March 28, 2007

Mr. James A. Gresham, Manager
Regulatory Compliance and Plant Licensing
Westinghouse Electric Company
P.O. Box 355
Pittsburgh, PA 15230-0355

SUBJECT: FURTHER REQUEST FOR ADDITIONAL INFORMATION (RAI)
RE: WESTINGHOUSE ELECTRIC COMPANY (WESTINGHOUSE) TOPICAL REPORT (TR) CENPD-132, SUPPLEMENT 4-P-A, "CALCULATIVE METHODS FOR THE CE NUCLEAR POWER LARGE BREAK LOCA EVALUATION MODEL - IMPROVEMENT TO 1999 LARGE BREAK LOCA EM STEAM COOLING MODEL FOR LESS THAN 1 IN/SEC CORE REFLOOD"
(TAC NO. MD2161)

Dear Mr. Gresham:

By letter dated May 11, 2006 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML061380688), Westinghouse submitted for U.S. Nuclear Regulatory Commission (NRC) staff review TR CENPD-132, Supplement 4-P-A, "Calculative Methods for the CE Nuclear Power Large Break LOCA [Loss-of-Coolant Accident] Evaluation Model - Improvement to 1999 Large Break LOCA EM Steam Cooling Model for Less Than 1 In/Sec Core Reflood." Upon review of the information provided, the NRC staff determined that a RAI was needed to support the issuance of the draft safety evaluation and requested this RAI by letter dated December 28, 2006 (ADAMS Accession No. ML063460187).

By letter dated January 10, 2007, (ADAMS Accession No. ML070190170), Westinghouse submitted its response to the initial set of RAI questions. Since that time, the NRC staff have determined that response to the enclosed RAI questions is needed to support issuance of the draft safety evaluation by April 16, 2007. On March 27, 2007, Mr. Robert Sisk, Manager, Fuel Engineering Licensing, and I agreed that the NRC staff will receive the response to the enclosed RAI questions by April 2, 2007. If you have any questions regarding the enclosed RAI questions, please contact me at 301-415-1119.

Sincerely,

/RA/

Jon H. Thompson, Project Manager
Special Projects Branch
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

Project No. 700

Enclosure: RAI questions

cc w/encl:
Mr. Gordon Bischoff, Manager
Owners Group Program Management Office
Westinghouse Electric Company
P.O. Box 355

Pittsburgh, PA 15230-0355
Mr. James A. Gresham, Manager March 28, 2007
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Owners Group Program Management Office
Westinghouse Electric Company
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ADAMS ACCESSION NO.: ML070820229 NRR-106

OFFICE	PSPB/PM	PSPB/LA	PSPB/BC
NAME	JThompson	DBaxley	SRosenberg
DATE	3/27/07	3/27/07	3/28/07

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DISTRIBUTION FOR REQUEST FOR ADDITIONAL INFORMATION QUESTIONS

Dated: March 28, 2007

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FURTHER REQUEST FOR ADDITION INFORMATION QUESTIONS

OFFICE OF NUCLEAR REACTOR REGULATION

TOPICAL REPORT (TR) CENPD-132, SUPPLEMENT 4-P-A, ADDENDUM 1-P,

"CALCULATIVE METHODS FOR THE CE NUCLEAR POWER LARGE BREAK LOCA

EVALUATION MODEL - IMPROVEMENT TO 1999 LARGE BREAK LOCA EM STEAM

COOLING MODEL FOR LESS THAN 1 IN/SEC CORE REFLOOD"

WESTINGHOUSE ELECTRIC COMPANY (WESTINGHOUSE)

PROJECT NO. 700

1. The complexity of the loss-of-coolant accident (LOCA) calculational suite (including the CE-FLASH4-A, COMPERC-II, STRIKIN-II, HTCOF, and PARCH codes) makes it difficult to follow the analysis with respect to the proposed modification. Please provide a narrative of the calculation as it progresses identifying the liquid available to cool the grids and the steam available to cool the hot fuel rod, to supplement the response to RAI question 3. Describe the transfer of information from one code to another and any re-calculation of the liquid and steam masses and distributions. (Included in this should be the methodology for calculating the steam cooling rate for reflood rates less than 1 inch per second, description of the heat from the rods as to whether it is used to superheat the steam or convert the saturated water to steam, and anything else that will describe the heat transfer and steam generation during reflood. TR CENDP-134, Section III.C.2 was examined and it did not specify the relevant heat transfer process during reflood with less than 1 inch per second.)

2. Based on a further review of WCOBRA/TRAC, it appears that the accepted re-wet temperature is at least 50 °F lower than the current value used (See Equations 6-167 and 6-101 in TR WCAP-12945-P-A). In addition, in WCOBRA/TRAC there is a void fraction dependance which would result in an even lower re-wet temperature. Finally, the acceptability of that grid spacer model was also based on the understanding that the uncertainties were accounted for in the overall WCOBRA/TRAC code bias and uncertainly. Since the objective of the modification is reportedly based on the previously accepted WCOBRA/TRAC method, provide additional justification for the current value, to supplement the information presented in the response to RAI question 5b, which relies on only two FEBA tests. Address the temperature selection justification for an Appendix K model, which should bound uncertainties.

3. Provide comparison results for the demonstration calculations with the accepted WCOBRA/TRAC value for grid re-wet.

4. Please verify that the limiting heat transfer coefficient is the convection heat transfer coefficient from FLECHT and not the convection plus radiation heat transfer coefficient. (That is, the heat transfer coefficient does not take into account any rod to rod thermal radiation in the FLECHT data.)

ENCLOSURE