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GAS AND
ELECTRIC

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May 1, 1992

U. S. Nuclear Regulatory Commission
Washington, DC 20555

ATTENTION: Document Control Desk

SUBJECT: Calvert Cliffs Nuclear Power Plant
Unit No. 1; Docket No. 50-317
Request for License Amendment: Surveillance Requirements

REFERENCES:
(a) Letter from Mr. G. C. Creel (BG&E) to Document Control Desk (NRC), dated March 25, 1992, "Request for Emergency License Amendment: Surveillance Requirements"

(b) Letter from Mr. D. G. McDonald (NRC) to Mr. G. C. Creel (BG&E), dated March 27, 1992, Issuance of Unit 2 Emergency Amendment No. 148 (TAC No. M83005)

Gentlemen:

Baltimore Gas and Electric Company (BG&E) hereby requests an Amendment to its Operating License No. DPR-53 for Calvert Cliffs Unit No. 1, to allow operation of Unit 1 after completion of modifications currently being developed to the Containment Spray System, the Iodine Removal System, and the Containment Cooling System. These planned modifications will change the type of Engineered Safety Features Actuation System (ESFAS) signal that starts these systems. Accordingly, we request a change to the surveillance requirements which addresses the ESFAS signals to these systems, pursuant to 10 CFR 50.90. This request is identical to the request made for Unit 2 in Reference (a) and which was approved in Reference (b).

DESCRIPTION

During the recent Electrical Distribution System Functional Inspection (EDSFI), an unusual , and highly improbable, accident scenario was identified which has the potential to adversely impact the operation of our onsite electrical distribution system during a loss of offsite power. Specifically, it could have resulted in greater than expected voltage drops at the Emergency Diesel Generators (EDG), which could have impacted the proper operation of some engineered safety features. In the interest of safety, all of the EDGs were declared inoperable and both Units were subsequently shut down. Unit 1 entered a scheduled refueling outage. Modifications are being planned to eliminate

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the possibility of an excessive voltage drop at the EDGs. When complete, these modifications will result in changes to the ESFAS signals supplied to some equipment and will require changes to the surveillance requirements for this equipment.

BACKGROUND

During accident conditions accompanied by a loss of offsite power, the EDG sequencers will automatically load the EDGs in a controlled manner. The sequencer initially blocks the Safety Injection Actuation Signal (SIAS) and Containment Spray Actuation Signal (CSAS) to the equipment to be sequenced and then unblocks these signals in controlled steps. Engineered Safety features equipment requires two different signals to start; an accident response signal (SIAS, CSAS, etc.) and a permissive signal from the EDG sequencer. This unblocking is the permissive signal from the sequencer, which by itself will not start the equipment. The equipment must have an additional signal (SIAS, CSAS, etc.) to start. Because the Loss-of-Coolant Incident (LOCI) sequencer is initiated upon receipt of a SIAS, equipment which is also started on a SIAS signal will receive both signals and 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 Cooling System must also receive a CSAS in order to start after the sequencer unblocks it. The Iodine Removal System requires a Containment Isolation Signal (CIS) to start after the sequencer unblocks it. These additional signals may not be present at the time the SIAS actuates because of their different initiation setpoints. The additional signals add an element of uncertainty to the actual start time of this equipment. This uncertainty could lead to a situation where equipment which is assumed, for example, to start at sequencer Step 3 is not started until sequencer Step 6, which could lead to the simultaneous starting of the equipment from two different steps. This could cause low voltage conditions in the electrical distribution system and prevent safety equipment from operating properly.

To eliminate the uncertainty associated with the equipment start time, a modification is being planned which will change the start signals of the containment spray pumps, the containment cooler fans and the iodine removal units. After the modifications are performed, this equipment will receive their start signals from a SIAS.

REQUESTED CHANGE

The Technical Specifications for this equipment specifies which ESFAS signal must be used to test the equipment during refueling intervals. The proposed changes to the Technical Specifications will change the specific signal name to a requirement that the equipment be tested utilizing "the appropriate ESFAS test signal". The affected Technical Specifications are: 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 Technical Specification changes being requested are similar for the four affected Technical Specifications. Technical Specification 4.6.2.1.b.1 and 2 address some of the surveillance requirements for the Containment Spray System. The Technical Specification requires that, ". . . each automatic valve in the flow path actuates to its correct position on Safety Injection Actuation test signal." We propose to change the Technical Specification to, ". . . each automatic valve in the flow path actuates to its correct position on the appropriate ESFAS test signal." The containment spray pump surveillance currently requires that the spray pump start automatically on a containment spray actuation test signal. Similar wording has been proposed to require that the spray pump start automatically on receipt of the appropriate ESFAS test signal. Similarly, Technical

Specification 4.6.2.2.b addresses the start signals required by the containment cooling units. The proposed change would replace the specific signal name with the generic wording described above. Technical Specification 4.6.3.1.d.2 addresses the surveillance testing for the iodine removal units. It requires that the filter trains start upon receipt of a containment isolation test signal. We are proposing to change the wording of the surveillance to eliminate the reference to a particular ESFAS test signal and substitute the generic wording proposed above.

SAFETY ANALYSIS / JUSTIFICATION

The function of the Containment Spray System is to limit the rise in containment atmosphere pressure and temperature after an accident, and thus reduce 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 undesired CSAS, the containment spray valves are opened only by a SIAS. The modification that is being planned will reverse this arrangement of signals and equipment; the containment spray pumps will start on a SIAS and the containment spray valves will 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 at the lower setpoint pressure. The containment pressure/temperature response to a Loss-of-Coolant Accident (LOCA), as calculated for Updated Final Safety Analysis Report (UFSAR) Section 14.20 is unchanged by this modification because containment spray is assumed to commence 60 seconds after pressure in the containment reaches 4.75 psig. The opening of the containment spray valves on a CSAS ensures that initiation of containment spray is still bounded by the UFSAR analyses. Because the start signals for the containment spray pumps and valves have been changed, a change to the surveillance requirements which describe the test signals for these components is necessary.

The function of the Containment Air Cooling System is to limit the containment atmosphere pressure and temperature after an accident, and thus reduce 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 planned which will replace the CSAS start signals with a SIAS start signal. Because SIAS is actuated before CSAS on high containment pressure (2.8 psig versus 4.25 psig), the air coolers would start sooner in a pressurization transient than previously assumed. There is no detrimental effect to starting the air coolers earlier in a transient and it would have no impact on long-term containment response. Because the start signal for the containment air coolers will be modified, a change to the surveillance requirements which address the test signals for the air coolers is necessary.

The iodine removal units are designed to collect the iodine which could be released into the containment atmosphere following a postulated accident. The fans would start on a CIS in the current design. As in the systems described above, the planned modification will change the fan start signal from a CIS 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 to 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 to ensure that they still retain the capacity for iodine removal assumed in the accident analyses. Because the start signal for the iodine removal units will be

changed, a change to the surveillance requirement which addresses the test signal for the iodine removal units is necessary.

Other systems may be similarly modified, however, there is no impact on the Technical Specifications from these planned modifications.

DETERMINATION OF NO SIGNIFICANT HAZARDS

This proposed change has been evaluated against the standards in 10 CFR 50.92 and has been determined to involve no significant hazards considerations, in that operation of the facility in accordance with the proposed amendment would not:

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

The planned modifications to the start signals received by some engineered safety features equipment will maintain the loading of that equipment within the timing steps assumed by the EDG sequencer design . The EDG sequencers will continue to perform their function as described in the Updated Final Safety Analysis Report (UFSAR). The modified systems will continue to function so that they meet the assumptions of the accident analyses in Section 14 of the UFSAR. Therefore, there has been no significant 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 planned modifications to the start signal to selected Engineered Safety Features Actuation System (ESFAS) components does not create the possibility of a new or different type of accident from any previously evaluated. Changing the Containment Spray Actuation Signal (CSAS) start to a Safety Injection Actuation Signal (SIAS) start will allow the containment spray pumps to start, the containment cooler fans to start in low speed, and the service water outlet valves to open during an event that does not cause a high pressure condition in containment. Operating the pumps, fans, and valves during an event that does not cause a high pressure condition in containment will add a load to the EDGs that was not considered for these events. However, this additional load is within the capacity of the EDGs because the EDG capacity is based on events where this equipment is assumed to operate.

When the planned modifications are complete, the containment spray valves will open on a CSAS instead of SIAS. Therefore, the valves will open after the pumps have started and only when containment pressure is high enough to warrant the use of containment sprays. Operating the containment spray pumps with these valves closed is accommodated by the existing recirculation lines for the pumps. The containment spray piping will be evaluated to determine if it can withstand the loads associated with opening the valve after the pump had been started and any necessary modifications performed. By reversing the signals to the containment spray pumps and valves, the system will continue to function as designed and an inadvertent spray down of containment will be avoided.

Under the planned modification, the start signal for the iodine removal units will be changed from Containment Isolation Signal (CIS) to SIAS. This will allow the iodine removal units to start during events which may not cause a high pressure condition in containment. Operating the iodine removal units in an event that does not cause a high pressure condition will add a load to the EDGs that was not considered for those events. This additional load is within the capacity of the EDGs because EDG capacity is determined by events where this equipment is assumed to operate.

Under the planned modifications, these systems will continue to operate in ways that have been previously analyzed. The containment cooling units and the iodine removal units could begin functioning sooner in the accident scenario than assumed by the accident analyses or could function during accidents where its function was not assumed to occur. Operation of this equipment in this manner will not have a detrimental effect on the containment structure. Both the containment cooling units and the iodine removal units are used in routine operation to maintain containment temperature within its limits during normal operation and to speed the cleanup of the containment atmosphere during a shutdown.

Therefore, the proposed changes to the Technical Specifications do not create the possibility of a new or different type of accident previously evaluated.

(3) *involve a significant reduction in a margin of safety.*

The margin of safety is not reduced by the planned modifications to the start signals of the engineered safety features described above. The functions of each system continue to meet the accident assumptions stated in UFSAR Section 14. The planned modifications will ensure that the EDGs continue to perform their function as described in the UFSAR. Thus , all the accident analyses will remain valid and the proposed changes to the Technical Specifications do not involve a significant reduction in the margin of safety.

SCHEDULE

Unit 1 is currently in a scheduled refueling outage. Following the planned modifications, the Containment Spray System, the Containment Cooling System and the Iodine Removal System will be considered inoperable because of their inability to satisfy Surveillance Requirements 4.6.2.1.b.1, 4.6.2.1.b.2, 4.6.2.2.b, and 4.6.3.1.d.2, respectively. Failure to satisfy these requirements will prohibit entering into Mode 4. Mode 4 entry is currently scheduled for June 24, 1992. Therefore, we request approval of these proposed Technical Specification changes by June 22, 1992.

SAFETY COMMITTEE REVIEW

These proposed changes to the Technical Specifications and our determination of significant hazards have been reviewed by our Plant Operations and Safety Review Committee and Off-Site Safety Review Committee, and they have concluded that implementation of these changes will not result in an undue risk to the health and safety of the public.

Should you have any questions regarding this matter, we will be pleased to discuss them with you.

Very truly yours,

STATE OF MARYLAND :
: TO WIT :
COUNTY OF CALVERT :

I hereby certify that on the 1st day of May, 1992, before me, the subscriber, a Notary Public of the State of Maryland in and for Calvert County, personally appeared George C. Creel, being duly sworn, and states that he is Vice President of the Baltimore Gas and Electric Company, a corporation of the State of Maryland; that he provides the foregoing response for the purposes therein set forth; that the statements made are true and correct to the best of his knowledge, information, and belief; and that he was authorized to provide the response on behalf of said Corporation.

WITNESS my Hand and Notarial Seal:

Notary Public

My Commission Expires: My Commission Expires September 27, 1993
Date

GCC/PSF/psf/dlm

cc: D. A. Brune, Esquire
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