



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO RELIEF FROM ASME BOILER AND PRESSURE VESSEL CODE, SECTION XI

PUBLIC SERVICE ELECTRIC & GAS COMPANY

PHILADELPHIA ELECTRIC COMPANY

DELMARVA POWER AND LIGHT COMPANY

ATLANTIC CITY ELECTRIC COMPANY

SALEM NUCLEAR GENERATING STATION, UNIT NO. 2

DOCKET NO. 50-311

1.0 INTRODUCTION

Technical Specification 4.0.5 for Salem Nuclear Generating Station, Unit No. 2, states that inservice inspection and testing of the American Society of Mechanical Engineers (ASME) Code Class 1, 2, and 3, components shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda (the Code) as required by 10 CFR 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i). Pursuant to 10 CFR 50.55a(g)(6)(i), the Commission may grant relief when a determination is made that the Code requirements are impractical, and may impose alternative requirements, taking into account the burden upon the licensee that could result if the Code requirements were imposed.

By letter dated April 13, 1993, Public Service Electric and Gas (PSE&G) requested relief from the 1986 Edition of the ASME Code, Section XI, Subsection IAW 5242(a) for Salem Nuclear Generating Station, Unit 2.

2.0 EVALUATION OF RELIEF REQUEST RR-A7

Code Requirement: Section XI, Subsection IAW-5242(a) states that for systems borbated for the purpose of controlling reactivity, insulation shall be removed from the pressure retaining bolted connections for VI-2 visual examination.

PSE&G's Code Relief Request: Relief is requested from performing the Code-required VI-2 visual examination of Class 1 insulated, pressure retaining, bolted connections at operating pressure with insulation removed due to impracticality.

PSE&G's Basis for Requesting Relief: PSE&G states that this Code requirement is impractical due to:

- Salem Unit 2 Technical Specification Section 3.4.10.1 does not allow pressurization of Reactor Coolant System (RCS) to normal operating pressure without heatup.
- Reinstallation of insulation requires exposing personnel to the safety hazard of elevated temperature (550°F) and pressure (2235 psig), which includes a heat stress environment.
- The activities would be conducted at the end of the outage and have the effect of extending the outage by a minimum of 2 days.
- Boric acid leakage leaves boric acid crystal residue when it evaporates, therefore, it is not necessary to examine for boric acid leakage in conjunction with a pressure test.

PSE&G's Proposed Alternative Examination: During refueling outages, when in cold shutdown, conduct a visual examination of bolted connections for evidence of boric acid residue with insulation removed. Corrective action will be in accordance with ASME Section XI.

Evaluation: Table IWB-2500-1, Examination Category B-P, requires that a VT-2 visual examination be performed during the Class 1 system leakage test each refueling outage. Table IWC-2500-1, Examination Category C-H, requires a VT-2 visual examination be performed during the Class 2 system pressure test each period. Each of these system pressure tests shall be conducted at the test conditions (pressure and temperature) designated for that system.

For systems borated for the purpose of controlling reactivity, insulation shall be removed from pressure retaining bolted connections. Salem TS 3.4.10.1 does not allow pressurization of the RCS to nominal operating pressure without heatup. Consequently, a personnel hazard exists when insulation is removed for VT-2 examination on Class 1, borated systems, making the examination impractical to perform.

PSE&G's proposed alternative is that during each refueling outage the affected closures will have the insulation removed for VT-2 examination at zero or static pressure. Because borated water leaves a crystalline residue, this proposed alternative examination provides reasonable assurance that any previous leakage at bolted connections would be detected.

The NRC staff's position on this issue is that, in addition to the examination proposed by PSE&G, a visual examination for evidence of leakage should be performed during system pressure tests, with the insulation installed. This

examination is to be performed no less than 4 hours after the system is brought up to pressure to allow for saturation of the insulation. PSE&G has agreed per phone call (R. Brown) to perform this additional examination.

### 3.0 CONCLUSION

The staff has concluded that inspecting and reinstalling insulation at bolted connections during reactor operating conditions creates a personnel hazard due to the elevated temperature and pressure, and is therefore impractical.

The combination of PSE&G's proposed alternative and the at-system-pressure examination described above provides reasonable assurance that leakage at bolted connections would be detected. Therefore, relief is granted from the VT-2 visual examination for insulated, bolted connections in Class 1 systems banded for the purpose of controlling reactivity pursuant to 10 CFR 50.55a(g)(6)(i).

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