K. NANJUNDESWARAN
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NPC/ED(O)/T-1B/92/B

2 July 1992

P21 92116
Publicly Available

Dear Mr. Charles E. Rossi,

I have to report about an isolated case of failure of emergency condenser tube in Tarapur Atomic Power Station with a copy of letter addressed to M/s. General Electric, USA. M/s. Foster Wheeler Corporation are the manufacturers of the condenser. We are taking action to replace the condenser tube bundles. We find, however, that lack of proper arrangements for inspection of tube-to-tubesheet joint area has resulted in the unmonitored failure. The findings of the investigations are :

[a] The nature of failure is transgrannular associated with fatigue at tube/tubesheet joint area. Severance of seal weld at tube end due to thrust loading is apparent.

[b] This is an isolated case of tube-to-tubesheet rolled joint area failure.

[c] All the neighbouring tube-to-tubesheet joints do not indicate visual abnormality; two joints have minor crack like indication.

[d] The inspection has been useful and advices inspection of the bundles during scheduled refuelling outages of Units-1&2.

This is for your information.

With best regards,

Yours sincerely,

(K. Nanjundeswaran)

Mr. Charles E. Rossi Director
Division of Operational Events Assessment
Office of Nuclear Reactor Regulation
United States
Nuclear Regulatory Commission
Washington D.C. 20555-0001

Rcvd 7/14/92 DOEA

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NPC/ED(O)/T-1B/92/B

5 June 1992

Mr. JG Moore
Customer Service Communication Manager
Nuclear Services
M/s. General Electric
San Jose California
USA

Dear Shri Moore,

Emergency condenser tube-to-tubesheet joint failure

Recently we had an incident of sudden high raise in shell side water temperature of the emergency condenser on Unit-2 of Tarapur Atomic Power Station [BWR]. The unit was taken out on planned shutdown after review that it may be due to condenser coil tube failure. Detailed inspection of the tube bundle after access to shell side revealed that one of the tubes had severed from the tubesheet providing direct access of steam to shell side water. We have initiated a programme to inspect the tube to tubesheet joints. TAPS design does not permit easy access to the tube to tubesheet joints but requires breaking the weld joint on the channel head. We are initiating the programme to replace the tube bundle in view of the incident noticed for the first time after 23 years of service.

I would appreciate your response on this.

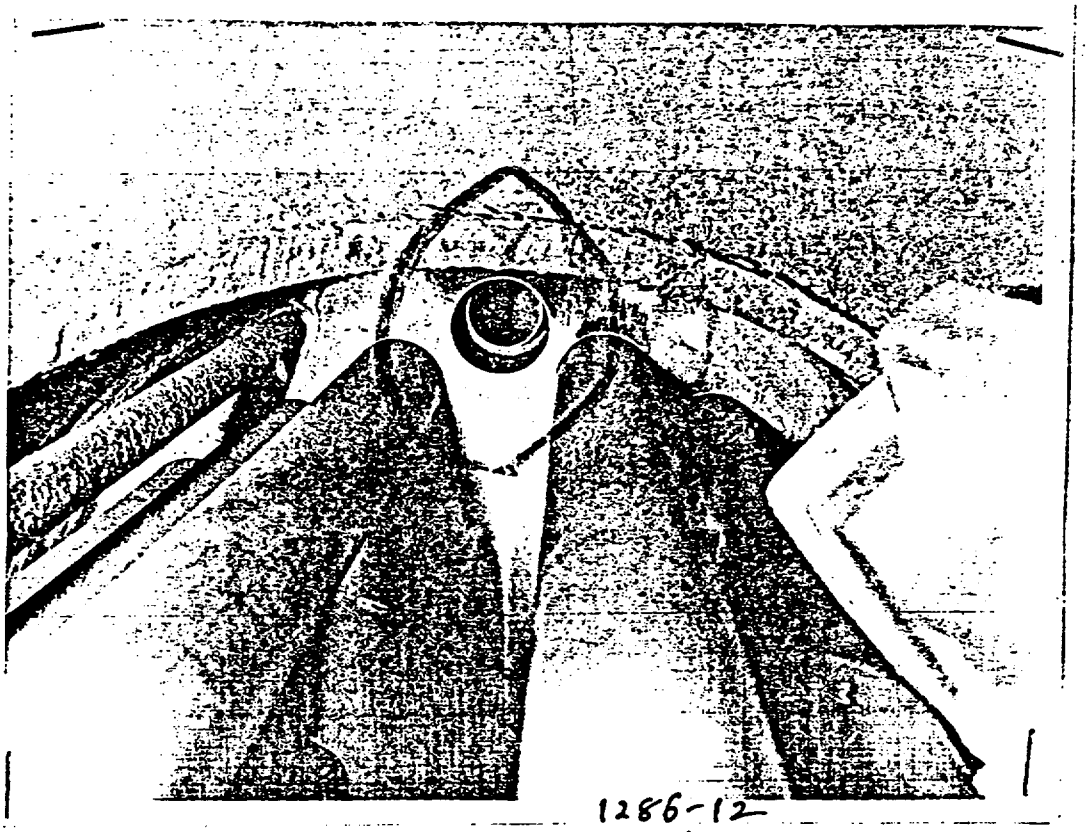
This is for your information.

With best regards,

Yours sincerely,

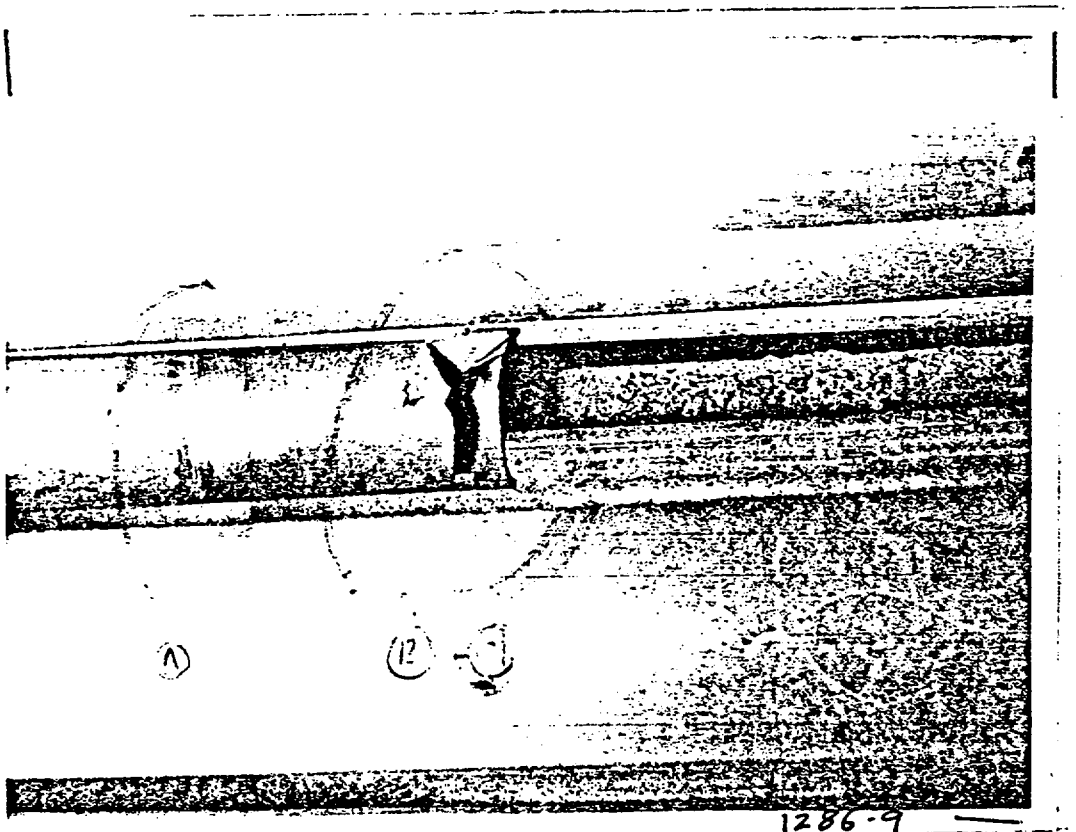
(K. Nanjundeswaran)

EMERGENCY CONDENSER UNIT-2 LOOP-A FAILURE (25.5.92)



1286-12

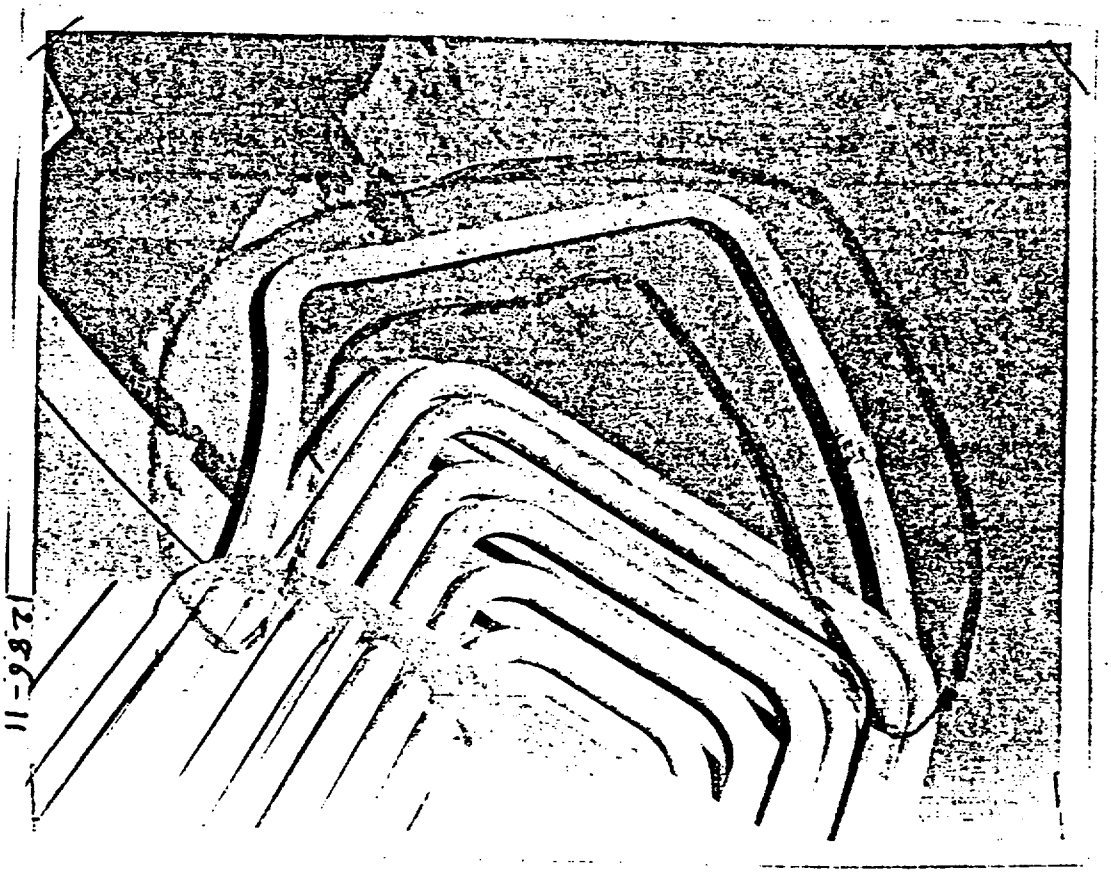
(1) INITIAL FAILURE OF TUBE/TUBE SHEET JOINT AREA PROBABLY BY FRETTING.



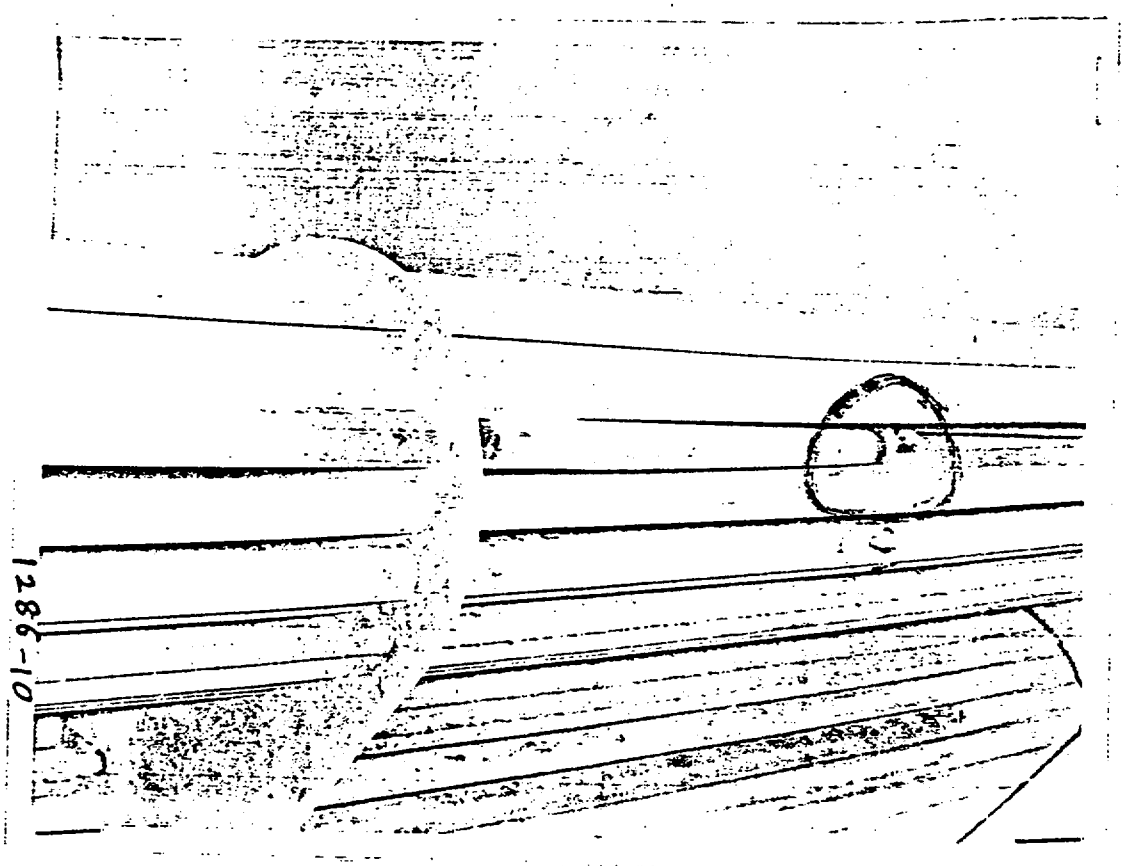
1286-9

(2) FAILURE OF U-PART OF U-TUBE (LOCATION A SHOWS TUBE HELD) AT REGION-B - NATURE OF TUBE FAILURE TO BE ASSESSED BY AFD-BARC.

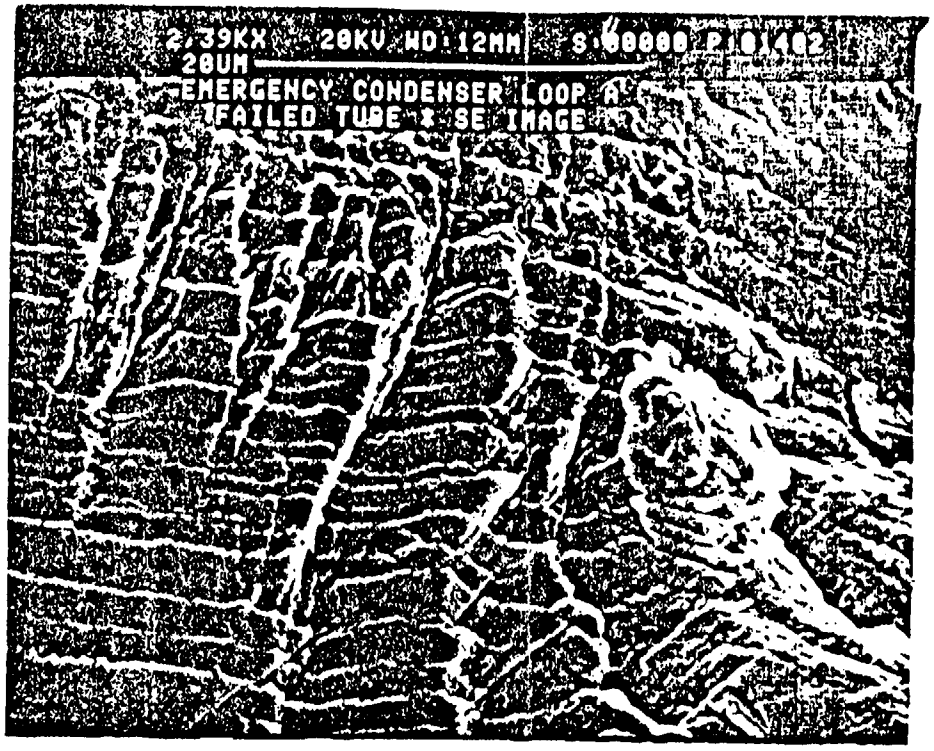
2.6.92



(3) BENT PORTION OF U-TUBE.



(4) FRACTURED LOCATION OF U-TUBE LOCATION (B) (C) SHOWING END OF TUBE WHICH HAS COME OUT OF TUBE SHEET AFTER SHEARING FROM JOINT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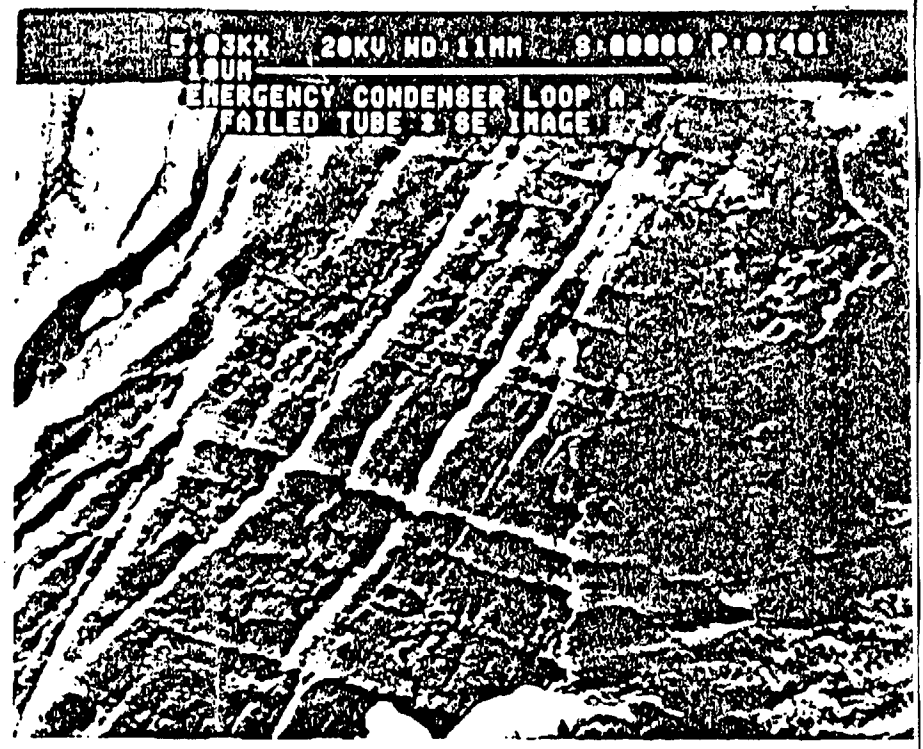
20UM
EMERGENCY CONDENSER LOOP A
FAILED TUBE # SE IMAGE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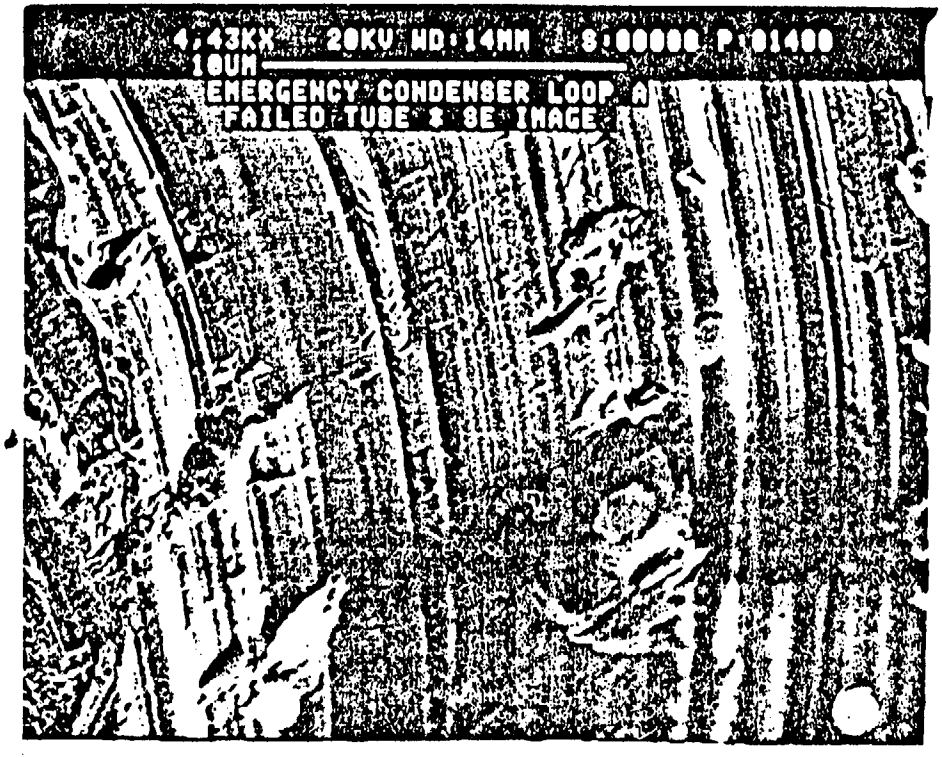
10UM
EMERGENCY CONDENSER LOOP A
FAILED TUBE # SE IMAGE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EMERGENCY CONDENSER LOOP A
FAILED TUBE # SE IMAGE