SIEMENS

February 14, 1994
RAC:94:019

Director of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Mail Station P1-137
Washington, D. C. 20555

Attention: Document Control Desk

Annual Reporting of Changes and Errors in ECCS Evaluation Models

Attached is a description of the minor changes and errors in the loss of coolant (LOCA) evaluation models of the past year as required by 10 CFR 50.46. This report covers the period from January 1993 to the present. SPC uses the EXEM BWR Evaluation Model for boiling water reactor large and small break LOCA evaluations, the EXEM PWR Evaluation Model for pressurized water reactor large break LOCA evaluations, and the ANF-RELAP Small Break Model for pressurized water reactor small break LOCA evaluations.

It should be noted that SPC considers LOCA models to be the codes and the methodology for using these codes. Changes to inputs that result from fuel or plant changes and that are treated according to the methodology are not considered model changes and therefore are not reported in the attachment. These input changes are evaluated on a plant specific basis in accordance with the other sections of 10 CFR 50.

If there are any questions, or if further information is needed, please contact me.

Very truly yours,

Bob Copeland

R. A. Copeland, Manager
Product Licensing

/smg

Attachment

cc: Mr. R. C. Jones (USNRC)

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Siemens Power Corporation

Annual Reporting of EXEM BWR Minor Model Changes and Minor Error Corrections

There have been no changes or corrections in the EXEM BWR model.

Annual Reporting of EXEM PWR Minor Model Changes and Minor Error Corrections

There was a minor coding error discovered in the EXEM PWR heatup code, TOODEE2. The error involved incorrect coding of the ratio of the hydraulic diameter for the unblocked channel below the ruptured node to the hydraulic diameter of the channel with blockage above the ruptured node. When licensing cases were rerun with the corrected coding, there was no change in the peak cladding temperature.

An inconsistency was discovered in the z-equivalent model in TOODEE2. The z-equivalent model was coded with the axial shape for the FLECHT test rod instead of the FCTF test rod. The z-equivalent model uses equivalent energy deposition to allow TOODEE2 to adjust between axial shapes. Test cases analyzing the impact of the incorrect coding showed that the peak cladding temperature using the FLECHT shape as the basis provided either conservative or insignificant (+15°F) changes in the peak cladding temperature. Therefore, the original coding was considered to be appropriate and was not changed.

<u>Annual Reporting of ANF-RELAP SBLOCA Minor Model Changes</u>
<u>and Minor Error Corrections</u>

There have been no changes or corrections in the ANF-RELAP SBLOCA model.