

Duke Power Company
Catawba Nuclear Generation Department
4800 Concord Road
York, SC 29745

WILLIAM R. MCCOLLUM, JR.
Vice President
(803) 831-3200 Office
(803) 831-3426 Fax



DUKE POWER

December 12, 1996

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

Subject: Duke Power Company
Catawba Nuclear Station, Unit 1
Docket No. 50-413

Request for Relief from 1989 edition of ASME Boiler
and Pressure Vessel Code, Section XI.
Serial No. 96-04

Pursuant to 10 CFR 50.55a (a) (3) (ii), Duke Power Company
requests relief from the 1989 edition of ASME Boiler and
Pressure Vessel Code, Section XI for Catawba Units 1.

Complete coverage of two welds in the Safety Injection System
was not obtained during Unit 1 end-of-cycle 9 refueling
outage. Complete coverage was not possible due to component
thickness and geometric configurations. Duke Power Company
believes that with the limited coverage obtained, an
acceptable level of quality and safety has been achieved and
public health and safety will not be endangered by allowing
relief from the code requirements.

The attached Enclosure 1, Relief Request 96-04, provides a
detailed description and justification for this request.

Should there be any questions concerning this request, please
call D. Tower at (803) 831-3419.

Very truly yours,

A handwritten signature in cursive script, reading 'William R. McCollum, Jr.'
William R. McCollum, Jr.

A0471/

9612260062 961212
PDR ADOCK 05000413
P PDR

Document Control Desk
Page 2
December 12, 1996

Attachment

XC:

S.D. Ebnetter, Regional Administrator
Region II

R.J. Freudenberger, Senior Resident Inspector
Catawba Nuclear Station

P.S. Tam, Senior Project Manager
ONRR

ENCLOSURE 1
RELIEF REQUEST 96-04

ENCLOSURE 1
RELIEF REQUEST 96-04

DUKE POWER COMPANY

STATION CATAWBA UNIT 1

10-YEAR INTERVAL REQUEST FOR RELIEF NO. 96-04

I. System/Component(s) for Which Relief is Requested:

ASME Section XI Code Class: 1
Examination Category: B-J
Circumferential Piping Welds - Safety Injection System

<u>Weld Number</u>	<u>Item Number</u>
1NI148-10	B09.011.163
1NI148-11	B09.011.164

II. Code Requirement:

ASME Section XI, 1989 Edition, Examination Category B-J Pressure Retaining Welds In Piping , Table IWB-2500-1, Figure Number IWB-2500-8. Item Number B09.011 requires a volumetric examination of essentially 100% of the weld length and adjacent base material for all piping welds.

III. Code Requirement from which Relief is Requested:

Relief is requested for the above identified Class 1 Circumferential Piping Welds from meeting the coverage requirements as defined in ASME Section XI, Appendix III, Article III-4000, III-4420.

IV. Basis for Relief:

During the ultrasonic examination of the welds shown in Attachment 1, two directional coverage required by ASME Section XI, Appendix III as modified by Code Case N-460 could not be obtained. Causes of these limitations are single sided access and austenitic weld material. Where possible, a combination of angles and wave modes were used to maximize the coverage obtained. The weld and base metal at the component inside surface was covered from at least one direction with a minimum of one angle. The examinations were performed with a procedure and personnel qualified in accordance with ASME Section XI, Appendix VIII, 1992 Edition with 1993 Addenda. This procedure has been qualified for detection of far side flaws when examining through austenitic weld metal.

V. Alternate Examinations or Testing:

No additional examinations are planned for Weld ID Numbers 1NI148-10 and 1NI148-11. The use of radiography as an alternate volumetric examination method for Weld ID Numbers 1NI148-10 and 1NI148-11 is not practical due to component thicknesses and geometric configurations. Other restrictions making radiography impractical are the necessity to use double wall techniques due to inaccessibility of the ID surface and physical barriers prohibiting access for placement of source, film, number bands, etc. Duke Power Company will continue to use the most current ultrasonic techniques available to obtain maximum coverage for future examinations of these weld numbers.

VI. Justification for the Granting of Relief:

Although the coverage requirements of ASME Section XI, as defined in Appendix III could not be met, the amount of coverage obtained for these examinations provides an acceptable level of quality and integrity. Based on these evaluations, it is Duke Power Company's opinion that the limited coverage will not endanger the health and safety of the general public. Duke Power Company will perform UT examinations to the extent practical using procedures and personnel qualified in accordance with ASME Section XI, Appendix VIII, 1992 Edition with 1993 Addenda.

VII. Implementation Schedule:

These examinations will continue to be scheduled in accordance with the requirements of ASME Section XI for future Inspection Intervals at Catawba Nuclear Station, Unit 1.

NDE Level III Review By:	<u>James J. McGhee</u>	Date	<u>11/20/96</u>
Evaluated By:	<u>James E. Cherry</u>	Date	<u>11/20/96</u>
Reviewed By:	<u>Joe Barbour</u>	Date	<u>11/20/96</u>

Attachment 1 Description Table

Attachment 2 UT Examination Data

ASME Class 1 Inservice Inspection Request For Relief No. 96-04
For Catawba Unit 1 Based On ASME Section XI - 1989 Code

Attachment 1
Page 1 of 1

Item No.	Exam Category /Figure No.	System Or Component	Area To Be Examined	Reason For Request	Licensee Proposed Alternate Examination
B09.011.163	B-J IWB-2500-8	(NI) Safety Injection System	Class 1 Circumferential Piping Weld	Limited scan due to geometric configuration. Actual coverage obtained = 59.85%	None
B09.011.164	B-J IWB-2500-8	(NI) Safety Injection System	Class 1 Circumferential Piping Weld	Limited scan due to geometric configuration. Actual coverage obtained = 61.00%	None

DUKE POWER COMPANY										FORM NDE-UT-1G																									
ULTRASONIC CALIBRATION/EXAMINATION RECORD FOR NDT-136 INSTRUMENTS										REVISION 5																									
Station: Catawba			Unit: 1		Date: 6/18/96		Sheet Number: 9601018																												
Procedure: NDE-600			Rev: 7 FC: N/A		Couplant: ULTRAGEL II		Batch Number: 093001																												
Examiner: Jay A. Eaton			Level: II		Manufacturer: STAVELEY		Pyrometer S/N: MCNDE 27025																												
Examiner: B. Dale Jolly			Level: I		Serial No: 975K		Cal Due: 10/3/96																												
REFERENCE BLOCK					SIMULATOR BLOCK																														
ID: ROMPAS					Search Unit # 1 ID: A09319 Reflector Type: RADIUS			Search Unit # 2 ID: A09319 Reflector Type: RADIUS																											
S/N: A09319 Material: SS					Metal Path: 1"			Metal Path: 1"																											
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Initial Cal Time		Manuf: KBA			Units: IN		Manuf: KBA			Units: IN																									
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Reviewer: Larry Mauldin			Level: II		Date: 6/19/96		Authorized Inspector: <i>Robert McMillan</i>			Date: 6-26-96																									

DUKE POWER COMPANY										FORM NDE-UT-1G																	
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Examiner: Jay A. Eaton			Level: II		Manufacturer: STAVELEY		Pyrometer S/N: MCNDE 27025																				
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Reviewer: Larry Mauldin	Level: III	Date: 6/19/96	Authorized Inspector: <i>[Signature]</i>	Date: 6-26-96
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10/12/96

DUKE POWER COMPANY										FORM NDE-UT-1G													
ULTRASONIC CALIBRATION/EXAMINATION RECORD FOR NDT-136 INSTRUMENTS										REVISION 5													
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Procedure: NDE-600			Rev: 7 FC: N/A		Couplant: ULTRAGEL II		Batch Number: 093001																
Examiner: Jay A. Eaton			Level: II		Manufacturer: STAVELEY		Pyrometer S/N: MCNDE 27025																
Examiner: B. Dale Jolly			Level: I		Serial No: 975K		Cal Due: 10/3/96																
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B09.011.164		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	67		YES		6/18/96 1451	6/18/96 1500	72°F											

Reviewer:

Lawrence Mauldin

Level:

III

Date:

6-19-96

Authorized Inspector:

Robert M. Smith

Date:

*6-26-96**JD 10/15/96*

DUKE POWER COMPANY ISI LIMITATION REPORT			FORM NDE-UT-4
			Revision 1
Component/Weld ID: 1NI148-10		Item No: B09.011.163	Remarks:
<input checked="" type="checkbox"/> NO SCAN <input type="checkbox"/> LIMITED SCAN SURFACE <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 FROM L _____ to L _____ INCHES FROM WO _____ C/L _____ to _____ 0.7" ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input checked="" type="checkbox"/> 60 <input checked="" type="checkbox"/> Other 60°L FROM 0 DEG to 360 DEG		< WELD TAPER	
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Prepared By: Jay Eaton	Level: II	Date: 6/18/96	Sketch(s) attached <input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Reviewed By: Larry Mauldin	Date: 6/19/96	Authorized Inspector: <i>Robert M. Hall</i>	Sheet 1 of 3 Date: 7-24-96

for 12/9/96

DUKE POWER COMPANY
Limited Examination Coverage Worksheet

NDE-91-1

Revision 0

Examination Volume/Area Defined

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

Area Calculation

.42" X 1.85" = .777 sq. in. = .78 sq.in.

Volume Calculation

.78 sq. in. X 34.4" = 26.83 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
Axial	45/60L	2	.72	34.4	24.77	26.83	92.32
Circ.	45	CW	.34	34.4	11.7	26.83	43.61
Circ.	45	CCW	.34	34.4	11.7	26.83	43.61

$$48.17 \div 80.49 \times 100 = \underline{59.85\%}$$

Item No: B09.011.163

Prepared By: Jay Eaton

Level: II

Date: 7/22/96

Reviewed By: Larry Mauldin

Level: III

Date: 7/22/96

Jan
10/28/96

REQUEST FOR RELIEF 96-04

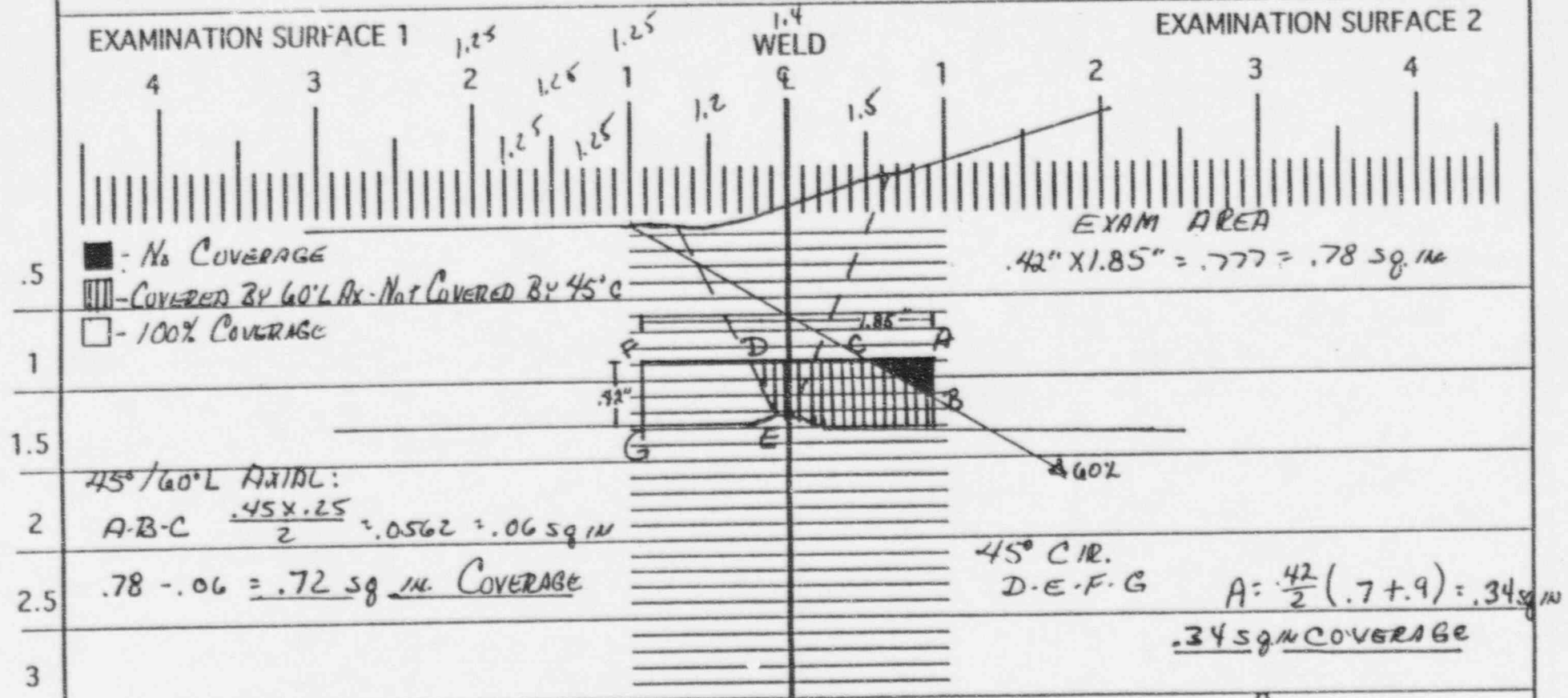
ATTACHMENT 2 PG 5 OF 9

c-13

DUKE POWER COMPANY
UT PROFILE/PLOT SHEET

NDE-UT-5

Revision 1

Component ID/Weld No. LN I 148-10

Remarks:

Examiner:

Reviewed By:

Authorized Inspector:

Item No: B09.011.163Level: IIDate: 7/22/96Level: IIIDate: 7-22-96Date: 7-29-96

270

Profile taken
at: 0°

90

180 Sheet 3 of 3

REQUEST FOR RELIEF 96-04

ATTACHMENT 2 PB 7 OF 9

DUKE POWER COMPANY ISI LIMITATION REPORT				FORM NDE-UT-4	
				Revision 1	
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<input checked="" type="checkbox"/> NO SCAN <input type="checkbox"/> LIMITED SCAN FROM L _____ to L _____ INCHES FROM WO _____ C/L _____ to _____ 0.7"		SURFACE <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 BEAM DIRECTION <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input checked="" type="checkbox"/> 60 <input checked="" type="checkbox"/> Other 60°L FROM 0 DEG to 360 DEG		< WELD TAPER	
<input checked="" type="checkbox"/> NO SCAN <input type="checkbox"/> LIMITED SCAN FROM L _____ to L _____ INCHES FROM WO _____ C/L _____ to BEYOND _____		SURFACE <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 BEAM DIRECTION <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input checked="" type="checkbox"/> 60 <input checked="" type="checkbox"/> Other 60°L FROM 0 DEG to 360 DEG		< VALVE CONFIGURATION	
<input type="checkbox"/> NO SCAN <input type="checkbox"/> LIMITED SCAN FROM L _____ to L _____ INCHES FROM WO _____ to _____		SURFACE <input type="checkbox"/> 1 <input type="checkbox"/> 2 BEAM DIRECTION <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 <input type="checkbox"/> Other _____ FROM _____ DEG to _____ DEG			
<input type="checkbox"/> NO SCAN <input type="checkbox"/> LIMITED SCAN FROM L _____ to L _____ INCHES FROM WO _____ to _____		SURFACE <input type="checkbox"/> 1 <input type="checkbox"/> 2 BEAM DIRECTION <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 <input type="checkbox"/> Other _____ FROM _____ DEG to _____ DEG			
Prepared By: Jay Eaton		Level: II		Date: 6/18/96	
Reviewed By: Larry Mauldin		Date: 6/19/96		Authorized Inspector: <i>[Signature]</i>	
Sketch(s) attached <input checked="" type="checkbox"/> yes <input type="checkbox"/> no		Sheet 1 of 3			
				Date: 7-24-96	

[Handwritten signature]
 12/24/96

REQUEST FOR RELIEF 96-04
ATTACHMENT 2 Pg 8 of 9

DUKE POWER COMPANY Limited Examination Coverage Worksheet	NDE-91-1
	Revision 0

Examination Volume/Area Defined				
<input checked="" type="checkbox"/> Base Metal	<input checked="" type="checkbox"/> Weld	<input type="checkbox"/> Near Surface	<input type="checkbox"/> Bolting	<input type="checkbox"/> Inner Radius
Area Calculation		Volume Calculation		
.33" X 1.6" = .528 sq. in. = .53 sq.in		.53 sq. in. X 34.4" = 18.23 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

Axial	45/60L	1	.45	34.4	15.48	18.23	84.91
Circ.	45	CW	.26	34.4	8.94	18.23	49.04
Circ.	45	CCW	.26	34.4	8.94	18.23	49.04

$33.36 \div 54.69 \times 100 = 61\%$

Prepared By: Jay Eaton		Level: II	Date: 7/22/96
Reviewed By: Larry Mauldin		Level: III	Date: 7/22/96

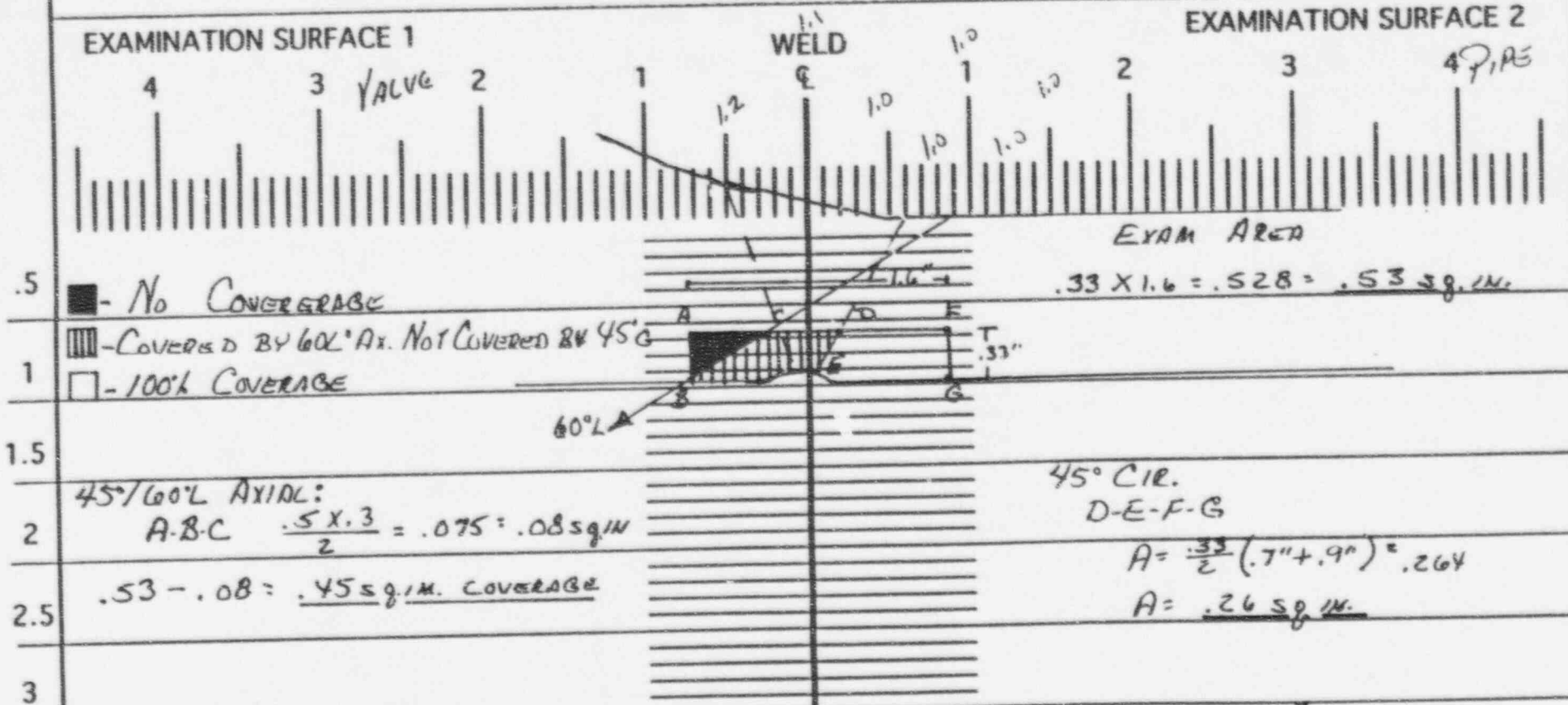
Item No:	B09.011.164
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10/2/96

DUKE POWER COMPANY
UT PROFILE/PLOT SHEET

NDE-UT-5

Revision 1



Component ID/Weld No. 1NI148-11

Remarks:

Examiner:

Reviewed By:

Authorized Inspector:

Item No: B09.011.164

Level: II

Date: 7-22-96

Level: III

Date: 7-22-96

Date: 7-24-96

270

Profile taken
at: 0

90

180 Sheet 3 of 3

Handwritten signature and date: 7/24/96