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ARTHUR E. LUNDVALL, JR.  
VICE PRESIDENT  
SUPPLY

March 15, 1983

U. S. Nuclear Regulatory Commission  
Office of Nuclear Reactor Regulation  
Washington, D. C. 20555

ATTENTION: Mr. Robert A. Clark, Chief  
Operating Reactors Branch #3  
Division of Licensing

SUBJECT: Calvert Cliffs Nuclear Power Plant  
Unit Nos. 1 & 2; Docket Nos. 50-317 & 50-318  
Request for Amendment

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Gentlemen:

Baltimore Gas and Electric Company hereby requests an Amendment for Operating Licenses DPR-53 and DPR-69 for Calvert Cliffs Unit Nos. 1 & 2, respectively, with the submittal of the enclosed proposed changes to the Technical Specifications.

**TECHNICAL SPECIFICATION CHANGE:**

1. DPR-53 and DPR-69: Replace pages 3/4 1-19, 3/4 1-22 and B 3/4 1-4 with the attached pages.

**DISCUSSION**

Three separate CEA position indication systems are used by the Calvert Cliffs Unit Nos. 1 and 2 to monitor CEA positions. The Pulse Counting System infers the position of each CEA by maintaining a record of the raise and lower control pulses used to actuate the magnetic jack mechanisms. This system is incorporated into the plant computer which feeds control board digital displays and an output typewriter. The plant computer also provides deviation information. If the deviation in position between the highest and the lowest CEA in any group exceeds setpoints of 3.75 and 7.5 inches, the computer provides an alarm and initiates a printout of the actual positions of all CEAs within the affected group. The Reed Switch Stack system utilizes a series of magnetically actuated reed switches, spaced at 1.5 inch intervals along the CEA housing and arranged with precision resistors in a voltage divider network, to provide signals proportional to CEA position. The signals are displayed in bar chart form by the metroscope on control board 1C05. A backup readout is provided which can be utilized to read the output of any reed switch

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voltage divider. The metrascope logic package uses the reed switch positions to generate the following alarms:

- 1) Power Dependent Insertion Limit (PDIL)
- 2) Pre Power Dependent Insertion Limit (PPDIL)
- 3) Group Deviation (DEV)
- 4) Regulating Groups Out-Of-Sequence (OOS)
- 5) Shutdown Group Insertion Interlock (MIRG)
- 6) Regulating Group Withdrawal Interlock (MISH)

If these alarms are present, contacts open to generate a CEA Motion Inhibit (CMI) in the Control Element Drive System (CEDS). A CMI is generated for the shutdown CEAs when DEV, OOS, PDIL or MIRG alarm conditions occur. A CMI is generated for the Regulating CEAs when DEV, OOS, PDIL or MISH alarm conditions occur. The third indication system uses Reed Switches independent of those on the reed switch stack. These switches actuate lights on a CEA mimic display on control board IC05. On this display red lights indicate "Full-out" CEAs, green lights indicate "Full in" CEAs, amber lights indicate Dropped CEAs, and white lights indicate CEAs between the upper and lower limits.

Recent operating experience indicates that new reed switch stacks installed in both Unit 1 and 2 during the last outages are experiencing higher than previous failure rates of the previous reed stack design. The current failures result in loss of reed switch stack indication for the affected CEA and consequently a continuous CMI signal regardless of CEA position. In accordance with Technical Specification (TS) 3.1.3.3, the affected CEAs have been withdrawn until the "Full Out" indication was received. In order to provide the CMI function for other CEAs, the defective stack input to the metrascope has been replaced with a 10 VDC signal consistent with the affected CEA's full out position. A relay operated off the "full out" reed switch was also installed so that loss of the "full-out" indication opened a contact in the temporary 10 VDC signal to the metrascope. This arrangement will annunciate improper alignment of the affected CEA and prevents the movement of other CEAs should such misalignment occur. These modifications ensure all CMI functions are operable for all CEAs except when the affected CEA is being moved between "full-in" and "full out" during startup and shutdown.

While the modifications described above are temporary and the failed equipment will be replaced at the first reasonable opportunity, the action statements under which the plant is allowed to operate do not provide for surveillance testing as required by TS 3.1.3.1. To allow proper testing and continued operation, this amendment (1) requires only the affected CEA be maintained in its "Full-out" position, and (2) establishes testing restrictions for CEAs with inoperable indication. This amendment would also permit slight insertion of the unaffected CEAs in the affected group, in order to distribute CEA finger wear caused by the guide tube sleeves.

## EVALUATION

The Technical Specification bases indicate that operability of the CEA position indicators is required to "determine CEA positions and thereby ensure compliance with the CEA alignment and insertion limits and ensure proper operation of the CEA block circuit. The "Full-In" or "Full-Out" limits provide this indication for CEAs with inoperable position indicators". For other CEAs in the same group, this additional indication is not normally required as both pulse counter and reed switch stack must be operable.

Since the CEAs will be maintained within the alignment limits of all applicable Technical Specifications, the insertion limits, group sequencing, overlap, and deviation requirements prescribed by the FSAR and TS Bases are satisfied for all CEAs. Consequently, part 1 of this amendment does not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety, nor does it reduce the margin of safety as defined in Technical Specification 3/4.1.3.

The addition of "and 3.1.3.1" to action statement 3.1.3.3.c.3 is for administrative purposes only. Under this action statement, operation is allowed with inoperable position indication channels. In the case of a reed switch voltage divider network failure, plant personnel must still verify CMI operability. Since the reed switch stack normally provides CEA position for that function, the change serves as a reminder that TS 3.1.3.1 requires CMI operability independent of the reed switch stack condition.

Part 2 allows testing of the affected CEA. If a pulse counting channel is inoperable, reed switch position indication must be used for CEA control. This system directly measures position and provides input signals to CMI. The more restrictive case is when the reed switch stack channel fails. Under this condition the pulse counter is still available to monitor CEA position, but depending on the cause of the reed switch channel inoperability CMI functions for the CEA may be affected. Also, the pulse counter is an indirect measurement of position. The system actually counts the up-down signals to the coil power programmers. Therefore, CEA slippage or binding could result in an inaccurate position indication. To minimize the potential for operation with the CEA mispositioned, the affected CEA is allowed to be inserted slightly for not more than ten minutes during surveillance testing. If positive position indication (full out reed switch or voltage dividing network) cannot then be reestablished within the time limits or before withdrawal equal to the surveillance testing insertion + 7.5 inches, then the CEA is assumed to be > 15 inches from the group position. To ensure this alignment exists for no longer than allowed by existing specifications, the configuration is assumed to have existed at the commencement of testing. This information has been included in the TS Bases as part of this amendment. These administrative controls provide an adequate substitute for the unavailable position indication system and ensure the following Technical Specification bases are maintained.

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- 1) Acceptable power distribution limits
- 2) Minimum shutdown margin is available
- 3) The potential affects of a CEA ejection accident are limited to acceptable levels.

Part 2 of this amendment, by allowing surveillance testing of CEA's with inoperable position indication channels, ensure plant operation is within the limiting condition of operation for CEA alignment, and CMI operability. The actions proposed in part 2 are consistent with the TS Bases as discussed above. Therefore, the probability of occurrence of an accident or malfunction of safety related equipment is not increased and the margin of safety as defined in the Technical Specifications is not changed. No part of this amendment requires operation of the plant in a manner which would result in equipment or parameter conditions outside those considered in the FSAR safety analyses. Consequently no new accident or malfunction can be postulated, nor will the proposed changes pose any additional risk to the health and safety of the public.

#### **SAFETY COMMITTEE REVIEW**

This proposed change to the Technical Specifications has been reviewed by our Plant Operations and Safety and Off-Site Review Committees, and they have concluded that implementation of this change will not result in an undue risk to the health and safety of the public.

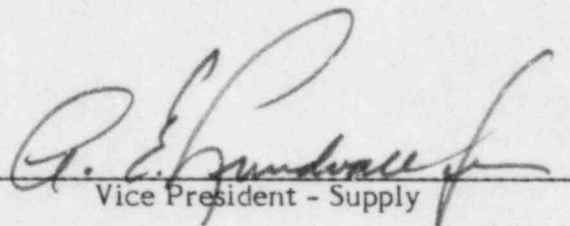


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**FEE DETERMINATION**

We have determined, pursuant to 10 CFR part 170, paragraph 170.22, that this amendment request consists of one Class III and one Class I amendment for Calvert Cliffs Unit No. 1 and 2, respectively, and accordingly, we have included BG&E check No. A111495 in the amount of \$4,400.00 to cover the fee.

**BALTIMORE GAS AND ELECTRIC COMPANY**

By:   
Vice President - Supply

AEL/PAP/sjb

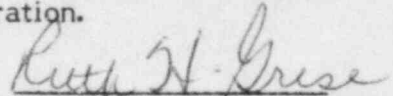
**STATE OF MARYLAND :**

**TO WIT:**

**CITY OF BALTIMORE :**

Arthur E. Lundvall, Jr., being duly sworn 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:

  
Notary Public  
July 1, 1986

My Commission Expires:

cc: J. A. Biddison, Esquire  
G. F. Trowbridge, Esquire  
D. H. Jaffe, NRC  
R. E. Architzel, NRC