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ELECTRIC

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February 11, 1992

U. S. Nuclear Regulatory Commission
Washington, DC 20555

ATTENTION: Document Control Desk

SUBJECT: Calvert Cliffs Nuclear Power Plant
Unit No. 2; Docket No. 50-318
Request for Temporary Relief from ASME Boiler & Pressure Vessel Code Section XI Requirement IWA-5250

Gentlemen:

Baltimore Gas and Electric Company requests temporary relief from ASME Boiler & Pressure Vessel Code Section XI (1983 Edition), requirement IWA 5250, as allowed under 10 CFR 50.55a(a)(3). We specifically request permission to delay the repair of the penetration weld between the Unit 2 Refueling Water Tank (RWT) and the nozzle for the "A" train safety injection suction line until the next scheduled Unit 2 refueling outage (spring 1993). Compliance with this requirement would result in hardship without compensatory quality or safety improvement.

I. Component for Which Relief Is Requested

Temporary relief is requested for the penetration weld between the Unit 2 RWT and the nozzle for the "A" train safety injection suction line (18" HC-3-2004). A small leak has been discovered in the nozzle area. The RWT provides a source of borated water for injection into the Reactor Coolant System following an accident. The RWT is a Class 2 component under the requirements of Section XI and Regulatory Guide 1.26.

II. Code Requirements for Which Relief Is Requested

ASME Boiler and Pressure Vessel Code Section XI (1983 Edition), requirement IWA-5250, states:

"(a) The source of leakages detected during the conduct of a system pressure test shall be located and evaluated by the Owner for corrective measures as follows:

. . . (2) repairs or replacements of components shall be performed in accordance with IWA -4000 or IWA -7000, respectively."

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III. Proposed Alternative

Instead of conducting a repair at this time, we propose to perform periodic visual examinations to ensure that the leakage from the RWT penetration weld does not significantly increase. This provides appropriate safety assurance until Unit 2's next scheduled refueling outage (spring 1993), at which time a Code repair will be effected.

IV. Supporting Information

A. Sequence of Events

During rounds on February 5, 1992, evidence of a leak from the Unit 2 RWT was found. This evidence consisted of crystalized boric acid and wetness in the telltale hole of the reinforcing plate surrounding the nozzle for the "A" train safety injection suction line (see Attachment 1). No active leakage (drops or stream of water) was found.

An initial operability assessment was performed based upon the following information:

- The rate of leakage from the weld was immeasurably small. The lack of significant leakage provides reasonable assurance that the weld is not substantially degraded. Consequently, there is no reason to believe that the RWT would leak a sufficient volume of water to prevent it from performing its safety function.

- The geometry of the piping and reinforcing plate is such that the leakage is coming from the weld between the safety injection line nozzle and the tank (see Attachment 1). The safety injection line nozzle is also welded to the reinforcing plate with a separate weld and the reinforcing plate is also welded to the RWT. The additional welds on the reinforcing plate provides assurance that the safety injection suction line connection to the RWT remains structurally sound.

Based on these observations, an initial determination was made that the RWT and safety injection suction line were able to perform their safety function. Therefore, the system was determined to be operable. However, because of the identified leakage in the weld, Technical Specification Action Statement 3/4.4.10, "Structural Integrity of ASME Code Class 1, 2 & 3 Components," was entered. This Action Statement does not restrict continued power operation; however, should Unit 2 be shut down, this action statement would prevent restart until repair of the nozzle weld was made.

Subsequent to the initial operability assessment, a Non-Destructive Examination (NDE) of the exposed reinforcing plate welds was performed. No detectable indications were found. This provides additional assurance that the welds remain structurally sound.

B. Analysis

The loads at the nozzle were reviewed to determine if the nozzle connection to the RWT was structurally sound. The seismic, thermal, deadweight, and pressure loads at the nozzle were determined. Combining all of the stresses, regardless of direction and load combination, resulted in a total stress in the nozzle area of less than 2,600 psi. The allowable stress in this area, without the seismic contribution, is 18,800 psi. This analysis demonstrates that the stresses in the nozzle area are extremely low. Even if there were substantial degradation of the weld, it would not affect the connection of the nozzle to the RWT. Therefore, the suction line to the safety injection system remains fully capable of performing its function under all analyzed load conditions.

Also, in 1989, an internal visual examination of the penetration was performed. No detectable indications were identified. Past problems with similar welds on these tanks have been due to slag inclusions in the weld. The current leakage is probably a direct result of dissolution of entrained slag, which has resulted in a leakage path. It is unlikely that the leakage path size will increase due to the low level of applied alternating stress. The stainless steel tank and weld material is resistant to corrosion or stress corrosion cracking for the ambient temperature and chemistry of the water contained in the RWT. Therefore, because of the low level of applied stress and the resistance to corrosion, the leakage path is not expected to grow larger than the original inclusion.

C. Safety Significance

Two safety functions are potentially affected by this leakage: whether an adequate volume of borated water is maintained in the RWT and whether the safety injection pumps are capable of taking suction from the RWT. Technical Specification 3/4.5.4 requires that the volume of the RWT be checked every seven days. This surveillance, in combination with daily operator examination of the leakage, is sufficient to ensure the RWT will contain an adequate volume of borated water to perform its safety function. The safety injection pumps are capable of taking suction from the RWT. The nozzle connection to the RWT remains structurally sound. As demonstrated above, there are no mechanisms which indicate the possibility for significant further degradation of the weld.

Therefore, the RWT remains capable of performing its safety function; i.e., to provide borated water to the safety injection system in the event of an accident. Delaying the repair of this minor leak in the nozzle weld until the next Unit 2 refueling outage has no safety significance.

D. Code-Requirement Performance Impact

The repair of the nozzle weld requires that the RWT be completely drained. Technical Specification 3/4.5.4 requires that water be in the RWT while the Unit is in Modes 1 through 4, so this repair may only be accomplished when Unit 2 is in Mode 5 or 6. If relief is not granted, repair to the nozzle weld will have to be done prior to

entering Mode 4 after any plant shutdown. This is a significant hardship without a compensating increase in the level of quality and safety.

V. **Compensatory Actions**

We will perform daily visual examinations to verify that the leakage from the Unit 2 RWT penetration weld does not increase significantly. Should the leakage from the weld increase to a steady stream, we will reevaluate our analysis.

VI. **Implementation Schedule**

A. Visual examination to monitor leakage from the penetration -- Daily

B. Repair of the weld -- Next scheduled Unit 2 refueling outage

SAFETY COMMITTEE REVIEW

The proposed relief request has been reviewed by our Plant Operations and Safety Review Committee and they concluded that compliance with IWA-5250 would result in a hardship without a compensatory improvement in quality or safety.

In order to prevent any restart delay in the event Unit 2 is unexpectedly shut down, relief is requested as soon as possible. Should you have any questions regarding this matter, we will be pleased to discuss them with you.

Very truly yours,

GCC/LMD/lmd/dlm

Attachment: (1) Unit 2 RWT Safety Injection Nozzle

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ATTACHMENT (1)
UNIT 2
RWT SAFETY INJECTION NOZZLE