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

January 29, 1992

Docket No. 50-317

Mr. G. C. Creel
Vice President - Nuclear Energy
Baltimore Gas and Electric Company
Calvert Cliffs Nuclear Power Plant
MD Rts. 2 & 4
P. O. Box 1535
Lusby, Maryland 20657

Dear Mr. Creel:

SUBJECT: ISSUANCE OF EXIGENT AMENDMENT FOR CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NO. 1 (TAC NO. M82363)

The Commission has issued the enclosed Amendment No.167 to Facility Operating License No. DPR-53 for the Calvert Cliffs Nuclear Power Plant, Unit No. 1. This amendment consists of changes to the Technical Specifications (TS) in response to your application transmitted by letter dated December 31, 1991.

The amendment revises Technical Specification (TS) 4.5.1.a.2, Emergency Core Cooling System (ECCS) Safety Injection Tanks Surveillance Requirements. Specifically, a footnote is added effective from the date this amendment is issued that exempts motor operated valve, 1-MOV-644, from the requirement to verify at least once every 12 hours that it is in the open position. The footnote will expire prior to entering Mode 3 during the restart from refueling outage 10, which is currently scheduled for the spring of 1992. Verification of valve position, as required by the surveillance requirement, is no longer needed because 1-MOV-644 has been temporarily modified to remain open by welding the valve stem to the valve yoke until the valve can be repaired or replaced during the upcoming refueling outage. The associated Temporary Waiver of Compliance dated December 31, 1991, is superseded by this amendment upon its implementation.

cc:

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DATED: January 29, 1992

AMENDMENT NO. 167 TO FACILITY OPERATING LICENSE NO. DPR-53-CALVERT CLIFFS UNIT 1

Docket File
NRC & Local PDRs
PDI-1 Reading
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Plant file

cc: Plant Service list

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

BALTIMORE GAS AND ELECTRIC COMPANY

DOCKET NO. 50-317

CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 167
License No. DPR-53

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Baltimore Gas and Electric Company (the licensee) dated December 31, 1991, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.2 of Facility Operating License No. DPR-53 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 167, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance to be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION

Robert A. Capra for

Jose A. Calvo, Assistant Director
for Region I Reactors
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: January 29, 1992

ATTACHMENT TO LICENSE AMENDMENTS

AMENDMENT NO. 167 FACILITY OPERATING LICENSE NO. DPR-53

DOCKET NO. 50-317

Revise Appendix A as follows:

Remove Page	Insert Page
3/4 - 5-1	3/4 - 5-1

3/4.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

SAFETY INJECTION TANKS

LIMITING CONDITION FOR OPERATION

3.5.1 Each reactor coolant system safety injection tank shall be **OPERABLE** with:

a. The isolation valve open,

b. A contained borated water volume of between 1113 and 1179 cubic feet of borated water (equivalent to tank levels of between 187 and 199 inches, respectively),

c. A boron concentration of between 2300 and 2700 ppm, and

d. A nitrogen cover-pressure of between 200 and 250 psig.

APPLICABILITY: **MODES** 1, 2 and 3.

ACTION:

a. With one safety injection tank inoperable, except as a result of a closed isolation valve, restore the inoperable tank to **OPERABLE** status within one hour or be in **HOT SHUTDOWN** within the next 12 hours.

b. With one safety injection tank inoperable due to the isolation valve being closed, either immediately open the isolation valve or be in **HOT STANDBY** within one hour and be in **HOT SHUTDOWN** within the next 12 hours.

SURVEILLANCE REQUIREMENTS

4.5.1 Each safety injection tank shall be demonstrated **OPERABLE**:

a. At least once per 12 hours by:

1. Verifying the contained borated water volume and nitrogen cover-pressure in the tanks, and

2. Verifying that each safety injection tank isolation valve is open.*

* Effective from January 29, 1992 to prior to entering Mode 3 from refueling this verification is not required for 1 ve has been mechanically secured in the

add ↑ date of amendment

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 167 TO FACILITY OPERATING LICENSE NO. DPR-53

BALTIMORE GAS AND ELECTRIC COMPANY

CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NO. 1

DOCKET NO. 50-317

1.0 INTRODUCTION

By letter dated December 31, 1991, the Baltimore Gas and Electric Company (BG&E or the licensee) submitted a request for a change to the Calvert Cliffs Nuclear Power Plant, Unit No. 1, Technical Specifications (TS). The requested change would revise TS 4.5.1.a.2, Emergency Core Cooling System (ECCS) Safety Injection Tanks (SITs) Surveillance Requirements on an exigent basis. Specifically, a footnote is to be added which would be effective from the date the requested amendment is issued to exempt only motor operated valve, 1-MOV-644, from the requirement to verify that the SIT isolation valves are in the open position at least once every 12 hours. The footnote would expire prior to entering Mode 3 subsequent to refueling outage 10, which is currently scheduled for the spring of 1992. The verification for 1-MOV-644 is not needed during this period because a temporary modification to secure the valve in the open position has been implemented. The valve stem has been welded to the valve yoke until the valve can be repaired or replaced during the upcoming refueling outage. The bent valve stem and temporary modification have resulted in the remote valve position indicators, which are normally used to verify the valve position, not being available.

The surveillance requirements for 1-MOV-644 were being met, on an interim basis, by making containment entries at least once every 12 hours during power operation. The licensee also requested a Temporary Waiver of Compliance (TWOC) while the NRC staff reviewed the exigent TS amendment request. The TWOC was granted by NRC letter dated December 13, 1991, which relieves BG&E from making containment entries based on the temporary modification which secured 1-MOV-644 in its open position.

2.0 EVALUATION

On December 22, 1991, MOV-644 was used to isolate check valve SI-245, which is located downstream of SIT 12B, to perform repairs on the leaking check valve during an unplanned outage. Subsequent to the repairs, 1-MOV-644 failed to open. The valve was inspected and the valve stem was found to be bent and was causing the motor-operator to bind. The motor-operator was disable to allow the valve to be manually opened. This action resulted in the loss of the position indication and the valve was modified by welding the valve stem to the valve yoke to assure the isolation valve maintained its required open position for Mode 1, 2 and 3 operation.

As previously noted, the modification is temporary until the upcoming refueling outage in the spring of 1992. BG&E considered repairing 1-MOV-644 which would necessitate a seven-day outage, require cold shutdown with a partial drained reactor coolant system (mid-loop operation), or possible use of a freeze plug. However, BG&E desired to avoid any unnecessary entry into a partially drained reactor coolant system condition, due to increased plant vulnerability to unexpected transients while in this condition. Therefore, BG&E opted to make the temporary modification described above. BG&E considers that the welded open valve provides adequate assurance that the valve will remain open and that verification of valve position is unnecessary until the valve is replaced or repaired during the upcoming refueling outage.

The NRC staff has reviewed the BG&E safety analysis and justification provided in its December 31, 1991, request. The surveillance requirements of TS 4.5.1.a.2 are to provide reasonable assurance that all of the SIT isolation valves remain in their open position during Mode 1, 2 and 3 operation to allow the SITs to perform their safety function of reflooding the reactor core during certain conditions following a design bases Loss-of-Coolant Accident (LOCA).

The first consideration is to assure that the valve, 1-MOV-644, is in the open position. BG&E used several indications to assure themselves that the valve was open. These included: 1) performing a test which required partial flow of water from the SIT through the repaired check valve and 1-MOV-644 to a drain line, during which the SIT level was monitored and a decrease noted indicating the isolation valve was open, 2) the expected amount of stem travel was measured when 1-MOV-644 was manually opened, 3) the valve stem moved freely once the stem nut was moved past the binding portion, 4) a weak link analysis indicates that the stem is the most likely location of failure, and 5) the force required to open the valve once unseated was consistent with that of a properly operating valve. Although none of these indications provided absolute assurance that 1-MOV-644 is in the full open position, collectively they provide reasonable assurance that the valve is open. In addition to the weak link analysis indicating that the stem is the most likely portion of the valve to fail, the next likely failure would be the bottom of the wedge at the valve seating surface. When 1-MOV-644 was closed during the check valve repair no bypass leakage was observed indicating no damage in the wedge/valve seating surface area. Thus, the NRC staff has concluded that there is reasonable assurance that 1-MOV-644 is in the open position.

The second consideration was to repair 1-MOV-644 or provide a means of temporarily securing the valve in its open position. The decision and supporting rationale for performing a temporary modification in lieu of repairing the valve until the upcoming refueling outage (approximately 3 months) was previously discussed. The NRC staff agrees that a seven-day outage requiring cold shutdown and mid-loop operation would result in undue hardship, the unit would be vulnerable to unexpected transients while in mid-loop operation, and that no corresponding safety benefit would be gained for the short period of operation until the upcoming outage. Therefore, the NRC staff has determined that the use of a temporary modification for the short time frame is acceptable.

The temporary modification used by BG&E to secure the valve in the open position was to perform a 360° weld around the unthreaded portion of the 1-MOV-644 stem and the valve yoke. Calculations were performed to determine the design margin available using the weld. The initial results indicated a 40% margin, however, more detailed calculations were performed incorporating explicit modelling of dead weight, thermal, seismic, and packing loads resulted in a 22% margin. BG&E also noted that existing welding procedures were used and the finished weld was subjected to dye penetrant and visual inspections.

The NRC staff has determined that, the use of a 360° weld between the valve stem and valve yoke supported by the detailed analysis summarized above and the subsequent weld inspections is an acceptable means of securing 1-MOV-644 in the open position. The weld, which was completed on December 28, 1991, was subsequently visually inspected after reaching normal operating conditions on December 30, 1991. This additional visual inspection of the weld at normal operating conditions indicates that the thermal stresses during operation have not resulted in any damage to the weld. BG&E has also indicated that all necessary procedures are in place to operate 1-MOV-644 in the welded open position including the actions necessary for depressurizing the SIT nitrogen pressure during a unit shutdown.

Therefore, the NRC staff has concluded that the valve, 1-MOV-644 is adequately secured in the open position and that subsequent verification is unnecessary until the valve is repaired or replaced during the upcoming refueling outage 10.

3.0 STATEMENT OF EXIGENT CIRCUMSTANCES

BG&E states that exigent circumstances pursuant to 10 CFR 50.91 exist with respect to the need for consideration of the proposed amendment. The need for this change could not have been foreseen in that it resulted from corrective maintenance activities being performed during an unplanned outage to repair a leaking check valve. Application for an exigent amendment was made as soon as possible following the determination of the appropriate course of action. Personnel are required to enter the containment during power (Mode 1) operation every 12 hours to verify that 1-MOV-644 is in the open position, even though it is welded open, to meet the current TS. This results in unnecessary radiation exposure with no corresponding safety benefit and is inconsistent with the objectives of maintaining occupational radiation exposures to as low as reasonably achievable (ALARA). As previously noted, the December 31, 1991, exigent amendment request also requested a TWOC while the TS amendment request is being reviewed by the NRC. By NRC letter dated December 31, 1991, the NRC granted the requested TWOC from the requirements of TS 4.5.1.a.2 for 1-MOV-644 to be in effect until the NRC staff completes its review for the requested exigent amendment.

Based on the above, the NRC staff has determined that the licensee has used best efforts to make a timely application and that exigent circumstance are present which warrant processing the requested amendment pursuant to 10 CFR 50.91(a)(6).

4.0 FINAL NO SIGNIFICANT HAZARD CONSIDERATION

The Commission has provided standards for determining whether a significant hazards consideration exists (10 CFR 50.92(c)). A proposed amendment to an operating license for a facility involves no significant hazards consideration if operation of the facility in accordance with the proposed amendment would not: (1) involve a significant increase in the probability or consequences of and accident previously evaluation; or (2) create the possibility of a new or different kind of accident from an accident previously evaluated; or (3) involved a significant reduction in a margin of safety.

The following evaluation, by the licensee and with which we agree, demonstrates that the proposed amendment does not involve a significant hazards consideration.

Operation of the Calvert Cliffs Nuclear Power Plant, Unit 1, in accordance with the proposed amendment will not involve a significant hazards consideration as defined in 10 CFR 50.92, since it does not:

1. Would not involve a significant increase in the probability or consequences of an accident previously evaluated.

   The open or closed position of Safety Injection Tank isolation valves are not considered an initiator for any accidents previously evaluated. Therefore, the probability of previously evaluated accidents would not be increased by the requested change.

   Previously evaluated accident analyses assume that Safety Injection Tank isolation valves are open. The requested change eliminates the verification of that condition for one valve but the valve has been welded in the open position. Therefore, it has been [reasonably] assured that the valve will function as required during any previously analyzed accident and that there will be no increase in consequences due to the requested change.

   Therefore, this change would not involve a significant increase in 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.

   Welding the valve stem to the valve yoke on 1-MOV-644 ensures that the valve will remain open during Modes 1, 2 and 3, thus eliminating the need for periodic verification of valve position in those Modes. The only new or different type of accident that could be created by failing to verify the isolation valve position would be the unknown closure of the valve. However, this possibility is precluded by welding the valve in the open position. This change in surveillance requirements does not affect the design and function of the isolation valve, nor the operation of the isolation valve as the valve's design and function is to remain open in Modes 1, 2 and 3 and the valve is not allowed to be operated in those Modes.

Therefore, [there is reasonable assurance that] 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 margin of safety provided by this surveillance requirement is the assurance that the isolation valve is open. The need to verify that the valve is open has been eliminated by welding the valve in the open position. Therefore, [there is reasonable assurance that] the proposed change would not involve a significant reduction in a margin of safety.

Based on the foregoing, the Commission has concluded that the standards of 10 CFR 50.92 are satisfied. Therefore, the Commission has made a final determination that the proposed amendment does not involve a significant hazards consideration.

5.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Maryland State official was notified of the proposed issuance of the amendment. The State official had no comments.

6.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes to the surveillance requirements. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (57 FR 938). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

7.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor:
Daniel McDonald

Date: January 29, 1992

A copy of the related Safety Evaluation is enclosed. A Notice of Issuance will be included in the Commission's next regular biweekly Federal Register notice.

Sincerely,

Daniel G. McDonald, Senior Project Manager
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 167to DPR-53
2. Safety Evaluation

cc w/enclosures:
See next page

A copy of the related Safety Evaluation is enclosed. A Notice of Issuance will be included in the Commission's next regular biweekly Federal Register notice.

Sincerely,

Original Signed By:

Daniel G. McDonald, Senior Project Manager
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 167 to DPR-53
2. Safety Evaluation

cc w/enclosures:
See next page

*See previous concurrence

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