



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
REQUEST FOR RELIEF FROM AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

CODE REQUIREMENT

BALTIMORE GAS AND ELECTRIC COMPANY

CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NO. 2

DOCKET NO. 50-318

1.0 Background

In February 1992, the licensee found crystallized boric acid and wetness in a telltale hole of the reinforcing plate around the nozzle for the 'A' train safety injection suction line. The source was a flawed penetration weld between the nozzle and refueling water tank (RWT). The licensee requested temporary relief from repairing the flaw until the refueling outage in the spring of 1993. The repair is required by the ASME Code, Section XI, paragraph IWA-5250. The licensee submitted information to show that delaying the repair will not compromise safety.

2.0 EVALUATION OF RELIEF REQUEST

2.1 Code Requirement for Which Relief is Requested:

By letter dated February 11, 1992, the licensee requested relief from the ASME Code, Section XI, Requirement IWA-5250, which requires that repairs or replacement of components shall be performed in accordance with IWA-4000 or IWA-7000, respectively, when leaks are detected as discussed above.

2.2 Basis for Relief Request:

The request is based on 10 CFR 50.55a(a)(3)(ii). BG&E indicates that compliance with the requirement specified in Article IWA-5250 detailed above would result in hardship or unusual difficulties without a compensating increase in the level of quality and safety as detailed in the following evaluation.

2.3 Proposed Alternative:

Daily visual examinations will be performed to ensure that the leakage from the RWT penetration weld does not significantly increase.

### 3.0 Evaluation

The flaw is minor and not actively leaking. Only evidence of a leak, in the form of crystallized boric acid and slight dampness, was found. Past problems with similar welds in RWTs were caused by the dissolving of entrained slag in the welds. The dissolution created leak paths. The current flaw is likely to have resulted from the same cause.

The leak is not expected to grow significantly either from corrosion or stress corrosion cracking. The tank and weld are stainless steel which is corrosion resistant in the boric acid environment. Stresses are also low. The total stress in the nozzle area is below 2600 psi, considerably less than the Code allowable stress of 18,800 psi.

The system is structurally sound and operable. Analyses showed that even if the penetration weld degrades substantially, the connection of the nozzle to the tank would not be affected. Stresses are low, and reinforcing plates welded to the nozzle and tank further ensure the structural integrity of the connection. Non-destructive testing of the welds did not reveal any indications which could impact the structural integrity.

The safety concerns are (1) whether enough water will be maintained in the tank, and (2) whether the safety injection pumps will be able to take suction from the tank. To address the first concern, the licensee intends to check the tank volume of water every seven days according to its technical specifications. As for the second concern, the pumps can take suction from the tank because the nozzle connection is structurally sound. To ensure that any deterioration will be noticed the licensee will visually inspect the connection daily. If leakage increases, the licensee will reassess the situation and take appropriate action.

### 4.0 CONCLUSION

BG&E concluded, and the staff agrees, that the evaluation performed indicates that structural integrity will be maintained and the safety injection pumps will be able to take suction from the RWT. Compliance with the Code can only be accomplished with the unit shutdown in Mode 5 or 6 and complete draining of the RWT. Requiring the unit to shutdown for a duration long enough to perform the Code repairs would not result in a compensating increase in the level of quality and safety. The licensee's evaluation, as well as the staff's experience with similar welds in RWTs, indicates that the structural integrity will be maintained and the RWT will be capable of performing its safety-related function of supplying water to the safety injection pumps. Therefore, in accordance with the requirements of 10 CFR 50.55a(a)(3)(ii), we have determined that the proposed alternative is acceptable. Compliance with the requirement of the ASME Code, Section XI, Article IWV-5250, to perform Code repairs on the flawed penetration weld between the nozzle and RWT would result in hardship and unusual difficulties without a compensating increase in the level of quality and safety as detailed above. The relief request is granted

until the next refueling outage, refueling outage number 9, which is currently scheduled for the spring of 1993.

Accordingly, we have determined that the relief is authorized by law and will not endanger life or property or the common defense and security and is otherwise in the public interest. This relief has been granted giving due consideration to the burden upon the licensee that could result if the requirement were imposed upon the facility.

Principal Contributors:

L. Banic

D. McDonald

Date: March 20, 1992

Mr. G. C. Creel

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March 20, 1992

This completes our action related to the above referenced TAC number.

Sincerely,

Original Signed By

Robert A. Capra, Director  
Project Directorate 1-1  
Division of Reactor Projects - 1/11  
Office of Nuclear Reactor Regulation

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Safety Evaluation

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