NS-EPR-2885
SED-SA-00615

Westinghouse
Electric Corporation

Water Reactor
Divisions

Box 355
Pittsburgh Pennsylvania 15230

February 21, 1984

(412) 374-4868

Dr. Cecil O. Thomas, Chief
Standardization & Special Projects Branch
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Submittal for Review of Westinghouse Topical Report, "Statistical Evaluation of LOCA Heat Source Uncertainties," WCAP-10395 (Proprietary).

Dear Dr. Thomas:

Enclosed are twenty-five (25) copies of the Westinghouse Topical Report, "Statistical Evaluation of LOCA Heat Source Uncertainties," WCAP-10395 (Proprietary).

Also enclosed is one copy of Application for Withholding (Non-proprietary).

The original technical report is submitted for NRC review and approval. The report describes an ECCS evaluation methodology which we refer to as the "Statistical Evaluation of LOCA Heat Source Uncertainties." This methodology seeks to improve the overly conservative LOCA models while maintaining compliance with the letter and intent of 10CRF50, Appendix K. The method does this by determining, with high condifence, the 95-percent probability peak cald temperature through the statistical combination of specific ECCS model uncertainties. The 95-percent probability peak clad temperature is then compared to the peak clad temperature calculated with an evaluation model which contains a better estimate heat source and only Appendix K specified heat source conservatisms. If the Appendix K specified conservatisms are sufficient to provide a safety margin beyond the 95-percent probability level, then the nonspecified conservatisms, which have been included in the model over the years, can be reduced without violating the letter or intent of Appendix K.

The Statistical Evaluation of LOCA Heat Source Uncertainties methodology has been applied to the Westinghouse 1981 ECCS evaluation model (EM) (WCAP-9220) and the 1981 ECCS EM with BART (WCAP-9561). The results indicate that both of the evaluation models with only Appendix K specified conservatisms, provide safety margin beyond the 95-percent probability level. The nonspecified conservatism of including nuclear uncertainties/conservatisms on top of design and measured core peaking factors can be eliminated without violating regulatory requirements.

DESIGNATED ORIGINAL

Certified By Patricia J. Hooton

T007
1/2

A reduction of LOCA ECCS evaluation model conservatisms improves calculated LOCA margin. This much needed improvement in LOCA margin can be used to improve plant operation. These improvements can take many forms, some of which are:

- o Reduced vessel fluence to reduce pressurized thermal shock concerns.
- o Maximized fuel management and operating flexibility.
- o Reduced reanalysis effort caused by minor plant modifications.

Westinghouse seeks approval for the convolution methodology as well as approval for the removal of nuclear uncertainties/conservatisms which are currently included in the determination of design and operating core peaking factors for Westinghouse 2, 3 and 4-loop PWRs with LOCA peak clad temperatures calculated to occur during the reflood portion of the loss of coolant transient.

If you have any questions concerning the topical report, please contact Dr. F. F. Cadek (412) 374-4720 or Mr. B. A. McIntyre (412) 374-5506.

The submittal contains proprietary information of Westinghouse Electric Corporation. In conformance with the requirements of 10CFR2.790 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 application for withholding should reference AW-84-6 and should be addressed to R. A. Wiesemann, Manager of Regulatory and Legislative Affairs, Westinghouse Electric Corporation, P.O. Box 355, Pittsburgh, PA 15230.

Very truly yours,

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

EPR/JMG/lmr

Enclosures

DESIGNATED ORIGINAL

Certified By Patricia J. Hoctor