



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO RELIEF REQUEST FROM HYDROSTATIC TEST REQUIREMENTS

VIRGINIA ELECTRIC AND POWER COMPANY

SURRY POWER STATION, UNIT 1

DOCKET NO. 50-280

1.0 INTRODUCTION

By letter dated September 10, 1990, Virginia Electric and Power Company (the licensee) requested relief from the hydrostatic test requirements of the 1980 Addenda of Section XI of the ASME Boiler and Pressure Vessel Code pursuant to 10 CFR 50.55a(g)(5)(iii) at Surry, Unit 1. In accordance with 10 CFR 50.55a(g)(6)(i), this provides an evaluation of the licensee's request, supporting information, as well as the staff's basis for granting the request. A similar request for Surry, Unit 2 was previously granted by NRC letter dated October 2, 1989.

2.0 EVALUATION

Relief Request - Relief was requested from the hydrostatic test requirements for the replacement of three (3) 3-inch swing check valves, 1-FW-27, 1-FW-58 and 1-FW-89.

Code Requirement - (1980 Edition, Winter 1980 Addenda) - ASME Section XI, subarticle IWA-4400, requires a hydrostatic test to be performed after repairs of components. The Code requires the system hydrostatic test pressure to be at least 1.25 times the system pressure, P_{sv} , for systems with design temperature above 200°F. The Code delineates that the system pressure, P_{sv} , shall be the lowest pressure setting among the number of safety or relief valves provided for overpressure protection within the boundary of the system to be tested. The system pressure for the piping containing the welds required to be hydrostatically tested is 1085 psig and, therefore, the test pressure is required to be 1356 psig.

Basis for Relief - During the 1990 Surry Unit 1 refueling outage, the three above-cited valves (1-FW-27, 1-FW-58 and 1-FW-89), which had experienced internal leakage, were replaced. Following replacement by welding, the licensee examined the welds volumetrically (radiography) and by liquid penetrant (surface) as required by the Code. The Code also requires that a hydrostatic test be performed with a corresponding visual (VT-2) examination on the welds in the affected area. As no intermediate isolation exists, t:

Code requirement would place the three steam generators (1-RC-E-1A, 1-RC-E-1B, and 1-RC-E-1C) within the test boundary. Hydrostatic tests in an area to include the steam generators are extremely difficult and are considered impractical by the licensee.

Alternative Examination - NONE

Summary - The replaced valves cannot be isolated from the secondary side of the steam generators. The imposition of the hydrostatic test (as required by the ASME Code) would necessitate pressurizing the steam piping and the steam generators to about 1356 psig in order to test the attachment welds for the three check valves. Since these valves cannot be isolated, hydrostatic testing in accordance with the ASME Code is impractical. The licensee has performed volumetric and surface examination of the associated 3-inch welds. Pressure testing of the steam generators and the attendant feedwater and steam piping is a major undertaking and can impact outage schedules.

CONCLUSION

The surface and volumetric examination of the valves' replacement welds provide reasonable assurance of the structural integrity of these welds in the feedwater system. The staff has determined that the relief requested by the licensee may be authorized, as described above, pursuant to 10 CFR 50.55a(g)(6)(i). With respect to the above relief request, the staff has determined that the requirements of the Code are impractical and the relief granted is authorized by law and will not endanger life or property or the common defense and security and is otherwise in the public interest giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility. Verbal approval of this relief request was previously granted by the NRC staff.

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