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Calvert Cliffs
Nuclear Power Plant

A Member of the
Constellation Energy Group

January 16, 2002

U. S. Nuclear Regulatory Commission
Washington, DC 20555

ATTENTION: Document Control Desk

SUBJECT: Calvert Cliffs Nuclear Power Plant
Unit Nos. 1 & 2; Docket Nos. 50-317 & 50-318
Response to Request for Additional Information Concerning the License Amendment Request to Incorporate Methodology References for the Implementation of ZIRLO™ Clad Fuel Rods into the Technical Specifications

This letter provides the information we agreed to provide you in the December 18, 2001 teleconference (Reference a). This information supports and/or clarifies the information provided in Reference (b). This information does not change the conclusions of the significant hazards determination provided in Reference (b).

ZIRLO™ Topical Report

In January 2001, topical report CENPD-404-P was submitted to the U. S. Nuclear Regulatory Commission (NRC) for review. Topical report CENPD-404-P describes the implementation of ZIRLO™ fuel rod cladding material properties and correlations in Westinghouse Electric Company (WEC) design and safety analysis methodologies for Combustion Engineering, Inc. (CE) designed PWRs and fuel. Prior to the completion of the review by the NRC, Calvert Cliffs Nuclear Power Plant, Inc. (CCNPP) requested a license amendment (Reference b) to change the Technical Specifications to include this topical report in the list of analytical methods.

The topical report was generically accepted by the NRC for application to CE designed PWRs and fuel in September 2001 (Reference c). Westinghouse Electric Company published an approved version of the topical report in November 2001 (Reference d). The NRC safety evaluation stated that it is acceptable to use ZIRLO™ as the cladding material for CENP-designed plants subject to five conditions. The five conditions and Calvert Cliffs Nuclear Power Plant responses are as follows:

Condition 1:

The corrosion limit as predicted by the best-estimate model will remain below 100 microns for all locations of the fuel.

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CCNPP Response:

During the design of each fuel cycle, the corrosion thickness will be calculated using the best estimate models and methods. The calculated corrosion thickness will be verified to be no greater than the maximum allowable corrosion limit of 100 microns. In addition, to ensure this oxide limit is not exceeded, waterside corrosion measurements will be obtained for Calvert Cliffs high duty ZIRLO™ fuel to ensure the oxide thickness correlates to the fuel duty as expected.

Condition 2:

All the conditions listed in the safety evaluations for all the CENPD methodologies used for ZIRLO™ fuel analysis will continue to be met, except that the use of ZIRLO™ cladding in addition to Zircaloy-4 cladding is now approved.

CCNPP Response:

Calvert Cliffs Nuclear Power Plant will continue to abide by the conditions listed in the safety evaluations for all CENPD methodologies used for the analysis of ZIRLO™ fuel.

Condition 3:

All CENP methodologies will be used only within the range for which ZIRLO™ data was acceptable and for which the verifications discussed in CENPD-404-P and responses to requests for additional information were performed.

CCNPP Response:

Use of CENP methodologies within the accepted data ranges for ZIRLO™ will be verified during the design and safety analysis of each fuel cycle.

Condition 4:

Until data is available demonstrating the performance of ZIRLO™ cladding in CENP designed plants, the fuel duty will be limited for each CENP designed plant with some provision for adequate margin to account for variations in core design (e.g., cycle length, plant operating conditions, etc). Details of this condition will be addressed on a plant specific basis during the approval to use ZIRLO™ in a specific plant.

CCNPP Response:

The modified Fuel Duty Index (mFDI) will initially be limited until data is available demonstrating the performance of ZIRLO™ cladding at CCNPP.

The modified Fuel Duty Index of each ZIRLO™ clad fuel pin will be restricted to 110% of the maximum fuel duty previously experienced at CCNPP plants. For a fraction of the fuel pins in a limited number of assemblies (no more than eight fuel assemblies), the mFDI of ZIRLO™ clad fuel pins will be restricted to 120% of the maximum fuel duty previously experienced at CCNPP.

Currently, the maximum fuel pin value of the mFDI previously experienced at CCNPP is approximately 475. The predicted duty will be verified during the design of each fuel cycle. As our experience with ZIRLO™ clad fuel grows, that baseline, and therefore the limit, will increase.

If the mFDI and measured oxide thickness correlate as expected or is conservative relative to predictions, the mFDI would no longer be restricted except as required to meet the 100-micron oxide limit. The results from these inspections and measurements will be provided to the NRC.

Condition 5:

The burnup limit for this approval is 60 GWd/MTU.

CCNPP Response:

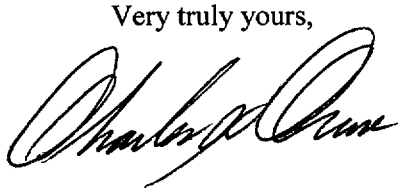
Calvert Cliffs will maintain the maximum integrated rod burnup below 60 GWd/MTU.

Large Break LOCA Model and Small Break LOCA Model Topical Reports

Calvert Cliffs Nuclear Power Plant requested a license amendment (Reference b) to change the Technical Specifications to include CENPD-132 Supplement 4-P-A and CENPD-137 (P) Supplement 2 in the list of analytical methods. These topical reports were generically accepted by the NRC (References e and f, respectively). All Emergency Core Cooling System performance analysis for CCNPP will conform to the methodologies of these topical reports, and will conform to the constraints and limitations of these Safety Evaluation Reports (Reference e and f).

Should you have questions regarding this matter, we will be pleased to discuss them with you.

Very truly yours,



STATE OF MARYLAND :
: **TO WIT:**
COUNTY OF CALVERT :

I, Charles H. Cruse, being duly sworn, state that I am Vice President - Nuclear Energy, Calvert Cliffs Nuclear Power Plant, Inc. (CCNPP), and that I am duly authorized to execute and file this License Amendment Request on behalf of CCNPP. To the best of my knowledge and belief, the statements contained in this document are true and correct. To the extent that these statements are not based on my personal knowledge, they are based upon information provided by other CCNPP employees and/or consultants. Such information has been reviewed in accordance with company practice and I believe it to be reliable.

Subscribed and sworn before me, a Notary Public in and for the State of Maryland and County of Calvert, this 16th day of January, 2002.

WITNESS my Hand and Notarial Seal:

Denise D Snukis
Notary Public

My Commission Expires:

2/01/02
Date

CHC/DJM/bjd

REFERENCES:

(a) Telephone Conference between Mr. G. S. Pavis, et.al. (CCNPP) and Ms. D. M. Skay, et.al. (NRC), dated December 18, 2001, same subject

(b) Letter from Mr. C. H. Cruse (CCNPP) to NRC Document Control Desk, dated July 27, 2001, "License Amendment Request: Incorporate Methodology References for the Implementation of ZIRLO™ Clad Fuel Rods into the Technical Specifications"

(c) Letter from Mr. S. A. Richards (NRC) to Mr. P. W. Richardson (WEC) dated September 12, 2001, "Safety Evaluation of Topical Report CENPD-404-P, Revision 0, 'Implementation of ZIRLO™ Material Cladding in CE Nuclear Power Fuel Assembly Designs,' (TAC No MB1035)"

(d) CENPD-404-P-A, Revision 0, "Implementation of ZIRLO™ Cladding Material in CE Nuclear Power Fuel Assembly Designs," dated November 2001

(e) Letter from Mr. S. A. Richards (NRC) to Mr. P. W. Richardson (WEC), dated December 15, 2000, Safety Evaluation of Topical Report CENPD-132 Supplement 4, Revision 1, "Calculative Methods for the CE Nuclear Power Large Break LOCA Evaluation Model" (TAC No MA5660)

(f) Letter from Mr. T. H. Essig (NRC) to Mr. I. C Rickard (ABB-CE), dated December 16, 1997, Acceptance for Referencing of the Topical Report CENPD-137 (P) Supplement 2, "Calculative Methods for the CE Small Break LOCA Evaluation Model" (TAC No M95687)

cc: R. S. Fleishman, Esquire
J. E. Silberg, Esquire
Director, Project Directorate I-1, NRC
D. M. Skay, NRC
H. J. Miller, NRC
Resident Inspector, NRC
R. I. McLean, DNR