

June 27, 2002

Mr. P. E. Katz  
Vice President - Nuclear Energy  
Calvert Cliffs Nuclear Power Plant, Inc.  
Calvert Cliffs Nuclear Power Plant  
1650 Calvert Cliffs Parkway  
Lusby, MD 20657-4702

SUBJECT: CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NO. 2 - AMENDMENT  
RE: EXCEPTION TO POST-MODIFICATION INTEGRATED LEAKAGE RATE  
TESTING (TAC NO. MB3444)

Dear Mr. Katz:

The Commission has issued the enclosed Amendment No. 230 to Renewed Facility Operating License No. DPR-69 for the Calvert Cliffs Nuclear Power Plant, Unit No. 2. This amendment consists of changes to the Technical Specifications (TSs) in response to your application transmitted by letter dated November 19, 2001, as supplemented by letter dated March 27, 2002.

The amendment revises TS 5.5.16 to eliminate the requirement to perform post-modification containment integrated leakage rate testing following replacement of the Unit 2 steam generators.

A copy of the related Safety Evaluation is enclosed. A Notice of Issuance will be included in the Commission's next regular biweekly *Federal Register* notice.

Sincerely,

/RA/

Donna Skay, Project Manager, Section 1  
Project Directorate I  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-318

Enclosures: 1. Amendment No. 230 to DPR-69  
2. Safety Evaluation

cc w/encls: See next page

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2. Safety Evaluation

cc w/encls: See next page

Accession Number: ML021490258

\*Input provided by safety evaluation dated May 9, 2002, incorporated with no significant changes.

OFFICE	PDI-1/PM	PDI-1/LA	SPLB/SC	PDI-1/SC	OGC
NAME	DSkay	SLittle	SWeerakoddy*	RLaufer	SBrock
DATE	6/7/02	6/7/02	05/09/02	6/26/02	6/11/02

OFFICIAL RECORD COPY

DATED: June 27, 2002

AMENDMENT NO. 230 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-69  
CALVERT CLIFFS UNIT 2

PUBLIC  
PDI-1 R/F  
RLaufer  
DSkay  
SLittle  
OGC  
GHill (2)  
WBeckner  
ACRS  
BPlatchek, RI  
Rlobel

cc: Plant Service list

CALVERT CLIFFS NUCLEAR POWER PLANT, INC.

DOCKET NO. 50-318

CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NO. 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 230  
Renewed License No. DPR-69

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Calvert Cliffs Nuclear Power Plant, Inc., (the licensee) dated November 19, 2001, as supplemented on March 27, 2002, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.2. of Renewed Facility Operating License No. DPR-69 is hereby amended to read as follows:

2. Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 230, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance and shall be implemented following the Unit 2 refueling and steam generator replacement outage in spring 2003.

FOR THE NUCLEAR REGULATORY COMMISSION

*/RA/*

Richard J. Laufer, Chief, Section 1  
Project Directorate I  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: June 27, 2002

ATTACHMENT TO LICENSE AMENDMENTS

AMENDMENT NO. 230 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-69

DOCKET NO. 50-318

Replace the following page of the Appendix A Technical Specifications with the attached revised page. The revised page is identified by amendment number and contain marginal lines indicating the areas of change.

Remove Page

5.0-31

Insert Page

5.0-31

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 230 TO RENEWED  
FACILITY OPERATING LICENSE NO. DPR-69  
CALVERT CLIFFS NUCLEAR POWER PLANT, INC.  
CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NO. 2  
DOCKET NO. 50-318

## 1.0 INTRODUCTION

By letter dated November 19, 2001, as supplemented March 27, 2002, Calvert Cliffs Nuclear Power Plant, Inc. (the licensee) submitted a request for changes to the Calvert Cliffs Nuclear Power Plant, Unit No. 2, Technical Specifications (TSs). The requested changes would allow a revision to the requirement to perform an Appendix J Type A test (containment integrated leakage rate test) following modifications to the containment pressure boundary including the replacement of the Calvert Cliffs Unit 2 steam generators. The March 27, 2002, letter provided clarifying information that did not change the initial proposed no significant hazards consideration determination.

## 2.0 REGULATORY EVALUATION

The licensee intends to replace the existing Unit 2 steam generators during the spring 2003 refueling outage. The steam generator replacement affects only the closed piping inside containment. The containment structure and the containment liner are not affected. However, the steam generator shell and the inside-containment portions of the main steam, feedwater, steam generator blowdown, and auxiliary feedwater lines are considered an extension of the primary reactor containment.

Technical Specification 5.5.16, "Containment Leakage Rate Testing Program," requires that a program be established to implement the leakage testing of the containment as required by 10 CFR 50.54(o) and 10 CFR Part 50, Appendix J, Option B. This program shall be in accordance with the guidelines of Regulatory Guide (RG) 1.163, "Performance-Based Containment Leak-Test Program." RG 1.163 endorses Nuclear Energy Institute (NEI) 94-01, Revision 0 for methods acceptable to comply with the requirements of Option B. NEI 94-01, Revision 0, Section 9.2.4, "Containment Repairs and Modifications," states:

Repairs and modifications that affect containment integrity require leakage rate testing (Type A testing or local leakage rate testing) prior to returning the containment to operation.

The area of the containment boundary that will be affected by the replacement is also part of the pressure boundary of an American Society of Mechanical Engineers (ASME) Class 2 component/piping system and, as such, the replacement of the steam generators is subject to the repair and replacement requirements of ASME Section XI. The acceptance criteria for ASME Section XI system pressure testing of welded joints is "zero leakage."

The ASME Section XI pressure test, unlike the Type A test, does not require the leakage rate to be quantified. The acceptance criterion for the proposed test is no visual through-wall leakage; therefore, there is no need to quantify the leakage rate. This acceptance criterion is more conservative than the Appendix J Type A test which allows some leakage. However, the ASME Section XI pressure testing can be done without removing the insulation over the piping. This allows some uncertainty in the leakage rate.

ASME Section XI requires non-destructive examination (NDE) and visual examination of welds and system leakage testing. If any through-wall leakage is detected from the welds, the leakage is required to be repaired before plant service continues.

The Nuclear Regulatory Commission (NRC) has approved similar requests for several licensees (see, for example, References 2 and 3).

### 3.0 TECHNICAL EVALUATION

The Unit 2 steam generator replacement will consist of the following operations, as described in the licensee's November 19, 2001, letter.

- Cutting and removing the main steam, feedwater, and other necessary lines from the steam generators.
- Cutting and removing the upper assemblies of the steam generators.
- Cutting the reactor coolant piping and removing the steam generator lower assemblies.
- Installing the new steam generator lower assemblies and re-welding the reactor coolant piping.
- Re-installing the steam generator upper assemblies on the new lower assemblies.
- Re-installing and re-welding the main steam and feedwater lines.

The steam generator replacement affects only the closed piping inside containment. The containment structure and the containment liner are not affected. The new steam generator assemblies and the old steam generator assemblies will transit through the containment equipment hatch. However, the steam generator shell and the inside-containment portions of the main steam, feedwater, steam generator blowdown, and auxiliary feedwater lines are considered an extension of the primary reactor containment. This position is discussed in Reference 1.

The licensee proposes to eliminate the requirement to perform post-modification containment integrated leakage rate testing following the replacement which is not consistent with the current TS 5.5.16. The licensee has proposed adding paragraph c to TS 5.5.16 which states: "Unit 2 is excepted from post-modification integrated leakage rate testing requirements associated with steam generator replacement." The licensee's March 27, 2002, letter replaced



the word "exempted" as originally proposed in the November 19, 2001, letter to "excepted" to eliminate misinterpreting the staff's approval as an exemption under 10 CFR 50.12.

The licensee stated that, because the affected area of the primary containment boundary is also part of the pressure boundary of an ASME Class 2 component/piping system, the steam generator replacement is also subject to the repair and replacement requirements of ASME Section XI. The ASME Section XI testing provides an alternative method which allows testing of only the modified portions of the containment barrier (steam generator shell and associated closed piping) instead of the more comprehensive Type A testing which would be performed on the entire containment barrier. In addition, the Section XI testing would accomplish leakage testing in Mode 3, in contrast to the current requirement to complete testing prior to entering Mode 4 since it requires testing to be performed at approximately normal reactor operating temperature and pressure. The staff has concluded that entering Modes 3 and 4 prior to quantifying the containment leakage rate is acceptable because the likelihood of a containment release is insignificant due to the configuration of the primary and secondary systems in Modes 3 and 4. In order to have a release through the modified closed piping systems, there would have to be a loss-of-coolant accident concurrent with a through-wall leak, with enough pressure in the containment to overcome main steam system pressure.

ASME Section XI also requires NDE and visual examination of welds and system leakage testing. NDE of the welds (ultrasonic or radiographic testing) provides assurance that the joints are free of flaws that could result in significant leakage. This NDE provides confidence to pressurize the secondary side of the steam generators and demonstrate leak-tight integrity with the unit in Mode 3 under no-load conditions.

The NRC staff reviewed the ASME Section XI requirements and determined that the ASME Section XI surface examination, volumetric examination, and system pressure testing requirements are more stringent than the Type A testing requirements of Appendix J (which are currently required by TS 5.5.16). The objective of the Type A test is to ensure the leak-tight integrity of the containment area affected by the modification. The ASME Section XI inspection and testing requirements more than fulfill the intent of the requirements of Appendix J and the provisions of NEI 94-01, Section 9.2.4. In addition, the test pressure for the system pressure test will be approximately 17 times that of a Type A test.

Therefore, the staff finds the basis for the licensee's proposed exception from performing a post-modification Type A test following the steam generator replacements to be acceptable, and finds the proposed change to TS 5.5.16 to be acceptable.

#### 4.0 STATE CONSULTATION

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

#### 5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has

determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (67 FR 12599). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

## 6.0 REFERENCES

1. Letter from Anthony H. Hsia, USNRC, to Thomas J. Kovach, Commonwealth Edison Company, "Staff Position Regarding Leakage Out of Containment," February 25, 1991.
2. Letter from David B. Matthews, USNRC, to Mr. J. P. O'Hanlon, Virginia Electric and Power Company, "Issuance of Exemptions from the Requirements of 10 CFR Part 50, Appendix J Associated with Type A Testing Requirements - North Anna Power Station, Unit No. 2 (NA-2) (TAC No. M91778)," March 29, 1995 (ADAMS Accession No. ML013520485).
3. Letter from Allen G. Hansen, USNRC, to Robert E. Link, Wisconsin Electric Power Company, "Amendment Nos. 169 and 173 to Facility Operating License Nos. DPR-24 and DPR-27 - Point Beach Nuclear Plant, Unit Nos. 1 and 2 (TAC Nos. M95668 and M95669)," October 9, 1996.

## 7.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above that (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: R. Lobel

Date: June 27, 2002

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Unit Nos. 1 and 2

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