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SUBJECT: Notifies NRC of significant error in Large Break LOCA EM used to perform safety analyses for ECCS which supports operation at plant, Unit 2.

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Robinson File No: 13510

Serial: RNP-RA/96-0185

OCT 14 1996

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

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

Gentlemen:

In accordance with 10 CFR 50.46(a)(3)(ii), we are submitting notification of a significant error in the Large Break Loss of Coolant Accident (LBLOCA) evaluation model (EM) used to perform safety analyses for the Emergency Core Cooling System (ECCS) which supports operation at the H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2.

By letter dated October 11, 1996, the NRC confirmed information provided to us by NRC representatives in a telephone conference call conducted on October 10, 1996, that changes incorporated in the 1991 LBLOCA EM, described in Siemens Power Corporation (SPC) topical report XN-NF-82-20, "EXEM/PWR Large Break LOCA ECCS TOODEE2 Updates," Revision 1, Supplement 5, were unacceptable. The unaccepted 1991 LBLOCA EM was intended to resolve concerns associated with the 1986 LBLOCA EM used by SPC. The 1986 LBLOCA EM was found acceptable by the NRC to meet the requirements of 10 CFR 50.46 by letter dated July 8, 1986. The October 11, 1996 NRC letter also stated that it will not accept LBLOCA analyses using the previously accepted 1986 LBLOCA EM unless that model adequately corrects the non-physical behavior observed in the reflood heat transfer correlation. As further stated in the October 11, 1996 NRC letter, this letter provides our assessment of the impact of the error in the 1986 LBLOCA EM and the actions we are taking to assure compliance with 10 CFR 50.46.

In order to confirm compliance with the acceptance criteria of 10 CFR 50.46(b)(1), an estimate of the effect of the error in the LBLOCA EM on the fuel Peak Cladding Temperature (PCT) has been performed utilizing the 1986 version of the SPC LBLOCA EM. Because the HBRSEP, Unit No. 2 reflood rate falls within the range of non-physical behavior of the 1986 LBLOCA EM specified in the October 11, 1996 NRC letter to Mr. H. Donald Curet, SPC, the estimated effect on the calculated Peak Cladding Temperature (PCT) has been performed placing limits within the heat transfer coefficient correlation such that the predicted reflood

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heat transfer coefficients are always less than or equal to the values calculated for the 1.77 inches/second reflood rate. These limits were imposed over the entire affected range of reflood rates (i.e., 0 inches/second to 1.77 inches/second), rather than utilizing the heat transfer correlation that exhibits non-physical behavior over the affected range. As a result of this estimate, compensatory measures are being incorporated into the Core Operating Limits Report (COLR) for the Heat Flux Hot Channel Factor, $F_q(Z)$, to reduce the allowable $F_q(Z)$ from 2.5 to 2.40 and for the Nuclear Enthalpy Rise Hot Channel Factor, $F_{\Delta H}$, to reduce the allowable $F_{\Delta H}$ from 1.80 to 1.73.

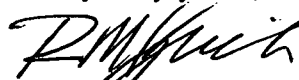
The estimated effect of the error on the calculated PCT, taking into account compensatory measures that will be incorporated into the COLR, is an increase in the calculated PCT of 93°F to 2157°F from the previously calculated PCT of 2064°F. Since the effect of the error in the LBLOCA EM is significant as defined in 10 CFR 50.46(a)(3)(i) (i.e., greater than 50°F), the error is required to be reported to the NRC within 30 days, i.e., by November 10, 1996, in accordance with 10 CFR 50.46(a)(3)(ii).

The results of the estimate show that HBRSEP, Unit No. 2 can operate for approximately 87 Effective Full Power Days (EFPDs). The plant is currently concluding Refueling Outage (RO) 17, and expects to reach criticality during the week of October 14, 1996. Therefore, in accordance with 10 CFR 50.46(a)(3)(ii), performance of the LBLOCA and ECCS safety analyses using acceptable EMs will be performed prior to the fuel reaching 87 EFPDs exposure.

The results of the estimate and the resultant changes to the COLR have been evaluated in accordance with 10 CFR 50.59 and have been determined not to involve an unreviewed safety question. The changes to the COLR will be reviewed by the Plant Nuclear Safety Committee (PNSC) in accordance with Technical Specifications (TS) Section 6.5.1.6.6 and will be submitted to the NRC in accordance with TS Section 6.9.3.3(a) upon issuance.

If you have any additional questions regarding this matter, please contact Mr. A. L. Garrou at (803) 857-1544.

Very truly yours,



R. M. Krich

Manager - Regulatory Affairs

ALG/klb

c: Mr. S. D. Ebnetter, Regional Administrator, USNRC, Region II
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