March 22, 2001

Mr. Charles H. Cruse Vice President - Nuclear Energy Calvert Cliffs Nuclear Power Plant, Inc. Calvert Cliffs Nuclear Power Plant 1650 Calvert Cliffs Parkway Lusby, MD 20657-4702

SUBJECT: CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NOS. 1 AND 2 - AMENDMENT RE: RESPONSE TIME TESTING (TAC NOS. MA8020 AND MA8021)

Dear Mr. Cruse:

The Commission has issued the enclosed Amendment No. 244 to Renewed Facility Operating License No. DPR-53 and Amendment No. 218 to Renewed Facility Operating License No. DPR-69 for the Calvert Cliffs Nuclear Power Plant, Units No. 1 & 2. This amendment consists of changes to the Technical Specifications (TSs) in response to your application transmitted by letter dated January 25, 2000, as supplemented by letters dated October 31, and December 18, 2000.

On the date of the January 25, 2000, application, Baltimore Gas and Electric (BG&E) was the licensed operator of Calvert Cliffs Nuclear Power Plant. On June 30, 2000, BG&E's ownership interest in Calvert Cliffs Nuclear Power Plant was transferred to Calvert Cliffs Nuclear Power Plant, Inc. (CCNPPI). By letter dated February 14, 2001, CCNPPI requested that the U.S. Nuclear Regulatory Commission continue to review and act upon all requests before the Commission which had been submitted by BG&E. Accordingly, the staff has completed its review of the requested amendment.

The amendments revise the Calvert Cliffs TSs to eliminate response time testing for those pressure sensors which were discussed and approved in the Combustion Engineering Owners Group Topical Report NPSD-1167.

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/

Donna Skay, Project Manager, Section 1 Project Directorate 1 Division of Licensing Project Management Office of Nuclear Reactor Regulation

Docket Nos. 50-317 and 50-318

Enclosures: 1. Amendment No. 244 to DPR-53

- 2. Amendment No. 218 to DPR-69
- 3. Safety Evaluation

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cc w/encls: See next page

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**SE input incorporated with no significant changes.			P. Loesser	

Accession Number: ML010430099 *See previous concurrence

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CALVERT CLIFFS NUCLEAR POWER PLANT, INC.

DOCKET NO. 50-317

CALVERT CLIFFS NUCLEAR POWER PLANT UNIT NO. 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 244 Renewed 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 dated January 25, 2000, as supplemented October 31, 2000 and December 18, 2000, and as adopted by CCNPPI (the licensee), pursuant to a letter dated February 14, 2001, 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 Renewed Facility Operating License No. DPR-53 is hereby amended to read as follows:

2. <u>Technical Specifications</u>

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 244, 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

/RA/ P Tam for

Marsha Gamberoni, 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: March 22, 2001

CALVERT CLIFFS NUCLEAR POWER PLANT, INC.

DOCKET NO. 50-318

CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NO. 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 218 Renewed 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 dated January 25, 2000 as supplemented October 31, 2000 and December 18, 2000, and as adopted by CCNPPI (the licensee), pursuant to a letter dated February 14, 2001, 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 Renewed Facility Operating License No. DPR-69 is hereby amended to read as follows:

2. <u>Technical Specifications</u>

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 218, 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

/RA/ P Tam for

Marsha Gamberoni, 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: March 22, 2001

ATTACHMENT TO LICENSE AMENDMENTS

AMENDMENT NO. 244 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-53

AMENDMENT NO. 218 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-69

DOCKET NOS. 50-317 AND 50-318

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

Remove Pages	Insert Pages	
Page 1.1-3	Page 1.1-3	
Page 1.1-4*	Page 1.1-4*	
Page 1.1-5*	Page 1.1-5*	
Page 1.1-6	Page 1.1-6	

* Pages that did not change but are overleaf

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 244 TO RENEWED

FACILITY OPERATING LICENSE NO. DPR-53

AND AMENDMENT NO. 218 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-69

CALVERT CLIFFS NUCLEAR POWER PLANT, INC.

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

DOCKET NOS. 50-317 AND 50-318

1.0 INTRODUCTION

By letter dated January 25, 2000, as supplemented by letters dated October 31, 2000, and December 18, 2000, the Baltimore Gas and Electric Company (BG&E) submitted a request to change the Technical Specifications (TSs) for the Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2 (CCNPP). On the date of the January 25, 2000, application, BG&E was the licensed operator of Calvert Cliffs Nuclear Power Plant. On June 30, 2000, BG&E's ownership interest in CCNPP was transferred to Calvert Cliffs Nuclear Power Plant, Inc. (CCNPPI). By letter dated February 14, 2001, CCNPPI requested that the U.S. Nuclear Regulatory Commission (NRC) continue to review and act upon all requests before the Commission which had been submitted by BG&E. Accordingly, the staff has completed its review of the requested amendment.

The amendments would revise the CCNPP TSs to eliminate response time testing for those pressure sensors which were discussed and approved in the Combustion Engineering Owners Group (CEOG) Topical Report NPSD-1167. The October 31 and December 18, 2000, letters provided clarifying information that did not change the initial proposed no significant hazards consideration determination.

2.0 BACKGROUND

The requirement for periodic testing of reactor trip systems is established in Section 50.55a, "Codes and Standards," of 10 CFR Part 50. Section 50.55a(h)(2), states: "For nuclear power plants with construction permits issued after January 1, 1971, but before May 13, 1999, protection systems must meet the requirements stated in either IEEE Std. 279, "Criteria for Protection Systems for Nuclear Power Generating Stations," or in IEEE Std. 603-1991, "Criteria for Safety Systems for Nuclear Power Generating Stations," and the correction sheet dated January 30, 1995. For nuclear power plants with construction permits issued before January 1, 1971, protection systems must be consistent with the plants' licensing basis or may meet the requirements of IEEE Std. 603-1991 and the correction sheet dated January 30, 1995." In addition, 10 CFR 50.36 (c)(2)(ii)(A) requires a TS limiting condition for operation for "installed

calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within the safety limits, and that the limiting conditions of operation will be met." In 1975, the NRC implemented a program that made response time testing (RTT) a requirement of the TSs.

In June 1999, the Combustion Engineering Owner's Group (CEOG), under the auspices of ABB Combustion Engineering Nuclear Power Company, issued Topical Report CE NPSD-1167, "Elimination of Pressure Sensor Response Time Testing Requirements." In CE NPSD-1167, the CEOG proposed eliminating the requirements for RTT of selected pressure sensors in the reactor protection system (RPS), the emergency core cooling system (ECCS), and the isolation actuation system (IAS). In August 1999, the CEOG submitted Revision 1 to CE NPSD-1167 to change the pressure transmitter allocated response times from values that were based upon historical plant data to values that are based upon vendor data of expected response times of properly operating instruments. In May 2000, the CEOG submitted Revision 2 to CE NPSD-1167 to incorporate NRC reviewer and utility comments and to correct the Appendix C calculated values for allocated response times based on historical data for sensors on which no vendor data are available. Appendix A to CE NPSD-1167, Revision 2, was revised and resubmitted by letter CEOG-00-171, dated June 6, 2000. The revised Revision 2 was approved for reference on July 3, 2000.

On October 25, 2000, the NRC staff received the proposed standard TS wording from the Nuclear Energy Institute (NEI) Technical Specification Task Force (TSTF). The wording is to be used for plants which wish to eliminate some RTT in accordance with CE NPSD-1167. This proposed wording was reviewed by the staff and approved on November 28, 2000.

3.0 EVALUATION

3.1 Proposed Changes

Function	Instrument	Make / Model
RPS Transmitter	RCS Low Flow	Rosemount Model 1152 Range Code 6
	Containment Pressure	Rosemount Model 1153 Range Code 5
	SG Level	Rosemount Model 1154 Range Code 4
	Pressurizer Pressure	Rosemount Model 1154 Range Code 9
	SG Pressure (RPS and ASGT)	Rosemount Model 1154 Range Code 9
ESAS & AFW	Containment Pressure (ESFAS)	Rosemount Model 1153 Range Code 5
Transmitter	SG Level (AFW)	Rosemount Model 1154 Range Code 5
	W. Pen. Rm. Letdown Isolation	Rosemount Model 1154 Range Code 4
	SG Pressure (ESFAS, AFW)	Rosemount Model 1154 Range Code 9
	Pressurizer Pressure (ESFAS)	Rosemount Model 1154 Range Code 9

The licensee has requested to change the Calvert Cliffs TSs to eliminate response time tests of the following pressure sensors:

To make the change, the definition of RPS response time and the definition of ESFAS response time need to be expanded.

In TS Section 1.1, "Definitions", ENGINEERED SAFETY FEATURE (ESF) RESPONSE TIME, page 1.1-3 currently reads:

The ESF RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its ESF actuation setpoint at the channel sensor until the ESF equipment is capable of performing its safety function (i.e., the valves travel to their required positions, pump discharge pressures reach their required values, etc.). Times shall include diesel generator starting and sequence loading delays, where applicable. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.

The following sentence will be added to the end of the definition:

In lieu of measurement, response time may be verified for selected components provided that the components and the methodology for verification have been previously reviewed and approved by the NRC.

The definition of REACTOR PROTECTION SYSTEM (RPS) RESPONSE TIME on page 1.1-5 currently reads:

The RPS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its RPS actuation setpoint at the channel sensor until electrical power to the CEAs drive mechanism is interrupted. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.

The same sentence will be added to the end of this definition.

In addition, two changes to the bases section of the TSs are required. These changes, proposed by TSTF-368, were approved by the staff on November 28, 2000. The following paragraph will be added to the surveillance requirements section on response time testing requirements for the RPS and ESF:

Response time may be verified by any series of sequential, overlapping or total channel measurements, including allocated sensor response time, such that the response time is verified. Allocations for sensor response times may be obtained from records of test results, vendor test data, or vendor engineering specifications. Topical Report CE NPSD-1167-A, "Elimination of Pressure Sensor Response Time Testing Requirements," Ref. {10 - analog and digital 3.3.1, analog 3.3.4 / 11 - digital 3.3.5} provides the basis and methodology for using allocated sensor response times in the overall verification of the channel response time for specific sensors identified in the Topical Report. Response time verification for other sensor types must be demonstrated by test. The allocation of sensor response times must be verified prior to placing a new component in operation and reverified after maintenance that may adversely affect the sensor response time.

The following reference will be added to the references section:

CEOG Topical Report CE NPSD- 1167-A, "Elimination of Pressure Sensor Response Time Testing Requirements.

3.2 <u>Staff Evaluation</u>

3.2.1 Sensors

The elimination of the RTT requirements for those sensors shown in the table in Section 3.0 of this safety evaluation (SE) was approved in the staff SE for CEOG Topical Report CE NPSD-1167 for reference. Because the staff has already reviewed and approved the generic analysis, no further review is required.

3.2.2 Technical Specification Changes

The TS changes which Calvert Cliffs has requested are in accordance with TSTF-368, which was approved by the staff on November 28, 2000. The proposed TS accurately reflects the conclusions of the CEOG Topical Report. The types of sensors presently installed in CCNPP and the test methodology at CCNPP are consistent with those evaluated in the generic study. Therefore, the staff has determined that the generic analysis of the CEOG Topical Report is applicable to CCNPP and the proposed TS are acceptable.

3.2.3 Allocated Response Times

The TSs require that licensees demonstrate that protective functions will be accomplished within the time required by the plant accident analysis. This protective function time requirement starts when the process variable, such as the pressure or the level exceeds its setpoint and continues until the protective function is accomplished. The CEOG topical report requests only the elimination of the sensor RTT. It leaves intact the requirement to measure the response time of the rest of the system performing the protective function. Since the time required by the accident analysis is the sum of all response times of components performing the protective function, some assumed value for the sensor response time value must be used in lieu of an actual measured value to determine the overall protective system response time. This assumed value is the time allocated to the response of the sensor. The allocated response time values for the Rosemount sensors used by Calvert Cliffs were obtained from Rosemount and approved by the staff in the July 3, 2000 SE on CEOG Topical Report CE NPSD-1167. The allocated response times are shown in the table below:

Make / Model	Allocated Response Time
Rosemount Model 1152 Range Code 6	.100 second
Rosemount Model 1153 Range Code 5	.200 second
Rosemount Model 1153 Range Code 5	.200 second
Rosemount Model 1154 Range Code 4	.500 second
Rosemount Model 1154 Range Code 5	.200 second
Rosemount Model 1154 Range Code 9	.200 second

Since these values were reviewed in the staff SE approving CEOG Topical Report CE NPSD-1167 for reference, no further review is required.

3.2.4 EPRI Recommendations

EPRI Topical Report NP-7243, Revision 1, is the report on which the CEOG based its Topical Report NPSD-1167 on eliminating RTT. This EPRI topical report recommends several actions to ensure that sensors are operating correctly and that calibration or other surveillance will provide an accurate indication that the dynamic characteristics of the instrument will be accurately reflected in a static calibration. The CEOG has included these recommendations in its topical report and has suggested that utilities wishing to eliminate sensor RTT should incorporate the recommended actions into their revised RTT program. The recommendations of EPRI NP-7243 are as follows:

- 1. Perform a hydraulic RTT prior to installation of a new transmitter/switch or following refurbishment of the transmitter/switch (e.g., sensor cell or variable damping components) to determine an initial sensor-specific response time value. The power interrupt test is an alternate method to use on force-balance transmitters; the purpose of this test is to verify sensor response time is within the limits of the allocated value for the transmitter function.
- 2. For transmitters and switches that use capillary tubes, RTT should be performed after initial installation and after any maintenance or modification activity that could damage the capillary tubes.
- 3. Perform periodic drift monitoring on all Rosemount pressure and differential pressure transmitters, models 1151, 1152, 1153 and 1154. Guidance on drift monitoring can be found in EPRI NP-7121 and Rosemount Technical Bulletins. Drift monitoring intervals should be based on utility response to NRC Bulletin 90-01.
- 4. If variable damping is used, implement a method to ensure that the potentiometer is at the required setting and cannot be inadvertently changed. This approach should eliminate the need for RTT to detect a variable damping failure mode. Otherwise, RTT each transmitter by hydraulic or electronic white noise analysis methods, at a minimum, following each transmitter calibration.

In attachment 1 to the January 25, 2000, license amendment request, Calvert Cliffs committed to following these recommendations:

If we replace any of the existing RPS or ESFAS sensors with one of a different manufacture or model number than that which is currently installed, we will review the sensor response time allocation. If the new sensor is one listed in Table 1, then the new sensor response time allocation can be made by utilizing the data available in Table 1. If the new sensor is not one of those listed in Table 1, then we will verify that the sensor is a candidate for response time elimination as defined in Reference (1). Once this determination is made we may allocate a response time based on historical data for that transmitter type and model if sufficient historical data is available.

3.3 <u>Conclusion</u>

Based on the above review, the staff concludes that the licensee has implemented the provisions of the generic SE for RTT elimination and satisfied the applicable plant-specific conditions in accordance with the approved CEOG Topical Report NPSD-1167 and TSTF 368. Therefore, the staff concludes that the proposed Calvert Cliffs TS changes to eliminate RTT of certain instruments are acceptable.

4.0 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.

5.0 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 (65 FR 6403). 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.

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

Principal Contributor: P. Loesser

Date: March 22, 2001