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DUKE POWER

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

Subject: Catawba Nuclear Station
Docket Nos. 50-413/50-414
10 CFR 50.46 Reporting for ECCS Evaluation Model Changes

10 CFR 50.46(a)(3)(ii) requires reporting of changes to or errors in ECCS evaluation model (EM), or in the application of the EM, which affect the LOCA peak clad temperature (PCT). The attachment contains the information for small break LOCA (SBLOCA), large break LOCA (LBLOCA) for Westinghouse OFA fuel, and LBLOCA for Mark-BW fuel.

Any questions concerning this submittal may be directed to H. Jackson Lee at 704-382-7565.

Very truly yours,

A handwritten signature in dark ink, appearing to read 'D. L. Rehn'.

D. L. Rehn

KEN/5046.94

Attachment

xc: S. D. Ebnetter
Regional Administrator, Region II

R. E. Martin, ONRR

R. J. Freudenberger
Senior Resident Inspector

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**CATAWBA NUCLEAR STATION
DOCKET NOS. 50-413 AND 50-414
10 CFR 50.46 REPORTING FOR ECCS EVALUATION MODEL CHANGES**

SBLLOCA Analyses

The 1985 Westinghouse ECCS EM analyses apply to all fuel types in the Catawba cores. The analyses which will be shown in the October 1, 1994 Catawba FSAR include a case in which a 1264°F PCT is calculated. As shown in Reference 4, EM changes previously reported to the NRC could result in an increase in this value by up to 137°F. Per Reference 1, there is one additional change to report, a benefit due error corrections in the LUCIFER code. This is a code used to generate component databases for both the large and small break LOCA analyses. The benefit is 16°F for small break analyses. Therefore, the resulting Catawba PCT is $1264 + 137 - 16 = 1385^{\circ}\text{F}$.

LBLOCA Analyses for Westinghouse OFA Fuel

The 1981 Westinghouse ECCS EM with BASH analyses apply to the Westinghouse OFA fuel in the Catawba cores. The analyses which will be shown in the October 1, 1994 Catawba FSAR include a case in which a 1945°F PCT is calculated. As shown in Table 15-35 for the previous analysis, EM changes previously reported to the NRC could result in an increase of up to 215°F for Unit 1 and 227°F for Unit 2. Per Reference 1, the reanalysis which will be included in the FSAR update eliminated the need to account separately for all but three of these changes. These are 1) a 100°F penalty due to potential nonconservatism in the assumed axial power distribution, 2) a 25°F benefit due to correction of the metal type (stainless steel vs. carbon steel clad with stainless steel) in the structural heat transfer model in the WREFLOOD-INTERIM computer code, and 3) an 8°F (Unit 1) or 20°F (Unit 2) penalty for seismically induced steam generator tube crushing occurring coincident with a LBLOCA. Therefore, there remain a total of $100 - 25 + 8 = 83^{\circ}\text{F}$ (Unit 1) or $100 - 25 + 20 = 95^{\circ}\text{F}$ (Unit 2) of previously reported changes which are relevant to the new analysis. In addition, per Reference 1, the LUCIFER change reported above for small break LOCA analysis results in a 6°F benefit for large break LOCA. Therefore, the resulting Catawba LBLOCA PCT for Westinghouse OFA is $1945 + 83 - 6 = 2022^{\circ}\text{F}$ for Unit 1 and $1945 + 95 - 6 = 2034^{\circ}\text{F}$ for Unit 2.

LBLOCA Analyses for BWFC Mark-BW Fuel

The BWFC analyses described in topical report BAW-10174 apply to the BWFC Mark-BW fuel in the Catawba cores. The analyses shown in the Catawba FSAR are for a case in which a 1945°F PCT is calculated, as shown in Table 15-52. As shown in this table, EM changes previously reported to the NRC could result in an increase in this value by up to 40°F. Per Reference 2, there is one additional change to report, applicable only to Catawba Unit 2 and only as long as it contains fuel originally fabricated for the Trojan nuclear plant. This fuel has 1) a slightly lower UO_2 density, 2) a higher enrichment, and 3) axial blankets. BWFC estimates a PCT penalty of no more than 23°F for these design features. In addition, Duke Power has applied, as will be reported via 10 CFR 50.59, a penalty of 64°F for postulated increases, from 10% to 18%, in the level of tube plugging in the most plugged steam generator. Reference 5 contains the basis for not treating this change as "significant" per 10 CFR 50.46. Therefore, the resulting Catawba LBLOCA PCT for BWFC Mark-BW fuel is $1945 + 40 + 64 = 2049^{\circ}\text{F}$ for Unit 1 and $1945 + 40 + 23 + 64 = 2072^{\circ}\text{F}$ for Unit 2.