



GPU Nuclear Corporation
Post Office Box 480
Route 441 South
Middletown, Pennsylvania 17057-0191
717 944-7621
TELEX 84-2366
Writer's Direct Dial Number:
717-948-8005

October 9, 1992
C311-92-2132

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Gentlemen:

Subject: Three Mile Island Nuclear Station Unit 1, (TMI-1)
Docket No. 50-289
Operating License No. DPR-50
Relief from ASME Section XI Code Inservice Inspection (ISI)
Schedule Requirements - Post Repair Hydrostatic Tests

In accordance with 10 CFR 50.55a(g)(5), if the licensee determines that conformance with certain Code requirements is impractical for its facility, the licensee shall notify the Commission and submit information to support the determinations. The purpose of this letter is to request relief from the schedular requirements of the ASME Section XI Code, paragraph IWA-4400(a), to perform a hydrostatic pressure test of the Once Through Steam Generator (OTSG) secondary side including portions of the Main Steam, Feedwater and Emergency Feedwater Systems. GPU Nuclear requests relief to defer the test to TMI-1's Cycle 11 Refueling Outage (11R), currently scheduled for September 1995. This will result in a delay of approximately five months in addition to one year extension allowed by the Code. This request also changes our commitment¹ to complete 100% of the total number of system hydrostatic tests by the end of the first period of the second ISI interval.

The current Edition of the Code requires a hydrostatic pressure test as a result of welded repairs associated with replacement of OTSG vent and drain valves, Emergency Feedwater Flow Venturis, and Main Feedwater nozzles installed during previous outages. GPU Nuclear's request for relief, provided in Attachment 1, demonstrates the impracticality of the current schedule for performing this test based on 1) alternative tests and non-destructive

¹ GPU Nuclear Letter (C311-91-2010), dated April 19, 1991, Inservice Inspection for the Second Ten-Year Interval - Plans and Schedules, Attachment Basis Document Number 1, §2.0, P.6, ¶5.

9210160117 921009
PDR ADDOCK 05000289
PDR

10004

GPU Nuclear Corporation is a subsidiary of General Public Utilities Corporation

AC471

examinations (NDE), 2) no benefit to be gained from the test, and 3) the likelihood that the requirement for this test will be deleted by the ASME and NRC prior to 11R.

This letter supercedes our letter, dated March 8, 1992, which requested NRC approval to use ASME Code Case N-498 as an alternative to performing system hydrostatic pressure tests including the Main Steam System. Subsequent to our letter, Code Case N-498 was approved by the NRC as published in Regulatory Guide 1.147, Revision 9, dated April 1992.

In a letter to Virginia Power Co. (Code Inquiry 92-012), the ASME has stated that Code Case N-498 does not apply to hydrostatic tests of welded repairs, replacements, and modifications (welded repairs) which, in accordance with Code Case N-416, have been deferred. Code Case N-416 allows deferral of hydrostatic tests where piping cannot be isolated by existing valves or that requires securing safety or relief valves for isolation until the next regularly scheduled hydrostatic test. Although Code Case N-498 eliminates the requirement for a regularly scheduled system hydrostatic test, the ASME's response to the Code Inquiry states that for the purposes of satisfying the Code requirements for repairs and replacements, a hydrostatic test would be required at or before the originally scheduled hydrostatic test date.

In order to extend the applicability of Code Case 498 to welded repairs, Code Case (Draft) N-XXX, "Alternate Pressure Test Requirement for Repairs, Replacement and Modifications," was drafted for review during the August 1992 meeting of the ASME Section XI Code Committee. The draft code case will allow substitution of NDE in conjunction with operational leakage tests for hydrostatic pressure tests of welded repairs. The Committee did not vote to approve the Code Case (Draft) N-XXX in August as time did not permit. This action was deferred to the next meeting of the Code Committee in December 1992. After Code Case (Draft) N-XXX is approved by the Code Committee, NRC approval is expected and this would be documented in the next revision of Regulatory Guide 1.147.

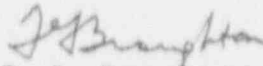
GPU Nuclear believes that action by the ASME and NRC will eliminate the requirement for a hydrostatic test following welded repairs. Elimination of the requirement for hydrostatic test of the OTSG secondary side will reduce cost, critical path outage time, and total radiation exposure (that associated with personnel setting up for and performing the test) without reducing the level of quality or safety. A hydrostatic pressure test of the OTSG secondary side would cost several hundred thousand dollars and would consume several days of critical path time. It is recognized in Code Case N-498 that the increase in pressure to perform a hydrostatic test does not significantly stress or challenge the pressure boundary.

To assure compliance with Code requirements, the post-repair hydrostatic test of the OTSG secondary side must be performed prior to April 19, 1994. The last scheduled outage for performing this test is TMI-1's Cycle 10 Refueling Outage (10R) which is scheduled for September 1993. GPU Nuclear requests that

the NRC approve relief from Code requirements and grant an extension of the ISI schedule for performing the post repair hydrostatic test of the OTSG secondary side until TMI-1's Cycle 11 Refueling Outage (11R), scheduled for September 1995. Extension of the ISI schedule for this test until 11R would allow additional time for the ASME Section XI Code committee to take action and approve Code Case (Draft) N-XXX or a similar one which would eliminate the system hydrostatic test requirements for welded repairs.

In order to support our planning effort for 10R, NRC approval is needed prior to January 1993. This test is on the 10R Outage critical path and therefore early resolution of this issue is required to avoid unnecessary planning and scheduling activities or rework of such effort.

Sincerely,



T. G. Broughton
Vice President and Director, TMI-1

MRK

Attachment

cc: Administrator, Region I
TMI-1 Senior Resident Inspector
TMI-1 Senior Project Manager

TMI-1 Relief Request

COMPONENT DESCRIPTION:

Welded pipe repairs as follows:

- 1) Approximately twenty (20) field tie-in weld repairs associated with OTSG vent and drain valves (1½" and 2"),
- 2) Field tie-in welds associated with replacement of the Emergency Feedwater Flow Venturis, and
- 3) Field tie-in welds associated with replacement of the Main Feedwater nozzles including several elbows immediately upstream of the nozzles. (OTSG "A" and "B" each contain thirty-two (32) 3" Main Feedwater nozzles.)

The hydrostatic test envelope for these components includes the Main Steam System from the Once Through Steam Generator (OTSG) secondary side extending to the Main Steam Isolation Valves, the Emergency Feedwater Block Valves (EF-V52A/B/C/D), and the Main Feedwater Check Valves (FW-V12A/B).

APPLICABLE CODE EDITION:

In accordance with 10CFR 50.55a(g)(4)(ii), GPU Nuclear adopted the 1986 Edition of the ASME Section XI Code for TMI-1's second 120 month inspection interval which began on April 20, 1991. Although the ASME Code Section XI 1986 Edition is currently applicable, the welded repairs which are the subject of this relief request were conducted prior to April 20, 1991 in accordance with the 1974 Edition through Summer 1975 Addenda.

ISI CLASS: 2

ISI DRAWING NO.

1D-ISI-FD-001 - Main Steam System and Drainage
1D-ISI-FD-009 - Emergency Feedwater and Feedwater Systems

DESIGN PRESSURE:

Main Steam System	1050 psig
Emergency Feedwater System	1100 psig
Main Feedwater System	1150 psig

NORMAL OPERATING PRESSURE: 900 psig

CODE REQUIREMENT:

ASME Section XI, IWA-4400(a) requires a hydrostatic test following repairs by welding. (This requirement was included in earlier Code Editions as IWA-4210.)

RELIEF BEING REQUESTED:

GPU Nuclear requests schedular relief for the above requirement until TMI-1 Cycle 11 Refueling Outage (11R) pending action by the ASME Section XI Code Committee which would eliminate this requirement for a hydrostatic test. This would result in an extension of approximately five months in addition to the one year extension allowed by the Code. It is noteworthy that TMI-1 lost four months from the current period of the ISI program as a result of the update to the 1986 Edition of the Code in April 20, 1991. The newer Edition of the Code divides the 10-year ISI interval into three unequal periods (1st period = 35-months, 2nd period = 48-months, and 3rd period = 36-months) rather than three equal 40-month periods.

ALTERNATIVE EXAMINATION:

Other requirements for NDE in addition to a VT-2 leakage examination at nominal operating pressure provide sufficient test requirements such that the additional requirements for a post repair hydrostatic test should be eliminated. A VT-2 leakage examination will be conducted in 10R as is required each ISI period in accordance with the current Section XI Program.

BACKGROUND:

Code Case N-416:

NRC-approved Code Case N-416 allows deferral of hydrostatic tests required for repair or replacement (welded repairs) of Class 2 piping that cannot be isolated by existing valves or that requires securing safety or relief valves for isolation. The Code Case allows these tests to be deferred to the next regularly scheduled hydrostatic test required, provided that 1) a VT-2 leakage examination is conducted and 2) the repair or replacement welds have been volumetrically examined for full penetration welds or surface examined for partial penetration welds.

Code Case N-498:

NRC-approved Code Case N-498 allows a System leakage test at nominal operating pressure (IWB-5221) at or near the end of each inspection interval as an alternative to IWB-5222 "System Hydrostatic Tests" for Class 1 and Class 2 piping required by Table IWL 2500-1, Category B-P.

Code Inquiry 92-012:

Code Inquiry 92-012 states that Code Case N-498 does not apply to repairs and replacements.

"Draft" Code Case N-XXX:

For Class 1 and Class 2 piping, this draft code case allows substitution of NDE in conjunction with operational leakage tests in place of the requirement for hydrostatic tests. This code case may be approved by ASME in a meeting scheduled for December 1992.

BASIS FOR REQUESTING RELIEF:

Applicability:

This request applies to the following TMI-1 Class 2 welded repairs:

- 1) OTSG vent and drain valves,
- 2) Main Feedwater nozzle replacements, and
- 3) Emergency Feedwater flow venturis.

In accordance with Code Case N-416, a VT-2 leakage examination and either a volumetric examination for full penetration or a surface examination for partial penetration welds were required and the hydrostatic test was deferred until 10R.

GPU Nuclear recently performed a review of the documentation from previous weld repairs. This review showed that when Main Feedwater nozzles were replaced, the nozzle welds received a surface examination in addition to the required volumetric examination. The results of our review found that all NDE were completed to satisfy Code Case 416 with the exception of those associated with the partial penetration weld repairs of 1½" OTSG drain valves MS-V74A/B in 1988. Although all original construction test and inspection requirements (B31.1) were fulfilled, a surface examination of MS-V74A/B partial penetration welds repairs was inadvertently omitted. Surface examinations for MS-V74A/B will be performed at the next scheduled outage, no later than 10R.

Justification for Requesting Relief:

The only way to hydrostatically test the above welded repairs is to pressurize the entire secondary side of the OTSGs out to the Main Steam Stop Valves. This boundary would include the Main Steam Safety Valves (MSSVs). The Code-required hydrostatic test pressure (1300 psig) is much greater than the setpoint for the eighteen (18) MSSVs, which includes sixteen (16) - 6" X 10" valves and two (2) - 3" X 6" valves. Gagging the valves could bend the spindles. To assure operability of the MSSVs it would be necessary to send some or all of them offsite for testing in a test facility prior to operation. Blanking off the MSSVs would likely result in a need to retest some or all of the valves. GPU Nuclear believes that it would be impractical to remove and blank these valves only for the purpose of performing the Code-required hydrostatic test.

TMI-1 Technical Specifications (TS 3.1.2.2) require that OTSG shell temperature be maintained at or above 100°F whenever the OTSG secondary side is pressurized above 200 psig. TS 3.4.1.2.1 also requires the operability of at least two (2) MSSVs per OTSG prior to raising Reactor Coolant System (RCS) temperature above 250°F allowing that the others be tested during the heatup. These requirements place constraints on plant operation which result in adding critical path time to an outage in order to perform the OTSG secondary side hydrostatic test.

In accordance with Code Case N-416, it would be acceptable to delay hydrostatic pressure tests of welded repairs completed at the beginning of a 10-year interval until the end of the 10-year interval.

Considering that a hydrostatic test can be delayed for almost an entire 10-year interval, performing a hydrostatic pressure test for the purpose of qualifying welds that have been in service for that amount of time would be of marginal value. 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. It is recognized in Code Case N-498 that the increase in pressure to perform a hydrostatic test does not significantly stress or challenge the pressure boundary.

A hydrostatic pressure test of the OTSG secondary side would cost several hundred thousand dollars and would consume several days of critical path time. GPU Nuclear considers the hydrostatic test of the OTSG secondary side for the above weld repairs would be a hardship with essentially no benefit. In 10R GPU Nuclear will perform a VT-2 leakage examination at operating pressure of the OTSG secondary side (~900 psig) to observe leakage. This in combination with the surface and volumetric examinations which have been performed and surface examinations for MS-V74A/B which will be performed during 10R are considered to be sufficient without an additional hydrostatic test of the OTSG secondary side.

An estimated four days of critical path time would be required to perform a post repair hydrostatic test of the OTSG secondary side. There would also be personnel exposure dose associated with the need to install and remove hydrostatic test equipment, remove and blank relief valves, and isolate and restore the valve lineup required for the hydrostatic pressure test. Although the dose would not be expected to be high, there would be a benefit toward keeping doses as low as reasonably achievable (ALARA) if the test were not required.

GPU Nuclear has completed approximately thirteen (13) system hydrostatic tests at TMI-1 and never found weld or piping through wall leakage. We believe that there would be no technical merit to performing a hydrostatic test of the OTSG secondary side considering the NDE which have been completed and the surface examinations for MS-V74A/B which will be performed in 10R in addition to a VT-2 leakage examination at nominal operating pressure prior to startup following 10R.

There is insufficient benefit to warrant the risks and resource impact associated with a hydrostatic test of the OTSG secondary side. Leakage would not be appreciably more apparent using the hydrostatic pressure test as compared with a VT-2 visual examination at nominal operating pressure because the applicable system hydrostatic test pressure would not apply significant additional stress to the piping.

GPU Nuclear believes that action will be taken by the ASME and NRC to eliminate the Code requirement for hydrostatic test of welded repairs. Deferral of this test until such action has been taken to eliminate the requirement will reduce cost, critical path outage time, and total radiation exposure to personnel without reducing the level of quality or safety.

To assure compliance with Code requirements without action by the Code Committee followed by NRC approval, a post-repair hydrostatic test of the OTSG secondary side must be performed prior to April 19, 1994. Without Code relief, the last scheduled outage for performing this test is 10R which is scheduled for September 1993. GPU Nuclear requests that the NRC approve relief from Code requirements and grant an extension of the ISI schedule for performing the post repair hydrostatic test of the OTSG secondary side during 11R, which is scheduled for September 1995. Extension of the ISI schedule for this test until 11R would allow additional time¹ for the ASME Section XI Code committee to take action and approve Code Case (Draft) N-XXX or a similar one which would eliminate the system hydrostatic test requirements for welded repairs.

In order to support our planning effort for 10R, NRC approval is needed prior to January 1993.

¹ This amounts to a five month extension in addition to the 12 month extension allowed by the Code to permit examinations to coincide with plant outages.