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VICE PRESIDENT
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December 31, 1991

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 Exigent License Amendment and Temporary Waiver of
Compliance; Verification of Safety Injection Tank Isolation Valve Position

Gentlemen:

The Baltimore Gas and Electric Company (BG&E) hereby requests an exigent license amendment to provide relief from a requirement of Calvert Cliffs Unit No. 1 Technical Specification 4.5.1. We also request that the NRC grant a temporary waiver of compliance from the same requirement while this amendment request undergoes NRC Staff review. Baltimore Gas and Electric Company has considered possible alternatives to this request and we have determined that the approach described below represents the safest course of action.

I. REQUEST FOR AMENDMENT

DESCRIPTION

Technical Specification 3.5.1, Safety Injection Tanks, requires each of the four safety injection tanks (SITs) to be operable during Modes 1, 2, and 3 by maintaining the four SIT isolation valves open and de-energized, and by keeping various SIT parameters within specified ranges. The isolation valves are maintained opened and de-energized during power operation to protect against their inadvertent closure and possible interference with the safety function of the SITs.

Technical Specification Surveillance Requirement 4.5.1.a.2 requires that each SIT isolation valve be verified in the open position at least once every 12 hours. This requirement is normally satisfied by viewing a control room indication of valve position. For the reasons described below, however, this remote position indication has been disabled for one of the four SIT isolation valves (MOV-644) as part of a modification that mechanically secures that valve in the open position. This modification was implemented after the valve stem for MOV-644 was discovered to be bent. The modification, which entailed welding the valve stem to the valve yoke, was necessitated by the removal of a portion of the MOV assembly. This in turn disabled the valve position indicator.

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The proposed change to the Surveillance Requirement would remove the requirement to verify the position of MOV-644 at least every 12 hours. We request that this change be effective until the next scheduled refueling outage, at which time repairs will be effected to restore the valve operator to its normal configuration. We believe that welding the valve in the open position eliminates the need to periodically verify that the valve is open. All other surveillance requirements of Specification 4.5.1 will continue to be satisfied at the required frequency.

BACKGROUND

On December 22, 1991, Unit 1 was shut down and placed in Mode 4 to conduct repairs to a leaking check valve (SI-245) located downstream of SIT 12B. In support of this repair, SIT isolation valve MOV-644 was closed to isolate SI-245 from the Reactor Coolant System (RCS). Following repairs on SI-245, the plant operators attempted to reopen MOV-644 to conduct post-maintenance testing and return SIT 12B to service. However, MOV-644 failed to open. Following an inspection of the valve it was determined that the valve stem was bent, causing binding in the motor-operator. The cause of the bent stem has not been confirmed at this time but it is suspected to have occurred when excessive force was used to manually close MOV-644 for the repair of SI-245.

To allow MOV-644 to be opened, the stem nut had to be removed from the motor-operator. This provided sufficient clearance to allow the bent stem to travel into the motor-operator housing. However, the stem nut is the means by which the motor-operator grasps the valve stem and its removal left the valve stem unsecured. Consequently, we have modified the valve by performing a 360° weld around the unthreaded portion of the valve stem to the valve yoke to positively maintain the valve in its open position. The initial weld design calculation resulted in a 40% design margin. A detailed weld design calculation was performed incorporating more explicit modelling of deadweight, thermal, seismic, and packing loads. This calculation demonstrated that the margin between actual and allowable weld loads was approximately 22%. The weld was performed using existing weld procedures followed by dye penetrant and visual inspections. This work was completed on December 28. The weld was also visually inspected after reaching normal operating conditions on December 30.

We have assured ourselves that the valve is in the open position through several indications. 1) A test was performed on the repaired check valve that required passing water from the SIT, through the check valve and the isolation valve into a drain line. We received positive indication of flow through the valves (i.e., SIT level decreased) which indicated that the isolation valve is open. 2) When we opened the isolation valve, the expected amount of stem travel was measured. 3) Once the stem nut was moved past the binding portion of the stem, it moved freely. This indicates that the damage was localized to a particular region of the stem. 4) According to the weak link analysis, the stem is the most likely location for failure. The next location of predicted failure is the bottom of the wedge at the valve seating surface. However, no seat leakage was observed while repairing the downstream check valve. This indicates that the damage was localized to the valve stem. 5) When the valve was opened, both with the hand wheel and with a portable rigging device, the force required to move the valve was similar to what would be expected of a properly operating valve. These indications lead us to conclude that the valve is in its open position.

Another consequence of removing the stem nut from MOV-644's motor-operator was that it disabled the valve's stem position indicator. We use this indicator to comply with Surveillance Requirement 4.5.1.a.2, which specifies that the valve position must be verified as open at least once every 12 hours. This change is requested because BG&E believes it to be unnecessary to verify the position of MOV-644 every 12 hours as the valve is now welded in the open position.

REQUESTED CHANGE

Change Specification 4.5.1.a.2 of the Unit 1 Technical Specifications as shown on the marked-up page attached to this submittal. This change exempts SIT isolation valve MOV-644 from the requirement to verify the open position of the SIT isolation valves. This change is requested to be effective until the end of the next refueling outage currently scheduled for the spring of 1992.

SAFETY ANALYSIS/JUSTIFICATION

There are four Safety Injection Tanks installed on Calvert Cliffs Unit No. 1. One tank is connected to each cold leg by 12-inch diameter piping. The safety injection system is designed as a passive system to provide borated water to cover the core following a Loss of Coolant Accident (LOCA) until the safety injection pumps can provide adequate water for core cooling. The driving force for the SIT water injection is provided by a nitrogen gas overpressure. In order to prevent the RCS from mixing with, and possibly diluting, the borated SIT water, two check valves surrounding a motor-operated isolation valve are located between each SIT and the RCS. During Modes 1, 2, and 3, the isolation valve is required to be open. The isolation valve is normally locked open with a keylock switch and power is removed from the motor-operator in accordance with Technical Specification 4.5.1.e. In the event of a LOCA, the check valves would open when RCS pressure decreases below the SIT pressure and the SIT water would inject into the RCS. The SIT isolation valve is closed to isolate the SIT during normal RCS depressurization to prevent the tank water from discharging into the RCS. Since MOV-644 is welded open, we will vent SIT 12B when depressurizing the RCS to prevent it from discharging. All procedure changes needed to operate with MOV-644 welded open have been approved.

The purpose of Surveillance Requirement 4.5.1.a.2 is to periodically ensure that the isolation valves remain open and thus, would not prevent the SITs from performing their safety function. Compliance with Surveillance Requirement 4.5.1.a.2 is currently being met by making a containment entry at least once every 12 hours to visually verify the valve position. Whereas this is a practical means for compliance during Modes 2 and 3, this will not be desirable during Mode 1 due to elevated radiation levels inside containment during power operation. Therefore, continued plant operation using direct visual inspection as the means for satisfying the surveillance requirement is not consistent with the objectives of maintaining occupation radiation exposures as low as reasonably achievable (ALARA).

Installation of an alternate means of verifying valve position, such as a video camera or an electrical contact, were considered. Installation of an alternate position indication would require that the plant be shutdown, or, if installed at power, additional radiation exposure be accumulated in opposition to ALARA practices. These alternatives were rejected because providing an alternate means of position indication on a welded open valve is unnecessary and yields no safety benefit.

Another alternative considered was to perform a full repair of MOV-644 prior to returning to power. Repair of this valve necessitates opening the RCS and would therefore require that the plant either be placed in Mode 5 (Cold Shutdown) with a partially drained RCS, or that a freeze seal (if possible) be installed in the 12-inch SIT line. It is estimated that it would take approximately seven days to perform this repair. This was not considered to be an acceptable alternative because it would impose an unnecessary economic hardship on BG&E by preventing the plant from returning to power operation while providing no corresponding safety benefit. There is no discernible safety benefit in

repairing the valve at this time because the valve has been secured in the position required by technical specifications for power operation. Verifying the position of a welded open valve is unnecessary. More importantly, BG&E desires to avoid any unnecessary entry into a partially drained RCS condition, due to the increased plant vulnerability to unexpected transients while in this condition.

DETERMINATION OF SIGNIFICANT HAZARDS

The proposed change has been evaluated against the standards in 10 CFR 50.92 and has been determined to not involve a significant hazards consideration, in that operation of the facility in accordance with the proposed amendment:

1. *Would not involve a significant increase in the probability or consequences of an accident previously evaluated.*

The open or closed position of Safety Injection Tank isolation valves are not considered an initiator for any accidents previously evaluated. Therefore, the probability of previously evaluated accidents would not be increased by the requested change.

Previously evaluated accident analyses assume that Safety Injection Tank isolation valves are open. The requested change eliminates the verification of that condition for one valve but the valve has been welded in the open position. Therefore, it has been assured that the valve will function as required during any previously analyzed accident and that there will be no increase in consequences due to the requested change.

Therefore, this change would not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. *Would not create the possibility of a new or different type of accident from any accident previously evaluated.*

Welding the valve stem to the valve yoke on MOV-644 ensures that the valve will remain open during Modes 1, 2 and 3, thus eliminating the need for periodic verification of valve position in those Modes. The only new or different type of accident that could be created by failing to verify the isolation valve position would be the unknown closure of the valve. However, this possibility is precluded by welding the valve in the open position. This change in surveillance requirements does not affect the design or function of the isolation valve, nor the operation of the isolation valve as the valve's design and function is to remain open in Modes 1, 2, 3 and the valve is not allowed to be operated in those Modes.

Therefore, the proposed change does not create the possibility of a new or different type of accident from any accident previously evaluated.

3. *Would not involve a significant reduction in a margin of safety.*

The margin of safety provided by this surveillance requirement is the assurance that the isolation valve is open. The need to verify that the valve is open has been eliminated by

welding the valve in the open position. Therefore, the proposed change would not involve a significant reduction in a margin of safety.

STATEMENT OF EXIGENT CIRCUMSTANCES

The Technical Specifications, unless amended, would require entry into containment at power by an operator to verify the position of the welded open valve. This will result in the accumulation of unnecessary radiation exposure with no corresponding safety benefit. Therefore, we request that this amendment be treated as an exigent change.

The need for this change could not have been foreseen in that it resulted from corrective maintenance activities being performed during an unplanned outage to repair a leaking check valve. Application for an amendment was made as soon as possible following the determination of the appropriate course of action.

II. REQUEST FOR TEMPORARY WAIVER OF COMPLIANCE

Baltimore Gas and Electric Company requests that the NRC waive the requirement to comply with Surveillance Requirement 4.5.1.a.2 for MOV-644 while the exigent license amendment is considered.

The circumstances resulting in the loss of control room indication of MOV-644 have been described above and currently, compliance with the Surveillance Requirement is being met by containment entries to perform a visual verification of valve position. Because of the radiation levels in the containment during power operation, continuance of this practice is undesirable.

The need for this change could not have been foreseen in that it resulted from corrective maintenance activities being performed during an unplanned outage to repair a leaking check valve.

The safety significance of this requested waiver is the same as the safety significance of the requested license amendment. We believe that welding MOV-644 in the open position provides the same level of safety as verifying the position of the valve at least every 12 hours. As discussed in the "Determination of Significant Hazards," above, this change does not constitute an unreviewed safety hazard.

COMPENSATORY ACTIONS

For the period of time this temporary waiver is in effect, assurance of safety is provided by the weld on MOV-644. By precluding any valve stem movement, this measure adequately compensates for the lack of periodic position verification.

DURATION OF REQUEST

The temporary waiver of compliance is requested while the exigent License Amendment Request undergoes NRC Staff review. This will allow us to discontinue the containment entries currently being made to visually satisfy Surveillance Requirement 4.5.1.a.2.

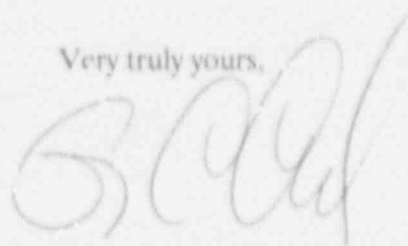
ENVIRONMENTAL CONSEQUENCES

This request, if granted, would not involve an increase in the amount or types of effluents that may be released off-site, nor will there be any increase in individual or cumulative occupational radiation exposure. However, the approval of this request would decrease occupational radiation exposure. Therefore, this request would not involve irreversible environmental consequences.

SAFETY COMMITTEE REVIEW

The proposed license amendment and our determination of significant hazards have been reviewed by our Plant Operations and Safety Review Committee and Off-Site Safety Review Committee, and the request for a temporary waiver of compliance has been reviewed by our Plant Operations and Safety Review Committee. They have concluded that implementation of these changes will not result in an undue risk to the health and safety of the public.

Very truly yours,



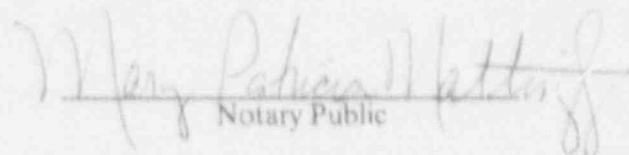
STATE OF MARYLAND:

: TO WIT:

COUNTY OF CALVERT:

I hereby certify that on the 31st day of December, 1991, 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 information 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 information on behalf of said Corporation.

WITNESS my Hand and Notarial Seal:


Notary Public

My Commission Expires:

2/1/94
Date

GCC/BDM/DJM/djm/dlm

Attachment

cc: D. A. Brune, Esquire
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