GPU Nuclear

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January 15, 1992
C311-92-2010

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

Dear Sir:

Subject: Three Mile Island Nuclear Station, Unit 1 (TMI-1)
Operating License No. DPR-50
Docket No. 50-289
Inspection Report (IR) 91-15
Supplemental Response - Radiological Effluent Monitors

On November 21, 1991, representatives of GPU Nuclear and the NRC participated in a conference call to continue discussion of two open items identified in Inspection Report (IR) 91-15. GPU Nuclear had previously responded to these open items in a letter dated September 30, 1991 (C311-91-2096). The conference call on November 21, 1991 was beneficial in that it permitted the exchange of views on the issues and facilitated a better understanding by GPU Nuclear of the NRC concerns. It was agreed in the call that GPU Nuclear would submit a supplemental response by January 15, 1992.

The IR identified two unresolved items: 1) calibration of effluent process radiation monitors; and 2) validation of sensitivities of effluent monitors listed in the Offsite Dose Calculation Manual (ODCM). The particular radiation monitors identified in the Inspection Report are RM-L6, RM-L12, RM-A4 Gas, RM-A5 Gas, RM-A6 Gas, RM-A7 Gas, RM-A8 Gas, RM-A9 Gas, RM-A14 Gas, and RM-A15 Gas.

The first item was in regard to the process presently used to calibrate these effluent radiation monitors. TMI will proceduralize and implement the following calibration methodology in accordance with TMI-1 Technical Specifications §§3.2.1 and 4.2.1 to address the NRC concerns expressed in IR 91-15:

1. An electronic alignment check will be conducted to verify the ratemeter's linear response over its range. This is being accomplished now in the current procedure, however the procedure will be revised to obtain a more formal presentation of the test and data.

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2. The channel calibration procedure will be revised to a include a linearity check at the Technical Specification calibration frequency (each refueling or every eighteen (18) months, as the case may be) to verify acceptable stability of the monitor's sensitivity. This check will be performed with at least three (3) varying strength solid sources. In the past this has been accomplished every four years or when a detector was replaced, but not as part of the Technical Specification required calibration.

The second item concerned the methodology used to assure the radiation monitor sensitivities correlate to those used in the TMI ODCM. To address this concern, an evaluation was conducted of the current radiation monitor's response to actual plant effluent releases. This evaluation used the sensitivities for isotopes contained in the ODCM and vendor manuals to develop an expected reading on the radiation monitors. The actual readings recorded during the releases were then compared to the expected readings based on sample results. The comparison was performed for monitors RM-L6, L7, A7, A8, A9 and A15. Only the data from RM-A15 and RM-A7 was meaningful from the standpoint of the level of activity of the release versus background activity. These monitors correlated well and demonstrated that the programmatic controls of the TMI-1 calibration process are acceptable. Furthermore, the linearity data for all monitors demonstrated good historical correlation. Due to some data point scatter on the linearity for RM-L6 and RM-A9, GPU Nuclear intends to perform an isotopic calibration for these monitors.

We believe these additional commitments as discussed above satisfy the NRC's concerns expressed in Inspection Report 91-15 based on our conference call with the NRC on November 21, 1991.

As a result of our review of the radiation monitor test program, GPU Nuclear intends to submit a Technical Specification Change Request and reduce the current Radiation Monitoring System (RMS) quarterly calibration frequency for non-effluent monitors to a refueling interval requirement as currently specified in the Standard Technical Specifications (STS).

Sincerely,

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

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