

PRIORITY 1

(ACCELERATED RIDS PROCESSING)

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9510180036 DOC. DATE: 95/10/13 NOTARIZED: YES DOCKET #
FACIL: 50-315 Donald C. Cook Nuclear Power Plant, Unit 1, Indiana M 05000315
50-316 Donald C. Cook Nuclear Power Plant, Unit 2, Indiana M 05000316
AUTH. NAME AUTHOR AFFILIATION
FITZPATRICK, E. Indiana Michigan Power Co. (formerly Indiana & Michigan Ele
RECIP. NAME RECIPIENT AFFILIATION
Document Control Branch (Document Control Desk)

SUBJECT: Responds to RAI re GL 95-03, "Circumferential Cracking of SG
Tubes."

DISTRIBUTION CODE: A001D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 5
TITLE: OR Submittal: General Distribution

NOTES:

	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL
	PD3-1 LA	1 1	PD3-1 PD	1 1
	HICKMAN, J	1 1		
INTERNAL:	ELLE CENTER 01	1 1	NRR/DE/EMCB	1 1
	NRR/DRCH/HICB	1 1	NRR/DSSA/SPLB	1 1
	NRR/DSSA/SRXB	1 1	NUDOCS-ABSTRACT	1 1
	OGC/HDS2	1 0		
EXTERNAL:	NOAC	1 1	NRC PDR	1 1

NOTE TO ALL "RIDS" RECIPIENTS:

PLEASE HELP US TO REDUCE WASTE! CONTACT THE DOCUMENT CONTROL
DESK, ROOM OWFN 5D8 (415-2083) TO ELIMINATE YOUR NAME FROM
DISTRIBUTION LISTS FOR DOCUMENTS YOU DON'T NEED!

TOTAL NUMBER OF COPIES REQUIRED: LTTR 12 ENCL 11

Indiana Michigan
Power Company
PO Box 16631
Columbus, OH 43216



**INDIANA
MICHIGAN
POWER**

October 13, 1995

AEP:NRC:1166W

Docket Nos.: 50-315
50-316

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555

Gentlemen:

Donald C. Cook Nuclear Plant Units 1 and 2
GENERIC LETTER 95-03 RESPONSE CIRCUMFERENTIAL
CRACKING OF STEAM GENERATOR TUBES
REQUEST FOR ADDITIONAL INFORMATION (RAI)

The purpose of this letter is to respond to your request for additional information regarding Generic Letter 95-03. The attachment contains your areas of concern, and our responses for Donald C. Cook Nuclear Power Plant units 1 and 2.

Sincerely,

E. E. Fitzpatrick
Vice President

SWORN TO AND SUBSCRIBED BEFORE ME

THIS 13th DAY OF October 1995

Notary Public

My Commission Expires: 3-9-96

plt

Attachment

170171

9510180036 951013
PDR ADOCK 05000315
P PDR

Adol

U. S. Nuclear Regulatory Commission
Page 2

AEP:NRC:1166W

cc: A. A. Blind
G. Charnoff
H. J. Miller
NFEM Section Chief
NRC Resident Inspector - Bridgman
J. R. Padgett

AEP:NRC: 1166W SUBMITTAL

REQUEST FOR ADDITIONAL INFORMATION, DONALD C. COOK
NUCLEAR PLANT UNITS 1 AND 2, CIRCUMFERENTIAL CRACKING
OF STEAM GENERATOR TUBES, GENERIC LETTER 95-03

1. It was indicated that one tube circumferentially separated during a tube pull at Unit 1 in 1992. It was further indicated that the remaining three tubes which were pulled had burst pressures in excess of 5500 psi. Discuss the assessments performed, if any, on the structural integrity of the tube that circumferentially separated during the tube pull in 1992.

Response

Other than metallographic examination conducted to confirm the degradation morphology and extent, no additional assessments were done on the structural integrity of the circumferentially separated tube. Fractography observation showed an average crack depth of 65 percent and maximum crack depth of 75 percent. Metallography showed the crack morphology to be primarily intergranular cellular corrosion from the tubesheet top (TST) to 0.25 inches above the TST. Axial intergranular stress corrosion cracking extended from 0.25 inches to 1.1 inches above the TST.

2. Clarify the scope of the inspections to be performed in the U-bend portion of the tubes with small radius U-bends (i.e., Row 1 and 2) in Unit 1 during the next steam generator tube inspections. Provide the expansion criteria to be used if indications are detected during these inspections.

Response

The motorized rotating pancake coil inspection program for small radius U-bend tubes was completed September 1995 during the refueling outage. No tube degradation was found in the initial sample of 173 tubes, 100 percent of the in-service Row 1 and 2 tubes in one steam generator. Based on the inspection results there was no need to expand the inspection scope. The tube inspection scope for the Row 1 and 2 U-bends consisted of selecting an initial sample size of at least 20 percent of the in-service Row 1 and 2 tubes. Detection of any circumferential cracking in the initial sample the program would have been the basis for expanding the inspection scope to 100 percent of the in-service Row 1 and 2 tubes in the remaining three steam generators.

3. Operating temperature was one factor cited for having less pronounced tube degradation at sleeve joints, if any degradation is present at all. Please compare the operating temperature at Cook Unit 1 to the operating temperatures at the other plants.

Response

The T-hot operating temperature for Donald C. Cook Nuclear Plant Unit 1 is 583°F. The T-hot temperatures for Kewaunee, Point Beach 2 and Zion 1 are 590°F, 597°F and 591°F respectively.

4. The following areas have been identified as being susceptible to circumferential cracking:
- a. Expansion transition circumferential cracking
 - b. Small radius U-bend circumferential cracking
 - c. Dented location (including dented TSP [tube support plate]) circumferential cracking
 - d. Sleeve joint circumferential cracking

In your response for Unit 2, area d was not specifically addressed. Please provide the requested information for this area (and any other areas susceptible to circumferential cracking) per Generic letter 95-03. The staff realizes that some of these areas may not have been addressed since they may not be applicable to your plant; however, this should be clearly stated with the basis for the statement (e.g., no sleeves are installed; therefore, the plant is not susceptible to sleeve joint circumferential cracking).

Response

Areas a, b and c, were discussed in our submittal AEP:NRC:1166T. Area d was not addressed in that submittal since there are no sleeves installed in the Donald C. Cook Nuclear Plant Unit 2 steam generators. Therefore, the plant is not susceptible to sleeve joint circumferential cracking. No other areas were identified as being susceptible to circumferential cracking.

5. Please provide the expansion criteria to be used if circumferential indications are detected at the expansion transition during the Cook 2 steam generator inspections.

If a circumferential crack at an expansion transition region is detected, the inspection scope will be expanded to 100 percent of the tubes at the affected expansion transition region for the same steam generator and an initial random 20 percent sample inspection will be conducted in each of the other steam generators at the affected location. If a circumferential crack at an expansion transition is found in the expanded 20 percent inspection sample in one of the other steam generators, the inspection will be expanded to 100 percent of the tubes in all steam generators at the affected expansion transition region.