

Mr. Ian C. Rickard, Director
 Nuclear Licensing
 ABB Combustion Engineering Nuclear Operations
 Post Office Box 500
 2000 Day Hill Road
 Windsor, Connecticut 06095-0500

December 14, 1999

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION (RAI) REGARDING
 CENPD-132-P, SUPPLEMENT 4-P (TAC NO. MA5660)

Dear Mr. Rickard:

Topical Report CENPD-132-P, Supplement 4-P, "Calculative Methods for the ABB CENP Large Break LOCA Evaluation Model," was submitted for staff review by ABB Combustion Engineering Nuclear Power Company letter dated April 30, 1999. As a result of the review, the staff has determined that additional information is needed to complete the review. The information needed is detailed in the enclosure.

The enclosed request was discussed with Mr. Jagelar of your staff on December 6, 1999. A mutually agreeable target date of March 3, 2000, was established for responding to the request for additional information. If circumstances result in the need to revise the target date, please call me at your earliest opportunity at (301) 415-1424.

Sincerely,

/s/
 Jack Cushing, Project Manager, Section 2
 Project Directorate IV & Decommissioning
 Division of Licensing Project Management
 Office of Nuclear Reactor Regulation

Project No. 692

Enclosure: Request for Additional Information

cc w/encl: Mr. Charles B. Brinkman, Manager
 Washington Operations
 ABB Combustion Engineering Nuclear Power
 12300 Twinbrook Parkway, Suite 330
 Rockville, MD 20852

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

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Sincerely,

A handwritten signature in black ink, appearing to read "J. Cushing".

Jack Cushing, Project Manager, Section 2
Project Directorate IV & Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

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REQUEST FOR ADDITIONAL INFORMATION

ON TOPICAL REPORT CENPD-132-P, SUPPLEMENT 4-P

"CALCULATIVE METHODS FOR THE ABB CENP LARGE BREAK

LOCA EVALUATION MODEL"

1. Section 2.4.1.2 of the topical report described two cases for the calculation of the steam generator secondary side pressure in the COMPERC-II code for the revised steam venting reflood thermal-hydraulics model of the 1999 evaluation model (EM). Describe selection criteria or logic between the two cases in the COMPERC-II code.
2. In the 1999 EM revised steam venting reflood thermal-hydraulics calculation, the steam generator (SG) secondary side heat transfer coefficient is calculated with Equation 2.4.1.3-1. The basic component of Equation 2.4.1.3-1, which was derived from a correlation for natural convection for vertical plates, appears to omit the definition of the characteristic length (L). Also, the FLECHT-SEASET report NUREG/CR-1534 indicated that among many natural convection correlations examined, the Eckert-Jackson correlation gives the most consistent results in the evaluation of the FLECHT-SEASET data.
 - (a) Confirm that equation 2.4.1.3-1 is correct, or make correction if necessary.
 - (b) Explain the merit of using Equation 2.4.1.3-1 instead of the Eckert-Jackson correlation for the SG secondary side heat transfer calculation.
3. In the assessment of the effect of steam generator inlet quality on LBLOCA analysis, Section 2.4.2.3.3 of the topical report indicated a specific value of the liquid entrainment fraction for the 1999 EM COMPERC-II entrainment model. Provide the origin and the basis of this value of the entrainment fraction in the 1999 EM COMPERC-II.
4. For the evaluation of the effects of de-entrainment in the upper plenum and hot legs on the reflood rate and peak cladding temperature (PCT), Section 2.4.2.3.4 of the report described the implementation of a special model in COMPERC-II in which the downcomer and lower plenum mass and energy equations are modified with the de-entrainment flow in the upper plenum and hot legs. Explain why the de-entrainment liquid is not added to the upper plenum, but to the downcomer and lower plenum; and discuss the effect of this modeling (adding the de-entrainment liquid to the downcomer) on the reflood rate and PCT.

Enclosure