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

ENCLOSURE

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

REQUEST FOR RELIEFS FROM HYDROSTATIC TEST

REQUIREMENTS FOLLOWING VALVE REPLACEMENTS

VIRGINIA ELECTRIC AND POWER COMPANY

SURRY POWER STATION UNITS 1 AND 2

DOCKET NOS. 50-280 AND 50-281

I. BACKGROUND INFORMATION

By letter dated January 9, 1989, Virginia Electric and Power Company (the licensee) requested relief from the hydrostatic pressure test requirements of the 1980 Edition through Winter 1980 Addenda of Section XI of the ASME Boiler and Pressure Vessel Code pursuant to 10 CFR 50.55a(g)(5)(iii) at Surry Units 1 and 2. In accordance with 10 CFR 50.55a(g)(6)(i), this report provides an evaluation of the licensee's request, supporting information, and alternative examination or tests as well as the staff's bases for granting the request.

II. RELIEF REQUESTED, SUPPORTING INFORMATION, AND EVALUATIONS

A. Relief Request - Relief was requested from the hydrostatic test requirements following the replacement of a 1 1/2-inch manual isolation valve, 1-MS-74, a 2 1/2-inch manual isolation valve, 1-BD-24, and a 2-inch manual isolation valve, 2-GN-3.

Code Requirement (1980 Edition, Winter 1980 Addenda)

ASME Section XI, Subarticle IWA-4400, requires a hydrostatic test to be performed after repairs by welding on a pressure retaining boundary of Code Class 1, 2, and 3 piping or components. The Code requires the system hydrostatic test pressure to be at least 1.25 times the system pressure, Psv, for systems with design temperature above 200°F. The Code delineates that the system pressure, Psv, 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.

Licensee's Bases For Requesting Relief

The licensee stated that the welds required to be tested cannot be isolated from the "A" steam generator (1-RC-E-1A) on Unit 1 and the "C" steam generators on Units 1 and 2 (1-RC-E-1C and 2-RC-E-1C), thereby placing it within the hydrostatic test boundary which envelopes significant lengths of piping, including the steam generators. The licensee further stated that hydrostatic tests, which include steam generators, are difficult to perform and sometimes detrimental to steam generator tube integrity.

Licensee's Proposed Alternatives

The licensee proposed to perform surface examinations using a dye penetrant test (PT) and system pressure tests at normal operating pressure on the welds as alternatives to the Code-required hydrostatic test.

Staff Evaluation and Conclusion

The valves replaced cannot be isolated from the secondary side of the steam generator and imposition of the hydrostatic test requirements would therefore necessitate pressurizing the steam generators and main steam piping to approximately 1356 psig. Pressurizing the steam generators to an additional test cycle that was not accounted for in its design life is impractical and unwarranted when the licensee's proposed alternative examinations, inspection, and the Code-required welding procedures are considered.

The licensee has proposed surface examinations of the welds joining the valves and piping. In addition, the welds will be visually inspected during the system pressure test. The proposed nondestructive examinations and the leakage tests are adequate to assess the structural integrity of the welds made in replacing the manual isolation valves. Therefore, the relief from the Code hydrostatic test requirements is hereby granted as requested.

The staff has determined that, based on the alternatives proposed, the relief requested by the licensee may be granted, 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.

Dated: April 7, 1989

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