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. 207
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 January 31, 1995, 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. 207, 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

LB Marsh

Ledyard B. Marsh, 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: October 5, 1995

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. 185
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 January 31, 1995, 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.

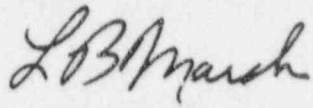
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.2. of Facility Operating License No. DPR-69 is hereby amended to read as follows:

2. Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 185, 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



Ledyard B. Marsh, 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: October 5, 1995

ATTACHMENT TO LICENSE AMENDMENTS

AMENDMENT NO. 207 FACILITY OPERATING LICENSE NO. DPR-53

AMENDMENT NO. 185 FACILITY OPERATING LICENSE NO. DPR-69

DOCKET NOS. 50-317 AND 50-318

Revise Appendix A as follows:

Remove Pages	Insert Pages
3/4 5-5	3/4 5-5
B 3/4 5-2	B 3/4 5-2
B 3/4 5-3	B 3/4 5-3
B 3/4 5-4	B 3/4 5-4

SURVEILLANCE REQUIREMENTS (Continued)

e. At least once per **REFUELING INTERVAL** by:

1. Verifying the Shutdown Cooling System open-permissive interlock prevents the Shutdown Cooling System suction isolation valves from being opened with a simulated or actual RCS pressure signal of $\geq$ 309 psia.

2. A visual inspection of the containment sump and verifying that the subsystem suction inlets are not restricted by debris and that the sump components (trash racks, screens, etc.) show no evidence of structural distress or corrosion.

3. Verifying that a minimum total of 289.3 cubic feet of solid granular trisodium phosphate dodecahydrate (TSP) is contained within the TSP storage baskets.

4. Verifying that a sample from the TSP baskets provides adequate pH adjustment of water borated to be representative of the post-LOCA sump condition.

f. At least once per **REFUELING INTERVAL**, during shutdown, by:

1. Verifying that each automatic valve in the flow path actuates to its correct position on a Safety Injection Actuation test signal.

2. Verifying that each of the following pumps start automatically upon receipt of a Safety Injection Actuation Test Signal:

a. High-Pressure Safety Injection Pump.

b. Low-Pressure Safety Injection Pump.

SURVEILLANCE REQUIREMENTS (Continued)

e. At least once per **REFUELING INTERVAL** by:

1. Verifying the Shutdown Cooling System open-permissive interlock prevents the Shutdown Cooling System suction isolation valves from being opened with a simulated or actual RCS pressure signal of $\geq$ 309 psia.

2. A visual inspection of the containment sump and verifying that the subsystem suction inlets are not restricted by debris and that the sump components (trash racks, screens, etc.) show no evidence of structural distress or corrosion.

3. Verifying that a minimum total of 289.3 cubic feet of solid granular trisodium phosphate dodecahydrate (TSP) is contained within the TSP storage baskets.

4. Verifying that a sample from the TSP baskets provides adequate pH adjustment of water borated to be representative of the post-LOCA sump condition.

f. At least once per **REFUELING INTERVAL**, during shutdown, by:

1. Verifying that each automatic valve in the flow path actuates to its correct position on a Safety Injection Actuation test signal.

2. Verifying that each of the following pumps start automatically upon receipt of a Safety Injection Actuation Test Signal:

a. High-Pressure Safety Injection Pump.

b. Low-Pressure Safety Injection Pump.

pipe downward. In addition, each ECCS subsystem provides long term core cooling capability in the recirculation mode during the accident recovery period.

Portions of the Low Pressure Safety Injection (LPSI) System flowpath are common to both subsystems. This includes the LPSI flow control valve, CV-306, the flow orifice downstream of CV-306, and the four LPSI loop isolation valves. Although the portions of the flowpath are common, the system design is adequate to ensure reliable ECCS operation due to the short period of LPSI System operation following a design basis Loss of Coolant Incident prior to recirculation. The LPSI System design is consistent with the assumptions in the safety analysis.

The trisodium phosphate dodecahydrate (TSP) stored in dissolving baskets located in the containment basement is provided to minimize the possibility of corrosion cracking of certain metal components during operation of the ECCS following a LOCA. The TSP provides this protection by dissolving in the sump water and causing its final pH to be raised to $\geq$ 7.0. The requirement to dissolve a representative sample of TSP in a sample of borated water provides assurance that the stored TSP will dissolve in borated water at the postulated post LOCA temperatures. Testing must be performed to ensure the solubility and buffering ability of the TSP after exposure to the containment environment. A representative sample of 3.43 $\pm$ 0.05 grams of TSP from one of the baskets in containment is submerged in 1 $\pm$ 0.01 liters of water at a boron concentration of 3106 $\pm$ 50 ppm and at a standard temperature of 120 $\pm$ 5°F. Without agitation, let the solution stand for four hours. The liquid is then decanted and mixed, the temperature adjusted to 77 $\pm$ 2°F and the pH measured. At this point, the pH must be $\geq$ 6.0. The representative sample weight is based on the minimum required TSP amount of 14,371 pounds mass, which, at a manufactured density, corresponds to the minimum volume of 289.3 cubic feet, and a maximum possible sump amount following a LOCA of 4,503,500 pounds mass, normalized to buffer a 1 $\pm$ 0.01 liter sample. The boron concentration of the test water is representative of a maximum possible concentration corresponding to the maximum possible sump volume following a LOCA. Agitation of the test solution is prohibited since an adequate standard for the agitation intensity cannot be specified. The test time of four hours is necessary to allow time for the dissolved TSP to naturally diffuse through the sample solution. In the containment sump following a LOCA, rapid mixing would occur, significantly decreasing the actual amount of time before the required pH is achieved. This would ensure compliance with the Standard Review Plan requirement of a pH $\geq$ 7.0 by the onset of recirculation following a LOCA.

The Surveillance Requirements provided to ensure **OPERABILITY** of each component ensure that as a minimum, the assumptions used in the safety analyses are met and the subsystem **OPERABILITY** is maintained. The surveillance requirement for flow balance testing provides assurance that proper ECCS flows will be maintained in the event of a LOCA. Maintenance of proper flow resistance and pressure drop in the piping system to each

BASES

Portions of the Low Pressure Safety Injection (LPSI) System flowpath are common to both subsystems. This includes the LPSI flow control valve, CV-306, the flow orifice downstream of CV-306, and the four LPSI loop isolation valves. Although the portions of the flowpath are common, the system design is adequate to ensure reliable ECCS operation due to the short period of LPSI System operation following a design basis Loss of Coolant Incident prior to recirculation. The LPSI System design is consistent with the assumptions in the safety analysis.

The trisodium phosphate dodecahydrate (TSP) stored in dissolving baskets located in the containment basement is provided to minimize the possibility of corrosion cracking of certain metal components during operation of the ECCS following a LOCA. The TSP provides this protection by dissolving in the sump water and causing its final pH to be raised to $\geq$ 7.0. The requirement to dissolve a representative sample of TSP in a sample of borated water provides assurance that the stored TSP will dissolve in borated water at the postulated post LOCA temperatures. Testing must be performed to ensure the solubility and buffering ability of the TSP after exposure to the containment environment. A representative sample of 3.43 $\pm$ 0.05 grams of TSP from one of the baskets in containment is submerged in 1 $\pm$ 0.01 liters of water at a boron concentration of 3106 $\pm$ 50 pm and at a standard temperature of 120 $\pm$ 5°F. Without agitation, let the solution stand for four hours. The liquid is then decanted and mixed, the temperature adjusted to 77 $\pm$ 2°F and the pH measured. At this point, the pH must be $\geq$ 6.0. The representative sample weight is based on the minimum required TSP amount of 14,371 pounds mass, which, at a manufactured density, corresponds to the minimum volume of 289.3 cubic feet, and a maximum possible sump amount following a LOCA of 4,503,500 pounds mass, normalized to buffer a 1 $\pm$ 0.01 liter sample. The boron concentration of the test water is representative of a maximum possible concentration corresponding to the maximum possible sump volume following a LOCA. Agitation of the test solution is prohibited since an adequate standard for the agitation intensity cannot be specified. The test time of four hours is necessary to allow time for the dissolved TSP to naturally diffuse through the sample solution. In the containment sump following a LOCA, rapid mixing would occur, significantly decreasing the actual amount of time before the required pH is achieved. This would ensure compliance with the Standard Review Plan requirement of a pH $\geq$ 7.0 by the onset of recirculation following a LOCA.

The Surveillance Requirements provided to ensure **OPERABILITY** of each component ensure that at a minimum, the assumptions used in the safety analyses are met and the subsystem **OPERABILITY** is maintained. The surveillance requirement for flow balance testing provides assurance that proper ECCS flows will be maintained in the event of a LOCA. Maintenance of proper flow resistance and pressure drop in the piping system to each injection point is necessary to: (1) prevent total pump flow from exceeding runout conditions when the system is in its minimum resistance configuration, (2) provide the proper flow split between injection points

injection point is necessary to: (1) prevent total pump flow from exceeding runout conditions when the system is in its minimum resistance configuration, (2) provide the proper flow split between injection points in accordance with the assumptions used in the ECCS-LOCA analyses, and (3) provide an acceptable level of total ECCS flow to all injection points equal to or above that assumed in the ECCS-LOCA analyses. Minimum HPSI flow requirements for temperatures above 365°F are based upon small break LOCA calculations which credit charging pump flow following an SIAS. Surveillance testing includes allowances for instrumentation and system leakage uncertainties. The 470 gpm requirement for minimum HPSI flow from the three lowest flow legs includes instrument uncertainties but not system check valve leakage. The **OPERABILITY** of the charging pumps and the associated flow paths is assured by the Boration System Specification 3/4.1.2. Specification of safety injection pump total developed head ensures pump performance is consistent with safety analysis assumptions.

The surveillance requirement for the Shutdown Cooling (SDC) System open-permissive interlock provides assurance that the SDC suction isolation valves are prevented from being remotely opened when the RCS pressure is at or above the SDC System design suction pressure of 350 psia. The suction piping to the LPSI pumps is the SDC System component with the limiting design pressure rating. The interlock provides assurance that double isolation of the SDC System from the RCS is preserved whenever RCS pressure is at or above the SDC System design pressure. The 309 psia value specified for this surveillance is the actual pressurizer pressure at the instrument tap elevation for PT-103 and PT-103-1 when the SDC System suction pressure is 350 psia. The Surveillance Test Procedure for this surveillance will contain the required compensation to be applied to this value to account for instrument uncertainties. This test is performed using a simulated RCS pressure input.

At indicated RCS temperatures of 365°F and less, HPSI injection flow is limited to less than or equal to 210 gpm except in response to excessive reactor coolant leakage. With excessive RCS leakage (LOCA), make-up requirements could exceed an HPSI flow of 210 gpm. Overpressurization is prevented by controlling other parameters, such as RCS pressure and subcooling. This provides overpressure protection in the low temperature region. An analysis has been performed which shows this flow rate is more than adequate to meet core cooling safety analysis assumptions. HPSI pumps are not required to auto-start when the RCS is in the MPT enable condition. The Safety Injection Tanks provide immediate injection of borated water into the core in the event of an accident, allowing adequate time for an operator to take action to start a HPSI pump.

Surveillance testing of HPSI pumps is required to ensure pump **OPERABILITY**. Some surveillance testing requires that the HPSI pumps deliver flow to the RCS. To allow this testing to be done without increasing the potential for overpressurization of the RCS, either the RWT must be isolated or the HPSI pump flow must be limited to less than or equal to 210 gpm or an RCS vent greater than 2.6 square inches must be provided.

in accordance with the assumptions used in the ECCS-LOCA analyses, and (3) provide an acceptable level of total ECCS flow to all injection points equal to or above that assumed in the ECCS-LOCA analyses. Minimum HPSI flow requirements for temperatures above 301°F are based upon small break LOCA calculations which credit charging pump flow following a SIAS. Surveillance testing includes allowances for instrumentation and system leakage uncertainties. The 470 gpm requirement for minimum HPSI flow from the three lowest flow legs includes instrument uncertainties but not system check valve leakage. The **OPERABILITY** of the charging pumps and the associated flow paths is assured by the Boration System Specifications 3/4.1.2. Specification of safety injection pump total developed head ensures pump performance is consistent with safety analysis assumptions.

The surveillance requirement for the Shutdown Cooling (SDC) System open-permissive interlock provides assurance that the SDC suction isolation valves are prevented from being remotely opened when the RCS pressure is at or above the SDC System design suction pressure of 350 psia. The suction piping to the LPSI pumps is the SDC System component with the limiting design pressure rating. The interlock provides assurance that double isolation of the SDC System from the RCS is preserved whenever RCS pressure is at or above the SDC System design pressure. The 309 psia value specified for this surveillance is the actual pressurizer pressure at the instrument tap elevation for PT-103 and PT-103-1 when the SDC System suction pressure is 350 psia. The Surveillance Test Procedure for this surveillance will contain the required compensation to be applied to this value to account for instrument uncertainties. This test is performed using a simulated RCS pressure input.

At indicated RCS temperatures of 301°F and less, HPSI injection flow is limited to less than or equal to 210 gpm except in response to excessive reactor coolant leakage. With excessive RCS leakage (LOCA), make-up requirements could exceed a HPSI flow of 210 gpm. Overpressurization is prevented by controlling other parameters, such as RCS pressure and subcooling. This provides overpressure protection in the low temperature region. An analysis has been performed which shows this flow rate is more than adequate to meet core cooling safety analysis assumptions. HPSI pumps are not required to auto-start when the RCS is in the MPT enable condition. The Safety Injection Tanks provide immediate injection of borated water into the core in the event of an accident, allowing adequate time for an operator to take action to start an HPSI pump.

Surveillance testing of HPSI pumps is required to ensure pump operability. Some surveillance testing requires that the HPSI pumps deliver flow to the RCS. To allow this testing to be done without increasing the potential for overpressurization of the RCS, either the RWT must be isolated or the HPSI pump flow must be limited to less than or equal to 210 gpm or an RCS vent greater than or equal to 2.6 square inches must be provided.

3/4.5.4 REFUELING WATER TANK (RWT)

The **OPERABILITY** of the RWT as part of the ECCS ensures that a sufficient supply of borated water is available for injection by the ECCS in the event of a LOCA. The limits on RWT minimum volume and boron concentration ensure that 1) sufficient water is available within containment to permit recirculation cooling flow to the core, and 2) the reactor will remain subcritical in the cold condition following mixing of the RWT and the RCS water volumes with all control rods inserted except for the most reactive control assembly. These assumptions are consistent with the LOCA analyses.

The contained water volume limit includes an allowance for water not usable because of tank discharge line location or other physical characteristics.

3/4.5.4 REFUELING WATER TANK (RWT)

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The contained water volume limit includes an allowance for water not usable because of tank discharge line location or other physical characteristics.