

January 8, 1998

Mr. Charles H. Cruse
Vice President - Nuclear Energy
Baltimore Gas and Electric Company
Calvert Cliffs Nuclear Power Plant
1650 Calvert Cliffs Parkway
Lusby, MD 20657-4702

SUBJECT: CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NOS. 1 AND 2 -
CLARIFICATION OF SAFETY EVALUATION - AMENDMENT NOS. 223 AND 199

Dear Mr. Cruse:

On November 18, 1997, the Commission issued Amendment Nos. 223 and 199 to Facility Operating License Nos. DPR-53 and DPR-69 for Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2. The amendment allowed the use of Combustion Engineering, Inc. steam generator tube sleeves.

Based on discussions with the licensee, the staff has revised pages 1 and 5 (enclosed) of the Safety Evaluation (SE). The staff revised the SE to (1) delete an erroneous statement that a previous Combustion Engineering (CE) Topical Report was being deleted, (2) indicate that the amendment established rather than revised a plugging limit for CE sleeves, and (3) clarify that evaluations of CE sleeves at other plants (not Calvert Cliffs) formed part of the basis for the SE. If you have any questions, please call me at (301) 415-3473.

Sincerely,

Original Signed by:

Alexander W. Dromerick, Senior Project Manager
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket Nos. 50-317
and 50-318

Enclosure: Pages 1 and 5 of SE

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**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

WASHINGTON, D.C. 20555-0001

January 8, 1998

Mr. Charles H. Cruse
Vice President - Nuclear Energy
Baltimore Gas and Electric Company
Calvert Cliffs Nuclear Power Plant
1650 Calvert Cliffs Parkway
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Sincerely,

A handwritten signature in cursive script, reading "Alexander W. Dromerick".

Alexander W. Dromerick, Senior Project Manager
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket Nos. 50-317
and 50-318

Enclosure: Pages 1 and 5 of SE

cc w/encl: See next page

Mr. Charles H. Cruse
Baltimore Gas & Electric Company

Calvert Cliffs Nuclear Power Plant
Unit Nos. 1 and 2

cc:

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 223 TO FACILITY OPERATING LICENSE NO. DPR-53
AND AMENDMENT NO. 199 TO FACILITY OPERATING LICENSE NO. DPR-69
BALTIMORE GAS AND ELECTRIC COMPANY
CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NOS. 1 AND 2
DOCKET NOS. 50-317 AND 50-318

1.0 INTRODUCTION

By letters dated November 30, 1995, March 15, 1996, March 6, 1997, and June 27, 1997, Baltimore Gas and Electric Company (BGE), the licensee, submitted a request to change the Technical Specifications (TSs) at Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2. The proposed changes would incorporate references to a new Combustion Engineering, Inc. topical report describing steam generator tube sleeves, incorporate sleeve/tube inspection scope and expansion criteria, establish a plugging limit for a CE sleeve as 28% of the nominal sleeve wall thickness, and incorporate a post weld heat treatment of free span welds.

The updated CE Topical Report, CEN-630-P, Rev. #01, "Repair of 3/4" O.D. Steam Generator Tubes Using Leak Tight Sleeves," dated November 1996, addresses issues identified in 1996 at Prairie Island Unit 1. At issue, were indications detected in weld joints of CE sleeves resulting from inadequate cleaning. Because the bulk of the technical and regulatory issues for the present request are identical to those reviewed in other previous Safety Evaluations (SEs), this SE discusses only those issues warranting revision, amplification or inclusion based on current experience.

Details of prior staff evaluations of CE sleeves may be found in the SEs for Waterford Steam Electric Station, Unit 3, Docket No. 50-382, dated December 14, 1995; Byron Nuclear Power Station, Units 1 and 2 and Braidwood Nuclear Power Station, Units 1 and 2, Docket Nos. 50-454, 50-455, 50-456, and 50-457, dated April 12, 1996. These evaluations relate to the proposed Calvert Cliffs license amendment. The March 15, 1996, March 6, 1997, and June 27, 1997, letters provided clarifying information that did not change the initial proposed no significant hazards consideration determination.

2.0 BACKGROUND AND SUMMARY OF PREVIOUS REVIEWS

The proposed CE sleeve types are an expansion transition zone (ETZ) sleeve and a tube support sleeve. An ETZ sleeve is designed to restore the portion of a

Code minimum material properties in accordance with staff positions. Removal of tubes and/or sleeves from service when degradation reaches a plugging limit of 28% provides assurance that the minimum acceptable wall thickness will not be violated during the next subsequent cycle of operation. Adoption of the 28% plugging limit is reflected in the proposed wording for TS 4.4.5.4.a.7.c. and is acceptable.

3.4 Post Weld Heat Treatment

Accelerated corrosion tests confirm that a post weld heat treatment (PWHT) significantly improves the intergranular stress corrosion cracking resistance of the alloy 600 parent tube material in the weld zone. In its June 27, 1997, submittal, the licensee committed to performing PWHT of the welded joints in accordance with the CE generic sleeving report and the NRR staff position. This commitment is reflected by proposed revision to plant TS 4.4.5.4.a.10.b. and the TS change is acceptable.

3.5 Adoption of Revised Inservice Inspection Expansion Criteria

The licensee has proposed, through the incorporation of TS Table 4.4-3, to a minimum 20% (with expansion criteria) inservice inspection of all sleeved tubes in accordance with industry guidelines. The staff finds this inspection sample acceptable.

3.6 Staff Conclusions

The staff concludes the proposed sleeving repairs, as described in the new CE sleeve topical report, can be accomplished to produce sleeved tubes of acceptable structural integrity, leak tightness and corrosion resistance. The staff also finds the proposed preservice inspection methods for examining the conditions of the welds are acceptable.

The NRC staff concludes the repair of SG tubes using welded sleeves designed by CE is acceptable, as discussed above and reflected by TS revisions, to: 1) install welded CE sleeves in accordance with CE Topical Report CEN-630-P, Rev. #01, "Repair of 3/4" O.D. Steam Generator Tubes Using Leak Tight Sleeves," dated November 1996, 2) performing PWHT of the free span weld joints, 3) incorporating TS table 4.4-3 for sleeve inservice inspection sample size and expansion criteria, and, 4) establishing a sleeve plugging limit to 28% of the sleeve wall thickness. The bases have also been modified consistent with these TS changes.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Maryland State official was notified of the proposed issuance of the amendments. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR