

April 4, 2002

Mr. Charles H. Cruse  
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 - EMERGENCY  
AMENDMENT RE: ONE-TIME EXTENSION OF THE UNIT 2 CONTROL ROOM  
EMERGENCY VENTILATION SYSTEM TECHNICAL SPECIFICATION (TAC NO.  
MB4698)

Dear Mr. Cruse:

The Commission has issued the enclosed Amendment No. 227 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 April 1, 2002.

The amendment increases the allowed outage time of one train of the control room emergency ventilation system from 14 to 21 days (for the loss of the emergency power supply only). This is a one-time change to support corrective maintenance and inspections of the 1A Diesel Generator during the Unit 1 refueling outage.

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 1  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-318

Enclosures: 1. Amendment No. 227 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

Package: ML020990060

TS: ML020980221

Accession Number: ML020920286

\*See previous concurrence

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DATE	4/03/02	4/2/02	4/4/02	04/03/02	4/4/02

**OFFICIAL RECORD COPY**

DATED: April 4, 2002

AMENDMENT NO. 227 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-69  
CALVERT CLIFFS UNIT 2

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Unit Nos. 1 and 2

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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. 227  
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 April 1, 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. 227, 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.

FOR THE NUCLEAR REGULATORY COMMISSION

*/RA/*

Joel Munday, Acting 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: April 4, 2002

ATTACHMENT TO LICENSE AMENDMENTS

AMENDMENT NO. 227 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

3.7.8-2

Insert Page

3.7.8-2

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 227 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 April 1, 2002, Calvert Cliffs Nuclear Power Plant, Inc. (CCNPPI or the licensee) submitted a request for changes to the Calvert Cliffs Nuclear Power Plant, Unit No. 2, Technical Specifications (TSs). The requested changes would increase the allowed outage time of one train of the control room emergency ventilation system (CREVS) from 14 to 21 days (for the loss of the emergency power supply only). This is a one-time change to support corrective maintenance and inspections of the 1A Diesel Generator (DG) during the Unit 1 refueling outage.

2.0 BACKGROUND

Calvert Cliffs Units 1 and 2 have a common control room. The CREVS is a shared system that consists of two redundant trains. Number 11 CREVS receives power from Unit 1 through 4 kV Bus. No. 11, with No. 1A DG as the emergency power supply. With either unit in modes 1 through 4, the TSs require both trains of the CREVS to be operable. The TSs allow one train of the CREVS to be inoperable for up to 10 days due to its emergency power supply being inoperable. The 10-day allowed outage time (AOT) is derived from TS 3.8.1 which allows a DG to be inoperable for 72 hours before declaring the associated CREVS train inoperable and TS 3.7.8.2.D which allows one train of CREVS to be inoperable for up to 7 days.

During the Unit 1 2002 refueling outage, corrective maintenance and manufacturer recommended inspections were scheduled for the No. 1A DG. The licensee estimated that this work would take up to 14 days to complete and requested a TS amendment to extend the time that one train of CREVS could be inoperable due to inoperability of the emergency power supply from 10 to 14 days. The NRC approved this one-time license amendment by letter dated February 13, 2002 (Amendment No. 223). Due to unforeseen circumstances, as detailed in Section 4.0 of this safety evaluation, CCNPPI has requested that the one-time increase in the AOT of 14 days for the CREVS be extended to a one-time AOT of 21 days.



### 3.0 EVALUATION

Calvert Cliffs Updated Final Safety Analysis Report describes the two redundant emergency ventilation system trains for the control room. The safety function of the CREVS is to maintain the control room habitable for operators and to maintain the environment needed for continued equipment operation. The CREVS utilizes fans, dampers, filters, and compressors to accomplish its safety functions. To allow for a single failure of the system, the control room is served by two redundant, 100% capacity CREVS. Each of the CREVS is powered from a different safety-related bus, which are powered from different DGs.

During the 2002 refueling outage for Unit 1, the emergency power supply for No. 11 CREVS will be inoperable for up to 21 days while inspections and corrective maintenance are performed on No. 1A DG. Per the TS, as revised by Amendment 223, Unit 2 may remove one of the CREVS trains from service for up to 14 days due to emergency power supply being inoperable, thereby eliminating the single failure protection. This temporary relaxation of the single failure criterion, consistent with overall system reliability considerations, provides a limited time to make modifications, repair equipment, and conduct testing.

The No. 11 CREVS — which does not directly impact core damage frequency or large early release frequency but does support the control room envelope safe haven for operators to control the plant during postulated radiological, smoke, or other toxic gas events — will be functional during the period of the extended AOT. No. 11 CREVS will have an offsite power supply available during this period. Realignment of normal power sources for No. 11 CREVS may be conducted to allow other maintenance on the electrical distribution system below the 4kV bus level. In addition, the No. 11 CREVS will have emergency power supplied by the No. 0C DG, a non-safety related alternate AC power source. The licensee has evaluated the 0C DG for the same condition existing on the No. 1A emergency diesel generator (EDG) since they are similar DGs from the same manufacturer. Because the condition discovered on the 1A EDG met the vendor acceptance criteria and the 0C DG experienced fewer thermal cycles than the 1A EDG, the licensee is confident that the 0C DG will remain capable of performing its function following a loss of offsite power (LOOP). Loss of all power to the No. 11 CREVS would require loss of the four offsite power sources and the failure of the No. 0C DG to start.

The only design-basis event that could interrupt normal power to both CREVS trains is LOOP. The offsite power system for Calvert Cliffs consists of three 500 kV transmission lines that meet in a common switchyard and a fourth 69 kV transmission line that connects to 13 kV buses. The three 500 kV lines are independent of each other and each is mounted on a weather-resistant tower along a single right-of-way. The 69 kV transmission line enters a separate substation on the site along a different right-of-way and is buried for most of its length on Calvert Cliffs property. Offsite power could be inadvertently lost through maintenance activities and weather-related events. The design and construction of the four transmission lines lessens their vulnerability to weather-related events, including hurricanes, tornadoes and ice storms. The licensee anticipates that all work on the 1A DG will be completed before the time of the year when tornadoes and hurricanes have historically been experienced at Calvert Cliffs. In addition, the 69 kV transmission lines are designed for one-half inch coating of ice, and the 500 kV lines are designed to remain functional with a one and-one-half inch coating of ice. Because of the redundancy and diversity of the electrical power sources, the probability of a LOOP is very low. Finally, to minimize the possibility of a LOOP, the licensee will restrict maintenance

activities on its portion of the three 500 kV offsite transmission lines during the No. 1A DG inspection and maintenance.

The redundant CREVS train will be OPERABLE during the 1A DG inspection and maintenance. The licensee will also restrict planned maintenance on the No. 12 CREVS while the No. 11 CREVS is inoperable to ensure the availability of the alternate train. In addition, the licensee does not plan to remove the emergency power source from the No. 12 CREVS while in the Action Statement for the No. 11 CREVS.

Based on the above, the probability of postulated events that could successfully challenge the CREVS function seems fairly low. Therefore, the Nuclear Regulatory Commission (NRC) staff has reasonable assurance that a one-time AOT increase from effectively 14 to 21 days will not pose undue risk to public health and safety. This change extends the previously approved AOT increase (from 10 to 14 days) an additional 7 days.

#### 4.0 STATEMENT OF EMERGENCY CIRCUMSTANCES

The No. 1A EDG was taken out of service on March 25, 2002, to perform maintenance and testing. During a past inspection of No. 1A EDG, small cracks were observed in two pistons which are being replaced during this outage. Due to the configuration of these engines, replacement of these two pistons requires disassembly of four cylinders. During the piston replacement work, the licensee discovered that small cracks existed on the cylinder heads for the four cylinders scheduled for maintenance. The EDG vendor determined that the small cracks that were found on the cylinder heads do not affect the ability of the EDG to perform its safety function. They are believed to be caused by thermal cycles. None of the cracks exceeded the vendor's acceptance criteria. However, the licensee decided to replace the cracked cylinder heads and to inspect additional cylinder heads.

The work necessary to restore the No. 1A EDG as an emergency power supply for No. 11 CREVS should be completed by mid-April. However, the Unit 2 CREVS Action Statement will expire on April 8, requiring Unit 2 to be shut down. The licensee did not expect to find cracking on the cylinder heads during the repair of the cylinders. The licensee has not experienced this type of cracking previously, and is not aware of any U.S. operating experience that would have alerted them to this condition. Therefore, the licensee could not have anticipated the need to inspect the other cylinder heads. As a consequence, the necessity for this emergency relief could not have been reasonably avoided.

The licensee indicated that the additional 7 days would be adequate to complete the replacement and testing.

The NRC staff does not believe that CCNPPI abused the emergency provisions of 10 CFR 50.91(a)(5) in this instance. As detailed above, CCNPPI could not have anticipated the need to inspect and replace the cylinder heads. CCNPPI immediately contacted the NRC staff and initiated an emergency amendment request when they determined that the replacement activities would take longer than the AOT. Therefore, in accordance with 10 CFR 50.91(a)(5), the Commission has determined that emergency circumstances exist that warrant prompt action. The situation, as detailed above, could not have been reasonably avoided and CCNPPI and the Commission must act quickly. The time remaining between now and the time that the

unit would be required to shut down, April 8, 2002, does not permit the Commission to publish a Federal Register notice allowing 30 days for prior public comment. The Commission has also determined that the requested amendment, as discussed in Section 6.0, does not involve a significant hazards consideration.

## 5.0 SUMMARY

Based on its review of CCNPPI's rationale and the evaluation described above, the NRC staff concurs with the licensee's conclusion that the likelihood of the loss of both trains of CREVS resulting from loss of emergency power is very low during the required 21-day AOT. Therefore, the NRC staff finds that the proposed TS change to revise the Unit 2 CREVS TS 3.7.8 to provide a one-time extension from 14 to 21 days to the AOT for one inoperable train is acceptable.

## 6.0 FINAL NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

The Commission has proved standards for determining whether a significant hazards consideration exists (10 CFR 50.92(c)). A proposed amendment to an operating license for a facility involves no significant hazards consideration if operation of the facility in accordance with the proposed amendment would not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) create the possibility of a new or different kind of accident from an accident previously evaluated; or (3) involve a significant reduction in a margin of safety.

The licensee provided an analysis to address these three questions. The NRC staff performed its own analysis, which is set forth below:

1. Would not involve a significant increase in the probability or consequences of an accident previously evaluated.

The Control Room Emergency Ventilation System (CREVS) is used to mitigate the consequences of an accident. It is designed so that the Control Room remains habitable for operators and to maintain the environment needed for continued equipment operation. The CREVS is not an accident initiator for any previously evaluated accident. Therefore, the proposed change does not involve an increase in the probability of an accident previously evaluated.

The CREVS is designed to mitigate the consequences of design basis accidents. For that purpose, redundant trains are provided to protect against a single-failure. During the current Technical Specification fourteen-day allowed outage time (AOT), an operating unit is allowed by the Technical Specifications to remove one of the CREVS trains from service, thereby eliminating this single-failure protection. The consequences of a design basis accident coincident with a failure of the redundant CREVS train during the additional seven-day period are the same as those during the original ten-day AOT. Therefore, the proposed change does not significantly increase the consequences of an accident previously evaluated.

Therefore, the proposed change does not increase the probability or consequences of an accident previously evaluated.

2. Would not create the possibility of a new or different type of accident from any accident previously evaluated.

The CREVS is not being modified by this proposed change nor will any unusual operator actions be required. The system will continue to operate in the same manner. The CREVS is not an initiator to any accident, but is designed to respond should an accident occur. Therefore, the proposed change does not create the possibility of a new or different type of accident from any accident previously evaluated.

3. Would not involve a significant reduction a margin of safety.

The operability of the CREVS during Modes 1 through 4 ensures that the Control Room will remain habitable for operators and to maintain the environment needed for continued equipment operation under all plant conditions. The proposed change does not affect the function of the CREVS. During the period of the Technical Specification AOT when one CREVS train is inoperable, the margin of safety is reduced. This time period is a temporary relaxation of the single-failure criteria, which, consistent with overall system reliability considerations, provides a limited time to maintain or repair the equipment and conduct testing. The licensee is requesting an extension of this limited time. The proposed change will allow one train of the CREVS to be without an emergency power supply for an additional seven days beyond the current fourteen-day AOT (total of 21 days). This train of CREVS will be functional and will have an offsite power supply available for this period. While the emergency power supply is out-of-service, realignment of normal power sources for the affected CREVS may be conducted to allow other maintenance to the electrical distribution system below the 4 kV bus level. The other train of the CREVS will have both its normal and emergency power supplies during this period.

Compensatory actions that will be taken to help prevent the loss-of-offsite power to the CREVS include: minimizing maintenance activities on the three 500 kV offsite transmission lines during the period the licensee is in the Action Statement for CREVS; ensuring that the alternate AC power source (No. 0C Diesel Generator) is available to 4 kV Bus No. 11; and restricting planned maintenance on the No. 12 CREVS and its emergency power supply during the period to ensure that the No. 12 CREVS is not removed from service.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above considerations, the NRC staff concludes that the amendment meets the three criteria of 10 CFR 50.92. Therefore, the NRC staff has made a final determination that the proposed amendment does not involve a significant hazards consideration.

## 7.0 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.

## 8.0 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 made a final no significant hazards consideration with respect to this amendment. 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.

## 9.0 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.

Principal Contributor: D. Skay

Date: April 4, 2002