



Tennessee Valley Authority, Post Office Box 2000, Spring City, Tennessee 37381-2000

APR 05 2007

10 CFR 50.55a

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555-0001

Gentlemen:

In the Matter of)
Tennessee Valley Authority)

Docket No. 50-390

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1 - AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) INSERVICE INSPECTION (ISI) PROGRAM REQUEST FOR RELIEF 1-ISI-20

Reference: TVA Letter to NRC dated February 21, 2007, "Watts Bar Nuclear Plant (WBN) Unit1 - American Society of Mechanical Engineers (ASME) Section XI Inservice Inspection (ISI) Summary Report for the Seventh Cycle of Operation."

The purpose of this letter is to request relief from ASME Section XI Code required examinations due to limitations which were identified in the WBN Unit 1 Cycle 7 Refueling Outage. This request for relief is being submitted in accordance with 10 CFR 50.55a(g)(5)(iii).

TVA stated in the above referenced report that a request for relief was required to be written for a component examined during the inspection and this request would be submitted under separate letter. The required examination coverage could not be achieved for the pressurizer surge line nozzle-to-vessel weld due to the configuration of the pressurizer bottom head. Enclosure 1 provides request for relief 1-ISI-20 for the pressurizer surge line nozzle-to-vessel weld. Enclosure 2 provides the examination data sheets for weld WP-10.

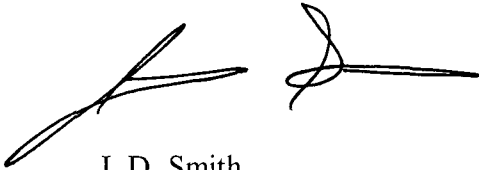
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There are no regulatory commitments associated with this submittal. If you have any questions concerning this matter, please call me at (423) 365-1824.

Sincerely,

A handwritten signature in black ink, consisting of a stylized 'J' followed by a horizontal line and a small flourish.

J. D. Smith
Manager, Site Licensing
and Industry Affairs (Acting)

Enclosures

1. Request for Relief 1-ISI-20
 2. Examination Data Sheets for Weld WP-10
- cc: See Page 3

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Enclosures

cc (Enclosures):

NRC Resident Inspector
Watts Bar Nuclear Plant
1260 Nuclear Plant Road
Spring City, Tennessee 37381

Mr. Brendan T. Moroney, Project Manager
U.S. Nuclear Regulatory Commission
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One White Flint North
11555 Rockville Pike
Rockville, Maryland 20852-2738

U.S. Nuclear Regulatory Commission
Region II
Sam Nunn Atlanta Federal Center
61 Forsyth St., SW, Suite 23T85
Atlanta, Georgia 30303

Enclosure 1

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-20

Summary:

Due to design configuration of the pressurizer bottom head, volumetric examination of the surge nozzle-to-vessel weld, WP-10, during the Unit 1 Cycle 7 refueling outage resulted in less than essentially 100 percent (%) of ASME code coverage being achieved. The proximity of the pressurizer heaters to the surge nozzle interferes with performance of an ultrasonic scan from the vessel side scanning perpendicular to the weld and the curvature of the surge line nozzle limits access when scanning perpendicular to the weld from the nozzle side, thus preventing essentially 100% examination of the required full volume. Volumetric examination of this component is required in accordance with ASME Section XI Table IWB-2500-1, Examination Category B-D, Item Number B3.110. The full volume weld examination requirement is illustrated by Figure IWB-2500-7(b).

An inservice ultrasonic examination was performed on accessible areas to the maximum extent practical, given the physical limitations of the surge line nozzle-to-vessel weld. The design configuration limits the best effort ultrasonic examination to approximately 55% of the required volume of the nozzle-to-vessel weld. The volumetric examinations resulted in no recordable indications for the nozzle-to-vessel weld. Ultrasonic examination to the maximum extent allowed by the designed configuration provides reasonable assurance of an acceptable level of quality and safety. The information and data obtained from the volume examined provides sufficient information to judge the overall integrity of the surge line nozzle-to-vessel weld.

In accordance with 10 CFR 50.55a (g) (5) (iii), an exemption is requested from the extent of examination requirement due to physical restrictions. Relief is requested from these examinations because the code requirement is impractical to implement.

Enclosure 1

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-20

ASME Section XI Code Edition/Addenda:

The Watts Bar Nuclear Plant Unit 1 Code of Record is the 1989 Edition, no addenda.

Component:

Pressurizer surge line Nozzle-to-Vessel Weld
Weld Identifier WP-10
Reference ISI Drawing CHM-2570-C-01 and CHM-2570-C-05

Code Requirement:

ASME Section XI, 1989 Edition, Table IWB-2500-1, Examination Category B-D, Item Number B3.110, Pressurizer Nozzle-to-Vessel Welds, examination requirement as defined by Figure IWB-2500-7(b).

Code Requirements From Which Relief Is Requested:

Relief is requested from performing the required volumetric examination on essentially 100% of the pressurizer surge line nozzle-to-vessel weld.

Basis for Relief:

The design configuration of the pressurizer surge line nozzle precludes a volumetric examination of the required volume for the pressurizer surge line nozzle-to-vessel weld from either the pressurizer side or the nozzle side. The configuration limits the volumetric examination of the code required examination volume to 55%. Reference Enclosure 2, Examination Summary and Resolution Sheet, Report Number R-1178, for a description of the limitations and areas examined.

Alternative Examination:

In lieu of the code required 100% volumetric examination, an ultrasonic examination was performed on accessible areas to the maximum extent practical given the physical limitations of the nozzle-to-vessel weld. Refer to Enclosure 2 Attachments for the examination data reports.

Enclosure 1

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-20

Justification For The Granting Of Relief:

The design configuration of the pressurizer surge line nozzle precludes ultrasonic examination of essentially 100% of the nozzle-to-vessel weld. The nozzle-to-vessel weld examination was performed by manual ultrasonic (UT) scanning equipment. The target scope of the examinations included 100% of the accessible weld. The examination coverage requirements and actual areas scanned for nozzle-to-vessel weld is discussed in Enclosure 2. Examination of the nozzle-to-vessel weld is obstructed from the pressurizer side by the proximity of the heater assemblies and from the nozzle side by curvature of the nozzle. The design configuration allows for ultrasonic examination of approximately 55% of the required volume.

The ASME Section XI code requirements for reflectors oriented parallel and transverse to the weld stipulate that the angle beam search units shall be aimed, with the search unit manipulated, so that the ultrasonic beams pass throughout the entire volume of weld metal. The required examination volume A-B-C-D-E-F-G-H is depicted on ASME Section XI Figure IWB-2500-7(b).

In order to examine the pressurizer surge line nozzle-to-vessel weld in accordance with the code requirement, the pressurizer would require extensive modification. This modification would be impractical to implement. Other examination techniques were also determined to be impractical for this configuration. Due to the design configuration of the surge line nozzle-to-vessel weld and the pressurizer, ultrasonic examination from inside surface of the pressurizer is impractical. Radiographic examination as an alternative volumetric examination method was also determined to be impractical.

Limited two direction transverse scans and parallel scans were performed as depicted in Enclosure 2. No reportable indications were identified based on the scans performed. Ultrasonic examination to the maximum extent practical provides reasonable assurance of an acceptable level of quality and safety. The information and data obtained from the volume examined provides sufficient information to judge the overall integrity of the pressurizer surge line nozzle-to-vessel weld.

Conformance with the referenced code requirement is impractical, therefore, this request for relief is submitted pursuant to 10CFR 50.55a (g) (5) (iii).

Implementation Schedule:

This request for relief is applicable to WBN's first 10-year inspection interval.

Enclosure 2

Watts Bar Nuclear Plant (WBN) Unit 1
American Society of Mechanical Engineers (ASME)
Inservice Inspection Program
Request for Relief 1-ISI-20

Examination Data Sheets for Weld WP-10
(Report R-1178, 14 pages)

TENNESSEE VALLEY AUTHORITY		EXAMINATION SUMMARY AND RESOLUTION SHEET		REPORT NUMBER: <u>R-1178</u>	
PROJECT: <u>WBN UNIT: 01</u> CYCLE <u>07</u>			COMPONENT ID: <u>WP-10</u>		
EXAMINATION METHOD			SYSTEM: <u>PZR</u> ISI DWG NO: <u>CHM-2570-C-01</u>		
MT <input type="checkbox"/>	PT <input type="checkbox"/>	UT <input checked="" type="checkbox"/>	VT <input type="checkbox"/>	CONFIGURATION:	
PROCEDURE: <u>N-UT-19</u>		REV <u>15</u>	TC: <u>N/A</u>	VNOZ TO VNOZ	
EXAMINER:		EXAMINER:	EXAMINER:	EXAMINER:	
<u>Douglas Greenwood</u>		<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	
LEVEL: <u>II</u>		LEVEL:	LEVEL:	LEVEL:	
Total coverage calculated to be approximately <u>55.2%</u>					
<u>WELD WP10, THE PRESSURIZER BOTTOM HEAD TO SURGE NOZZLE WELD.</u>					
<u>EXAMINED WITH A 2.25 MHz, 0°, 45° AND A 60° TRANSDUCERS IN ACCORDANCE WITH ASME SECTION XI. SCANS WERE PERFORMED IN 9 DIFFERENT DIRECTION/ANGLE COMBINATIONS.</u>					
<u>NO INDICATIONS WERE DETECTED.</u>					
COVERAGE PER N-GP-28:					
1. <u>72.1%</u>					
2. <u>49.9%</u>					
3. <u>31.8%</u>					
4. <u>33.7%</u>					
5. <u>16.6%</u>					
6. <u>73.1</u>					
7. <u>73.1</u>					
8. <u>73.1</u>					
9. <u>73.1</u>					
<u>496.5</u>					
				<u>496.5</u> = <u>55.2</u>	
<u>DWG'S FROM (U) + ISI UTILIZED FOR COVERAGE CALCULATIONS</u>					
RESOLUTION BY:		REVIEWED BY:		ANII: <u>B. Earnigh</u>	
<u>Douglas Greenwood</u>		<u>F. J. Muehle</u>		DATE: <u>10/5/06</u>	
LEVEL: <u>II</u> DATE: <u>9-16-06</u>		LEVEL: <u>III</u> DATE: <u>9/19/06</u>		Page: <u>1</u> OF <u>13</u>	

TENNESSEE VALLEY
AUTHORITY

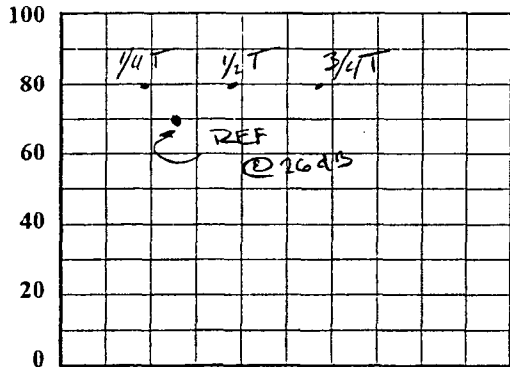
DIGITAL ULTRASONIC
CALIBRATION
DATA SHEET

REPORT NUMBER
R-1178

PROJECT WBN UNIT/CYCLE 011 07
 PROCEDURE: N-UT-19 REV: 15 TC: N/A
 TRANSDUCER
 MANUFACTURER KDA
 MODEL: Gamma HP S/N M02965
 SIZE: 1.0' FREQ: 2.25 MHz
 SHAPE: RND # ELEMENTS: 1 # CONS: 0
 CABLE TYPE RG-174 LENGTH: 6'
 MODE: SHEAR LONG RL

CALIBRATION DATE: 9-16-06
 CALIBRATION BLOCK NO. WR3-55 TEMP: 72 °F
 SIMULATOR BLOCK: Rompas - 96-7718
 THERMOMETER S/N: E39653 DUE DATE: 8-24-07
 COUPLANT: ULTRAGEL BATCH: 04325
 ANGLE VERIFICATION
 BLOCK TYPE: _____ S/N: _____
 NOMINAL ANGLE: N/A ACTUAL ANGLE _____ °
 INSTRUMENT
 MANUFACTURER: KRAUT DUE DATE: 8-21-07
 MODEL NO.: LISN 60 S/N: E37688

DAC



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DISPLAY WIDTH 3.814 inches

INSTRUMENT SETTINGS

REFLECTOR			REFERENCE SENSITIVITY	MEMORY NUMBER
SCAN DIRECT.	NTC	SDH	49 dB	OVES
AXIAL	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
CIRC.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	dB	N/A
FREQ: <u>2</u> MHz	REJECT: = <u>0</u> %			
ANGLE: <u>OFF</u> deg	DAMPING: <u>1K</u> ohms			
DELAY: <u>0</u> msec	PULSER: <u>SINGLE</u> *			
ZERO: <u>0.9278</u> msec	PRR/PRF: <u>AUTO HIGH</u>			
VELOCITY: <u>.2314</u> msec	TOP: <u>PEAK</u>			
RANGE: <u>3.814</u> inches	POWER: <u>DC</u>			
DISP. MODE: <u>FULL WAV</u>				

REF. REFLECTOR: Rompas Exelbu GAIN: 26.0 dB
 AMPLITUDE: 60 % METAL PATH: 1.00
 VERIFICATION TIMES 1) 1030 2) 1050 3) _____ 4) _____ 5) _____ 6) N/A 7) _____ 8) _____ 9) _____

CALIBRATION TIMES

INITIAL TIME: 1000 FINAL TIME: 1300

*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
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

WP-10

EXAMINER: [Signature] LVL: II
 EXAMINER: N/A LVL: _____
 REVIEWER: [Signature] LVL: II DATE: 9/19/06

ANIL: [Signature]
 DATE: 10/5/06
 PAGE 2 OF 13/14

TENNESSEE VALLEY
AUTHORITY

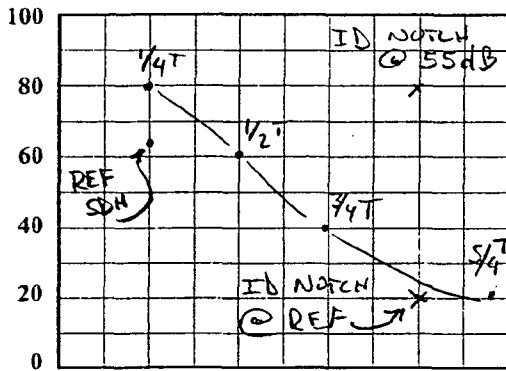
DIGITAL ULTRASONIC
CALIBRATION
DATA SHEET

REPORT NUMBER

R-1178

PROJECT WBN UNIT/CYCLE 011 07
 PROCEDURE: N-UT-19 REV: 15 TC: N/A
 TRANSDUCER
 MANUFACTURER KBA
 MODEL: Gamma SN A21215
 SIZE: .5" x 1.0" FREQ: 2.25 MHz
 SHAPE: REC # ELEMENTS: 1 # CONS: 0
 CABLE TYPE RC-174 LENGTH: 6"
 MODE: SHEAR LONG RL

CALIBRATION DATE: 9-16-06
 CALIBRATION BLOCK NO. WB-55 TEMP: 72 °F
 SIMULATOR BLOCK: Rompas 96-7718
 THERMOMETER S/N: E39053 DUE DATE: 8-24-07
 COUPLANT: ULTRAGEL BATCH: 04325
 ANGLE VERIFICATION
 BLOCK TYPE: CAL BLK S/N: WB-55
 NOMINAL ANGLE: 45 ACTUAL ANGLE 45°
 INSTRUMENT
 MANUFACTURER: KRAUT DUE DATE: 8-21-07
 MODEL NO.: LISN 60 S/N: E37688



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DISPLAY WIDTH 5.25 inches

INSTRUMENT SETTINGS

REFLECTOR			REFERENCE SENSITIVITY	MEMORY NUMBER
SCAN DIRECT.	NTC	SDH	43 dB	45 YES
AXIAL	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
CIRC.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	n/a dB	
FREQ: <u>2.25</u> MHz	REJECT:= <u>0</u> %			
ANGLE: <u>45.3</u> deg	DAMPING: <u>1K</u> ohms			
DELAY: <u>0</u> msec	PULSER: <u>SINGLE</u> *			
ZERO: <u>12.448</u> msec	PRR/PRF: <u>AUTOHIGH</u>			
VELOCITY: <u>0.1268</u> msec	TOF: <u>PEAK</u>			
RANGE: <u>5.25</u> inches	POWER: <u>DC</u>			
DISP. MODE: <u>FULL WAV</u>				

REF. REFLECTOR: Rompas SDH GAIN: 46 dB
 AMPLITUDE: 64 % METAL PATH: 1.04
 VERIFICATION TIMES 1) 1052 2) 1120 3) 4) 5) N/A 6) 7) 8) 9)

CALIBRATION TIMES

INITIAL TIME: 1005 FINAL TIME: 1305

*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	
ATTENUATOR	SIGNAL 2										
		50	45	40	35	30	25	20	15	10	
	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

7dB DIFF. 3/4T + 5/4T SDH.

WP-10

EXAMINER: Douglas M. ... LVL: III
 EXAMINER: N/A LVL:
 REVIEWER: P. J. ... LVL: III DATE: 9/19/06

ANII: B. ...
 DATE: 10/5/06
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TENNESSEE VALLEY
AUTHORITY

DIGITAL ULTRASONIC
CALIBRATION
DATA SHEET

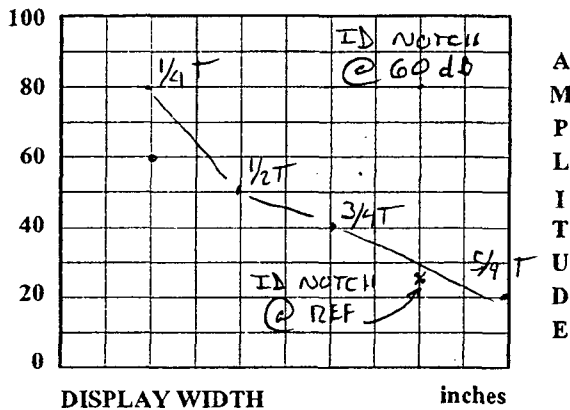
REPORT NUMBER

R-1178

PROJECT WBN UNIT/CYCLE 01107
 PROCEDURE: N-UT-19 REV: 15 TC: N/A
 TRANSDUCER
 MANUFACTURER KISA
 MODEL: GAMMA SN E25213
 SIZE: 5" X 1.0" FREQ: 2.25 MHz
 SHAPE: RECT. # ELEMENTS: 1 # CONS: 0
 CABLE TYPE RG-174 LENGTH: 6'
 MODE: SHEAR LONG RL

CALIBRATION DATE: 9-16-06
 CALIBRATION BLOCK NO. WB-55 TEMP: 72 °F
 SIMULATOR BLOCK: RomPas 96-7710
 THERMOMETER S/N: E39053 DUE DATE: 8-24-07
 COUPLANT: ULTRAGEL BATCH: 001325
 ANGLE VERIFICATION
 BLOCK TYPE: CALBLOCK S/N: WB-55
 NOMINAL ANGLE: 60° ACTUAL ANGLE 62°
 INSTRUMENT
 MANUFACTURER: KRAUT DUE DATE: 8/21/07
 MODEL NO.: USN 60 S/N: E37688

DAC



INSTRUMENT SETTINGS				
REFLECTOR			REFERENCE SENSITIVITY	MEMORY NUMBER
SCAN DIRECT.	NTC	SDH		
AXIAL	<input type="checkbox"/>	<input checked="" type="checkbox"/>	50 dB	60 VES
CIRC.	<input type="checkbox"/>	<input type="checkbox"/>	N/A dB	N/A
FREQ:	<u>2.25</u> MHz		REJECT: =	<u>0</u> %
ANGLE:	<u>61.8</u> deg		DAMPING:	<u>1K</u> ohms
DELAY:	<u>-0-</u> msec		PULSER:	<u>SINGLE</u> *
ZERO:	<u>15.45</u> msec		PRR/PRF:	<u>AutoHigh</u>
VELOCITY:	<u>.129</u> msec		TOF:	<u>PEAK</u>
RANGE:	<u>7.805</u> inches		POWER:	<u>DC</u>
DISP. MODE:	<u>FULL WAV</u>			

REF. REFLECTOR: RomPas SDH GAIN: 50 dB
 AMPLITUDE: 60 % METAL PATH: 1.56
 VERIFICATION TIMES 1) 1122 2) 1140 3) --- 4) --- 5) --- 6) N/A 7) --- 8) --- 9) ---

CALIBRATION TIMES
 INITIAL TIME: 1010 FINAL TIME: 1310

*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	
	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

BdB diff. 3/4T → 5/4T SDH

WP-10

EXAMINER: [Signature] LVL: II
 EXAMINER: N/A LVL: ---
 REVIEWER: [Signature] LVL: III DATE: 9/19/06

ANII: B. Earnigh
 DATE: 10/5/06
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TENNESSEE VALLEY AUTHORITY

MANUAL ULTRASONIC VESSEL EXAMINATION DATA SHEET

REPORT NUMBER

R-1178

PROJECT WDN UNIT/CYCLE 1/7
SYSTEM PRESSURIZER
WELD I.D.: WP 10
CONFIG.: BOTTOM HEAD TO SURGE NOZ.
PROCEDURE: N-UT-19 REV: 15 TC: N/A

Wo REFERENCE: WELD E
Lo REFERENCE: SURGE LINE EXTRADOSE
SURFACE TEMP.: 92 F
PYRO. SERIAL NO.: E39053

EXAMINATION DATE 9-16-06
START TIME: 1030 END TIME: 1140
ANGLE SCAN SENSITIVITY
0 36 dB
45 53 dB
60 60 dB

Table with 19 columns for scan numbers and rows for RESULTS and INDICATION RECORDED (Y/N).

Large grid table for ultrasonic scan results with columns for angle, gain, and scan parameters.

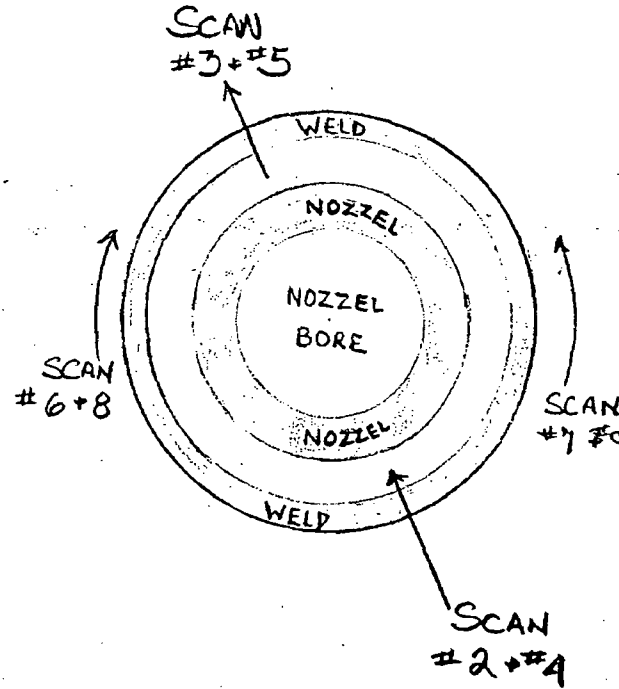
REMARKS/LIMITATIONS HEATER RODS LIMIT SCAN AREA. SEE COVERAGE PLOTS (APPRX. 55% COVERAGE)
NO RECORDABLE INDICATIONS WERE DETECTED. dB GAIN CORRECTION CALCULATION FOR FLAT CALIBRATION BLOCKS USED FOR CURVED SURFACES PERFORMED AND CORRECTION NEEDED. T.F. McRannett LTR 9/19/06

EXAMINER: [Signature] LEVEL: II
EXAMINER: N/A LEVEL:
REVIEWED BY: [Signature] LEVEL: III DATE: 9/19/06
ANII: [Signature] DATE: 10/5/06 PAGE 5 OF 14

R-1178

NONDESTRUCTIVE EXAMINATION PROCEDURE
TVA Nuclear Power

Procedure No. N-GP-28
Revision 5
Page 6 of 8



9.0 Ultrasonic Examinations - Vessel Welds

NOTE: THIS IS NOT APPLICABLE FOR APPENDIX VIII EXAMINATIONS OF THE RPV WELDS.

9.1 Examination volume coverage calculations are based upon the following suppositions:

a) To achieve full examination coverage nine different scans are required for a typical vessel weld or nozzle examination. The following may be used for other vessel configurations:

- 1) 0 degree (weld metal scan)
- 2) 45 degree Transverse-scan from vessel side of the weld
- 3) 45 degree Transverse-scan from nozzle side of the weld
- 4) 60 degree Transverse-scan from vessel side of the weld
- 5) 60 degree Transverse-scan from nozzle side of the weld
- 6) 45 degree Parallel-scan CW direction
- 7) 45 degree Parallel-scan CCW direction
- 8) 60 degree Parallel-scan CW direction
- 9) 60 degree Parallel-scan CCW direction

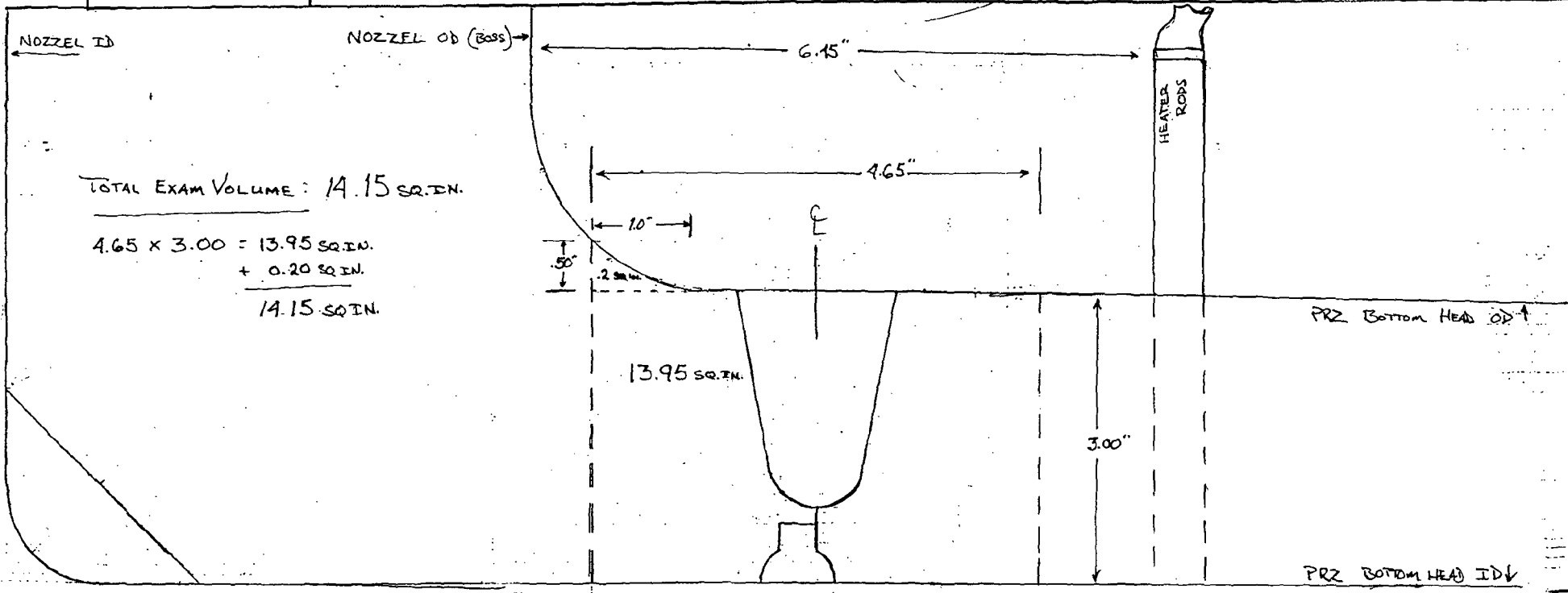
9.2 The examination volume achieved for each above examination scan shall be obtained and documented on a percentage basis. This calculation considers the required examination volume required per the ASME Section XI Code.

a) The total examination coverage may be calculated by averaging the exam volume coverage for all nine scans.

Douglas Gronewold L.II 9-16-06

6 of 13 9/26/06

TVA Office of Nuclear Power	PROJECT: <u>WISN</u>	SYSTEM: <u>PRZ</u>	REPORT NO.:
	Unit: <u>L</u>	WELD NO.: <u>WP-10-25091006</u>	<u>R-1178</u>



7 PAGES

BY: Douglas Gronewald LEVEL: II DATE: 9-16-06 PAGE 7 of 14

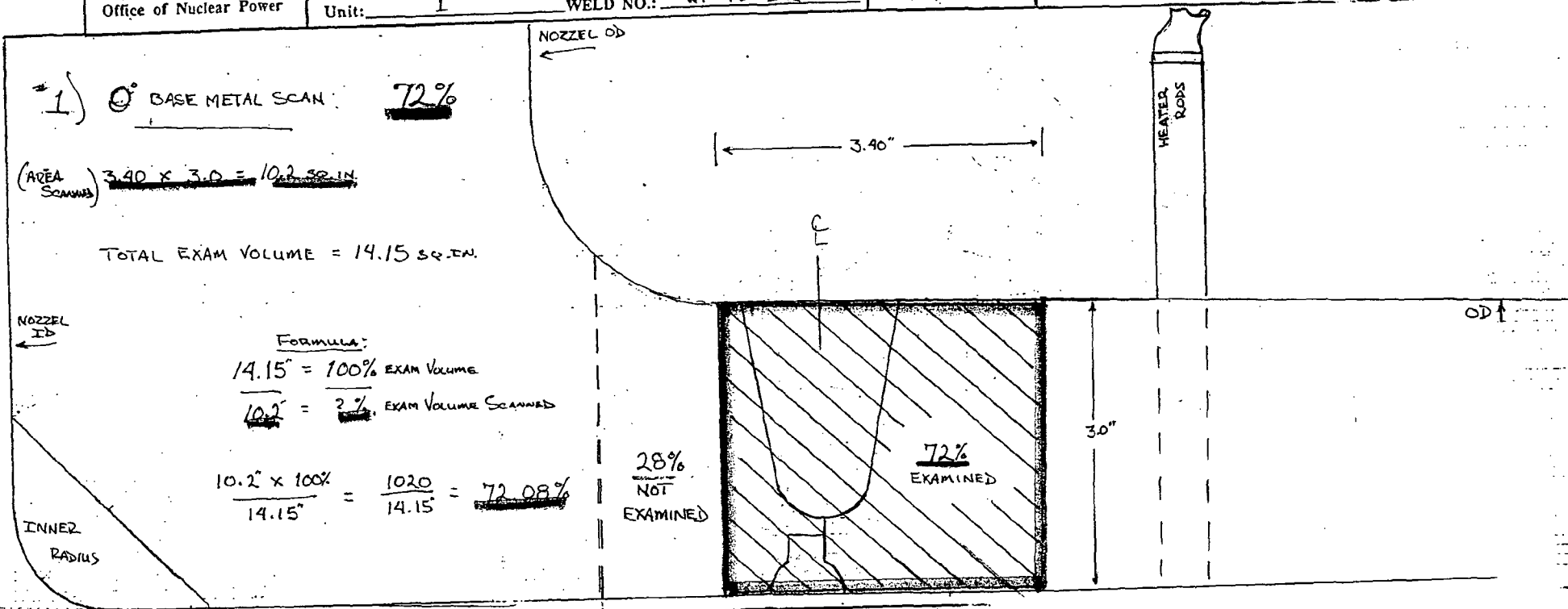
TVA 19669 (ONP-6-88)

TPM 12/4/06

Corvini F.F. Measurement LTD 9/19/06

FFM 9/20/06

TVA Office of Nuclear Power	PROJECT: <u>WBN</u>	SYSTEM: <u>PR2</u>	REPORT NO.: <u>R 1178</u>
	Unit: <u>1</u>	WELD NO.: <u>WF-10-IR</u>	



1) \emptyset BASE METAL SCAN 72%

(AREA SCANNED) $3.40 \times 3.0 = 10.2 \text{ SQ. IN.}$

TOTAL EXAM VOLUME = 14.15 SQ. IN.

NOZZEL ID

FORMULA:
 $\frac{14.15}{10.2} = 100\% \text{ EXAM VOLUME}$
 $\frac{10.2}{14.15} = 72\% \text{ EXAM VOLUME SCANNED}$

$\frac{10.2 \times 100\%}{14.15} = \frac{1020}{14.15} = 72.08\%$

INNER RADIUS

28%
NOT
EXAMINED

72%
EXAMINED

3.0"

OD

TVA Office of Nuclear Power	PROJECT: <u>WBN</u>	SYSTEM: <u>PRZ</u>	REPORT NO.: <u>R-1178</u>
	Unit: <u>1</u>	WELD NO.: <u>WP-10-IR</u>	

#2) 45° TRANS SCAN FROM VESSEL SIDE

50% EXAMINED

$$\frac{1.8 \times 1.2}{2} = \frac{2.16}{2} = 1.08 \text{ SQ IN.}$$

$$2.45 \times 1.8 = 4.41 \text{ SQ IN.}$$

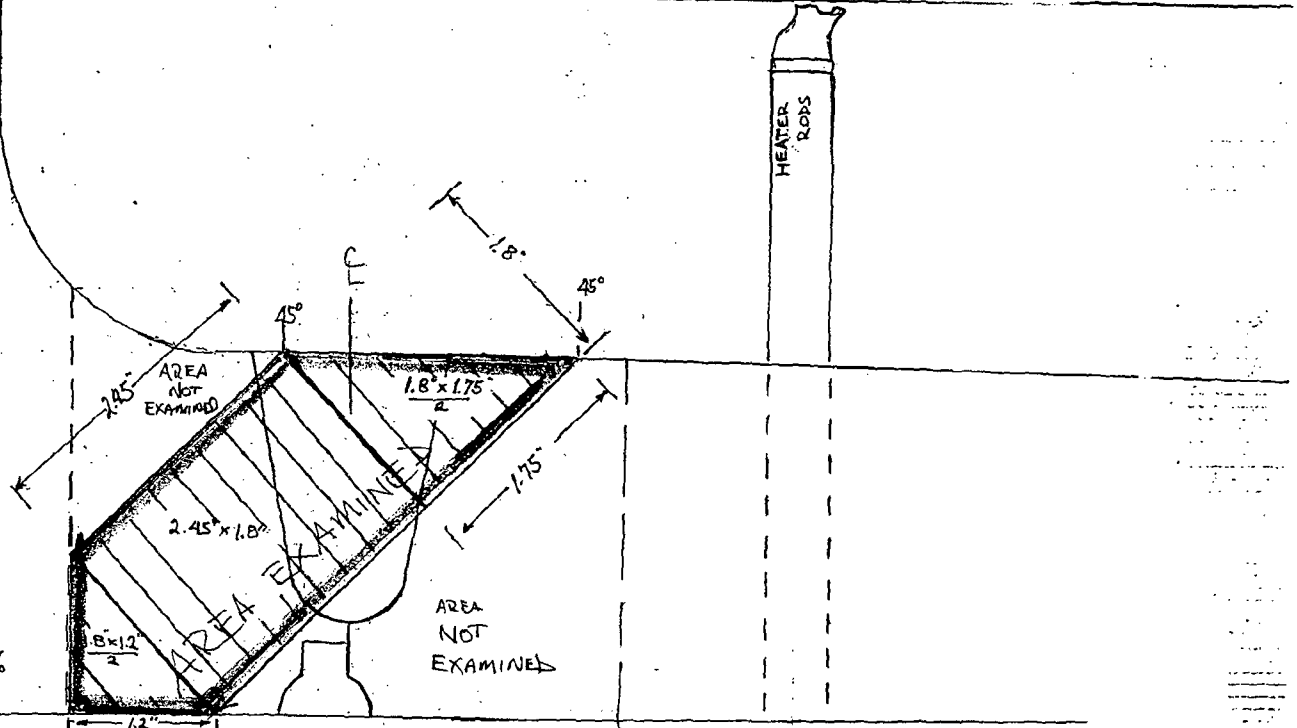
$$\frac{1.8 \times 1.75}{2} = \frac{3.15}{2} = 1.57 \text{ SQ IN.}$$

7.06 SQ IN. EXAMINED

FORMULA TO FIND % EXAMINED

$$\left(\frac{14.15 \text{ SQ IN.}}{7.06 \text{ SQ IN.}} = \frac{100\%}{?} \right)$$

$$\frac{7.06 \times 100}{14.15} = \frac{7060}{14.15} = 49.89\%$$



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Conrad P. R. Mearns III
9/19/06

Tfm
9/14/06

3) 45° TRANS SCAN FROM NOZZEL SIDE
32%

$$\frac{3.00'' \times 3.00''}{2} = \frac{9.00''}{2} = 4.5 \text{ SQ. IN. EXAMINED}$$

FORMULA FOR % VOLUME SCANNED

$$\frac{14.15 \text{ SQ. IN.}}{4.5 \text{ SQ. IN.}} = 100\% \text{ EXAM VOLUME}$$

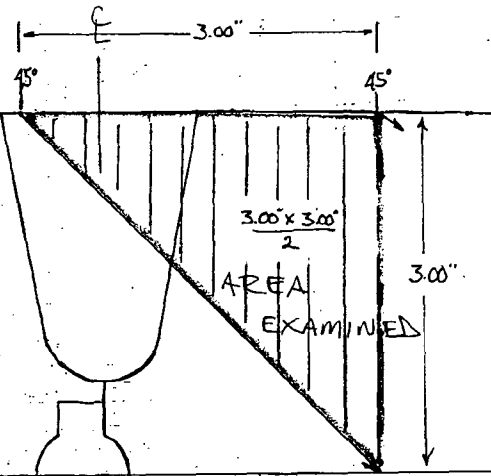
$$\frac{4.5 \text{ SQ. IN.}}{14.15 \text{ SQ. IN.}} = 31.8\% \text{ VOLUME EXAMINED}$$

$$\frac{4.5 \text{ SQ. IN.} \times 100}{14.15 \text{ SQ. IN.}} = \frac{450}{14.15} = 31.8\% \text{ VOLUME EXAMINED}$$

INNER RADIUS

AREA NOT EXAMINED

AREA EXAMINED



TVA Office of Nuclear Power	PROJECT: <u>WBN</u>	SYSTEM: <u>PRZ</u>	REPORT NO.:
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#4) 60° TRANS SCAN FROM VESSEL SIDE
33.7%

$$\frac{.65 \times 1.15}{2} = \frac{.7475}{2} = .37375 \text{ SQ. IN.}$$

$$2.05 \times 1.15 = 2.3575 \text{ SQ. IN.}$$

$$\frac{2.9 \times 1.15}{2} = \frac{3.335}{2} = 1.6675 \text{ SQ. IN.}$$

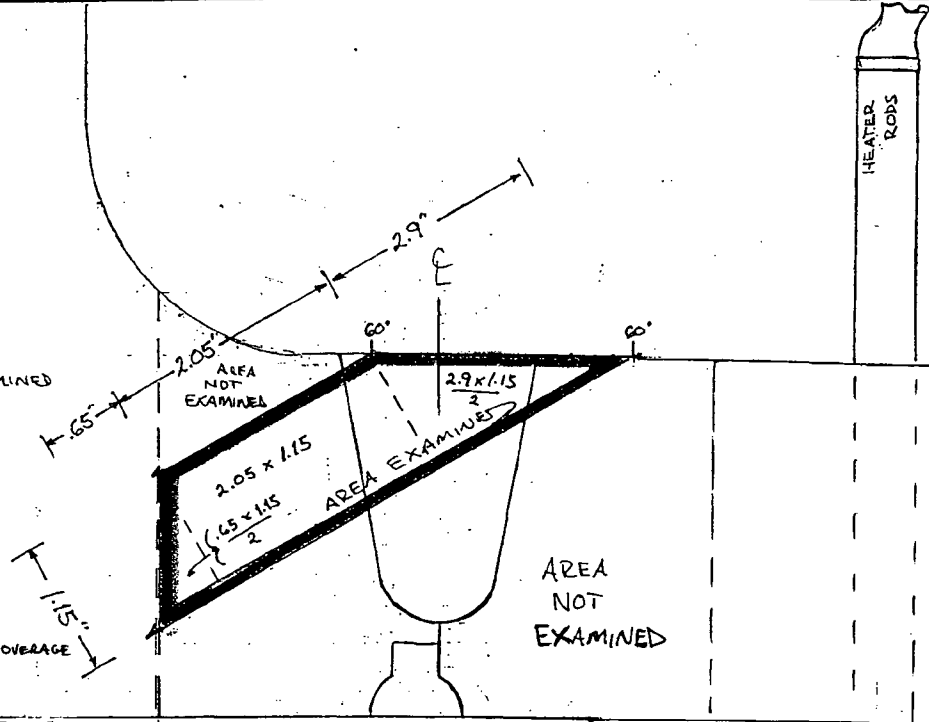
4.77 SQ. IN. EXAMINED

FORMULA FOR % EXAMINED

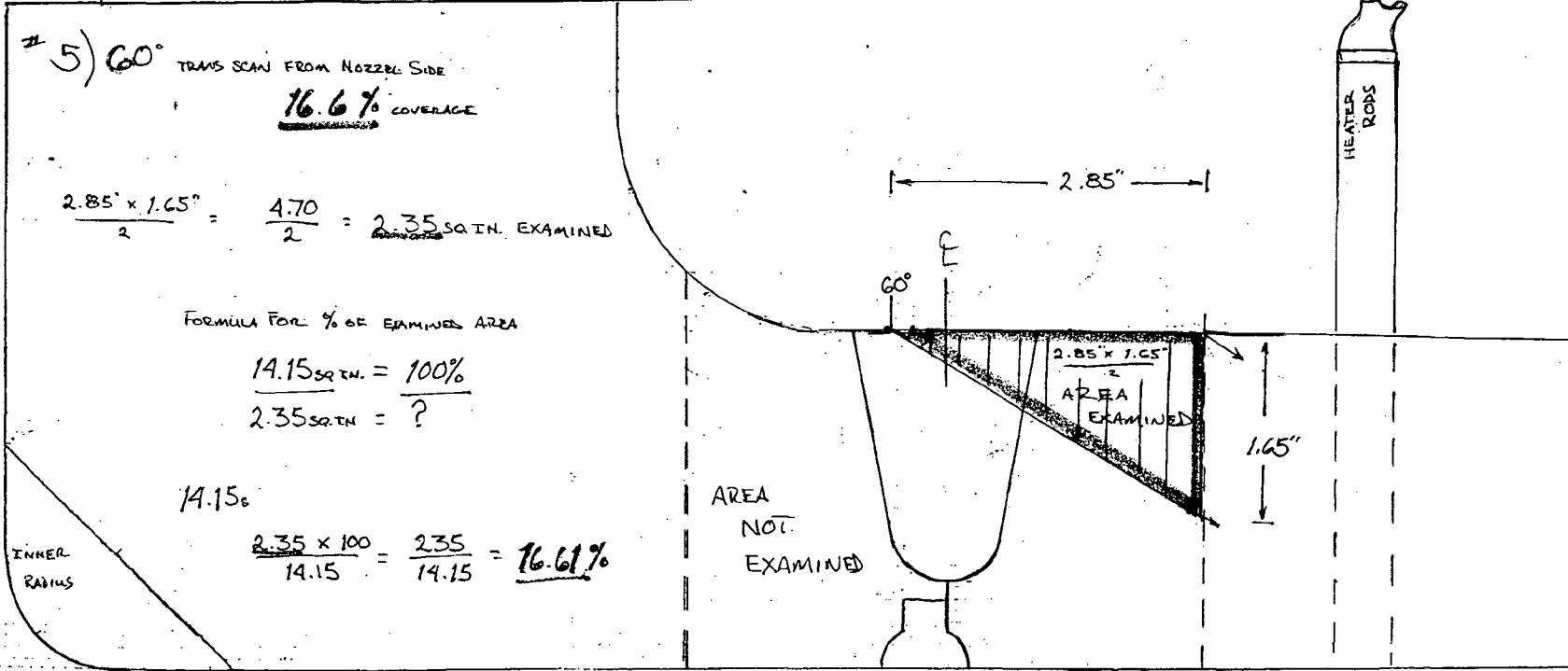
$$\frac{14.15}{4.77} = 100\%$$

$$\frac{4.77}{14.15} = ?$$

$$\frac{4.77 \times 100}{14.15} = \frac{477}{14.15} = 33.71\% \text{ COVERAGE}$$



TVA Office of Nuclear Power	PROJECT: <u>WRN</u>	SYSTEM: <u>PRZ</u>	REPORT NO.:
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TFM 9/10/06

Conrad T.F. Middaugh 9/19/06

14 7/19 9/20/06

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	Unit: <u>1</u>	WELD NO.: <u>WP 10</u>	<u>R-1178</u>

6 + 7) 45° PARALLEL SCANS CW & CCW
73% (EACH)

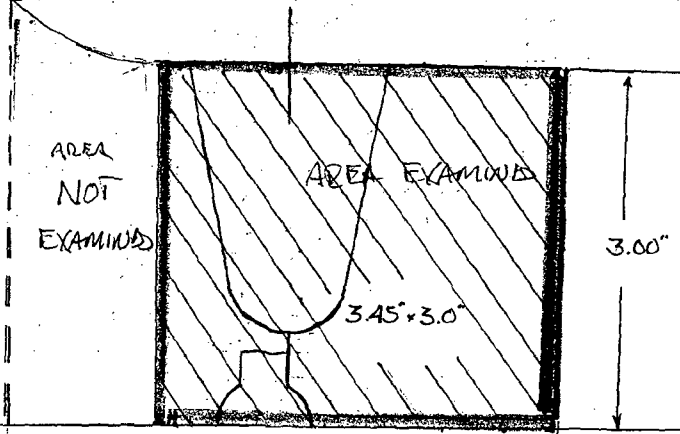
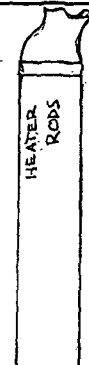
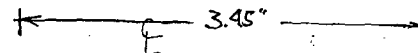
$$3.45" \times 3.00" = 10.35 \text{ SQ IN.}$$

FORMULA FOR % OF EXAM VOLUME SCANNED

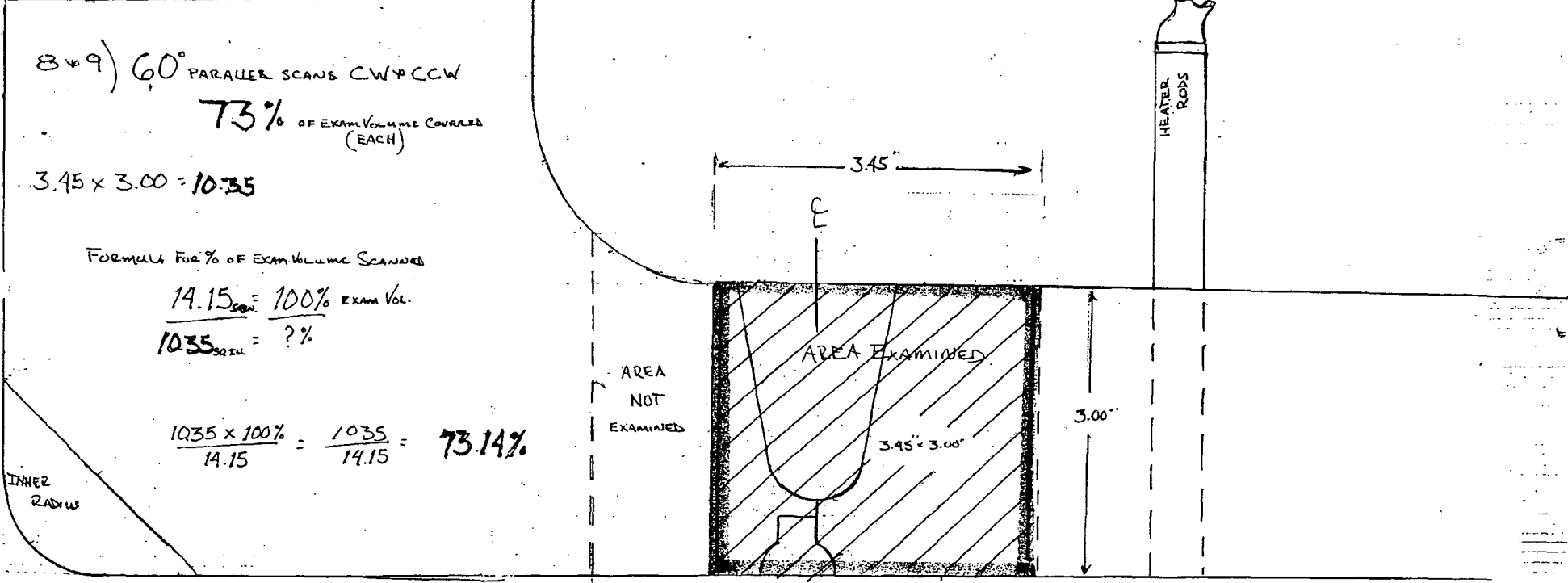
$$\frac{14.15 \text{ SQ IN.}}{10.35 \text{ SQ IN.}} = 100\%$$

$$\frac{10.35 \text{ SQ IN.}}{14.15} = ?$$

$$\frac{10.35 \times 100}{14.15} = \frac{1035}{14.15} = 73.14\%$$



TVA Office of Nuclear Power	PROJECT: <u>WBN</u>	SYSTEM: <u>PRZ</u>	REPORT NO.: <u>R-1178</u>
	Unit: <u>I</u>	WELD NO.: <u>WP-10</u>	



7.7. McManis
9/19/06