

Duke Power Company
McGuire Nuclear Generation Department
12700 Hagers Ferry Road (MG01VP)
Huntersville, NC 28078-8985

T. C. McMEEKIN
Vice President
(704)875-4800
(704)875-4809 Fax



DUKE POWER

October 4, 1994

U. S. Nuclear Regulatory Commission
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Washington, D.C. 20555

Subject: McGuire Nuclear Station
Docket Nos. 50-369 and 50-370
Report Pursuant to 10 CFR 50.46, Changes to or
Errors in an ECCS Evaluation Model

References: 1) DPC-94-205, February 8, 1994 letter from Westinghouse (J. M. Hall)
to Duke Power (W. M. Sample)
2) October 18, 1993 letter from Duke Power (M. S. Tuckman) to NRC
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10CFR50.46(a)(3)(ii) requires reporting of changes to or errors in the ECCS evaluation model (EM), or in the application of the EM, which affect the LOCA peak clad temperature (PCT). Attached is information for small break LOCA (SBLOCA), large break LOCA (LBLOCA) for Westinghouse OFA fuel, and LBLOCA for Mark-BW fuel.

Questions or problems should be directed to Kay Crane, McGuire Regulatory Compliance at (704) 875-4306.

Very truly yours,

T. C. McMeekin, Vice President
McGuire Nuclear Station

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cc: Mr. Victor Nerses, Project Manager
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Mr. S. D. Ebnetter, Regional Administrator
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW - Suite 2900
Atlanta, Georgia 30323

Mr. George Maxwell
Senior Resident Inspector
McGuire Nuclear Station

Attachment

SBLOCA Analyses

The 1985 Westinghouse ECCS EM analyses apply to all fuel types in the McGuire cores. The analyses which will be shown in the September 1, 1994 McGuire FSAR include a case in which a 1264°F PCT is calculated. As shown in Reference 2, 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 to 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 McGuire 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 McGuire cores. The analyses which will be shown in the September 1, 1994 McGuire FSAR include a case in which a 1945°F PCT is calculated. As shown in Table 15-28 for the previous analysis, EM changes previously reported to the NRC would result in a net decrease of 7°F. Per Reference 1, the reanalysis which will be included in the FSAR update eliminated the need to account separately for a 10°F penalty which was part of these changes. The remaining changes are 1) 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 2) an 8°F penalty for seismically induced steam generator tube crushing occurring coincident with a LBLOCA. Therefore, there remain a total of $-25 + 8 = -17^{\circ}\text{F}$ of previously reported changes which are relevant to the new analysis. In addition, with this reanalysis, McGuire now has sufficient PCT margin to change the method of accounting for the BASH EM potential nonconservatism in assumed axial power distribution. Previously, this was accounted for by imposing a stricter surveillance requirement, a so-called L(z) penalty, on axial power distribution. Beginning with Cycle 10 of McGuire Unit 1, McGuire will use the same method as Catawba to account for this penalty, a 100°F PCT penalty. Finally, 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 McGuire LBLOCA PCT for Westinghouse OFA is $1945 - 17 + 100 - 6 = 2022^{\circ}\text{F}$.