February 11, 1997

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: ISSUANCE OF AMENDMENTS FOR CALVERT CLIFFS NUCLEAR POWER PLANT UNIT NO. 1 (TAC NO. M97341) AND UNIT NO. 2 (TAC NO. M97342)

Dear Mr. Cruse:

The Commission has issued the enclosed Amendment No.219 to Facility Operating License No. DPR-53 and Amendment No.196 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 (TSs) in response to your application transmitted by letter dated November 26, 1996.

The amendments adopt Option B of 10 CFR Part 50, Appendix J, to require Type B and Type C containment leakage testing to be performed on a performance-based testing schedule.

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,

/S/

Alexander W. Dromerick, Senior Project Manager
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket Nos. 50-317
and 50-318

Enclosures: 1. Amendment No. 219 to DPR-53
2. Amendment No. 196 to DPR-69
3. Safety Evaluation

cc w/encls: See next page

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DATED: February 11, 1997

AMENDMENT NO.219 TO FACILITY OPERATING LICENSE NO. DPR-53-CALVERT CLIFFS UNIT 1
AMENDMENT NO.196 TO FACILITY OPERATING LICENSE NO. DPR-69-CALVERT CLIFFS UNIT 2

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

February 11, 1997

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

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Office of Nuclear Reactor Regulation

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and 50-318

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cc w/encls: See next page

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

BALTIMORE GAS AND ELECTRIC COMPANY

DOCKET NO. 50-317

CALVERT CLIFFS NUCLEAR POWER PLANT UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 219
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 November 26, 1996, 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.219 , 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

S. Singh Bajwa, Acting 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: February 11, 1997

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

BALTIMORE GAS AND ELECTRIC COMPANY

DOCKET NO. 50-318

CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 196
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 November 26, 1996, 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.196 , 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

S. Singh Bajwa, Acting 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: February 11, 1997

ATTACHMENT TO LICENSE AMENDMENTS

AMENDMENT NO. 219 FACILITY OPERATING LICENSE NO. DPR-53

AMENDMENT NO. 196 FACILITY OPERATING LICENSE NO. DPR-69

DOCKET NOS. 50-317 AND 50-318

Revise Appendix A as follows:

DPR-53

Remove Pages	Insert Pages
3/4 6-1	3/4 6-1
3/4 6-2	3/4 6-2
3/4 6-3	3/4 6-3
3/4 6-4	3/4 6-4
3/4 6-5	3/4 6-5
3/4 9-10	3/4 9-10
6-8	6-8
6-9	6-9*
B3/4 6-1	B3/4 6-1

DPR-69

Remove Pages	Insert Pages
3/4 6-1	3/4 6-1
3/4 6-2	3/4 6-2
3/4 6-3	3/4 6-3
3/4 6-4	3/4 6-4
3/4 6-5	3/4 6-5
3/4 9-10	3/4 9-10
6-8	6-8
6-9	6-9*
B3/4 6-1	B3/4 6-1

*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 for valves that are open under administrative control as permitted by 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 in accordance with the Containment Leakage Rate Testing Program.

---

* Hydrogen purge containment vent isolation valves shall be opened for containment pressure control, airborne radioactivity control, and surveillance testing purposes only.

\# The shutdown cooling isolation valves may be opened when the RCS temperature is below 300°F to establish shutdown cooling flow.

** 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 then once per 92 days.

3/4.6 CONTAINMENT SYSTEMS

3/4.6.1 PRIMARY CONTAINMENT

Containment Leakage

LIMITING CONDITION FOR OPERATION

3.6.1.2 Containment leakage rates shall be limited to:

a. A maximum allowable containment leakage rate, L_a, as specified in Specification 6.5.6, "Containment Leakage Rate Testing Program."

b. A combined leakage rate of $\leq 0.60\ L_a$ for all penetrations and valves subject to Types B and C tests, as specified in Specification 6.5.6, "Containment Leakage Rate Testing Program.".

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION: With either (a) the measured overall integrated containment leakage rate exceeding the acceptance criteria specified in the Containment Leakage Rate Testing Program, 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 overall integrated containment leakage rate and the combined leakage rate for all penetrations and valves subject to Types B and C tests to within the acceptance criteria specified in the Containment Leakage Rate Testing Program, prior to increasing the Reactor Coolant System temperature above 200°F.

SURVEILLANCE REQUIREMENTS

4.6.1.2 The containment leakage rates shall be determined in conformance with the criteria, methods, schedule, and provisions specified in the Containment Leakage Rate Testing Program:

a. Perform required visual examinations and leakage rate testing, except for containment air lock testing, in accordance with the Containment Leakage Rate Testing Program.

SURVEILLANCE REQUIREMENTS (Continued)

b. Containment purge isolation valves shall be demonstrated **OPERABLE** any time upon entering **MODE** 5 from power operation modes, unless the last surveillance test has been performed within the past six months or any time after being opened and prior to entering **MODE** 4 from shutdown modes by verifying that when the measured leakage rate is added to the leakage rates determined pursuant to Technical Specification 4.6.1.2.a for all other Type B or C penetrations, the combined leakage rate is less than or equal to 0.60 L_a. The leakage rate for the containment purge isolation valves shall also be compared to the previously measured leakage rate to detect excessive valve degradation.

c. The containment purge isolation valve seals shall be replaced with new seals at a frequency to ensure no individual seal remains in service greater than 2 consecutive fuel reload cycles.

3/4.6 CONTAINMENT SYSTEMS

3/4.6.1 PRIMARY CONTAINMENT

Containment Air Locks

LIMITING CONDITION FOR OPERATION

3.6.1.3 Each containment air lock shall be **OPERABLE** with:

a. Both doors closed except when the air lock is being used for normal transit entry and exit through the containment, then at least one air lock door shall be closed, and

b. An overall air lock leakage rate of $\leq 0.05\ L_a$, as specified in Specification 6.5.6, "Containment Leakage Rate Testing Program".

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

ACTION:

a. With an air lock inoperable, except as a result of an inoperable door gasket, restore the air lock to **OPERABLE** status within 24 hours or be in at least **HOT STANDBY** within the next 6 hours and in **COLD SHUTDOWN** within the following 30 hours.

b. With an air lock inoperable due to an inoperable door gasket:

1. Maintain the remaining door of the affected air lock closed and sealed, and

2. Restore the air lock to **OPERABLE** status within 7 days or be in at least **HOT STANDBY** within the next 6 hours and in **COLD SHUTDOWN** within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.3 Each containment air lock shall be demonstrated **OPERABLE**:

a. By performing containment air lock leakage rate testing in accordance with the Containment Leakage Rate Testing Program, and

SURVEILLANCE REQUIREMENTS (Continued)

b. At least once per 6 months by verifying that only one door in each air lock can be opened at a time.

3/4.9 REFUELING OPERATIONS

3/4.9.8 SHUTDOWN COOLING AND COOLANT CIRCULATION

LIMITING CONDITION FOR OPERATION

3.9.8.1 At least one shutdown cooling loop shall be in operation.*

APPLICABILITY: **MODE** 6 at all reactor water levels.

ACTION:

a. With less than one shutdown cooling loop in operation*, suspend all operations involving an increase in the reactor decay heat load or a reduction in boron concentration of the Reactor Coolant System and, specifically, the charging pumps shall be de-energized and the charging flow paths shall be closed. Close all containment penetrations providing direct access from one containment atmosphere to the outside atmosphere within 4 hours. The shutdown cooling pumps may be de-energized during the time intervals required for local leak rate testing of containment penetration number 41 pursuant to the requirements of Specification 4.6.1.2.a and/or to permit maintenance on valves located in the common shutdown cooling suction line, provided (1) no operations are permitted which could cause dilution of the Reactor Coolant System boron concentration and, specifically, the charging pumps shall be de-energized and the charging flow paths shall be closed, (2) all **CORE ALTERATIONS** are suspended, (3) all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere are maintained closed, and (4) the water level above the top of the irradiated fuel is greater than 23 feet.

b. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.8.1 A shutdown cooling loop shall be determined to be in operation and circulating reactor coolant at a flow rate of $\geq$ 1500 gpm at least once per 4 hours.

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* The shutdown cooling loop may be removed from operation for up to 1 hour per 8 hour period during the performance of **CORE ALTERATIONS** in the vicinity of the reactor pressure vessel hot legs.

k. Limitations on the annual and quarterly doses to a **MEMBER OF THE PUBLIC** from Iodine-131, and all radionuclides in particulate form with half-lives greater than 8 days, in gaseous effluents released to areas beyond the **SITE BOUNDARY**, to be limited:

1. During any calendar quarter: Less than or equal to 15 mrems to any organ;

2. During any calendar year: Less than or equal to 30 mrems to any organ; and

3. Less than 0.1% of the limits of 6.5.5.k(1) and (2) as a result of burning contaminated oil; and

l. Limitations on the annual dose or dose commitment to any **MEMBER OF THE PUBLIC** due to releases of radioactivity, and to radiation from uranium fuel cycle sources to be limited to less than or equal to 25 mrems to the total body or any organ, except the thyroid, which shall be limited to less than or equal to 75 mrems.

6.5.6 Containment Leakage Rate Testing Program

A program shall be established to implement the leakage testing of the containment as required by 10 CFR 50.54(o) and 10 CFR Part 50, Appendix J, Option B. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September 1995, including errata.

The peak calculated containment internal pressure for the design basis loss-of-coolant accident, P_a, is 49.4 psig. The containment design pressure is 50 psig.

The maximum allowable containment leakage rate, L_a, shall be 0.20 percent of containment air weight per day at P_a.

Leakage rate acceptance criteria are:

a. Containment leakage rate acceptance criterion is $\leq$ 1.0 L_a. During the first unit startup, following testing in accordance with this program, the leakage rate acceptance criteria are $\leq$ 0.60 L_a for Types B and C tests and $\leq$ 0.75 L_a for Type A tests.

b. Air lock testing acceptance criteria are:

1. Overall air lock leakage rate is $\leq$ 0.05 L_a when tested at $\geq P_a$.

2. For each door, leakage rate is $\leq$ 0.0002 L_a when pressurized to $\geq$ 15 psig.

The provisions of Specification 4.0.2 do not apply to the test frequencies specified in the Containment Leakage Rate Testing Program.

The provisions of Specification 4.0.3 are applicable to the Containment Leakage Rate Testing Program.

6.6 REPORTING REQUIREMENTS

The following reports shall be submitted in accordance with 10 CFR 50.4.

6.6.1 Occupational Radiation Exposure Report*

A tabulation on an annual basis of the number of station, utility, and other personnel (including contractors) receiving exposures > 100 mrem/yr and their associated man rem exposure according to work and job functions (e.g., reactor operations and surveillance, inservice inspection, routine maintenance, special maintenance [describe maintenance], waste processing, and refueling). This tabulation supplements the requirements of 10 CFR 20.2206. The dose assignment to various duty functions may be estimates based on pocket dosimeter, electronic personal dosimeter or thermoluminescent dosimeter. Small exposures totalling < 20% of the individual total dose need not be accounted for. In the aggregate, at least 80% of the total whole body dose received from external sources should be assigned to specific major work functions. The report shall be submitted prior to March 31 of each year.

6.6.2 Annual Radiological Environmental Operating Report*

The Annual Radiological Environmental Operating Report covering the operation of the unit during the previous calendar year shall be submitted by May 15 of each year. The report shall include summaries, interpretations, and analyses of trends of the results of the Radiological Environmental Monitoring Program for the reporting period. The material provided shall be consistent with the objectives outlined in the **ODCM**, and in 10 CFR Part 50, Appendix I, Sections IV.B.2, IV.B.3 and IV.C.

The Annual Radiological Environmental Operating Report shall include the results of analyses of all radiological environmental samples and of all environmental radiation measurements taken during the period pursuant to the locations specified in the table and figures in the **ODCM**, as well as summarized and tabulated results of these analyses and measurements in the format of the table in the Radiological Assessment Branch Technical Position, Revision 1, November 1979. The report shall identify the TLD results that represent collocated dosimeters in relation to the NRC TLD program, and the exposure period associated with each result. In the event that some individual results are not available for inclusion with the report, the report shall be submitted noting and explaining the reasons for the missing results. The missing data shall be submitted in a supplementary report as soon as possible.

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* A single submittal may be made for Calvert Cliffs. The submittal should combine those sections that are common to both units. Occupational dose from the Independent Spent Fuel Storage Installation will be reported separately.

3/4.6.1 PRIMARY CONTAINMENT

3/4.6.1.1 CONTAINMENT INTEGRITY

In **MODES** 1, 2, 3, and 4, primary **CONTAINMENT INTEGRITY** ensures that the release of radioactive materials from the containment atmosphere will be restricted to those leakage paths and associated leak rates assumed in the accident analyses. This restriction, in conjunction with the leakage rate limitation, will limit the **SITE BOUNDARY** radiation doses to within the limits of 10 CFR Part 100 during accident conditions. In **MODES** 5 and 6, the probability and consequences of these events are reduced because of the Reactor Coolant System (RCS) pressure and temperature limitations of these modes, by preventing operations which could lead to a need for containment isolation, and by providing containment isolation through penetration closure.

3/4.6.1.2 Containment Leakage

Maintaining the containment **OPERABLE** requires compliance with the visual examinations and leakage rate test requirements of the Containment Leakage Rate Testing Program. The surveillance testing for measuring leakage rates is consistent with the requirements of 10 CFR Part 50, Appendix J, Option B.

As-left leakage, prior to the first startup after performing a required leakage test, is required to be $\leq$ 0.60 L_a (207,600 SCCM) for combined Types B and C leakage, and $\leq$ 0.75 L_a (259,500 SCCM) for overall containment Type A leakage. At all other times between required leakage rate tests, the acceptance criteria is based on an overall containment leakage limit of $\leq$ 1.0 L_a (346,000 SCCM). At $\leq$ 1.0 L_a, the offsite dose consequences are bounded by the assumptions of the safety analysis. Surveillance Requirement frequencies are as required by Appendix J.

These periodic testing requirements verify that the containment leakage rate does not exceed the leakage rate assumed in the safety analysis.

3/4.6.1.3 Containment Air Locks

The overall air lock leakage rate is required to be $\leq$ 0.05 L_a (17,300 SCCM) at P_a, and $\leq$ 0.0002 L_a (69.2 SCCM) when the volume between the door seals is pressurized to 15 psig. The limitations on closure and leak rate for the containment air locks are required to meet the restrictions on **CONTAINMENT INTEGRITY** and containment leak rate. Surveillance testing of the air lock seals provides assurance that the overall air lock leakage will not become excessive due to seal damage during the intervals between air lock leakage tests. The frequency of containment air lock leakage rate testing is specified in the Containment Leakage Rate Testing Program.

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 for valves that are open under administrative control as permitted by 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 in accordance with the Containment Leakage Rate Testing Program.

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* Hydrogen purge containment vent isolation valves shall be opened for containment pressure control, airborne radioactivity control, and surveillance testing purposes only.

\# The shutdown cooling isolation valves may be opened when the RCS temperature is below 300°F to establish shutdown cooling flow.

** 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 then once per 92 days.

3/4.6 CONTAINMENT SYSTEMS

3/4.6.1 PRIMARY CONTAINMENT

Containment Leakage

LIMITING CONDITION FOR OPERATION

3.6.1.2 Containment leakage rates shall be limited to:

a. A maximum allowable containment leakage rate, L_a, as specified in Specification 6.5.6, "Containment Leakage Rate Testing Program."

b. A combined leakage rate of $\leq 0.60\ L_a$, for all penetrations and valves subject to Types B and C tests, as specified in Specification 6.5.6, "Containment Leakage Rate Testing Program."

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

ACTION: With either (a) the measured overall integrated containment leakage rate exceeding the acceptance criteria specified in the Containment Leakage Rate Testing Program, 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 overall integrated containment leakage rate, and the combined leakage rate for all penetrations and valves subject to Type B and C tests to within the acceptance criteria specified in the Containment Leakage Rate Testing Program prior to increasing the Reactor Coolant System temperature above 200°F.

SURVEILLANCE REQUIREMENTS

4.6.1.2 The containment leakage rates shall be determined in conformance with the criteria, methods, schedule, and provisions specified in the Containment Leakage Rate Testing Program:

a. Perform required visual examinations and leakage rate testing, except for containment air lock testing, in accordance with the Containment Leakage Rate Testing Program.

SURVEILLANCE REQUIREMENTS (Continued)

b. Containment purge isolation valves shall be demonstrated **OPERABLE** any time upon entering **MODE** 5 from **POWER OPERATION MODES**, unless the last surveillance test has been performed within the past 6 months or any time after being opened and prior to entering **MODE** 4 from shutdown modes by verifying that when the measured leakage rate is added to the leakage rates determined pursuant to Technical Specification 4.6.1.2.a for all other Type B or C penetrations, the combined leakage rate is less than or equal to 0.60 L_a. The leakage rate for the containment purge isolation valves shall also be compared to the previously measured leakage rate to detect excessive valve degradation.

c. The containment purge isolation valve seals shall be replaced with new seals at a frequency to ensure no individual seal remains in service greater than 2 consecutive fuel reload cycles.

3/4.6 CONTAINMENT SYSTEMS

3/4.6.1 PRIMARY CONTAINMENT

Containment Air Locks

LIMITING CONDITION FOR OPERATION

3.6.1.3 Each containment air lock shall be **OPERABLE** with:

a. Both doors closed except when the air lock is being used for normal transit entry and exit through the containment, then at least one air lock door shall be closed, and

b. An overall air lock leakage rate of $\leq 0.05\ L_a$ as specified in Specification 6.5.6, "Containment Leakage Rate Testing Program."

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

ACTION:

a. With an air lock inoperable, except as a result of an inoperable door gasket, restore the air lock to **OPERABLE** status within 24 hours or be in at least **HOT STANDBY** within the next 6 hours and in **COLD SHUTDOWN** within the following 30 hours.

b. With an air lock inoperable due to an inoperable door gasket:

1. Maintain the remaining door of the affected air lock closed and sealed, and

2. Restore the air lock to **OPERABLE** status within 7 days or be in at least **HOT STANDBY** within the next 6 hours and in **COLD SHUTDOWN** within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.3 Each containment air lock shall be demonstrated **OPERABLE**:

a. By performing containment air lock leakage rate testing in accordance with the Containment Leakage Rate Testing Program, and

SURVEILLANCE REQUIREMENTS (Continued)

b. At least once per 6 months by verifying that only one door in each air lock can be opened at a time.

3/4.9 REFUELING OPERATIONS

3/4.9.8 SHUTDOWN COOLING AND COOLANT CIRCULATION

LIMITING CONDITION FOR OPERATION

3.9.8.1 At least one shutdown cooling loop shall be in operation.*

APPLICABILITY: **MODE** 6 at all reactor water levels.

ACTION:

a. With less than one shutdown cooling loop in operation*, suspend all operations involving an increase in the reactor decay heat load or a reduction in boron concentration of the Reactor Coolant System and, specifically, the charging pumps shall be de-energized and the charging flow paths shall be closed. Close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere within 4 hours. The shutdown cooling pumps may be de-energized during the time intervals required for local leak rate testing of containment penetration number 41 pursuant to the requirements of Specification 4.6.1.2.a and/or to permit maintenance on valves located in the common shutdown cooling suction line, provided (1) no operations are permitted which could cause dilution of the Reactor Coolant System boron concentration and, specifically, the charging pumps shall be de-energized and the charging flow paths shall be closed, (2) all **CORE ALTERATIONS** are suspended, (3) all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere are maintained closed, and (4) the water level above the top of the irradiated fuel is greater than 23 feet.

b. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.8.1 A shutdown cooling loop shall be determined to be in operation and circulating reactor coolant at a flow rate of $\geq$ 1500 gpm at least once per 4 hours.

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* The shutdown cooling loop may be removed from operation for up to 1 hour per 8 hour period during the performance of **CORE ALTERATIONS** in the vicinity of the reactor pressure vessel hot legs.

k. Limitations on the annual and quarterly doses to a **MEMBER OF THE PUBLIC** from Iodine-131, and all radionuclides in particulate form with half-lives greater than 8 days, in gaseous effluents released to areas beyond the **SITE BOUNDARY**, to be limited:

1. During any calendar quarter: Less than or equal to 15 mrems to any organ;

2. During any calendar year: Less than or equal to 30 mrems to any organ; and

3. Less than 0.1% of the limits of 6.5.5.k(1) and (2) as a result of burning contaminated oil; and

l. Limitations on the annual dose or dose commitment to any **MEMBER OF THE PUBLIC** due to releases of radioactivity, and to radiation from uranium fuel cycle sources to be limited to less than or equal to 25 mrems to the total body or any organ, except the thyroid, which shall be limited to less than or equal to 75 mrems.

6.5.6 Containment Leakage Rate Testing Program

A program shall be established to implement the leakage testing of the containment as required by 10 CFR 50.54(o) and 10 CFR Part 50, Appendix J, Option B. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September 1995, including errata.

The peak calculated containment internal pressure for the design basis loss-of-coolant accident, P_a, is 49.4 psig. The containment design pressure is 50 psig.

The maximum allowable containment leakage rate, L_a, shall be 0.20 percent of containment air weight per day at P_a.

Leakage rate acceptance criteria are:

a. Containment leakage rate acceptance criterion is $\leq 1.0\ L_a$. During the first unit startup, following testing in accordance with this program, the leakage rate acceptance criteria are $\leq 0.60\ L_a$ for Types B and C tests and $\leq 0.75\ L_a$ for Type A tests.

b. Air lock testing acceptance criteria are:

1. Overall air lock leakage rate is $\leq 0.05\ L_a$ when tested at $\geq P_a$.

2. For each door, leakage rate is $\leq 0.0002\ L_a$ when pressurized to ≥ 15 psig.

The provisions of Specification 4.0.2 do not apply to the test frequencies specified in the Containment Leakage Rate Testing Program.

The provisions of Specification 4.0.3 are applicable to the Containment Leakage Rate Testing Program.

6.6 REPORTING REQUIREMENTS

The following reports shall be submitted in accordance with 10 CFR 50.4.

6.6.1 Occupational Radiation Exposure Report*

A tabulation on an annual basis of the number of station, utility, and other personnel (including contractors) receiving exposures > 100 mrem/yr and their associated man rem exposure according to work and job functions (e.g., reactor operations and surveillance, inservice inspection, routine maintenance, special maintenance [describe maintenance], waste processing, and refueling). This tabulation supplements the requirements of 10 CFR 20.2206. The dose assignment to various duty functions may be estimates based on pocket dosimeter, electronic personal dosimeter or thermoluminescent dosimeter. Small exposures totalling < 20% of the individual total dose need not be accounted for. In the aggregate, at least 80% of the total whole body dose received from external sources should be assigned to specific major work functions. The report shall be submitted prior to March 31 of each year.

6.6.2 Annual Radiological Environmental Operating Report*

The Annual Radiological Environmental Operating Report covering the operation of the unit during the previous calendar year shall be submitted by May 15 of each year. The report shall include summaries, interpretations, and analyses of trends of the results of the Radiological Environmental Monitoring Program for the reporting period. The material provided shall be consistent with the objectives outlined in the **ODCM**, and in 10 CFR Part 50, Appendix I, Sections IV.B.2, IV.B.3 and IV.C.

The Annual Radiological Environmental Operating Report shall include the results of analyses of all radiological environmental samples and of all environmental radiation measurements taken during the period pursuant to the locations specified in the table and figures in the **ODCM**, as well as summarized and tabulated results of these analyses and measurements in the format of the table in the Radiological Assessment Branch Technical Position, Revision 1, November 1979. The report shall identify the TLD results that represent collocated dosimeters in relation to the NRC TLD program, and the exposure period associated with each result. In the event that some individual results are not available for inclusion with the report, the report shall be submitted noting and explaining the reasons for the missing results. The missing data shall be submitted in a supplementary report as soon as possible.

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* A single submittal may be made for Calvert Cliffs. The submittal should combine those sections that are common to both units. Occupational dose from the Independent Spent Fuel Storage Installation will be reported separately.

3/4.6 CONTAINMENT SYSTEMS

BASES

3/4.6.1 PRIMARY CONTAINMENT

3/4.6.1.1 CONTAINMENT INTEGRITY

In **MODES** 1, 2, 3, and 4, primary **CONTAINMENT INTEGRITY** ensures that the release of radioactive materials from the containment atmosphere will be restricted to those leakage paths and associated leak rates assumed in the accident analyses. This restriction, in conjunction with the leakage rate limitation, will limit the **SITE BOUNDARY** radiation doses to within the limits of 10 CFR Part 100 during accident conditions. In **MODES** 5 and 6, the probability and consequences of these events are reduced because of the Reactor Coolant System (RCS) pressure and temperature limitations of these modes, by preventing operations which could lead to a need for containment isolation, and by providing containment isolation through penetration closure.

3/4.6.1.2 Containment Leakage

Maintaining the containment **OPERABLE** requires compliance with the visual examinations and leakage rate test requirements of the Containment Leakage Rate Testing Program. The surveillance testing for measuring leakage rates is consistent with the requirements of 10 CFR Part 50, Appendix J, Option B.

As-left leakage, prior to the first startup after performing a required leakage test, is required to be $\leq$ 0.60 L_a (207,600 SCCM) for combined Types B and C leakage, and $\leq$ 0.75 L_a (259,500 SCCM) for overall containment Type A leakage. At all other times between required leakage rate tests, the acceptance criteria is based on an overall containment leakage limit of $\leq$ 1.0 L_a (346,000 SCCM). At $\leq$ 1.0 L_a, the offsite dose consequences are bounded by the assumptions of the safety analysis. Surveillance Requirement frequencies are as required by Appendix J.

These periodic testing requirements verify that the containment leakage rate does not exceed the leakage rate assumed in the safety analysis.

3/4.6.1.3 Containment Air Locks

The overall air lock leakage rate is required to be $\leq$ 0.05 L_a (17,300 SCCM) at P_a, and $\leq$ 0.0002 L_a (69.2 SCCM) when the volume between the door seals is pressurized to 15 psig. The limitations on closure and leak rate for the containment air locks are required to meet the restrictions on **CONTAINMENT INTEGRITY** and containment leak rate. Surveillance testing of the air lock seals provides assurance that the overall air lock leakage will not become excessive due to seal damage during the intervals between air lock leakage tests. The frequency of containment air lock leakage rate testing is specified in the Containment Leakage Rate Testing Program.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 219 TO FACILITY OPERATING LICENSE NO. DPR-53 AND

TO FACILITY OPERATING LICENSE NO. DPR-69 AMENDMENT NO. 196

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

On September 12, 1995, the U.S. Nuclear Regulatory Commission (NRC) approved issuance of a revision to 10 CFR Part 50, Appendix J, "Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors" which was subsequently published in the Federal Register on September 26, 1995, and became effective on October 26, 1995. The NRC added Option B "Performance-Based Requirements" to allow licensees to voluntarily replace the prescriptive testing requirements of 10 CFR Part 50, Appendix J, with testing requirements based on both overall leakage rate performance and the performance of individual components.

In Amendments No. 212 to Facility Operating License No. DPR-53 and Amendment No. 189 to Facility Operating License No. DPR-69 for the Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2, respectively, the Technical Specifications (TSs) were revised to reflect the approval for the use of 10 CFR Part 50, Appendix J, Option B, for the containment leakage rate test program for Type A test only.

By application dated November 26, 1996, the Baltimore Gas and Electric Company (the licensee, BGE) requested changes to the TSs for the Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2. The proposed changes will adopt Option B of 10 CFR Part 50, Appendix J, to require Type B and C containment leakage rate testing to be performed on a performance-based testing schedule. In Amendment Nos. 212 and 189, the licensee established a Containment Leakage Rate Testing Program and added the program to the TSs. The licensee proposes to revise the program for Type A testing to additionally implement Types B and C testing of the containment as required by 10 CFR 50.54(o) and 10 CFR Part 50, Appendix J, Option B. The program references Regulatory Guide (RG) 1.163, "Performance-Based Containment Leak Test Program," dated September 1995, which specifies a method acceptable to the NRC for complying with Option B.

2.0 BACKGROUND

Compliance with 10 CFR Part 50, Appendix J, provides assurance that the primary containment, including those systems and components which penetrate the primary containment, do not exceed the allowable leakage rate specified in the TS and Bases. The allowable leakage rate is determined so that the leakage assumed in the safety analyses is not exceeded.

On February 4, 1992, the NRC published a notice in the Federal Register (57 FR 4166) discussing a planned initiative to begin eliminating requirements marginal to safety which impose a significant regulatory burden. Appendix J of 10 CFR Part 50 was considered for this initiative and the staff undertook a study of possible changes to this regulation. The study examined the previous performance history of domestic containments and examined the effect on risk of a revision to the requirements of Appendix J. The results of this study are reported in NUREG-1493, "Performance-Based Leak-Test Program."

Based on the results of this study, the staff developed a performance-based approach to containment leakage rate testing. On September 12, 1995, the NRC approved issuance of this revision to 10 CFR Part 50, Appendix J, which was subsequently published in the Federal Register on September 26, 1995, and became effective on October 26, 1995. The revision added Option B "Performance-Based Requirements" to Appendix J to allow licensees to voluntarily replace the prescriptive testing requirements of Appendix J with testing requirements based on both overall and individual component leakage rate performance.

Regulatory Guide (RG) 1.163, was developed as a method acceptable to the NRC staff for implementing Option B. This regulatory guide states that the Nuclear Energy Institute (NEI) guidance document NEI 94-01, Rev. 0, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J" provides methods acceptable to the NRC staff for complying with Option B with four exceptions which are described therein.

Option B requires that the RG or other implementation document used by a licensee to develop a performance-based leakage rate testing program must be included, by general reference, in the plant TSs. The licensee has referenced RG 1.163 in the Calvert Cliffs TS.

Regulatory Guide 1.163 specifies an extension in Type A test frequency to at least one test in 10 years based upon two consecutive successful tests. Type B tests may be extended up to a maximum interval of 10 years based upon completion of two consecutive successful tests and Type C tests may be extended up to 5 years based on two consecutive successful tests.

By letter dated October 20, 1995, NEI proposed TS to implement Option B. After some discussion, the NRC staff and NEI agreed on final TS which were attached to a letter from C. Grimes (NRC) to D. Modeen (NEI) dated November 2, 1995. These TS are to serve as a model for licensees to

develop plant-specific TS in preparing amendment requests to implement Option B.

For a licensee to determine the performance of each component, factors that are indicative of or affect performance, such as an administrative leakage limit, must be established. The administrative limit is selected to be indicative of the potential onset of component degradation. Although these limits are subject to NRC inspection to assure that they are selected in a reasonable manner, they are not TS requirements. Failure to meet an administrative limit requires the licensee to return to the minimum value of the test interval.

Option B requires that the licensee maintain records to show that the criteria for Type A, B, and C tests have been met. In addition, the licensee must maintain comparisons of the performance of the overall containment system and the individual components to show that the test intervals are adequate. These records are subject to NRC inspection.

3.0 EVALUATION

The licensee's November 26, 1996, letter to the NRC proposes to revise the existing Containment Leakage Rate Testing Program for Type A testing to implement Types B and C testing of the containment as required by 10 CFR 50.54 (o) and 10 CFR Part 50, Appendix J, Option B, and proposes to make the changes to the TSs. The program references RG 1.163, which specifies a method acceptable to the NRC for complying with Option B. This requires a change to existing TS 3/4 6.1.1, 3/4 6.1.2, 3/4 6.1.3, 3/4 9.8.1, and 6.5.6. Corresponding Bases were also modified.

Option B permits a licensee to base Type A or Type B and C; or Type A, B and C; testing to be done a performance bases. The licensee has elected to add Type B and C testing to the existing Containment Leakage Rate Testing Program, so as to perform Type A, B, and C testing on a performance basis.

With the adoption of Option B, BGE will no longer require the exemption noted in the TS from the requirements of 10 CFR Part 50, Appendix J, Paragraph III.D.2 and III.D.3 for both units, and it is BGE's intention to return to full compliance with 10 CFR Part 50, Appendix J. Pursuant to 10 CFR Part 50, Appendix J, Option B, paragraph V.B.1, this exemption is no longer applicable because it is not necessary.

The staff has reviewed these proposed changes, and concluded that, despite the different format of the licensee's current TSs, all the important elements of the guidance regarding Type B and C testing provided in the NRC letter to NEI are included in the TS proposed by the licensee, with one exception. The model TS specify compliance with Option B "as modified by approved exemptions," but the licensee has chosen not to include the quoted phrase. As the proposed TS is more conservative than the model TS in this case, the proposed TS is acceptable. Consequently, the staff finds that the proposed changes are in compliance with the requirements of Option B and consistent with the

guidance of RG 1.163, and the model TS of the November 2, 1995, letter and are, therefore, acceptable to the staff.

4.0 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.

5.0 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 surveillance requirements. This also changes 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 (62 FR 123). 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.

6.0 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.

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Date: February 11, 1997