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AUTH.NAME AUTHOR AFFILIATION
SORENSEN,G.C. Washington Public Power Supply System
RECIP.NAME RECIPIENT AFFILIATION
Document Control Branch (Document Control Desk)

SUBJECT: Submits rept on flaw in reactor recirculation piping,per Generic Ltr 88-01.Indication in ISI weld 20RRC(6)-8 reexamined on 920421 to determine any size change.Results listed on encl submitted for approval for restart on 920629.

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MAY

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

P.O. Box 968 • 3000 George Washington Way • Richland, Washington 99352-0968 • (509) 372-5000

May 14, 1992
G02-92-123

Docket No. 50-397

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

Gentlemen:

Subject: WNP-2, OPERATING LICENSE NPF-21
REPORT ON FLAW IN REACTOR RECIRCULATION PIPING (TAC No. 80358)

References: 1) Letter, G02-91-098, dated May 15, 1991, GC Sorensen (SS) to NRC, "Report on Flaw in Reactor Recirculation Piping Additional Information (TAC No. 80358)"

2) Letter, G02-91-096, dated May 10, 1991, GC Sorensen (SS) to NRC, "Report on Flaw in Reactor Recirculation Piping (TAC No. 80358)"

3) Letter, G02-92-085, dated April 10, 1992, GC Sorensen (SS) to NRC, "Request for Amendment to Technical Specification in Accordance with Generic Letter 88-01"

4) Letter dated February 14, 1992, PL Eng (NRC) to GC Sorensen (SS), "Safety Evaluation of a Flaw in the Reactor Recirculation Piping at the Washington Public Power Supply System (WPPSS) Nuclear Project Number 2 (TAC No. M80358)"

The indication in ISI weld 20RRC(6)-8, as reported in References 1 and 2, was reexamined April 21, 1992 to determine any size change. No significant changes in the indication depth nor signal characteristics were noted. The flaw depth was found to be 0.17 inch (0.15 inch at R-6) and the length was unchanged at 4.5 inches. The slight difference in depth is attributed to the minor differences in calibration and data point locations along the indication length. The indication does not exhibit the UT signals characteristic of IGSCC.

Between R-6 and R-7, the Supply System enhanced the construction radiographs. No reason for the indication could be seen on the enhanced film.

A001
1/1

During this same period, the fracture mechanics analysis was also refined. The analysis predicts a crack depth of 0.29 inches after 365 days if the IGSCC mechanism is active. The analysis also predicts that the depth would exceed the maximum allowable depth of 0.62 inches after 5 additional years. The current flaw depth is 0.17 inches. This depth is approximately 14% of the predicted growth as determined by analysis. Review of the program output for both the fatigue analysis and the IGSCC analysis showed the current crack size is well within the limits of our evaluation that was previously performed. Therefore, based on the analysis and the examination results, the indication is determined to be acceptable for continued operation without repair until the next examination.

The Supply System will continue to monitor this indication. At refueling outage R-8, Spring 1993, the indication will be resized. If it still does not show any signs of growth, it will be reanalyzed to justify increasing the examination frequency. This weld is still classified as an IGSCC, Category "F" weld. This also requires augmented leak detection as described in Reference 3.

The results of this reexamination and evaluation are submitted for your review and approval for plant restart scheduled for June 29, 1992 (Reference 4).

Sincerely,

G. C. Sorensen, Manager
Regulatory Programs (Mail Drop 280)

DPR/bk
Enclosure: Ultrasonic Report Number 1RRU-166

cc: JB Martin - NRC RV
NS Reynolds - Winston & Strawn
WM Dean - NRC
DL Williams - BPA/399
NRC Site Inspector - 901A

(E) DIC = 1104.1
MID = 20 RRC(6)-8

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

REPORT # IRRU-166
PG 1 OF 6

ULTRASONIC FLAW SIZING DATA SHEET

PROJECT: WNP-2	SYSTEM: RRC	ISI DRAWING NO.: RRC-105 Rev. 2
WELD/PART DESCRIPTION: PIPE TO VALVE		WELD/PART NO.: 20 RRC (6)-8
IGSCC DETECTION REPORT NO: R-6 REPORT IRRU-155, 156 & 157		UT SIZING CALIBRATION REPORT: 344
FLAW LENGTH: 4.5"		CALIBRATION BLOCK NO.: UT-9S
FLAW AREA THICKNESS: 1"		CALIBRATION BLOCK THICKNESS: 1.02"
INSTRUCTION NO.: QCI 6-25 REV. 1	EXAMINER: P.L. TOMPKINS (PLT)	LEVEL: II
DATE: 4-21-92	EXAMINER: n/a	LEVEL: n/a
TIME START: 13:15	TIME STOP: 13:40	PART TEMP: 106 °F

FLAW NO.	30-70-70	HIGH ANGLE L WAVE	MOST	AATT	RATT	FULL VEE	% TWD	CRACK DEPTH	ACTUAL
#1	CE-1 17% FSH LENGTH 3⅝" AT REFERENCE GAIN = .14" BY AMP.	NO INDICATION	17% FURTHEST TIP	15%	12% MAX	n/A	17%	.17"	
	NOTE: FLAW LENGTH of 4.5" WAS initial length of flaw based on CE-2 signal Length of 3⅝" is based on EPRI NDE practice for IGSCC detection of length based on a reference gain. No change in length was noted.		Last years R-6 length based on 12db over reference to determine disappearing into baseline.					(PLT).	

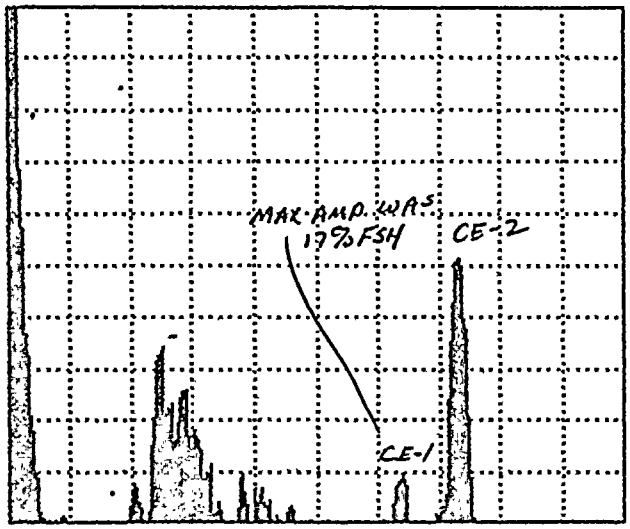
FINAL REPORTED CRACK DEPTH: .17"

COMMENTS: I FOUND NO SIGNIFICANT CHANGES IN THE INDICATIONS DEPTH OR SIGNAL CHARACTERISTICS OVER LAST YEAR. THE VERY SLIGHT INCREASE IN THE INDICATIONS TWP MAY BE DUE TO MINOR DIFFERENCES IN CALIBRATION AND DATA POINTS ~~ALONG~~ LOCATIONS ALONG INDICATIONS LENGTH. CALIBRATION & EXAMINATION WITNESSED BY ANII. (PLT)

REVIEWED BY LEVEL III:	DATE: 4-25-92	REVIEWED BY: ANII	DATE: 4/27/92

30-70-76

STORED DISPLAY



RANGE		RECEIVER	
RANGE	5.40in	GAIN	67.0dB
DELAY	0.324in	DISPLAY	FILT2
VEL	0.227 in/us	FREQ	2.25MHz
UNITS	in	REJECT	OFF
GATE		**PULSER**	
LEVEL	OFF	PULSE	222n8
POSN	1.45in	DAMPING	500Ω
WIDTH	3.40in	PULSE ECHO	
POLARITY	+	REP RATE	2 KHz
GAIN REFERENCE			
GAIN	67.0dB		
REF LVL	67.0dB		
% CHANGE	0.0		
dB CHANGE	0.0		

INSPECTION REPORT

COMPANY: Supply System

ADDRESS:

OPERATOR: P.L. TOMPKINS TIME: 13:20

INSP. PROCEDURE: QCI 6-25 Rev. 1

CODE/SPEC: IGSCC SIZING

ACCEPTANCE LEVEL: N/A

JOB NUMBER:

OBJECT: 20 RCC(6)-E MATERIAL: STAINLESS STEEL

TRANSDUCER TYPE: WSY 70-2

COMMENTS: 30-70-20 Technique
slight CE-1 signal indicating approx-depth of 15% TWD

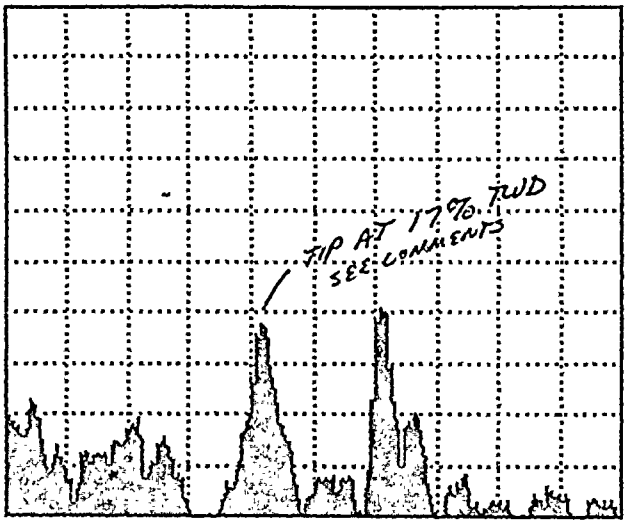
SIGNATURE: Paul L. Tompkins DATE: 4-21-92
Dan Hoggatt ANII 4/27/92

IRRU-166
Pg 20F6

MOST TECHNIQUE

STAVELEY INSTRUMENTS — SONIC 136 PLUS DATA REPORT

STORED DISPLAY # 2



RANGE		RECEIVER	
RANGE	2.95in	GAIN	73.0dB
DELAY	1.13in	DISPLAY	FILT2
VEL	0.227 in/us	FREQ	2.25MHz
UNITS	in	REJECT	OFF
GATE		**PULSER**	
LEVEL	OFF	PULSE	222nS
POSN	1.75in	DAMPING	500Ω
WIDTH	1.86in	DUAL	
POLARITY	+	REP RATE	2 KHz

GAIN REFERENCE	
GAIN	73.0dB
REF LVL	67.0dB
% CHANGE	99.5
dB CHANGE	6.0

INSPECTION REPORT

COMPANY: Supply System

ADDRESS:

OPERATOR: P L. Tompkins — TIME: 13:28

INSP. PROCEDURE: QCI 6-25 Rev. 1

CODE/SPEC: IGSCC Sizing

ACCEPTANCE LEVEL: N/A

JOB NUMBER:

OBJECT: 20 RRC (6)-8 — MATERIAL: STAINLESS STEEL

TRANSDUCER TYPE: ADEPT-60

COMMENTS: THICKNESS APPEARED TO BE SLIGHTLY LESS THAN 1" AT LOCATION
17% TWD IS A GOOD READING.
PROBABLY VERY TIP EDGE OF INDICATION
(SEE STORED DISPLAY #3

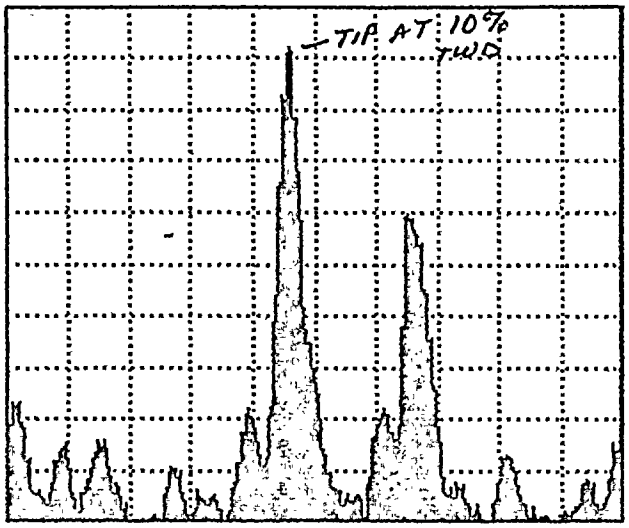
SIGNATURE: Paul L. Tompkins — DATE: 4-21-92
Dan Hoyt ANII — 4/27/92

IRRU-166
Pg 3 of 6

MOST TECHNIQUE

STAVELEY INSTRUMENTS — SONIC 136 PLUS DATA REPORT

STORED DISPLAY # 3



RANGE		RECEIVER	
RANGE	2.95in	GAIN	73.0dB
DELAY	1.13in	DISPLAY	FILT2
VEL	0.227 in/us	FREQ	2.25MHz
UNITS	in	REJECT	OFF
GATE		**PULSER**	
LEVEL	OFF	PULSE	222nS
POSN	1.75in	DAMPING	500Ω
WIDTH	1.86in	DUAL	
POLARITY	+	REP RATE	2 KHz
GAIN REFERENCE			
GAIN	73.0dB		
REF LVL	67.0dB		
% CHANGE	99.5		
dB CHANGE	6.0		

INSPECTION REPORT

COMPANY: Supply System

ADDRESS:

OPERATOR: P.L. Tompkins — TIME: 13:28

INSP. PROCEDURE: QCI 6-25 Rev. 1

CODE/SPEC: IGSCC Sizing

ACCEPTANCE LEVEL: n/a

JOB NUMBER:

OBJECT: 20 RRC (6)-8 — MATERIAL: STAINLESS STEEL

TRANSDUCER TYPE: ADEPT 60

COMMENTS: TIP SIGNALS MAX AMPLITUDE AT 10% TWD

SIGNATURE: Paul L. Tompkins — DATE: 4-21-92

Dan Hoggatt AWFI — 4/27/92

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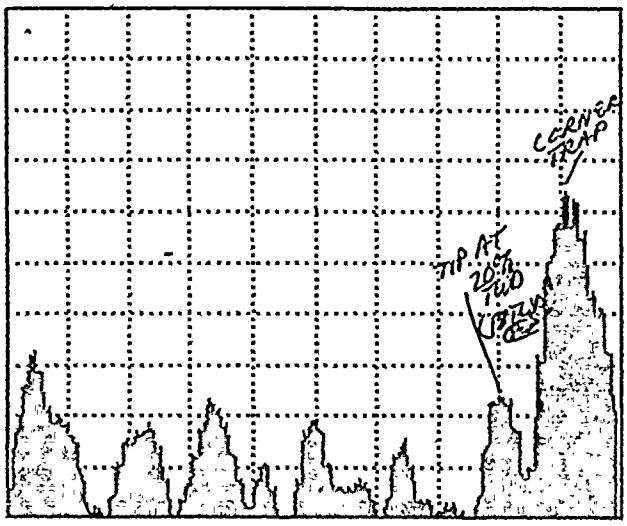
STAVELEY INSTRUMENTS — SONIC 136 PLUS DATA REPORT

45° SHEAR AATT

STORED DISPLAY # 4



RANGE		RECEIVER	
RANGE	0.762in	GAIN	67.2dB
DELAY	1.14in	DISPLAY	FILT1
VEL	0.127 in/us	FREQ	5MHz
UNITS	in	REJECT	OFF
GATE		**PULSER**	
LEVEL	OFF	PULSE	100nS
POSN	1.30in	DAMPING	500Ω
WIDTH	0.480in	PULSE ECHO	
POLARITY	+	REP RATE	2 KHz
GAIN REFERENCE			
GAIN	67.2dB		
REF LVL	53.0dB		
% CHANGE	412.9		
dB CHANGE	14.2		

HIGH GAIN OVER REFERENCE REQUIRED

INSPECTION REPORT

COMPANY: Supply System

ADDRESS:

OPERATOR: Paul L Tompkins TIME: 13:35

INSP. PROCEDURE: QCI 6-25 Rev 1

CODE/SPEC: TOSCC SIZING

ACCEPTANCE LEVEL: N/A

JOB NUMBER:

OBJECT: 20 RRC (6)-8 MATERIAL: STAINLESS STEEL

TRANSDUCER TYPE: 45° SHEAR

COMMENTS: SLIGHT THICKNESS DIFFERENCES - DETERMINE TIP TO CORNER SEPARATION MAKE THIS PROBABLY ~~15%~~ 17% TWD

SIGNATURE: Paul L. Tompkins DATE: 4-21-92

Dan Hoggatt ANII 4/27/92

IRRU-166
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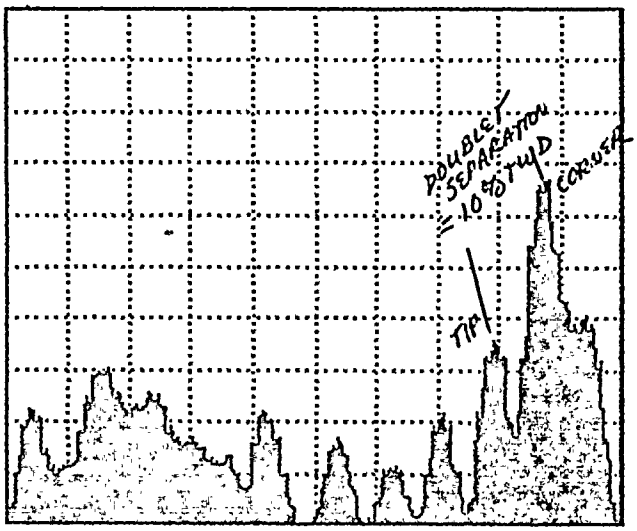
STAVELEY INSTRUMENTS — SONIC 136 PLUS DATA REPORT

STORED DISPLAY # 5



RANGE		RECEIVER	
RANGE	0.762in	GAIN	67.2dB
DELAY	1.14in	DISPLAY	FILT1
VEL	0.127 in/us	FREQ	5MHz
UNITS	in	REJECT	OFF
GATE		**PULSER**	
LEVEL	OFF	PULSE	100nS
POSN	1.30in	DAMPING	500Ω
WIDTH	0.480in	PULSE ECHO	
POLARITY	+	REP RATE	2 KHz
GAIN REFERENCE			
GAIN	67.2dB		
REF LVL	53.0dB		
% CHANGE	412.9		
dB CHANGE	14.2		

HIGH GAIN OVER REFERENCE REQUIRED

INSPECTION REPORT

COMPANY: Supply System

ADDRESS:

OPERATOR: P.L. Tompkins TIME: 13:40

INSP. PROCEDURE: QCI 6-25 Rev. 1

CODE/SPEC: IGSCC Sizing

ACCEPTANCE LEVEL: n/a

JOB NUMBER:

OBJECT: 20 RRC(6)-8 MATERIAL: STAINLESS STEEL

TRANSDUCER TYPE: 45° SHEAR RATT TECHNIQUE

COMMENTS: DOUBLET SEPARATION, MAX SEPARATION 1.2 DIV = 12%

SIGNATURE: Paul L. Tompkins DATE: 4-21-92

Dan Huggett ANII 4/27/92

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