Westinghouse
Electric Corporation

Water Reactor
Divisions

Box 355
Pittsburgh Pennsylvania 15230-0355

June 2, 1986
NS-NRC-86-3130
SED-THA-86-106

Mr. Hugh Thompson, Jr., Director
Division of Pressurized Water Reactor Licensing - A
U.S. Nuclear Regulatory Commission
Mail Stop 528
7915 Eastern Avenue
Washington, D.C. 20555

Dear Mr. Thompson:

Enclosed are:

1. 10 copies of WCAP-9561-P-A, Addendum 3: Thimble Modeling in Westinghouse ECCS Evaluation Model (Proprietary).

2. 10 copies of WCAP-9561-NP-A, Addendum 3: Thimble Modeling in Westinghouse ECCS Evaluation Model (Non-Proprietary).

Also enclosed are:

1. One (1) copy of Application for Withholding, AW-86-044, (Non-Proprietary) with Proprietary Information Notice.

2. One (1) copy of Affidavit (Non-Proprietary).

The purpose of this letter is to inform you of the results of an assessment recently completed by Westinghouse on the effects of control rod thimbles on core hydraulics during a large LOCA. This assessment has indicated the need for some additions and corrections to the currently approved 1981 ECCS evaluation model and the 1981 ECCS evaluation model using BART.

A detailed description of the issue, its impact on current ECCS analyses, and recommended corrective actions is contained in the attached report. The effect of thimbles on flooding rate was found to have a small (6-12°F) effect on plants analyzed with the 1978 and 1981 versions of the Westinghouse ECCS evaluation model. It was also found that the metal heat model in these analyses is overly

conservative, compared with the approved model used in the analyses using BART. If a more accurate calculation of the metal heat flow is included in the analysis, the net effect of the above changes is a reduced PCT.

It has been concluded that, since the net impact of the changes outlined above is a PCT reduction for all plants analyzed with the 1978 and 1981 versions of the ECCS evaluation model, no further action is required for these plants.

The effect of thimbles on flooding rate was found to have a somewhat larger effect on plants analyzed with BART and could not be reduced by taking credit for reduced metal heat flow. The effect ranged from 10 to 20°F. In addition, these plants were further impacted by the need to remove a hot assembly power adjustment (originally included to account for thimbles) which was found to be inappropriate for BART. The combined effect of the thimbles on flooding rate and of removing the hot assembly power adjustment was found to be offset by conservatisms currently contained in BART, resulting in a net benefit. Thus, an analysis repeated with the required model changes and with the identified conservatisms removed will result in a lower peak clad temperature than the one currently on record. However, the effect of each individual change is greater than 20°F and thus is reported here as required by regulation.

This submittal contains proprietary information of Westinghouse Electric Corporation. In conformance with the requirements of 10CFR Section 2.790, as amended, of the Commission's regulations, we are enclosing with this submittal an application for withholding from public disclosure and an affidavit. The affidavit sets forth the basis on which the information may be withheld from public disclosure by the Commission.

Correspondence with respect to the Affidavit or Application for Withholding should reference AW-86-044 and should be addressed to R. A. Wiesemann, Manager of Regulatory and Legislative Affairs, Westinghouse Electric Corporation, P.O. Box 355, Pittsburgh, Pennsylvania 15230-0355.

Please contact Mr. Mike Young (412-374-5081) of my staff if you have any questions on this subject.

Very truly yours,

E. P. Rahe, Jr., Manager
Nuclear Safety Department

MYY:sm

Enclosure(s)

cc: C. Berlinger - NRC
R. Lobel - NRC
J. Wilson - NRC
File: SRC-PI-86-003