TENNESSEE VALLEY AUTHORITY	EXAMINATION SUMMARY AND RESOLUTION SHEET	REPORT NUMBER: R-P0370

PROJECT: *WBN* UNIT: *2* CYCLE *00*				COMPONENT ID: *SIF-D199-06*	
EXAMINATION METHOD				SYSTEM: SIS	ISI DWG NO: *ISI-2063-W-08* REV 0
MT ☐	PT ☐	UT ☑	VT ☐	CONFIGURATION:	CATEGORY
PROCEDURE: *N-UT-84*	REV 0	TC: N/A		*VLV* TO *TEE*	*B-J*
EXAMINER: Jason Nissen	EXAMINER: N		EXAMINER: N		EXAMINER: N
LEVEL: II	LEVEL: A		LEVEL: A		LEVEL: A

Total coverage calculated to be approximately 74.6%

A single sided 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

A phased array 1.5 MHz, dual 15 element probe with a 40°-70 refracted Longitudinal wave sector scan display was also utilized to perform the examination

74.6% examination volume achieved due to Valve.

A recordable indication was observed due to weld root geometry. Seen at varying amplitude 360° around the weld.

RESOLUTION BY: Jason Nissen	REVIEWED BY:	ANII: MAYO
LEVEL II DATE: 5-21-09	LEVEL: II DATE: 5-29-09	DATE: 6/8/09
		Page: 1 OF 2

ACCESS: FORMS DATABASE R-10/04/01

06-8-09

TENNESSEE VALLEY AUTHORITY	PHASED ARRAY ULTRASONIC CALIBRATION DATA SHEET	REPORT NUMBER: R.P0370

PROJECT: WBN UNIT 2	CYCLE: 0	CALIBRATION DATE: 5-21-09	
PROC.: N-UT-84	REV: 0 TC: N/A	CALIBRATION BLOCK NO.: WB-83	TEMP: 73.6F
INSTR. MFG: GEIT	DUE DATE: 8-6-09	SIMULATOR BLOCK NO: N/A	
MODEL/TYPE: PHASOR XS	M & TE ID: E41821	THERMOMTER S/N: 562773	DUE DATE: 6-20-09
SOFTWARE REVISION: 1.2		COUPLANT Ultragel II	BATCH: 06225F
EXAM TYPE: SHEAR ☒ LONG ☐ RL ☐		EXAM: ISI ☐ PSI ☒	LIMITATIONS: Y ☒ N ☐
CABLE TYPE: 1D	LENGTH: 2M #CNT: 0		

ANGLE VERIFICATION

BLOCK TYPE: ROMPAS	S/N: 790390	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	1.500	N/A	4.0 / 80%	50° / 2.366	25.0
CIRCUMFERENTAIL	1.500	N/A	4.0 / 80%	50° / 2.366	30.0

INSTRUMENT SETTINGS

GAIN TOGGLE:	dBD: 0	dBA: 25.0

PROBE DATA

PROBE MFG: GEIT	MODEL: 115-000-441
S/N: 01RLFK	APERTURE SIZE: .630
ELEMENTS: 16	PITCH: .040
FREQ: 1.5	ELEVATION: .472
CONFIGURATION: ARRAY	SHAPE: RECTANGLE

WEDGE DATA

PROBE CHECK: ☒ PRE-EXAM ☒ POST EXAM

WEDGE MFG: GEIT	VELOCITY: .0920
MODEL: 360-141-161	X OFFSET: .827
WEDGE ANGLE: 38°	Z OFFSET: .512
CONTOUR: FLAT	ELEMENT 1 POSITION: LOW END

PART DATA

MATERIAL: STAINLESS STEEL	VELOCITY: .1220

CALIBRATION TIMES

INITIAL TIME: 0825	FINAL TIME: 1135	
VERF. TIMES	1000	1040	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: STAINLESS STEEL	PRF VALUE: AH		

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: SIF-D199-05
	SIF-D199-06

EXAMINER:	EXAMINER:	REVIEWER:	ANII:
LEVEL: II	LEVEL: N/A	LEVEL: III DATE: 5-29-09	DATE: 6/8/09
			PG. 2 OF 7

TENNESSEE VALLEY AUTHORITY	PHASED ARRAY ULTRASONIC CALIBRATION DATA SHEET	REPORT NUMBER: R.PO 370

PROJECT: WBN UNIT 2 CYCLE: Ø
PROC.: N-UT-84 REV: Ø TC: N/A
INSTR. MFG: GEIT DUE DATE: 8-6-09
MODEL/TYPE: PHASOR XSM & TE ID: E41821
SOFTWARE REVISION: 1.2
EXAM TYPE: SHEAR ☐ LONG ☐ RL ☒
CABLE TYPE: 2 D LENGTH: 2 M #CNT: Ø

CALIBRATION DATE: ~~5-21-08~~ JPN 5-21-09
CALIBRATION BLOCK NO.: WB 83 TEMP: 73.6°F
SIMULATOR BLOCK NO: N/A
THERMOMTER S/N: 562773 DUE DATE: 6-20-09
COUPLANT Ultragel II BATCH: 06225 f
EXAM: ISI ☐ PSI ☒ LIMITATIONS: Y ☒ N ☐

ANGLE VERIFICATION

BLOCK TYPE: ROMPAS S/N: 790390

REFLECTOR	NOTCH DEPTH	SDH. DEPTH	NOMINAL ANGLE LOW: 40° HIGH: 70° — REF. SENS/AMPL	ACTUAL ANGLE LOW: 40° HIGH: 70° — ANGLE / METAL PATH	EXAM SENS.
SCAN DIRECTION					
AXIAL	1.500	N A	22.0 dB/ 80%	50° / 2.363	28.0 dB
CIRCUMFERENTAIL	N A	N A	N/A	N/A	N A

INSTRUMENT SETTINGS

GAIN TOGGLE: dBD: Ø dBA: 28.0

PROBE DATA

PROBE MFG: GEIT MODEL: 115-000-481
S/N: 01TCT6 APERTURE SIZE: .748
ELEMENTS: 2 (3 x 5) PITCH: 4 x .150
FREQ: 1.5 ELEVATION: 2 x .472
CONFIGURATION: ARRAY SHAPE: RECTANGLE

WEDGE DATA

PROBE CHECK: ☒ PRE-EXAM ☒ POST EXAM
WEDGE MFG: GEIT VELOCITY: .0920
MODEL: 360-151-028 X OFFSET: .591
WEDGE ANGLE: 18° Z OFFSET: .472
CONTOUR: FLAT ELEMENT 1 POSITION: LOW END

PART DATA

MATERIAL: Custom VELOCITY: .2283

CALIBRATION TIMES

INITIAL TIME: 0840 FINAL TIME: 1140
VERF. TIMES: 1013 | 1104 | N A | N A

SCAN DATA

ELECTRONIC	SCAN PATTERN
TYPE: Sector	ANGLE START: 40°
FOCAL POINT: 1.000	ANGLE STOP: 70°
WAVE TYPE: Longitudinal	ANGLE STEP: 1°
RL FOCAL LAW: D07F100	
LEG: 1.2	MATERIAL THICKNESS: 1.000

APERTURE

NUMBER OF STEPS: 1 FIRST ELEMENT: 1
APERTURE SIZE: 10 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: Custom	PRF VALUE: AH		

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
			46	20		80		80

COMMENTS:

WELDS/ITEMS EXAMINED:
SIF-D199-05
SIF-D199-06
SIF-D197-03

EXAMINER:	EXAMINER:	REVIEWER:	ANII:
LEVEL: II	LEVEL: N A	LEVEL: III DATE: 5-29-09	DATE: 6/9/09
			PG. 3 OF 7

TENNESSEE VALLEY AUTHORITY	MANUAL ULTRASONIC PIPING EXAMINATION DATA SHEET	REPORT NUMBER R-P0370

PROJECT: WBN UNIT/CYCLE 2/00
SYSTEM: SIS
WELD I.D.: SIF-D199-06
CONFIG.: VLV TO TEE
FLOW

PROCEDURE: N-UT-84 REV: Ø TC: N/A
Wo REFERENCE: WELD 4
Lo REFERENCE: TDC

EXAMINATION DATE 5-21-09
START TIME: 1034 END TIME: 1056
EXAM SURFACE ☐ ID ☒ OD
MATERIAL TYPE: ☐ CS ☒ SS ☐ CSCL ☐ CCSS
SURFACE TEMP.: 81.3 PYRO NO. 562773

EXAMINATION ANGLE	25/70 DEG.	40/70 RL DEG.
AXIAL SCAN SENSITIVITY	35/70 25.0dB	28.0 dB
CIRC. SCAN SENSITIVITY	25/70 30.0dB	N/A dB

IND NO.	L (in) FROM REF.			AT MAX AMP			MAX AMP % DAC	EXAM NO. 3-14	NOM. ANG.	NRI	INDICATION INFORMATION: TYPE, DAMPING, ETC.
	L1	L Max	L2	W MAX	MP MAX	D MAX					
1	+1.0"	-1.0"	-3.0"	+.85	1.705	1.080	130%	4	50°*	☐	RL Probe / Root Geometry
								4	35/70°	☒	
								5	25/70°	☒	
								6	25/70°	☒	
										☐	
										☐	

REMARKS/LIMITATIONS Examination scans performed maintaining 5-20% ID ROLL. Exam was one sided due to valve.

* 50° Angle displayed the maximum amplitude with in the 40°/70° RL ARRAY.

EXAMINER: [signature] LEVEL: II
EXAMINER: N/A LEVEL: N/A
REVIEWED BY: [signature] LEVEL: III DATE: 5/28/09

ANII: [signature]
DATE: 6/8/09

TVA

WALL THICKNESS PROFILE SHEET

REPORT NO: R-P037D

PROJECT: WATTS BAR NUCLEAR

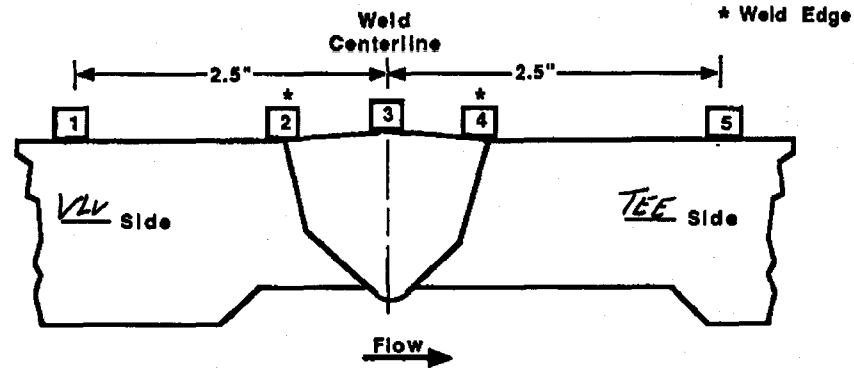
UNIT: 2

WELD NO: SIF-D199-06

SYSTEM: SIS

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

Position	0°	90°	180°	270°
1	NA	NA	NA	NA
2	1.25	1.43	1.18	1.44
3	1.21	1.18	1.16	1.14
4	1.08	1.05	1.04	1.04
5	1.27	1.22	1.15	1.19

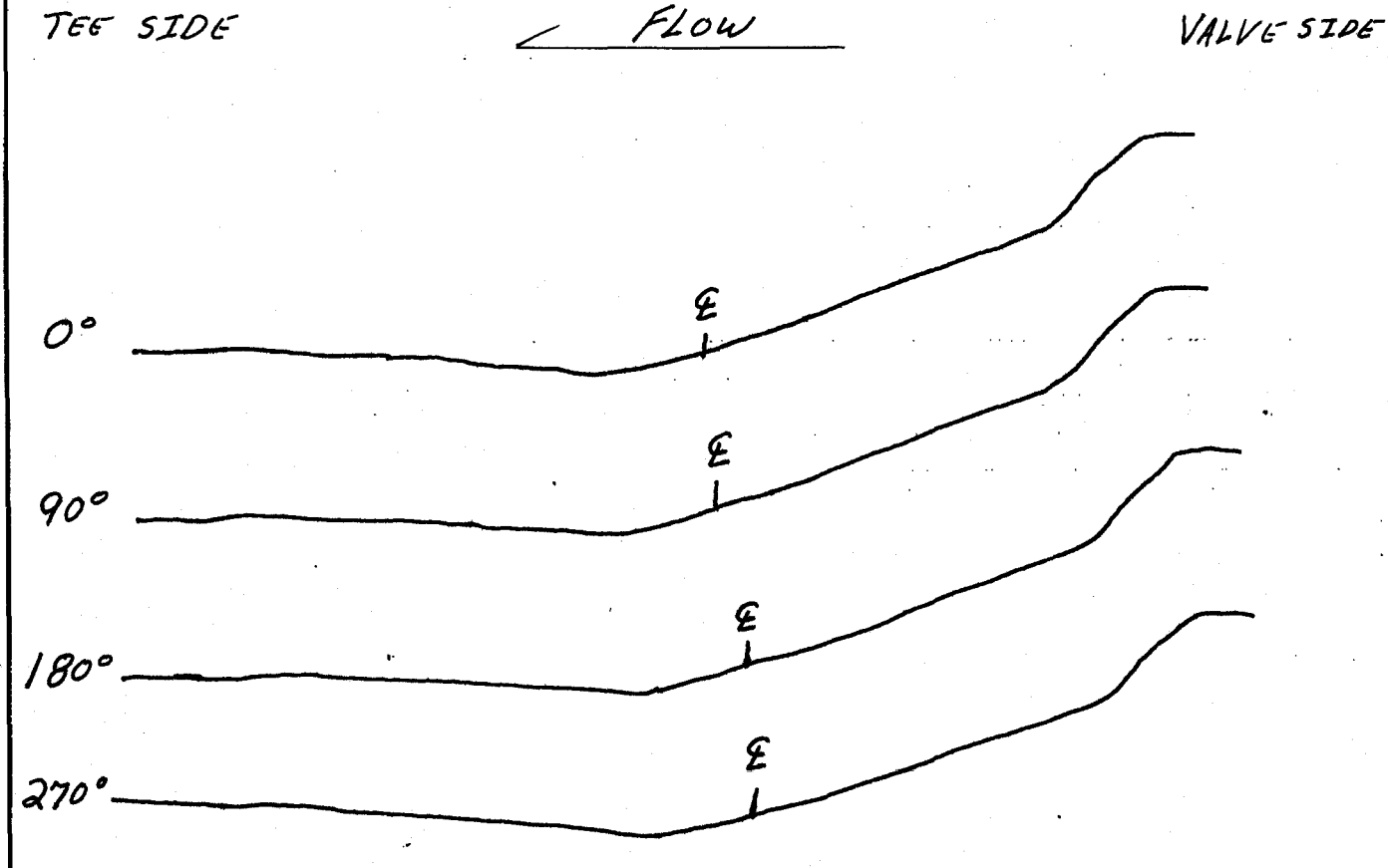


CROWN HEIGHT: Flush

CROWN WIDTH: .875

DIAMETER: 10.0

WELD LENGTH: 35.50



EXAMINER: [signature] II

LEVEL:

DATE: 05-18-09

REVIEWED BY: [signature]

LEVEL: III DATE: 5-21-09

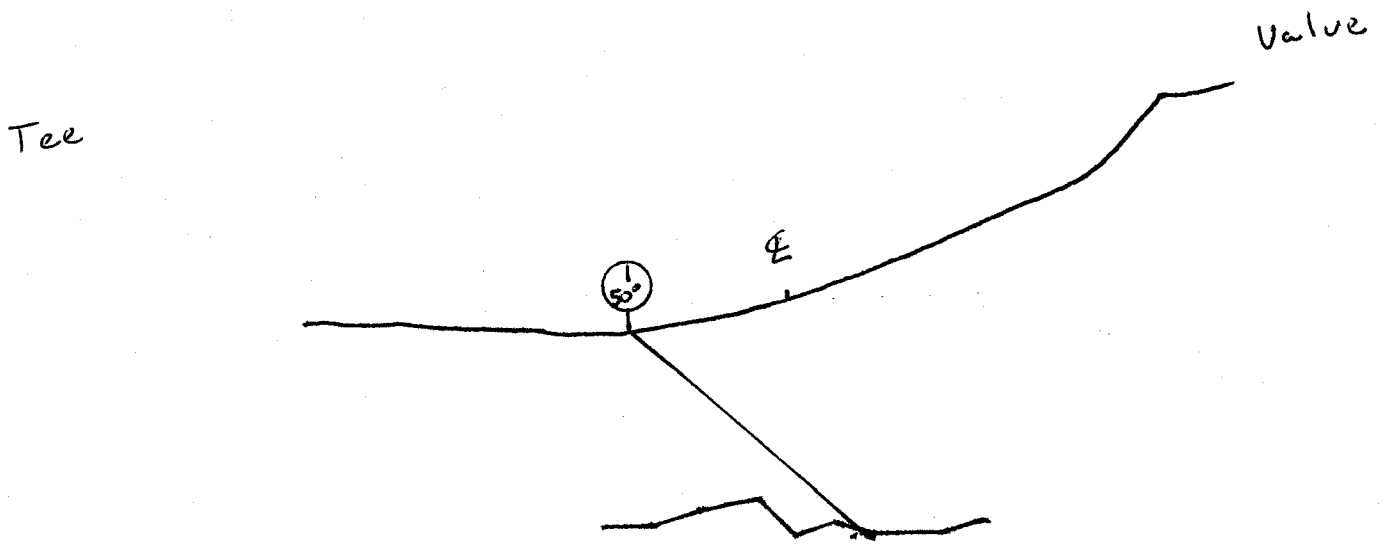
ANII: [signature]

DATE: 6/8/09

PAGE 5 OF 7

TVA Office of Nuclear Power	PROJECT: WBN SYSTEM: SIS UNIT: 2 WELD NO: SIF-D199-06	REPORT NO.: R.P0570

FLOW



Indication #1 is a reflector from the weld root. This reflector can be seen intermittenly around the weld at lower amplitudes

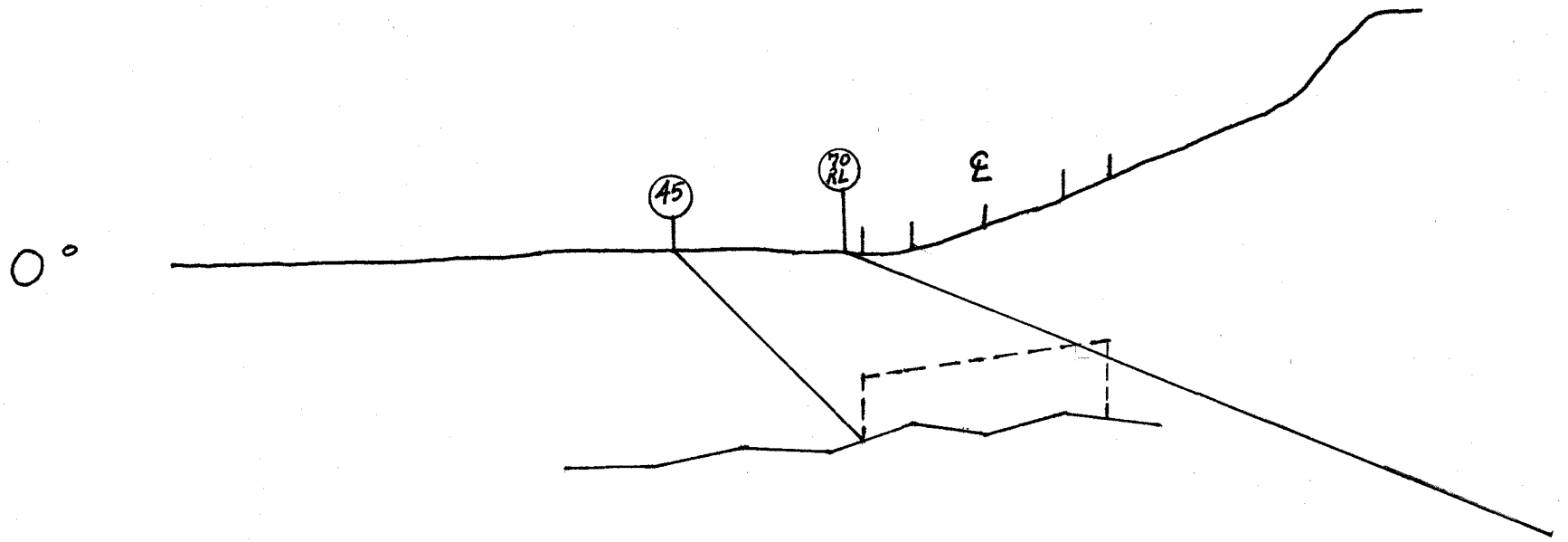
BY: _____ LEVEL: II DATE: 5-28-09 PAGE 6 OF 7

TVA Office of Nuclear Power	PROJECT: WATTS BAR NUCLEAR SYSTEM: SIS UNIT: 2 WELD NO: SIF-D199-06	REPORT NO.: R.D0370

FLOW

TEE SIDE

VALVE SIDE



Plot shown represent primary angle of 45°, phased array angles used 25°-70°, RL angles used 40°-70°

BY: Jose Alejandro LEVEL: II DATE: 05-18-09 PAGE 7 OF 7

R.P0370

TVA Procedure
N-GP-31

WELD # SIF-D199-06

Attachment 3

Item 1	Required examination Volume in sq. in. **(width x height)**	1.4	0.45		0.63
Item 2	Number of **scan directions**				4
Item 3	Total Scan **volume** in sq. in.				2.52
Item 4	Total **length** of weld				35.5
Item 5	Total required **exam volume** in cubic inches				89.46
Item 6	**Exam volume achieved** (sq. in.) in direction 1 X **length of weld achieved**	0	35.5		0
Item 7	**Exam volume achieved** (sq. in.) in direction 2 X **length of weld achieved**	0.62	35.5		22.01
Item 8	**Exam volume achieved** (sq. in.) in direction 3 X **length of weld achieved**	0.63	35.5		22.365
Item 9	**Exam volume achieved** (sq. in.) in direction 4 X **length of weld achieved**	0.63	35.5		22.365
Item 10	Determined the **achivied exam volume** add 6, 7, 8 & 9				66.74
Item 11	Exam **volume percentage** item 10/item 5 x 100				74.60317

One sided due to value

INFORMATION ONLY

5-21-09