

# BALTIMORE GAS AND ELECTRIC COMPANY

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NUCLEAR POWER DEPARTMENT  
CALVERT CLIFFS NUCLEAR POWER PLANT  
LUSBY, MARYLAND 20657

July 25, 1985

Mr. D. H. Jaffe  
Operating Reactors Branch 3  
Division of Licensing  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

SUBJECT: Large Break LOCA ECCS Performance Evaluation

REFERENCE: A. E. Scherer (CE) to G. W. Knighton (NRC) letter, LD-85-031,  
July 2, 1985

Dear Mr. Jaffe:

This letter is to inform you that we have been notified by Combustion Engineering (C-E) of a potential non-conservatism in one element of the C-E large break loss-of-coolant accident (LOCA) evaluation model. The particular element in question is the treatment of axial power distribution and peaking factor. C-E further stated that this potential non-conservatism applied to all plants for which C-E had performed ECCS performance evaluations using their large break LOCA model. C-E also notified the Commission of their finding via the referenced letter.

During a meeting at the NRC offices in Bethesda on July 10, 1985, C-E provided detailed information on this subject as well as a status summary for those plants for which C-E still provides the large break LOCA evaluations. Of particular importance was their estimate of an increase in peak clad temperature due to the non-conservatism (for their System 80 Standard Design) of approximately 34°F. While a plant specific sensitivity has not been determined for Calvert Cliffs, estimates are that the increase would be of the same order of magnitude.

The reported peak clad temperature calculated for Calvert Cliffs Unit 1 (without consideration of the subject non-conservatism) is 1896°F. This provides a margin of 304°F to the 2200°F acceptance criteria value of 10 CFR 50.46. A more recent LOCA analysis (still without consideration of the subject nonconservation) for Unit 1 which fully implements the credit obtainable from using the PARCH code calculates the LOCA peak clad temperature at 1836°F. This provides an even larger margin of 369°F.

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The reported peak clad temperature calculated for Calvert Cliffs Unit 2 is 2038°F. This provides a margin of 162°F to the 2200°F acceptance criteria. The LOCA analysis just completed for Unit 2 Cycle 7 without consideration of the subject non-conservatism calculates a peak clad temperature of 1945, which provides a margin of 255°F.

With this much margin on both units, incorporation of a more adverse axial power distribution would not be expected to increase peak clad temperature to a value approaching the regulatory limit. For this reason we believe that the current ECCS performance evaluation continues to demonstrate compliance with the acceptance criteria of 10 CFR 50.46.

Since the current C-E Evaluation Model used to perform the ECCS evaluation may not strictly comply with the requirement of Appendix K for use of an axial power distribution and peaking factor which produces the most severe calculated consequences, the NRC indicated (in the July 10 meeting) that it is not deemed as an acceptable tool for demonstrating compliance to 10 CFR 50.46. Because of this position we will be discussing this issue further with C-E and, if necessary, a schedule for submitting new analyses employing an evaluation model that is in full compliance with the regulations will be determined.

Due to the need to allow C-E time to talk with each of its affected utility customers and efficiently schedule the work to be done, while at the same time accommodating the needs and reload schedules of individual utilities, we cannot provide a schedule date for this effort at this time. We do, however, expect to provide that information to you within forty-five days from the date of this letter.

  
J. A. Mihaleik  
Fuel Cycle Management

JAM/lmt