



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

SAFETY EVALUATION BY THE
OFFICE OF NUCLEAR REACTOR REGULATION
REQUEST FOR RELIEF FROM PRESSURE TESTING
REQUIREMENTS AFTER MODIFICATION
OF CLASS 2 PIPING AND COMPONENTS
CALVERT CLIFFS NUCLEAR POWER PLANT UNIT 2
DOCKET NO. 50-318

I. INTRODUCTION

By letter dated August 30, 1982, Baltimore Gas and Electric Company (BG&E) requested a relief from pressure testing requirements of Section XI of the ASME Boiler and Pressure Vessel Code for a planned modification of the steam and feedwater systems at the Calvert Cliffs Unit 2 facility. The required pressure test has been determined by BG&E to be impractical to perform after the modification and exemption from the requirement has been requested pursuant to 10 CFR 50.55a(g)(5)(iii). In accordance with 10 CFR 50.55a(g)(6)(i), relief from the requirement may be granted by the Commission after evaluation of the determination that the Code requirement is impractical and that granting of the relief will not endanger life or property or the common defense and security and is in the public interest, giving due consideration to the burden that could result if the requirement were imposed on the licensee.

II. DESCRIPTION OF MODIFICATION

During the next refueling outage at Calvert Cliffs Unit 2, BG&E plans to install a third train of auxiliary feedwater. The modification requires replacement of two motor-operated valves with control valves in a six-inch steam supply line which supplies steam to the turbine driver of an auxiliary feedwater pump. The replacement valves are the first valves in the line on the downstream side of the steam generators.

III. ASME CODE REQUIREMENTS - EXAMINATION AND TESTS

Calvert Cliffs Unit 2 is presently required by regulation to use the 1974 Edition through Summer 1975 Addenda of Section XI of the ASME Code for examination and testing of piping and components except where specific written relief has been granted by the Commission. The Code requires that the welds and heat affected zones be nondestructively examined by volumetric and liquid penetrant methods. It also requires a hydrostatic pressure test to be performed at 1.25 times the system design pressure and at a test temperature not less than 100 F or as required to meet the fracture toughness criteria applicable to ferritic materials of the system.

The test pressure may be reduced in accordance with the following table when system hydrostatic testing is required to be conducted at temperatures above 100°F:

Test Temperature	Test Pressure
100°F	1.25 P _D
200°F	1.20 P _D
300°F	1.15 P _D
400°F	1.10 P _D
500°F	1.05 P _D

IV. IMPRACTICALITY OF CODE REQUIREMENT

The replacement valves to be welded in the six-inch steam line are the first valves on the downstream side of the steam generators. The pipe-to-valve welds on the upstream side of each valve cannot be isolated from the steam generators, thereby necessitating pressurizing the steam generator shells to 1.25 times the system design pressure (1000 psig at 550 °F). The steam generators are limited by design to ten (10) Code required hydrostatic tests during the lifetime of the plant. Two hydrostatic tests have been performed previously and four additional tests are required to be performed by Section XI during the remaining life of the plant, leaving four for testing after unanticipated repairs or modifications of the secondary side of the steam generators over the plant's lifetime.

V. PLANNED NONDESTRUCTIVE EXAMINATIONS AND PRESSURE TESTS

The welds will have a surface examination performed after removing half of the first weld layer by grinding. Another surface examination will be performed after the final weld pass. Also, 100% volumetric examinations using both ultrasonic and radiography techniques will be performed on the two welds. In lieu of the Code required hydrostatic test, the welds will be visually examined when the plant is in HOT STANDBY, which corresponds to a secondary side pressure of approximately 900 psi and 532 °F. This pressure is 50 psi greater than the normal operating pressure of the secondary system when the plant is operating at 100% rated reactor power. The Code Hydrostatic Pressure Test will be performed during the third forty-month period of the inspection interval which is scheduled to begin December 1, 1983.

VI. EVALUATION

The staff has determined that the Code requirement is impractical to perform giving consideration to the number of pressure tests remaining to which the steam generator shells can be subjected and the relatively small additional assurance in structural integrity of the welds gained by the difference in the Code required test pressure versus that at HOT STANDBY conditions, 1050 psig and 900 psig, respectively. The non-destructive examinations which will be performed on the welds (radiography, ultrasonic, and liquid penetrant) will provide adequate assurance of the welds' structural integrity. The staff concludes that relief from the hydrostatic test pressure may be granted for the modification.

VII. CONCLUSION

The relief from the Code is based upon our review of the information submitted by BG&E to support the determination that compliance with the ASME Code inservice inspection requirements would be impractical for the facility. We have determined that the inspection from which this relief is sought is impractical and pursuant to 10 CFR §50.55a(g)(6)(i), that the granting of this 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. In making this determination, we have given due consideration to the burden that could result if these requirements were imposed on the facility. We have determined that the granting of this relief does not involve a significant increase in the probability or consequences of an accident nor a significant decrease in safety margin; and thus, does not involve a significant hazards consideration. Furthermore, we have determined that the granting of this relief from ASME Code requirements does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. We have concluded that the granting of this relief is insignificant from the standpoint of environmental impact and pursuant to 10 CFR 51.5(d)(4) that neither an environmental impact statement nor a negative declaration and environmental impact appraisal needs to be prepared in connection with this action.

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