



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

C. McCracken

p-302

JUN 4 1982

MEMORANDUM FOR: Darrell G. Eisenhut, Director  
Division of Licensing

FROM: Thomas M. Novak, Assistant Director  
for Operating Reactors  
Division of Licensing

SUBJECT: TMI-1 STEAM GENERATOR TUBE REVIEW

A meeting was held Wednesday, June 2 with Jim Knight, Bob Bosnak, Conrad McCracken, Tom Ippolito, John Stolz, Rick Jacobs and myself to discuss the staff program for independent verification of the licensee's findings regarding steam generator failure mechanisms as well as repair program. The discussions centered on the independent analysis that would be done for the staff through contractors (Brookhaven and Franklin Institute) to evaluate both the cause of TMI-1 steam generator leaks and the proposed repair. The emphasis of this work would be to perform all necessary analysis independent of the licensee's analysis. That is, failed tube analysis would be performed by the Labs as well as actual performance of repair procedures on mock-up portions of the steam generator. The program tentatively has been divided into three parts:

- 1) Tube specimens will be obtained from GPU in order to do analysis to independently verify failure mechanisms.
- 2) The repair procedure which is intended to include the use of explosive charges to expand the tube against the tube sheet and then to subsequently analyze the structure for leakage, holding capability, etc. will be done independently of the licensee's program.
- 3) In-situ measurements of ligament deflections and other key variables for the steam generators repair would be performed to independently verify the adequacy of the process.

At this time, the above approaches should be considered tentative but are intended to outline the areas expected to be investigated by the staff.

Today I spoke with R. Wilson of GPU concerning the availability of materials necessary for the staff to perform these independent studies. Mr. Wilson indicated that the types of materials suggested would be made available to the staff. He indicated that sections of tube removed from the steam generators would be made available. These sections would consist of both portions that had cracks and those for which no cracks were identified. He also indicated

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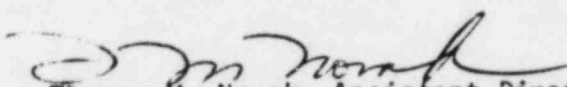
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that a test block which holds 10 steam generator tubes would also be made available to the staff. He indicated that the explosive charge and the appropriate tube materials and mock-up could be used to independently verify the repair process. In addition, we discussed the onsite measurements during the actual repair process and Mr. Wilson indicated that this was agreeable to the licensee.

It is planned to meet with the above staff people, Wednesday, June 9 to continue the program of developing the independent staff analyses. Inquiries are being made to Combustion Engineering and Ebasco to determine the availability of personnel familiar with the proposed repair program. In addition, discussions were held between Jim Knight, Bob Bosnak and Dr. Zudans of Franklin Research regarding the capability of that institute to assist the staff in the evaluation. At the present time, GPU intends to finalize the repair procedure about the 14th or 15th of June. The staff intends to meet with the licensee the following week to discuss the details of the procedure to be followed. During this period of time, the staff will be developing the complimentary independent program it intends to follow to verify the repair process.

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Thomas M. Novak, Assistant Director  
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cc: H. Denton  
R. Vollmer  
J. Knight  
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