INFORMAL TECHNICAL COMMUNICATION

Date NOV. 18, 1982

To: JAI RAJAN/RICK JACOBS

From: TED SHOOK

U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

Franklin Research Center
Philadelphia, PA 19103

(TO BE OPENED BY ADDRESSEE ONLY)

Reference: NRC Contract NRC-03-81-130
NRC TAC No. _____
Plant TMI-1

FRC Project C5506 ASSIGNMENT 10
FRC Generic Topic TMI-1
FRC Task(s) _____

Title: TRIP REPORT/MEETING AT NRC

Attachment: ATTACHED IS A TWO-PAGE SUMMARY OF THE MEETING AT NRC, OCT 18-19

Message: MAJOR POINTS OF THE PRESENTATION BY GPUN ARE GIVEN. THE REPORT ALSO CONTAINS A STATEMENT ABOUT THE FRC POSITION ON EDDY CURRENT TESTING FOLLOWING HOT FUNCTIONALS AT TMI-1.

Copy of message form only:
ATTACHMENT TO THOSE BELOW

NOTE TO SENDER: Include attachments if information is pertinent to program management.

S. S. Bajwa
NRC Performance Monitor HERBERT BRAMMER
NRC Lead Project Manager CONRAD McCRACKEN

FRC Distribution: SPC, SP, IS, LL, BS, VL, CD, ___, ___
5506-001 ASST. 10 FILE

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Revised 4/20/82

MEETING REPORT

Place: Bethesda, Md.

Project C5506
Assgnmt 10

Dates: October 18 and 19, 1982

Present: Representatives of GPUN, NRC, and NRC Consultants.

FRC representatives - C. Davey
L. Leonard
V. Luk
T. Shook

Purpose of Meeting: GPUN Presentation of TMI-1 OTSG Repair Process Update and Return to Service Overview.

The presentation was divided into 8 sections. In the first, qualification program update, recent test data was presented. The two major areas of concern here are the pull-out loads and the leak rates. The pull-out data showed all tests indicated pull-out loads greater than the qualification value of 3140 lbs and averaging about 4750 lbs. The leak data varied over a very wide range. Very few results were within the qualification value of 3.2×10^{-6} lbs/hr per tube; most were within the design value of 3.2×10^{-5} lbs/hr per tube, but some were in excess of that value. Interestingly, those test blocks subjected to the severest conditions (after hits and axial loading) showed the lowest leak rate data.

Final eddy current testing (ECT) results were presented, along with a discussion of the relative merits of the two techniques for testing, i.e., the absolute and the standard differential (SD) technique. The latter was recommended for production testing.

The stability of a tube crack under flow induced vibration is a function of its arc length and percent thruwall. The ECT technique has been shown to be able to detect cracks in the stable region; i.e., all cracks in the unstable region, (and therefore capable of rapid gro th), are detectable by ECT.

The key factors in the plant return o safe operation were identified as an understanding of the failure mechanism, measures being taken to prevent recurrence, RCS and supporting safety system undamaged, steam generators operable, and no adverse environmental impact.

The OTSG tube plugging plan was presented. The following categories of tubes will be plugged:

1. All tubes with defects in high cross-flow areas.
2. All tubes with defects considered to be in the unstable region.
3. Some tubes with defects in the stable region (to afford later crack growth rate studies).

The total number designated for plugging is 1146.

Plans for sulphur removal are not yet in place. It has also not yet been determined whether the entire primary system will undergo a clean-up, or the steam generator alone.

The Licensee plans to conduct a long-term corrosion test program (17 months). It is essentially a laboratory simulation to assess environmental effects on tube performance. The test operational sequences are planned to lead actual OTSG operation at TMI-1. ECT will be performed after each test cycle.

Details of the post-repair test program were presented. These include ECT, heat-up and cool-down, leakage, hot functional tests (HFT), and post-HFT.

All aspects of the post repair program appear to be reasonable and necessary. There was a brief discussion on whether or not it would be appropriate to conduct ECT following the HFT. (The Licensee does not feel this is necessary.) The NRC invited all consultants to respond to this question.

We feel that eddy-current testing following the hot functionals is unnecessary, and could be counter-productive. ECT, of course, necessitates a shutdown, which, in turn provides an environment more conducive to further attack than is the case during normal operation. If the long-range objective is to safely operate the OTSGs as long as possible, then it will save time and possible additional damage to follow the HFT directly with power escalation testing, critical and post critical operation. The pre-critical leakage monitoring should be a sufficient (and, perhaps, the best) indicator of the ability in the near term of the plant to run safely.