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U. S. Nuclear Regulatory Commission
Document Control Desk
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Subject: Arkansas Nuclear One - Unit 2
Docket No. 50-368
License No. NPF-6
Error in the CEFLASH-4AS Computer Code

Gentlemen:

Entergy Operations, Inc. submitted a license application on December 19, 2000 (2CAN120001), to increase the authorized power level from 2815 megawatts thermal to 3026 megawatts thermal. Section 7.1.4 of Enclosure 5 included the emergency core cooling system (ECCS) small break loss-of-coolant-accident (SBLOCA) analysis that supports operation at power uprated conditions. Subsequent to submittal of the information, Westinghouse Electric Company identified an error in the CEFLASH-4AS computer code used in the analysis. The purpose of this letter is to notify the NRC staff of the error. Normal reporting requirements would dictate including this information in the annual report in compliance with 10CFR50.46 (a)(3)(ii); however, since the NRC staff is currently reviewing this analysis as part of the power uprate license amendment request, advance notification to the NRC staff is provided. A normal report, pursuant to 10CFR50.46 (a)(3)(ii), will also be made.

The SBLOCA ECCS performance analysis used the Supplement 2 version (referred to as the S2M or Supplement 2 Model) of the CE Nuclear Power Small Break LOCA ECCS Evaluation Model. In the S2M Evaluation Model, the CEFLASH-4AS computer program is used to perform the hydraulic analysis of the reactor coolant system until the time the safety injection tanks begin to inject. The error in the CEFLASH-4AS code is estimated to have existed since approximately 1973 and involves coding that performs operations that exceed the range of arrays in the break flow subroutine. Therefore, the coding error results in over-writing of code data used in other CEFLASH-4AS calculations.

Westinghouse has evaluated the impact of the coding error in CEFLASH-4AS and reported it to the affected plants in a Nuclear Safety Advisory Letter (NSAL). The NSAL

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indicates that the information was a potential 10CFR21 concern but was deemed non-reportable since the changes in peak cladding temperature (PCT) for the limiting break were less than 50° F and, in all cases, remained below the 2200° F acceptance criterion. In addition, Westinghouse performed a limited sensitivity on the break spectrum. The results indicated that the limiting break remained bounding for the cases evaluated.

The impact of the evaluation on the power uprate results is provided in the following table:

Power Uprate Analysis Results

Results/Parameter	**Peak Clad Temperature, °F**	**Maximum Cladding Oxidation, %**	**Core Wide Cladding Oxidation, %**
Corrected Code Version Limiting Case	2090	12.5	0.73
Uncorrected Code Version Limiting Case	2066	10.78	0.67
Differential Impact	+24	+1.72	+0.06

Based upon the evaluations performed it can be concluded that the effect on the PCT for the limiting break and a selected spectrum of breaks was 24° F and is not considered a significant change to the results. The impact of this error on the current ECCS performance analysis will be documented in the annual report for 2001.

This submittal contains no regulatory commitments. Should you have any questions, please contact me.

Very truly yours,

Jimmy D. Vandergrift
Director, Nuclear Safety Assurance

JDV/dwb

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