GPU Nuclear

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C311-94-2064

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

SUBJECT: Three Mile Island Nuclear Station, Unit 1 (TMI-1)
Operating License: DPR-50
Docket No: 50-289
Inspection Report No. 50-289/94-02
Response to Notice of Violation 94-02-01

Dear Sir:

Your letter of March 30, 1994 transmitted Inspection Report 94-02 which contained two (2) notices of violation. This letter contains our response to NOV 94-02-01. The notice of violation states that GPU Nuclear failed to have an adequate procedure for draining the reactor coolant system. Pursuant to the provisions of 10 CFR 2.201, Attachment 1 provides the GPU Nuclear response to the subject notice of violation.

Inspection report 94-02 requested GPU Nuclear to address in the response to Notice of Violation 94-02-01 why there were no "margin to vortexing" computer alarms during the draindown on November 16, 1993, whether venting the reference leg for RC-LT-1037 to the reactor vessel would minimize the level indication error and whether the instrument error for reactor vessel level indication should be accounted for in the vortex graph. Attachment 2 provides the GPU Nuclear response to these questions.

Sincerely,

T. G. Broughton
Vice President and Director, TMI

JSS

Attachments

IE01

Attachment 1
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NOTICE OF VIOLATION

During an NRC inspection conducted on January 18, 1994 - February 28, 1994, a violation of NRC requirements was identified. NOV 94-02-01 states:

A. Technical Specification 6.8.1.a states, in part, that written procedures shall be established, implemented and maintained covering the applicable procedures recommended in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978, step 3 states, in part, that instructions should be prepared as appropriate for draining the reactor coolant system (RCS).

Contrary to the above, the licensee failed to establish an adequate procedure for draining the reactor coolant system because Operating Procedure (OP) 1103-11, "Draining and Nitrogen Blanketing of the Reactor Coolant System," did not address how to minimize or prevent the reactor vessel level effects from the spill over of reactor vessel water into the cold legs as the cold legs are drained. As a result, on November 16, 1993, the indicated reactor vessel level on level transmitter LT-1037, twice dropped below the curve of OP 1103-11, Figure 10, "Minimum Height of Water Required to Avoid Vortex Formation vs. Decay Heat Flow."

This is a Severity level IV violation (Supplement I).

RESPONSE

GPU Nuclear agrees that OP 1103-11, "Draining and N_2 Blanketing of Reactor Coolant System", should provide more information to the user with regards to draining the RCS. A Plant Experience Report is being prepared to address the November 15 and 16, 1993, draindown. That report will document that OP 1103-11 failed to provide guidance on breaking the RCP loop seal, and did not identify appropriate vent requirements or limit the draindown rates for this method of draindown.

As corrective action, OP 1103-11 is being revised to:

1. Provide guidance for breaking the RCP loop seal, including the minimum expected level.

2. Identify appropriate vent requirements, limit draindown rates, or establish hold points to allow OTSG and reactor vessel levels to equalize.

3. Clarify actions to throttle DHR system flow to avoid vortexing during draindown.

The changes will be incorporated into OP 1103-11 prior to the planned June 1, 1994 outage. If an unscheduled outage and RCS draindown occur prior to issuance of the revision, a Temporary Change Notice (TCN) will be implemented to modify the procedure prior to draindown.

The corrective actions described in this response will be completed prior to next draindown of the RCS. GPU Nuclear believes the procedure revision will adequately address the concerns identified in the NOV.

Attachment 2
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RESPONSES TO QUESTIONS IN INSPECTION REPORT 94-02

Inspection report 94-02 requested GPU Nuclear to address why there were no "margin to vortexing" computer alarms during the draindown, whether venting the reference leg for RC-LT-1037 to the reactor vessel would minimize the level indication error and whether the instrument error for reactor vessel level indication should be accounted for in the vortex graph. The GPU Nuclear responses to these questions are detailed below. However, the NRC questions and GPU Nuclear's responses to the questions are not considered part of the GPU Nuclear response to the notice of violation.

Prior to the November 15-16, 1993, draindown, "margin to vortexing" alarms had been identified by GPU Nuclear as a desirable plant enhancement to reduce shutdown risk. "Margin to vortexing" alarms were not received during the draindown because the alarms were in the process of being installed and were not in the "scan" mode for the plant computer system. The installation of the "margin to vortexing" alarms has been completed and the alarms are now in the "scan" mode.

GPU Nuclear is currently reviewing whether venting the reference leg for RC-LT-1037 to the Reactor Vessel will improve the accuracy of RC-LT-1037 during draindown. GPU Nuclear will complete its evaluation prior to the next draindown and, if indicated, change the valve lineup for the reference leg for RC-LT-1037. It currently appears that the existing vent configuration results in a lower than actual level indication during draindown and thus is desirable for the prevention of vortexing. Nonetheless, if adequate venting area can be ensured for the reactor vessel head then it may be desirable to make the valve lineup change.

GPU Nuclear is still evaluating whether instrument error for the reactor vessel level indication or a margin of safety should be included in the vortex graph. The current graph has been used since the 1970's. Vortexing, as indicated by fluctuations in motor current, discharge pressure, flow rate or vibrations has not been observed. GPU Nuclear expects to complete this evaluation by July 15, 1994.