



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

April 8, 1982

Docket No. 50- 289

MEMORANDUM FOR: H. Denton S. Hanauer
J. Carter R. Vollmer
D. Eisenhut R. Mattson
R. Purple H. Thompson
T. Novak J. Snizek
G. Lainas T. Ippolito
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THRU: John F. Stolz, Chief, Operating Reactors Branch #4,
Division of Licensing

FROM: Richard H. Jacobs, Project Manager
Operating Reactors Branch #4, Division of Licensing

SUBJECT: DAILY HIGHLIGHT

Three Mile Island Unit 1 (TMI-1) Steam Generator Repairs

The staff met with GPU yesterday to learn the results of GPU's investigation into the TMI-1 steam generator problem and to learn GPU's proposed repair method. The tube corrosion mechanism is stress assisted intergranular attack initiated from the primary side resulting in the development of circumferential intergranular cracks. It is estimated that approximately 8-10,000 out of 31,000 tubes in both steam generators are affected. All but about 70 defects are located within the upper tubesheet region of the tubes. The chemical agent which caused the attack was sulfur in a reduced form.

GPU announced that they plan to repair the defective tubes by expanding and resealing the tube walls at a location about 8-10 inches within the 24 inch tubesheet. The tubes would be either hydraulically, mechanically or explosively expanded and then rolled to create a pressure boundary seal. By this method, the tube portion containing the vast majority of the defects is no longer a primary to secondary pressure boundary. The approximately 500 tubes with defects below the 10 inch level will be plugged. Assuming this repair method is acceptable, GPU could repair the steam generators and make the plant ready for operation by about October 1982.

Because the corrosive attack was primary side initiated, GPU intends to conduct a comprehensive examination of susceptible materials in the reactor vessel and other parts of the reactor coolant system. The inspection of reactor vessel internals is scheduled to begin following vessel head removal early next week. The inspection involves radiographic, ultrasonic, penetrant and visual inspection techniques of a large number of components. At least two fuel assemblies will be removed to facilitate the inspection.

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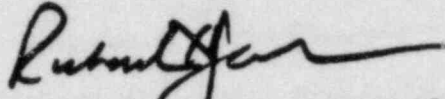
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*Keith
Per return for
me to read.
TAT
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xlc/4/9/82*

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GPU issued the attached press release yesterday which provides additional details of the repair technique and the source of the sulfur contamination.



Richard H. Jacobs, Project Manager
Operating Reactors Branch #4
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Attachment:
GPU Press Release

cc w/attachment:
JStolz
RJacobs
ORB#4 Files