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GAS AND
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ARTHUR E. LUNDVALL, JR.
VICE PRESIDENT
SUPPLY

April 9, 1984

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

ATTENTION: Mr. James R. Miller, Chief
Operating Reactors Branch #3

SUBJECT: Calvert Cliffs Nuclear Power Plant
Unit No. 1 & 2, Docket Nos. 50-317 & 50-318
Request for Amendment

REFERENCES: (a) BG&E letter from A. E. Lundvall, Jr., to J. R. Miller, dated September 16, 1983

(b) BG&E letter from A. E. Lundvall, Jr., to J. R. Miller dated November 10, 1983

(c) NRC letter from D. H. Jaffe to A. E. Lundvall, Jr., dated November 17, 1983, Amendment No. 88 to Facility Operating License No. DPR-53

Gentlemen:

The Baltimore Gas & Electric Company hereby requests an Amendment to its Operating License Nos. 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.

**CHANGE NO. 1** (BG&E FCR 84-33)

Remove existing pages 6-2 and 6-3 of the Unit 1 and 2 Technical Specifications, and page 2.3-8, 5.1-1, 5.3-1, 5.5-1 and Figure 5.2-1 of the Appendix B Technical Specifications and replace with attached, marked up pages, Attachment (1) to this transmittal.

**DETERMINATION OF SIGNIFICANT HAZARDS CONSIDERATIONS**

The proposed changes are needed to reflect minor title and responsibility changes for certain supervisors within the Baltimore Gas and Electric Company organization. The minor title changes do not affect the responsibilities as described in Chapter 12 of the Updated FSAR or the Technical Specifications. The Fire Prevention Unit, which originally reported to the General Supervisor-Finance, now reports to the Manager-Real Estate and Office Services. Because of this organizational responsibility shift, the corporate responsibility for the Fire Protection Program is now assigned to the Vice President-General Services.



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Since the administrative changes to the Environmental Technical Specifications do not authorize any release of effluents not currently authorized and do not affect responsibilities described in the Environmental Technical Specifications, they will have no adverse affects on the Environmental Impact Appraisal. A cost-benefit study also is not necessary since the proposed changes represent no cost other than the fee for the License Amendment.

The proposed changes to Tables 6.2-1 and 6.2-2 are administrative in nature, since they are needed to more accurately reflect the current organizational structure within the Baltimore Gas and Electric Company. As such, the proposed changes have been determined to involve no significant hazards considerations, in that operation of the facility in accordance with the proposed amendment would not:

(i) Involve any increase in the probability or consequences of an accident previously evaluated; or

(ii) create the possibility of a new or different kind of accident from any accident previously evaluated; or

(iii) involve any reduction in the margin of safety.

**CHANGE NO. 2** (BG&E FCR 82-06)

Remove existing pages 3/4 3-26 through 3/4 3-28 of the Units Nos. 1 and 2 Technical Specifications, and replace with attached, marked up pages, Attachment (2) to this transmittal.

**DETERMINATION OF SIGNIFICANT HAZARDS CONSIDERATIONS**

This proposed change to the Technical Specifications is being processed as requested by NRC Generic Letter 83-37. These proposed changes will incorporate the containment high range radiation monitors and the main vent wide range noble gas effluent monitors into the Technical Specifications. Although every attempt has been made to follow the guidance Technical Specifications in the generic letter, some minor changes were necessary to make the surveillance requirements consistent with the facility design.

A channel check is not useful for the containment high range radiation monitors due to their locations in the containment being different. Although post accident radiation levels would be expected to be approximately equal on the radiation monitors, the channels indicate different levels during normal operation. The main vent wide range effluent monitors only have one channel of installed instrumentation per unit. Therefore, a channel check is not possible because no equivalent instrument is available for such a surveillance check.

With the exception of the channel check we have followed the guidance Technical Specifications forwarded in the Generic Letter.

This proposed change constitutes an additional limitation, restriction, or control not presently included in the Technical Specifications. As such, the proposed change conforms to an example of an amendment considered not likely to involve significant hazards considerations, item (i) as provided on page 14870 of the Federal Register Notice dated April 6, 1983.

The proposed change will not:

(i) involve any increase in the probability or consequences of an accident previously evaluated; or

(ii) create the possibility of a new or different kind of accident from any accident previously evaluated; or

(iii) since the changes provide substantial assurance that equipment which provides useful information to the operators in post accident situations as to the extent of the accident, it may actually result in an increase in the margin of safety.

Based upon the above, this proposed change has been determined to involve no significant hazards considerations.

**CHANGE NO. 3** (BG&E FCR No. 83-1042, Unit 2 Only)

Delete the following pages of the Unit Two Technical Specifications and add new pages as indicated (proposed replacement pages are attached):

(a) delete page 7-5 and add new page 7-5
(b) delete page 7-5a and add new page 7-5a
(c) delete page B7-2 and add new page B7-2

The purpose of this change is to reflect final modifications to the Unit Two Auxiliary Feedwater System as they pertain to completion of the cross-connect between the Unit One and Unit Two motor-driven pump trains. This change would bring the Unit Two Auxiliary Feedwater System Technical Specifications (TS 3/4.7.1.2) into agreement with the existing Unit One Technical Specifications.

**BACKGROUND**

In Reference (a) we proposed changes to the Unit One Technical Specification, (TS 3/4.7.1.2) to reflect the completion of Auxiliary Feedwater System (AFWS) modifications including the addition of a motor-driven pump train and a cross-connect between the discharge piping of the Unit One and Unit Two motor-driven pumps. Reference (a) indicated our intent to request similar Technical Specification changes for Unit Two at a later date.

Reference (b) modified our initial license amendment request with regard to the surveillance requirements for flow verification (TS 4.7.1.2.c) and the discussion of flow setpoints and flow setting error bands in the Bases (B 3/4.7.1.2).

In accordance with the above, Technical Specifications are now requested for Unit Two to achieve consistency with the existing Unit One Technical Specifications and to credit the motor-driven train cross-connect. The proposed Unit Two Technical Specifications are identical to those for Unit One as approved by Reference (c) with the exception that the LCO footnote pertaining to the initial 30-day test period is no longer applicable and has been deleted. No other changes to the LCO definition are proposed.

A two-part remedial action statement (TS 3.7.1.2.a.1) is proposed for an inoperable motor-driven pump. The existing specification requires that an inoperable motor-driven pump be restored to operable status within 72 hours or be in **HOT SHUTDOWN** within the next 12 hours. The proposed specification would extend this period to a maximum of 14 days by taking credit for the continued ability to align two steam-driven AFWS pumps to automatic initiating status.

In the event that any two of the three AFWS pumps were to become inoperable at the same time, a new remedial action statement (TS 3.7.1.2.b) is being added that would require the operators to verify within one hour that the remaining pump is aligned for automatic initiation and that the cross-connect between the Unit One and Unit Two motor-driven trains is operable and capable of delivering AFW flow to the affected unit upon manual initiation. In addition, the operators would be required to restore a second pump to automatic initiating status within 72 hours. If these actions could not be succesfully completed, the Operators would be required to place the unit in hot shutdown within the following 12 hours.

To ensure that plant operational flexibility is not unnecessarily restricted in the event that a motor-driven or a single steam-driven pump becomes inoperable, we propose a statement (TS 3.7.1.2.d) that deletes applicability of TS 3.0.4 as long as any two Auxiliary Feedwater trains can be aligned for automatic initiation. This provision will ensure that the intent of the LCO will continue to be satisfied.

Two changes to the Surveillance Requirements of TS 4.7.1.2 are proposed. First is deletion of the requirement to verify a 160 gpm setpoint on the controller for the automatic flow control valves (TS 4.7.1.2.c.4). Licensing grade transient analyses have indicated that the quantity of flow automatically delivered to the steam generators during the first 10 minutes, a maximum flow of 1300 gpm (runout), during the worst overcooling transient or a minimum flow of 0 gpm (zero), during the worst undercooling transient is acceptable. Nevertheless, the automatic flow setpoint is being identified in the TS Bases in recognition of the AFW system's functional design basis.

The second proposed change is a clarification of TS 4.7.1.2.c for testing the automatic functions of the AFWS. The new specification would require that all automatic valves in the flow path actuate to their correct positions and each Auxiliary Feedwater pump automatically starts upon receipt of each AFAS test signal. Consistent with the above discussion concerning the quantity of flow automatically delivered by the AFWS, the requirement to verify a modulated flow of 160 gpm $\pm$ 10 gpm is deleted. To ensure that the system can deliver a minimum specified flowrate a new requirement is added (TS 4.7.1.2.c.2) that provides for a demonstration that 200 gpm nominal flow can be delivered to each flow leg. The purpose of this test is to ensure that no flow path degradation has occurred (e.g., obstructions in the line) during the surveillance interval. The test will be performed by manually aligning each of the flow legs and individually verifying their capability to pass 200 gpm flow.

Finally, the Bases for TS 3/4 7.1.2 are revised to include a new nominal flow setpoint and instrument loop error band in accordance with Reference (b).

The transients affected by AFWS performance, and the assumptions used the analysis of these transients, are being listed in the basis for TS 3/4.7.1.2. Licensing grade analyses have demonstrated that for the first ten minutes no flow is needed for undercooling transients, and that the maximum Auxiliary Feedwater suction leg flow is acceptable for overcooling transients. Although the operational nominal flow setpoint of 200 gpm is discussed, it is made clear that flow fluctuations beyond the discussed band are allowable.

The new interim nominal flow setpoint does not represent a limiting safety system setting required to maintain the assumptions of the FSAR. This setting is defined only to support enhanced equipment reliability and prudent operations to ensure that the effects of the following abnormal operating events are mitigated:

1. AFAS actuation concurrent with a low steam generator backpressure condition will not result in motor-driven AFW pump runout.

2. AFAS actuation concurrent with a plant trip that does not involve an excessive cooldown transient, will not result in excessive cooldown (with subsequent safety injection actuation) within the first ten minutes of assumed no operator action.

The nominal flow setpoint and associated error band will be finalized during the upcoming Unit Two refueling outage scheduled to begin in April 1984. Modifications are planned for the automatic flow control features of the motor-driven pump train to improve system performance during low steam generator backpressure conditions. Following completion of these modifications, testing will be performed to identify the final setpoint. The value of this setpoint will then be submitted as a supplement to this request.

## DETERMINATION OF SIGNIFICANT HAZARDS CONSIDERATIONS

Our review of the changes requested by this application indicates that, with the following exception, no significant hazards considerations are involved. By strict application of the criteria contained in 10 CFR 50.92, the proposed change to TS 3.7.1.2.a must be treated as a significant hazards consideration in that it represents a relaxation in the action statement for restoring an inoperable motor-driven pump to service (14 days versus 72 hours) in the absence of compensating system improvements.

The subject relaxation is justified because the proposed Technical Specification requires that the standby steam-driven pump be aligned to automatic initiating status within 72 hours, thereby satisfying AFWS design basis requirements by ensuring the availability of two pump trains. This specification was shown to be acceptable for Unit One in Reference (c).

In all other respects the proposed changes do not involve a significant hazards consideration in that they more accurately reflect the manner in which the Unit Two AFWS, with the motor-driven train and Unit One cross-connect, will be operated and tested in the future. These changes do not:

(i) Involve a significant increase in the probability or consequences of an accident previously evaluated; or

(ii) Create the possibility of a new or different kind of accident from any accident previously evaluated; or

(iii) Involve a significant reduction in the margin of safety currently provided by the Technical Specifications.

**CHANGE NO. 4** (BG&E FCR 84-1028)

Remove old page 5.6-3 and replace with new page 5.6-3 (see attached mark-up). This change modifies the reporting criteria for measured level of radioactivity in offsite environmental media.

This request for amendment is made pursuant to the requirements of 10 CFR 50.91 and 50.92 and the provisions of TS 5.6.2.6 as it relates to changes in the Environmental Technical Specifications.

## DISCUSSION

Environmental Technical Specification 5.6.2.b, Non-Routine Radiological Environmental Operating Reports, currently states in part:

> ". . . If a confirmed level of radioactivity at any off-site location in any environmental medium exceeds ten times the "background" value, a written report shall be submitted to the Director of the NRC Regional Office. . ."

At the time this Technical Specification was originally included in the operating license, the criteria of "ten times the background value" was considered appropriate given the then existing state-of-the-art in radiation detection and radioisotope measurement.

Since the issuance of the operating license, radiation measurement technology has improved substantially, permitting the resolution, and the measurement of individual radioisotopes with far greater accuracy and sensitivity than has been possible in the past. To some extent, improvements in energy resolution have been manifested as apparent increases in the measured levels of individual isotopes. In addition, improvements in instrumentation have resulted in the elimination of noise which in the past was a rather large component of the measured "background" level.

The combined effects on increased energy resolution for individual isotopes and the reduction of background noise as afforded by modern instrumentation has had the net effect of significantly increasing the difference between naturally occurring background levels of radioisotopes and the measurable levels or radioisotopes in environmental media attributable to the operation of Calvert Cliffs.

For example, Ag-110m levels measured in oysters collected at the Camp Canoy sampling location during the past three years have been consistently higher than the "ten times background" criteria. This has occurred even though the concentration of Ag-110m in liquid effluents has always been a negligible fraction of that allowed by 10 CFR 20, Appendix B.

As a result, we have had to submit Non-Routine Radiological Reports pursuant to TS 5.6.2.6 on all but a routine basis. We do not believe that these reports, or the associated Licensee Event Reports required by TS 6.9.1, reflect the original intent of the Environmental Technical Specifications. As discussed in each of the said reports, the measured levels of Ag-110m have been well below those which could result in a whole body or organ dose commitment approaching the design objectives of 10 CFR 50, Appendix I, or limits specified in 40 CFR 190. Thus, these reports are unnecessary since they identify neither an unsafe nor potentially unsafe condition in the environs.

The proposed change would require a report to be submitted only when the projected annual dose commitment, calculated in accordance with Regulatory Guide 1.109, Revision 1, was equal to or greater than one mRem for a maximally exposed individual. This level is consistent with the limits specified in 40 CFR 190 for annual doses received by individuals from all nuclear power cycle pathways and is conservative with respect to the design objectives specified in 10 CFR 50, Appendix I.

## DETERMINATON OF SIGNIFICANT HAZARDS CONSIDERATIONS

The proposed change does not represent a significant hazards consideration inasmuch as:

(i) an increase in the probability or consequences of an accident previously evaluated is not involved,

(ii) the possibility of a new or different kind of accident is not created, and

(iii) the margin of safety of plant operations is not reduced.

The existing requirement to evaluate the cause of any radioisotope which is detected at a concentration equal to ten times the background level would not be affected by this proposal.

## CHANGE NO. 5 (BG&E FCR 84-35)

Change surveillance requirement 4.7.11.1.1.b and 4.7.11.1.2.a.2 as shown on the attached marked-up pages 3/4 7-67 and 7-68 for Unit 1 and pages 3/4 7-59 and 7-60 for Unit 2 Technical Specifications.

## DETERMINATION OF SIGNIFICANT HAZARDS CONSIDERATIONS

Water for the fire protection system is supplied by two full capacity fire pumps. One pump is electrically-driven and the other is diesel engine-driven. The two fire pumps are designed to start automatically and stop manually. The electrically driven pump starts automatically on a low header pressure of 95 psig with the diesel engine-driven pump being started at 85 psig. The diesel engine-driven pump is arranged to provide backup for the electrically-driven pump in case the latter does not start or does not maintain adequate pressure at the header.

The fire pumps are demonstrated operable in accordance with Surveillance Requirements 4.7.11.1.1 and 4.7.11.1.2. The electric and diesel-driven fire pumps are tested on a 31- day staggered test basis. Section 4.7.11.1.2.a.2 specifies that the diesel driven fire pump must operate for 30 minutes on recirculation flow. Section 4.7.11.1.1.b specifies that the electric-driven fire pump must operate for 15 minutes on recirculation flow.

The requirement to test the pumps in the recirculation mode is an unnecessary restriction. The test can also be performed in the normal standby line-up. Relief valves are provided at each fire pumps' discharge to meet or exceed the National Fire Codes.

> **Circulation Relief Valve.** Each pump shall be provided with an automatic relief valve set below the shutoff pressure at minimum expected suction pressure. It shall provide circulation of sufficient water to prevent the pump from overheating when operating with no discharge.[1]

To supplement the Surveillance Test Procedures (STPs) performed to meet the Surveillance Requirements, Preventative Maintenance (PM) testing is performed to meet the plant's weekly test requirement. The PM testing is performed in the normal standby line-up. The maintenance history indicates that testing the fire pumps in the standby line-up has not adversely affected either fire pump.

The operation of the facility in accordance with the proposed amendment to the operating license would not:

(i) involve an increase in the probability or consequences of an accident previously evaluated; or

(ii) create the possibility of a new or different kind of accident from any accident previously evaluated; or

(iii) involve a reduction in a margin of safety.

The proposed amendment does not change the intent or conclusions of the surveillance test. The ability to start and run the fire pumps is equally valid in the standby mode. The performance of the fire pumps is tested in another section, 4.7.11.1.1 f.

**CHANGE NO. 6** (BG&E FCR 84-34)

Change Tables 3.3-11, Fire Detection Instruments, to include the additional instrumentation as shown on the attached marked-up pages 3/4 3-45 and 3-46 for the Units 1 and 2 Technical Specifications.

**DETERMINATION OF SIGNIFICANT HAZARDS CONSIDERATION**

The proposed change incorporates additional fire detection instrumentation in the Technical Specifications. The rooms added to Table 3.3-11 are now equipped with heat, flame and/or smoke detectors, and an alarm system. The annunciators in the control room provide an audio-visual alarm which indicates the location of the affected area.

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[1]National Fire Codes, Volume 2, Chapter 20, Section 2-6, 1983

In the Federal Register dated April 6, 1983, the Nuclear Regulatory Commission provided guidance for license amendments which were likely or not likely to involve Significant Hazards Considerations. As an example of amendments that are considered not likely to involve Significant Hazards Considerations the Federal Register states:

> ". . .A change that constitutes an additional limitation, restriction or control not presently included in the Technical Specifications".

The proposed change incorporating the recently installed fire detection instrumentation in the Technical Specifications constitutes additional control not previously required.

The installation of additional fire detectors improves the ability of Operators to recognize the existence and location of a fire. This information aids the Fire Brigade in containing and extinguishing a fire.

The operation of the facility in accordance with the proposed amendment to the operating license would not:

(i) involve an increase in the probability or consequences of an accident previously evaluated; or

(ii) create the possibility of a new or different kind of accident from any accident previously evaluated; or

(iii) involve a reduction in the margin of safety.

**CHANGE NO. 7** (BG&E FCR 82-169)

Remove existing page 6-21 of the Unit 1 and 2 Technical Specifications and replace with the marked-up page 6-21.

**DETERMINATION OF SIGNIFICANT HAZARDS CONSIDERATION**

Unnecessary exposure to high radiation areas is administratively controlled as required by 10 CFR Part 20.203(c)(2) in lieu of "control devices" or an "audible alarm." High radiation areas are defined in 10 CFR Part 20.202(b)(3) as accessible areas where the radiation imparts a whole body dose rate greater than 100 mRem/hr. Positive control is further enhanced by locking and barricading high radiation areas with a dose rate greater than 1,000 mRem/hr.

Presently, the Shift Supervisor on duty is authorized to administratively control access into the locked high radiation areas. The proposed change would provide the Radiation Control Supervisor, in addition to the Shift Supervisor, the authority to administratively control access into high radiation areas greater than 1,000 mRem/hr. This change is also consistent with the **ALARA** program, since the Radiation Control Supervisor and the Radiation Control Unit are most familiar with the appropriate radiological protection.

The proposed change constitutes an administrative change and does not involve a significant hazards consideration. Expanding the authority to control access to locked high radiation areas will not increase the probability or consequences of an accident previously evaluated. Typically, the few changes that affect dose rates (e.g., mode changes, fuel movement, ion exchanger line-ups, etc.) are internally communicated to the Radiation Control Unit. Similarly, the Radiation Control Unit informs Operations of non-routine entries into locked high radiation areas. A new or different kind of accident from any accident previousiy evaluated is not possible since the locks and radiation sources have not been altered. The margin of safety will not be reduced, since the Radiation Control Supervisor also can administer the keys to the locked high radiation areas and ensure control over unnecessary exposure.

**SAFETY COMMITTEE REVIEW**

These proposed changes to the Technical Specifications and our determination of significant hazards have been reviewed by our Plant Operations and Off-Site Safety Review Committees, and they have concluded that implementation of these changes will not result in an undue risk to the health and safety of the public.

**FEE DETERMINATION**

We have determined, pursuant to 10 CFR 170.22, that this Amendment request consists of one Class IV and one Class I Amendment. Accordingly, we are including BG&E Check Number A117632 in the amount of $12,700 to cover the fee for this request. This check also forwards the fee required for the April 4, 1984, submittal.

Very truly yours,

A. E. Lundvall, Jr.

**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: Minnie L. Robinson
Notary Public

My Commission Expires: July 1, 1986

AEL/LES/gla

Attachments

cc: D. A. Brune, Esquire
G. F. Trowbridge, Esquire
D. H. Jaffe, NRC
T. Foley, NRC
T. Magette, DNR, State of MD