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

March 27, 1992

Docket No. 50-318

Mr. G. C. Creel
Vice President - Nuclear Energy
Baltimore Gas and Electric Company
Calvert Cliffs Nuclear Power Plant
MD Rts. 2 & 4
P. O. Box 1535
Lusby, Maryland 20657

Dear Mr. Creel:

SUBJECT: ISSUANCE OF AN EMERGENCY AMENDMENT FOR CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NO. 2 (TAC NO. M83005)

The Commission has issued the enclosed Amendment No. 148 to Facility Operating License No. DPR-69 for the Calvert Cliffs Nuclear Power Plant, Unit No. 2. This amendment consists of changes to the Technical Specifications in response to your application transmitted by letter dated March 25, 1992, which requested that the application be processed as an emergency amendment.

The amendment revises Technical Specifications (TS) 4.6.2.1.b.1, 4.6.2.1.b.2, 4.6.2.2.b, and 4.6.3.1.d.2. The previous TS identified the specific test signals to be used when testing the containment spray valves and pumps, the containment fan coolers, and the containment iodine filter trains. This revision changes the specific test signal to indicate that the appropriate Engineered Safety Feature Actuation System test signal be used during the required surveillance testing.

A copy of the related Safety Evaluation is enclosed. A Notice of Issuance and Final Determination of No Significant Hazards Consideration and Opportunity for Hearing will be included in the Commission's next regular biweekly Federal Register notice.

Sincerely,

Daniel G. McDonald Jr.

Daniel G. McDonald, Senior Project Manager
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 148 to DPR-69
2. Safety Evaluation

cc w/enclosures:
See next page

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

Calvert Cliffs Nuclear Power Plant
Unit Nos. 1 and 2

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DATED: March 27, 1992

AMENDMENT NO. 148 TO FACILITY OPERATING LICENSE NO. DPR-69-CALVERT CLIFFS UNIT 2

Docket File
NRC & Local PDRs
PDI-1 Reading
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J. Calvo, 14/A/4
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C. Vogan
D. McDonald
F. Rosa, 7/E/4
C. Hehl, RGN-1
OGC-WF
D. Hagan, 3302 MNBB
G. Hill (4), P-137
Wanda Jones, P-130A
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ACRS (10)
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Plant File
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cc: Plant Service list

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

BALTIMORE GAS AND ELECTRIC COMPANY

DOCKET NO. 50-318

CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 148
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 March 25, 1992, 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:

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(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 148, 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 to be implemented within 5 days.

FOR THE NUCLEAR REGULATORY COMMISSION

José A. Calvo

Jose A. Calvo, Assistant Director
for Region I Reactors
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: March 27, 1992

ATTACHMENT TO LICENSE AMENDMENTS

AMENDMENT NO. 148 FACILITY OPERATING LICENSE NO. DPR-69

DOCKET NO. 50-318

Revise Appendix A as follows:

Remove Pages	Insert Pages
3/4 6-11	3/4 6-11
3/4 6-12	3/4 6-12
3/4 6-15	3/4 6-15

SURVEILLANCE REQUIREMENTS (Continued)

b. 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 the appropriate ESFAS test signal.

   2. Verifying that each spray pump starts automatically on the appropriate ESFAS test signal.

c. At least once per 5 years by performing an air or smoke flow test through each spray header and verifying each spray nozzle is unobstructed.

CONTAINMENT COOLING SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.2.2 Two independent groups of containment air recirculation and cooling units shall be **OPERABLE** with two units to each group.

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

ACTION:

a. With one group of required containment air recirculation and cooling units inoperable and both containment spray systems **OPERABLE**, restore the inoperable group of air recirculation and cooling units to **OPERABLE** status within 7 days or be in at least **HOT SHUTDOWN** within 12 hours.

b. With three required containment air recirculation and cooling units inoperable and both containment spray systems **OPERABLE**, restore at least one required air recirculation and cooling unit to **OPERABLE** status within 8 hours or be in at least **HOT SHUTDOWN** within 12 hours. Restore both above required groups of containment air recirculation and cooling units to **OPERABLE** status within 7 days or be in at least **HOT SHUTDOWN** within 12 hours.

c. With one group of required containment air recirculation and cooling units inoperable and one containment spray system inoperable, restore the inoperable containment spray system to **OPERABLE** status within 72 hours or be in at least **HOT SHUTDOWN** within 12 hours. Restore the inoperable group of containment air recirculation and cooling units to **OPERABLE** status within 7 days of initial loss or be in at least **HOT SHUTDOWN** within 12 hours.

SURVEILLANCE REQUIREMENTS

4.6.2.2 Each containment air recirculation and cooling unit shall be demonstrated **OPERABLE**:

a. At least once per 31 days on a **STAGGERED TEST BASIS** by:

   1. Starting each unit from control room.

   2. Verifying that unit operates for at least 15 minutes.

   3. Verifying a cooling water flow rate of $\geq$ 2000 gpm to each cooling unit when the full flow service water outlet valves are fully open.

b. At least once per 18 months by verifying that each unit starts automatically on the appropriate ESFAS test signal.

SURVEILLANCE REQUIREMENTS (Continued)

Subsequent to reinstalling the adsorber tray used for obtaining the carbon sample, the filter train shall be demonstrated **OPERABLE** by also verifying that the charcoal adsorbers remove ≥ 99% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with Regulatory Positions C.5.a and C.5.d of Regulatory Guide 1.52 Revision 2 March 1978 while operating the filter train at a flow rate of 20,000 cfm ± 10%.

d. At least once per refueling interval by:

1. Verifying that the pressure drop across the combined **HEPA** filters and charcoal adsorber banks is < 6 inches Water Gauge while operating the filter train at a flow rate of 20,000 cfm ± 10%.

2. Verifying that the filter train starts on the appropriate ESFAS test signal.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 148 TO FACILITY OPERATING LICENSE NO. DPR-69

BALTIMORE GAS AND ELECTRIC COMPANY

CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NO. 2

DOCKET NO. 50-318

1.0 INTRODUCTION

By letter dated March 25, 1992, the Baltimore Gas and Electric Company (the licensee) submitted a request for changes to the Calvert Cliffs Nuclear Power Plant, Unit No. 2, Technical Specifications (TS). The requested changes would revise the specified test signals required for surveillance testing the containment spray valves and pumps, the containment air coolers, and the containment iodine filter trains. The current TS specify that the Safety Injection Actuation Signal (SIAS) test signal be used for the containment spray valves and the Containment Spray Actuation Signal (CSAS) test signal for the pumps; the CSAS test signal be used for the containment air coolers; and the Containment Isolation Signal (CIS) test signal be used for the iodine filter trains. The purposed change deletes the SIAS, CSAS, and CIS test signals and replaces them with the appropriate Engineered Safety Feature Actuation System (ESFAS) test signal. The proposed change will affect TS 4.6.2.1.b.1, 4.6.2.1.b.2, 4.6.2.2.b, and 4.6.3.1.d.2

During accident conditions accompanied by a loss of offsite power, the Emergency Diesel Generators (EDGs) sequencers will automatically load the EDGs in a controlled manner. The sequencers initially blocks the SIAS and CSAS to the equipment to be sequenced on to the EDGs and then unblocks these signals in controlled steps. This unblocking is a permissive function, which by itself will not start the equipment. The equipment must have an additional signal to start. Because the loss-of-coolant accident (LOCA) sequencer is initiated upon receipt of a SIAS, equipment which is also started on a SIAS signal will start as soon as the sequencer unblocks it. However, some equipment does not start upon receipt of a SIAS and must have an additional signal present to start. Both the containment spray system and the containment air coolers must receive a CSAS permissive in addition to the SIAS in order to start. The iodine removal system requires a permissive CIS signal in addition to the SIAS to start. These additional signals add an element of uncertainty to the actual start time of this equipment. Therefore, this uncertainty for the actual starting of the containment spray system, containment air coolers, and iodine removal system could lead to a situation where equipment which is assumed to start at a given sequencer step is not actually permitted to start by the CSAS or CIS signals. These loads would, under specific conditions, be started during a latter sequencer step. This situation could result in low voltage conditions on the EDGs associated

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electrical buses and have a potential impact on the other safety-related equipment connected to the buses.

To eliminate the uncertainty associated with the equipment start time, a modification is being performed which will change the start signals of the containment spray pumps, the containment air coolers and the iodine removal units as detailed in the following evaluation.

2.0 EVALUATION

The function of the containment spray system is to limit the rise in containment atmosphere pressure and temperature after an accident which reduces the possibility of leakage of airborne radioactivity to the outside environment. As currently designed, the containment spray pumps are started by a CSAS. To prevent an inadvertent actuation of containment spray in the case of an inadvertent CSAS, the containment spray valves are opened only by a SIAS. The proposed modification will reverse this arrangement of signals and equipment; the containment spray pumps will be sequenced on the EDGs and start on a SIAS and the containment spray valves will receive a permissive signal to open on a CSAS.

The containment pressure setpoint for a CSAS is 4.25 psig, while the pressure setpoint for a SIAS is 2.8 psig. By changing the signals on the containment spray pumps, the containment spray pumps would be started earlier in an accident scenario than previously evaluated. The containment pressure/temperature response to a LOCA, as calculated for Updated Final Safety Analysis Report (UFSAR), Section 14.20, assumes the containment spray function starts 60 seconds after the containment pressure reaches 4.25 psig, which is the CSAS setpoint. Since the spray system valves require a CSAS signal to permit opening, the spray system function remains unchanged by the proposed modification.

The staff has determined the proposed change is acceptable. This determination is based on the fact that the reversing of the signals does not change the assumptions related to the initiation of the containment spray function as detailed in the UFSAR. Therefore, the proposed changes to TS 4.6.2.1.b.1 and 4.6.2.1.b.2 are acceptable.

The function of the containment air coolers is also to limit the containment atmosphere pressure and temperature after an accident which reduces the possibility of leakage of airborne radioactivity to the outside environment. As currently designed, the air cooler fans receive their low speed start signal from CSAS. Additionally, the service water outlet valves for the air coolers open upon receipt of a CSAS. A modification is being performed which will replace the CSAS signals with a SIAS signal. The air coolers would start sooner in a pressurization transient than previously assumed because the SIAS actuates at a containment pressure of 2.8 psig and the CSAS at 4.25 psig. There is no detrimental effect to starting the air coolers earlier in a transient and it would have no negative impact on long-term containment response.

The staff has determined that the proposed change is acceptable. The air cooling system is independent of the containment spray system and, as noted, has the same function. The air cooling system is operating (three of the four cooling units) during normal operation on high speed. A CSAS signal would reduce the speed of the three operating fans and start the fourth if offsite power was available. If not, the loads would be sequenced, two cooling units per EDG, and started on low speed. As the licensee indicated, and the staff agrees, starting the cooling units earlier in the accident sequence has no negative affects. The long-term cooling capability is unaffected in that the cooling units are designed to function for one year post-LOCA as noted in the UFSAR. Therefore, the proposed change to TS 4.6.2.2.b is acceptable.

The iodine removal units are designed to collect the iodine which could be released into the containment atmosphere following a postulated LOCA. The fans would start on a CIS in the current design. As in the systems described above, the start signal is being changed to a SIAS. Although both CIS and SIAS are actuated at a containment pressure of 2.8 psig, SIAS can also be actuated by a low pressurizer pressure condition. By switching the signal from CIS to SIAS, the iodine removal units might be actuated during an event which did not result in containment pressurization. There is no detrimental effect operating the iodine removal units during a transient in which they might not be needed. The effectiveness of the charcoal is tested after every 720 hours of operation, per TS 4.6.3.1.c., to ensure that they still retain the capacity for iodine removal assumed in the accident analyses.

The staff has determined that the proposed change is acceptable. As noted, the effectiveness of the charcoal filters is required to be verified on a specified time basis. Thus, operation during a transient not resulting in containment pressure will not have a negative effect. Therefore, the proposed change to TS 4.6.3.1.d.2 is acceptable.

3.0 STATEMENT OF EMERGENCY CIRCUMSTANCE

The licensee states that emergency circumstances pursuant to 10 CFR 50.91 exist with respect to the need for consideration of the proposed amendment. The licensee further indicates that the need for these changes could not have been foreseen in that it is based on an unusual and highly improbable set of circumstances which it could not have reasonably been expected to anticipate.

The circumstances occurred as the result of the licensee's evaluation of the response of the onsite electrical distribution system to a specific accident scenario. As the result of the evaluation, the licensee concluded that the electrical distribution system may not have functioned properly which could potentially prevent the safety equipment from functioning properly. The licensee is currently undertaking improvements to the onsite electrical distribution system to provide reasonable assurance that the system would function properly during the specific accident scenario. The modifications being implemented will change the actuation signal for several engineered safety features resulting in a corresponding change in the Technical Specifications surveillance requirements as detailed above.

Application for the emergency amendment was made as soon as possible following the licensee's determination of the appropriate actions to take. An Unusual Event was declared and the unit was shutdown when the determination was made that safety-related equipment might not function properly. The unit would be prevented from startup upon completion of the modifications unless the requested amendment is issued.

Based on the above, the NRC staff has determined that the licensee has used best efforts to make a timely application and that emergency circumstance are present which warrant processing the requested amendment pursuant to 10 CFR 50.91(a)(5).

4.0 FINAL DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATION

The Commission has provided standards for determining whether a significant hazards consideration exists (10 CFR 50.92(c)). A proposed amendment to an operating license for a facility involves no significant hazards consideration if operation of the facility in accordance with the proposed amendment would not: (1) involve a significant increase in the probability or consequences of and accident previously evaluated; or (2) create the possibility of a new or different kind of accident from an accident previously evaluated; or (3) involve a significant reduction in a margin of safety.

The following evaluation, by the licensee and with which the NRC staff agrees, demonstrates that the proposed amendment does not involve a significant hazards consideration.

Operation of the Calvert Cliffs Nuclear Power Plant, Unit 2, in accordance with the proposed amendment will not involve a significant hazards consideration as defined in 10 CFR 50.92, since it does not:

1. involve a significant increase in the probability or consequences of an accident previously evaluated; or

   The changes to the surveillance requirement associated with the containment spray system, the containment air coolers, and the iodine removal units reflect the changes made to the Engineered Safety Features Actuation System (ESFAS) signals that this equipment receives. The proposed changes will ensure that the equipment continues to be tested in a manner consistent with its safety function by verifying that the equipment responds as required to the appropriate ESFAS signal [as detailed in Section 2.0 of this Safety Evaluation]. Therefore, there has been no increase in the probability or consequences of a previously evaluated accident.

2. create the possibility of a new or different type of accident from any accident previously evaluated: or

   The change in test signal requirements reflects the change made to the ESFAS signals received by the equipment. No new test requirements have been added, nor have any been deleted. The equipment will not be tested in a manner different than the existing test requirements [as detailed in

Section 2.0 of this Safety Evaluation]. Therefore, the possibility of a new or different type of accident from any previously evaluated has not been created.

3. involve a significant reduction in a margin of safety.

The proposed Technical Specification changes ensure that the affected equipment will continue to be tested in a manner consistent with its safety function. No additional requirements are being proposed and no existing testing requirements are being removed [as detailed in Section 2.0 of this Safety Evaluation]. Therefore, there is no reduction in the margin of safety associated with these testing requirements.

Based on the foregoing, the Commission has concluded that the standards of 10 CFR 50.92 are satisfied. Therefore, the Commission has made a final determination that the proposed amendment does not involve a significant hazards consideration.

5.0 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.

6.0 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 to the 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 made a final no significant hazards consideration finding with respect to this amendment. 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 assessment need to be prepared in connection with the issuance of the amendment.

7. 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.

Principal Contributor:
Daniel G. McDonald

Date: March 27, 1992

Docket No. 50-318

March 27, 1992

Mr. G. C. Creel
Vice President - Nuclear Energy
Baltimore Gas and Electric Company
Calvert Cliffs Nuclear Power Plant
MD Rts. 2 & 4
P. O. Box 1535
Lusby, Maryland 20657

Dear Mr. Creel:

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A copy of the related Safety Evaluation is enclosed. A Notice of Issuance and Final Determination of No Significant Hazards Consideration and Opportunity for Hearing will be included in the Commission's next regular biweekly Federal Register notice.

Sincerely,
Original Signed By:
Daniel G. McDonald, Senior Project Manager
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 148 to DPR-69
2. Safety Evaluation
cc w/enclosures:
See next page

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