



**Constellation
Nuclear**

**Calvert Cliffs
Nuclear Power Plant**

*A Member of the
Constellation Energy Group*

November 19, 2001

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
License Amendment Request: One-Time Extension of the Unit 2 Control Room
Emergency Ventilation System Technical Specification

Pursuant to 10 CFR 50.90, the Calvert Cliffs Nuclear Power Plant, Inc. hereby requests an Amendment to Renewed Operating License No. DPR-69 to provide a one-time extension, from 10 to 14 days, of the allowed outage time (AOT) for one train of the Control Room Emergency Ventilation System (CREVS) to be inoperable due to the emergency power supply being inoperable. This one-time extension is necessary to support corrective maintenance and manufacturer recommended inspections scheduled for the No. 1A Diesel Generator (DG) during the Unit 1 2002 Refueling Outage (RFO). The proposed change to Technical Specification 3.7.8 is shown in Attachment (1). The final Technical Specification pages will be renumbered to accommodate the insertion of this change, if necessary.

BACKGROUND

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 DG as the emergency power supply and No. 12 CREVS receives power from Unit 2 through 4 kV Bus No. 24 with No. 2B DG 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. Currently, the Technical Specification allows one train of CREVS to be inoperable for up to ten days due to its emergency power supply being inoperable. Technical Specification 3.8.1 allows the DG from the other unit that supplies power to the CREVS to be inoperable for up to 72 hours (3 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.

During the Unit 1 2002 RFO, corrective maintenance and manufacturer recommended inspections are scheduled for No. 1A DG. During a past inspection of No. 1A DG, small cracks were observed in two pistons. These cracks are located in the lip of the pistons. Per discussions with the manufacturer, these

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cracks do not threaten the safety function of the diesel, but the pistons should be replaced as soon as possible. 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 (1996).

In addition to the above corrective maintenance, the manufacturer recommends a scope of inspections to be performed every two years. We perform these inspections during plant outages. Therefore, these manufacturer recommended inspections will also be performed during the 2002 RFO. We estimate that it will take up to 14 days to complete both the piston replacement work and the recommended inspections. This estimate includes some contingency time to allow for the fact that this work is not regularly performed and to obtain additional parts if needed.

The No. 11 CREVS train will be functional and will have an offsite power supply available during this period. While No. 1A DG is out-of-service, realignment of normal power sources for No. 11 CREVS may be conducted to allow other maintenance to 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 DG, the No. 0C DG is not safety-related mainly because it does not auto-start or meet the safety-related requirements for natural phenomena.

This configuration does not create a challenge to safety for Unit 1 since it will be in either Mode 5 or Mode 6 during the RFO and No. 1B DG will be operable to satisfy the emergency power requirements for Unit 1 during this period. However, No. 1A DG is the emergency power supply for No. 11 CREVS. This component supports Unit 2 continued operation. The No. 11 CREVS train is one of two redundant CREVS trains for the common Control Room. As such, it is required to be operable whenever either unit is in Modes 1 through 4. As discussed above, the loss of the emergency power to No. 11 CREVS makes it inoperable and would require the shutdown of Unit 2 after ten days.

Although the proposed extension involves No. 11 CREVS train, the risk impact is primarily due to No. 1A DG being out-of-service. As explained above, the risk impact needs to be evaluated for Unit 2 only. Because this is a one-time change, we used the acceptance criteria in Regulatory Guides 1.174 to evaluate the risk impacts of the proposed extension.

Regulatory Guide 1.174 provides acceptance guidance for risk-informed plant changes, and provides two sets of criteria depending on the plant's total annual core-damage frequency (CDF) and large early release frequency (LERF). We used the more restrictive criteria since our total CDF is estimated to be around the threshold $1E-04$. Under that criteria, Regulatory Guide 1.174 states that a plant change should result in CDF and LERF increases of less than $1E-06$ and $1E-07$ per reactor year respectively. Based on four additional days of No. 1A DG out-of-service time, the proposed AOT extension meets the Regulatory Guide 1.174 criteria of a delta increase of less than $1E-6$ per reactor year for CDF and $1E-07$ per reactor year for LERF.

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 DGs.

During the 2002 RFO, the emergency power supply for No. 11 CREVS will be inoperable for up to 14 days while inspections and corrective maintenance are performed on No. 1A DG. 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 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 an 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 four day period are the same as those during the ten-day AOT. We believe that the requested extension (10 days to 14 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 (DG) 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. We anticipate that all of the work on No. 1A DG will be completed before the time of year when tornadoes and hurricanes have historically been experienced at Calvert Cliffs. The probability of tornadoes and hurricanes striking Calvert Cliffs were previously evaluated for the Station Blackout rule response. The probabilities 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 March and 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.

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 is inoperable. 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.

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 DG 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.

DETERMINATION OF SIGNIFICANT HAZARDS

The proposed change to Technical Specification 3.7.8 will provide a one-time extension from 10 to 14 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 amendments:

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 four days (beyond the ten days 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 effected 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 Technical Specification ten-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 four-day period are the same as those during the 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 four days beyond the ten-day AOT (total of 14 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 effected CREVS maybe 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 February 15, 2002. The work on No. 1A DG is scheduled to begin mid-March during the Unit 1 2002 RFO. The Unit 1 2002 RFO is currently scheduled to begin February 15, 2002. As discussed above, delaying issuance of this amendment will impact continued Unit 2 operation.

PRECEDENT

1. Letter from R. E. Denton (BGE) to NRC Document Control Desk, dated September 23, 1994, License Amendment Request; One-Time Technical Specification Changes to Support the 1995 Refueling Outage

Approved in Letter from Mr. D. G. McDonald, Jr. (NRC) to Mr. R. E. Denton (BGE), dated January 11, 1995, Issuance of Amendments for Calvert Cliffs Nuclear Power Plant, Unit No. 1 (TAC No. M90500) and Unit 2 (TAC No. M90501)

2. Letter from Mr. R. E. Denton (BGE) to NRC Document Control Desk, dated October 2, 1995, License Amendment Request; One-Time Technical Specification Change to Support the 1996 Refueling Outage

Approved in Letter from Mr. D. G. McDonald, Jr. (NRC) to Mr. R. E. Denton (BGE), dated December 19, 1995, Issuance of Amendment for Calvert Cliffs Nuclear Power Plant, Unit No. 2 (TAC No. M93851)

ATTACHMENT (1)

TECHNICAL SPECIFICATIONS

MARKED-UP PAGE

3.7.8.2

ACTIONS (continued)

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

Insert A

INSERT A

- * This Action is extended from 7 days to 11 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 11 days has expired, whichever is first.