



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 206 TO FACILITY OPERATING LICENSE NO. DPR-53
AND AMENDMENT NO. 184 TO FACILITY OPERATING LICENSE NO. DPR-69
BALTIMORE GAS AND ELECTRIC COMPANY
CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NOS. 1 AND 2
DOCKET NOS. 50-317 AND 50-318

1.0 INTRODUCTION

By letter dated June 2, 1995, the Baltimore Gas and Electric Company (the licensee) submitted a request for changes to the Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2, Technical Specifications (TSs). The requested changes would revise the tolerances on the acceptance criterion for the pressurizer safety valves lift setpoints. Specifically, the changes would create separate tolerance criteria in TS 3.4.2.1 for the as-found and the as-left conditions. While the tolerance for the as-left condition remains unchanged from the present plus or minus one percent of the lift setting, the new tolerances for as-found condition would be different for each of the pressurizer safety valves. The as-found tolerance for valve RC-200 would be plus two percent or minus one percent of the stated lift setting while the tolerance for valve RC-201 would be plus or minus two percent.

2.0 EVALUATION

The reactor coolant system (RCS) is protected against exceeding its design pressure by two American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) safety valves and two solenoid-operated (power-operated) relief valves (PORVs) on the pressurizer. The Code safety valves are designed to limit system pressure to a maximum of 110 percent of the RCS design pressure of 2500 psia at 650 °F. The safety valves communicate with the pressurizer steam space and are designed to pass sufficient pressurizer steam to limit the RCS pressure to 110 percent following a complete loss of turbine generator load without a simultaneous reactor trip, while operating at 2700 megawatts (thermal). While the PORVs are available, the design analysis to determine the required steam relieving capacity assumed only the operation of the steam generator safety valves in addition to the pressurizer safety valves. The pressurizer safety valves are spring loaded and backpressure compensated safety valves manufactured by Velan Engineering and meet the requirements of the 1965 Edition of ASME Code Section III, Winter 1967 Addenda. The two PORVs are expected to relieve sufficient steam during normal transients to prevent opening of the safety valves.

The pressurizer safety valves will automatically open at a lift set pressure of 2500 psia for valve RC-200 and 2565 psia for valve RC-201. The ASME Code Section III requires that, for a vessel with multiple safety valves, the nominal pressure setting of at least one safety valve shall not be greater than the design pressure, at design temperature, that it protects. The additional safety valves may have higher nominal settings, but in no case will these settings exceed 105 percent of the design pressure. The Code also states that the rated capacity of the pressure relief devices, including any limitations imposed by the systems connected to the discharge side, shall be sufficient to prevent a rise in pressure within the protected vessels of more than 10 percent of the design pressure at the design temperature.

The TS surveillance requirements require testing to verify that the lift set pressure and valve seat leakage are acceptable. These tests are pursuant to the Calvert Cliffs Inservice Testing (IST) Program that complies with ASME Code Section XI, 1983 Edition through the Summer 1983 addendum. The IST Program does not indicate the tolerance to be applied when verifying the lift pressure setting. The licensee uses the plus or minus one percent indicated in the TS 3.4.2.1 Limiting Condition for Operation (LCO) as the tolerance on the acceptance criteria for this testing. Under the current testing requirements, when a pressurizer safety valve has a lift pressure that is found outside of the plus or minus one percent tolerance, it must be repaired or replaced per ASME XI, Section IWB-3514, and additional valves in the system be tested per Section IWB-3513.

The 1989 Edition of the ASME Code Section XI now requires that the safety valves be tested pursuant to the ASME/ANSI Standard OM-1987, Part 1, "Requirements for Inservice Performance Testing of Nuclear Power Plant Pressure Relief Devices." This standard allows the tested (as-found) lift pressure to exceed the stamped set pressure by up to 3 percent before declaring a test failure. It also includes guidelines for testing additional valves when a valve is found to exceed the 3 percent tolerance. While the licensee indicated that it does not intend to adopt this ASME/ANSI Standard at this time, it stated that it is using this standard as guidance to determine the as-found tolerance on the lift setting acceptance criterion. The proposed TS change will still require that the lift settings be restored to within 1 percent of the nominal setpoint following testing. Therefore, the proposed relaxation of the as-found lift setpoint tolerance has been determined to be in compliance with the 1989 Edition of the ASME Code, which has been endorsed by the NRC staff.

The licensee has performed a safety analysis that accounts for the proposed relaxation in the setpoint tolerance to show that the maximum RCS pressure remains below 2750 psia (110 percent of design pressure) for the design basis transient and other limiting events. The licensee reanalyzed the consequences of a feedline break event, loss of load event, and the loss of feedwater flow event. Using the assumed plus 2 percent lift setting tolerance change for both pressurizer safety valves, the licensee stated that the maximum RCS pressure remained below 2750 psia and the maximum secondary pressure remained below 1100 psia.

The NRC staff has reviewed the licensee's evaluation of the impact of the proposed TS changes to allow a relaxation in the as-found tolerance for the pressurizer safety valves lift setting acceptance criterion. The staff finds that the changes are within the allowances provided in the 1989 edition of the ASME Code. Also, the licensee has indicated that the lift setting will be adjusted and the lift setting verified to have been returned to within 1 percent of nominal. The changes, therefore, will (a) provide additional flexibility to accommodate the lift setpoint drift experienced at Calvert Cliffs, (b) reduce the probability of needing to repair or replace a safety valve, and (c) reduce the necessity for conducting additional testing of other safety valves. The proposed changes will have negligible consequences on the ability of the valves to properly operate and perform their required safety function. Based on the historical trends in the test results for these safety valves, the staff also finds that there would be negligible increase in the probability, from the proposed relaxation in the as-found test acceptance criteria, that the lower set safety valve would open prematurely during an overpressure transient designed to be controlled by the PORVs.

Therefore, the staff has concluded, based on the above, that the changes to TS 3.4.2.1 for the as-found and as-left tolerances for pressurizer safety valves RC-200 and RC-201 is acceptable.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Maryland State official was notified of the proposed issuance of the amendments. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding (60 FR 35060). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

5.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: D. McDonald

Date: September 26, 1995

September 26, 1995

Mr. Robert E. Denton
Vice President - Nuclear Energy
Baltimore Gas and Electric Company
Calvert Cliffs Nuclear Power Plant
1650 Calvert Cliffs Parkway
Lusby, MD 20657-4702

SUBJECT: ISSUANCE OF AMENDMENTS FOR CALVERT CLIFFS NUCLEAR POWER PLANT,
UNIT NO. 1 (TAC NO. M92477) AND UNIT NO. 2 (TAC NO. M92478)

Dear Mr. Denton:

The Commission has issued the enclosed Amendment No. 206 to Facility Operating License No. DPR-53 and Amendment No. 184 to Facility Operating License No. DPR-69 for the Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2, respectively. The amendments consist of changes to the Technical Specifications (TSs) in response to your application transmitted by letter dated June 2, 1995. The amendments revise the tolerances for the pressurizer safety valve as-found acceptance criterion.

A copy of the related Safety Evaluation is enclosed. A Notice of Issuance will be included in the Commission's next regular biweekly Federal Register notice.

Sincerely,

Original signed by:

Daniel G. McDonald, Jr., Senior Project Manager
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket Nos. 50-317
and 50-318

- Enclosures: 1. Amendment No. 206 to DPR-53
- 2. Amendment No. 184 to DPR-69
- 3. Safety Evaluation

cc w/encls: See next page

Distribution: See attached sheet

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