



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO THE REQUEST FOR RELIEF UNDER 10 CFR 50.55A(g)(6)(i)

METROPOLITAN EDISON COMPANY
JERSEY CENTRAL POWER AND LIGHT COMPANY
PENNSYLVANIA ELECTRIC COMPANY
GPU NUCLEAR CORPORATION

THREE MILE ISLAND NUCLEAR STATION, UNIT NO. 1

DOCKET NO. 50-289

1.0 INTRODUCTION

Technical Specification 4.2 for Three Mile Island Nuclear Station, Unit No. 1, 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 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). The Code of Federal Regulations at 10 CFR 50.55a(a)(3) states that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if (i) the proposed alternatives would provide an acceptable level of quality and safety, or (ii) compliance with the specified requirements would result in hardship or unusual difficulties without a compensating increase in the level of quality and safety.

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2, and 3 components (including supports) shall meet the requirements, except the design and access provisions and the preservice examination requirements, set forth in the ASME Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," to the extent practical within the limitations of design, geometry, and materials of construction of the components. The regulations require that inservice examination of components and system pressure tests conducted during the second 10-year interval comply with the requirements in the latest edition and addenda of Section XI of the ASME Code incorporated by reference in 10 CFR 50.55a(b) on the date 12 months prior to the start of the 120-month inspection interval, subject to the limitations and modifications listed therein. The components (including supports) may meet the requirements set forth in subsequent editions and addenda of the ASME Code incorporated by reference in 10 CFR 50.55a(b) subject to the limitations and modifications listed therein.

Pursuant to 10 CFR 50.55a(g)(5), if the licensee determines that conformance with an examination requirement of Section XI of the ASME Code is not practical for its facility, information shall be submitted to the Commission

in support of that determination and a request made for relief from the ASME Code requirement. After evaluation of the determination, pursuant to 10 CFR 50.55a(g)(6)(i), the Commission may grant relief and may impose alternative requirements that are determined to be authorized by law, will not endanger life, property, or the common defense and security, and are otherwise in the public interest, giving due consideration to the burden upon the licensee that could result if the requirements were imposed.

The licensee, GPU Nuclear Corporation (GPUN), submitted the Three Mile Island Nuclear Station, Unit 1 (TMI-1) second 10-Year Interval Inservice Inspection (ISI) program plan to the NRC by letter dated April 19, 1991. The second ISI interval for TMI-1 commenced on April 20, 1991. The plan commits to the requirements of the 1986 Edition of Section XI of the ASME Boiler and Pressure Vessel Code and was approved by the NRC on October 8, 1992. By letter dated October 9, 1992, the licensee requested schedular relief from Code requirement IWA-4400(a), which requires a hydrostatic test following repairs by welding. The letter stated that a number of field tie-in welds and weld repairs have been made during recent years on the Once Through Steam Generator (OTSG) secondary side, the main feedwater (MFW) system, and the emergency feedwater (EFW) system. Hydrostatic testing of these welds would involve isolating (gagging or removal) the 18 main steam safety valves (MSSVs). GPUN argues that this test would cost several hundred thousand dollars, require several days of critical path plant time and would provide no safety benefit. GPUN has requested that this hydrostatic test be deferred until the 11R refueling outage in September 1995. This deferral would result in an extension of approximately 5 months beyond the latest date allowed by the Code. GPUN's justification for deferring this test included an assessment that alternative testing (visual leak testing at pressures lower than hydrostatic test pressure and volumetric or surface weld examinations) has been or will be performed on the welds of interest, that no safety or quality benefit would result from this test, and that there is a likelihood that the requirement for this test will be deleted by the ASME and the NRC in the near future.

2.0 EVALUATION

During the past several years, weld repairs have been made in the following TMI-1 Class 2 components:

- OTSG vent and drain valves
- Main feedwater nozzles
- Emergency feedwater flow venturis

Post-repair testing included volumetric examination (for full penetration welds) or surface examination (for partial penetration welds) and visual VT-2 leakage inspections. The Code (Section XI, paragraph IWA-4400(a)) also requires hydrostatic testing of these welds. Hydrostatic testing of these welds requires hydrostatic testing of both OTSG secondary sides. Because these welds cannot be isolated by existing valves for hydrostatic testing and therefore would require gagging or blanking off the MSSVs for hydrostatic testing, ASME Code Case N-416 allows deferral of the hydrostatic test of these welds until the next regularly scheduled hydrostatic test of the OTSGs.

The latest date allowable for the 10-year OTSG hydrostatic test required by ASME Code, Section XI, Table IWB-2500-1 (and required because of the weld repairs discussed above) is April 19, 1994. Were it not for these weld repairs, the resolution of Code Case N-498 would have allowed substitution of a VT-2 visual examination at nominal operating pressure for the hydrostatic test(s) required by ASME Code, Section XI, Tables IWB-2500-1, Category B-P, and IWC-2500-1, Category C-H. However, because of the weld repairs, a hydrostatic test is presently required by the Code. GPUN has requested scheduler relief from this Code requirement to defer the hydrostatic testing until the 11R refueling outage in September 1995. The Code would allow a 1-year extension to coincide with plant conditions if plant conditions permitted the test by April 19, 1995. Therefore, the extension requested is, in effect, a 5-month period (April 1995 to September 1995).

The licensee has provided justification for granting this relief as discussed above. The welded repairs are unisolable from the OTSGs, including the MSSV headers for each OTSG. The required hydrostatic test pressure (1300 psig) is much greater than the setpoints for the 18 K₁s. Gagging the MSSVs could result in damage to the valves by bending the spindles. Removal of the valves would likely result in the need to retest some or all of these valves to ensure operability following reinstallation. GPUN believes that it would be impractical to remove and blank these valves only for the purpose of performing the Code-required hydrostatic test. GPUN also states that volumetric examination of full penetration welds and surface examination of partial penetration welds in combination with a VT-2 leakage examination at nominal operating pressure provides a greater level of assurance than hydrostatic tests, as recognized by Code Case N-498.

The staff has reviewed this request and has concluded that, based on the discussion above, the request should be granted.

3.0 CONCLUSION

The staff has reviewed GPUN's request for relief and the supporting justification. The cited regulation (10 CFR 50.55a(g)(5)) requires a determination by the licensee that a Code requirement is impractical for that facility and 10 CFR 50.55a(g)(C) requires the Commission to evaluate such determinations. The justification provided by GPUN demonstrates the burden that would result from performing a hydrostatic test of the OTSG secondary system and associated piping and valves at TMI-1 makes the test impractical for that facility. The staff has concluded that GPUN's request for deferral of the test is justified in recognition of the proposed alternative testing and therefore recommends that the relief be granted.

The NRC staff has determined that granting this relief pursuant to 10 CFR 50.55a(g)(6)(i) is authorized by law and will not endanger life, property, or the common defense and security and is otherwise in the public interest giving due consideration to the burden upon GPUN that could result if the subject ASME Code requirement were imposed on the facility.

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