

**Constellation
Nuclear**

**Calvert Cliffs
Nuclear Power Plant**

*A Member of the
Constellation Energy Group*

April 1, 2002

U. S. Nuclear Regulatory Commission
Washington, DC 20555

ATTENTION: Document Control Desk

SUBJECT: Calvert Cliffs Nuclear Power Plant
Unit No. 2; Docket No. 50-318
Emergency License Amendment Request; One Time Extension of the Unit 2
Control Room Emergency Ventilation System Technical Specification

- REFERENCES:**
- (a) Letter from Mr. C. H. Cruse (CCNPP) to NRC Document Control Desk, dated November 19, 2001, License Amendment Request; One Time Extension of the Unit 2 Control Room Emergency Ventilation System Technical Specification
 - (b) Letter from Ms. D. M. Skay (NRC) to Mr. C. H. Cruse (CCNPP), dated February 13, 2002, Calvert Cliffs Nuclear Power Plant, Unit No. 2 – Amendment Re: One-Time Extension of the Unit 2 Control Room Emergency Ventilation System Technical Specification (TAC No. MB3445)

Pursuant to 10 CFR 50.90, the Calvert Cliffs Nuclear Power Plant, Inc. (CCNPP) hereby requests an Emergency Amendment to Renewed Operating License No. DPR-69 by incorporating the changes described below into the Technical Specifications for Calvert Cliffs Unit 2.

DESCRIPTION

The proposed emergency amendment would revise the Unit 2 Control Room Emergency Ventilation System (CREVS) Technical Specifications to provide an extension of the allowed outage time (AOT) from a total of 14 days to a total of 21 days for one train inoperable due to the emergency power supply being inoperable. This is an extension of the previously requested and approved change (References a and b).

Calvert Cliffs Units 1 and 2 have a common Control Room and the CREVS consists of two redundant trains. The CREVS is designed so that the Control Room can be occupied under all plant conditions (plant control during startup, normal operation, shutdown, and emergency operation). Number 11 CREVS receives power from Unit 1 through 4 kV Bus No. 11 with No. 1A Emergency Diesel Generator

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(EDG) as the emergency power supply and No. 12 CREVS receives power from Unit 2 through 4 kV Bus No. 24 with No. 2B EDG as the emergency power supply. With either unit in Modes 1 through 4, the Technical Specifications require both trains of the CREVS to be operable. Normally, the Technical Specification allows one train of CREVS to be inoperable for a total of ten days due to its emergency power supply being inoperable. Technical Specification 3.8.1 allows the diesel generator (DG) from the other unit that supplies power to the CREVS to be inoperable for up to 72 hours (three days) before we are required to declare the CREVS inoperable. Then Technical Specification 3.7.8 allows the CREVS to be inoperable for up to seven days. Reference (a) requested, and Reference (b) approved, an extension of four days to Technical Specification 3.7.8, for a total of 14 days with the CREVS inoperable due to its emergency power supply being inoperable. We are now requesting a further extension of that AOT.

CURRENT CONDITION

As described in Reference (a), corrective maintenance and inspections are being performed on No. 1A EDG during the 2002 refueling outage. 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. This is the first major internal engine work since commissioning of these engines in 1996.

This work on No. 1A EDG results in No. 11 CREVS not having a safety-related emergency power supply during that time. This required Calvert Cliffs to request a one-time Technical Specification change to the Unit 2 CREVS (Reference a). This request was approved in Reference (b). The No. 1A EDG work was expected to be completed within 14 days.

On March 25, 2002, the No. 1A EDG was taken out-of-service to begin the maintenance work. During the piston replacement work, we discovered that small cracks existed on the cylinder heads for the four cylinders scheduled for maintenance. We have contacted the EDG vendor and 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, we prudently decided to replace the cracked cylinder heads and to inspect additional cylinder heads. These maintenance activities will require more time than had originally been allotted for this work. In addition, we continue to work closely with the vendor to further understand the phenomenon.

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. We did not expect to find cracking on the cylinder heads during our repair of the cylinders. We have not experienced this type of cracking previously and do not know of any U.S. operating experience that would have alerted us to this condition. Therefore, we could not have anticipated the need to inspect the other cylinder heads and planned that into our maintenance schedule. As a consequence, the necessity for this emergency relief could not have been reasonably avoided.

REQUESTED CHANGE

Change Technical Specification 3.7.8 of the Unit 2 Technical Specifications as shown on the marked-up page in Attachment (1). Final typed pages are also enclosed.

SAFETY ANALYSIS

Calvert Cliffs Updated Final Safety Analysis Report describes the two redundant emergency ventilation systems 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, and filters to accomplish its safety functions. To allow for a single-failure to the system, the Control Room is served by two redundant 100 percent capacity CREVS. Each of the CREVS is powered from a different safety-related bus, which is powered from different EDGs.

During this refueling outage, 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 EDG. An operating unit is allowed by the Technical Specifications to remove one of the CREVS trains from service for up to ten days due to its emergency power supply being inoperable, thereby eliminating the single-failure protection. This temporary relaxation of the single-failure criteria, consistent with overall system reliability considerations, provides a limited time to make modifications, repair equipment, and conduct testing. We are requesting a further extension of this limited time. The consequences of a design basis accident coincident with a loss-of-offsite power and a failure of the redundant CREVS train during the additional seven day period are the same as those during the currently approved fourteen-day AOT. We believe that the requested extension (14 days to 21 days) is acceptable based on the limited time requested, the reliability of the redundant train, the availability of No. 0C DG, and the low potential for a loss-of-normal (offsite) power as described below.

The only design basis event that could interrupt normal power to both CREVS trains is a loss-of-offsite power. The offsite power system consists of three 500 kV transmission lines that meet in a common switchyard, and a separate 69 kV transmission line that connects to our 13 kV busses. The three 500 kV lines are independent of each other and are mounted on weather-resistant towers along a single right-of-way. The 69 kV transmission line comes into a separate substation on the site along a different right-of-way (meeting General Design Criteria 17 requirements) and is buried for most of its length on Calvert Cliffs Nuclear Power Plant property. The design of our switchyard permits only two redundant networks from the switchyard to the 4 kV bus. Therefore, our design has four off-site power sources to feed the two redundant networks within the switchyard. Two ways that offsite power could be inadvertently lost are through maintenance activities and weather-related events. To reduce the possibility that maintenance activities could contribute to a loss-of-offsite power, we will minimize maintenance activities on our portion of the three 500 kV offsite transmission lines until emergency power (EDG) is restored to 4 kV Bus No. 11. This will provide additional margin beyond the two transmission lines required by Technical Specifications.

The design and construction of the four transmission lines lessens their vulnerability to weather-related events. Tornadoes and hurricanes are weather-related threats to the transmission system. The probability of tornadoes and hurricanes striking Calvert Cliffs were previously evaluated for the Station Blackout rule response. The frequencies reported were 7.7×10^{-6} per year for tornadoes, and 0.13 per year for hurricanes. Winter ice storms are another potential threat to the transmission system. Although data on ice accumulation is not available, the temperatures are generally above freezing and snowfall and sleet are minimal during April. The 69 kV transmission lines are designed for one-half inch coating of ice. The 500 kV lines are designed to remain functional with a one-and-one-half inch coating of ice. Based on the design of the transmission system and the time of year that the work is scheduled, we believe that the vulnerability of the transmission system to a weather-related event is minimized and is acceptable.

In addition to minimizing maintenance activities on three of the four transmission lines, we will provide an alternative power source during the period No. 1A EDG is inoperable. We will have No. 0C DG available to the 4 kV Bus No. 11. This action further reduces risk since there will be a backup power source available to the bus. However, we will remain in the Action Statement because the No. 0C DG is not safety-related.

The No. 11 CREVS train will be functional and will have an offsite power supply available during this maintenance period. While No. 1A EDG is out-of-service, realignment of normal power sources for No. 11 CREVS may be conducted to allow other maintenance on our electrical distribution system below the 4 kV bus level. To provide an alternate power supply during this period, we will have No. 0C DG (the non-safety-related alternate AC power source) available to the 4 kV Bus No. 11. Although the No. 0C DG was designed and procured under the same requirements as the No. 1A EDG, the No. 0C DG is not safety-related mainly because it does not auto-start or meet the safety-related requirements for natural phenomenon.

We have evaluated the No. 0C DG for the same condition existing on the No. 1A EDG, since they are similar diesel generators from the same manufacturer. As discussed previously, we believe the cracks discovered on the No. 1A EDG cylinder heads were caused by thermal cycles and met the vendor acceptance criteria. The vendor acceptance criteria is based on extensive European operating experience. Therefore, since the operating and maintenance history of the No. 0C DG shows that it experienced fewer thermal cycles than the No. 1A EDG, we are confident that the No. 0C DG remains capable of performing its function following a loss-of-offsite power. (Note: The other three EDGs at Calvert Cliffs are of a different design and fabricated by a different vendor.)

Other factors that could have an impact on the ability of the CREVS to perform its safety function are the reliability of the unaffected CREVS train. The No. 12 CREVS train is reliable based on its past performance. To ensure its availability, we will restrict planned maintenance on the No. 12 CREVS while the No. 11 CREVS does not have emergency power. Additionally, we have not planned to remove the emergency power source from the No. 12 CREVS while in the Action Statement for the No. 11 CREVS. If an unforeseen circumstance causes the loss-of-emergency power to No. 12 CREVS while in this condition, we will follow the appropriate Action Statement for the loss of both CREVS. This proposed extension has no effect on the time limits for the Action Statement associated with the loss of both CREVS.

DETERMINATION OF SIGNIFICANT HAZARDS

The proposed change to Technical Specification 3.7.8 will provide a one-time extension from 14 to 21 days of the allowed outage time for one train of the Control Room Emergency Ventilation System to be inoperable due to the emergency power supply being inoperable.

The proposed change has been evaluated against the standards in 10 CFR 50.92 and has been determined to not involve a significant hazards consideration in operation of the facility in accordance with the proposed amendment:

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 system is redundant (two 100 percent capacity trains) and is powered from both normal (offsite) and emergency (diesel generators) power sources. We are proposing an amendment that would allow the emergency power to be removed from one of the redundant CREVS for an additional seven days (beyond the fourteen days currently allowed by the Technical Specifications). Other than the removal of the emergency electrical power source, we are not affecting or modifying the operation of the CREVS. 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 our electrical distribution system below the 4 kV bus level. 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 in the 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. We are 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 our 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.

To provide additional assurance that all reasonable steps have been taken to prevent the loss-of-offsite power to the CREVS, we will minimize maintenance activities on the three 500 kV offsite transmission lines during the period we are in the Action Statement for CREVS. To provide an alternative power source during this period, we will ensure the alternate AC power source (No. 0C Diesel Generator) is available to 4 kV Bus No. 11. This power source is independent from the offsite power supplies. In addition, we will restrict planned maintenance on the No. 12 CREVS and its emergency power supply during the period we are in the Action Statement to ensure that the No. 12 CREVS is not removed from service.

We believe that the reduction in the margin of safety represented by this one-time extension of the AOT is not significant based on our management of plant risk, the reliability of the normal CREVS power supply, the availability of the redundant CREVS with both its normal and emergency power, and the mitigating features described above. Therefore, the proposed change does not involve a significant reduction in a margin of safety.

ENVIRONMENTAL ASSESSMENT

We have determined that operation with the proposed amendment would not result in any significant change in the types, or significant increases in the amounts, of any effluents that may be released offsite, nor would it result in any significant increase in individual or cumulative occupational radiation exposure. Therefore, the proposed amendment is eligible for categorical exclusion as set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment is needed in connection with the approval of the proposed amendment.

SAFETY COMMITTEE REVIEW

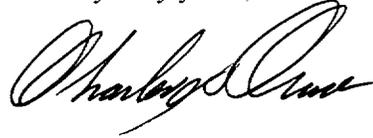
The Plant Operations and Safety Review Committee and Offsite Safety Review Committee have reviewed this proposed change and concur that operation with the proposed changes will not result in an undue risk to the health and safety of the public.

SCHEDULE

This change is requested to be approved and issued by April 8, 2002. As discussed in the Background Section of this letter, issuance of this amendment is identified as impacting continued plant operation.

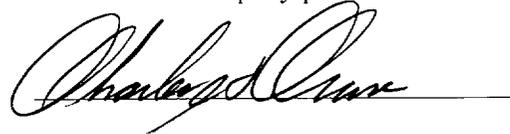
Should you have questions regarding this matter, we will be pleased to discuss them with you.

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 Anne Arundel, this 1 day of April, 2002.

WITNESS my Hand and Notarial Seal:

Christine De Graff
Notary Public
Commissioned as Christine Hollinger

My Commission Expires:

April 18, 2005
Date

CHC/PSF/bjd

Attachment: (1) Unit 2, Technical Specification Marked-up and Final Pages 3.7.8

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

ATTACHMENT (1)

UNIT 2

TECHNICAL SPECIFICATION

MARKED-UP & FINAL PAGES

3.7.8

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One CREVS train inoperable for reasons other than Condition A, B, or C in MODE 1, 2, 3, or 4.	D.1 Restore CREVS train to OPERABLE status.	7 days*
E. Required Action and associated Completion Time of Condition A, B, C, or D not met in MODE 1, 2, 3, or 4.	E.1 Be in MODE 3. <u>AND</u> E.2 Be in MODE 5.	6 hours 36 hours
F. Required Action and associated Completion Time of Condition B not met during movement of irradiated fuel assemblies. <u>OR</u>	F.1 Suspend movement of irradiated fuel assemblies.	Immediately

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* This Action is extended from 7 days to ~~7~~ 18 days (for loss of the emergency power supply only) during the Unit 1 2002 Refueling Outage. This extension begins when the No. 1A Diesel Generator allowed outage time as specified in Technical Specification 3.8.1 expires. The extension ends when No. 1A Diesel Generator is declared OPERABLE on 4 kV Bus No. 11 under Technical Specification 3.8.1 or ~~7~~ 18 days has expired, whichever is first.

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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One exhaust to atmosphere isolation valve inoperable in MODE 1, 2, 3, or 4.	C.1 Restore valve to OPERABLE status.	7 days
D. One CREVS train inoperable for reasons other than Condition A, B, or C in MODE 1, 2, 3, or 4.	D.1 Restore CREVS train to OPERABLE status.	7 days*
E. Required Action and associated Completion Time of Condition A, B, C, or D not met in MODE 1, 2, 3, or 4.	E.1 Be in MODE 3. <u>AND</u> E.2 Be in MODE 5.	6 hours 36 hours
F. Required Action and associated Completion Time of Condition B not met during movement of irradiated fuel assemblies.	F.1 Suspend movement of irradiated fuel assemblies.	Immediately

* This Action is extended from 7 days to 18 days (for loss of the emergency power supply only) during the Unit 1 2002 Refueling Outage. This extension begins when the No. 1A Diesel Generator allowed outage time as specified in Technical Specification 3.8.1 expires. The extension ends when No. 1A Diesel Generator is declared OPERABLE on 4 kV Bus No. 11 under Technical Specification 3.8.1 or 18 days has expired, whichever is first.