



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
WASHINGTON, D.C. 20555-0001

February 4, 1998

Mr. Charles H. Cruse
Vice President - Nuclear Energy
Baltimore Gas and Electric Company
Calvert Cliffs Nuclear Power Plant
1650 Calvert Cliffs Parkway
Lusby, MD 20657-4702

SUBJECT: TEMPORARY EXEMPTION FROM THE REQUIREMENTS OF 10 CFR PART 50, APPENDIX A, GENERAL DESIGN CRITERION 2, "DESIGN BASES FOR PROTECTION AGAINST NATURAL PHENOMENA," CALVERT CLIFFS NUCLEAR POWER PLANT, UNITS 1 AND 2 (TAC NOS. M99626 AND M99627)

Dear Mr. Cruse:

The Commission has issued the enclosed temporary exemption from the requirements of 10 CFR Part 50, Appendix A, General Design Criterion 2 (GDC-2), for the Calvert Cliffs Nuclear Power Plant, Units 1 and 2. Baltimore Gas and Electric Company (BGE) plans to upgrade the Unit 1 Emergency Diesel Generator (EDG) 1B during the upcoming Unit 1 refueling outage, which will commence on or about April 3, 1998, and is scheduled to be completed in early June 1998.

Pursuant to 10 CFR 50.12(a), BGE requested a temporary exemption from the requirements of 10 CFR Part 50, Appendix A, GDC - 2, for Calvert Cliffs, Units 1 and 2 to allow temporary removal of the two steel missile doors, which is necessary for the upgrading of the Unit 1 EDG 1B during the upcoming refueling outage. The EDG upgrade requires a total of four removals between the two missile doors during the upgrade work. Each removal is estimated to take less than 24 hours, which will result in removal of the missile doors for approximately 100 hours during the scheduled 60-day refueling outage. Only one door will be removed at a time. As a result, the normal design-basis protection against natural phenomena afforded by the two steel missile doors will be temporarily lost, as well as protection for the out-of-service Calvert Cliffs Unit 1 EDG 1B and the operating Calvert Cliffs Unit 2 EDG 2A. Also, missile protection will not be available for the support systems common to Fairbanks Morse Calvert Cliffs Unit 1 EDG 1B and Calvert Cliffs Unit 2 EDGs 2A and 2B. The support systems for the out-of-service Calvert Cliffs Unit 1 EDG 1B and the operating Calvert Cliffs Unit 2 EDGs 2A and 2B are required for operation of Unit 2.

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Charles H. Cruse

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A safety evaluation supporting this exemption is enclosed. Also, a copy of the exemption is being forwarded to the Office of the Federal Register for publication.

Sincerely,

A handwritten signature in cursive script, appearing to read "S. Singh Bajwa".

S. Singh Bajwa, Director
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket Nos. 50-317
and 50-318

Enclosures: 1. Exemption
2. Safety Evaluation

cc w/encls: See next page

Charles H. Cruse

-2-

A safety evaluation supporting this exemption is enclosed. Also, a copy of the exemption is being forwarded to the Office of the Federal Register for publication.

Sincerely,

ORIGINAL SIGNED BY:

S. Singh Bajwa, Director
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket Nos. 50-317
and 50-318

Enclosures: As stated
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**Mr. Charles H. Cruse
Baltimore Gas & Electric Company**

**Calvert Cliffs Nuclear Power Plant
Unit Nos. 1 and 2**

cc:

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The subject Unit No. 1 EDG 1B upgrade GDC-2 exemption is effective from the date of issuance through July 31, 1998.

FOR THE NUCLEAR REGULATORY COMMISSION

Original signed by
Samuel J. Collins

Samuel J. Collins, Director
Office of Nuclear Reactor Regulation

Dated at Rockville, Maryland,
this 4th day of February 1998

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of)	
Baltimore Gas & Electric Company)	Docket Nos. 50-317
(Calvert Cliffs Nuclear Power)	and 50-318
Plant, Units 1 and 2))	

EXEMPTION

I.

The Baltimore Gas & Electric Company (BGE or the licensee) is the holder of Facility Operating License Nos. DPR-53 and DPR-69, which authorize operation of the Calvert Cliffs Nuclear Power Plant, Units 1 and 2 (the facilities), respectively. The license provides, among other things, that the facilities are subject to all rules, regulations, and orders of the U. S. Nuclear Regulatory Commission (NRC or the Commission) now or hereafter in effect.

The facilities are pressurized-water reactors located at the licensee's site in Calvert County, Maryland.

The licensee is implementing an upgrade to the existing Calvert Cliffs Unit 1 emergency diesel generator (EDG) 1B during the upcoming Unit 1 refueling outage (RFO-14). RFO-14 is scheduled to commence on April 3, 1998, and is expected to be completed in early June 1998. To support the upgrade, the licensee has identified one temporary exemption required at this time. The exemption is specified below.

II.

The Code of Federal Regulations at 10 CFR Part 50, Appendix A, General Criterion 2 (GDC-2) requires that structures, systems, and components important to safety be designed to withstand the effects of natural phenomena, such as tomadoes, without the loss of capability to perform their safety functions.

The licensee has requested the temporary exemption from GDC-2 because of the planned upgrade of the Unit 1 EDG 1B. The effort will require temporary removal of two steel doors, which will expose the out-of-service Unit 1 EDG 1B and the operating Unit 2 EDGs 2A and 2B, as well as the support systems for the out-of-service Unit 1 EDG 1B and the operating Unit 2 EDGs 2A and 2B. Unit 2 EDGs 2A and 2B must be operable to support the operation of Unit 2. These EDGs require protection from the effects of missiles, generated by natural phenomena.

The licensee indicates that the steel missile doors will be removed four times during RFO-14; only one door will be removed at a time. The licensee estimates that each of the missile door removals will take less than 24 hours, which will result in a total removal time of about 100 hours during the scheduled 60-day outage.

The licensee is providing compensatory action to ensure the safe operation of Unit 2, for the short periods that the steel missile doors will be removed. To cover all severe weather conditions, as defined in the plant site Emergency Response Plan Implementing Procedures 3.0, Attachment 17, a concerted effort will be made to reinstall the missile doors if a tornado or a hurricane watch is issued or if sustained winds are predicted to be greater than 50 miles an hour at the site. When the missile shield is removed, it is left connected to the crane used to remove it. A crane operator remains at the crane controls during the time the missile shield is removed. In addition to the crane operator, three people are used to handle the movement of the shield and fasten it in place. These people are drawn from the crew working on the diesel upgrade since the shield is removed only when they are working in the area. The time required to reinstall the missile shield is approximately 1 hour and 15 minutes. This time includes 30 minutes to 45 minutes to move and position the shield, and 30 minutes to completely torque a minimum of 13 bolts to hold it in place. The installation time is considered sufficient since plant procedures require that the missile shield be reinstalled on an adverse weather watch, rather than waiting until a warning is issued. The only factor that would impede the reinstallation of the missile doors

would be the safety of the individuals performing the reinstallation. The licensee has also stated that the missile doors between the EDG 1B room and the EDG 2A room is a fire barrier but not a flood barrier. The fire barrier will be breached when the door is removed to pass EDG parts through. Plant procedures require a fire watch if any fire barrier is to remain open. The procedures will be followed from the time the door is removed until it is replaced.

Considering the existing design features and the compensatory measures proposed by the licensee, the likelihood of damage to the exposed EDGs and the support systems from postulated missiles generated by natural phenomena is minimal for the short periods that the protective doors will be removed. Also, on the basis of the compensatory measure provided, reasonable assurance exists that the ability to reinstall the missile doors will be maintained during any severe weather that could result in airborne missiles. Therefore, there is reasonable assurance that the proposed GDC-2 exemption will present no undue risk to public health and safety.

III.

The Commission has determined, pursuant to 10 CFR 50.12(a), that special circumstances, as set forth in 10 CFR 50.12(a)(2)(v), exist. The exemption would provide only temporary relief from the applicable regulation (GDC-2). The exemption is requested for a specific period, after which the facility would again be in conformance with all the requirements of GDC-2. The licensee has made good faith efforts in considering alternatives to the exemption request and has concluded that without the subject exemption, the EDG upgrade can only be conducted when both units are shut down.

On the basis of this information and review of the licensee's submittal, as summarized in the Safety Evaluation, the NRC staff concludes that the likelihood of unacceptable damage to the exposed portions of the operable EDGs and support systems as a result of weather-induced missiles during short-duration exposures in the exemption period is low.

On the basis of the low probability of the occurrence of unacceptable events, coupled with the compensatory measure to which the licensee has committed, the NRC staff finds the proposed exemption from GDC-2 to be acceptable.

IV.

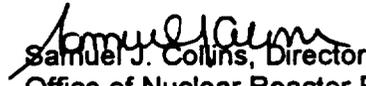
Accordingly, the Commission has determined that pursuant to 10 CFR 50.12, the subject exemption is authorized by law, will not present an undue risk to public health and safety, and is consistent with the common defense and security. The Commission further determines that special circumstances, as provided in 10 CFR 50.12(a)(2)(v), are present that justify the exemption; namely, that the exemption would provide only temporary relief from the applicable regulations and that the licensee has made good faith efforts to comply with the regulations.

Therefore, the Commission hereby approves the following exemption: Calvert Cliffs Nuclear Power Plant, Units 1 and 2, may operate without conforming to the requirements of GDC-2 as they apply to the exposed portions of the Unit 2 EDGs 2A and 2B and the support systems for the EDGs, providing that the compensatory measure, as described herein, is in place for the period of the exemption.

Pursuant to 10 CFR 51.32, the Commission has determined that granting the above exemption will have no significant impact on the quality of the human environment (62 FR 114).

The subject Unit No. 1 EDG 1B upgrade GDC-2 exemption is effective from the date of issuance through July 31, 1998.

FOR THE NUCLEAR REGULATORY COMMISSION


Samuel J. Collins, Director
Office of Nuclear Reactor Regulation

Dated at Rockville, Maryland,
this 4th day of February 1998



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
REGARDING THE EMERGENCY DIESEL GENERATOR QUALIFICATION REPORT
BALTIMORE GAS AND ELECTRIC COMPANY
CALVERT CLIFFS NUCLEAR POWER PLANT, UNITS 1 AND 2
DOCKET NOS. 50-317 AND 50-318

1.0 INTRODUCTION

On July 21, 1988, Part 50 of Title 10 of the Code of Federal Regulations was amended to include a new Section 50.63, entitled "Loss of All Alternating Current Power," and referred to as the station blackout (SBO) rule. The SBO rule requires that each light-water cooled nuclear power plant be able to withstand and recover from an SBO of specified duration. The SBO rule also requires that information defined in the rule be provided to the staff for review. Baltimore Gas & Electric Company (BGE) responded to the requirements of the rule, and the staff approved its response by letter dated February 12, 1992. The staff's approval included the addition of two new safety-related Class -1E emergency diesel generators (EDGs).

BGE submitted a revised response to the SBO rule on July 7, 1993. One of the initial commitments approved by the NRC staff in its safety evaluation (SE) was the installation of two safety-related EDGs, as noted above, which would have resulted in a total of five safety-related EDGs at the site. The revised response changed that commitment to add one safety-related and one nonsafety-related EDG. The nonsafety-related EDG will be utilized as an alternate ac power source during SBO conditions. The final configuration includes two dedicated safety-related EDGs per unit. The revised response was approved by an SE dated September 22, 1993.

Two of the three original safety-related EDGs have been modified to increase their rated capacity from 2500 kW to 3000 kW, which enhances the overall reliability of the onsite electrical power distribution system. The third EDG will be upgraded during the upcoming Calvert Cliffs Unit 1 refueling outage.

By letter dated September 12, 1997, as supplemented November 3, 1997, and January 8, 1998, BGE requested a temporary exemption to General Design Criterion 2 (GDC-2), "Design Bases for Protection Against Natural Phenomena," to perform the upgrading of the Unit 1 EDG 1B. The exemption will permit the temporary removal of the steel missile doors that provide missile protection for Unit 1 EDG 1B, Unit 2 EDG 2A, and support systems common to Fairbanks Morse Unit 1 EDG 1B and Unit 2 EDGs 2A and 2B. The upgrade will be conducted during the upcoming Unit 1 refueling outage, which will commence on or about April 3, 1998, and is scheduled to be completed in early June 1998. The EDG upgrade requires a total of four removals between the two missile doors during the upgrade work. Each removal is estimated to take less than 24 hours, which will result in removal of the missile doors for approximately 100 hours during the scheduled 60-day refueling outage. During the temporary exemption period, Unit 1 will be defueled for the 1998 refueling outage and Unit 2 will be operating. Unit 1 EDG 1B will be inoperable for the duration of the upgrade. Unit two requires two operable EDGs during power operation. Both Unit 2 EDGs, 2A and 2B, will be operable for Unit 2. When the missile door is removed from the Unit 1 EDG 1B room, the missile protection is also defeated for the

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Unit 2 EDG 2A because of the shared concrete block wall. When the missile door for the Unit 2 EDG 2A room is removed, missile protection is also defeated for Unit 1 EDG 1B (which is out of service) because of the shared concrete wall. In addition, when either door is removed, missile protection is defeated for all three EDGs because of the common starting air system in both rooms.

2.0 EVALUATION

Although some increase in missile interaction risk will occur during Unit 2 operation and the refueling outage of Unit 1, it will be minimal because the missile doors will be removed for only short periods. The steel missile doors must be removed a total of four times during the upgrade work. Each removal is expected to take less than 24 hours, resulting in the removal of the missile doors, for a total of approximately 100 hours during the refueling outage. Only one door will be removed at a time. When a missile door is removed, it will be connected to the crane used to remove it. This step permits rapid reinstallation, if necessary. The licensee is requesting a temporary exemption from GDC-2 only for those periods when a missile door is removed from the opening to either EDG room. Thus, the likelihood of tornado-generated or other high wind-generated missile damage that could affect the exposed EDGs and the support systems for the exposed EDGs is low. Even though the added risk is small, BGE is providing compensatory action to ensure the safe operation of Unit 2 and refueling of Unit 1 during the short periods when each missile door will be removed. As previously indicated, a concerted effort will be made to reinstall the missile doors if a tornado watch or a hurricane watch is issued or if sustained winds are predicted to be greater than 50 miles per hour at the site in accordance with the plant site Emergency Response Implementation Procedure 3.0, Attachment 17. This measure will not only cover tornado conditions, but other severe-weather conditions as well. When the missile shield is removed, it is left connected to the crane used to remove it. A crane operator remains at the crane controls during the time the missile shield is removed. In addition to the crane operator, three people are used to handle the movement of the shield and fasten it in place. These people are drawn from the crew working on the diesel upgrade since the shield is removed only when they are working in the area. The time required to reinstall the missile shield is approximately 1 hour and 15 minutes. This time includes 30 minutes to 45 minutes to move and position the shield, and 30 minutes to completely torque a minimum of 13 bolts to hold it in place. The installation time is considered sufficient since plant procedures require that the missile shield be reinstalled on an adverse weather watch, rather than waiting until a warning is issued. The only factor that would impede the reinstallation of the missile doors would be the safety of the individuals performing the reinstallation. In addition, the licensee has stated that the door between EDG 1B room and the EDG 2A room is a fire barrier but not a flood barrier. The fire barrier will be breached when the door is removed to pass EDG parts through. Plant procedures require a fire watch if any barrier is to remain open. These procedures will be followed for the period the door is removed. The staff has reviewed the licensee's proposed exemption from GDC-2, including the compensatory measures, and has concluded that the likelihood of missile damage to the operable EDGs and portions of the support systems is small during the period that the requested exemption would apply.

3.0 CONCLUSION

On the basis of its review, the staff has concluded that the licensee's proposed temporary exemption from GDC-2 should be granted. This conclusion is based on the low probability of missile generation during the short period that the exemption would apply and on the compensatory measures that will be in place.

Principal Contributor: A. Dromerick

Date: February 4, 1998