

493

April 9, 1985

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION


DOCKETED  
USNRC

Before the Commission

'85 APR 11 AM 11:52

In the Matter of )  
METROPOLITAN EDISON COMPANY, ET AL.)  
(Three Mile Island Nuclear Station,) )  
Unit No. 1)

OFFICE OF SECRETARY  
DOCKETING & SERVICE  
BRANCH

Docket No. 50-289 -   
OLA

LICENSEE'S RESPONSE TO TMIA'S DEMAND  
FOR ADJUDICATORY HEARING

By letters of January 31 and March 1, 1985, attached, GPU Nuclear Corporation ("Licensee") requested approval from the NRC Staff for revision of the threshold criteria ("plugging criteria") for determining when plugging or other repair of Three Mile Island, Unit 1, steam generator tubes is required. Licensee's position, as set out in the above referenced letters and related documentation, is that the proposed revision does not require a change in the Technical Specifications of the operating license, and does not involve an unreviewed safety question as defined in 10 C.F.R. § 50.59 (and thus does not involve significant hazards considerations as defined in 10 C.F.R. § 50.92). The staff has not yet made a determination on Licensee's request, and has not yet set forth its position on whether or not it believes an amendment to the Technical Specifications is necessary. Meanwhile, Licensee, by letter dated March 29, 1985, attached, has informed the Staff that the TMI-1 steam generator tubes are now

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being plugged in accordance with the plugging criteria as currently set out in the Technical Specifications.

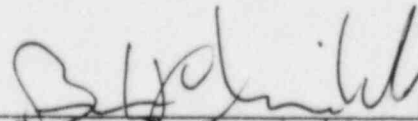
On March 26, 1985, Three Mile Island Alert, Inc., filed a demand for a hearing on Licensee's request for approval of its proposed plugging criteria. The hearing demand is premature. Until the staff completes its review of Licensee's request and determines whether an amendment to the technical specifications is required and, if so, whether significant hazards considerations are involved, there is no controversy which is ripe for adjudication.

Accordingly, the March 26 Demand for Hearing should be denied without prejudice to TMIA's right, if any, to file a request for hearing following a staff determination on Licensee's request. Licensee will respond in substance at that time to any such request for hearing.

Respectfully submitted,

SHAW, PITTMAN, POTTS & TROWBRIDGE

By



George F. Trowbridge, P.C.  
Bruce W. Churchill, P.C.

Counsel for Licensee

1800 M Street, N.W.  
Washington, D.C. 20036  
(202) 822-1000

Dated: April 9, 1985

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In the Matter of )

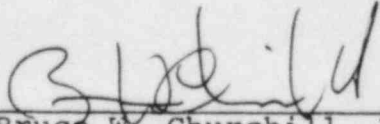
METROPOLITAN EDISON COMPANY, ET AL. )

Docket No. 50-289

(Three Mile Island Nuclear Station, )  
Unit No. 1)

CERTIFICATE OF SERVICE

This is to certify that copies of the foregoing "Licensee's Response to TMIA's Demand for Adjudicatory Hearing" were served, by deposit in the United States mail, first class, postage pre-paid, to all those on the attached Service List, this 9th day of April, 1985.

  
\_\_\_\_\_  
Bruce W. Churchill, P.C.

Dated: April 9, 1985

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

Before the Commission

In the Matter of )  
METROPOLITAN EDISON COMPANY, ET AL.)  
(Three Mile Island Nuclear Station,)  
Unit No. 1)

Docket No. 50-289

SERVICE LIST

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Washington, D.C. 20555

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Page Two  
TMI-1

Atomic Safety and Licensing  
Appeal Board Panel  
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Washington, D.C. 20555

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U.S. Nuclear Regulatory Commission  
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**Nuclear**

GPU Nuclear Corporation  
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TELEX 136-482  
Writer's Direct Dial Number

January 31, 1985  
5211-85-2023  
RFW-0397

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

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.

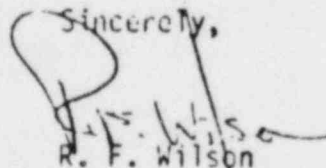
The analytical bases for the proposed criteria have been previously recognized and approved. These analyses have been documented in GPU Nuclear's TR-008, the safety evaluation for the kinetic expansion repair process, and in NRC's NUREG-1019. Both documents recognize that some tubes with greater than 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

dls:0991f  
Attachment

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

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Writer's Direct Dial Number

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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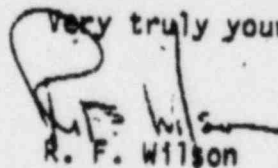


Based on our meeting with you and members of your staff on February 19, 1985, and subsequent telephone discussions, we understand that NRC review of our request is continuing. To facilitate the NRC review we propose that you consider a "staged" approach to approval of our request. Eddy current testing (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 2.8.4 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.

**Nuclear**

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March 29, 1985

5211-85-2067

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

Dear Mr. Stolz:

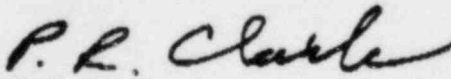
Three Mile Island Nuclear Station Unit 1 (TMI-1)  
Operating License No. DPR-50  
Docket No. 50-289  
Steam Generator Repair Limits

By letters dated January 31 and March 1, 1985, GPU Nuclear Corporation requested approval of revised repair criteria, i.e., plugging limits, for the steam generator tubes. As documented in those letters, this approach is technically sound and does not constitute an unreviewed safety question. We have reached the point, however, where we must act now to avoid any potential limitations on TMI-1 plant readiness for restart. Accordingly, I have determined to proceed immediately to plug the steam generator tubes in accordance with the existing repair limits specified in Technical Specification paragraph 4.19.4.a.6. of the operating license.

We ask that the staff continue its technical review of our request so as to help us avoid unnecessary plugging in the future.

We will advise you when the plugging has been completed.

Very truly yours,

  
P.R. Clark  
President

PRC/mak