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January 31, 1985  
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Office of Nuclear Reactor Regulation  
Attn: J. F. Stolz, Chief  
Operating Reactor Branch No. 4  
Division of Licensing  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

Dear Mr. Stolz:

Three Mile Island Nuclear Station Unit 1 (TMI-1)  
Operating License No. DPR-50  
Docket No. 50-289  
Steam Generator Repair Limits

In various conversations with your staff we informed you that we intend to plug TMI-1 steam generator tubes with indications in the free span which exceed the repair limit. Technical Specification 4.19.4.a.6 defines the repair limit as:

"...the imperfection depth at or beyond which the tube shall be repaired or removed from service because it may become unserviceable prior to the next inspection. This limit is equal to 40% of the nominal tube wall thickness, unless higher limits are shown to be acceptable by analysis and approved by the NRC." (Emphasis added)

We have in the past repaired tubes based on the general 40% through-wall repair limit. Detailed analyses have shown other, more specific limits to be acceptable to prevent a tube from becoming unserviceable prior to the next inspection. Therefore, in accordance with the provisions of Technical Specifications 4.19.4.a.6, GPU Nuclear requests staff approval of revised repair limit criteria which more accurately reflect the capability of the steam generator tubes, the capabilities of eddy current testing at TMI-1, and the nature of the eddy current indications. The proposed criteria and their bases are set forth in the attached TDR-645, "Basis for Plugging and Stabilizing Criteria for OTSG Tubes," January 1985.

The current repair limit defines as acceptable a tube with a defect extending up to 40% of the tube wall thickness. The defect may be up to 360° circumferential extent. This however is based on the state-of-the-art

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current examination techniques and analyses typical of the mid 1970's. With today's eddy current technology, tube defects can be better characterized in terms of circumferential extent and volume, as well as through wall extent. Recent analyses demonstrate the acceptability of tubes based on the extent of both depth and length of the defect. These analyses show that many tubes with defects exceeding 40% through wall are acceptable because they would not be a size or configuration at the time of ECT detection nor would they be during the interval between inspections to adversely affect the required degree of tube integrity. Hence, the proposed criteria are based on the total cross section of unimpaired tube wall remaining, rather than a consideration of through wall extent alone.

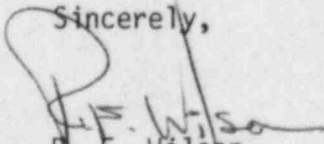
The analytical bases for the proposed criteria have been previously recognized and approved. These analyses have been documented in GPU Nuclear's TR-008, the safety evaluation for the kinetic expansion repair process, and in NRC's NUREG-1019. Both documents recognize that some tubes with greater than 40% through wall defects need not be repaired because the defect size would not significantly affect tube integrity.

While staff approval is required by Technical Specification 4.19.4.a.6, the proposed criteria for which we seek NRC approval are not subject to the requirements of 10 CFR 50.59. Their use constitutes neither a change in facility or the procedures as described in the safety analyses report for TMI-1. We have, nevertheless, evaluated the criteria in accordance with the provisions of section 50.59.

Use of the proposed criteria does not require a change in the technical specifications, and does not involve an unreviewed safety question as defined in section 50.59. Use of the criteria does not involve the possibility of an accident or malfunction not previously evaluated or an increase in the consequences of an accident. As shown in the attached TDR-645 the margin of safety, for the proposed criteria is no less than the licensing basis for the current repair limit and hence the probability of occurrence of an accident or malfunction has not been increased.

The proposed repair limit is an application of a previously reviewed and approved technical approach. It reflects current detection capabilities and a more appropriate measure of tube integrity which does not reduce safety margins. We are now in the process of plugging and stabilizing those tubes which must be removed from service based on this proposed criteria, and therefore request that you give our request prompt consideration.

Sincerely,



R. F. Wilson

Director, Technical Functions

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Attachment

cc: R. Conte                      H. Silver  
     Dr. T. Murley                C. McCracken