLANT (PNPP)

LICENSE AMENDMENT REQUEST TO REVISE THE MINIMUM CRITICAL POWER RATIO

SAFETY LIMIT CONTAINED IN THE TECHNICAL SPECIFICATIONS

The Nuclear Regulatory Commission staff has reviewed the April 5, 2004, FirstEnergy Nuclear Operating Company submittal regarding changes to the PNPP Technical Specification change. In order to complete the review of the proposed license amendment request, the staff needs the following information concerning Perry/Safety Limit minimum critical power ratio (MCPR) safety limit for minimum critical power ratio (SLMCPR) submittal.

- (1) The calculated values of maintenance improvement program (MIP) and reactor internal pump (RIP) were used to compare quantities that impact the calculated SLMCPR value for the Perry Unit 1, Cycle 10. Based on these comparisons, the licensee concluded that the core bundle-by-bundle MCPR distribution is slightly flatter than the distribution evaluated for Cycle 9 (as indicated by MIP); whereas, Cycle 10 has a more peaked in-bundle pin-by-pin power distribution (as indicated by RIP) than what was used for Cycle 9. It was stated in the submittal that the calculated safety limit is dominated by two key parameters:
 - (1) flatness of the core bundle-by-bundle MCPR distributions, and
 - (2) flatness of the bundle pin-by-pin power/R-factor distributions. It was further stated that greater flatness in either parameter yields more rods susceptible to boiling transition; and consequently, the necessity of a higher (more conservative) calculated SLMCPR.

Contrary to the above statement made in the submittal, the staff noted that although the bundle-by-bundle MCPR distribution is flatter for Cycle 10, the proposed SLMCPR for Cycle 10 is lower (less conservative) than Cycle 9. The staff requests the licensee to explain this apparent contradiction.

- (2) The proposed cycle-specific determination of the SLMCPR values for Perry Unit 1, Cycle 10 are acceptable to the staff provided that the conditions stated in the staff safety evaluation report (SER) approving Amendment No. 25 and two licensing technical reviews on uncertainties for SLMCPR evaluations (Reference 1) are met. The staff, therefore, requests the licensee to affirm that all the conditions discussed in the SER have been satisfied. In order for the licensee to generate the proposed SLMCPR values, if it was necessary to deviate from any of the assumptions and the conditions outlined in the staff SER for a cycle-specific determination of the SLMCPR, then the licensee should discuss those deviations and provide the technical justifications for their acceptability.
- (3) The staff requests the licensee to confirm whether the proposed SLMCPR values for Perry Unit 1, Cycle 10 are only applicable for the currently approved (for Cycle 9) operating conditions, and that operation beyond the currently approved conditions and power level is not anticipated for Cycle 10.

Reference

Letter, Frank Akstulewicz (NRC) to Glen A. Wafford (GE), "Acceptance for Referencing of Licensing Topical Reports NEDC-32601P, *Methodology and Uncertainties for Safety Limit MCPR Evaluations*; NEDC-32694P, *Power Distribution Uncertainties for Safety Limit MCPR Evaluation*; and Amendment 25 to NEDE-24011-P-A on Cycle Specific Safety Limit MCPR," (TAC Nos. M97490, M99069 and M97491), March 11, 1999.