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May 27, 1998

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 and Pressure Vessel Code Section XI Requirement IAW-5250

Baltimore Gas and Electric Company requests temporary relief from American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Section XI (1983 Edition) requirement IAW-5250, as allowed by 10 CFR 50.55a(a)(3). We specifically request permission to delay the repair of the saltwater pipe near a half-coupling located on the No. 21 Component Cooling Heat Exchanger saltwater inlet piping (Temperature Indicator) in the Unit 2 Component Cooling Heat Exchanger Room until no later than August 15, 1998, and to allow a temporary non-code repair to be installed until that time. This alternative provides an acceptable level of quality and safety until a Code repair can be made. Compliance with the requirement for repair prior to use would result in hardship without a compensatory quality or safety improvement.

I. Component for Which Relief is Requested

Temporary relief is requested for the saltwater piping near a half-coupling located on the No. 21 Component Cooling Heat Exchanger saltwater inlet piping (Temperature Indicator). A small leak has been discovered at the edge of the fillet weld connecting the half-coupling to the main 24-inch piping run. The Saltwater System provides the cooling medium for the component cooling and service water heat exchangers, and Emergency Core Cooling System (ECCS) pump room air coolers. The Component Cooling and Service Water Systems are designed to remove heat from various auxiliary systems. The ECCS pump room air coolers provide additional cooling to the ECCS pump rooms during ECCS pump operation. The saltwater piping in this area is a Class 3 component under the requirements of Section XI and Regulatory Guide 1.26.

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II. Code Requirements for Which Relief is Requested

American Society of Mechanical Engineers, Boiler and Pressure Vessel Code Section XI (1983 Edition, with Summer 1985 Addenda), requirement IAW-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 IAW-4000 or IAW-7000, respectively."

III. Proposed Alternative

The No. 21 Component Cooling Heat Exchanger saltwater inlet piping has been evaluated and the structural integrity of the saltwater pipe is unaffected by the leakage through the saltwater piping. Additionally, the structural integrity of the saltwater pipe is unaffected by the complete loss of the half-coupling. Considering the duration and extent of a repair and the low likelihood of a complete loss of the half-coupling, we consider deferring the repair to be the appropriate course of action from a safety perspective.

We propose to perform periodic visual examinations to ensure that the leakage from the saltwater piping has not significantly increased. This provides appropriate safety assurance until the necessary preparations have been made to perform the repairs, but no later than August 15, 1998, before which or at which time a code repair will be made.

IV. Supporting Information

A. Sequence of Events

During a routine walkdown on May 24, 1998, evidence of seepage from a saltwater pipe near a half-coupling on the No. 21 Component Cooling Heat Exchanger saltwater inlet piping for Unit 2 was found. This evidence consisted of a steady drip. On May 24, 1998, an ultrasonic examination in the area of the half-coupling was performed. The piping adjacent to the area of the leak did meet the required minimum wall thickness. An Issue Report was written, and on May 24, 1998, the structural integrity of the common saltwater discharge header was confirmed. Technical Specification Action Statement 3.4.10, "Structural Integrity of ASME Code Class 1, 2, and 3 Components," was entered. Technical Specification Action Statements 3.5.2.a, "ECCS Subsystems - Modes 1, 2, and 3 (>= 1750 psia)," 3.6.2.1, "Containment Spray System," and 3.7.3.1, "Component Cooling Water System" were entered due to saltwater being isolated to those systems, requiring the systems to be restored to Operable status within 72 hours.

An initial operability assessment for the 21 No. Component Cooling Heat Exchanger saltwater inlet piping was performed by evaluating the leakage from the Saltwater System if the half-coupling should completely fail. In addition, the evaluation showed that there is adequate margin in the capacity of the Saltwater System so that the postulated leak would not affect the ability of the Saltwater System to perform its safety function.

Based on this evaluation, an initial determination was made that the Unit 2 Saltwater System is able to perform its safety function. Therefore, the system is determined to be operable. The Technical Specification Action Statement 3.7.5.1, "Saltwater System," was exited, but because of the identified leakage in the half-coupling, we remain in the Technical Specification Action Statement 3.4.10, "Structural Integrity of ASME Code Class 1, 2, and 3 Components." This Action Statement does not restrict continued power operation; however, it does require that the affected component have its structural integrity restored or be isolated. The structural integrity of the Saltwater System has been evaluated using the methodology in American National Standards Institute B31.1. This evaluation has determined that the structural integrity of the pipe is unaffected by the loss of the half-coupling.

B. Analysis

The piping around the leaking half-coupling was examined ultrasonically. The pipe wall thickness at each examination location was found to be significantly greater than the minimum allowable wall thickness. A stress analysis was performed for the half-coupling connection and is attached. This analysis indicates that the weld for the half-coupling is loaded to less than 5% of the allowable stresses. Although the flaw in the saltwater pipe cannot be completely characterized, this provides assurance that a catastrophic failure is highly unlikely. Analyses were also performed assuming a complete failure in the area of the half-coupling. This analysis indicates that there is approximately a 50% margin of available reinforcement to the opening in the header pipe that would result if the half-coupling completely failed, thus ensuring the structural integrity of the flawed piping remains acceptable.

C. Safety Significance

The operability of the Saltwater System ensures that sufficient cooling capacity is available for continued operation of equipment during normal and accident conditions. To ensure that the system's function was addressed, a total failure of the saltwater piping in the area of the half-coupling was assumed and the subsequent leakage was calculated. At the design pressure for the system, the maximum leakage from the failed half-coupling was evaluated to be approximately 403 gpm. A reduction in the available saltwater flow to the Component Cooling Heat Exchanger by this amount was shown to not impact the ability of the Saltwater and Component Cooling Systems to perform their safety function. Also, the Component Cooling Heat Exchanger Room has been analyzed for a flooding rate of 2852 gpm. Because the postulated flooding rate from the failed half-coupling is less than the allowed flooding rate, the failure of the saltwater piping in the area of the half-coupling has no impact on safety-related equipment in the Component Cooling Heat Exchanger Room or any other room. Additionally, due to the location of the failed half-coupling and low system pressure, it was determined that spray from this leak would not affect any safety-related components.

D. Code Requirement Performance Impact

The repair of the saltwater pipe requires that the affected section of pipe be drained and opened. To drain the pipe and gain access to the weld requires that the Unit enter an Action Statement. We estimate that the replacement of the half-coupling could be accomplished in approximately 30 hours, or the preferable repair involving replacement of the spool piece containing the leak could be accomplished in approximately 36 hours. Evaluation of the situation has resulted in there being less time remaining in the Technical Specification Action Statement Allowed Outage Times than it would take to complete either of these repairs. An evaluation of the leak has concluded that in the event of a complete failure of the saltwater pipe in the area of the half-coupling, the Saltwater System would still be able to fulfill its design function. In the interim, a temporary patch will be installed to stop the existing leak. If this portion of the Saltwater System were not considered Operable under these circumstances, then Unit 2 would have to be shutdown.

This section of pipe will be examined and repaired when preparations have been prepared, but no later than August 15, 1998. To perform a repair at the time this request was made verbally would have required a Unit shutdown because insufficient time remained in the Technical Specification Action Statements to perform the repairs, and would have caused a hardship without a compensating increase in the level of quality and safety.

V. Compensatory Actions

We have installed a rubber-lined pipe clamp to stop the leakage from the saltwater pipe. In addition, ultrasonic examinations of the area surrounding the half-coupling will be performed once every three months and visual checks will be performed daily.

VI. Implementation Schedule

A. Visual check conducted as part of normal rounds in the Component Cooling Heat Exchanger Room -- Every shift.

B. Ultrasonic examination of the area around the half-coupling -- Every three months.

C. Repair or replacement -- When preparation is complete, but no later than August 15, 1998.

TEMPORARY NON-CODE REPAIR

Description

A description of the leaking saltwater pipe in the area of the half-coupling is provided above. Due to the degradation of the pipe, it is currently leaking at a rate of less than two gpm. It is undesirable to have a saltwater leak of this magnitude in the Component Cooling Heat Exchanger Room because water which enters the drains in that room eventually end up in the ion exchangers. Saltwater rapidly degrades ion exchangers. Therefore, we have installed a rubber-lined pipe clamp around the flawed portion of the pipe. The clamp will have no affect on the structural integrity of the 24-inch saltwater pipe, and is a reversible leakage limiting device. Installation of the patch is controlled by our temporary modification process.

Evaluation

We are providing the analyses in Attachment (1). The proposed pipe clamp will not affect the results of any of those analyses.

Augmented Inspection

In accordance with the guidance in Generic Letter 90-05, five other half-coupling locations believed to be susceptible to the same degradation mechanism will be visually examined. In the meantime, we are performing periodic walkdowns of the system which would identify serious degradation in similar locations. The root cause of the leak will be determined when we remove the leaking pipe. Based on past experience, it appears that the leak may be due to corrosion at the point where the coal tar coating was insufficient.

Schedule

We have installed the pipe clamp on the half-coupling and pipe as a stopgap measure to limit leakage while preparing this relief request. Therefore, we request approval of its use as soon as possible.

SAFETY COMMITTEE REVIEW

The proposed relief request has been reviewed by our Plant Operations and Safety Review Committee and they concluded that delay of the repair and installation of a temporary non-code repair provides an adequate level of quality and safety until the repair can be made when preparations for repair are made, or no later than August 15, 1998.

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

Very truly yours,

Peter E. Katz

for
Charles H. Cruse
Vice President-Nuclear Energy

CHC/JV/bjd

Attachment: (1) Engineering Evaluation, ES199800777, Revision 1

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