



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

PDR

50-434/455/456/457

October 17, 1995

MEMORANDUM TO: Jack R. Strosnider, Chief
Materials and Chemical Engineering Branch
Division of Engineering
Office of Nuclear Reactor Regulation

FROM: *ES* Edmund Sullivan, Chief
10/12/95 Inservice Inspection Section
Materials and Chemical Engineering Branch

SUBJECT: SUMMARY OF THE SEPTEMBER 22, 1995 MEETING WITH COMMONWEALTH
EDISON COMPANY TO DISCUSS INSPECTION OF STEAM GENERATOR
INTERNALS

On September 22, 1995, the NRC staff met with representatives of Commonwealth Edison Company (ComEd) at the Westinghouse Waltz Mill Facility to discuss issues associated with the inspection of various steam generator load path components in support of ComEds September 1, 1995 proposal to increase the tube repair limits for the Braidwood and Byron Unit 1 steam generators. The meeting focused on inspecting the tube support plates (TSPs) for cracks in the ligaments between the holes in the TSP. A demonstration of some of the visual inspection equipment to be used for the inspection of the steam generator load path components was also given. Meeting attendees are listed in Attachment 1. Meeting handouts are provided as Attachment 2.

The presentations made by ComEd, and its representatives, were well organized and were very beneficial. During various portions of the meeting, the staff made the following observations with respect to inspecting the TSPs for ligament cracking: (1) the program appeared to be well thought out in terms of looking at key parameters which may affect the eddy current response from the TSPs, (2) it may be beneficial to look at historic bobbin coil data obtained under similar conditions (e.g., speed and frequency) to those to be used during the upcoming inspection to identify any potential anomalies in the data prior to starting the inspection. This historic review should be concentrated at potentially susceptible locations to cracking (e.g., tubes near the anti-rotation devices) and may permit identification of differences between the TSP mockup used in the qualification program and the actual steam generator, (3) it may be beneficial to look at other TSPs besides the top TSP for example during the standard rotating pancake coil (RPC) inspections performed as part of the inspection. The staff suggested that the licensee further pursue the evaluation of the RPC probe for inspecting the TSPs for ligament cracking in this application reiterating the licensee's concern that degradation of the tube at the TSP elevation may limit the usefulness of the RPC in this application at the lowest frequency at which the RPC can currently be effectively used (i.e., 100 kHz) during these inspections. The staff also encouraged the licensee to pursue developing a low frequency RPC and/or low frequency plus-point coil as a supplement to the bobbin coil, and (4) the

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staff indicated that the licensee should ensure the calibration standard to be used in the field has the same TSP material as that in the steam generator.

- Attachments: 1. List of Attendees
- 2. Meeting Handouts

DISTRIBUTION:

Russell/Miraglia	12-G-18	OGC	ATHadani	EJordan
BSheron	GLainas	KKarwoski	PRush	GDick
ACRS (10)	DLynch	GTracy, EDO		
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DOCUMENT NAME: G:\KARWOSKI\9_22_MTG.MIN

***See Previous Concurrence**

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OFFICE	EMCB:DE	E	EMCB:DE	EMCB:DE	C
NAME	KKarwoski ^{SV}		TSullivan	JStrosnider	
DATE	10/11/95		10/12/95	10/13/95	

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COMMONWEALTH EDISON MEETING ON
STEAM GENERATOR INTERNALS INSPECTION
SEPTEMBER 22, 1995

LIST OF ATTENDEES

<u>NAME</u>	<u>ORGANIZATION</u>
1. Ken Karwoski	NRC/NRR/DE/EMCB
2. John Blomgren	ComEd
3. Ted Sullivan	NRC/NRR/DE/EMCB
4. Caius Dodd	NRC/NRR/DE/EMCB
5. Amrit Sagar	Westinghouse
6. Gary Pierini	Westinghouse
7. Gary Henry	EPRI
8. Jeff Raschiatore	Tennessee Valley Authority
9. Janet Bunecicky	Westinghouse
10. Roy Popovich	Westinghouse
11. Tom Pitterle	Westinghouse
12. Joon Kang	PG&E
13. Mike Sears	ComEd
14. Denise Saccomando	ComEd

**COMED / NRC MEETING
3.0 VOLT IPC**

SEPTEMBER 22, 1995

WESTINGHOUSE WALTZ MILL FACILITY

AGENDA

8:00 INTRODUCTIONS / OPENING REMARKS

FRENCH INSPECTION CAPABILITIES

**DISCUSSION / RESULTS OF EPRI TSP
EDDY CURRENT INSPECTION PROGRAM**

SUMMARY / CONCLUSIONS

DEMONSTRATION OF VIDEO INSPECTION EQUIPMENT

11:30 ADJOURN

FRENCH TSP CRACK DETECTION

- **Eddy Current Frequencies**
 - **Bobbin**
 - » **500 kHz, 240 kHz, 100 kHz Differential Mode**
 - » **100 kHz Absolute Mode**
 - » **240/100 kHz Differential TSP Mix**
 - **RPC**
 - » **25 kHz Absolute**

FRENCH TSP CRACK DETECTION

- **Bobbin coil 100 kHz absolute used for detection**
- **Mix used to ensure 100 kHz signal is not the result of a dent**
- **Detection of single 100% through ligament crack 20mm long**
- **RPC used to detect missing TSP segment 50 degrees arc and greater**

SUMMARY / CONCLUSIONS

- **EDDY CURRENT INSPECTION TECHNIQUE IS CAPABLE OF DETECTING CRACKED TSP LIGAMENTS**
- **ComEd WILL APPLY INSPECTION TECHNIQUE(S) AS FOLLOWS:**
 - **VERIFY TSP SIGNAL IS PRESENT AT EACH HOT LEG INTERSECTION THROUGH "NORMAL BOBBIN INSPECTION"**
 - » **(ALL 4 SGs BYRON / BRAIDWOOD)**
 - **APPLY EPRI TECHNIQUE TO ANTI-ROTATION DEVICE AREAS OF TOP TSP**
 - » **(ALL 4 SGs BYRON / BRAIDWOOD)**

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[REDACTED] OF ACTION ITEM

[REDACTED] 14
[REDACTED] MTG WITH TUV

[REDACTED] R. HERMANN
[REDACTED] 10/17/95
[REDACTED] 10/28/95 (see below)
[REDACTED]

PREPARE A LIST OF ISSUES/QUESTIONS ON OUR INTENTIONS TO SEND TO TUV BY 10/23
PREPARE A ~ 20 MINUTE PRESENTATION ON OUR INTENTIONS FOR TUIE MEETING ON 11/1 @ 9:00 IN A011
SOME CONCEPTS IS CONCERNING TUIE MEETING FOR DE

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Keyed in Data Base
on 10/17/95
ade

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