TENNESSEE VALLEY AUTHORITY	EXAMINATION SUMMARY AND RESOLUTION SHEET	REPORT NUMBER: R-P0759

PROJECT: *WBN* UNIT: *2* CYCLE *00*				COMPONENT ID: *RHRS-015*	
EXAMINATION METHOD				SYSTEM: RHRS	ISI DWG NO: *ISI-2074-W-01* REV 1
MT ☐	PT ☐	UT ☑	VT ☐	CONFIGURATION:	CATEGORY
PROCEDURE: *N-UT-* 84		REV Ø	TC: N/A	*TEE* TO *P*	*B-J*

EXAMINER:	EXAMINER:	EXAMINER:	EXAMINER:
Jason Nissen	N	N	N
LEVEL: II	LEVEL: A	LEVEL: A	LEVEL: A

Total coverage calculated to be approximately 88.15%

A phased array ultrasonic examination was performed to meet the requirements of ASME Section XI preservice inspection.

A phased array 1.5 MHz, 16 element probe with a 25°-70° shear wave sector scan display was utilized to perform the examination.

No recordable indications.

88.15% examination volume achieved due to TEE intradose configuration.

RESOLUTION BY:	REVIEWED BY:	ANII:
Jason Nissen	Darlene Dudley	DATE: 8/25/09
LEVEL II DATE: 8-4-09	LEVEL: III DATE: 8-6-09	Page: 1 OF 5

ACCESS: FORMS DATABASE R-10/04/01

TENNESSEE VALLEY AUTHORITY	PHASED ARRAY ULTRASONIC CALIBRATION DATA SHEET	REPORT NUMBER: R-P0759

PROJECT: WBN UNIT 2 CYCLE: Ø	CALIBRATION DATE: 8-4-09
PROC.: N-UT-84 REV: Ø TC: N/A	CALIBRATION BLOCK NO.: WB-83 TEMP: 75.0°F
INSTR. MFG: GEIT DUE DATE: 12-19-09	SIMULATOR BLOCK NO: N/A
MODEL/TYPE: PHASOR XS M & TE ID: E41378	THERMOMTER S/N: 531988 DUE DATE: 6-12-10
SOFTWARE REVISION: 1.2	COUPLANT Ultragel II BATCH: 06225 F
EXAM TYPE: SHEAR ☒ LONG ☐ RL ☐	EXAM: ISI ☐ PSI ☒ LIMITATIONS: Y ☒ N ☐
CABLE TYPE: 1D LENGTH: 2 m #CNT: Ø	

ANGLE VERIFICATION

BLOCK TYPE: ALT SS	S/N: WB-83	NOMINAL ANGLE	ACTUAL ANGLE
REFLECTOR		LOW: 25° HIGH: 70°	LOW: 25° HIGH: 70

SCAN DIRECTION	NOTCH DEPTH	SDH. DEPTH	REF. SENS/AMPL	ANGLE / METAL PATH	EXAM SENS.
AXIAL	1.00	N A	2.0 / 80%	45° / 1.475	18.0
CIRCUMFERENTAIL	1.00	N A	2.0 / 80%	45° / 1.475	22.0

INSTRUMENT SETTINGS

GAIN TOGGLE:	dBD: Ø	dBA: 18.0

PROBE DATA

PROBE MFG: GEIT	MODEL: 115-000-441
S/N: 01RLFK	APERTURE SIZE: 0.630
ELEMENTS: 16	PITCH: 0.040
FREQ: 1.5	ELEVATION: 0.472
CONFIGURATION: ARRAY	SHAPE: RECTAGLE

WEDGE DATA

PROBE CHECK: ☒ PRE-EXAM ☒ POST EXAM

WEDGE MFG: GEIT	VELOCITY: .0920
MODEL: 360-141-162	X OFFSET: .472
WEDGE ANGLE: 38°	Z OFFSET: .512
CONTOUR: FLAT	ELEMENT 1 POSITION: LOW END

PART DATA

MATERIAL: STEEL STAINLESS	VELOCITY: .1220

CALIBRATION TIMES

INITIAL TIME: 1330	FINAL TIME: 1455		
VERF. TIMES	1348	1428	N A / N A

SCAN DATA

ELECTRONIC		SCAN PATTERN	
TYPE: Sector		ANGLE START: 25°	
FOCAL POINT: Unfocused		ANGLE STOP: 70°	
WAVE TYPE: Shear		ANGLE STEP: 1°	
RL FOCAL LAW: N/A			
LEG: 1.0	MATERIAL THICKNESS: 1.00		

APERTURE

NUMBER OF STEPS: 1	FIRST ELEMENT: 1
APERTURE SIZE: 16	APERTURE STEP: 1

DISPLAY DATA | ANGLE CORRECTION ☒ ON ☐ OFF

UT DATA

BASE	PULSER	RECIEVER	NRM/TCG
DELAY: 0.0	VOLT: 150	FREQ: BB 0.6-6.5	CYC GAIN CNTL 0.0
	WIDTH: 330	ASCAN RECT: Fullwave	
MATERIAL: STEEL STAINLESS	PRF VALUE: Auto high		

LINEARITY CHECK

VERTICAL	SIGNAL 1	100	90	80	70	60	50	40	30	20	10
	SIGNAL 2	50	45	40	35	30	25	20	15	10	5

ATTENUATOR	GAIN	SET	-6 dB	-12 dB	SET	+12	SET	+6
	AMP	80	32-48	16-24	20	64-96	40	64-96
			40	20		80		80

COMMENTS:	WELDS/ITEMS EXAMINED: RHRS-15
	RHRS-16

EXAMINER:	EXAMINER:	REVIEWER:	ANII:
[signature]	N A	[signature]	DATE: 8/25/09
LEVEL: II	LEVEL:	LEVEL: III DATE: 8-6-09	PG. 2 OF 5

TENNESSEE VALLEY AUTHORITY	MANUAL ULTRASONIC PIPING EXAMINATION DATA SHEET	REPORT NUMBER R-P0759

PROJECT: WBN UNIT/CYCLE 2 / 00
SYSTEM: RHRS
WELD I.D.: RHRS-015
CONFIG.: TEE TO P
FLOW

PROCEDURE: N-UT-84 REV: Ø TC: N/A
Wo REFERENCE: Weld 4
Lo REFERENCE: TDL

EXAMINATION DATE 8-4-09
START TIME: 1411 END TIME: 1424
EXAM SURFACE ☐ ID ☒ OD
MATERIAL TYPE: ☐ CS ☒ SS ☐ CSCL ☐ CCSS
SURFACE TEMP.: 80.7 PYRO NO. 531988

EXAMINATION ANGLE	25/70 DEG.	35/70 DEG.
AXIAL SCAN SENSITIVITY	N/A dB	18.0 dB
CIRC. SCAN SENSITIVITY	22.0 dB	N/A dB

IND NO.	L (in) FROM REF. L1	L Max	L2	AT MAX AMP W MAX	MP MAX	D MAX	MAX AMP % DAC	EXAM NO. 3-14	NOM. ANG.	NRI	INDICATION INFORMATION: TYPE, DAMPING, ETC.
								3	35/70	☒	
								4	35/70	☒	
								5	25/70	☒	
								6	25/70	☒	
										☐	
										☐	

REMARKS/LIMITATIONS Scan 3 limited at 4.5-12.5" and 21.5-29.5" due to TEE intradose, Maintained 5-20% ID Roll. Scanned across the weld.

EXAMINER: [signature] LEVEL: II
EXAMINER: N/A LEVEL: N/A
REVIEWED BY: [signature] LEVEL: III DATE: 8-6-09

ANII: [signature]
DATE: 8/25/09
PAGE 3 OF 5

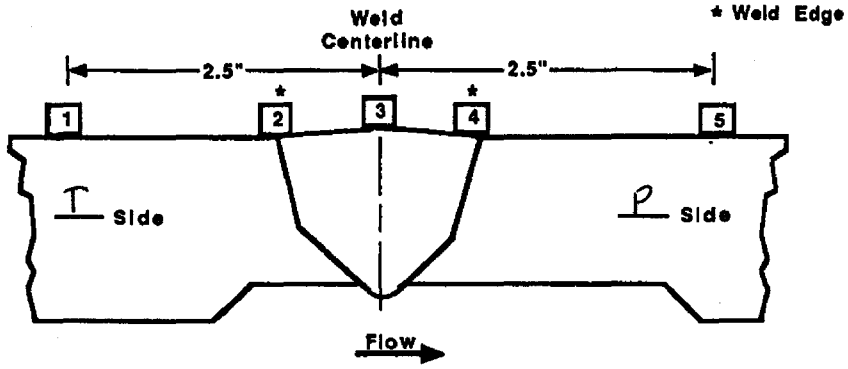
ACCESS: FORMS DATABASE 10/18/01

TVA	WALL THICKNESS PROFILE SHEET	REPORT NO: R-P0759

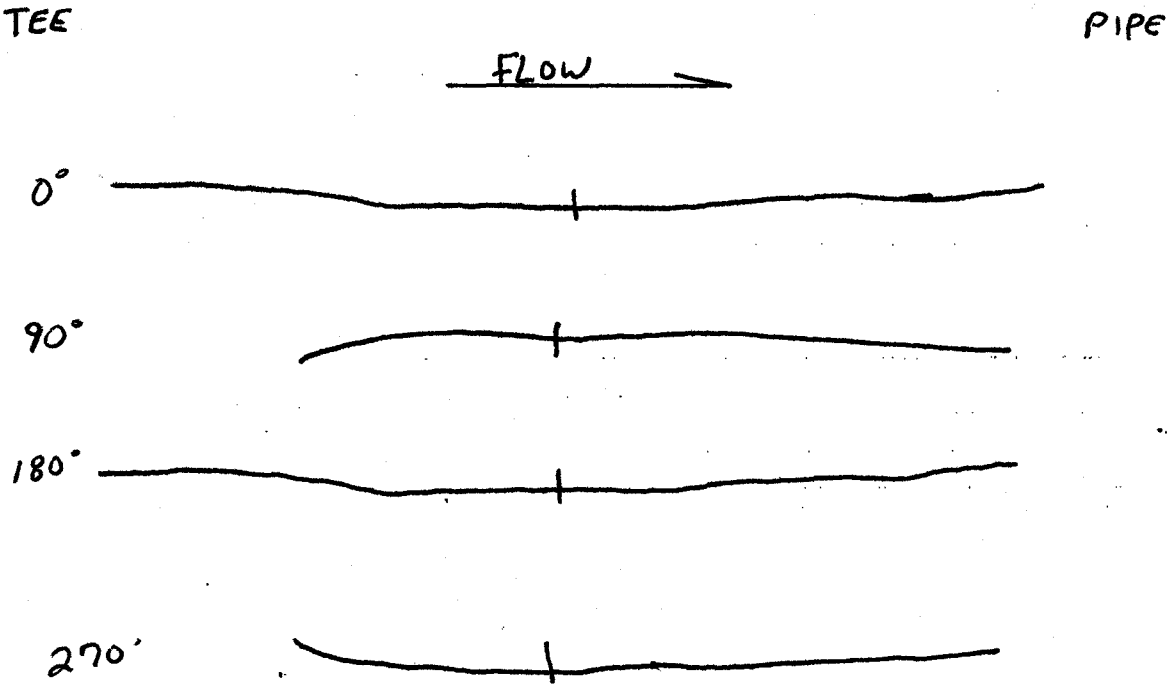
PROJECT: WBN
UNIT: 2
WELD NO: RHRS-15
SYSTEM: RHR

Record Thickness Measurements As Indicated, Including Weld Width, Edge-To-Edge At 0°

Position	0°	90°	180°	270°
1	1.34	N/A	1.35	N/A
2	1.24	1.16	1.25	1.14
3	1.11	1.16	1.02	1.14
4	.94	.95	.95	.96
5	1.06	1.04	1.05	1.03



CROWN HEIGHT: Flush
CROWN WIDTH: 1.1
DIAMETER: 10"
WELD LENGTH: 33.75



EXAMINER: KEITH Bull
LEVEL: II
DATE: 7-30-09

REVIEWED BY: [signature]
LEVEL: III
DATE: 8-6-09

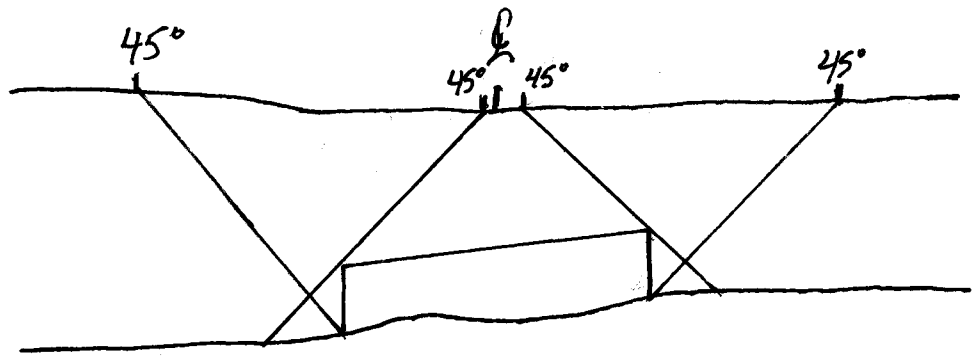
ANII: [signature]
DATE: 8/25/09
PAGE 4 OF 5

TVA 19668 (NP-5-89)

1-108-999-44

TVA Office of Nuclear Power	PROJECT: WBN SYSTEM: RHR UNIT: 2 WELD NO: RHRS-15	REPORT NO.: R-P0759

TEE FLOW → PIPE



Plot shown represents primary angle of 45°, phased array angles used ~~35~~ 25° - 70°
PM 8/6/09

BY: Keith Bull LEVEL: II DATE: 7-30-09 PAGE 5 OF 5

R. P0759

Watts Bar Unit 2

TVA Procedure N-GP-31
Attachments 3 & 4

Worksheet Version 1.0 dated 07/01/09

WELD NUMBER RHRS-015

		Measured Fields		Calculated Fields	
Item 1	Required examination Volume in sq. in. **(width x height)**	1.6	0.367	0.5872	sq. in.
Item 2	Number of **scan directions**			4	directions
Item 3	Total Scan **volume** in sq. in.			2.3488	sq. in.
Item 4	Total **length** of weld			33.75	inches
Item 5	Total required **exam volume** in cubic inches			79.272	cu. in.
Item 6	**Exam volume acheived** (sq. in.) in direction 1 X **length of weld achieved**	0.5872	33.75	19.818	cu. In.
Item 7	**Exam volume acheived** (sq. in.) in direction 2 X **length of weld achieved**	0.5872	17.75	10.4228	cu. In.
Item 8	**Exam volume acheived** (sq. in.) in direction 3 X **length of weld achieved**	0.5872	33.75	19.818	cu. In.
Item 9	**Exam volume acheived** (sq. in.) in direction 4 X **length of weld achieved**	0.5872	33.75	19.818	cu. In.
Item 10	Determined the **acheived exam volume** add 6, 7, 8 & 9			69.8768	cu. In.
Item 11	Exam **volume percentage** item 10/item 5 x 100			**88.15**	%

Limitation due to "TEE" intradose configuration

INFORMATION ONLY

Initials JPN

Date 08/05/2009