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Docket No.: STN-52-003

April 18, 1994

Document Control Desk  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

ATTENTION: MR. R. W. BORCHARDT

SUBJECT: AP600 PASSIVE CONTAINMENT COOLING SYSTEM LETTER REPORTS

Dear Mr. Borchardt:

Enclosed are the following letter reports addressing phenomenological topics for the AP600 Passive Containment Cooling System (PCCS). The letter reports are intended to provide the NRC with a status on ongoing activities associated with the validation activities for the WGOTHIC computer code.

- Enclosure 1 - Westinghouse AP600 Letter Report, "Radiation Heat Transfer Through Fog in the PCCS Air Gap," December, 1993
- Enclosure 2 - Westinghouse AP600 Letter Report, "Liquid Film Model Validation", January 1994
- Enclosure 3 - Non-proprietary copy of Enclosure 1 and 2

Enclosure 1 documents the basis for neglecting the effect of fog on radiation heat transfer in the air gap in the AP600 PCCS analyses. The evaluation shows that neglecting the presence of fog in the air gap results in an acceptably small overestimate of the total containment heat rejection and an overprediction of the baffle temperature and heat transfer to the downcomer.

Enclosure 2 documents the analytical and experimental basis for using the Chun and Seban wavy laminar liquid film heat transfer coefficient in the WGOTHIC code for AP600 analyses. The evaluation shows that the existing test data validate the liquid film heat transfer correlation for application to over 97% of the external and 100% of the internal AP600 containment surface area. The 3% of the external surface not within the range of applicability is shown to have an overpredicted thermal resistance, which will result in a local underprediction of containment heat transfer.

The Westinghouse Electric Corporation copyright notice, proprietary information notice, application for withholding and affidavit are attached.

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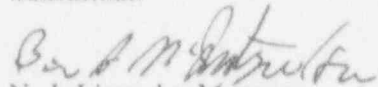
April 18, 1994

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Correspondence with respect to the application for withholding should reference AW-94-613, and should be addressed to N. J. Liparulo, Manager of Nuclear Safety And Regulatory Activities, Westinghouse Electric Corporation, P.O. Box 355, Pittsburgh, Pennsylvania, 15230-0355.

Please contact Brian A. McIntyre on (412) 374-4334 if you have any questions concerning this transmittal.

  
N. J. Liparulo, Manager  
Nuclear Safety & Regulatory Activities

/nja

Attachments  
Enclosures

cc: T. Kenyon, NRC (w/o Enclosures/Attachments)  
R. Hasselberg, NRC  
C. Hoxie, NRC  
A. Notafresco, NRC  
L. Shotkin, NRC (w/o Enclosures/Attachments)  
B. A. McIntyre, Westinghouse (w/o Enclosures/Attachments)