



W. R. McCollum, Jr.  
Vice President

**Duke Power**

Oconee Nuclear Site  
7800 Rochester Highway  
Seneca, SC 29672  
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August 1, 2000

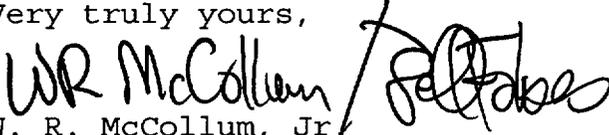
U.S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, DC 20555

Subject: Duke Energy Company  
Oconee Nuclear Station, Unit 3  
Docket Nos. 50-287  
Third Ten Year Inservice Inspection Interval  
Request for Relief No. 00-003

Pursuant to 10 CFR 50.55a(g)(6)(i), attached is a Request for Relief from requirements specified by the ASME Boiler and Pressure Vessel Code, Section XI, to examine 100% of the volume of specific Unit 3 welds described in the attached request. This request is to allow Duke Energy to take credit for limited ultrasonic examinations, in conjunction with hydrostatic tests and VT-2 visual inspections, on these specific welds. The ultrasonic examination coverages of the subject welds during the recent 3EOC18 refueling outage did not meet the 90% examination requirements of Code Case N-460. Achievement of greater than 90% examination coverage for these welds is impractical due to piping/vessel geometry, interferences, and existing examination technology.

If there are any questions, please contact R. P. Todd at (864) 885-3418.

Very truly yours,

  
W. R. McCollum, Jr.  
Site Vice President

Attachment

A047

U. S. Nuclear Regulatory Commission  
August 1, 2000  
Page 2

xc w/att: L. A. Reyes, Regional Administrator  
U.S. Nuclear Regulatory Commission, Region II  
Atlanta Federal Center  
61 Forsyth St., SWW, Suite 23T85  
Atlanta, GA 30303

D. E. LaBarge, Senior Project Manager, Section 1  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation  
U. S. Nuclear Regulatory Commission  
Mail Stop O-14 H25  
Washington, DC 20555-0001

xc(w/o attch):

M. E. Shannon,  
NRC Senior Resident Inspector  
Oconee Nuclear Station

Mr. Virgil Autrey  
Division of Radioactive Waste Management  
Bureau of Land and Waste Management  
SC Dept. of Health & Environmental Control  
2600 Bull St.  
Columbia, SC 29201

Duke Energy Corporation

Station Oconee Unit 3

10-YEAR INTERVAL REQUEST FOR RELIEF NO. 00-003

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

a. Decay Heat Exchanger Nozzle-to-Pipe Welds:

3-53A-18-11 Item Number B05.130.001

3-PHA-17 Item Number B05.130.002

b. Reactor Coolant Pump 3A1 Outlet Nozzle-to-Safe End:

3-PDA1-1 Item Number B09.011.017

c. Valve 3HP-27 to Elbow:

3-51A-66-40 Item Number C05.021.050

d. Valve 3HP-130 to Pipe:

3-51A-87-54A Item Number C05.021.064

II. Code Requirement:

a. Figure IWB-2500-8, Examination Category B-F, Pressure Retaining Dissimilar Metal Welds as modified by Code Case N-460.

b. Figure IWB-2500-8, Examination Category B-J, Pressure Retaining Welds in Piping as modified by Code Case N-460.

c. Figure IWC-2500-7, Examination Category C-F-1, Pressure Retaining Welds in Austenitic Stainless Steel or High Alloy Piping as modified by Code Case N-460.

III. Code Requirement from which relief is requested:

Relief is requested from the requirement of examining essentially 100% of the required volume. Due to existing geometry, physical barriers and austenitic weld metal, obtaining greater than 90% coverage of the required volume as defined in Code Case N-460 is not possible.

Code Case N-460 allows credit for full volume coverage if it can be shown that more than 90% of the required volume has been examined.

IV. Basis for Relief:

**Decay Heat Exchanger Nozzle-to-Pipe Welds 3-53A-18-11 and 3-PHA-17** (Item Number B05.130.001) (Item Number B05.130.002) are limited to 75% coverage of the required volume because of the nozzle taper. In order to achieve more coverage, the nozzles would have to be re-designed to eliminate the taper.

The subject welds were examined to the maximum extent practical using ultrasonic techniques in accordance with the requirements of ASME Section XI, Appendix III of the 1989 Edition. Reference Attachment A for a drawing of the Decay Heat Exchanger Nozzle-to-Pipe welds.

**Reactor Coolant Pump 3A1 Outlet Nozzle to Safe End weld 3-PDA1-1** (Item Number B09.011.017) is limited to 62.5% coverage of the required volume because of the single sided access due to the nozzle configuration and location of lifting lugs. In order to achieve more coverage, the nozzle would have to be re-designed to allow scanning from both sides of the weld.

Current ultrasonic technology is not capable of reliably detecting or sizing flaws on the far side of austenitic weld configurations common to US nuclear plants. Duke Energy Corporation has demonstrated that the best available techniques were applied through the Performance Demonstration Initiative (PDI). The PDI Performance Demonstration Qualification Summary (PDQS) for austenitic piping certifies that examinations from one side are a "best effort". Therefore, coverage on the far side of the weld is not claimed.

The subject weld was examined to the maximum extent practical using ultrasonic techniques qualified in accordance with the requirements of ASME Section XI, Appendix VIII of the 1992 Edition with the 1993 Addenda as modified by the PDI. Use of this edition and addenda was granted in Relief Request 95-GO-003 on September 12, 1995. Reference Attachment B for a drawing of the Reactor Coolant Pump 3A1.

**Valve 3HP-27 to Elbow Weld 3-51A-66-40** (Item Number C05.021.050) is limited to 62.49% coverage of the required volume because of the single sided access due to the valve configuration. In order to achieve more coverage, the configuration would have to be re-designed to allow scanning from both sides of the weld. Reference Attachment C for a drawing of the valve to elbow weld.

Current ultrasonic technology is not capable of reliably detecting or sizing flaws on the far side of austenitic weld configurations common to US nuclear plants. Duke Energy Corporation has demonstrated that the best available techniques were applied through the PDI. The PDI Performance Demonstration Qualification Summary (PDQS) for austenitic piping certifies that examinations from one side are a "best effort". Therefore, coverage on the far side of the weld is not claimed.

The subject weld was examined to the maximum extent practical using ultrasonic techniques qualified in accordance with the requirements of ASME Section XI, Appendix VIII of the 1992 Edition with the 1993 Addenda as modified by the PDI.

**Valve 3HP-130 to Pipe Weld** (Item Number C05.021.064) This weld is limited to 62.50% coverage of the required volume because of single sided access due to the valve configuration. In order to achieve more coverage, the configuration would have to be re-designed to allow scanning from both sides of the weld. Reference Attachment D for a drawing of the valve to elbow weld.

Current ultrasonic technology is not capable of reliably detecting or sizing flaws on the far side of austenitic weld configurations common to US nuclear plants. Duke Energy Corporation has demonstrated that the best available techniques were applied through the PDI. The PDI Performance Demonstration Qualification Summary (PDQS) for austenitic piping certifies that examinations from one side are a "best effort". Therefore, coverage on the far side of the weld is not claimed.

The subject weld was examined to the maximum extent practical using ultrasonic techniques qualified in accordance with the requirements of ASME Section XI, Appendix VIII of the 1992 Edition with the 1993 Addenda as modified by the PDI.

Reference Attachment E for copies of the examination records for welds addressed in this request.

V. Alternate Examinations or Testing:

The use of radiography as an alternate volumetric examination of the welds/components referenced in this request is not a viable option. Restrictions to performing radiography are primarily due to inability to access the inside of the components to place film or to position a radiographic source.

Duke Energy proposes to use the pressure test and VT-2 visual examination to compliment the limited examination coverage. The Code requires (reference Table IWB-2500-1, Item Number B15.20) that a system leakage test be performed after each refueling outage. Additionally a system hydrostatic test (reference Table IWB-2500-1, Item Number B15.21) is required once during each 10-year inspection interval. These tests require a VT-2 visual examination for evidence of leakage. This testing will provide adequate assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), there are other activities which provide a high level of confidence that, in the unlikely case that leakage did occur through these welds, it would be detected and isolated. Specifically, leakage from these welds would be detected by monitoring of the Reactor Coolant System (RCS), which is performed daily under procedure PT/1,2,3/A/0600/10, "RCS Leakage." This RCS leakage monitoring is a requirement of the Technical Specification 3.4.13, "RCS Operational Leakage." Leakage is also evaluated in accordance with this Technical Specification. The leakage could be detected through several methods. Technical Specification 3.4.15, RCS "Leakage Detection Instrumentation," requires the containment normal sump level indication, in combination with a particulate (RIA-47) or gaseous radioactivity monitor (RIA-49). These monitors are sensitive to low leak rates; are capable of detecting any fission products in the coolant and will make these monitors sensitive to coolant leakage. In addition to the radiation monitors, a level indicator in the Reactor Building normal sump also monitors leakage. Other checks are the RCS mass balance calculation and level in the Letdown Storage Tank.

Duke Energy has examined the welds/components referenced in this request to the maximum extent possible utilizing the latest in examination techniques and equipment. Duke Energy will continue to perform ultrasonic examination of all welds/components identified in Section I of

this request to the maximum extent practical, within the limits of original design and construction. Future examinations will be in accordance with the requirements of ASME Section XI 1995 Edition with the 1996 Addenda Appendix VIII as modified by 10CFR50.55a(b)(2)(xiv, xv and xvi) and Code Case N-460. This will provide reasonable assurance of weld/component integrity. Thus, an acceptable level of quality and safety will have been achieved, and allowing relief from the aforementioned Code requirements will not endanger public health and safety.

VI. Justification for the Granting of Relief:

Duke Energy Corporation will continue to ultrasonically examine the welds to the extent practical within the limits of original design and construction. This will provide reasonable assurance of weld/component integrity. Thus, an acceptable level of quality and safety will have been achieved and allowing relief from the aforementioned Code requirements will not endanger public health and safety.

The Code requires 100% volumetric examination of all Decay Heat Exchanger Nozzle-to-Pipe Welds; Reactor Coolant Pump 3A1 Outlet Nozzle to Safe End Welds; Valve 3HP-27 to Elbow Weld and Valve 3HP-130 to Pipe Weld. However, the configuration of the welds restricts scanning and prevents complete volumetric coverage of Decay Heat Exchanger Nozzle-to-Pipe Welds; Reactor Coolant Pump 3A1 Outlet Nozzle to Safe End Welds; Valve 3HP-27 to Elbow Weld and Valve 3HP-130 to Pipe Weld. Therefore, the 100% volumetric examination is impractical. To meet Code examination requirements, modifications to the configurations would be necessary to allow scanning from both sides of the weld. Modification of this nature would not be practical for Duke Energy.

Duke Energy obtained 75% coverage of the Decay Heat Exchanger Nozzle to Pipe Welds 3-53A-18-11 and 3-PHA17 and 62.5% coverage of the Reactor Coolant Pump 3A1 to Safe End weld 3-PDA1-1; 62.49% coverage of the Valve 3HP-27 to Elbow 3-51A-66-40 weld and 62.50% coverage of the Valve 3HP-130 to Pipe weld 3-51A-84-54A. It is recognized that this represents a small part of the required Code examination volume. However, this level of examination, in conjunction with the Code required VT-2 visual examination after each refueling outage and the 10-year hydrostatic test, provides reasonable assurance of the continued structural integrity of the subject welds/components.

Pursuant to 10 CFR 50.55a(g)(6)(i), granting this relief will provide reasonable assurance of weld/component integrity, "is authorized by law and will not endanger life or property or the common defense and security

and is otherwise in the public interest giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility.”

VII. Implementation Schedule:  
Unit 3, Refueling Outages 18

The following individuals were involved in the development of this request for relief:

B. W. Carney Jr., Oconee Engineering provided input to Sections VI and V of this request as well.

M. D. Leighton, Oconee Primary Systems provided input to Sections VI and V of this request as well.

J. J. McArdle III, NDE Level III provided input for Sections III, IV, V and VI of this request.

R. G. Rouse, Oconee ISI Plan Manager compiled and completed this request.

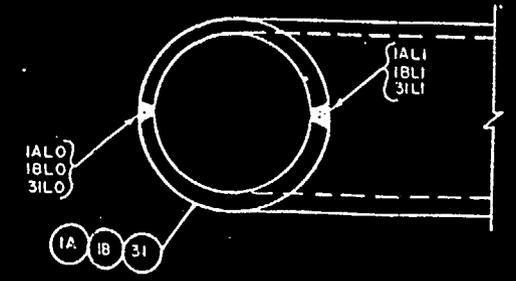
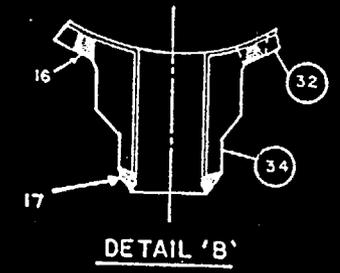
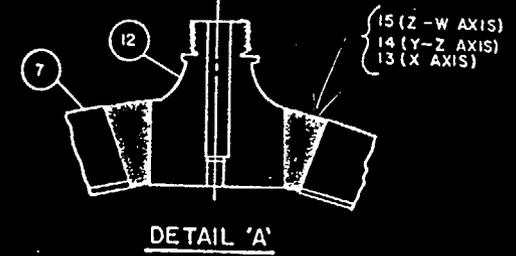
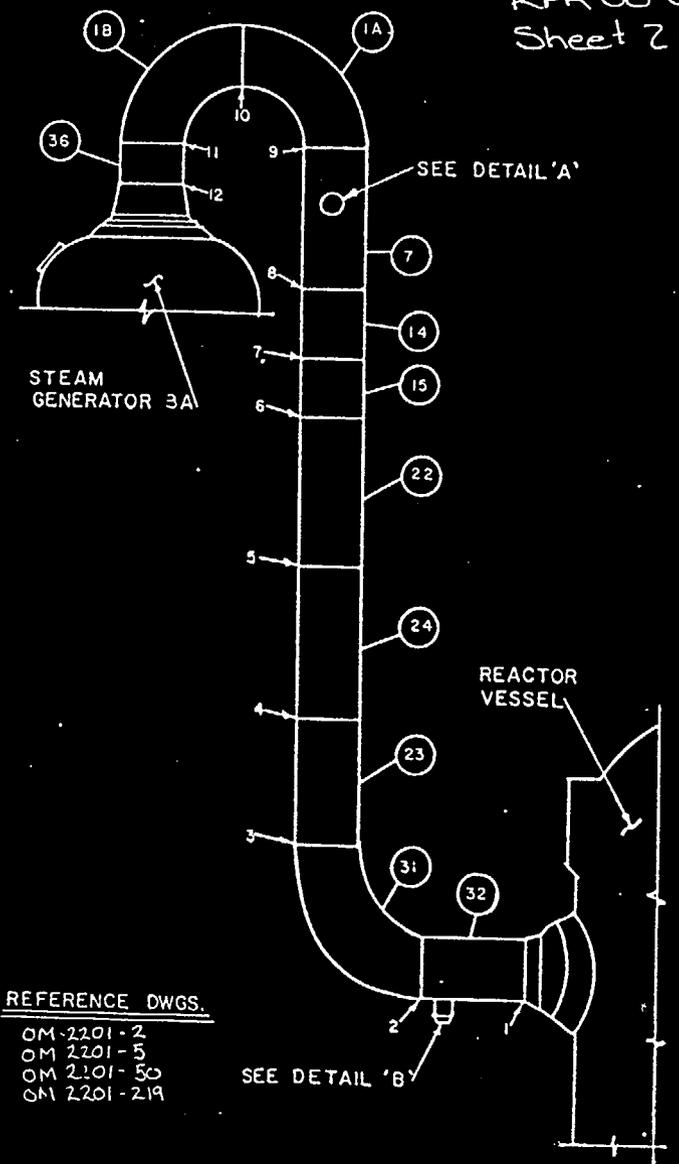
Sponsored By: RG Rouse Date: 7/27/00

Approved By: L. Kevin Rhyme Date: 7/27/00



WELD LIST				BILL OF MATERIAL			
IDENT NO.	PIECE NO.	DIAM.	THICK.	PC. NO.	QTY.	DESCRIPTION	MATL.
1	32-REACTOR VESSEL	42.75	2.856	NA	1	REACTOR VESSEL NOZZLE	SA 508 CL2
2	32-31	42.75	2.856	1A	1	90° ELBOW 36" I.D.	SA 516 CS GR 70
3	31-23	42.75	2.856	1B	1	90° ELBOW 36" I.D.	SA 516 CS GR 70
4	23-24	42.75	2.856	7	1	36" I.D. PIPE	A106 GR C
5	24-22	42.75	2.856	14	1	36" I.D. PIPE	A106 GR C
6	22-15	42.75	2.856	15	1	FLOW METER PIPE	A106 GR C
7	15-14	42.75	2.856	22	1	36" I.D. PIPE	A106 GR C
8	14-7	42.75	2.856	23	1	36" I.D. PIPE	A106 GR C
9	7-1A	42.75	2.856	24	1	36" I.D. PIPE	A106 GR C
10	1A-1B	42.75	2.856	31	1	36" 90° ELBOW	SA 516 GR 70
11	1B-36	42.75	2.856	32	1	36" I.D. PIPE	A106 GR C
12	36-STEAM GEN 3A	42.75	2.856	34	1	DECAY HEAT NOZZLE	A105 GR 2
13	7-12	9.00	2.875	12	3	RTE MOUNTING BOSS	INCONEL B-166
14	7-12	9.00	2.875	NA	1	STEAM GEN.3A NOZZLE	SA 508-64 CL1
15	7-12	9.00	2.87	36	1	36" I.D. PIPE	A106 GR C
16	32-34	25.00	2.875				
IALO	1A	44.00	2.875				
IALI	1A	44.00	2.875				
IBLO	1B	44.00	2.875				
IBLI	1B	44.00	2.875				
3ILO	32	44.00	2.875				
3ILI	32	44.00	2.875				
17	INCONEL 34- BUTT WELD	12.75	1.125				

Attachment A  
RFR 00-003  
Sheet 2 of 2



REFERENCE DWGS.  
OM-2201-2  
OM 2201-5  
OM 2201-50  
OM 2201-219

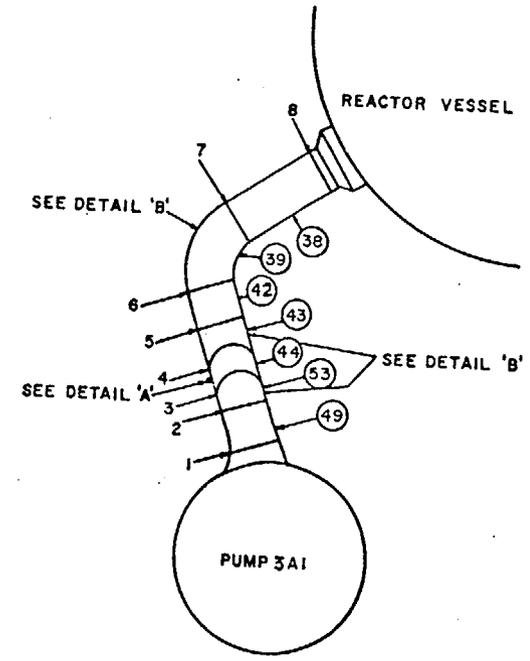
NOTES:

- ALL WELD NUMBERS WILL BE PRECEDED BY 3PHA-
- PIECE NUMBERS WILL BE IDENTIFIED BY CIRCLES.

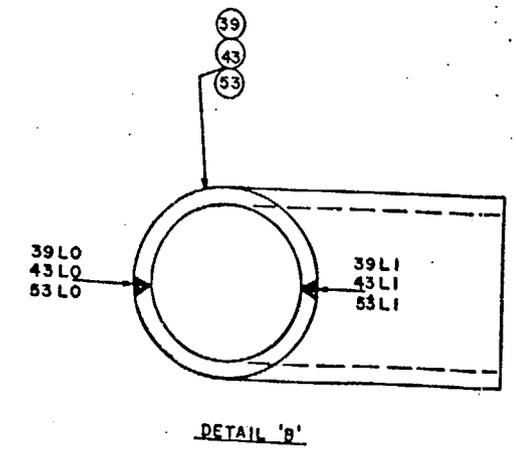
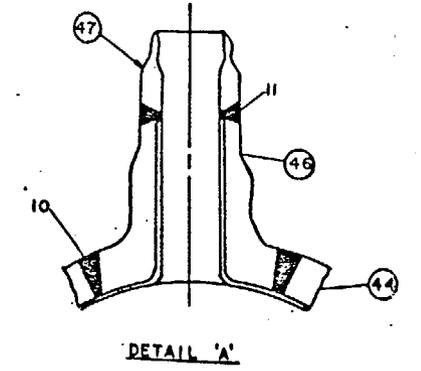
0	ORIG.	WBS	TMH					TITLE
								STEAM GENERATOR 3A
								HOT LEG TO REACTOR VESSEL
NO.	REVISION	DRWN	RVWD	APPD	DWG NO.	REV.		
		DATE	DATE	DATE	ISI OCN3-005	0		

Attachment B  
RFR 00-003  
Sheet 1 of 1

IDENT NO.	PIECE NO.	DIAM.	THICK.	PC. NO.	QTY	DESCRIPTION	MATL.
I	PUMP-49	33.50	2.333	N/A	1	3AI PUMP NOZZLE	A351 CF8
				N/A	1	REACTOR NOZZLE	SA508 CL2
2	49-53	33.50	2.333	38	1	28" I.D. PIPE	A106 GRC
3	53-44	33.50	2.333	39	1	28" I.D. ELBOW 75°	SA516 GR70
4	44-43	33.50	2.333	43	1	28" I.D. ELBOW 45°	SA516 GR70
5	43-42	33.50	2.333	44	1	28" I.D. PIPE	A106 GRC
6	42-39	33.50	2.333	42	1	28" I.D. PIPE	A106 GRC
7	38-39	33.50	2.333	53	1	28 I.D. ELBOW 45°	SA516 GR70
8	38-REACT. NOZZLE	33.50	2.333				
10	44-46	12.00	2.250	49	1	SAFE END	SA376TP316
II	46-47	3.50	.750	46	1	HPI NOZZLE	A105 GR2
				47	1	SAFE END	A336 CF8M
39LO	39	34.75	2.333				
39LI	39	34.75	2.333				
43LO	43	34.75	2.333				
43LI	43	34.75	2.333				
53LO	53	34.75	2.333				
53LI	53	34.75	2.333				



REFERENCE DWGS.  
OM 2201-2



NOTES:  
1. ALL WELD NUMBERS SHALL BE PRECEDED BY "3PDAI-"  
2. PIECE NUMBERS ARE SHOWN IN CIRCLES.

1	REVISED	ASH	DEC	1982	TITLE PUMP '3AI' DISCHARGE PIPING	
	MATL. PC.47	7/31/82	11/31/84	1/28/84		
0	ORIG.	AWD	T.M.H.	1/1/82	DWG NO. ISI OCN3-011	
	NO.	REVISION	DRWN	RVWD		APPD
			DATE	DATE	DATE	REV.





<b>DUKE POWER COMPANY</b>				Exam Start: 1400	Form NDE-UT-2A
				<b>ULTRASONIC EXAMINATION DATA SHEET FOR PLANAR REFLECTORS</b>	
Station: Oconee	Unit: 3	Component/Weld ID: 3-53A-18-11			Date: 4/24/00
Weld Length (in.): 40.0	Surface Condition: GROUND	Lo: 9.1.1.5**	Surface Temperature: 77 ° F		
Examiner: David Zimmerman <i>David Zimmerman</i>	Level: II	Scans:		Pyrometer S/N: MCNDE 27206	
Examiner: James H. Resor <i>James H. Resor</i>	Level: II	45 <input checked="" type="checkbox"/> 75.5 dB	70 <input type="checkbox"/> _____ dB	Cal Due: 7/26/00	
Procedure: NDE-610	Rev: 4	45T <input checked="" type="checkbox"/> 37.5 dB	70T <input type="checkbox"/> _____ dB	Configuration: pe to Decay Heat Noz Safe E	
Calibration Sheet No: 0003048, 0003050	FC: *	60 <input type="checkbox"/> _____ dB	NOZZLE _____ Flow _____ PIPE _____		
		60T <input type="checkbox"/> _____ dB	S2 _____ to S1 _____		
		Other: _____ dB	Scan Surface: OD		
			Applies to NDE-680 only		
			Skew Angle: N/A		

IND #	<input checked="" type="checkbox"/>	Max % Ref	Mp Max	W Max	L Max	L1	L2	W1	Mp1	W2	Mp2	Beam Dir.	Exam Surf.	Scan	Damps
		<b>DO NOT WRITE IN THIS SPACE</b>				20%dac HMA		<b>DO NOT WRITE IN THIS SPACE</b>	<b>DO NOT WRITE IN THIS SPACE</b>						
						50%dac	50%dac	50%dac	50%dac	50%dac	50%dac				
						100%dac	100%dac	100%dac	100%dac	100%dac	100%dac				
1	45°	159	1.6	1.7	360	INT.	INT.					S2	S1	AX.	NO

Remarks: * FC 97-01, 98-20				** (RT. INTERVAL #1)				
Limitations: (see NDE-UT-4) <input type="checkbox"/>			90% or greater coverage obtained: yes <input type="checkbox"/> no <input checked="" type="checkbox"/>				Sheet <u>1</u> of <u>4</u>	
Reviewed By:	Level:	Date:	Authorized Inspector:		Date:	Item No:		
<i>Sue L. Bell</i>	<i>III</i>	<i>5-5-00</i>	<i>MBC</i>		<i>5-9-00</i>	B05.130.001		

Attachment E  
RFR 00-03  
Page 1 of 24

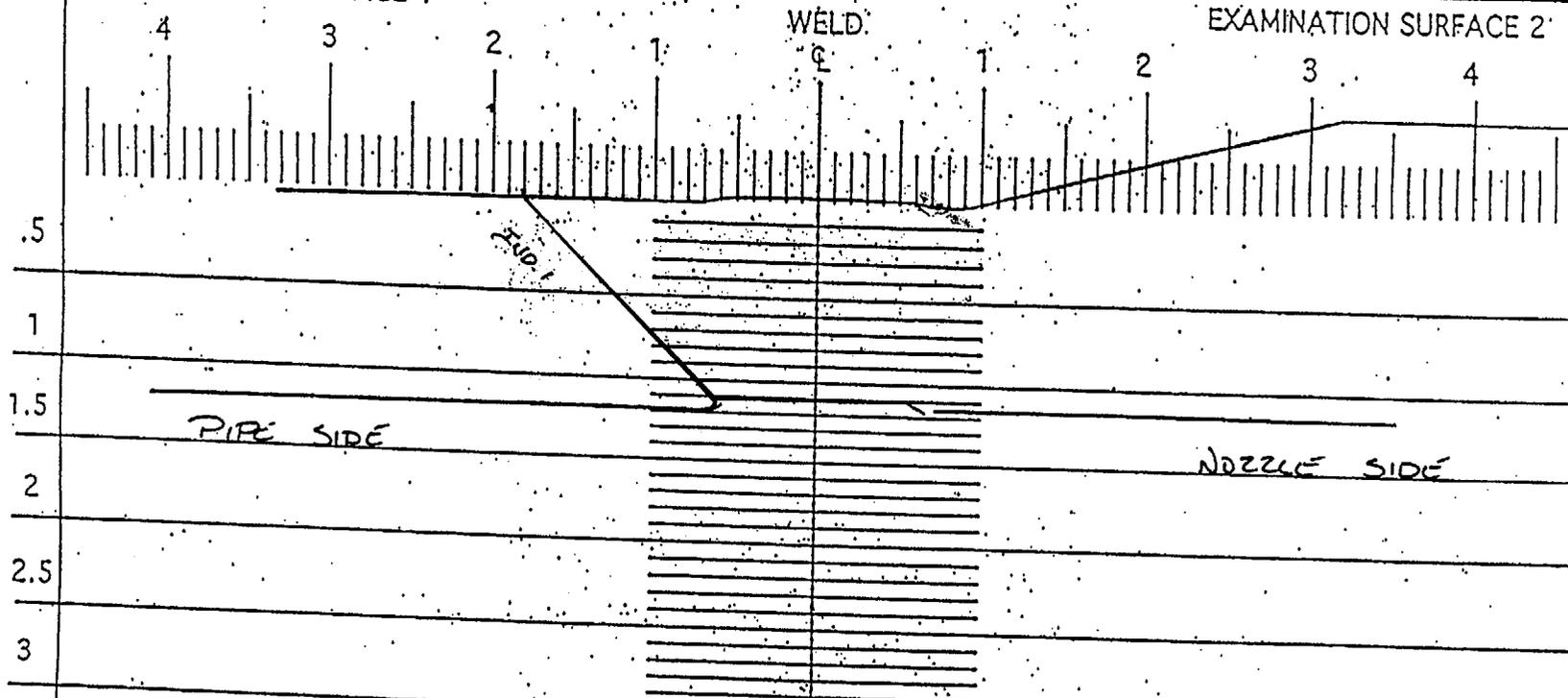
DUKE POWER COMPANY  
UT PROFILE/PLOT SHEET

NDE-UT-5

Revision 1

EXAMINATION SURFACE 1

EXAMINATION SURFACE 2



PIPE SIDE

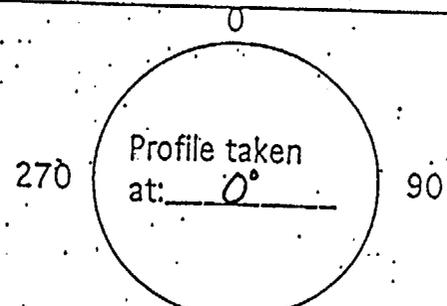
NOZZLE SIDE

Component ID/Weld No. 3-S3A-18-11

Remarks: JUD.1 PLOTTING (45RL)

Examiner: *David L. ...*  
Reviewed By: *Angie A. Ball*  
Authorized Inspector: *M.B.C.*

Item No: 305.130.001  
Level: II Date: 4/24/00  
Level: III Date: 5-5-00  
Date: 5-9-00



180 Sheet 2 of 4

**DUKE POWER COMPANY**  
**ULTRASONIC INDICATION RESOLUTION SHEET**

Form NDE-UT-8

Revision 1

Acceptance Standard:

IND. 1 - GEOMETRICAL REFLECTOR DUE TO COUNTERBORE. PAST UT DATA AND RADIOGRAPH SUPPORT THIS DETERMINATION. UNABLE TO DUPLICATE REFLECTOR WITH 60°RL.

Item No: B05.130.001

Acceptable Indications: IND. 1

Rejectable Indications:

These indications have been compared with previous ultrasonic data     Yes     No previous data available

Examiner: David Zimmerman <i>David Zimmerman</i>	Level: II	Date: 4/27/00	[Redacted]	Sheet <u>3</u> of <u>4</u>
Reviewer: <i>Sgt. J. Bill</i>	Level: III	Date: 5-5-00		Authorized Inspector: <i>YMB</i>

<b>DUKE POWER COMPANY</b> 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
WELD WIDTH = 1.9 IN. WELD HEIGHT = .375 IN. = .7125 CU. IN.	WELD LENGTH = 12.75 DIA X TT 40.1 IN. X .7125 SQ. IN. = 28.54 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	45°	CW	.7125	40.1	28.54	28.54	100.00
2	45°	CCW	.7125	40.1	28.54	28.54	100.00
3	45°RL	S1	.356	40.1	14.27	28.54	50.00
4	45°RL	S2	.356	40.1	14.27	28.54	50.00
		TOTAL		AGGREGATE	85.62	114.16	75.00

		Item No: B05.130.001
Prepared By: <i>David K. [Signature]</i>	Level: <u>II</u>	Date: <u>4/24/00</u>
Reviewed By: <i>Aug. L. Bell</i>	Level: <u>III</u>	Date: <u>5-5-00</u>

pg 4 of 4

<b>DUKE POWER COMPANY</b>						Exam Start: 1400	Form NDE-UT-2A
<b>ULTRASONIC EXAMINATION DATA SHEET FOR PLANAR REFLECTORS</b>						Exam Finish: 1420	Revision 4
Station: Ocone	Unit: 3	Component/Weld ID: 3-PHA-17				Date: 4/24/00	
Weld Length (in.): 40.0	Surface Condition: GROUND		Lo: 9.1.1.5**		Surface Temperature: 77 ° F		Pyrometer S/N: MCNDE 27206
Examiner: David Zimmerman <i>David Zimmerman</i>	Level: II	Scans:		Cal Due: 7/26/00		Configuration: <u>ecay Heat Nozzle</u> to Safe En	
Examiner: James H. Resor <i>James H. Resor</i>	Level: II	45 <input type="checkbox"/> _____ dB	70 <input type="checkbox"/> _____ dB	NOZZLE _____ Flow _____ PIPE _____		S2 to S1	
Procedure: NDE-610	Rev: 4	45T <input checked="" type="checkbox"/> 37.5 dB	70T <input type="checkbox"/> _____ dB	Scan Surface: OD		Applies to NDE-680 only	
Calibration Sheet No: 0003048, 0003049, <del>0003050</del>		60 <input checked="" type="checkbox"/> 80.0 dB	60T <input type="checkbox"/> _____ dB	Skew Angle: N/A			
		Other: _____ dB					

IND #	<input checked="" type="checkbox"/>	Max % Ref	Mp Max	W Max	L Max	L1	L2	W1	Mp1	W2	Mp2	Beam Dir.	Exam Surf.	Scan	Damps	
		<b>DO NOT WRITE IN THIS SPACE</b>				20%dac HMA	<b>DO NOT WRITE IN THIS SPACE</b>									
						50%dac	50%dac	50%dac	50%dac	50%dac	50%dac					
						100%dac	100%dac	100%dac	100%dac	100%dac	100%dac					
1	60°	100	2.5	2.3	360	INT.	INT.					S1	S2	AX	NO	

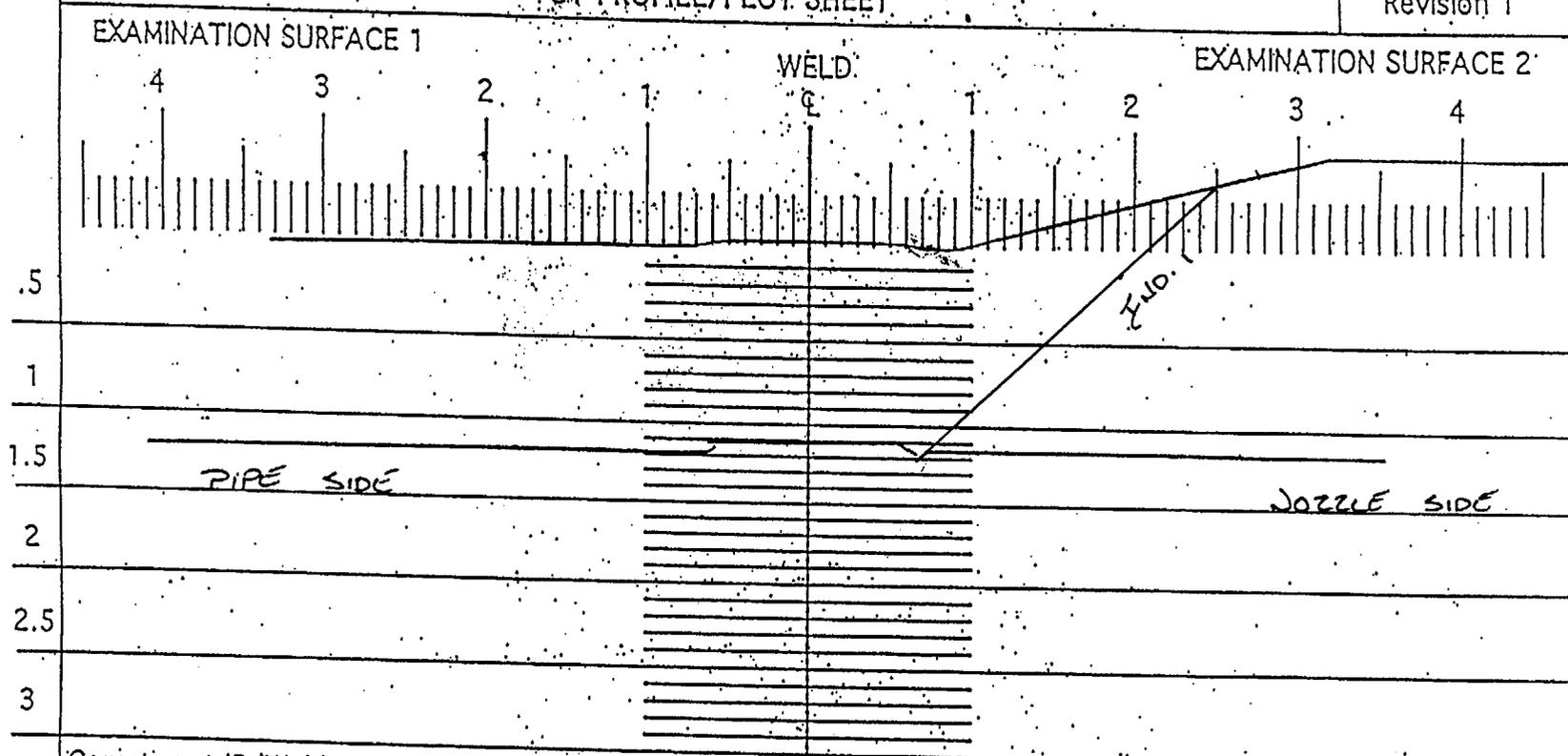
Remarks: *FC 97-01, 98-20      ** (R.T. INTERVAL #1)					
Limitations: (see NDE-UT-4) <input type="checkbox"/> 90% or greater coverage obtained: yes <input type="checkbox"/> no <input checked="" type="checkbox"/>					Sheet <u>1</u> of <u>4</u>
Reviewed By: <i>Shay L. Bibb</i>	Level: <u>III</u>	Date: <u>5-5-00</u>	Authorized Inspector: <i>MBC</i>	Date: <u>5-9-00</u>	Item No: B05.130.002

Attachment E  
 RFR 00-03  
 Page 5 of 24

DUKE POWER COMPANY  
UT PROFILE/PLOT SHEET

NDE-UT-5

Revision 1



Component ID/Weld No. 3-PIA-17

Remarks: PLOTTING OF IND. #1 (60° RC)

Examiner: David K. 3

Item No: B05.130.002

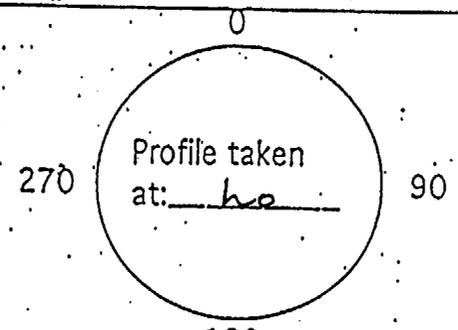
Reviewed By: Amy D. Bell

Level: II Date: 4/24/00

Authorized Inspector: YMC

Level: III Date: 5-5-00

Date: 5-9-00



180 Sheet 2 of 4

**DUKE POWER COMPANY**  
**ULTRASONIC INDICATION RESOLUTION SHEET**

Form NDE-UT-8

Revision 1

Acceptance Standard:

IND. 1 - GEOMETRICAL REFLECTOR DUE TO COUNTERBORE. PAST DATA (RT RADIOGRAPH) SUPPORTS THIS DETERMINATION.

Item No: B05.130.002

Acceptable Indications: IND. 1

Rejectable Indications:

These indications have been compared with previous ultrasonic data     Yes     No previous data available

Examiner:	Level:	Date:		Sheet <u>  3  </u> of <u>  4  </u>
David Zimmerman <i>David K. Zimmerman</i>	II	4/24/00		

Reviewer:	Level:	Date:	Authorized Inspector:	Date:
<i>Dmy L. Balle</i>	<i>III</i>	<i>5-5-00</i>	<i>YMBC</i>	<i>5-9-00</i>

<b>DUKE POWER COMPANY</b> Limited Examination Coverage Worksheet	NDE-91-1
	Revision 0

**Examination Volume/Area Defined**

Base Metal    
  Weld    
  Near Surface    
  Bolting    
  Inner Radius

Area Calculation	Volume Calculation
WELD WIDTH = 1.9 IN. WELD HEIGHT = .375 IN. .7125 In.	WELD LENGTH = 12.75 Dia x TT = 40.1 IN. 40.1 In. x .7125 In. Sq. = 28.54 IN. CU.

**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°	CW	.7125	40.1	28.54	28.54	100.00
2	45°	CCW	.7125	40.1	28.54	28.54	100.00
3	45°RL	S1	.356	40.1	14.27	28.54	50.00
4	45°RL	S2	.356	40.1	14.27	28.54	50.00
TOTAL				AGGREGATE	85.62	114.16	75.00

Item No: B05.130.002

Prepared By: <i>David G. [Signature]</i>	Level: <i>II</i>	Date: <i>4/24/00</i>
Reviewed By: <i>Greg L. Balib</i>	Level: <i>III</i>	Date: <i>5-5-00</i>

4 of 4

OCONEE UNIT #3  
EOC18

ITEM # B09.011.017  
WELD # 3-PDA1-1

No Data Recorded. Reference Calibration Sheet #'s

0003063 - 45° + 60°

0003064 - 60°L

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

DUKE POWER COMPANY										Exam Start: 1110		NDE-UT-3A		
ULTRASONIC EXAMINATION DATA SHEET FOR LAMINAR REFLECTORS										Exam Finish: 1124		Revision 2		
Station: Oconee			Unit: 3		Component/Weld ID: 3-PDA1-1					Date: 5/1/00				
Nominal Material Thickness (in): 2.33				Weld Length (in.): 105"			Surface Temperature: 78° Deg F							
Measured Material Thickness (in): 2.75				Lo: RT INT. #2			Pyrometer S/N: MCNDE 27206							
Surface Condition: AS GROUND				Calibration Sheet No: 0003062			Cal Due: 7/26/00							
Examiner: David Zimmerman <i>David Zimmerman</i> Level: II							Configuration: <u>zle (3A1 Pump Outlet Nozzle) to Safe</u>  <u>S2</u> Flow <u>S1</u>  <u>NOZZLE</u> to <u>SAFE END</u>							
Examiner: Guy G. Bibb <i>Guy G. Bibb</i> Level: III														
Procedure: NDE-640 Rev: 1 FC: *														
IND NO.	<u>4</u>	Ampl ≥ rem BW LOB	L1 ≥ rem BW LOB	W1 ≥ rem BW LOB	Mp1 ≥ rem BW LOB	W2 ≥ rem BW LOB	Mp2 ≥ rem BW LOB	L2 ≥ rem BW LOB	W1 ≥ rem BW LOB	Mp1 ≥ rem BW LOB	W2 ≥ rem BW LOB	Mp2 ≥ rem BW LOB	Exam Surf.	Damps
NRI	0°													

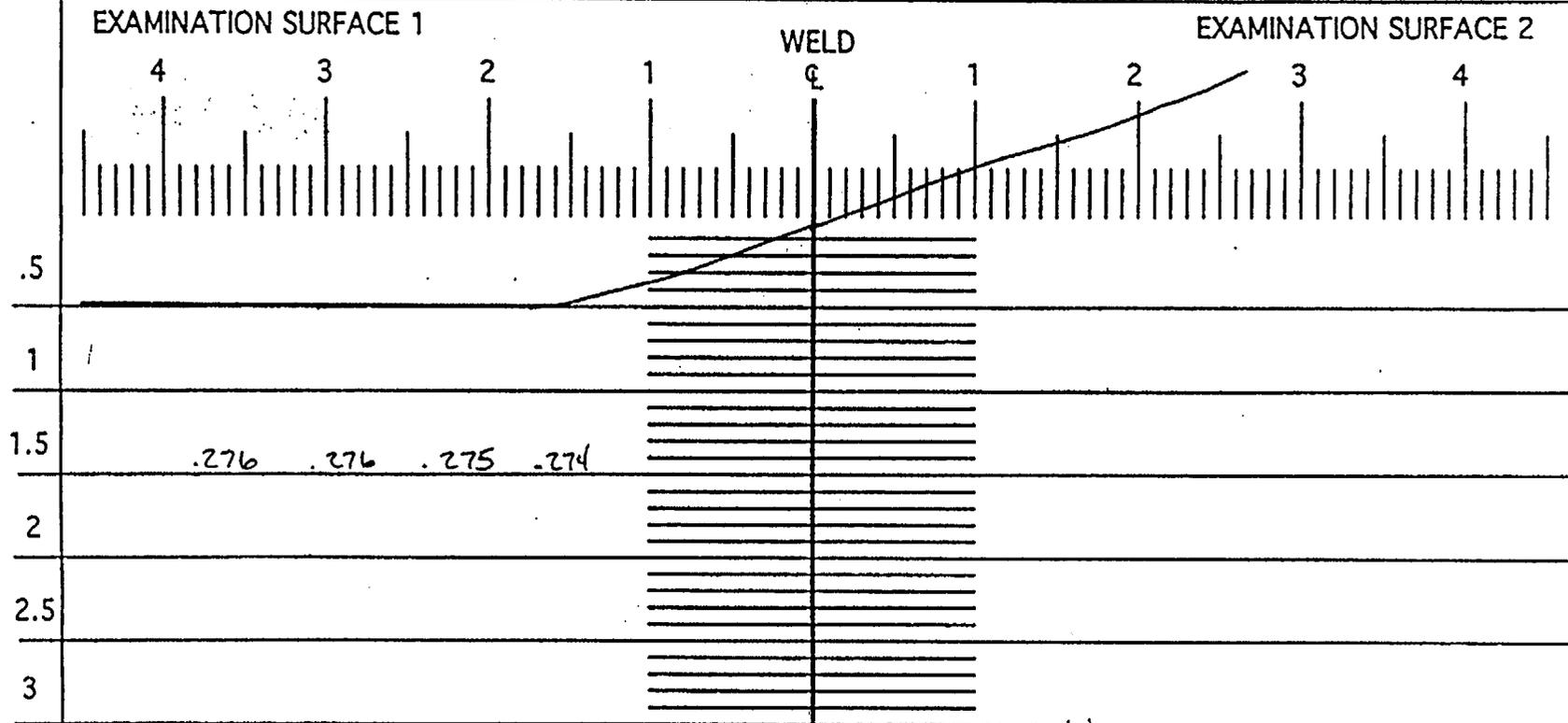
Remarks: * FC 95-18, 95-19														
					Limitations: see NDE-UT-4 <input type="checkbox"/> None: <input checked="" type="checkbox"/>					Sheet <u>2</u> of <u>4</u>				
Reviewed By: <i>Gay Moss</i>			Level: <u>II</u>		Date: <u>5-3-00</u>		Authorized Inspector: <i>MBC</i>			Date: <u>5-9-00</u>		Item No: B09.011.017		

Attachment E  
 RFR 00-03  
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DUKE POWER COMPANY  
UT PROFILE/PLOT SHEET

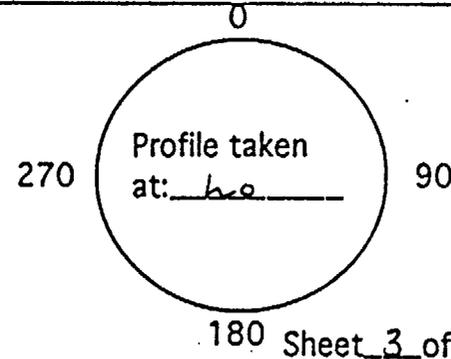
NDE-UT-5

Revision 1



Component ID/Weld No. 3-PDA1-1

Remarks: UNABLE TO OBTAIN THICKNESS READINGS  
BEYOND TOE OF SAFE END DUE TO TAPER



Item No: <u>309.011.017</u>		
Examiner: <u>David J. [Signature]</u>	Level: <u>IF</u>	Date: <u>5/1/00</u>
Reviewed By: <u>Sam [Signature]</u>	Level: <u>IF</u>	Date: <u>5-3-00</u>
Authorized Inspector: <u>MBC</u>	Date: <u>5-9-00</u>	

180 Sheet 3 of 4

<b>DUKE POWER COMPANY</b> Limited Examination Coverage Worksheet	NDE-91-1 Revision 0
---	------------------------

**Examination Volume/Area Defined**

Base Metal    
  Weld    
  Near Surface    
  Bolting    
  Inner Radius

Area Calculation	Volume Calculation
WELD WIDTH = 3.4 IN. WELD HEIGHT = .91 IN. = 3.094 SQ. IN.	WELD LENGTH = 33.5 TT = 105 IN. 105 IN. X 3.094 SQ. IN. = 324.87 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	45°	CW	3.094	105	324.87	324.87	100.00
2	45°	CCW	3.094	105	324.87	324.87	100.00
3	60°	S1	0	0	0	324.87	0.00
4	60°	S2	1.547	105	162.44	324.87	50.00
<b>TOTAL</b>				<b>AGGREGATE</b>	812.18	1299.48	62.50

		Item No: B09.011.017
Prepared By: <i>David K. [Signature]</i>	Level: <u>II</u>	Date: 5/1/00
Reviewed By: <i>Greg L. Bilb</i>	Level: <u>III</u>	Date: 5-3-00

OCONEE UNIT #3  
EOC18

ITEM # C05.021.050  
WELD # 3-51A-66-40

No Data Recorded. Reference Calibration Sheet #'s

0003052 - 38° + 60°

0003053 - 60° L

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\_\_\_\_\_

\_\_\_\_\_

DUKE POWER COMPANY													Exam Start:	1043	NDE-UT-3A
ULTRASONIC EXAMINATION DATA SHEET FOR LAMINAR REFLECTORS													Exam Finish:	1048	Revision 2
Station: Oconee			Unit: 3		Component/Weld ID: 3-51A-66-40						Date: 4/26/00				
Nominal Material Thickness (in): 0.674				Weld Length (in.): 14.2				Surface Temperature: 69° Deg F							
Measured Material Thickness (in): .668				Lo: 9.1.1.1				Pyrometer S/N: MCNDE 27022							
Surface Condition: AS GROUND				Calibration Sheet No: 0003051				Cal Due: 8/22/00							
Examiner: Jay A. Eaton <i>Jay Eaton</i> Level: II			Configuration: <u>Valve to Elbow</u>												
Examiner: Larry Mauldin <i>Larry Mauldin</i> Level: III			<u>S2</u> Flow <u>S1</u>												
Procedure: NDE-640 Rev: 1 FC: *			<u>VALVE</u> to <u>ELBOW</u>												
IND NO.		Ampl ≥ rem BW LOB	L1 ≥ rem BW LOB	W1 ≥ rem BW LOB	Mp1 ≥ rem BW LOB	W2 ≥ rem BW LOB	Mp2 ≥ rem BW LOB	L2 ≥ rem BW LOB	W1 ≥ rem BW LOB	Mp1 ≥ rem BW LOB	W2 ≥ rem BW LOB	Mp2 ≥ rem BW LOB	Exam Surf.	Damps	
NRI	0°														

Remarks: * FC 95-18, 95-19		
Limitations: see NDE-UT-4 <input checked="" type="checkbox"/> None: <input type="checkbox"/>		Sheet <u>2</u> of <u>6</u>
Reviewed By: <i>Sam Moss</i> Level: <i>IB</i> Date: <i>5-1-00</i>	Authorized Inspector: <i>MBC</i> Date: <i>5-9-00</i>	Item No: C05.021.050

Attachment E  
 RFR 00-03  
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DUKE POWER COMPANY  
UT PROFILE/PLOT SHEET

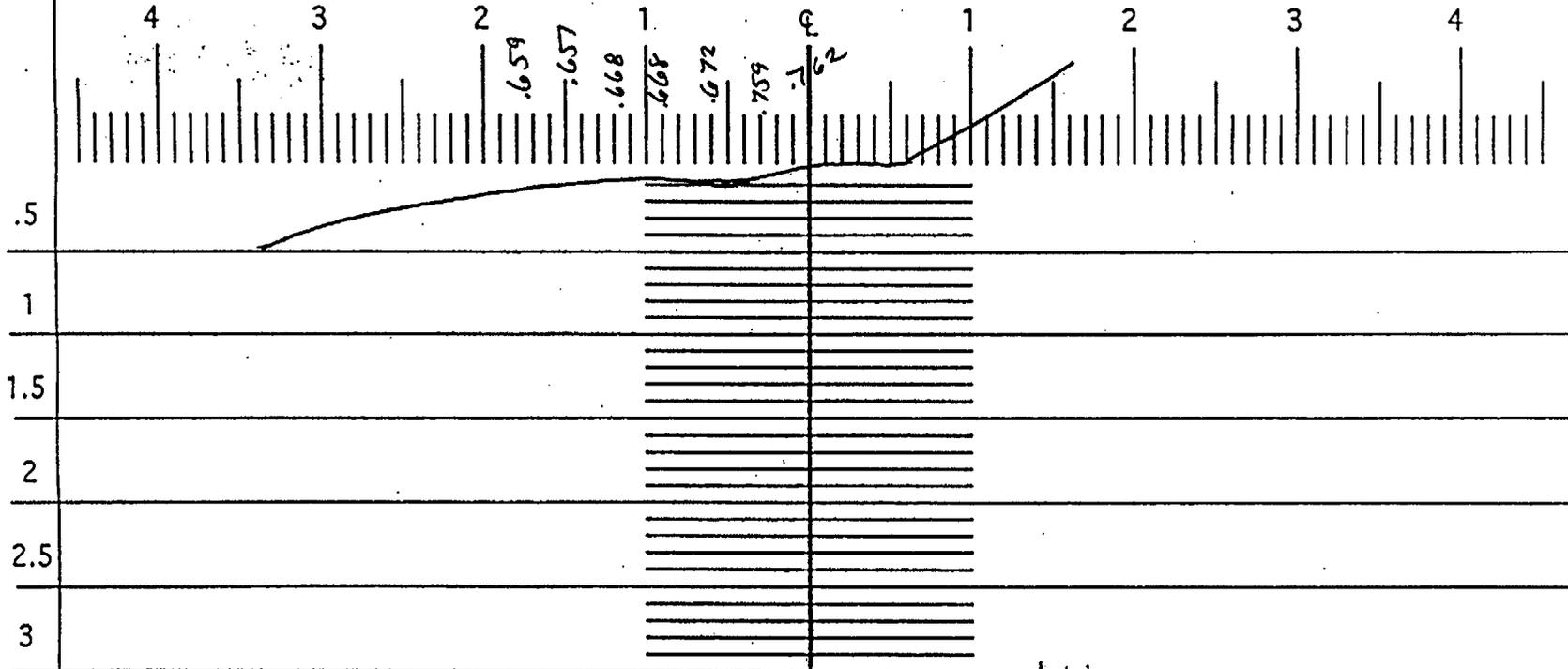
NDE-UT-5

Revision 1

EXAMINATION SURFACE 1

WELD

EXAMINATION SURFACE 2



Component ID/Weld No. 3-51A-66-40

: Remarks:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Item No: CO5.021.050

Examiner: Lan Thaidit

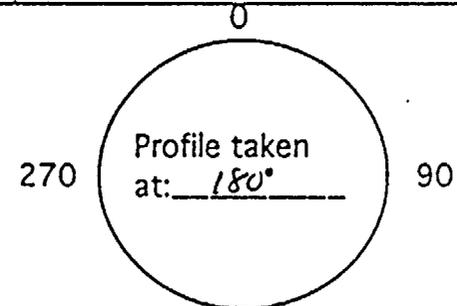
Level: III Date: 4-26-00

Reviewed By: Ray Moss

Level: II Date: 5-1-00

Authorized Inspector: MBC

Date: 5-9-00



180 Sheet 3 of 6

**DUKE POWER COMPANY  
ISI LIMITATION REPORT**

FORM NDE-UT-4

Revision 1

Component/Weld ID: 3-51A-66-40

Item No: C05.021.050

Remarks:

NO SCAN                      SURFACE                      BEAM DIRECTION  
 LIMITED SCAN                       1  2                       1  2  cw  ccw  
 FROM L \_\_\_\_\_ to L \_\_\_\_\_ INCHES FROM WO 05 to BEYOND  
 ANGLE:  0  45  60  Other \_\_\_\_\_ FROM 0 DEG to 360 DEG

DUE TO VALVE TO ELBOW CONFIGURATION

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

Prepared By: *Larry Mauldin*

Level: III

Date: 4-26-00

Sketch(s) attached  yes  no

Sheet 4 of 6

Reviewed By: *Larry Moss*

Date: 5-1-00

Authorized Inspector: *JMBC*

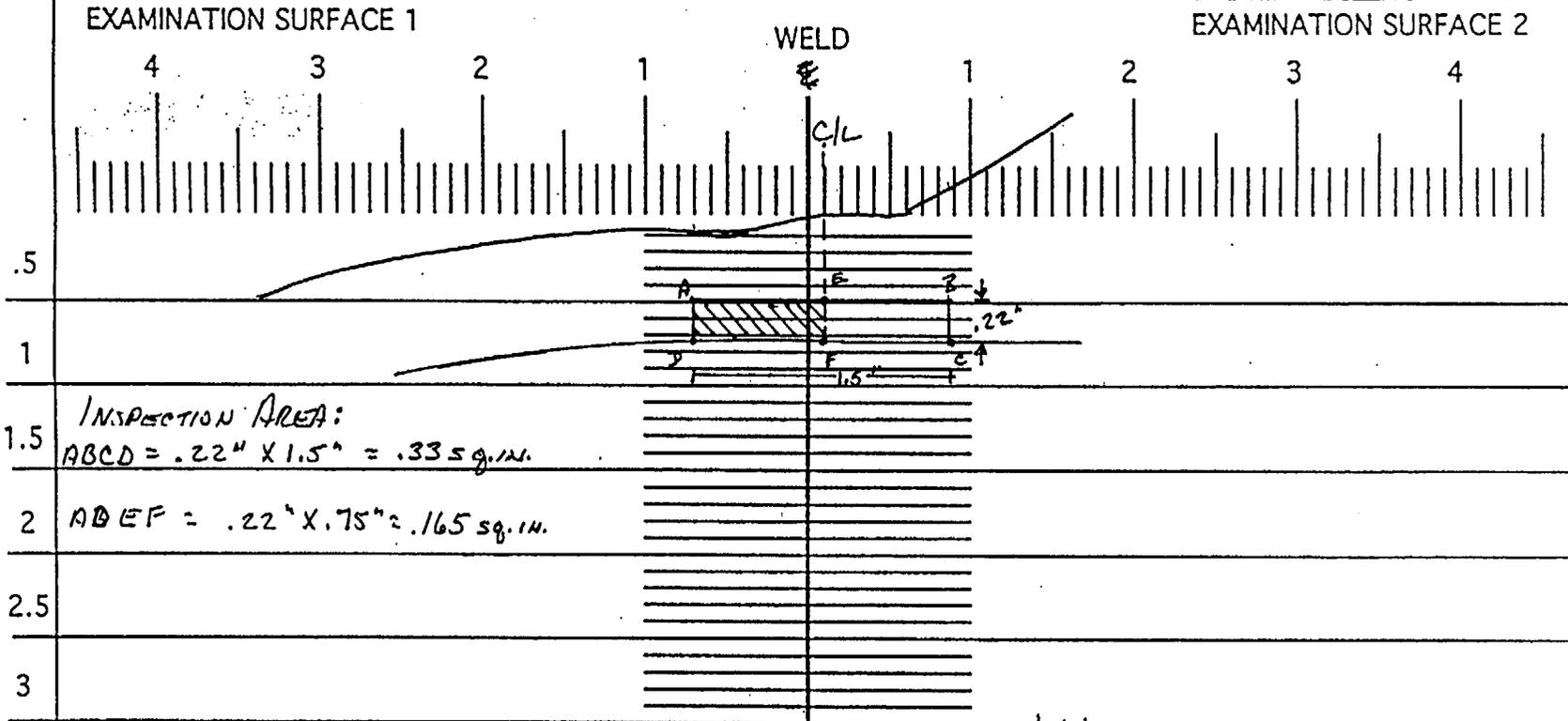
Date: 5-9-00

Attachment E  
RFR 00-03  
Page 16 of 24

DUKE POWER COMPANY  
UT PROFILE/PLOT SHEET

NDE-UT-5

Revision 1



1.5 INSPECTION AREA:  
ABCD = .22" X 1.5" = .335 sq.in.

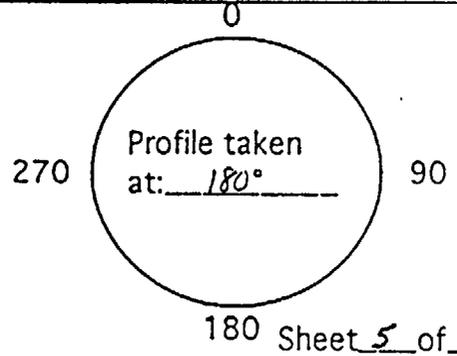
2 AB EF = .22" X .75" = .165 sq.in.

Component ID/Weld No. 3-51A-66-40

Remarks:

Examiner: *Larry Mauldin* Level: III Date: 4-26-00  
 Reviewed By: *Larry Moss* Level: II Date: 5-1-00  
 Authorized Inspector: *MBC* Date: 5-9-00

Item No: COS.021.050



180 Sheet 5 of 6

<b>DUKE POWER COMPANY</b> 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
.22" X 1.5" = .33 SQ. IN.	.33 SQ. IN. X 14.2" = 4.686 = 4.69 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	38°	CW	.33	14.2	4.69	4.69	100.00
2	38°	CCW	.33	14.2	4.69	4.69	100.00
3	60°	1	0	14.2	0	4.69	0.00
4	60°	2	.165	14.2	2.343	4.69	49.96
TOTAL			AGGREGATE	COVERAGE	11.723	18.76	62.49

		Item No:	C05.021.050
Prepared By:	<i>Larry Mauldin</i>	Level:	<i>III</i>
Reviewed By:	<i>Gary Moss</i>	Level:	<i>II</i>
		Date:	<i>4-26-00</i>
		Date:	<i>5-1-00</i>

OCONEE UNIT #3  
EOC18

ITEM # C05.021.064  
WELD # 3-51A-87-54A

No Data Recorded. Reference Calibration Sheet #'s

0003041 - 38° + 60°

0003042 - 60°L

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\_\_\_\_\_  
\_\_\_\_\_

DUKE POWER COMPANY													Exam Start:	1028	NDE-UT-3A	
ULTRASONIC EXAMINATION DATA SHEET FOR LAMINAR REFLECTORS													Exam Finish:	1032	Revision 2	
Station: Oconee			Unit: 3		Component/Weld ID: 3-51A-87-54A						Date: 4/24/00					
Nominal Material Thickness (in): 0.531				Weld Length (in.): 14.2				Surface Temperature: 71° Deg F								
Measured Material Thickness (in): .540				Lo: 9.1.1.1				Pyrometer S/N: MCNDE 27022								
Surface Condition: AS GROUND				Calibration Sheet No: 0003043				Cal Due: 8/22/00								
Examiner: Larry Mauldin <i>Larry Mauldin</i> Level: III								Configuration: <u>Valve (Valve 3HP-130) to Pipe</u>  <u>S-2</u> Flow <u>S-1</u>  <u>VALVE</u> to <u>PIPE</u>								
Examiner: James L. Panel <i>James L. Panel</i> Level: II																
Procedure: NDE-640 Rev: 1 FC: *																
IND NO.	Ampl ≥ rem BW LOB	L1 ≥ rem BW LOB	W1 ≥ rem BW LOB	Mp1 ≥ rem BW LOB	W2 ≥ rem BW LOB	Mp2 ≥ rem BW LOB	L2 ≥ rem BW LOB	W1 ≥ rem BW LOB	Mp1 ≥ rem BW LOB	W2 ≥ rem BW LOB	Mp2 ≥ rem BW LOB	Exam Surf.	Damps			
4																
NRI	0°															

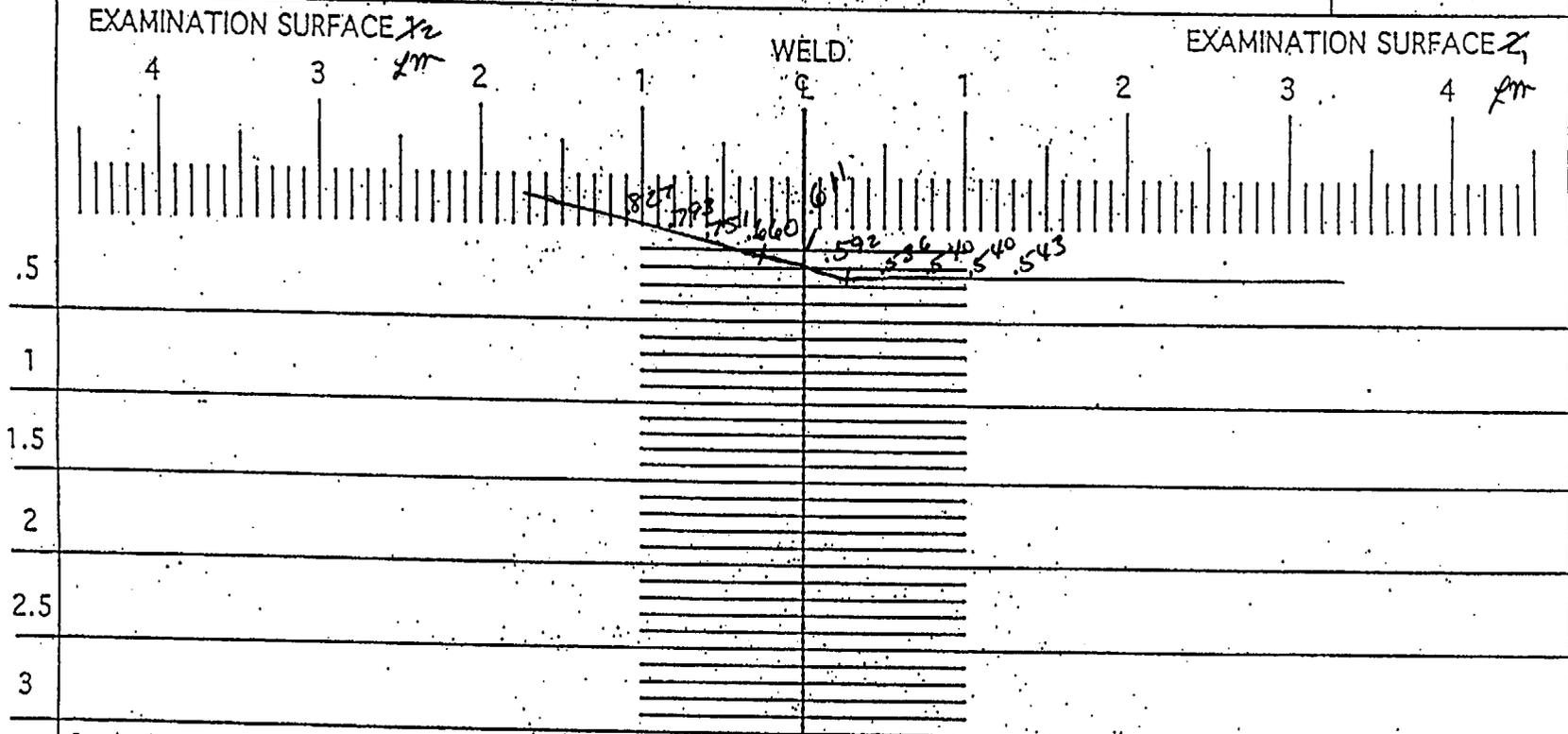
Remarks: * FC 95-18, 95-19		
Limitations: see NDE-UT-4 <input checked="" type="checkbox"/> None: <input type="checkbox"/>		Sheet <u>2</u> of <u>6</u>
Reviewed By: <i>Nay Moss</i>	Level: <u>5</u> Date: <u>4-27-00</u>	Authorized Inspector: <i>MBC</i> Date: <u>5-9-00</u>
Item No: C05.021.064		

Attachment E  
 RFR 00-03  
 Page 20 of 24

DUKE POWER COMPANY  
UT PROFILE/PLOT SHEET

NDE-UT-5

Revision 1

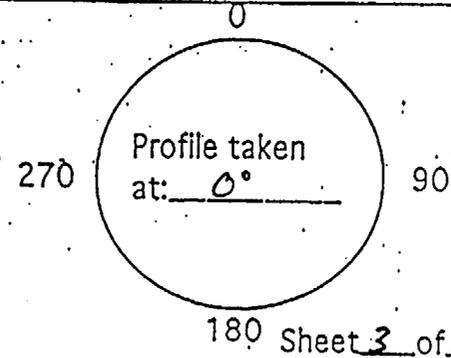


Component ID/Weld No. 3-51A-87-54A

Remarks:

Examiner: Larry Mauldin  
Reviewed By: Ray Moore  
Authorized Inspector: MBC

Item No: COS. 021.064  
Level: III Date: 4-24-00  
Level: II Date: 4-27-00  
Date: 5-9-00



180 Sheet 3 of 6

**DUKE POWER COMPANY  
ISI LIMITATION REPORT**

**FORM NDE-UT-4**

**Revision 1**

Component/Weld ID: 3-51A-87-54A

Item No: C05.021.064

Remarks:

NO SCAN                      SURFACE                      BEAM DIRECTION  
 LIMITED SCAN                       1  2                       1  2  cw  ccw  
 FROM L \_\_\_\_\_ to L \_\_\_\_\_ INCHES FROM WO .3" to BEYOND  
 ANGLE:  0  45  60  Other 60°L FROM 0 DEG to 360 DEG

DUE TO PIPE TO VALVE  
CONFIGURATION

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

Prepared By: Sam Droulik      Level: II      Date: 4.24.00      Sketch(s) attached  yes  no      Sheet 4 of 6

Reviewed By: Gay Moore      Date: 4/27/00      Authorized Inspector: AMBC      Date: 5-9-00

<b>DUKE POWER COMPANY</b> 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
.18" X 1.0" = .18 SQ. IN.	.18 SQ. IN. X 14.2 IN = 2.56 CU. IN.

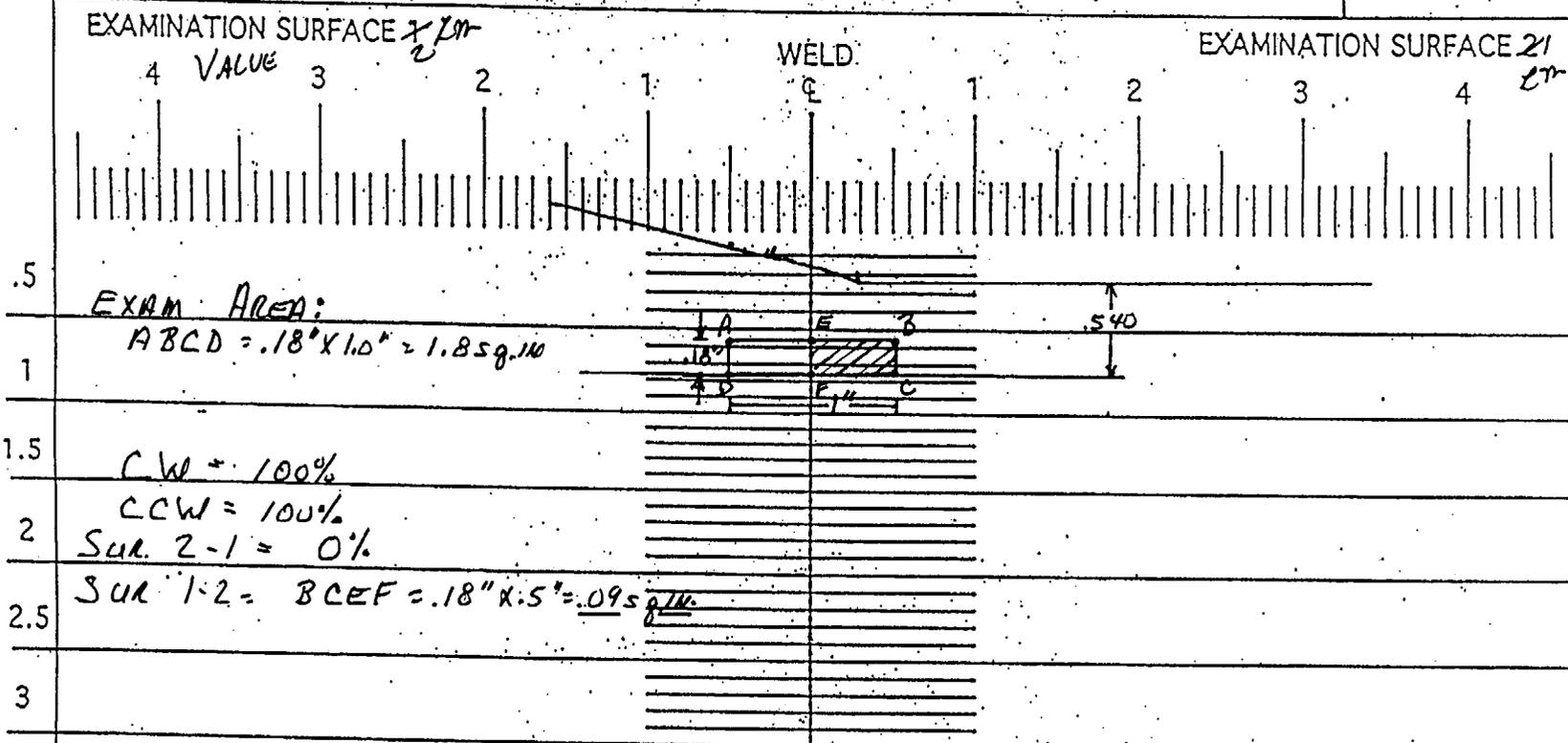
Coverage Calculations							
Scan #	Angle	Beam Direction	Area Examined (sq.in.)	Length Examined (in.)	Volume Examined (cu.in.)	Volume Required (cu.in.)	Percent Coverage
1	38°	CW	.18	14.2	2.56	2.56	100.00
2	38°	CCW	.18	14.2	2.56	2.56	100.00
3	60°	1	0	14.2	0	2.56	0.00
4	60°	2	.09	14.2	1.28	2.56	50.00
					6.4	10.24	62.50

Item No: C05.021.064		
Prepared By: <i>Randy Maulds</i>	Level: <i>III</i>	Date: <i>4-24-00</i>
Reviewed By: <i>Nancy Moss</i>	Level: <i>IV</i>	Date: <i>4-27-00</i>

DUKE POWER COMPANY  
UT PROFILE/PLOT SHEET

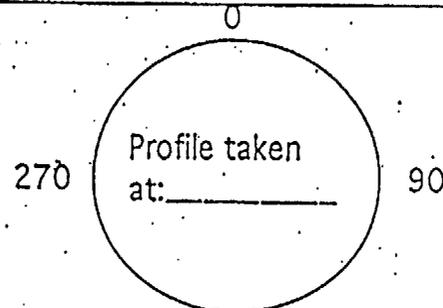
NDE-UT-5

Revision 1



Component ID/Weld No. 3-51A-87-54A

Remarks:



Examiner: <i>Randy Mauldin</i>	Item No: C.05.021.064	Level: III	Date: 4-24-00
Reviewed By: <i>Randy Moss</i>		Level: TB	Date: 4-27-00
Authorized Inspector: <i>MBC</i>			Date: 5-9-00

180 Sheet <sup>6</sup> of 6

**NRC CORRESPONDENCE RECORD OF REVIEW**

Applicable Site (s) Oconee  
 Submittal Title/Subject Unit 3 ISI Request for Relief 00-03  
 Scheduled Submittal Date Aug 1, 2000 Mandatory? N (Y/N)  
 Regulatory Compliance Lead/Owner Randy Todd  
 Technical Lead Rick Rouse Division/Section NGO ISI

Reviewer	Name	Comments? (Y/N)	Resolved? (Y/N)
Lead Technical Reviewer	R. G. Rouse	N	
Lead Technical Mgr.	R. K. Rhyne	N	
Compliance Mgr.	Larry Nicholson	Y	Y
Affected Group Manager			
Safety Assurance Mgr.			
Independ. Tech. Reviewer			
Cross-Discipline Reviewer			
Cross-Discipline Reviewer			
Cross-Discipline Reviewer			
Other Knowledgeable Person(s)			
PORC, NSRB	N/R		

CONCURRENCE ON CONTENT, INCLUDING COMMITMENTS, HAS BEEN RECEIVED BY ALL DESIGNATED REVIEWERS AND COMMENTS HAVE BEEN RESOLVED. THIS SUBMITTAL IS COMPLETE AND ACCURATE TO THE BEST OF MY KNOWLEDGE .

Submittal Technical Lead ~~Rick Rouse~~ 7/27/00 (See attachment)  
 Signature and Date

THIS SUBMITTAL HAS BEEN PREPARED ACCORDING TO THE EDITORIAL GUIDELINES IN COMPLIANCE FUNCTIONAL AREA MANUAL 3.9 AND ALL COMMITMENTS CONTAINED HEREIN HAVE BEEN IDENTIFIED TO THE COMMITMENT COORDINATOR PER NSD 214. THIS SUBMITTAL IS READY TO BE SENT TO THE NRC.

Regulatory Compliance (or NRIA) Lead/Owner Randy Todd  
 Signature and Date 7-31-00