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SUBJECT: Discusses results of estimate of effect of significant error in acceptable emergency core cooling evaluation model.

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H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261/LICENSE NO. DPR-23
RESULTS OF THE ESTIMATE OF THE EFFECT OF A SIGNIFICANT ERROR
IN AN ACCEPTABLE EMERGENCY CORE COOLING EVALUATION MODEL

Gentlemen:

By letters dated October 14, 1996, and October 25, 1996, we informed you of the effect on the calculated post-accident Peak Cladding Temperature (PCT) due to an error discovered in an acceptable Large Break Loss of Coolant Accident (LBLOCA) Evaluation Model (EM), specifically the Siemens Power Corporation (SPC) LBLOCA EM.

In our October 25, 1996, letter we informed you that we expected to have developed, by October 27, 1996, a new estimate of the effect of the error on calculated PCT. This new estimate was completed on October 26, 1996, and results in a calculated PCT of 2163 °F.

The new estimate was developed using the 1986 EM with a conservative modification to the Fuel Cell Test Facility (FCTF) core reflood heat transfer correlation. The modification to the FCTF heat transfer correlation incorporates a linear ramp over the range of reflood rates from 1.00 inches/second to 1.77 inches/second such that the end points for interpolating the heat transfer coefficients are the respective values at reflood rates of 1.00 inches/second and 1.77 inches/second. To prevent the introduction of non-physical behavior by data interpolation, the interpolated heat transfer coefficient is never allowed to be greater than the value calculated at the 1.77 inches/second core reflood rate. The analysis was also performed for the previously determined limiting break size of a 0.8 square foot double-ended guillotine cold leg break and reduced core peaking limits, i.e., the Nuclear Enthalpy Rise Hot Channel Factor, $F_{\Delta H}$, of 1.73 and the Heat Flux Hot Channel Factor, F_q (Z) of 2.40, as stated in our October 15 letter submitting a revision of the Core Operating Limits Report. Contrary to our statement in our October 25, 1996, letter that the new estimate is not expected to justify 100% of Reactor Thermal Power (RTP), the results of this latest estimate do, in fact, justify operation at 100% of RTP. The analysis was performed with a U-238 capture-to-fission ratio that bounds exposures up to 87 Effective Full Power Days (EFPDs). The axial flux shapes considered in the analysis bound the axial shapes achievable during Operating Cycle 18 up to 87 EFPD.

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Because operation at 100% power is now justified, we have canceled the plans described in our October 25, 1996, letter to develop a new estimate of the effects of the error on calculated PCT based on available conservatism that had been scheduled for completion by October 31, 1996.

This new estimate results in a change of 35 °F from the PCT estimate of 2128 °F that was reported in our October 25, 1996, letter. The results of the estimate have been evaluated in accordance with 10 CFR 50.59 and have been determined not to involve an unreviewed safety question.

As stated in our October 25, 1996, letter, LBLOCA safety analyses will be performed using acceptable EMs prior to reaching the 87 EFPD fuel exposure limitation.

Questions regarding this matter may be referred to Mr. A. L. Garrou at (803) 857-1544.

Very truly yours,

R. M. Krich
Manager - Regulatory Affairs

JSK/klb
c: Mr. S. D. Ebneter, Regional Administrator, USNRC, Region II
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