

GPU Nuclear Corporation
Post Office Box 480
Route 441 South
Middletown, Pennsylvania 17057
717 944-7621
TELEX 84-2386
Writer's Direct Dial Number:

March 28, 1983
5211-83-060

Office of Nuclear Reactor Regulations
Attn: J. F. Stolz, Chief
Operating Reactors Branch No. 4
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Sir:

Three Mile Island Nuclear Station, Unit 1 (TMI-1)
Operating License No. DPR-50
Docket No. 50-289
Inservice Testing Program Open Items

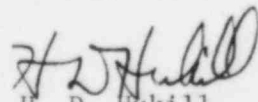
In accordance with the requirements of License Amendment No. 71 dated August 3, 1981, this letter transmits our proposed alternates to the code requirements for the open items in Table 2.2 of the staff SER on Inservice Testing of pumps and valves.

This letter supplements our responses dated December 7, 1982 (5211-82-207) and September 25, 1981 (LIL 264) relative to License Amendment No. 71.

We recognize that the schedule listed in Table 2.2 of the SER has not been fully complied with since inservice activities associated with the OTSG repair program diverted a number of key individuals from working on the justifications for these inservice testing items.

If we can be of further assistance, please advise.

Sincerely,


H. D. Hukill
Director, TMI-1

HDH:CJS:gjh
Enclosure
cc: R. Conte
J. Van Vliet
W. Rekito (Region 1)

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IST Open Items Proposed Alternates
(License Amendment No. 71 - Table 2.2)

Open Item A.1

Pump Testing, Measuring Flow Rates

The specific pumps of concern are SW-P2A/B (Screen House Ventilation Equipment Pumps) and AH-P3A/B (Control Building Chilled Water Pumps). Currently there are no provisions to measure the discharge flow (Q) of these pumps.

Resolution Item A.1

GPUN will provide flow measuring instrumentation and perform IST as required by the ASME Section XI. Flow measuring instrumentation will be installed and the testing program will be in place before start-up from Cycle 6 refueling outage. In the interim, we will continue to test these pumps with the exception of measuring flow rate.

Open Item A.2

Pump Testing, Monthly Testing of Pumps

The specific pumps of concern are: EF-P1, 2A/B (Emergency Feedwater Pumps), BS-P1A/B (Reactor Building Spray Pumps), DH-P1A/B (Decay Heat Removal Pumps), DC-P1A/B (Decay Heat Closed Cooling Water Pumps), CA-P1A/B (Boric Acid Mix Pumps).

Resolution Item A.2

Our letter dated December 7, 1982 committed to update our IST Program in accordance with the amended 10 CFR 50.55(b)(2) which included 1980 edition through winter 1980 addenda to Section XI of the ASME Boiler and Pressure Vessel Code (B&PV). This permits pump testing to be done quarterly, rather than the monthly frequency requested in the SER. The Emergency Feedwater Pumps will continue to be tested monthly due to other Technical Specification requirements per T.S. 4.9.1.1.

In addition, the CA-P1A/B and associated flow path valves (CA-V177 and WDL-V361) should not be included in the IST Program since they fall outside the scope of Section XI of the ASME B&PV Code. The scope statement of Article IWP-1000 states "This Subsection provides the rules and requirements for inservice testing of Class 1, 2, and 3 centrifugal and displacement type pumps that are installed in light-water cooled nuclear power plants and that are required to perform a specific function in shutting down a reactor or in mitigating the consequences of an accident and are provided with an emergency power source."

These pumps and valves are not relied upon to mitigate the consequences of a design basis accident nor are they required to perform a specific function in order for the reactor to be shut down. Therefore they are not in the scope of Section XI of the ASME B&PV Code. Additionally, we believe that exclusion from IST for the above pumps and valves is warranted based on the following:

- (a) The Borate Water Storage Tank (BWST) provides the accident source of emergency borated water to the low and high pressure injection pumps and the reactor building spray pumps.

- (b) Technical Specifications (3.2.2.) requires either of the Boric Acid Mix Pumps or Reclaimed Boric Acid pumps to be operable. Therefore, only two redundant pumps out of four pumps must be operable per Technical Specifications. This probability is very high.
- (c) These pumps are used to control the boron concentration in the primary coolant and therefore get a periodic operational check.
- (d) Normally one of the RC Bleed Tanks has borated water and any of the three waste transfer pumps are able to feed into the Make-up System upstream of the Make-up Tank.

Open Item B.1

Valve Testing, Valve Test (Pressure Isolation)

The specific valves of concern are CF-V4A/B (Core Flood Class Boundary Check Valves), RC-V4 (Motor Operated Auxiliary Spray Boundary Valve), RC-V23 (Check Valve in Series with RC-V4), DH-V1, 2 (Decay Heat Dropline Valves), MU-V107A/C/D, MU-V86A/B & 95 (HPI Inside Containment Check Valves).

Resolution Item B.1

CF-V4A/B: These valves are currently leak tested on the frequency and by the test method specified in Surveillance Procedure 1300-3T and are leak tested prior to achieving hot shutdown following a cold shutdown of greater than 72 hours duration unless testing has been performed within the previous nine months and prior to achieving hot shutdown after returning the valve to service following maintenance repair or replacement work. The maximum allowable leakage rate per procedure SP 1300-3T is five gpm.

RC-V4, RC-V23: These valves are part of multiple valves in series which provide, or assist in providing, the high-low pressure interface protection for the decay heat auxiliary spray line. RC-V23 is a check valve and is the first valve off the RCS. RC-V4 is procedurally required to be shut when RCS pressure is greater than 400 psig and does not automatically open; and therefore, these are passive valves. We propose to verify that these valves are performing their function by our current reactor coolant system leakage calculations during operation.

MU-V107A/C/D & 86A/B & 95 are verified to open during HPI tests on a refueling interval. These valves are not high-low pressure boundary valves since the make-up pump discharge piping is all high pressure piping. These valves' opening function is covered in item B.2 below.

DH-V1, 2: These motor-operated valves are the series high-low pressure protection for the decay heat drop line. The valves are individually interlocked closed when RCS pressure exceeds 400 psig. We propose to verify that these valves are performing their function by our current reactor coolant system leakage calculations during operation. Additionally, in order to test these valves on a refueling frequency, the Decay Heat removal path must be isolated. One of these valves will be disassembled for visual examination at or near the end of the 10 year ISI per Table IWB-2500.

Open Item B.2

Valve Testing, Stroke Testing Check Valves

The specific valves of concern are CF-V4A/B, CO-V16A/B (Suction Supply Check Valves for EFW Pumps), DH-V14A/B (Decay Heat Pumps BWST Suction Check Valves), EF-V11A/B & 13 12A/B & 13 (EFW Pump's Discharge Check Valves), MS-V9A/B (Main Steam Supply Check Valves to EF-P1 Turbine), BS-V21A/B (Sodium Thiosulphate Supply Check Valve), BS-V52A/B (Sodium Hydroxide Tank Supply Check Valve), Fluid Block System Check Valves, MU-V94, 95, 86A/B, 73A/B/C, 107A/C/D (Make-up Pump Discharge Line and Injection Line Check Valves), MU-V14A/B (Make-up Suction Stop-Check Valves from BWST), DH-V16A/B (Decay Heat Pump Discharge Check Valves).

Resolution Item B.2

CF-V4A/B: These valves are part stroke tested per Surveillance Procedure 1303-11.21. Both CF-V5A/B and CF-V4A/B are of the same design and manufacturer. CF-V5A/B are in operation whenever the plant is on decay heat and are normally closed during plant power operations. CF-V4A/B are in operation whenever core flood is required and are normally closed during plant power operations and during operations on decay heat. CF-V5A/B are also in operation whenever core flood is required. Therefore, CF-V5A/B are in operation more than CF-V4A/B and have more possibility for degradation during operation. The refueling interval full flow Low Pressure Injection System testing of CF-V5A/B showing no degradation during service can be applied to CF-V4A/B because the service for CF-V4A/B is less severe than CF-V5A/B. CF-V5A/B are full stroke tested per the code and CF-V4A/B are the same valve catalog number as CF-V5A/B, therefore we feel confident that our proposal to only part stroke CF-V4A/B should be adequate. Additionally, one of these valves (CF-V4A/B or CF-V5A/B) will be disassembled for visual examination at or near the end of the 10 year ISI per Table IWB-2500.

CO-V16A/B, EF-V 11A/B, EF-V-13, EF-V12A/B: These valves will be full stroke tested on a refueling basis in conjunction with Tech. Spec. No. 4.9.1.6.

Relief is requested for ASME Section XI, IWV-3522 that requires full stroke testing for each cold shutdown when more than three months have elapsed since the previous test. TMI-1 will test per Tech. Spec. No. 4.9.1.6 which requires refueling testing. Chemistry concerns (oxygenated water) do not allow testing any more frequent than refueling interval.

Also relief is requested for part stroking EF-V13 and EF-V12A/B each quarter per ASME Section XI, IWV-3412(a) because the only testing that the plant piping configuration allows is to supply condensate storage tank water to the OTSG's. Due to the design restrictions on the number of thermal cycles (40 cycles at 40°F feedwater) the OTSG emergency feedwater nozzles can undergo, it is prudent not to exercise EF-V13 and EF-V12A/B by charging through the emergency feed header while in normal operation.

DH-V12A/B & DH-V16A/B: These valves will be tested on a refueling interval per Surveillance Procedure 1303-11.54. These tests provide for full flow through DH-V16A/B and 73% opening of DH-V14A/B. A full stroke test of DH-V14A/B is not practical, since it would necessitate the spray down of the entire Reactor Building to achieve full flow.

MS-V9A/B: This valve will be part stroke tested on a quarterly basis during operation. This test will provide for 48% flow through these valves which equates to approximately 80% open. Therefore, there is reasonable assurance that the valves will function fully open. No tests are possible without the plant in operation since main steam is required to test these valves.

BS-V21A/B: These valves are no longer required since the sodium thiosulfate lines have been disconnected and a license amendment #80 deleting the tanks has been approved by the NRC staff.

BS-V25A/B: These valves will be part stroke tested on a refueling basis and disassembled for visual examination at or near the end of the 10 year ISI. This is because the potential for inadvertent sodium hydroxide contamination to the RCS is too great to allow quarterly tests.

Fluid Block System Check Valves: These Fluid Block Check Valves supply pressurized water to the bonnet of selected split wedge Containment Isolation Valves (CIV). These valves are extensions of the CIV's pressure boundary and their safety function is to remain closed. The closed function of these valves will be verified in that any leakage will be measured in conjunction with refueling interval Appendix J testing of the associated CIV's per SP 1303-11.18.

MU-V73A/B/C, 107A/C/D and also 107B which was not stated in the SER for this item will be tested with full flow on a refueling interval basis per Surveillance Procedure 1303-11.8.

MU-V14A/B: These valves are tested per SP 1303-11.8 at each refueling interval which verifies accident design flow rate.

Recently HPI Cross-Connect piping has been added to TMI-1. MU-V94, 95, 86A/B are the check valves on each of the four HPI legs downstream of the cross-connect piping. The flow split between the four legs has not yet been verified by start-up testing. Therefore, the commitment for full stroke testing of MU-V94, 95, 86A/B is contingent upon the results of the start-up testing.

Open Item B.3

-Valve Testing, Full Stroke Requirement CAT. C Valves

The specific valve of concern is EF-V3 (Emergency River Water Suction Source Check Valve for EF-P1, 2A/B).

Resolution Item B.3

This valve is not required to perform a function to achieve cold shutdown or to mitigate the consequences of a design basis accident. Therefore, in accordance with the scope statement of Article IWV-1000 of Section XI of the ASME B&PV Code, this valve and associated motor operated valves (EF-V4, V5) need not be included in the IST program.

Additionally, the only way to test EF-V3 full open is to pump river water into

the OTSG which we consider to be not practical from a secondary water chemistry standpoint.

Open Item B.4

Valve Testing, Check Valves Exercising Requirements

The specific valves of concern are FW-V12A/B (Main Feedwater Check Valves Outside Containment).

Resolution Item B.4

These valves do not fall within the scope of Article IWV-1000 of Section XI of the ASME B&PV Code. They are not required to perform a specific function in shutting down the reactor to the cold shutdown condition or in mitigating the consequences of an accident.

Open Item B.5

Valve Testing, Full Stroke Building Spray Valves

The specific valves of concern are BS-V30A/B.

Resolution Item B.5

These valves will be part stroke tested on a quarterly basis.

A full flow test would require spraying down the entire Reactor Building. The quarterly test will be augmented by periodic visual examination (10 year ISI) of one of these valves.