



Westinghouse

Westinghouse Electric Company
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USA

16 October, 2002
LTR-NRC-02-52

Project No 700

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
One White Flint North
11555 Rockville Pike
Rockville, Maryland 20852-2738

**SUBJECT: RESPONSE TO NRC RAIS REGARDING WCAP-15682-P
[Enclosure 1-P Contains Westinghouse Proprietary Class 2 Material]**

- References:
1. Letter, D. Holland (USNRC) to D. M. Rowland (Westinghouse), "Westinghouse Electric Company - Request for Additional Information (RAI) on Topical Report WCAP-15682-P. "Westinghouse BWR ECCS Evaluation Model: Supplement 2 to Code Description, Qualification and Application" (TAC NO. MB4276)", October 4, 2002
 2. Letter, P. W. Richardson (Westinghouse) to USNRC Document Control Desk, "WCAP-15682-P, Westinghouse BWR ECCS Evaluation Model: Supplement 2 to Code Description, Qualification and Application", LTR-NRC-02-5, February 8, 2002

On October 4, 2002, the Nuclear Regulatory Commission (NRC) issued a Request for Additional Information (RAI - Reference 1) regarding its review of WCAP-15682-P. WCAP-15682-P (Reference 2) introduces improved fuel clad rupture criteria in the Loss-of-Coolant Accident (LOCA) Emergency Core Cooling System (ECCS) Evaluation Model (EM) and provides qualification bases of that improvement while maintaining the overall conservatism of the already approved LOCA ECCS EM.

Westinghouse has determined that the RAI response information contained in Enclosure 1-P is proprietary in nature. Consequently, it is requested that this information be withheld from public disclosure in accordance with the provisions of 10 CFR 2.790 and that copies of the information be appropriately safeguarded. The reasons for the classification of this information as proprietary are delineated in the affidavit provided in Enclosure 2. Enclosure 3 provides a non-proprietary version of the responses to the RAI.

If you have any questions regarding this matter, please do not hesitate to call Chuck Molnar of my staff at (860) 731-6286 or Bill Harris of our technical staff at (860) 731-1846.

Very truly yours,

Donald M. Rowland
Manager, Fuel Licensing & Special Projects
Westinghouse Electric Co. LLC

Enclosure(s): As stated

xc: w/Enclosures

- R. Caruso (NRC)
- T. Ford (NRC)
- G. Shukla (NRC)

7007

Westinghouse Proprietary Class 3

Enclosure 3 to LTR-NRC-02-52

**NON-PROPRIETARY RESPONSE TO RAIS
REGARDING WCAP-15836-P, REV. 0, FUEL ROD
DESIGN METHODS FOR BOILING WATER
REACTORS – SUPPLEMENT 1
WESTINGHOUSE ELECTRIC COMPANY LLC**

OCTOBER, 2002

WESTINGHOUSE PROPRIETARY CLASS 3

Responses to NRC Questions

Westinghouse received the following questions from NRC related to their review of WCAP-15682-P (Reference 1). Westinghouse responses to the questions are provided below.

NRC RAI No. 1

WCAP-15682-P states "that the only difference between this version of the Westinghouse ECCS Evaluation Model (EM) and the previously approved USA2 version is the methodology used to determine when the fuel rod cladding will rupture." Please confirm that no other changes have been made to the previously approved USA2 version.

Westinghouse Response

No methodology changes have been made between the USA2 and USA4 versions of the EM.

The USA3 EM, which was submitted to NRC in Appendix D of Reference 2, is identical to the USA2 EM except for its use of the ANS79 decay heat model. The NRC Safety Evaluation Report on CENPD-300-P-A indicated that use of the ANS79 decay heat model is not suitable for an Appendix K ECCS EM. Westinghouse does not use the USA3 EM in licensing applications.

NRC RAI No. 2

The previously approved USA2 EM was based only on single tube test data, whereas, the proposed USA4 EM uses bundle data to justify the assumption of cladding rupture on contact. Why is contact with adjacent rods a concern now and it was not a concern for the previously approved USA2 version? What has changed to make rod-to-rod touching a concern?

Westinghouse Response

Qualification of the USA2 EM involved comparison of the incidence of rupture and the degree of clad swelling to test data obtained from single tube tests (e.g., Reference 3). Since multi-tube test data were not used in the qualification of the USA2 EM, the occurrence of rod to rod contact was outside the range of qualification, which was submitted, reviewed and approved by the NRC staff in Reference 4. In applications of the USA2 EM, the limiting MAPLHGR may be determined as that value that precludes rod-to-rod contact. This occurs early in burnup when the cladding is more ductile than it is later in life. [

] As a result, plant operation is unnecessarily restricted by the limitation in USA2 EM qualification basis. The USA4 EM removes this limitation by expanding the qualification basis using available tube bundle test data.

The multiple tube tests discussed in Section 4.1.3 of WCAP-15682-P provide the basis for limiting burst strain to [] As discussed in WCAP-15682-P, []].

NRC RAI No. 3

Have the limiting conditions for a LOCA changed with the use of the proposed ECCS EM?

WESTINGHOUSE ELECTRIC COMPANY LLC

PROPRIETARY AFFIDAVIT

FOR

**RESPONSE TO RAIS REGARDING WCAP-15836-P,
REV. 0, FUEL ROD DESIGN METHODS FOR
BOILING WATER REACTORS – SUPPLEMENT 1**

Proprietary Affidavit

I, Ian. C. Rickard, depose and say that I am the Licensing Project Manager, Windsor Nuclear Licensing, of Westinghouse Electric Company LLC (WEC), duly authorized to make this affidavit, and have reviewed or caused to have reviewed the information which is identified as proprietary and described below.

I am submitting this affidavit in conformance with the provisions of 10 CFR 2.790 of the Commission's regulations for withholding this information. I have personal knowledge of the criteria and procedures utilized by WEC in designating information as a trade secret, privileged, or as confidential commercial or financial information.

The information for which proprietary treatment is sought, and which documents have been appropriately designated as proprietary, is contained in the following:

Enclosure 1-P to LTR-NRC-02-52, "Response to NRC RAIs Regarding WCAP-15682-P", October 2002

Pursuant to the provisions of Section 2.790(b)(4) of the Commission's regulations, the following is furnished for consideration by the Commission in determining whether the information included in the documents listed above should be withheld from public disclosure.

- i. The information sought to be withheld from public disclosure is owned and has been held in confidence by WEC. It consists of information concerning enhanced analysis methodologies for the design and evaluation of BWR fuel.
- ii. The information consists of test data or other similar data for the design, development and implementation of enhanced analysis methodologies for the design and evaluation of BWR fuel, the application of which results in substantial competitive advantage to WEC.
- iii. The information is of a type customarily held in confidence by WEC and not customarily disclosed to the public.
- iv. The information is being transmitted to the Commission in confidence under the provisions of 10 CFR 2.790 with the understanding that it is to be received in confidence by the Commission.
- v. The information, to the best of my knowledge and belief, is not available in public sources, and any disclosure to third parties has been made pursuant to regulatory provisions or proprietary agreements that provide for maintenance of the information in confidence.
- vi. Public disclosure of the information is likely to cause substantial harm to the competitive position of WEC because:
 - a. A similar product is manufactured and sold by major competitors of WEC.
 - b. WEC invested substantial funds and engineering resources in the development of this information. A competitor would have to undergo similar expense in generating equivalent information.
 - c. The information consists of enhanced analysis methodologies for the design and evaluation of BWR fuel, the application of which provides a competitive economic advantage. The availability of such information to competitors would enable them to design their product to better compete with WEC, take marketing or other actions to improve their product's position or impair the position of WEC's product, and avoid developing similar technical analysis in support of their processes, methods or apparatus.
 - d. In pricing WEC 's products and services, significant research, development, engineering, analytical, manufacturing, licensing, quality assurance and other costs and expenses must be included. The ability of WEC's competitors to utilize such information without similar expenditure of resources may enable them to sell at prices reflecting significantly lower costs.
 - e. Use of the information by competitors in the international marketplace would increase their ability to market a competing product, reducing the costs associated with their technology development.



Ian. C. Rickard
Licensing Project Manager
Westinghouse Electric Company LLC

Sworn to before me this 16th day of October, 2002



Notary Public
My commission expires: May 31, 2003

