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Detroit Edison



A DTE Energy Company

10CFR50.46

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NRC-01-0046

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington D C 20555-0001

- References:
- 1) Fermi 2
NRC Docket No. 50-341
NRC License No. NPF-43
 - 2) Detroit Edison Letter, Douglas R. Gipson to USNRC,
"30-Day 10CFR50.46 Special Report
Plant Specific ECCS Evaluation Changes"
dated May 28, 1996 (NRC-96-0052)
 - 3) Detroit Edison Letter, W. T. O'Connor Jr. to USNRC,
"ECCS Cooling Performance Evaluation Model Report"
dated December 19, 2000 (NRC-00-0074)

Subject: ECCS Cooling Performance Evaluation Model Report

In accordance with 10CFR50.46, "Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors," this report is being submitted to describe changes to or errors in an acceptable evaluation model used for calculating Emergency Core Cooling Systems (ECCS) performance.

In July 1991, as part of the Fermi 2 Power Uprate Program, the SAFER/GESTR-LOCA Loss-of-Coolant Accident Analysis was performed. This analysis resulted in a peak clad temperature (PCT) baseline of 1602 degrees Fahrenheit with the impact of any previous change or error notices already considered. Therefore, this report includes change or error notices with potential impact on Fermi 2 subsequent to the July 1991, SAFER/GESTR-LOCA Loss-of-Coolant Accident Analysis.

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On April 25, 1996, Detroit Edison confirmed with General Electric (GE) that the total accumulation of PCT changes or errors identified as being applicable to Fermi 2 increased the PCT by 65 degrees Fahrenheit. This 65 degree Fahrenheit change has previously been reported to the NRC in Reference 2.

On November 20, 2000, Global Nuclear Fuel (GNF) informed Detroit Edison of an additional error found in GE's SAFER/GESTR-LOCA code. This error involved the impact of time step size on numerical convergence of the PCT calculation. The use of smaller time steps improves convergence and reduces the PCT by 5 degrees Fahrenheit. This 5 degree Fahrenheit change has previously been reported to the NRC in Reference 3.

On May 8 and 10, 2001 GNF informed Detroit Edison, in GE 10CFR50.46 Notification Letters 2001-01 and 2001-02, of two additional errors found in GE's SAFER/GESTR-LOCA code. Both of these errors involve a miscalculation of the amount of steam condensation on subcooled ECCS injection flow inside the vessel. These errors in steam condensation affect core inventory and the PCT that occurs after ECCS initiation. The total effect of the two errors results in an increase in the PCT by 50 degrees Fahrenheit. With the 50 degree Fahrenheit increase in PCT, the current Licensing Basis PCT for Fermi 2 is 1712 degrees Fahrenheit and there still is 488 degrees Fahrenheit margin to the 2200 degrees Fahrenheit Licensing Basis PCT limit.

Detroit Edison will continue to track future changes and errors in the SAFER/GESTR-LOCA Loss-of-Coolant Accident Analysis evaluation models to ensure that the analyzed PCT remains below the 10CFR50.46 limits, and to ensure that the 10CFR50.46 reporting requirements are met. Detroit Edison has no immediate plans to reanalyze the SAFER/GESTR-LOCA Loss-of-Coolant Accident Analysis for Fermi 2.

Should you have any questions or require additional information, please contact Mr. Norman K. Peterson of my staff at (734) 586-4258.

Sincerely,



cc: T. J. Kim
M. A. Ring
NRC Resident Office
Regional Administrator, Region III
Supervisor, Electric Operators,
Michigan Public Service Commission