TENNESSEE VALLEY AUTHORITY	EXAMINATION SUMMARY AND RESOLUTION SHEET	REPORT NUMBER: R-P0338 ~~R-P0338~~ PO 3-11-09

PROJECT: *WBN* UNIT: *2*	CYCLE *00*		COMPONENT ID: *RCF-D145-05*		
EXAMINATION METHOD			SYSTEM: RCS	ISI DWG NO: *ISI-2068-W-05* Rev. 0	
MT ☐	PT ☐	UT ☑	VT ☐	CONFIGURATION:	CATEGORY
PROCEDURE: *N-UT-64*	REV 11	TC: N/A		*Tee* TO *RED*	*B-J*

EXAMINER:	EXAMINER:	EXAMINER:	EXAMINER:
Jose Alejandro	N A	N A	N A
LEVEL: II	LEVEL:	LEVEL:	LEVEL:

Total coverage calculated to be approximately 90 %

An ultrasonic examination was performed to meet the requirements of ASME Section XI preservice inspection.

A 45° shear wave and a 70° shear wave were calibrated and used for this examination.

Examination scan 3 was limited due to Tee geometry at 90° and 270° areas of the weld.

No recordable indications observed.

90% examination volume coverage achieved.

RESOLUTION BY:	REVIEWED BY:	ANII:
Jose Alejandro		
LEVEL II DATE: 03-09-09	LEVEL: III DATE: 3-11-09	DATE: 3/14/09
		Page: 1 OF 6

ACCESS: FORMS DATABASE R-10/04/01

TENNESSEE VALLEY AUTHORITY	DIGITAL ULTRASONIC CALIBRATION DATA SHEET	REPORT NUMBER DO 3-11-09 ~~R-P0228~~ R-P0228

PROJECT *WBN* UNIT/CYCLE *2/00*
PROCEDURE: *N-UT-64* REV: *11* TC: *N/A*

TRANSDUCER

MANUFAC *KBA* MODEL: *COMP-G*
ELEMENTS: *1* SHAPE: *Round*
S/N *OODPPM* SIZE: *.250* FREQ: *2.25* MHz
CONTOUR: *N/A* FOCUS: *N/A*
CABLE TYPE *RG174* LENGTH: *72.0* # CNT: *N/A*

MODE: ☒ SHEAR ☐ LONG ☐ RL

CALIBRATION DATE: *03-09-09*
CALIBRATION BLOCK NO. *WB 83* TEMP: *72.9* °F
SIMULATOR BLOCK: *Rompas*
THERMOMETER S/N: *558271* DUE DATE: *06-24-09*
COUPLANT: *Ultra Gel II* BATCH: *07225 E*

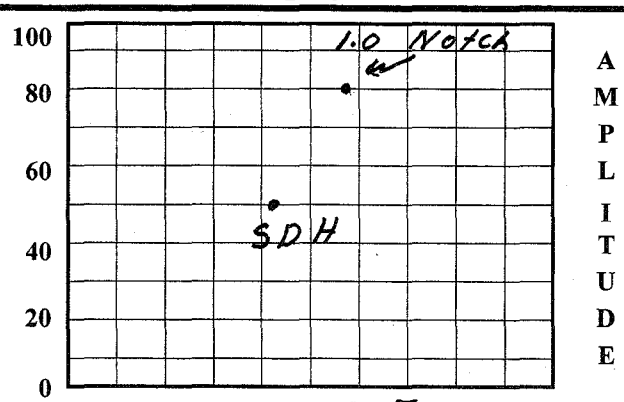
ANGLE VERIFICATION

BLOCK TYPE *Rompas* S/N: *790390*
NOMINAL ANGLE: *45°* ACTUAL ANGLE *45°*

INSTRUMENT

MANUFACTURER: *Krautkramer* DUE DATE: *06-23-09*
MODEL NO.: *USN 60* S/N: *E36304*

DAC



DISPLAY WIDTH *2.5* inches

REFLECTOR SCAN DIRECT.	NTC	SDH	REFERENCE SENSITIVITY	MEMORY NUMBER
AXIAL	☒	☐	36.4 dB	45°-4in-SS
CIRC.	☒	☐	36.4 dB	45°-4in-SS

RANGE: *2.5* inches
PROBE DELA *4.7150* msec
VELOCITY *0.1309* msec
DISP DELAY: *0.00*
*ENERGY: *High*
*DAMPING: *1k* ohms
*PRR/PRF: *Auto High*
ANGLE: *45* deg
ZERO: *0* msec

*FREQ: *2.25* MHz
*RECTIFY: *Full WAVE*
DUAL ☐ ON ☒ OFF
*REJECT: *0* %
*DISP. START: *IP*
DET: ☐ Peak ☒ Flank
TCG: ☐ ON ☒ OFF
*PULSER: *Single*

REF. REFLECTOR: *Rompas SDH* GAIN: *44.2* dB
AMPLITUDE: *50* % METAL PATH: *1.066*

CALIBRATION TIMES

INITIAL TIME: *0930* FINAL TIME: *1255*

VERIFICATION TIMES	1) 1027	2) 1035	3) 1111	4) 1143	5) 1152	6) 1202	7) N/A	8) N/A	9) N/A

***PDI QUALIFIED INSTRUMENT SETTINGS:**
VERIFY INSTRUMENT SETTINGS AND CALIBRATION SEQUENCE ARE IN ACCORDANCE WITH TABLE 2 OF THE APPLICABLE PDI QUALIFICATION IMPLEMENTATION PROCEDURE!

LINEARITY CHECK

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

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

COMMENTS	WELD / ITEMS EXAMINED
	RCF-D145-08
	RCF-D145-05C
	RCF-D145-05
	RCF-D145-04
	RCF-D145-02B

EXAMINER: *Jose Alejandro* [signature] LVL.: *II*
EXAMINER: *Ellis Reed* [signature] LVL.: *I*
REVIEWER: [signature] LVL.: *III* DATE: *3-11-09*

ANII: [signature]
DATE: *3/16/09*

ACCESS: FORMS DATABASE 07-25-07

TENNESSEE VALLEY AUTHORITY	DIGITAL ULTRASONIC CALIBRATION DATA SHEET	REPORT NUMBER R.P0228

PROJECT *WBN* UNIT/CYCLE *2/00*
PROCEDURE: *N-UT-64* REV: *11* TC: *N/A*

TRANSDUCER

MANUFAC *KBA* MODEL: *COMP-G*
ELEMENTS: *1* SHAPE: *Round*
S/N *01LV4C* SIZE: *.250* FREQ: *2.25* MHz
CONTOUR: *N/A* FOCUS: *N/A*
CABLE TYPE *RG174* LENGTH: *72.0* # CNT: *N/A*

MODE: ☒ SHEAR ☐ LONG ☐ RL

CALIBRATION DATE: *03-09-09*
CALIBRATION BLOCK NO. *WB 83* TEMP: *72.9* °F
SIMULATOR BLOCK: *Rompas*
THERMOMETER S/N: *558271* DUE DATE: *06-24-09*
COUPLANT: *Ultra Gel II* BATCH: *07225 E*

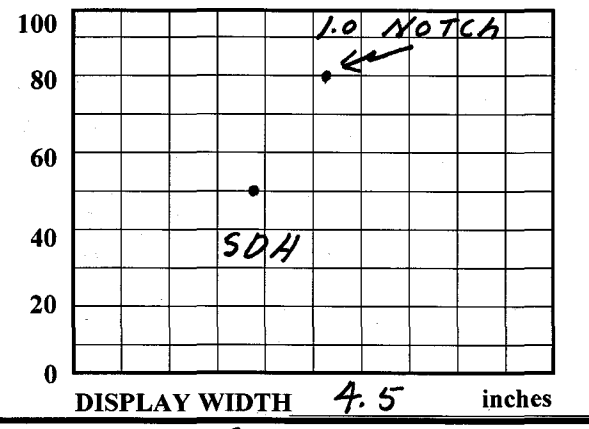
ANGLE VERIFICATION

BLOCK TYPE *Rompas SDH* S/N: *790390*
NOMINAL ANGLE: *70°* ACTUAL ANGLE *70°*

INSTRUMENT

MANUFACTURER: *Krautkramer* DUE DATE: *06-23-09*
MODEL NO.: *USN 60* S/N: *E36304*

DAC



DISPLAY WIDTH *4.5* inches

REFLECTOR			REFERENCE SENSITIVITY	MEMORY NUMBER
SCAN DIRECT.	NTC	SDH		
AXIAL	☒	☐	*56.2* dB	*70°-4in-SS*
CIRC.	☒	☐	*N/A* dB	*N/A*

RANGE: *4.5* inches
PROBE DELA *7.3509* msec
VELOCITY *.1252* msec
DISP DELAY: *0.00*
*ENERGY: *High*
*DAMPING: *1K* ohms
*PRR/PRF: *Auto High*
ANGLE: *70°* deg
ZERO: *N/A* msec

*FREQ: *2.25* MHz
*RECTIFY: *Full WAVE*
DUAL ☐ ON ☒ OFF
*REJECT: *0* %
*DISP. START: *IP*
DET: ☐ Peak ☒ Flank
TCG: ☐ ON ☒ OFF
*PULSER: *Single*

REF. REFLECTOR: *Rompas SDH* GAIN: *31.9* dB
AMPLITUDE: % METAL PATH: *1.00*

CALIBRATION TIMES

INITIAL TIME: *0810* FINAL TIME: *1256*

VERIFICATION TIMES	1) *0926*	2) *0950*	3) *N/A*	4) *N/A*	5) *N/A*	6) *N/A*	7) *N/A*	8) *N/A*	9) *N/A*

***PDI QUALIFIED INSTRUMENT SETTINGS:**
VERIFY INSTRUMENT SETTINGS AND CALIBRATION SEQUENCE ARE IN ACCORDANCE WITH TABLE 2 OF THE APPLICABLE PDI QUALIFICATION IMPLEMENTATION PROCEDURE!

LINEARITY CHECK

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

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

COMMENTS	WELD / ITEMS EXAMINED
	RCF-D145-05

EXAMINER: *Jose Alejandro* [signature] LVL.: *II*
EXAMINER: *Eddie Reed* [signature] LVL.: *I*
REVIEWER: [signature] LVL.: *III* DATE: *3-11-09*

ANII: [signature]
DATE: *3/16/09*
PAGE *3* OF *6*

ACCESS: FORMS DATABASE 07-25-07

TENNESSEE VALLEY AUTHORITY	MANUAL ULTRASONIC PIPING EXAMINATION DATA SHEET	REPORT NUMBER R.P0228

PROJECT: WBN UNIT/CYCLE 2/00
SYSTEM: RCS
WELD I.D.: RCF-D145-05
CONFIG.: Tee TO RED
FLOW

EXAMINATION DATE 03-09-09
START TIME: 0927 END TIME: 0949
EXAM SURFACE ☐ ID ☒ OD
MATERIAL TYPE: ☐ CS ☒ SS ☐ CSCL ☐ CCSS
SURFACE TEMP.: 70.6 PYRO NO. 558271

PROCEDURE: N-UT-64 REV: 11 TC: N/A
Wo REFERENCE: ℄ of weld
Lo REFERENCE: Outside Radius elbow above

EXAMINATION ANGLE	45 DEG.	70 DEG.
AXIAL SCAN SENSITIVITY	48.3 dB	53.9 dB
CIRC. SCAN SENSITIVITY	49.8 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	45°	☒	
								4	45°	☒	
								5	45°	☒	
								6	45°	☒	
								4	70°	☒	
										☐	

REMARKS/LIMITATIONS Scan 3 limited due to tee geometry at L-2.0 in to L-5.0in and L-9.5in to 12.5in with W-0.5in.
Examination performed maintaining 5-20% ID roll.
Scanned across the weld.

EXAMINER: Jose Alejandro [signature] LEVEL: II
EXAMINER: Ellis Reed [signature] LEVEL: I
REVIEWED BY: [signature] LEVEL: III DATE: 3-11-09

ANII: [signature]
DATE: 3/16/09

PAGE 4 OF 6

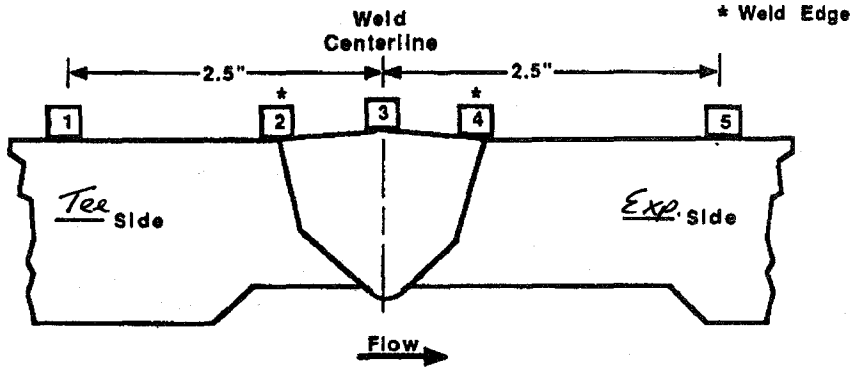
ACCESS: FORMS DATABASE 10/18/01

TVA	WALL THICKNESS PROFILE SHEET	REPORT NO: R-P0228

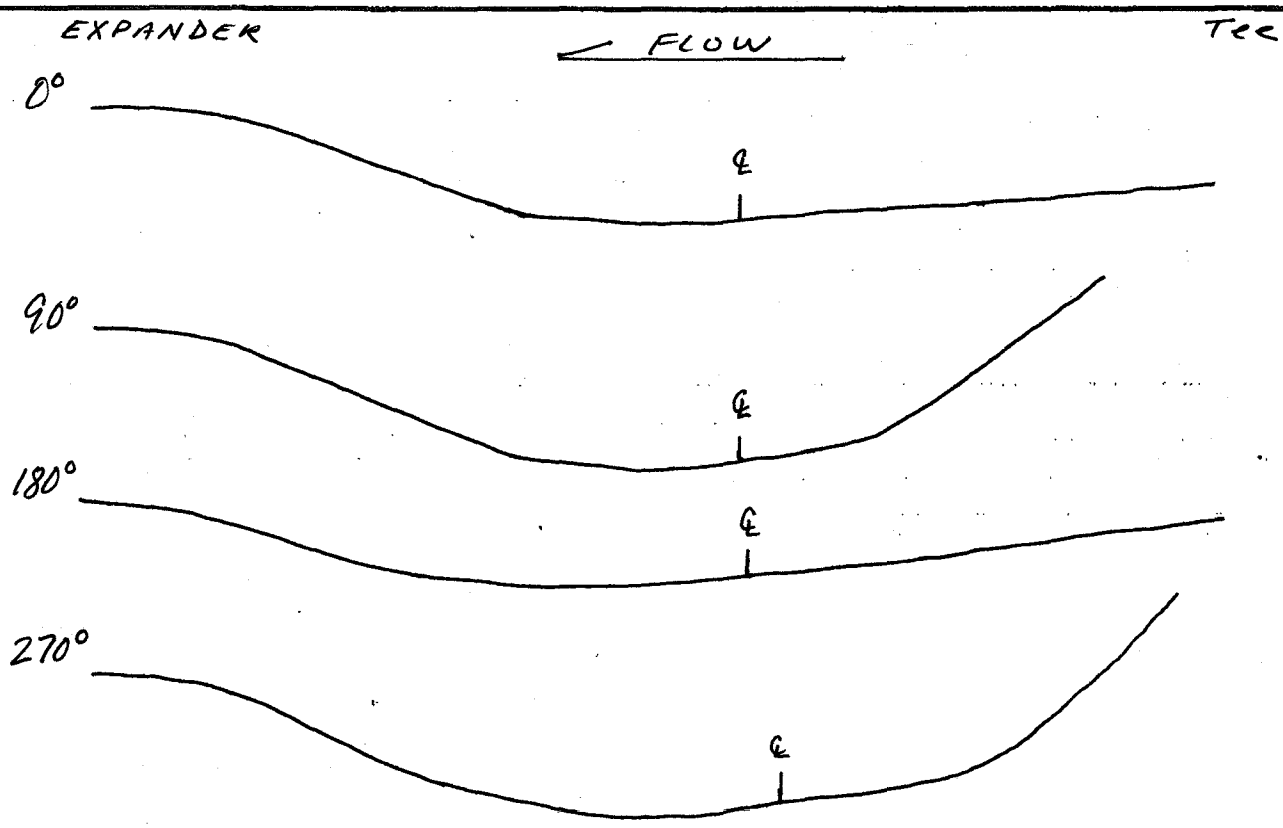
PROJECT: WBN
UNIT: 2
WELD NO: RCF-D145-05
SYSTEM: RCS

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

Position	0°	90°	180°	270°
1	.554	.601	.648	.562
2	.521	.541	.549	.545
3	.562	.542	.560	.557
4	.580	.532	.574	.709
5	.710	*	.677	*



CROWN HEIGHT: FLUSH
DIAMETER: 4.0
CROWN WIDTH: .75
WELD LENGTH: 14.5



* unable to take thickness reading due to expander configuration.

EXAMINER: Jose Alejandro [signature]
LEVEL: II
DATE: 03-05-09

REVIEWED BY: [signature]
LEVEL: III DATE: 3-11-09

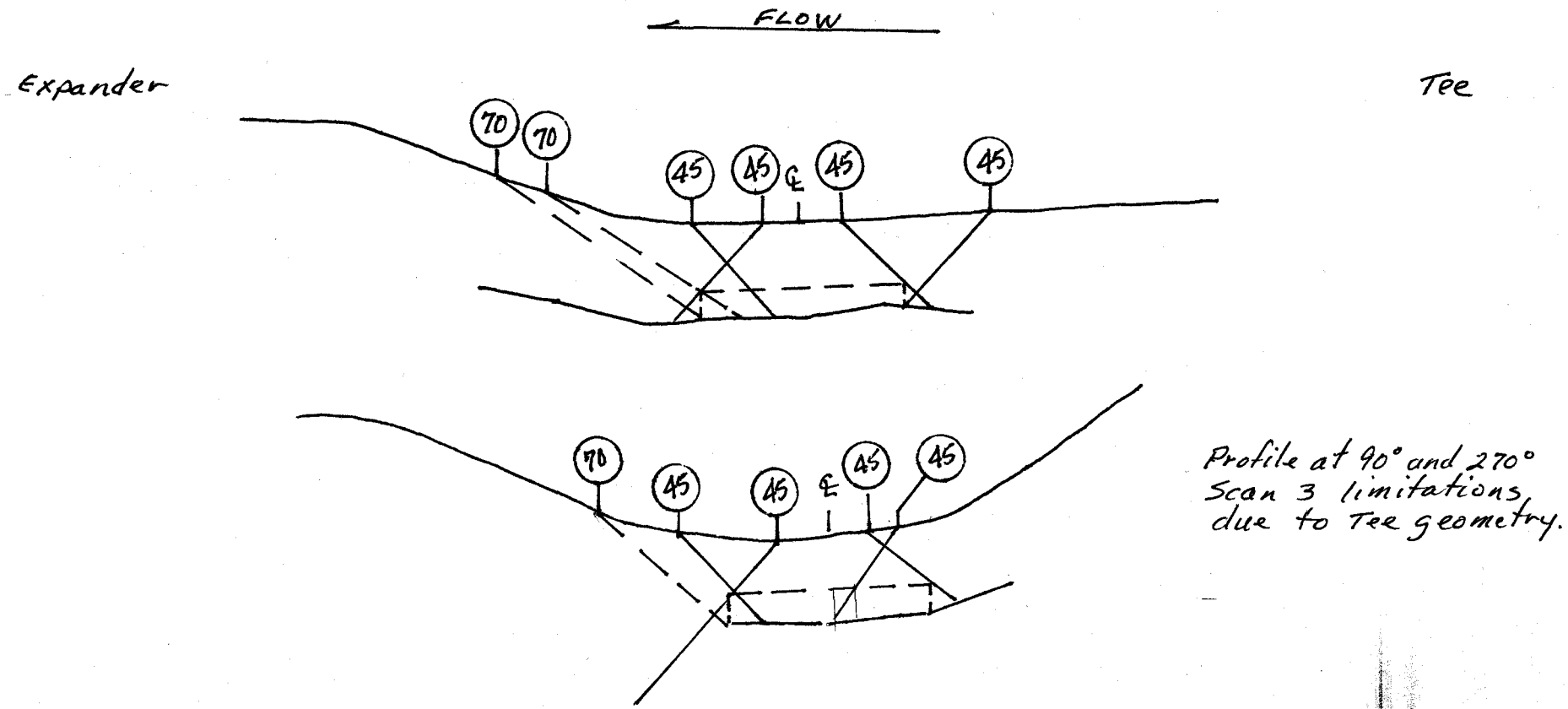
ANII: [signature]
DATE: 3/16/09

PAGE 5 OF 6

TVA 19668 (NP-5-89)

1-108-999-44

TVA Office of Nuclear Power	PROJECT: WBN SYSTEM: RCS UNIT: 2 WELD NO: RCF-D145-05	REPORT NO.: R-P0228



Profile at 90° and 270° Scan 3 limitations due to Tee geometry.

BY: Jose Alejandro LEVEL: II DATE: 03-05-09 PAGE 6 OF 6

R-P0228

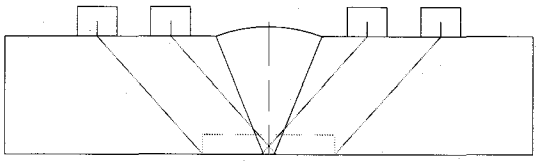
Attachment 3
(Page 1 of 1)

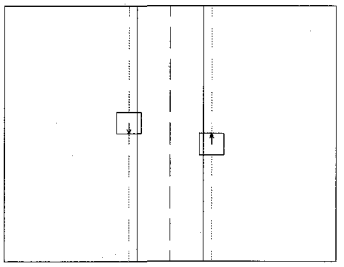
AUSTENITIC PIPING WELDS DUAL SIDE ACCESS - SUPPLEMENT 2

Required and obtained examination volume coverage work sheet

Below is a typical example of examination coverage plots although are not to be considered inclusive of all situations.

Typical example of a dual sided examination, generally the examination volume is the lower 1/3T of the weld metal and ¼ inch of the adjacent base material.





Weld# RCF-D145-05 W=1.3 H=.2 L=14.5

Item	Description	Value
	REQUIRED EXAMINATION VOLUME	
1	Required examination volume in sq in. (width x height) for single scan stroke	.25
2	Number of scan directions (normally 4; i.e. upst,dnst, cw, & ccw))	4
3	Total scan volume in sq inches (Item 1 * Item 2)	1.04
4	Total length of weld	14.5
5	Total required examination volume in cubic inches (Item 3 * Item 4)	15.08
	OBTAINED EXAMINATION VOLUME	
6	Examination volume achieved (sq in for single scan stroke) in 1 axial scanning direction (i.e. upst) multiplied by the length of weld examined	2.25
7	Examination volume achieved (sq in for single scan stroke) in 1 axial scanning direction (i.e. dnst) multiplied by the length of weld examined	3.77
8	Examination volume achieved (sq in for single scan stroke) in 1 circumferential scanning direction (i.e. cw) multiplied by the length of weld examined	3.77
9	Examination volume achieved (sq in for single scan stroke) in 1 circumferential scanning direction (i.e. ccw) multiplied by the length of weld examined	3.77
10	Determine the achieved examination volume by adding Items 6, 7, 8. and 9	13.56
11	Examination volume percentage [(Item 10 / item 5) X 100]	(.899) = 90%

JA

INFORMATION ONLY