

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

February 3, 2000

SUBJECT: CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NOS. 1 AND 2 -  
 ISSUANCE OF AMENDMENT RE: REVISION TO SPENT FUEL POOL WATER  
 LEVEL TECHNICAL SPECIFICATION (TAC NOS. MA6336 AND MA6337)

Dear Mr. Cruse:

The Commission has issued the enclosed Amendment No. 233 to Facility Operating License No. DPR-53 and Amendment No. 209 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 August 27, 1999, as supplemented September 20, 1999.

The amendments would modify the Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2 TSs to allow placement of one or more assemblies on spent fuel rack spacers to support fuel reconstitution activities in the spent fuel pool.

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,

/RA/

Alexander W. Dromerick, Sr. Project Manager, Section 1  
 Project Directorate I  
 Division of Licensing Project Management  
 Office of Nuclear Reactor Regulation

Docket Nos. 50-317 and 50-318

- Enclosures: 1. Amendment No. 233 to DPR-53  
 2. Amendment No. 209 to DPR-69  
 3. Safety Evaluation

cc w/encls: See next page

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OFFICE	PM:PDI-1	E	LA:PDI-1	OGC	SC:PDI-1	SPSB:DSSA
NAME	ADromerick		SLittle	ADH	MGamberoni (A)	FReinhart
DATE	01/12/00		01/12/00	01/13/00	01/2/00	SE Dated 12/10/99

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

February 3, 2000

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: CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NOS. 1 AND 2 -  
ISSUANCE OF AMENDMENT RE: REVISION TO SPENT FUEL POOL WATER  
LEVEL TECHNICAL SPECIFICATION (TAC NOS. MA6336 AND MA6337)

Dear Mr. Cruse:

The Commission has issued the enclosed Amendment No. 233 to Facility Operating License No. DPR-53 and Amendment No. 209 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 August 27, 1999, as supplemented September 20, 1999.

The amendments would modify the Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2 TSs to allow placement of one or more assemblies on spent fuel rack spacers to support fuel reconstitution activities in the spent fuel pool.

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,

A handwritten signature in cursive script that reads "Alexander W. Dromerick".

Alexander W. Dromerick, Sr. Project Manager, Section 1  
Project Directorate I  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket Nos. 50-317 and 50-318

Enclosures: 1. Amendment No. 233 to DPR-53  
2. Amendment No. 209 to DPR-69  
3. Safety Evaluation

cc w/encls: See next page

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Unit Nos. 1 and 2

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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. 233  
License No. DPR-53

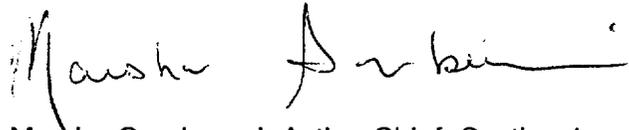
1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Baltimore Gas and Electric Company (the licensee) dated August 27, 1999, as supplemented September 20, 1999, complies with the standards and requirements of the Atomic Energy Act of 1954, as 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. 233 , 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

A handwritten signature in black ink, appearing to read "Marsha Gamberoni". The signature is written in a cursive style with a long horizontal stroke at the end.

Marsha Gamberoni, Acting Chief, Section 1  
Project Directorate I  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: February 3, 2000



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. 209  
License No. DPR-69

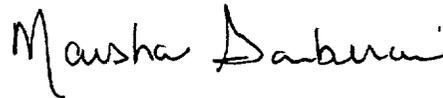
1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Baltimore Gas and Electric Company (the licensee) dated August 27, 1999, as supplemented September 20, 1999, complies with the standards and requirements of the Atomic Energy Act of 1954, as 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. 209 , 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



Marsha Gamberoni, Acting Chief, Section 1  
Project Directorate I  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: February 3, 2000

ATTACHMENT TO LICENSE AMENDMENTS

AMENDMENT NO. 233 FACILITY OPERATING LICENSE NO. DPR-53

AMENDMENT NO. 209 FACILITY OPERATING LICENSE NO. DPR-69

DOCKET NOS. 50-317 AND 50-318

Replace the following page of the Appendix A Technical Specifications with the attached revised pages. The revised page is identified by amendment number and contain marginal lines indicating the areas of change.

Remove Page

3.7.13-1

Insert Page

3.7.13-1

3.7 PLANT SYSTEMS

3.7.13 Spent Fuel Pool (SFP) Water Level

LCO 3.7.13 The SFP water level shall be  $\geq 21.5$  ft over the top of irradiated fuel assemblies seated in the storage racks, and  $\geq 19.8$  ft over the top of fuel assemblies seated on rack spacers in the storage racks for reconstitution activities.

APPLICABILITY: During movement of irradiated fuel assemblies in the SFP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. SFP water level not within limits.	<p>A.1 -----NOTE ----- LCO 3.0.3 is not applicable. -----</p> <p>Suspend movement of irradiated fuel assemblies in SFP and suspend reconstitution activities.</p>	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.13.1 Verify the SFP water level is $\geq 21.5$ ft above the top of irradiated fuel assemblies seated in the storage racks.	7 days



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 233 TO FACILITY OPERATING LICENSE NO. DPR-53  
AND AMENDMENT NO. 209 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 August 27, 1999, as supplemented September 20, 1999, Baltimore Gas and Electric Company (BGE, the licensee) requested that the staff review and approve a proposed change to the Technical Specifications (TS) for the Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2. The proposed revision of TS 3.7.13, "Spent Fuel Pool (SFP) Water Level," would allow placement of one or more fuel assemblies on SFP rack spacers to support fuel reconstitution activities while irradiated fuel assembly movement continues in the SFP. The proposed change adds a statement to the limiting condition for operation that would require the water level over fuel assemblies placed on rack spacers to be 19.8 feet while irradiated fuel assemblies are being moved in the SFP. Proposed administrative controls will ensure that the current design basis fuel handling accident described in the Updated Final Safety Analysis Report (UFSAR) bounds a fuel handling accident associated with reconstitution activities.

The licensee states that fuel reconstitution activities require placing an assembly on a rack spacer in the reconstitution area of the SFP and removing the upper end fitting. The rack spacers are 20.5 inches tall; therefore, fuel assemblies placed on them would protrude above the top of the spent fuel rack. Because the actual SFP water level would not change, there would be 19.8 feet of water above the top of the fuel assemblies seated in the storage racks. BGE performed an analysis of the fuel handling accident (FHA) during reconstitution activities which used guidance in Regulatory Guide (RG) 1.25, "Assumptions Used for Evaluating the Potential Radiological Consequences of a Fuel Handling Accident in the Fuel Handling and Storage Facility for Boiling and Pressurized Water Reactors." The assumptions and methodology of RG 1.25 are based on certain conditions, including a minimum water level above the spent fuel of 23 feet. The licensee's current TS requirement of at least 21.5 feet of water above the top of the fuel assemblies seated in the storage racks has been previously accepted to provide the same total iodine decontamination factor (DF) as 23 feet. The licensee adjusted the DF afforded by the SFP water for the difference in depth.

The September 20, 1999, letter provided clarifying information that did not change the initial proposed no significant hazards consideration.

## 2.0 EVALUATION

The NRC staff reviewed the licensee's methodology for adjusting the pool DF for the difference in water level and compared that to the basis for RG 1.25. The technical bases for many of the assumptions in RG 1.25 are given in a 1971 Atomic Energy Commission staff paper by G. Burley, "Evaluation of Fission Product Release and Transport for a Fuel Handling Accident." BGE used the methodology in the Burley paper to adjust the pool DF to a value of 64 for a water depth above the fuel rods of 20.4 feet, which is the water depth for a fuel assembly placed on top of a rack spacer, with the upper end fitting removed. With the upper end fitting installed, the water depth above the fuel assembly is 19.8 feet, and this is the value the licensee has chosen to be included in the revised TS. The staff finds the licensee's method for adjusting the DF for the difference in SFP water depth to be appropriate.

Due to the increase in dose consequences that would occur with a smaller pool DF, the licensee calculated a new minimum fuel decay time prior to commencement of reconstitution activities to ensure that the current updated final safety analysis report (UFSAR) Section 14.18, "Fuel Handling Incident," analysis continued to be bounding. This decay time was determined to be 10 days after shutdown and will be included in the plant procedure that controls reconstitution activities. The licensee states that administrative controls will be in place to ensure that the spent fuel handling machine will not strike the fuel assemblies placed on rack spacers or a load will not be dropped on them during reconstitution activities. The remaining assumptions for the fuel handling accident are the same as those in the current UFSAR analysis.

The staff reviewed the licensee's description and conclusions of the revised fuel handling accident. The staff also performed independent calculations to confirm the acceptability of the licensee's analysis methodology. Based on comparison of results, the staff found the licensee's analysis to be acceptable.

The staff has concluded that the radiological dose analysis performed by the licensee in support of the proposed fuel consolidation activities is acceptable. The staff also finds that reasonable assurance exists, in the event of a postulated fuel handling accident with a water depth of 19.8 feet above the fuel assemblies and a decay time of 10 days, that the doses to persons at or beyond the exclusion area boundary are bounded by the current UFSAR 14.18 analysis, which is well within the 10 CFR Part 100 dose guidelines.

In addition, in order to assure that the effective multiplication factor (k-eff) meets the staff's subcriticality criterion of no greater than 0.95, administrative controls will be put in place to limit the raised assemblies to a single row of alternate locations and to prohibit an assembly in an adjacent storage rack cell from being raised, lowered, or moved. This will maintain a minimum separation distance of 11.4 inches between any adjacent assemblies elevated above the absorber sheets. This spacing is sufficient to ensure that there will be no increase in k-eff during reconstitution, even with no credit for burnup or soluble boron, and that k-eff will remain below 0.95. Therefore, the staff finds that the administrative controls put in place by the licensee are 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. 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 (64 FR 51347). 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: Michelle Hart

Date: February 3, 2000

Template - NRR-058

DATED: February 3, 2000

AMENDMENT NO. 233 TO FACILITY OPERATING LICENSE NO. DPR-53-CALVERT  
CLIFFS UNIT 1

AMENDMENT NO. 209 TO FACILITY OPERATING LICENSE NO. DPR-69-CALVERT  
CLIFFS UNIT 2

File Center

PUBLIC

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cc: Plant Service list