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October 2, 1995

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 Technical Specification Change to Support the 1996 Refueling Outage

Pursuant to 10 CFR 50.90, the Baltimore Gas and Electric Company hereby requests an Amendment to Operating License No. DPR-69 by incorporating the changes described below into the Technical Specifications for Calvert Cliffs Unit No. 2.

Currently, Calvert Cliffs has three emergency diesel generators (EDGs) to provide the onsite emergency power supply for both Units. During the Unit 1 1996 refueling outage, Baltimore Gas and Electric Company will connect a fourth EDG to provide emergency electrical power to Unit 1. Unit 2 will continue at full power operation during the refueling outage. In order to connect the fourth safety-related EDG to Engineered Safety Features (ESF) Bus No. 11, the bus must be deenergized for a period of several days. For personnel safety reasons, ESF Bus No. 11 will be isolated from its normal (offsite) and emergency (EDG) power supplies. We expect the normal power to be restored after about three days, however, due to the remaining installation and testing work on the new EDG, the emergency power may not be restored to the bus for up to 30 days.

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 refueling outage. However, emergency power to No. 11 Control Room Emergency Ventilation System (CREVS) is affected by this work. 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 (see Technical Specification 3.7.6.1). The loss of normal or emergency power to No. 11 CREVS makes it inoperable (per Technical Specification 3.7.6.1) and would require the shutdown of Unit 2 after 7 days. Therefore, we are requesting an extension of the Unit 2 Technical Specification Action Statements 3.7.6.1.a and b from 7 days to 30 days for a loss of emergency power. Attachment (1) describes the change in greater detail.

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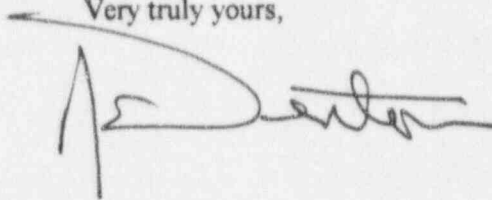
We believe that the requested extension does not create an undue risk to the public health and safety. We have evaluated the likelihood of a loss of offsite power (when the CREVS would need EDG power) and find that it is low. Additional actions will be taken to provide assurance that the CREVS normal (offsite) power supply will not be lost, and we are also adding a non-safety-related diesel generator as a power supply for No. 11 CREVs for part of the requested time. In the event that the normal power supply is lost, the No. 12 CREVS would still have its emergency power supply and is capable of providing safety functions. Attachment (1) provides a complete discussion of the risks and mitigating actions.

We have evaluated the significant hazards considerations associated with this change as required by 10 CFR 50.92, and determined that there are none (see Attachment 2 for a complete discussion). We have also 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, and in no significant increase in individual or cumulative occupational radiation exposure. Therefore, the proposed amendment is eligible for categorical exclusion as set forth in 10 CFR Part 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. The Plant Operations and Safety Review Committee and Offsite Safety Review Committee have reviewed the proposed change and concurred that the change involves no significant hazards considerations and operation with the proposed change will not result in an undue risk to the health and safety of the public.

The work on ESF Bus No. 11 is scheduled to begin the day after we enter Mode 5 on Unit 1 (currently scheduled for March 17, 1996). Therefore, we request that this change be approved before Unit 1 enters Mode 5 on March 17, 1996. As discussed above and in Attachment (1), delaying issuance of this amendment will impact continued Unit 2 operation.

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

Very truly yours,



STATE OF MARYLAND :  
: TO WIT:  
COUNTY OF CALVERT :

I hereby certify that on the 2<sup>nd</sup> day of October, 1995, before me, the subscriber, a Notary Public of the State of Maryland in and for Calvert County, personally appeared Robert E. Denton, being duly sworn, and states that he is Vice President of the Baltimore Gas and Electric Company, a corporation of the State of Maryland; that he provides the foregoing response for the purposes therein set forth; that the statements made are true and correct to the best of his knowledge, information, and belief, and that he was authorized to provide the response on behalf of said Corporation.

WITNESS my Hand and Notarial Seal:

Michelle D. Hall  
Notary Public

My Commission Expires:

February 2, 1998  
Date

RED/PSF/dlm

- Attachments: (1) Description and Licensing Basis Evaluation
- (2) Determination of Significant Hazards
- (3) Unit 2 Marked-Up Technical Specifications Page

- cc: D. A. Brune, Esquire
- J. E. Silberg, Esquire
- L. B. Marsh, NRC
- D. G. McDonald, Jr., NRC
- T. T. Martin, NRC
- H. K. Lathrop, NRC
- R. I. McLean, DNR
- J. H. Walter, PSC

**ATTACHMENT (1)**

**DESCRIPTION  
AND LICENSING BASIS EVALUATION**

**Baltimore Gas and Electric Company  
License Amendment Request  
October 2, 1995**



## ATTACHMENT (1)

### DESCRIPTION AND LICENSING BASIS EVALUATION

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#### DESCRIPTION OF PLANT CONDITION

Currently, Calvert Cliffs has three emergency diesel generators (EDGs) to provide the onsite emergency power supply for both Units. One EDG is dedicated to each Unit, with the third EDG acting as a "swing" EDG capable of providing power to either Unit. During the Unit 1 1996 refueling outage, Baltimore Gas and Electric Company (BGE) will connect a fourth EDG to provide emergency electrical power. After the refueling outage, Calvert Cliffs will then have two EDGs dedicated to each Unit. This work is necessary to improve system reliability and to complete our commitments under the Station Blackout rule.

In order to connect the fourth safety related EDG to Engineered Safety Features (ESF) Bus No. 11, the bus will have the emergency power (EDGs) and the normal power (offsite) isolated at various times throughout the process. Unit 1 will be in either Mode 5 or Mode 6 during this installation work. The shutdown Unit is only required to have one EDG operable in accordance with Technical Specification 3.8.1.2. The risk to Unit 1 of isolating power from ESF Bus No. 11 will be evaluated as part of the normal outage preparation process. While the work on ESF Bus No. 11 is being performed, the "swing" EDG will be operable and capable of providing emergency power to the other Unit 1 ESF bus (No. 14), as required by Technical Specification 3.8.1.2.

However, there are several components supporting Unit 2 continued operation which are affected by the loss of power to Unit 1 ESF Bus No. 11. The only component described in the Technical Specifications is the No. 11 Control Room Emergency Ventilation System (CREVS). The No. 11 CREVS is one of two redundant CREVS for the common Control Room. As such, it is required to be operable whenever either Unit is in Modes 1 through 4 (see Technical Specification 3.7.6.1).

We have performed an evaluation of plant risk accounting for this evolution, and it is acceptable. Based on this evaluation, we will have plans in place to manage plant risk so that the risk associated with this evolution does not cause the annual core damage frequency, as calculated by the Calvert Cliffs Probabilistic Risk Assessment, to be exceeded. As part of these plans, we will evaluate any risk-significant maintenance planned for Unit 2 during this evolution. Below is described the major evolutions that are scheduled on ESF Bus No. 11 during the Unit 1 outage.

Based on the current outage schedule, we expect the emergency power to be isolated from the bus first. At that time the No. 11 CREVS will be declared inoperable per Unit 2 Technical Specification 3.7.6.1.a and b because it has no emergency power supply. The No. 11 CREVS is still capable of performing its safety function assuming that normal (offsite) power is available. The risk to the operating Unit is increased by the removal of the emergency power to the No. 11 CREVS.

About three days after the emergency power is removed from ESF Bus No. 11, work on the bus that requires all power be isolated from the bus is scheduled for about three days. At this time the No. 11 CREVS becomes incapable of performing its safety function. We will remain in Action Statement 3.7.6.1.a and b. If normal power is not restored to ESF Bus No. 11 within seven days of its removal, the actions in Action Statement 3.7.6.1.a and b will be commenced. If No. 12 CREVS becomes inoperable during this period, we will enter Technical Specification 3.0.3. Unit 2 would be at an increased risk because, if an accident requiring control room isolation occurred on Unit 2 during this time and if at the same time a failure occurred within No. 12 CREVS (or a failure occurred in the power supplies to No. 12 CREVS), the safety function of the CREVS would not be met.

## ATTACHMENT (1)

### DESCRIPTION AND LICENSING BASIS EVALUATION

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After the scheduled three day outage of normal power to ESF Bus No. 11, the risk described above is reduced when the normal power supply is reconnected to the bus. The No. 11 CREVS becomes capable of performing its safety function again with normal power available. It remains inoperable with regard to the Technical Specifications because the emergency power is not restored. Unit 2 remains in the Action Statement, but is actually in a safer state than with ESF Bus No. 11 deenergized.

We currently are scheduled to align a non-safety-related diesel generator (No. 0C Diesel Generator) to ESF Bus No. 11 about eight days after the safety related diesel was removed from the bus. This action further reduces risk because there are now two independent power sources available to the bus. However, we remain in the Action Statement because the 0C Diesel Generator is not safety related. If the 0C Diesel Generator is not available to provide power to ESF Bus No. 11 as scheduled, efforts will be made to make it available commensurate with the level of risk during this evolution.

The new safety related diesel generator is expected to be tied in to ESF Bus No. 11, tested and declared Operable about 14 days after the existing EDG is removed from the bus. At that time, the Action Statement will be exited because No. 11 CREVS has both its normal and emergency power supplies. This action further reduces the risk to the operating Unit.

Even though we expect to have emergency power available to ESF Bus No. 11 within about 14 days, we are requesting that the Action Statement be extended to 30 days to allow for any unforeseen installation and testing issues that might arise as the work is being done. This should alleviate the need for emergency or exigent relief from the NRC during the outage.

### LICENSING BASIS EVALUATION

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, 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 ESF bus, which are powered from different EDGs.

During the outage, one of the CREVS (No. 11) will lose its emergency power source for up to 30 days while the existing EDG is disconnected from ESF Bus No. 11 and a new EDG is installed on that bus. This is longer than allowed by Technical Specification 3.7.6.1. During the Technical Specification seven-day Allowed Outage Time, an operating unit is allowed by the Technical Specifications to remove one of the CREVS trains from service, 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 trains during the additional 23-day period are the same as those during the seven-day Allowed Outage Time. Baltimore Gas and Electric Company believes that the requested extension (7 days to 30 days) is acceptable based on the limited time requested, the reliability of the redundant train, and on the low potential for a loss of normal (offsite) power as described below.

## ATTACHMENT (1)

### DESCRIPTION AND LICENSING BASIS EVALUATION

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The only design basis event which 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 which meet in a common switchyard, and a separate 69 kV transmission line which 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 BGE property. Two of the transmission lines (one 500 kV and the 69 kV line) are connected to non-BGE power sources. Two ways which 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 restrict maintenance activities on our portion of three of the offsite transmission lines until emergency power (EDG) is restored to ESF Bus No. 11. This restriction provides additional margin beyond the two transmission lines required by Technical Specification 3.8.1.1.

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 the ESF Bus No. 11 will be completed before the time of year when tornadoes and hurricanes have historically been a problem 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,  $7.7 \times 10^{-6}$  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. Southern Maryland Electric Co-op has not had ice damage to their transmission lines in the last 40 years, although their lines are designed for one half inch coating of ice. However, 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 which could have an impact on the ability of the CREVS to perform its safety function are the reliability of the unaffected CREVS train and the vulnerability of the remainder of the safety related ESF busses with regard to the work done on ESF Bus No. 11. The No. 12 CREVS train is reliable based on its performance during the past year. There has been only one unplanned entry into the Unit 2 CREVS Technical Specification Action Statement during the past year. The motor that caused the problem was replaced and the system has performed well since then. 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 a loss of both CREVS.

The remaining ESF busses are not vulnerable to degradation due to the work on ESF Bus No. 11. The ESF busses are electrically isolated from each other and the work on ESF Bus No. 11 will not by itself impact the other busses. The relays and breakers associated with the removal of the existing EDG from the bus and its subsequent dedication to Unit 2 are the existing relays and breakers for that bus. Additionally, the work on ESF Bus No. 11 will be coordinated with scheduled maintenance activities on Unit 2. This will ensure that equipment needed to support Unit 2 operation is not inappropriately removed from service while we are in the Unit 2 CREVS action statement. Therefore, we believe that the reliability of the

## ATTACHMENT (1)

### DESCRIPTION AND LICENSING BASIS EVALUATION

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No. 12 CREVS and the designed electrical separation and work control for the ESF busses is sufficient and is acceptable.

#### MITIGATING FEATURES

To provide additional assurance that all reasonable steps have been taken to prevent the loss of the normal power supply to the CREVS, we will restrict maintenance activities on three of the four offsite transmission lines. This restriction will cover the period we are in the Action Statement for the CREVS (Action Statement 3.7.6.1.a and b). To provide an alternative power source during the majority of this period, we will connect the Alternate AC power source (No. 0C Diesel Generator) to ESF Bus No. 11 and confirm its availability as soon as possible after the removal of emergency power to ESF Bus No. 11 begins (we expect that to take about eight days). This power source is independent from the offsite power supplies. In addition, we will restrict planned maintenance on the No. 12 CREVS during the period we are in the Action Statement to ensure that the No. 12 CREVS is not removed from service.

#### CONCLUSION

We request that the NRC grant our proposed extension of the Unit 2 Technical Specification CREVS Action Statements 3.7.6.1.a and b from 7 days to 30 days for a loss of emergency power. The request is made to support outage work on ESF Bus No. 11 while allowing Unit 2 to continue power operation. We have determined that the requested extension does not create an undue risk to the public health and safety. We will have plans in place to adequately manage the risk associated with this evolution. In addition, mitigating actions will be taken to provide additional assurance that the CREVS normal (offsite) power supply will not be lost. In the event that the normal power supply is lost, the redundant CREVS would still have its emergency power supply and is capable of providing all required safety functions. Other actions include the availability of a non-safety-related diesel generator for part of the requested time and the restriction of planned maintenance on No. 12 CREVS.



ATTACHMENT (2)

DETERMINATION OF SIGNIFICANT  
HAZARDS

Baltimore Gas and Electric Company  
License Amendment Request  
October 2, 1995

## ATTACHMENT (2)

### DETERMINATION OF SIGNIFICANT HAZARDS

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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 that 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% capacity trains) and is powered from both normal (offsite) and emergency (emergency diesel generators) power sources. We are proposing an amendment which would allow the emergency power to be removed from one of the redundant CREVS for an additional 23 days (beyond the 7 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. 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 seven 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 23-day period are the same as those during the 7-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 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

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### DETERMINATION OF SIGNIFICANT HAZARDS

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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 23 days beyond the 7-day AOT (total of 30 days). This train of CREVS will be functional and will have the normal power supply available for all but approximately three days to allow work and necessary testing on the bus. 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 the normal power supply to the CREVS, we will restrict maintenance activities on three of the four offsite transmission lines. This restriction will cover the period we are in the Action Statement for the CREVS (Action Statement 3.7.6.1.a and b). To provide an alternative power source during the majority of this period, we will connect the Alternate AC power source (No. 0C Diesel Generator) to ESF Bus No. 11 and confirm its availability as soon as possible after the work on ESF Bus No. 11 begins (we expect that to take about eight days). This power source is independent from the offsite power supplies. In addition, we will restrict planned maintenance on the No. 12 CREVS 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.