December 23, 1986

Docket No. 50-289

Mr. Henry D. Hukill, Vice President
and Director - TMI-1
GPU Nuclear Corporation
P. O. Box 480
Middletown, Pennsylvania 17057

Dear Mr. Hukill:

SUBJECT: DENIAL OF AMENDMENT REQUEST: USE OF FRACTURE MECHANICS METHODS TO JUSTIFY OTSG TUBE PLUGGING CRITERIA

General Public Utilities Nuclear Corporation (GPUN) currently has a proposed amendment under review by the NRC staff titled Technical Specification Change Request (TSCR) 148, Once Through Steam Generator (OTSG) Plugging. It and TSCR 153 are the subject of litigation with discovery for combined hearings scheduled to start in March 1987. The principal issues of litigation involve eddy current testing and chemistry concerns.

Separate from hearing matters, the NRC staff has serious concerns on the GPUN use of fracture mechanics methodology submitted in TSCR 148 to justify OTSG tube plugging criteria. Enclosed is the NRC SE of analytical techniques used by GPUN to justify TSCR 148. Based upon the enclosed SE, the staff hereby rejects TSCR 148. This rejection is based upon the staff conclusion that GPUN analyses contain significant errors and questionable assumptions in the areas of load development, material properties, and calculational techniques. Additionally, GPUN has not demonstrated that the recommended safety factors of Regulatory Guide 1.121 are met, nor technically justified the use of proposed alternatives.

GPUN's letter of October 3, 1986 states, basically, that the Regulatory Guide 1.121 safety margins are appropriate when evaluating steam generators with predominant primary stresses but are not directly applicable to OTSGs in the cases where significant secondary stresses exist. The NRC staff has reviewed this letter and the arguments contained therein, but does not agree. It is the staff's position that Regulatory Guide 1.121 applies to all steam generators regardless of individual design and performance induced differences. The Regulatory Guide contains sufficient instructions and flexibility to allow its use in evaluation of tubes in all domestic steam generator designs. When conducting Regulatory Guide 1.121 analyses, standard industry practice has

been to consider thermal loads on steam generator tubes, especially when such loads are predominant. Regulatory Guide 1.121 describes the derivation of minimum allowable tube wall thickness by considering all appropriate tube loads developed under normal and postulated accident conditions. A licensee is free to use approaches or methods other than those described in Regulatory Guide 1.21, if the licensee can technically justify such approaches or methods. In this instance, GPUN has failed to technically justify its proposed approach.

Additionally, the magnitude of tube loads is only one of the many important inputs in the fracture mechanics evaluation. Besides difficulties with your load development, the NRC staff has concluded that your safety analysis contains significant errors and questionable assumptions in the areas of material properties and analytical results.

In summary, based upon an evaluation of TSCR 148 dated November 6, 1985, and GPUN letter dated October 3, 1986, the staff has concluded that the proposed 70% tube plugging limit is not acceptable and TSCR 148 is hereby denied.

A copy of the enclosed "Notice of Denial of Amendment to Facility Operating License and Opportunity for Hearing" is being forwarded to the Office of the Federal Register for publication.

Sincerely,

/S/

John F. Stolz, Director
PWR Project Directorate #6
Division of PWR Licensing-B

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Additionally, the magnitude of tube loads is only one of the many important inputs in the fracture mechanics evaluation. Besides difficulties with your load development, the NRC staff has concluded that your safety analysis contains significant errors and questionable assumptions in the areas of material properties and analytical results.

In summary, based upon an evaluation of TSCR 148 dated November 6, 1985, and GPUN letter dated October 3, 1986, the staff has concluded that the proposed 70% tube plugging limit is not acceptable and TSCR 148 is hereby denied.

A copy of the enclosed "Notice of Denial of Amendment to Facility Operating License and Opportunity for Hearing" is being forwarded to the Office of the Federal Register for publication.

Sincerely,

John F. Stolz, Director
PWR Project Directorate #6
Division of PWR Licensing-B

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