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U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555

Gentlemen:

Subject: Three Mile Island Nuclear Station, Unit 1 (TMI-1)  
Operating License No. DPR-50  
Docket No. 50-289  
Inservice Inspection (ISI) of Decay Heat Removal System Valves  
(DH-V22A/B)

In accordance with 10CFR 50.55a(g)(5)(iv), GPU Nuclear Corporation (GPUN) requests relief, on a one time basis, from the ASME Code Section XI requirement for VT-3 visual examination of DH-V22 (either valve from the two valve set - DH-V22A or DH-V22B). It is necessary that we obtain written relief to satisfy TMI-1 Technical Specifications because we are unable to take credit for non-Code examinations performed during this ten year interval which we believe meet the intent of the Code. All examinations required by the Code for the current interval must be completed by the end of the Cycle 9 Refueling (9R) Outage. Therefore, without the requested relief, it would be necessary to reinspect one of these valves during the 9R outage which is scheduled to begin in October, 1991. Relief, as requested herein, would not apply to subsequent ten year ISI intervals.

DH-V22A/B are 10" Crane tilting disc check valves. The DH-V22 valves are located in the Reactor Coolant System (RCS) in the Low Pressure Injection (LPI) supply flow path, separated from the Reactor Vessel (RV) by one other check valve. Both DH-V22 valves were disassembled in 1982 and 1984 as part of the Crane tilting disc check Rebuild/Modification Program which involved twenty-three (23) valves. These repairs were described in a letter to the NRC dated June 5, 1981 (LER 80-003/O/T-1). As part of the rebuild program, inspections were performed and satisfactory results were documented for the inspection of each valve. Photographs were taken of DH-V22B during the examination on September 30, 1982 showing the valve's internal surfaces. The inspections were performed in accordance with GPUN Maintenance Procedure XP 1410-V-31, "Crane Tilting Disc Check Valves Inspection."

DH-V22A and DH-V22B were inspected by GPUN personnel who we believe were qualified by virtue of education, experience, ability, and familiarity with Crane valves. The individuals who performed the inspections also contributed significantly to the rebuild/modification program. These individuals exceeded

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the levels of education and experience recommended for VT-3 Level II, as required by ANSI N45.2.6 1978 and appear to have met the intent of all certification requirements at the time of the inspection. However, neither inspector was formally certified VT-3 at that time. Based on the inspectors' qualifications and the inspection results, we conclude that it is unnecessary to repeat the valve inspection because the intent of the Code has been met.

Further evidence of the satisfactory condition of DH-V22A and DH-V22B is demonstrated as follows:

- 1) The High Pressure Injection (HPI) check valves, MU-V86B, 107B, 73B, 94, 86A and 107D were disassembled and inspected during 7R and 8R in accordance with the recommendations of INPO SOER 86-3. All of these valves were found in excellent condition. These valves are 2 1/2" Crane tilting disc check valves while DH-V22A/B are 10" Crane tilting disc check valves. The HPI check valves and DH-V22A/B are of almost identical valve design (including materials) except for size and all experience exposure to the same RCS borated water service environment.
- 2) Surveillance Procedure SP 1300-3P, "IST of check valves During Shutdown" verifies that DH-V22A/B can pass accident design flow rate. This test is performed each Cold Shutdown exceeding 48 hours where more than 3 months has elapsed since the previous test.
- 3) Surveillance Procedure SP 1300-3T, "Pressure Isolation Test of CF-V4A/B, 5A/B, and DH-V22A/B" verifies the RCS pressure isolation function of DH-V22A/B. This test is performed prior to achieving hot shutdown following a cold shutdown of greater than 72 hours duration unless testing has been performed within the previous 9 months or prior to achieving hot shutdown after returning the valve to service following maintenance repair or replacement work.
- 4) The Code also requires inspecting one valve from the four valve set (CF-V4A/B, and CF-V5A/B) during each ten year interval. These valves are tilting disc check valves from a different vendor but with similar materials to that of the DH-V22 valves. Their location with respect to the RCS is similar and they experience the same chemistry environment as that of the DH-V22 valves. CF-V4B was inspected on 2/11/90 with satisfactory results.

The amount of occupational radiation exposure required to perform the inspection itself would not be large. Nevertheless, subjecting personnel to exposure unnecessarily would not be in keeping with the ALARA principle which requires maintaining doses as low as reasonably achievable.

Although a full core offload is planned for the 9R outage, this does not present a significant advantage for inspection of DH-V22A/B as it might appear. Disassembly of DH-V22A or DH-V22B during 9R would result in constraints much the same as any other outage because of the location of the

valves and the need to either drain down the RCS or apply a freeze seal. The following is a brief description of these constraints:

- 1) If it were required to lower the level in the refueling canal to perform the inspection while the core is offloaded, this could result in personnel exposure of approximately four person-rem and extend the outage by approximately two days.
- 2) If the inspection is not performed while the reactor core is offloaded, there would be an increased potential for a loss of decay heat removal event while the RCS is drained down. Concern regarding loss of decay heat removal events was the subject of NRC Generic Letters 87-12 and 88-17. The potential for this event while the RCS is drained down would be heightened because it would be necessary to take the associated Decay Heat Removal System (DHR) train out-of-service while DHR system operation is required to control the temperature of the RCS and prevent boiling.
- 3) Placing a freeze seal on a pipe this large and this close to the RV may not be advisable because of material considerations.

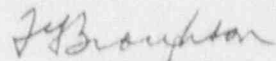
For the current ten year interval, the ASME Section XI Code 1974 Edition through Summer 1975 addenda is applicable for TMI-1. Category B-M-2 of the Code requires a visual examination of 100% of the internal pressure boundary surfaces for one valve from the DH-V22A/B valve set each 10 years. During the next ten year ISI interval (1991-2001) and thereafter, we intend to inspect one of the DH-V22 valves, in accordance with the Code, either concurrent with the required inspection of other valves in a similar location with respect to the RCS or in conjunction with any required maintenance which would place the plant in a condition to facilitate the work. As permitted by the Code, the next inspection of a DH-V22 valve may be scheduled near the end of the next interval in the first quarter of 2001.

The amount of time between inspections of a particular DH-V22 valve using this projected schedule does not appear to be excessive considering that an examination of any one valve from the four valve set (CF-V4A/4B/5A/5B), as discussed above, would only be required once every forty years, if ever. The 1974 Edition of the Code requires alternating inspections between valves of a valve set, however rotation of the valves in a valve set is not a requirement in later Code editions. Later Code Editions allow examination of the same valve in successive intervals and some valves may not ever be inspected.

In accordance with Surveillance Procedure 1300-3L "Disassembly/Inspection of Valves for IST," if degradation is found that would make the valve's full stroke capability questionable, the remaining valves from the valve set must also be disassembled and inspected. Therefore, if a problem were to be detected during an inspection, all of the other valves in the valve set would also be inspected.

In conclusion, following repairs in 1982 and 1984, both DH-V22 valves were left in excellent condition. Surveillance test results indicate these valves continue to be performing satisfactorily. In addition, recent examinations (7R and 8R) of other valves that were part of the Crane rebuild/modification program found similar valves to be in excellent condition. As demonstrated above, we believe that the intent of the Code has been met for an examination of DH-V22A or DH-V22B during the current ISI interval and that a reinspection of DH-V22A or DH-V22B during the 9R outage is unnecessary. Therefore, we request that relief from the ASME Section XI Code be granted on a one time basis and that written relief to satisfy TMI-1 Technical Specifications be provided by April, 1991 in order that we may complete our plans for the 9R outage.

Sincerely,



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

TGB/MRK

cc: Region I Administrator, NRC  
Director, Project Directorate I/4, NRC  
Senior Project Manager, TMI-1, NRC  
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