

December 3, 2003

Mr. P. E. Katz, Vice President  
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 NOS. 1 AND 2 -  
AMENDMENT RE: REMOVAL OF CHARGING PUMPS FROM THE  
EMERGENCY CORE COOLING SYSTEM TECHNICAL SPECIFICATION (TS)  
3.5.2, "ECCS - OPERATING" (TAC NOS. MB6989 AND MB6990)

Dear Mr. Katz:

The Commission has issued the enclosed Amendment No. 260 to Renewed Facility Operating License No. DPR-53 and Amendment No. 237 to Renewed Facility Operating License No. DPR-69 for the Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2. These amendments consist of changes to the Technical Specifications (TSs) in response to your application transmitted by letter dated December 13, 2002, as supplemented September 25, 2003.

These amendments change the TSs by removing the requirement to have the charging pumps operable when thermal power is greater than 80% of rated thermal power. The change also removes Surveillance Requirement 3.5.2.4 for verifying the required charging pump flow rate. The change to TS 3.5.2 does not modify any other charging pump requirements in the Technical Requirements Manual (e.g., requirements of charging pump availability for boration and cooldown remain in effect).

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 by P. Tam for/**

Guy S. Vissing, Senior Project Manager, Section 1  
Project Directorate 1  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket Nos. 50-317 and 50-318

Enclosures: 1. Amendment No. 260 to DPR-53  
2. Amendment No. 237 to DPR-69  
3. Safety Evaluation

Calvert Cliffs Nuclear Power Plant  
Unit Nos. 1 and 2

cc:

cc w/encls: See next page  
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Guy S. Vissing, Senior Project Manager, Section 1  
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2. Amendment No. 237 to DPR-69  
3. Safety Evaluation

cc w/encls: See next page

ADAMS Accession No.: **ML031320507** \*Safety Evaluation provided - no significant changes

OFFICE	PDI-1/PM	PDI-1/LA	PDI-1/SC	SRXB/SC*	OGC
NAME	PTam for GVissing	SLittle	DSkay for RLaufer	JUhle*	MLemoncelli
DATE	12/3/03	12/3/03	12/3/03	05/06/03	12/3/03

**OFFICIAL RECORD COPY**

DATED: December 3, 2003

AMENDMENT NO. 260 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-53  
CALVERT CLIFFS UNIT 1

AMENDMENT NO. 237 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-69  
CALVERT CLIFFS UNIT 2

DISTRIBUTION:

PUBLIC  
PDI-1 R/F  
RLauffer  
SLittle  
GVissing  
OGC  
GHill (2)  
WBeckner  
ACRS  
CBixler, RI  
TBoyce  
JWermiel

cc: Plant Service list

CALVERT CLIFFS NUCLEAR POWER PLANT, INC.

DOCKET NO. 50-317

CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NO. 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 260  
Renewed License No. DPR-53

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 December 13, 2002, as supplemented September 25, 2003 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-53 is hereby amended to read as follows:

2. Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 260, are hereby incorporated into 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 within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION

**/RA by D. Skay/**

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: December 3, 2003

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. 237  
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 December 13, 2002, as supplemented September 25, 2003 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. 237, 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 within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION

**/RA by D. Skay/**

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: December 3, 2003

ATTACHMENT TO LICENSE AMENDMENTS

AMENDMENT NO. 260 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-53

AMENDMENT NO. 237 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-69

DOCKET NOS. 50-317 AND 50-318

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

Remove Pages

3.5.2-1  
3.5.2-2

Insert Pages

3.5.2-1  
3.5.2-2

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 260 TO RENEWED  
FACILITY OPERATING LICENSE NO. DPR-53  
AND AMENDMENT NO. 237 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-69  
CALVERT CLIFFS NUCLEAR POWER PLANT, INC.  
CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NOS. 1 AND 2  
DOCKET NOS. 50-317 AND 50-318

1.0 INTRODUCTION

By letter dated December 13, 2002, as supplemented September 25, 2003, Calvert Cliffs Nuclear Power Plant, Inc. (CCNPPI or the licensee) submitted a request for changes to the Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2, Technical Specifications (TSs). The requested changes would change the TSs by removing the requirement to have the charging pumps operable when thermal power is greater than 80% of rated thermal power. The change would also remove Surveillance Requirement (SR) 3.5.2.4 for verifying the required charging pump flow rate. The proposed change also removes from the TS the requirement for injecting boron and coolant into the reactor above 80-percent power or above a reactor coolant pressure of 1700 psi. By letter dated September 2, 2003, the licensee submitted additional information to address the removal of the requirement for injecting boron and reactor coolant at high reactor power and pressure. The proposed change to TS 3.5.2 does not modify any other charging pump requirements in the Technical Requirements Manual (e.g., requirements of charging pump availability for boration and cooldown remain in effect). The September 25, 2003, supplemental letter provided clarifying information that did not enlarge the scope of the amendment as noticed in the original *Federal Register* notice or change the initial proposed no significant hazards consideration determination.

The proposed change to the TS 3.5.2, "ECCS [emergency core cooling system] - Operating," is based on the reanalysis of a small-break (SB) loss-of-coolant accident (LOCA) using a new small-break LOCA methodology. The Nuclear Regulatory Commission (NRC) staff approved the small-break LOCA methodology. The methodology and the results of this reanalysis are documented in CENPD-137, Supplement 2-P-A, "Calculative Methods for the ABB CE Small Break LOCA Evaluation Model," April 1998. The licensee performed a reanalysis of SBLOCA using the new methodology and the results of the new reanalysis conformed to the ECCS acceptance criteria of 10 CFR 50.46(b). This proposed change will allow maintenance of charging pumps at power and will provide operational flexibility to the licensee while maintaining

safety. The proposed change will not affect boration and cooling requirements of charging pumps in lower modes of operation and these requirements will remain in the TSs.

## 2.0 REGULATORY EVALUATION

The Commission's regulatory requirements related to the content of TSs are set forth in 10 CFR 50.36 which ensures that the TS specified limiting conditions for operations are consistent with assumed values of the initial conditions in the licensee's safety analyses. In accordance with the 10 CFR 50.36, the NRC staff and the Nuclear Sub System Supplier Owner's groups developed improved standard technical specifications (ISTS) which meet 10 CFR 50.36(c)(2)(ii) and 10 CFR 50.36(c)(3) requirements. The licensee is using the guidance from the staff-approved NUREG-1432, Revision 1, and the guidance from NUREG-800, Standard Review Plan as appropriate for their plant. The CENPD-137, Supplement 2-P-A, the reanalysis of SBLOCA results showed that without charging pump flow credit, the acceptance criteria of 10 CFR 50.46 and 10 CFR Part 50 Appendix K are met.

## 3.0 TECHNICAL EVALUATION

The function of the ECCS is to provide core cooling and negative reactivity to ensure that the reactor core is protected during design-basis accidents including LOCAs, anticipated transient without scram, and Steam Generator Tube Rupture. The original SBLOCA analysis required charging pump flow credit to meet 10 CFR 50.46 criteria when the plant rated thermal power (RTP) is above 80% during Modes 1 and 2 operation. At or below 80% RTP, there was a corresponding decrease in decay heat such that the injection of water from one charging pump was not required to achieve acceptable results in the SBLOCA analyses.

The licensee performed the new SBLOCA ECCS performance analysis using Westinghouse SBLOCA evaluation model for Combustion Engineering designed pressurized-water reactors. The new evaluation model meets the acceptance criteria of 10 CFR Part 50 Appendix K.

The new SBLOCA analysis incorporated several changes to plant parameters used in the previous analyses. There was no credit accounted for the charging pump flow in the new analysis. The new SBLOCA analysis explicitly modeled the replacement steam generators with up to 10% tube plugging and increased the reactor coolant system flow rate to 370,000 gpm in contrast to 340,000 gpm which was used in the current analysis. The current SBLOCA analysis modeled the original steam generators with up to approximately 30% tube plugging per steam generator with reduced RCS flow rate. This is a significant change in plant parameter which has improved core heat transfer. The staff reviewed and approved the new ECCS evaluation model and the findings are listed in CENPD-137, Supplement 2-P-A, "Calculative Methods for the ABB CE Small Break LOCA Evaluation Model," April 1998. The licensee performed a reanalysis of SBLOCA using the new methodology and the results of the new reanalysis conformed to the ECCS acceptance criteria of 10 CFR 50.46(b) (Reference 1). The new SBLOCA analysis is applicable to Calvert Cliffs Unit 1 Cycle 16 which has a replacement steam generator. It would be applicable to Calvert Cliffs Unit 2 in their upcoming Cycle 15 with a replacement steam generator.

The licensee provided additional information to demonstrate that the charging pumps are not required to mitigate the consequences of a steam generator tube rupture (SGTR). The

licensee only credited the high-pressure safety injection pumps in the safety analysis to maintain coolant inventory and satisfy boration requirements during an SGTR.

The licensee confirmed that CCNPP design conforms to the requirements of 10 CFR 50.62, "Requirements for reduction of risk from anticipated transients without scram (ATWS) events for light-water-cooled nuclear power plants." 10 CFR 50.62(c)(2) requires the "scram system must be designed to perform its function in a reliable manner." Since the CCNPP probabilistic risk assessment analysis demonstrates that the charging pumps are necessary to prevent core damage during ATWS, the charging pumps are enveloped by the requirements of 10 CFR 50.62. Since the requirements of 10 CFR 50.62 are equivalent to the charging pump TSs requirements, the charging pump TSs are redundant and may be removed from the CCNPP TSs.

Since the charging pumps are not an input assumption for any design basis accident analysis with a new ECCS evaluation model, it meets the 10 CFR 50.36(c)(2)(ii) requirement. Therefore, the current requirements of charging pump and its SR 3.5.2.4 in TS 3.5.2, "ECCS - Operating," will be removed during Modes 1 and 2 operation. However, the other charging pumps requirements of boration and cooling will remain in TS during Modes 3 and 4 operation. This proposal will facilitate the charging pump maintenance during power and will provide operational flexibility to the licensee while maintaining safety.

In summary, the NRC staff has determined that the licensee proposed change of TS 3.5.2, "ECCS - Operating," is acceptable because it meets the current regulations of 10 CFR 50.36, 10 CFR 50.46, 10 CFR 50.62, and 10 CFR Part 50 Appendix K criteria.

#### 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 Part 20 and changes surveillance requirements. The NRC staff has determined that the amendments involve 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 amendments involve no significant hazards consideration, and there has been no public comment on such finding (68 FR 7812). Accordingly, the amendments meet 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 amendments.

#### 6.0 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 amendments will not be inimical to the common defense and security or to the health and safety of the public.

#### 7.0 REFERENCE

1. Letter from Mr. C. H. Cruse, CCNPPI to NRC Document Control Desk, dated May 9, 2002, "10 CFR 50.46 30-day Report for changes to the Calvert Cliffs Nuclear Power Plant Emergency Core Cooling System Performance Analysis."

Principal Contributor: K. Desai

Date: December 3, 2003