

ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

REGULAR INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9211170350 DOC. DATE: 92/11/12 NOTARIZED: NO DOCKET #
 FACIL: 50-261 H.B. Robinson Plant, Unit 2, Carolina Power & Light C 05000261
 AUTH. NAME AUTHOR AFFILIATION
 CHAMBERS, R.H. Carolina Power & Light Co.
 RECIP. NAME RECIPIENT AFFILIATION
 Document Control Branch (Document Control Desk)

SUBJECT: Forwards EPRI NDE Ctr rept of results of visit to evaluate
 Loop C Feedwater Expander-To-Nozzle Weld, as supplement to
 90-day inservice insp rept, per 921020 request from Project
 Manager.

DISTRIBUTION CODE: A047D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 5
 TITLE: OR Submittal: Inservice Inspection/Testing/Relief from ASME Code

NOTES:

	RECIPIENT		COPIES		
	ID CODE/NAME	LTTR	ENCL		
	PD2-1 LA	1	0		
	MOZAFARI, B	2	2		
INTERNAL:	NRR/DET/ECMB 9H	1	1	NRR/DET/EMEB 7E	1 1
	NUDOCS-ABSTRACT	1	1	OC/LFMB	1 0
	OGC/HDS2	1	0	<u>REG FILE</u> 01	1 1
	RES MILLMAN, G	1	1	RES/DSIR/EIB	1 1
EXTERNAL:	EG&G BROWN, B	1	1	EG&G RANSOME, C	1 1
	NRC PDR	1	1	NSIC	1 1

NOTE TO ALL "RIDS" RECIPIENTS:

PLEASE HELP US TO REDUCE WASTE! CONTACT THE DOCUMENT CONTROL DESK.
 ROOM P1-37 (EXT. 504-2065) TO ELIMINATE YOUR NAME FROM DISTRIBUTION
 LISTS FOR DOCUMENTS YOU DON'T NEED!

TOTAL NUMBER OF COPIES REQUIRED: LTTR 16 ENCL 13



Carolina Power & Light Company

ROBINSON NUCLEAR PROJECT DEPARTMENT

P. O. BOX 790

HARTSVILLE, S. C. 29550

NOV 12 1992

Robinson File No.: 13510

SERIAL: RNPD/92-2981

United States Nuclear Regulatory Commission
ATTENTION: Document Control Desk
Washington, DC 20555

H. B. ROBINSON STEAM ELECTRICAL PLANT, UNIT NO. 2
DOCKET NO. 50-261/LICENSE NO. DPR-23
SUPPLEMENT TO 90-DAY INSERVICE INSPECTION REPORT

Gentleman:

Please find enclosed a copy of the EPRI NDE Center report of the results of their assistance visit, requested by Carolina Power and Light Company (CP&L), to evaluate the Loop C Feedwater Expander-To-Nozzle Weld which had been suspected of having thermal fatigue cracking attributable to thermal stratification. A copy of this report was requested by your Project Manager for H. B. Robinson Steam Electric Plant, Unit No. 2 (HBR2), during a telephone conference call with CP&L on October 20, 1992.

On October 20, 1992, a telephone conference call was held between CP&L and the Nuclear Regulatory Commission to address questions raised by the reviewer of CP&L's 90-Day Inservice Inspection Report which was submitted on September 21, 1992. One question raised was what actions were taken on the indications found on the C Steam Generator Feedwater Nozzle. As stated during the conference call, the indications found were determined to be counterbore signals and not cracks. The basis for this determination is addressed in the attached report provided by Mr. Stan Walker, Manager, Piping & BWR Vessel Inspection, EPRI NDE Center. This report should be inserted under Tab F of the subject 90-day report with the associated data sheets for the C Steam Generator Feedwater Nozzle.

As agreed previously, and discussed during this conference call, the areas of the feedwater nozzle piping subject to the thermal fatigue cracking phenomena resulting from thermal stratification will be examined on a more frequent basis. This frequency change, from once each forty month period to each refueling outage, for all three steam generator feedwater loops, will be reflected in the next revision to the Third Ten Year Interval Inservice Inspection Program. This revision will be completed by January 19, 1993.

160060
9211170350 921112
PDR ADDCK 05000261
P PDR

AO47

Document Control Desk
SERIAL: RNPD/92-2981
Page 2

Should you have further questions regarding this matter, please contact
Mr. James L. Harrison at 803-383-1433.

Yours very truly,

Ray H. Chambers

R. H. Chambers
Plant General Manager
H. B. Robinson S. E. Plant

DCS:lst

Enclosure

cc: Mr. S. D. Ebnetter
Mr. L. W. Garner
Ms. B. L. Mozafari

EPRI NDE CENTER

Electric Power Research Institute
Nondestructive Evaluation Center

Leadership in Technology Transfer

May 20, 1992

Mr. S. Warren Farmer
Carolina Power & Light
H. B. Robinson Plant
P. O. Box 790
Hartsville, SC 29550-0790

SUBJECT: Subscriber Requested Assistance Provided at H. B. Robinson

Dear Mr. Farmer:

At the request of Carl Osman, the EPRI NDE Center provided onsite assistance to CP&L at the H. B. Robinson site. The Loop C feedwater expander-to-nozzle weld was suspected to have thermal fatigue cracking attributable to thermal stratification. CP&L requested that the NDE Center assist with the evaluation.

The USNRC Inspector, Mr. Jim Coley, requested additional investigations be performed on the Loop C feedwater expander-to-nozzle weld as it contained ultrasonic indications at the inside surface and Mr. Coley identified a midwall indication with the RTD creeping wave search unit, which was not readily attributable to geometry.

After a thorough briefing by the utility representative (Ed Black) and the inspection vendor (Art Pennanen, Nuclear Energy Services), Ed Black escorted the NDE Center representative into the containment to view the indication in question. An inside surface indication was observed with the 45-degree shear wave search unit. This indication had previously been called geometry from the counterbore by CP&L, but was questioned by the USNRC. No additional surface indications could be obtained, even at increased instrument sensitivity.

Thermal fatigue cracking usually occurs with one major crack and several shallow cracks in the vicinity. No additional inside surface indications were observed in the general area, but two indications accompanied the counterbore indication and confirmed that this indication was related to the counterbore.

One indication was of low amplitude and could be easily damped on the outside surface. This second indication was indicative of a mode-converted signal reflecting essentially perpendicular to the outside surface. The third indication was also of low amplitude, but somewhat higher than the second, and was also damped on the outside surface. The time-of-flight of this indication was indicative of a shear wave

Mr. S. Warren Farmer
Page Two
May 20, 1992


reflecting perpendicular to the outside surface. The only means of explaining the occurrence of all three signals simultaneously is that a counterbore must exist at this location. A sketch made by Ed Black showing the associated beam paths is attached.

In order to rule out the possibility of any other reflector, 60-degree and 70-degree longitudinal waves were used to search for reflectors within the pipe wall thickness. No such reflectors were obtained. The creeping wave search unit used by the USNRC did produce a signal at about 0.5-inch below the outside surface. This is a little deep for the search unit's applicable range and the echodynamic pattern of the indication was not appropriate for longitudinal waves. It is most likely that the signal obtained was due to a redirection of the shear component of the ultrasonic beam. Had the indication been a real crack tip at this depth, the 70-degree longitudinal wave search unit would have produced a much clearer signal, since it penetrates further into the metal and is more reliable at this depth than a creeping wave.

Based on the examinations performed by CP&L, the portion of the Loop C feedwater expander-to-nozzle weld examined does not contain crack indications, rather counterbore signals were obtained and confirmed. If other feedwater welds in the plant contain indications which are still not fully resolved, high angle longitudinal waves should be utilized to confirm that cracking is not present.

I would be happy to discuss this situation with Jim Coley if you desire. Should you need additional assistance, please do not hesitate to call.

Sincerely,



Stan M. Walker
Manager, Piping & BWR Vessel Inspection
EPRI NDE Center

SMW:chh

cc: R. Stone
F. Ammirato
J. O'Brien, Palo Alto
-Bob Cooper, CP&L Robinson Plant
Carl Osman, CP&L NE&EC

CP&L
 Caroline Power & Light Company
NDE DRAWING ATTACHMENT

PAGE OF

PROJECT

JOB NO.

UNIT 1 ☐ 2 ☒ 3 ☐ 4 ☐

DATE 5/15/92

DRAWING

SYSTEM

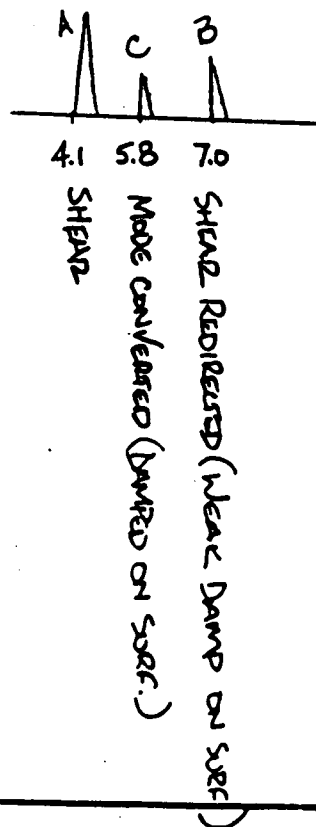
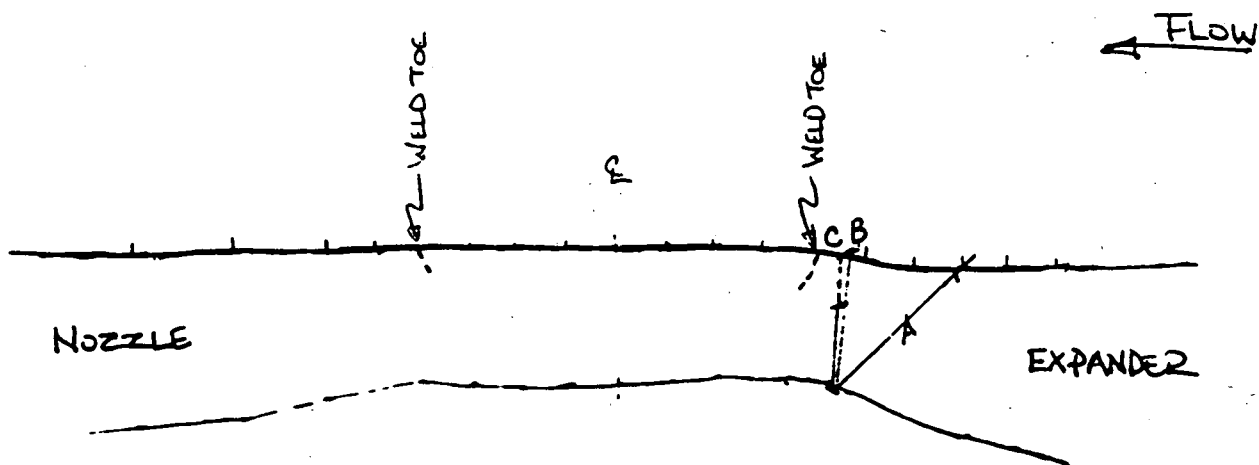
3/6 C

LINE

FEEDWATER NOZZLE

WELD/ITEM NUMBER

WELD 1



SCALE: 1" = 1"

Black
 LEVEL II