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March 1, 1985
5211-85-2047

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

Technical Specification 4.19.4.a.6 defines the limit for repair or removal from service of OTSG tubes at TMI-1 as the following:

"... 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 approval by the NRC" (Emphasis added).

In the past, GPU Nuclear Corporation (GPUN) has repaired tubes based on the general 40% through wall repair limit. However, 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 Reference 1 GPUN requested 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. These proposed criteria and their bases were set forth in TDR-645, "Basis for Plugging and Stabilizing Criteria for OTSG Tubes," which was attached to Reference 1.

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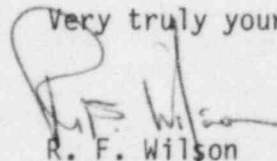
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Based on our meeting with you and members of your staff on February 19, 1985, and subsequent telephone discussions, we understand that NRC review of our request is continuing. To facilitate the NRC review we propose that you consider a "staged" approach to approval of our request. Eddy current testing (ECT) and examination would follow each stage, supporting your continued evaluation, with the testing and reporting of ECT results in accordance with TR-008 (Reference 2). The first proposed stage is that period up to the first eddy current examination after commencement of power operation, as defined by item 2.B.4 of Amendment 103 to Facility Operating License No. DPR-50 (Reference 3).

Prior to restart, GPUN intends to deoxygenate the primary reactor coolant system, perform a steady state krypton leak test which involves maintaining the primary system at approximately 500°F for several days to measure primary/secondary leak rate and reconfirm the leak tightness of the steam generators, and conduct a controlled cooldown either to lay up or to commence hot functional testing with a favorable NRC restart decision. The results of the leak rate measurements will be reported to the NRC.

Since the original 100% baseline inspection of the OTSG tubes in 1982, the tubes have been subjected to mechanical loading during the kinetic expansion process and thermal and hydraulic loads during two hot functional tests. Subsequent eddy current testing of the OTSG tubing was begun in November 1984. As discussed in TDR-638 (Reference 4) which has been endorsed by NRC (Reference 5), results of these recent eddy current tests do not indicate any trends of indication growth of previously reported indications. The eddy current data and visual observations are consistent with a mechanism whereby previously existing areas of intergranular attack are made more detectable by mechanical loading during kinetic expansion and thermal and hydraulic loading from cooldown following hot functional testing. The loads on the tubes associated with the deoxygenation and krypton testing process would be small in comparison, and results of eddy current testing following these processes would not be expected to represent meaningful data points. Thus, GPUN does not consider eddy current testing of the tubes appropriate following the deoxygenation and krypton testing processes. We therefore recommend that NRC approve use of the Reference 1 revised plugging criteria for the period up to the first eddy current examination following commencement of power operation, while NRC review of the plugging criteria for subsequent periods of operation continues.

Very truly yours,



R. F. Wilson

Director - Technical Functions

SK:dls:1475f

References

1. GPUN Letter 5211-85-2023, R. F. Wilson to J. F. Stolz, "Steam Generator Repair Limits, January 31, 1985.
2. GPUN Topical Report 008, "Assessment of TMI-1 Plant Safety for Return to Service After Steam Generator Repair," Rev. 3, August 19, 1983.
3. USNRC Letter, John F. Stolz to H. D. Hukill, "License Amendment No. 103, Steam Generator Tube Repairs and Return to Operation, Three Mile Island Nuclear Station, Unit 1 (TMI-1)," December 21, 1984.
4. GPUN Letter 5211-85-2010, R. F. Wilson to J. F. Stolz, "Steam Generator Eddy Current Test Result Evaluation," January 14, 1985.
5. NRC Staff Brief in Response to TMIA, in the Matter of Metropolitan Edison Company, et. al. (Three Mile Island Nuclear Station, Unit No. 1), January 24, 1985.