July 30, 1991

Docket Nos. 50-317
and 50-318

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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 AMENDMENTS FOR CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NO. 1 (TAC NO. 80486) AND UNIT NO. 2 (TAC NO. 80487)

The Commission has issued the enclosed Amendment No. 157 to Facility Operating License No. DPR-53 and Amendment No. 137 to Facility Operating License No. DPR-69 for the Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2, respectively. The amendments consist of changes to the Technical Specifications in response to your application transmitted by letter dated May 24, 1991.

The amendments change the Technical Specifications (TS) for both units by deleting the TS 4.6.1.2 requirement to use the methods and provisions of ANS1 N45.4-1972 to determine the containment leakage rates. The requirement to perform three Type A tests during each 10-year service period at 40 plus or minus 10 month intervals is also deleted. The amendments allow the use of the criteria, methods, and provisions specified in Appendix J of 10 CFR Part 50 to determine the containment leakage rates. In addition, the schedule is revised to require that three Type A tests be performed at approximately equal intervals during each 10-year service period.

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. 157 to DPR-53
2. Amendment No. 137 to DPR-69
3. Safety Evaluation

cc w/enclosures:
See next page

*See previous concurrence

OFC	:PDI-1:LA	:PDI-1:PM	:SPLB	:OGC*	:PDI-1:D
NAME	:CVogan	:DMcDonald:avl	:CMcCracken*	:	:RACapra for
DATE	:7/10/91	:7/11/91	:7/ /91	:7/ /91	:7/30/91

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

Docket Nos. 50-317
and 50-318

July 30, 1991

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Vice President - Nuclear Energy
Baltimore Gas and Electric Company
Calvert Cliffs Nuclear Power Plant
MD Rts. 2 & 4
P. O. Box 1535
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The amendments change the Technical Specifications (TS) for both units by deleting the TS 4.6.1.2 requirement to use the methods and provisions of ANS1 N45.4-1972 to determine the containment leakage rates. The requirement to perform three Type A tests during each 10-year service period at 40 plus or minus 10 month intervals is also deleted. The amendments allow the use of the criteria, methods, and provisions specified in Appendix J of 10 CFR Part 50 to determine the containment leakage rates. In addition, the schedule is revised to require that three Type A tests be performed at approximately equal intervals during each 10-year service period.

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Sincerely,

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

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cc w/enclosures:
See next page

Mr. G. C. Creel
Baltimore Gas & Electric Company

cc:

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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. 157
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 May 24, 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. 157, 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 and shall be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION

for Robert A. Capra, Director
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical Specifications

Date of Issuance: July 30, 1991

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

BALTIMORE GAS AND ELECTRIC COMPANY

DOCKET NO. 50-318

CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 137
License No. DPR-69

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

   A. The application for amendment by Baltimore Gas and Electric Company (the licensee) dated May 24, 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-69 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 137, 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 and shall be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION

Donald S. Brinkman
for Robert A. Capra, Director
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: July 30, 1991

ATTACHMENT TO LICENSE AMENDMENTS

AMENDMENT NO. 157 FACILITY OPERATING LICENSE NO. DPR-53

AMENDMENT NO. 137 FACILITY OPERATING LICENSE NO. DPR-69

DOCKET NOS. 50-317 AND 50-318

Revise Appendix A as follows:

Remove Pages	Insert Pages
3/4 6-1*	3/4 6-1*
3/4 6-2	3/4 6-2

*Pages that did not change, but are overleaf

3/4.6 CONTAINMENT SYSTEMS

3/4.6.1 PRIMARY CONTAINMENT

CONTAINMENT INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.1 Primary **CONTAINMENT INTEGRITY** shall be maintained.

APPLICABILITY: **MODES** 1, 2, 3 and 4.

ACTION:

Without primary **CONTAINMENT INTEGRITY**, restore **CONTAINMENT INTEGRITY** within one hour or be in at least **HOT STANDBY** within the next 6 hours and in **COLD SHUTDOWN** within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.1 Primary **CONTAINMENT INTEGRITY** shall be demonstrated:

a. At least once per 31 days by verifying that all penetrations* not capable of being closed by **OPERABLE** containment automatic isolation valves and required to be closed during accident conditions are closed by valves, blind flanges, or deactivated automatic valves secured in their positions, except as provided in Table 3.6-1 of Specification 3.6.4.1.

b. By verifying that each containment air lock is in compliance with the requirements of Specification 3.6.1.3.

c. By verifying that the equipment hatch is closed and sealed, prior to entering **MODE** 4 following a shutdown where the equipment hatch was opened, by conducting a Type B test per Appendix J to 10 CFR Part 50.

---

* Except valves, blind flanges, and deactivated automatic valves which are located inside the containment and are locked, sealed, or otherwise secured in the closed position. These penetrations shall be verified closed during each **COLD SHUTDOWN** except that such verification need not be performed more often than once per 92 days.

CONTAINMENT SYSTEMS

CONTAINMENT LEAKAGE

LIMITING CONDITION FOR OPERATION

3.6.1.2 Containment leakage rates shall be limited to:

a. An overall integrated leakage rate of:

1. $\leq L_a$ (346,000 SCCM), 0.20 percent by weight of the containment air per 24 hours at P_a, 50 psig, or

2. $\leq L_t$ (61,600 SCCM), 0.058 percent by weight of the containment air per 24 hours at a reduced pressure of P_t, 25 psig.

b. A combined leakage rate of $\leq 0.60\ L_a$ (207,600 SCCM), for all penetrations and valves subject to Type B and C tests when pressurized to P_a.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With either (a) the measured overall integrated containment leakage rate exceeding $0.75\ L_a$ (259,500 SCCM) or $0.75\ L_t$ (46,200 SCCM), as applicable, or (b) with the measured combined leakage rate for all penetrations and valves subject to Types B and C tests exceeding $0.60\ L_a$, restore the leakage rate(s) to within the limit(s) prior to increasing the Reactor Coolant System temperature above $200^{o}F$.

SURVEILLANCE REQUIREMENTS

4.6.1.2 The containment leakage rates shall be demonstrated at the following test schedule and shall be determined in conformance with the criteria, methods and provisions specified in Appendix J of 10 CFR Part 50:

a. Three Type A tests (Overall Integrated Containment Leakage Rate) shall be conducted at approximately equal intervals during shutdown at either P_a (50 psig) or at P_t (25 psig) during each 10-year service period.

3/4.6 CONTAINMENT SYSTEMS

3/4.6.1 PRIMARY CONTAINMENT

CONTAINMENT INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.1 Primary **CONTAINMENT INTEGRITY** shall be maintained.

APPLICABILITY: **MODES** 1, 2, 3 and 4.

ACTION:

Without primary **CONTAINMENT INTEGRITY**, restore **CONTAINMENT INTEGRITY** within one hour or be in at least **HOT STANDBY** within the next 6 hours and in **COLD SHUTDOWN** within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.1 Primary **CONTAINMENT INTEGRITY** shall be demonstrated:

a. At least once per 31 days by verifying that all penetrations* not capable of being closed by **OPERABLE** containment automatic isolation valves and required to be closed during accident conditions are closed by valves, blind flanges, or deactivated automatic valves secured in their positions, except as provided in Table 3.6-1 of Specification 3.6.4.1.

b. By verifying that each containment air lock is in compliance with the requirements of Specification 3.6.1.3.

c. By verifying that the equipment hatch is closed and sealed, prior to entering **MODE** 4 following a shutdown where the equipment hatch was opened, by conducting a Type B test per Appendix J to 10 CFR Part 50.

* Except valves, blind flanges, and deactivated automatic valves which are located inside the containment and are locked, sealed, or otherwise secured in the closed position. These penetrations shall be verified closed during each **COLD SHUTDOWN** except that such verification need not be performed more often than once per 92 days.

CONTAINMENT LEAKAGE

LIMITING CONDITION FOR OPERATION

3.6.1.2 Containment leakage rates shall be limited to:

a. An overall integrated leakage rate of:

1. $\leq L_a$ (346,000 SCCM), 0.20 percent by weight of the containment air per 24 hours at P_a, 50 psig, or

2. $\leq L_t$ (44,600 SCCM), 0.042 percent by weight of the containment air per 24 hours at a reduced pressure of P_t, 25 psig.

b. A combined leakage rate of $\leq 0.60\ L_a$ (207,600 SCCM) for all penetrations and valves subject to Type B and C tests when pressurized to P_a.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With either (a) the measured overall integrated containment leakage rate exceeding $0.75\ L_a$ (259,500 SCCM), or $0.75\ L_t$ (33,400 SCCM), as applicable, or (b) with the measured combined leakage rate for all penetrations and valves subject to Types B and C tests exceeding $0.60\ L_a$, restore the leakage rate(s) to within the limit(s) prior to increasing the Reactor Coolant System temperature above 200°F.

SURVEILLANCE REQUIREMENTS

4.6.1.2 The containment leakage rates shall be demonstrated at the following test schedule and shall be determined in conformance with the criteria, methods and provisions specified in Appendix J of 10 CFR Part 50:

a. Three Type A tests (Overall Integrated Containment Leakage Rate) shall be conducted at approximately equal intervals during shutdown at either P_a (50 psig) or at P_t (25 psig) during each 10-year service period.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 157 TO FACILITY OPERATING LICENSE NO. DPR-53

AND AMENDMENT NO. 137 TO FACILITY OPERATING LICENSE NO. DPR-69

BALTIMORE GAS AND ELECTRIC COMPANY

CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NOS. 1 AND 2

DOCKET NOS. 50-317 AND 50-318

1.0 INTRODUCTION

By letter dated May 24, 1991, the Baltimore Gas and Electric Company (the licensee) submitted a request for changes to the Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2, Technical Specifications (TS). The requested changes would allow the use of the Mass Point method for conducting containment integrated leak rate tests (CILRT) and revises the test interval to be consistent with 10 CFR Part 50, Appendix J, requirements taking into account the current 24-month refueling cycles.

TS Surveillance Requirement 4.6.1.2 currently requires the exclusive use of ANSI N45.4-1972 to determine containment leakage rates. This standard provides two acceptable methods of CILRT calculations. The first method is Point-to-Point and the second method is Total Time. The second method, currently being used by the licensee, calculates a series of leakage rates based on most recent data and the data taken at the start of the test. Each successive calculated leakage rate is therefore based on a longer period of time. The hourly leakage rate is determined by applying a linear least square fit to the calculated leakage rates at each time point.

Technical Specification 4.6.1.2 also requires that three CILRTs be conducted at 40±10 month intervals during each 10 year service period. Calvert Cliffs, as noted above, is on a 24-month fuel cycle which does not allow meeting this surveillance interval.

2.0 EVALUATION

As noted by the licensee, advances in leakage rate testing subsequent to the issuance of both ANSI N45.4 and the Calvert Cliffs TSs have provided a newer method of evaluating test data called the Mass Point method. The Mass Point method is described in ANSI/ANS 56.8-1987 and involves calculating the containment air mass at different times by application of the Ideal Gas Law.

The data is then analyzed by the method of linear least squares. The slope of this line represents the rate of change of air mass with respect to time, which is the leakage rate.

The Nuclear Regulatory Commission (NRC) has amended 10 CFR Part 50, Appendix J, "Primary Containment Leakage Testing for Water-Cooled Power Reactors," to explicitly permit the use of the Mass Point statistical data analysis method (53 FR 45890) after recognizing the Mass Point method as an improved alternative method of calculating integrated leakage rates. Therefore, the NRC staff finds the proposed change to TS 4.6.1.2, which deletes the requirement to use the test methods and provisions of ANSI N45.4-1972, acceptable. The modified TS will require that the criteria, methods, and provisions specified in Appendix J to 10 CFR Part 50 to be met which, as noted, allows the use of the Mass Point Method.

10 CFR Part 50, Appendix J, also requires that the Type A test of the containment be performed periodically. These tests are to be scheduled as a set of three tests, at approximately equal intervals, during each 10-year service period, with the third test to coincide with the 10-year inservice inspections. The current TS Surveillance Requirement schedule, TS 4.6.1.2.a, requires the Type A test to be conducted at 40±10 month intervals during each ten year service period. This TS required schedule is readily adaptable for the previous 12 and 18 month fuel cycles at the Calvert Cliffs facility. However, the current 24 month fuel cycles do not provide for three tests within a 10-year service period with 40±10 months between each test. In a 24-month fuel cycle, the tests must be conducted every other refueling outage to be within the 30 to 50 month range allowed; however, this would require a minimum of 12 years to conduct the required set of three tests. The proposed revision will match the wording of 10 CFR Part 50, Appendix J, which requires only that the tests be conducted "at approximately equal intervals" during a 10-year service period. Typically, this would result in a test being conducted at intervals of four years, four years and two years over a ten year period. Therefore, the NRC staff finds the proposed change to TS 4.6.1.2a, which deletes the 40±10 month interval requirement is consistent with 10 CFR Part 50, Appendix J, and is acceptable.

3.0 STATE CONSULTATION

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

4.0 ENVIRONMENTAL CONSIDERATION

The amendments change 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 the surveillance requirements. The NRC staff has determined that the amendments involve 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 amendments involve no significant hazards consideration, and there has been no public comment on such finding (56 FR 29269). Accordingly, the amendments meet 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 amendments.

5.0 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 amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor:
D. McDonald

Date: July 30, 1991