



GPU Nuclear, Inc.
Route 441 South
Post Office Box 480
Middletown, PA 17057-0480
Tel 717-944-7621

September 25, 1996
6710-96-2326

U. S. Nuclear Regulatory Commission
Attention: 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
Additional Information in Response to Generic Letter (GL) 95-07
"Pressure Locking and Thermal Binding of Safety-Related
Power-Operated Gate Valves"

Attached is GPU Nuclear's response to the NRC's August 22, 1996 request for additional information regarding Generic Letter 95-07, "Pressure Locking and Thermal Binding of Safety-Related Power-Operated Gate Valves."

Sincerely,

A handwritten signature in dark ink, appearing to read "J. Knubel", written over a horizontal line.

J. Knubel
Vice President and Director, TMI

MRK

Attachments

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

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GPU Nuclear Response to NRC Request for Additional Information
Regarding Generic Letter 95-07, "Pressure Locking and Thermal
Binding of Safety-Related Power-Operated Gate Valves

NRC Question No. 1:

RC-V2, Pressurizer PORV Block Valve, may be potentially susceptible to pressure locking or thermal binding during a design basis event. The licensee's submittal does not discuss the potential susceptibility of this valve to pressure locking or thermal binding. Please provide the details of your review for susceptibility of this valve to pressure locking and thermal binding.

GPU Nuclear response to NRC Question No. 1:

The Power Operated Relief Valve (PORV) block valve, RC-V2, is a Velan 2.5" flexible wedge motor operated gate valve. TMI-1 has non-safety grade PORV and block valves. The PORV is not required to be operable to achieve feed and bleed cooling. Because the plant has high capacity, high head, high pressure injection (HPI) pumps, feed and bleed core cooling can be accomplished at TMI-1 using only the pressurizer code safety valves. The NRC has accepted this position in a letter dated May 9, 1994 which includes the Safety Evaluation Report which closed Generic Letter 90-06, "PORV/PORV Block Valve Reliability" for TMI-1.

RC-V2 is required to be opened during plant heatup of the Reactor Coolant System and typically remains open during all modes of operation to provide overpressure protection of the Reactor Coolant System through the PORV. If the PORV were leaking or stuck open, the block valve can be closed to isolate the PORV to limit the decrease in pressure and inventory. With RC-V2 closed, TMI-1 Technical Specifications allows power operation to continue with the assurance of overpressure protection being provided by the code safety valves. Also, Technical Specification 3.1.12.1 requires other means for low temperature overpressurization protection (LTOP) of the RCS with the PORV isolated. Therefore, it would not be necessary to reopen the block valve during cooldown.

Since it would not be necessary to re-open RC-V2 after it has been shut, there is no need to evaluate RC-V2 for pressure locking or thermal binding concerns. Pressure locking and thermal binding are only of concern if a valve is closed and needs to be reopened.

NRC Question No. 2:

The licensee's submittal states that, for the systems which are considered operational during testing, pressure locking and thermal binding concerns were evaluated without considering potential accidents occurring during these tests since the probability of an accident during a short time of testing is very low. The NRC staff believes that, in these situations, potential accident conditions should be considered in the licensee's pressure locking and thermal binding susceptibility review, and a deterministic basis for operability of these valves should be documented. During workshops on GL 95-07 in each Region, the NRC staff stated that, if closing a safety-related power-operated gate valve for test or surveillance defeats the capability of the safety system or train, and if this system or train is considered operable during the test or surveillance, the licensee should perform one of the following within the scope of GL 95-07:

1. Verify that the valve is not susceptible to pressure locking or thermal binding while closed,
2. Demonstrate that the actuator has sufficient capacity to overcome these phenomena, or
3. Make appropriate hardware and/or procedural modifications to prevent pressure locking and thermal binding.

GPU Nuclear response to NRC Question No. 2:

In response to this question, GPU Nuclear has re-evaluated those TMI-1 safety-related gate valves that are considered operational during testing, this time assuming that potential accidents can occur during tests. The re-evaluation has confirmed that there are no pressure locking or thermal binding concerns and it was not necessary to assume that the probability of an accident occurring during surveillance testing is low.

GPU Nuclear Topical Report (TR) #104 "Review of the Potential for Pressure Locking and Thermal Binding of Safety-Related Power-Operated Gate Valves at TMI-1" will be revised to reflect this additional information. Revision of the TR is currently scheduled for completion in February 1997.

NRC Question No. 3:

Through review of operational experience feedback, the staff is aware of instances where licensees have completed design or procedural modifications to preclude pressure locking or thermal binding which may have had an adverse impact on plant safety due to incomplete or incorrect evaluation of the potential effects of these modifications. Please describe evaluations and training for plant personnel that have been conducted for each design or procedural modification completed to address potential pressure locking or thermal binding concerns.

GPU Nuclear response to NRC Question No. 3:

In response to this question, GPU Nuclear actions to prevent pressure locking and thermal binding of safety-related power-operated gate valves are addressed as follows:

1. Modification to Prevent Pressure Locking of DH-V4A/B

Low Pressure Injection valves (DH-V4/B) were successfully modified and tested, and the appropriate procedure changes were completed in July 1996 to assure that these valves would not pressure lock closed after a LOCA. The modification provides a relief path from the valve bonnet to the reactor side of DH-V4A/B. This relief path assures that bonnet pressure is always at or below the pressure downstream of the valve.

This design change was evaluated in a safety evaluation and 50.59 review prior to implementation. In conjunction with the modification package, a Special Test Procedure was developed and on-line safety risk assessments were completed. Also, a training handout was prepared for the operations and maintenance personnel. No operator action is required for the modification to perform its function.

NRC Inspection Report (IR) No. 50-289/96-05 gives a very favorable assessment by the resident inspectors reporting on this modification. Section M1.1 of the IR describes this modification as "very well planned, controlled, and implemented."

2. Procedure Change to Prevent Thermal Binding of DH-V4A/B

Maintenance history shows no indication that these valves have ever experienced thermal binding during quarterly ES testing or at any other time. However, since our review determined that DH-V4A/B are potentially susceptible to thermal binding, plant operating procedures are being changed (prior to startup following the Cycle 12 Refueling Outage) to require that the DH-V4A/B valves are exercised during plant heatup. Operator training will be provided regarding this procedure change.

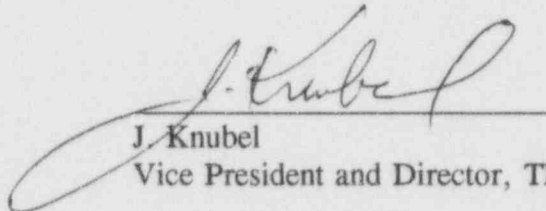
ATTACHMENT 2
6710-96-2326

METROPOLITAN EDISON COMPANY
JERSEY CENTRAL POWER AND LIGHT COMPANY
PENNSYLVANIA ELECTRIC COMPANY
GENERAL PUBLIC UTILITIES NUCLEAR, INCORPORATED

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

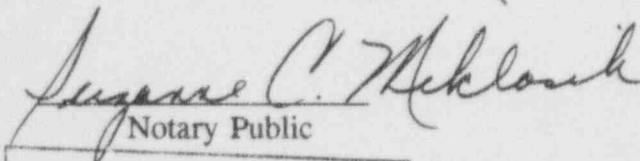
Additonal Information in Response to NRC Generic Letter 95-07

This letter is submitted in response to an NRC request for additional information regarding Generic Letter 95-07, "Pressure Locking and Thermal Binding of Safety-Related Power-Operated Gate Valves." All statements contained in this response have been reviewed, and all such statements made and matter set forth therein are true and correct to the best of my knowledge.


J. Knubel
Vice President and Director, TMI

Signed and sworn before me this

25th day of September 1996.


Notary Public

Notarial Seal
Suzanne C. Miklosik, Notary Public
Londonderry Twp., Dauphin County
My Commission Expires Nov. 22, 1999
Member, Pennsylvania Association of Notaries