

DUKE POWER COMPANY

NDE-91-1

Limited Examination Coverage Worksheet

Revision 0

Examination Volume/Area Defined

Base Metal ☒ Weld ☒ Near Surface ☐ Bolting ☐ Inner Radius ☐

Area Calculation

Volume Calculation

$$.8 \times 2.5 \times 106.5 = 213 \text{ cu. in.}$$

Coverage Calculations

Scan #	Angle	Beam Direction	Area Examined (sq.in.)	Length Examined (in)	Volume Examined (cu.in.)	Volume Required (cu.in.)	Percent Coverage
1	45L	CCW	2.0	106.5	213	213	100%
2	45L	CW	2.0	106.5	213	213	100%
3	45L	1	2.0	99	198	198.6 ÷ 213	93.24%
3	45L	1	.08	7.5	.6		
4	45L	2	0	0	0	213	0
					624.6	852	73.31%

Aggregate % 73.30%

9603110399 960229
PDR ADOCK 05000414
P PDR

SHEET 4 OF 4

Item No: 009.011.019

Prepared BY: *Winfred C. Leeper*Level: *A*

Date: 10-24-95

Reviewed By: *Shirley L. Babb*Level: *III*

Date: 10-25-95

DUKE POWER COMPANY

ULTRASONIC EXAMINATION DATA SHEET FOR PLANAR REFLECTORS

Exam Start: 1450

Form NDE-UT-2A

Exam Finish: 1518

Revision 4

Station: CATAWBA

Unit: Z

Component/Weld ID: ZND-37A

Date: 10/25/95

Weld Length (in.): 63"

Surface Condition: AS GROUND

*ZZZ
LO: 9.1.1.6
9/10/25/95

Surface Temperature: 20 °C

Pyrometer S/N: MCNDE27011

Cal Due: 960614

Examiner: [Signature]

Level: II

Scans:

45 ☒ 58 dB 70 ☐ dB

Examiner: [Signature]

Level: II

45T ☒ 58 dB 70T ☐ dB

Procedure: NDE-630 Rev: 1

FC:

60 ☒ 69 dB

Calibration Sheet No: 9502053

95-02

60T ☐ dB

9502054, 55 & 56

Other: 45° L - 72 dB

Configuration: CIRC.

VALVE BODY Flow BOPPET

SZ to SI

Scan Surface: OD

Applies to NDE-680 only

Skew Angle: N/A

IND #	Max % Ref	Mp Max	W Max	L Max	L1	L2	W1	Mp1	W2	Mp2	Beam Dir	Exam surf.	Scan Amps
					20%dac HMA	20%dac HMA	20%dac HMA	20%dac HMA	20%dac HMA	20%dac HMA			
					50%dac	50%dac	50%dac	50%dac	50%dac	50%dac			
					100% dac	100% dac	100% dac	100% dac	100% dac	100% dac			
45°	DO	RECORDABLE	INDICATIONS (CIRC. & AXIAL)										
45° L-WAVE	DO	RECORDABLE	INDICATIONS (AXIAL)										
60°	DO	RECORDABLE	INDICATIONS (AXIAL)										

Remarks: *B&W #5 - UPSTREAM APEX OF BRANCH CONNECTION

Limitations: (see NDE-UT-4) ☒ 90% or greater coverage obtained: yes ☐ no ☒

Sheet 1 of 6

Reviewed By: [Signature]

Level: III

Date: 10-27-95

Authorized Inspector: [Signature]

Date:

Item No:

BIZ.040.002D

(71)

DUKE POWER COMPANY

ISI LIMITATION REPORT

FORM NDE- UT-4

Revision 1

Component/Weld ID: <u>ZND-37A</u> Item No: <u>B12.040.002D</u>			remarks:
<input checked="" type="checkbox"/> NO SCAN	SURFACE	BEAM DIRECTION	← VALVE BODY
<input type="checkbox"/> LIMITED SCAN	<input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	<input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw	
FROM <u>L 0+0"</u> to <u>L 0+63"</u>		INCHES FROM WO <u>1.5"</u> to <u>BEYOND</u>	
ANGLE: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 45 <input checked="" type="checkbox"/> 60 other		FROM <u>0</u> DEG to <u>360</u> DEG	
<input type="checkbox"/> NO SCAN	SURFACE	BEAM DIRECTION	← VALVE BODY
<input checked="" type="checkbox"/> LIMITED SCAN	<input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	<input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw	
FROM <u>L 0+0"</u> to <u>L 0+63"</u>		INCHES FROM WO <u>0</u> to <u>1.5"</u>	
ANGLE: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 45 <input checked="" type="checkbox"/> 60 other		FROM <u>0</u> DEG to <u>360</u> DEG	
<input type="checkbox"/> NO SCAN	SURFACE	BEAM DIRECTION	← TAPER OF BONNET
<input checked="" type="checkbox"/> LIMITED SCAN	<input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	<input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw	
FROM <u>L 0+0"</u> to <u>L 0+63"</u>		INCHES FROM WO <u>+1"</u> to <u>+2.2"</u>	
ANGLE: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 45 <input checked="" type="checkbox"/> 60 other		FROM <u>0</u> DEG to <u>360</u> DEG	
<input type="checkbox"/> NO SCAN	SURFACE	BEAM DIRECTION	
<input type="checkbox"/> LIMITED SCAN	<input type="checkbox"/> 1 <input type="checkbox"/> 2	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw	
FROM <u>L</u> to <u>L</u>		INCHES FROM WO <u></u> to <u></u>	
ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 other		FROM <u></u> DEG to <u></u> DEG	Sketch(s) attached <input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Prepared By: <u>[Signature]</u>	Level: <u>II</u>	Date: <u>10/26/95</u>	Sheet <u>2</u> of <u>6</u>
Reviewed By: <u>Greg J. Ball III</u>	Date: <u>10-27-95</u>	Authorized Inspector: <u>[Signature]</u>	Date: <u>11-1-95</u>

SURFACE 1
BONNET

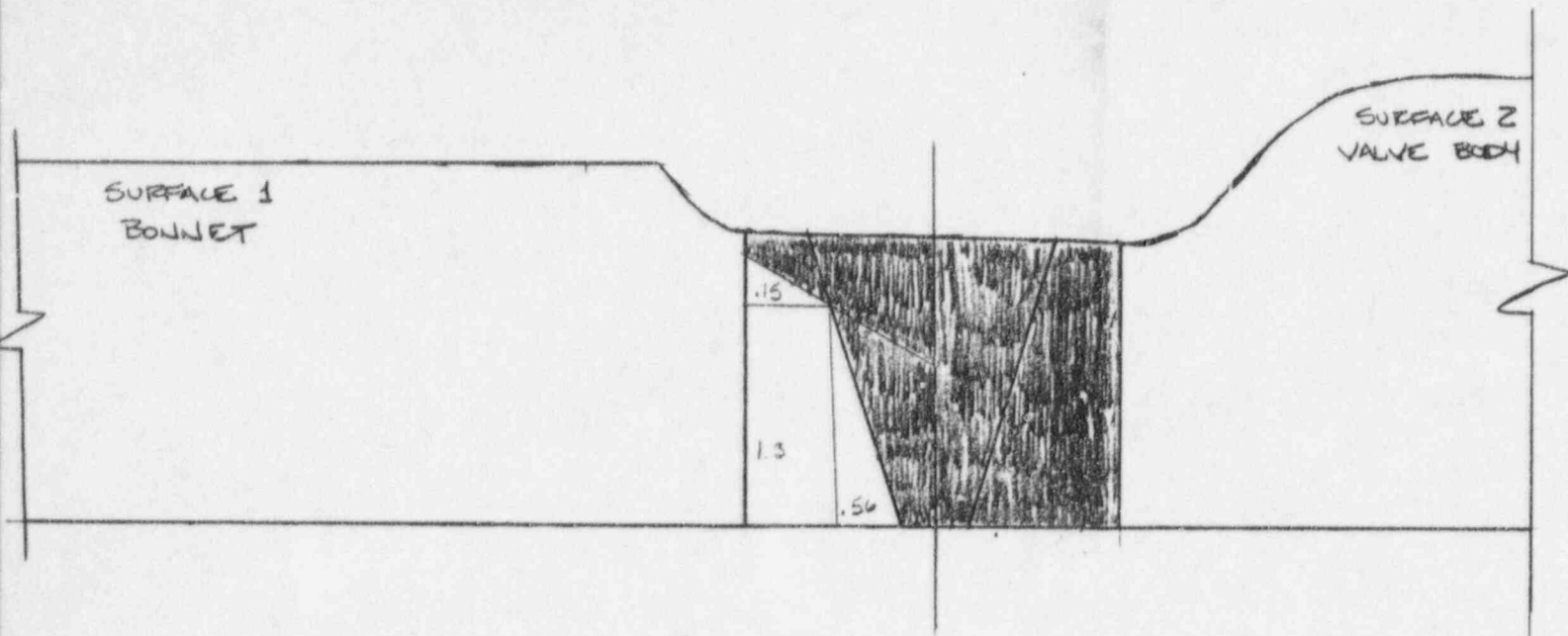
SURFACE 2
VALVE BODY

1.18

2.48

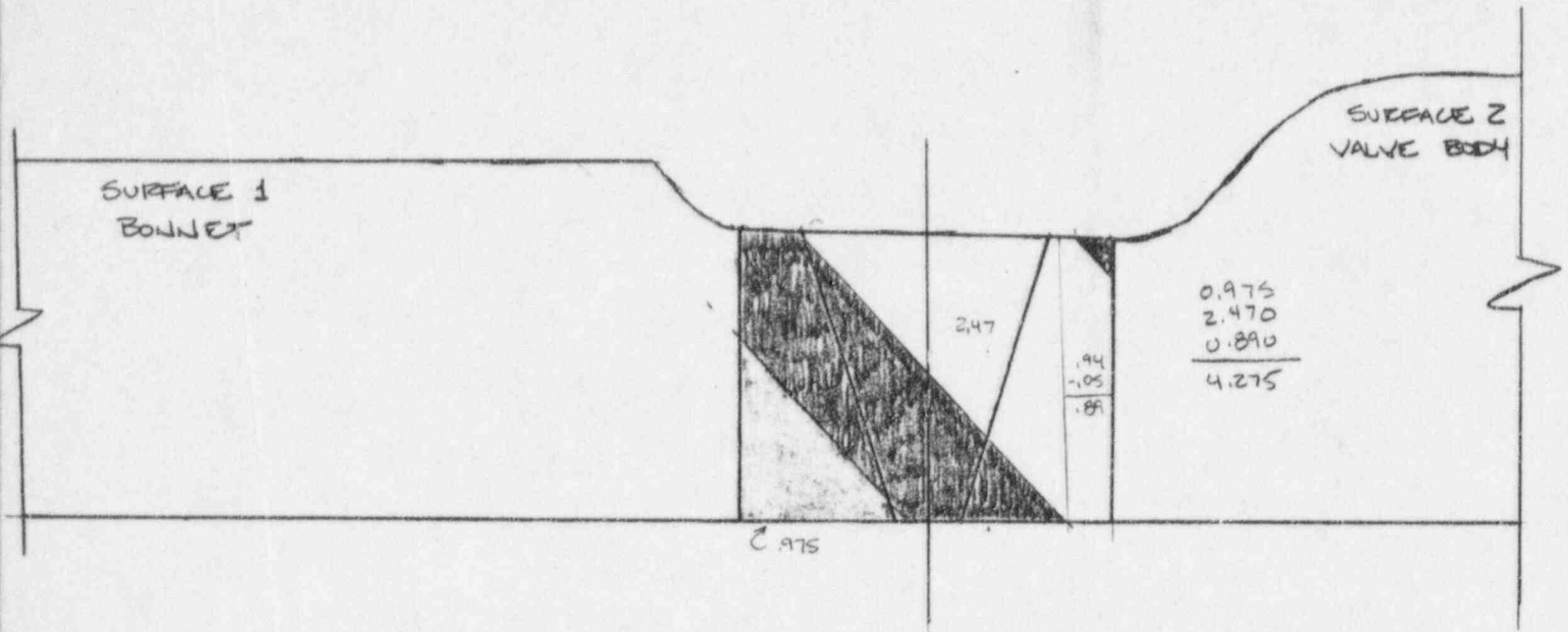
45° SURFACE 2
BEAM DIR. 1
3 of 6

B12.040.002D
WELD# ZND-37A



60° SURFACE 1
BEAM DIRECTION 2
4 of 6

B1Z.040.00ZD
WELD# ZND-37A



45° SURFACE 1
BEAM DIRECTION Z
5 of 6

B12.040.002D
WELD# ZJD-37A

DUKE POWER COMPANY

NDE-91-1

Limited Examination Coverage Worksheet

Revision 0

Examination Volume/Area Defined

Base Metal ☒ Weld ☒ Near Surface ☐ Bolting ☐ Inner Radius ☐

Area Calculation

$$2.35" \times 3" = 7.05 \text{ in}^2$$

Volume Calculation

$$\text{Weld Length} = 63"$$

$$V = 7.05 \text{ in}^2 \times 63 \text{ in}$$

$$V = 444.15 \text{ in}^3$$

Coverage Calculations

Scan #	Angle	Beam Direction	Area Examined (sq.in.)	Length Examined (in)	Volume Examined (cu.in.)	Volume Required (cu.in.)	Percent Coverage
①	45°	S2	4.3	63"	370.9 269.32 92.10/26/95	444.15	60.9% 60.6% 92.10/26/95
②	45°	S1	3.6	63"	226.8	444.15	51.1%
③	45°	CW	7.05 in ²	63"	444.15	444.15	100%
④	45°	CCW	7.05 in ²	63"	444.15	444.15	100%
⑤	60°	S2	2.0	63"	$\frac{126"}{1512}$	$\frac{444.15}{2220.75}$	28.4%

Aggregate % 68.08%

6 of 6

Item No: B12.040.002D

Prepared BY: *DE Houser*

Level: II

Date: 10/26/95

Reviewed By: *Aug L. Bull*

Level: III

Date: 10-27-95

DUKE POWER COMPANY

ULTRASONIC EXAMINATION DATA SHEET FOR PLANAR REFLECTORS

Exam Start: 1201

Form NDE-UT-2A

Exam Finish: 1256

Revision 4

Station: CATAWBA

Unit: II

Component/Weld ID: 25GD-UH-15

Date: 10-15-95

Weld Length (in.): 94.2"

Surface Condition: AS GROUND

W
LO: AXIS

Surface Temperature: 69 ° F

Pyrometer S/N: MCNDE 27016

Examiner: James W. Sledge Level: III

Scans:

45 ☐ dB 70 ☒ 73.5 dB

Cal Due: 960712

Examiner: David K. Zinger Level: II

45T ☐ dB 70T ☐ dB

Configuration: INNER RADIUS

N/A Flow N/A

Procedure: NDE 680 Rev: 1

FC:

60 ☐ dB

to

Calibration Sheet No:

95-16

60T ☐ dB

Scan Surface: OD

Applies to NDE-680 only

9502026

Other: dB

Skew Angle: 18°

IND #	Max % Ref	Mp Max	W Max	L Max	L1	L2	W1	Mp1	W2	Mp2	Beam Dir	Exam surf.	Scan	Damps
					20%dac HMA	20%dac HMA	20%dac HMA	20%dac HMA	20%dac HMA	20%dac HMA				
					50%dac	50%dac	50%dac	50%dac	50%dac	50%dac				
					100% dac	100% dac	100% dac	100% dac	100% dac	100% dac				

DO NOT WRITE IN THIS SPACE

DO NOT WRITE IN THIS SPACE

NO RECORDABLE INDICATIONS.

Remarks:

Limitations: (see NDE-UT-4) ☒

90% or greater coverage obtained: yes ☐ no ☒

Sheet 1 of 3

Reviewed By:

Level: III

Date:

Authorized Inspector

Date

Item No:

Greg L. Bibb

III

10-17-95

Robert M. Bell

10-26-95

CO2.022.007

1106

10-31-95

DUKE POWER COMPANY

ISI LIMITATION REPORT

FORM NDE- UT-4

Revision 1

Component/Weld ID: 254D-UH -15 Item No: C02.022.007

remarks:

☐ NO SCAN SURFACE BEAM DIRECTION
☒ LIMITED SCAN ☐ 1 ☒ 2 ☒ 1 ☐ 2 ☐ cw ☐ ccw
 FROM L _____ to L _____ INCHES FROM WO +3.0 to Beyond.
 ANGLE: ☐ 0 ☐ 45 ☐ 60 other 70 FROM 0 DEG to 360 DEG

NOZZLE GEOMETRY

☐ NO SCAN SURFACE BEAM DIRECTION
☐ LIMITED SCAN ☐ 1 ☐ 2 ☐ 1 ☐ 2 ☐ cw ☐ ccw
 FROM L _____ to L _____ INCHES FROM WO _____ to _____
 ANGLE: ☐ 0 ☐ 45 ☐ 60 other FROM _____ DEG to _____ DEG

☐ NO SCAN SURFACE BEAM DIRECTION
☐ LIMITED SCAN ☐ 1 ☐ 2 ☐ 1 ☐ 2 ☐ cw ☐ ccw
 FROM L _____ to L _____ INCHES FROM WO _____ to _____
 ANGLE: ☐ 0 ☐ 45 ☐ 60 other FROM _____ DEG to _____ DEG

☐ NO SCAN SURFACE BEAM DIRECTION
☐ LIMITED SCAN ☐ 1 ☐ 2 ☐ 1 ☐ 2 ☐ cw ☐ ccw
 FROM L _____ to L _____ INCHES FROM WO _____ to _____
 ANGLE: ☐ 0 ☐ 45 ☐ 60 other FROM _____ DEG to _____ DEG

Sketch(s) attached

☒ yes

☐ no

Prepared By: James W. Stetzer

Level: III

Date: 10-16-95

Sheet 2 of 34 add

Reviewed By: Doug L. Babb III

Date: 10-17-95

Authorized Inspector: Robert M. Lott

Date: 10-26-95

(106)

DUKE POWER COMPANY						NDE-91-1	
Limited Examination Coverage Worksheet						Revision 0	
Examination Volume/Area Defined							
Base Metal <input type="checkbox"/>		Weld <input type="checkbox"/>		Near Surface <input type="checkbox"/>		Bolting <input type="checkbox"/> Inner Radius <input checked="" type="checkbox"/>	
Area Calculation				Volume Calculation			
<p>SEE ATTACHED SKETCH</p> $\frac{2.0 \times 2.0}{2} \times 2 + \frac{2.0^2 \times \pi}{4} =$ <p style="text-align: center;">7.14 in²</p>				$7.14 \text{ in}^2 \times 94.2 \text{ in} = 672.6 \text{ cu in}$			
Coverage Calculations							
Scan #	Angle	Beam Direction	Area Examined (sq.in.)	Length Examined (in)	Volume Examined (cu.in.)	Volume Required (cu.in.)	Percent Coverage
IR	70	CW	3.61	94.2	340.1	672.6	51%
IR	70	CCW	3.61	94.2	340.1	672.6	51%
<p style="font-size: 1.2em;">Aggregate % 51%</p>							
						Item No: C02.022.007	
Prepared BY: <i>James W. Sitzer</i>		Level: <i>III</i>		Date: 10-16-95			
Reviewed By: <i>Larry L. Bubb</i>		Level: <i>III</i>		Date: 10-17-95			

MAIN - STEAM OUTLET NOZZLE NOZZLE & SHELL 1/2 INNER RADIUS.

1/2 SCALE

70° INNER RADIUS.

EXAM AREA = $\frac{2.0 \times 2.0}{2} + \frac{2.0 \times 2.0}{2} + \frac{2.0^2 \times \pi}{4} = 7.14 \text{ sq in}$

AREA COVERED	
1.)	$\frac{1.9 \times .85}{2} = .81$
2.)	$\frac{1.9 \times 2.0}{2} = 1.9$
3.)	$3.0 \times .30 = .9$
TOTAL = 3.61 sq in	

AREA LOSS
3.53 sq in

AREA LOSS = EXAM AREA - AREA COVERED
 7.14 - 3.61
 3.53 sq in

J.W. Setzer III
 10-16-95
 COZ.022.007

