TENNESSEE VALLEY AUTHORITY	EXAMINATION SUMMARY AND RESOLUTION SHEET	REPORT NUMBER: R-P1014

PROJECT: *WBN* UNIT: *2*	CYCLE *00*			COMPONENT ID: *W08-09*	
EXAMINATION METHOD				SYSTEM: RV	ISI DWG NO: *ISI-2068A-E-04*
MT ☐	PT ☐	UT ☑	VT ☐	CONFIGURATION:	CATEGORY
PROCEDURE: *N-UT-19*	REV *17*	TC: *10-01*		*CHd Flg* TO *CHd Rin*	*B-A*
EXAMINER: Jose Alejandro	EXAMINER: Jason Polisensky	EXAMINER: N/A		EXAMINER: N/A	
LEVEL: II	LEVEL: II	LEVEL:		LEVEL:	

Total coverage calculated to be approximately 75.3 %

An ultrasonic examination was performed on RPV Closure Head Flange to Closure Head weld. This examination was performed to meet the requirements of ASME Section XI preservice inspection.

A 0° longitudinal and 45°, 60° shear waves were calibrated and used to performed this examination.

The examination was limited to one side due to configuration. There were three lifting lugs located in the exam area that limited the scans as well.

No recordable indications observed.

75.3% examination volume coverage achieved.

RESOLUTION BY:	REVIEWED BY:	ANII:
LEVEL II DATE: 04-12-10	LEVEL: III DATE: 4/15/10	DATE: 5/25/10
		Page: 1 OF 68

ACCESS: FORMS DATABASE R-10/04/01

4-28-10

TENNESSEE VALLEY AUTHORITY	DIGITAL ULTRASONIC CALIBRATION DATA SHEET	REPORT NUMBER R-P1014

PROJECT WBN UNIT/CYCLE 2/00
PROCEDURE: N-UT-19 REV: 17 TC: 10-01

TRANSDUCER
MANUFAC KBA MODEL: GAMMA RHP
ELEMENTS: 1 SHAPE: Round
S/N 01FD75 SIZE: 1.0 FREQ: 1.0 MHz
CONTOUR: N/A FOCUS: N/A
CABLE TYPE RG58 LENGTH: 12' # CNT: N/A
CONFIG ☐ D-SBS ☐ D-TANDEM ☒ SINGLE
MODE: ☐ SHEAR ☒ LONG ☐ RL

CALIBRATION DATE: 04-09-10
CALIBRATION BLOCK NO. WB51 TEMP: 72 °F
SIMULATOR BLOCK: 790390
THERMOMETER S/N: 562773 DUE DATE: 06-12-10
COUPLANT: Ultragel II BATCH: 07225E

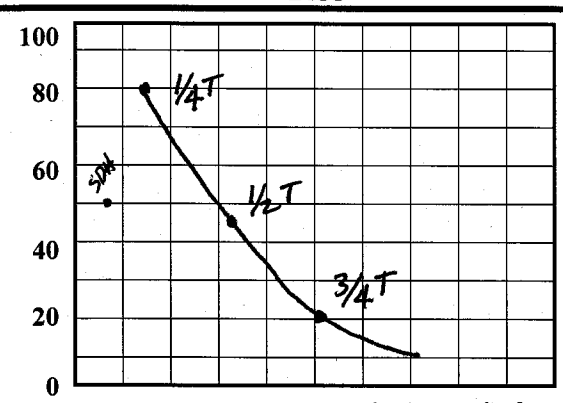
ANGLE VERIFICATION
BLOCK TYPE IIW S/N: 5311
NOMINAL ANGLE: 0° ACTUAL ANGLE N/A

INSTRUMENT
MANUFACTURER: Krautkramer DUE DATE: 06-23-10
MODEL NO.: USN 60 S/N: E34780

REFLECTOR			REFERENCE SENSITIVITY	MEMORY NUMBER
SCAN DIRECT.	NTC	SDH		
AXIAL	☐	☒	26.9 dB	0°- Head
CIRC.	☐	☐	N/A dB	N/A

RANGE: 10.0 inches *FREQ: 1.0 MHz
PROBE DELA 1.7328 msec *RECTIFY: Fullwave
VELOCITY .2306 msec DUAL ☐ ON ☒ OFF
DISP DELAY: 0.000 *REJECT: 0 %
*ENERGY: High *DISP. START: IP
*DAMPING: 1K ohms DET: ☐ Peak ☒ Flank
*PRR/PRF: Autohigh TCG: ☐ ON ☒ OFF
ANGLE: 0 deg *PULSER: Single
ZERO: N/A msec

DAC



DISPLAY WIDTH 10.0 inches

REF. REFLECTOR: Rompus SDH GAIN: 26.9 dB
AMPLITUDE: 50 % METAL PATH: .79

CALIBRATION TIMES
INITIAL TIME: 1218 FINAL TIME: 1639

VERIFICATION TIMES	1) 1330	2) 1421	3) 1506	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
	W08-09

EXAMINER: Jose Alejandro Hernandez LVL.: II
EXAMINER: JASON POLISENSKY LVL.: II
REVIEWER: Mark Welch LVL.: III DATE: 4/15/10

ANII: [illegible]
DATE: 5/25/10
PAGE 2 OF 8

ACCESS: FORMS DATABASE 07-25-07

4-28-10

TENNESSEE VALLEY AUTHORITY	DIGITAL ULTRASONIC CALIBRATION DATA SHEET	REPORT NUMBER R-P1014

PROJECT WBN UNIT/CYCLE 2/ 00
PROCEDURE: N-UT-19 REV: 17 TC: 10-01

TRANSDUCER
MANUFAC KBA MODEL: GAMMA
ELEMENTS: 1 SHAPE: Rectangle
S/N J10237 SIZE: .5X1.0 FREQ: 1.0 MHz
CONTOUR: N/A FOCUS: N/A
CABLE TYPE RG 58 LENGTH: 12' # CNT: N/A
CONFIG ☐ D-SBS ☐ D-TANDEM ☒ SINGLE
MODE: ☒ SHEAR ☐ LONG ☐ RL

CALIBRATION DATE: 04-09-10
CALIBRATION BLOCK NO. WB51 TEMP: 72 °F
SIMULATOR BLOCK: 790390
THERMOMETER S/N: 562773 DUE DATE: 06-12-10
COUPLANT: Ultragel II BATCH: 07225E

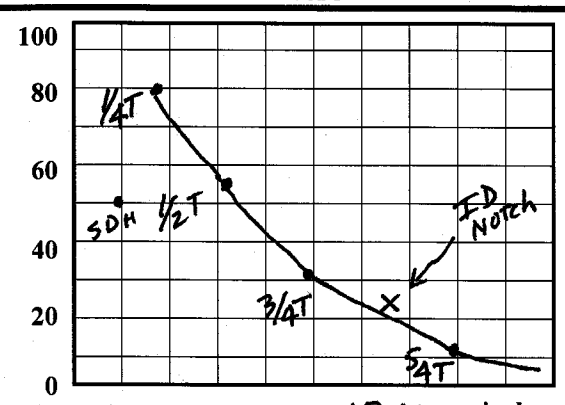
ANGLE VERIFICATION
BLOCK TYPE IIW S/N: 5311
NOMINAL ANGLE: 45 ACTUAL ANGLE 45°

INSTRUMENT
MANUFACTURER: Krautkramer DUE DATE: 06-23-10
MODEL NO.: USN60 S/N: E34780

REFLECTOR			REFERENCE SENSITIVITY	MEMORY NUMBER
SCAN DIRECT.	NTC	SDH		
AXIAL	☐	☒	50.9 dB	45°-Head
CIRC.	☐	☒	50.9 dB	45°-Head

RANGE: 15.00 inches *FREQ: 1.0 MHz
PROBE DELA 2.5534 msec *RECTIFY: Fullwave
VELOCITY .1268 msec DUAL ☐ ON ☒ OFF
DISP DELAY: 0.000 *REJECT: 0 %
*ENERGY: High *DISP. START: IP
*DAMPING: 1K ohms DET: ☐ Peak ☒ Flank
*PRR/PRF: Autohigh TCG: ☐ ON ☒ OFF
ANGLE: 45 deg *PULSER: Single
ZERO: N/A msec

DAC



DISPLAY WIDTH 15.00 inches

REF. REFLECTOR: Rompas SDH GAIN: 51.4 dB
AMPLITUDE: 50 % METAL PATH: 1.2

CALIBRATION TIMES
INITIAL TIME: 1228 FINAL TIME: 1643

VERIFICATION TIMES	1) 1339	2) 1423	3) 1509	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
3/4, 5/4 db difference 4db	W08-09

EXAMINER: Jose Alejandro LVL.: II
EXAMINER: JASON POLISENSKY LVL.: II
REVIEWER: [signature] LVL.: III DATE: 4/15/10

ANII: [signature]
DATE: 5/25/10
PAGE 3 OF ~~6~~ 8

ACCESS: FORMS DATABASE 07-25-07

[signature] 6-28-10

TENNESSEE VALLEY AUTHORITY	DIGITAL ULTRASONIC CALIBRATION DATA SHEET	REPORT NUMBER R-P1014

PROJECT WBN UNIT/CYCLE 2/ 00
PROCEDURE: N-UT-19 REV: 17 TC: 10-01

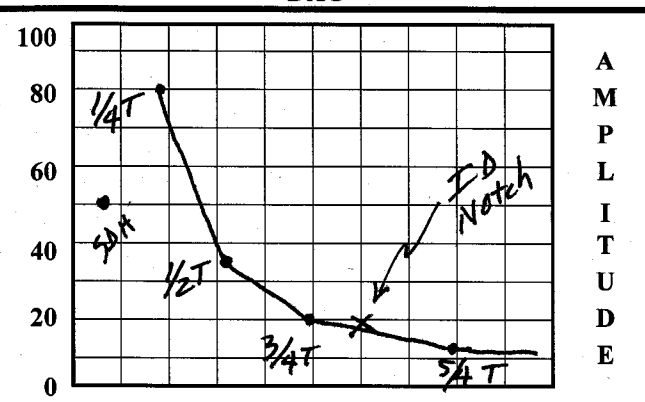
TRANSDUCER
MANUFAC KBA MODEL: GAMMA
ELEMENTS: 1 SHAPE: Rectangle
S/N J10239 SIZE: .5X1.0 FREQ: 1.0 MHz
CONTOUR: N/A FOCUS: N/A
CABLE TYPE RG58 LENGTH: 12' # CNT: N/A
CONFIG ☐ D-SBS ☐ D-TANDEM ☒ SINGLE
MODE: ☒ SHEAR ☐ LONG ☐ RL

CALIBRATION DATE: 04-09-10
CALIBRATION BLOCK NO. WB51 TEMP: 72 °F
SIMULATOR BLOCK: 790390
THERMOMETER S/N: 562773 DUE DATE: 06-12-10
COUPLANT: Ultragel II BATCH: 07225E

ANGLE VERIFICATION
BLOCK TYPE IIW S/N: 5311
NOMINAL ANGLE: 60 ACTUAL ANGLE 60 °

INSTRUMENT
MANUFACTURER: KrautKramer DUE DATE: 06-23-10
MODEL NO.: USN60 S/N: E34780

DAC



DISPLAY WIDTH 22.00 inches

REFLECTOR			REFERENCE SENSITIVITY	MEMORY NUMBER
SCAN DIRECT.	NTC	SDH		
AXIAL	☐	☒	55.8 dB	60°-Head
CIRC.	☐	☒	55.8 dB	60° Head

RANGE: 22.00 inches *FREQ: 1.0 MHz
PROBE DELA 15.1906 msec *RECTIFY: Fullwave
VELOCITY .1238 msec DUAL ☐ ON ☒ OFF
DISP DELAY: 0.000 *REJECT: 0 %
*ENERGY: High *DISP. START: IP
*DAMPING: 1K ohms DET: ☐ Peak ☒ Flank
*PRR/PRF: Autohigh TCG: ☐ ON ☒ OFF
ANGLE: 60 deg *PULSER: Single
ZERO: N/A msec

REF. REFLECTOR: Rompas SDH GAIN: 56.2 dB
AMPLITUDE: 50 % METAL PATH: 1.5

CALIBRATION TIMES
INITIAL TIME: 1235 FINAL TIME: 1652

VERIFICATION TIMES	1) 1348	2) 1420	3) 1508	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
3/4, 5/4 db difference 5.5db	W08-09

EXAMINER: Jose Alejandro LVL.: II
EXAMINER: JASON POLISENSKY LVL.: II
REVIEWER: LVL.: III DATE: 4/15/10

ANII:
DATE: 5/25/10
PAGE 4 OF 8

ACCESS: FORMS DATABASE 07-25-07

4-28-10

TENNESSEE VALLEY AUTHORITY

MANUAL ULTRASONIC VESSEL EXAMINATION DATA SHEET

REPORT NO. R-P1014

PROJECT: WBN UNIT: 2
SYSTEM: RPV
WELD I.D.: W08-09
CONFIG: CHd Flg TO: CHd Rin
PROCEDURE: N-UT-19 REV. 17 TC: 10-01

Wo REFERENCE: ℄ of weld
Lo REFERENCE: Vessel 0
SURFACE TEMP: 68 F
PYRO. SERIAL NO. 562773

EXAMINATION DATE: 04-09-10
START TIME: 1333 END TIME: 1621

CAL. SHT. NO.	ANGLE	SCAN SENSITIVITY
N/A	0°	32.9 dB
N/A	45°	56.9 dB
N/A	60°	61.8 dB

RESULTS: (SCAN NUMBER)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
INDICATION RECORDED (Y/N)	N/A	N	N	N															

IND NO	MAX AMP	SCAN NO	ANG	100% (1/2 MAX) Mp1	W1	L1	50% Mp1	W1	L1	20% Mp1	W1	L1	MAX Mp	W	L	20% Mp2	W2	L2	50% Mp2	W2	L2	100% (1/2 MAX) Mp2	W2	L2
			0			NO		RECORDABLE				INDICATIONS												
		2	45			NO		RECORDABLE				INDICATIONS												
		2	60			NO		RECORDABLE				INDICATIONS												
		3	45			NO		RECORDABLE				INDICATIONS												
		3	60			NO		RECORDABLE				INDICATIONS												
		4	45			NO		RECORDABLE				INDICATIONS												
		4	60			NO		RECORDABLE				INDICATIONS												

REMARKS/LIMITATIONS: Examination limitations at L-41½ to L-47½, L-241 to L-248 and L-421 to L-428 due to lifting Lugs. No scans were performed from the flange side due to configuration. Examination was performed scanning +6db on all scans.

EXAMINER: Jose Alejandro LEVEL: II
EXAMINER: JASON POLISENSKY LEVEL: II

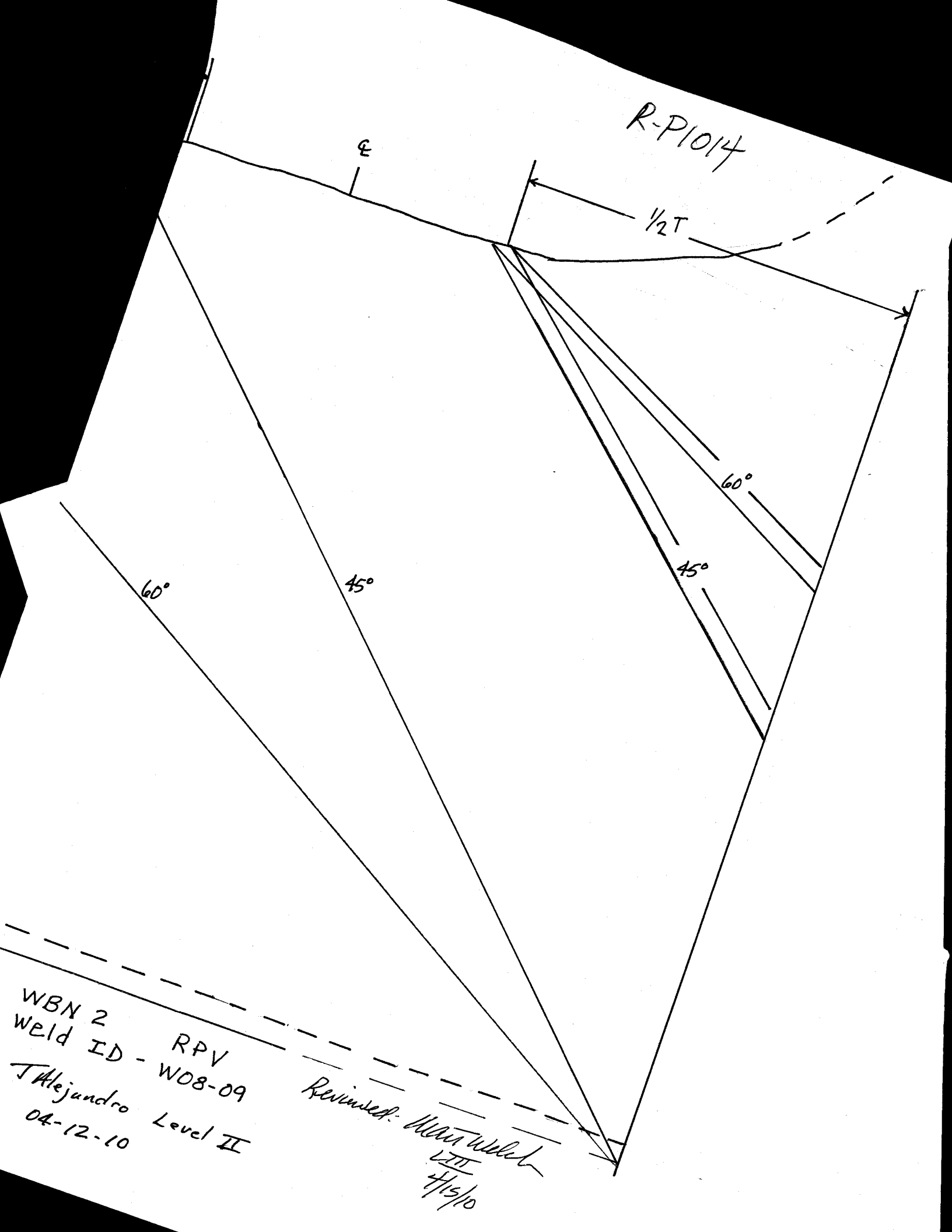
REVIEWED BY: Mark Welch
LEVEL: III DATE: 4/15/10

ANII 5/25/10

PAGE 5 OF 68

TVA 19670B (NP 7/92)

04-28-10


R-P1014
℄
1/2T
60°
45°
45°
60°
WBN 2 RPV
Weld ID - W08-09
J Alejandro Level II
04-12-10
Reviewed:
LIII
4/15/10

R-P1014

Watts Bar Unit 2

TVA Procedure N-GP-31
Attachments 3 & 4

Worksheet Version 1.0 dated 07/01/09

WELD NUMBER W08-09 -45°

		Measured Fields		Calculated Fields	
Item 1	Required examination Volume in sq. in. **(width x height)**	10.2	7.2	73.44	sq. in.
Item 2	Number of **scan directions**			4	directions
Item 3	Total Scan **volume** in sq. in.			293.76	sq. in.
Item 4	Total **length** of weld			500	inches
Item 5	Total required **exam volume** in cubic inches			146880	cu. in.
Item 6	**Exam volume acheived** (sq. in.) in direction 1 X **length of weld achieved**	0	500	0	cu. In.
Item 7	**Exam volume acheived** (sq. in.) in direction 2 X **length of weld achieved**	70.44	500	35220	cu. In.
Item 8	**Exam volume acheived** (sq. in.) in direction 3 X **length of weld achieved**	73.44	500	36720	cu. In.
Item 9	**Exam volume acheived** (sq. in.) in direction 4 X **length of weld achieved**	73.44	500	36720	cu. In.
Item 10	Determined the **acheived exam volume** add 6, 7, 8 & 9			108660	cu. In.
Item 11	Exam **volume percentage** item 10/item 5 x 100			**73.98**	%

Scan #3 limitation due to Flange
scan #4 limitation due to lifting lugs

Initials JA

Date 04/14/2010

R-P1014

Watts Bar Unit 2

TVA Procedure N-GP-31
Attachments 3 & 4

Worksheet Version 1.0 dated 07/01/09

WELD NUMBER W08-09 - 60°

		Measured Fields		Calculated Fields	
Item 1	Required examination Volume in sq. in. **(width x height)**	10.2	7.2	73.44	sq. in.
Item 2	Number of **scan directions**			4	directions
Item 3	Total Scan **volume** in sq. in.			293.76	sq. in.
Item 4	Total **length** of weld			500	inches
Item 5	Total required **exam volume** in cubic inches			146880	cu. in.
Item 6	**Exam volume acheived** (sq. in.) in direction 1 X **length of weld achieved**	0	500	0	cu. In.
Item 7	**Exam volume acheived** (sq. in.) in direction 2 X **length of weld achieved**	69.7	500	34850	cu. In.
Item 8	**Exam volume acheived** (sq. in.) in direction 3 X **length of weld achieved**	73.44	500	36720	cu. In.
Item 9	**Exam volume acheived** (sq. in.) in direction 4 X **length of weld achieved**	73.44	500	36720	cu. In.
Item 10	Determined the **acheived exam volume** add 6, 7, 8 & 9			108290	cu. In.
Item 11	Exam **volume percentage** item 10/item 5 x 100			73.73	%

Scan #3 limitation due to Flange
scan #4 limitation due to lifting lugs

Initials JA

Date 04/14/2010