



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION I  
475 ALLENDALE ROAD  
KING OF PRUSSIA, PENNSYLVANIA 19406 1415

March 11, 1996

EA 95-238

Mr. James Knubel  
Vice President and Director, TMI  
GPU Nuclear Corporation  
Three Mile Island Nuclear Station  
Post Office Box 480  
Middletown, Pennsylvania 17057-0191

SUBJECT: NOTICE OF VIOLATION  
(NRC INSPECTION REPORT NO. 50-289/95-16)

Dear Mr. Knubel:

This refers to the inspection conducted on September 25-29, 1995, at the Three Mile Island, Unit 1 Nuclear Station (TMI) facility and from October 10-11, 1995, at the GPU Nuclear (GPUN) Office in Parsippany, New Jersey. The purpose of the inspection was to determine whether activities authorized by the license were conducted safely and in accordance with NRC requirements. The inspectors also reviewed GPUN's activities in response to a crack and subsequent leak identified in an unisolable section of the reactor coolant system (RCS) drain line on September 9, 1995, while in the process of cooling down for the Cycle 11 refueling outage. While reviewing GPUN's response to past problems with drain lines, the inspectors identified apparent violations of NRC requirements, which were described in the NRC inspection report transmitted with our letter, dated November 7, 1995. On December 18, 1995, a Predecisional Enforcement Conference was conducted with Mr. R. W. Keaten, Vice President Technical Functions, and other members of your staff to discuss the violations, their causes, and your corrective actions.

Based on the information developed during the inspection and the information provided during the conference, the NRC has determined that violations of NRC requirements occurred. These violations are cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding them are described in detail in the subject inspection report.

The first violation involved GPUN's failure to control adequately a modification to the RCS drain line piping. The modification was developed by GPUN as a result of a drain line analysis performed in 1990. The analysis of the "B" line indicated thermal expansion stresses approximately 4% above the allowables specified in the design code of record (USAS B31.1-1967). GPUN determined that the level of overstress was not sufficient to produce fatigue concerns and concluded that the overstress condition was acceptable. However, GPUN also concluded that the overstress condition was not desirable and developed a modification of the drain line support configurations to make the lines more flexible and reduce the thermal expansion stresses to within code allowable limits. The modification was described in a letter, dated August 27, 1990, from GPUN Headquarters in Parsippany, New Jersey, to the TMI site. However, the modification was never implemented. GPUN could provide no documentation to

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demonstrate that the modification was ever properly dispositioned. In addition, GPUN's design verification process failed to identify a significant error in the 1990 analysis that resulted in GPUN underestimating the level of overstress in the pipe. GPUN indicated to the NRC, at the predecisional enforcement conference and during subsequent telephone conversations that when the error in the 1990 analysis was corrected, the stresses in the piping were approximately 100% above the code allowable. These failures led to the RCS being returned to service and operated in a degraded condition for the past five years without any additional evaluation, monitoring or inspection, until the support configuration was modified during the October 1995 refueling outage. Based on a revised calculation, performed by GPUN after the leak was identified, TMI implemented the modification that had been developed in 1990. This violation has been categorized in accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions" (Enforcement Policy), NUREG-1600, at Severity Level III.

In accordance with the Enforcement Policy a base civil penalty in the amount of \$50,000 is considered for a Severity Level III violation. Because your facility has not been the subject of escalated enforcement actions within the last 2 years, the NRC considered whether credit was warranted for *Corrective Action* in accordance with the civil penalty assessment process in Section VI.B.2 of the Enforcement Policy. Credit for corrective actions is warranted because your corrective actions were both prompt and comprehensive. These actions, which were noted in the inspection report, your presentation at the predecisional enforcement conference, and in Licensee Event Report 95-003-00, dated October 9, 1995, included, but were not limited to: (1) implementation of a modification that satisfies B31.1 Code requirements; (2) documentation of the basis for disposition of analysis producing stresses beyond code specified allowables; (3) counseling of individuals involved in the modification implementation/disposition; (4) continuing management emphasis on follow-up and close-out recommendations; (5) restricting certain individuals from performing design verifications; (6) performing further evaluation of root cause of calculation and design verification errors; and (7) retraining all engineers on the Design Verification Process during the first quarter of 1996.

Therefore, to emphasize the importance of prompt and comprehensive correction of violations, I have been authorized, after consultation with the Director, Office of Enforcement, not to propose a civil penalty in this case. However, significant violations in the future could result in a civil penalty.

A second violation occurred when GPUN performed a more refined ASME Section III calculation to disposition the pipe overstressed condition calculated in the 1990 B31.1 analysis. During the service life of the plant, the licensee is required, pursuant to 10 CFR 50.55a(g), to meet the inservice inspection requirements of ASME Section XI. For components or supports that do not meet ASME Section XI acceptance criteria, the licensee must perform a repair or replacement, or perform an evaluation to demonstrate the adequacy of the components or supports. In order to disposition the pipe overstressed condition, GPUN performed a calculation using part of the criteria in ASME Section III, subsection NB-3653.6, "Simplified Elastic-Plastic Discontinuity Analysis." Specifically, GPUN utilized NB-3653.6(c) equation 14, and concluded that the level of overstress would not cause a fatigue concern with the drain line piping. Although use of specific provisions of Section III is allowed for such dispositions, Section III,

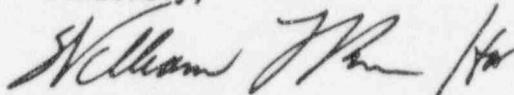
subsection NCA-1140, states that all related requirements must also be met. In this case, NB-3653.6 specifies several related requirements that must be met. Some examples of related requirements that were not met include NB-3653.6 equations 12 and 13, NB-3653.4, NB-3653.5, and NB-3653.7. In addition, NB-3653.6 provides rules for calculating the parameters used in the equations. GPUN's analysis did not incorporate all the related requirements, and did not follow the rules for calculating the parameters used in equation 14. The analysis performed was inadequate to demonstrate the adequacy of the piping and related supports. As noted previously, GPUN returned the lines to service in the as-found condition and operated from that time with no additional evaluation, monitoring, or inspection until the support configuration was modified in 1995. This violation has been categorized in accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions" (Enforcement Policy), NUREG 1600, at Severity Level IV. We further noted that, prior to and after the predecisional enforcement conference, you determined that there were errors in the calculation performed that had a significant impact on the acceptability of the supports involved and the drain line.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. In your response, you should document the specific actions taken and any additional actions you plan to prevent recurrence. After reviewing your response to this Notice, including your proposed corrective actions and the results of future inspections, the NRC will determine whether further NRC enforcement action is necessary to ensure compliance with NRC regulatory requirements.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosure(s), and your response will be placed in the NRC Public Document Room (PDR). To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be placed in the PDR without redaction.

The responses directed by this letter and the enclosed Notice are not subject to the clearance procedures of the Office of Management and Budget as required by the Paperwork Reduction Act of 1980, Pub. L. No. 96.511.

Sincerely,



Thomas T. Martin  
Regional Administrator

Docket No. 50-289  
License No. DPR-50

Enclosure: Notice of Violation

cc w/enclosure:

E. Blake, Shaw, Pittman, Potts and Trowbridge (Legal Counsel for GPUN)  
J. Fornicola, Director, Licensing and Regulatory Affairs  
M. Ross, Director, Operations and Maintenance  
TMI-Alert (TMIA)  
J. Wetmore, Manager, TMI Licensing Department  
Commonwealth of Pennsylvania

GPU Nuclear Corporation

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GCaputo, OI  
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