Duke Energy

W. R. McCollum, Jr.
Vice President

Duke Energy
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March 11, 2002

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

Subject: Duke Energy
Oconee Nuclear Station, Unit 3
Docket Nos. 50-270
Third Ten Year Inservice Inspection Interval
Request for Relief No. 02-001

Pursuant to 10 CFR 50.55a(g)(5)(iii), attached is a Request for Relief from the requirement to examine 100% of the volume specified by the ASME Boiler and Pressure Vessel Code, Section XI, 1989 Edition with no Addenda (as modified by Code Case N-460). This request is to allow Duke Energy to take credit for limited ultrasonic examinations on a specific Reactor Building penetration pipe to valve weld described in the attached request. During examination of the subject Unit 2 weld, the ultrasonic examination coverage did not meet the 90% examination requirements of Code Case N-460. Achievement of greater than 66.67% examination coverage for this weld is impractical due to piping/valve geometry, interferences, and existing examination technology. Therefore, Duke Energy requests that the NRC grant relief as authorized under 10 CFR 50.55a(g)(6)(i).

If there are any questions or further information is needed you may contact R. P. Todd at (864) 885-3418.

Very truly yours,

W. R. McCollum, Jr.
Site Vice President

Attachment

A047

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

L. N. Olshan, Project Manager, Section 1
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

xc(w/o attch):

Scott Freeman
Acting 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

Oconee Nuclear Station Unit 3

THIRD 10-YEAR INTERVAL REQUEST FOR RELIEF NO. 02-001

Duke Energy Corporation has determined that conformance with certain ASME Section XI Code requirements is impractical. Therefore, pursuant to 10CFR50.55a(g)(5)(iii), Duke Energy Corporation requests relief from applicable portions of the code.

Included in this request is a single Examination Category C-F-2 weld.

The Oconee Unit-3 Inservice Inspection Plan was written to the requirements of the 1989 Edition of ASME Section XI, no addenda.

The exam in this Request for Relief was performed during EOC-19, the last outage in the second period of the third ten-year interval.

Code Case N-460 applies to the examination performed during this outage.

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

A. Pipe to Valve 3PR-2:

ID Number	Item Number
3-20B-21-18-18	C05.051.046

This weld is part of the Reactor Building Purge System Penetration Piping and is located in the exterior penetration room.

II. Code Requirement:

Examination Category C-F-2: ASME Section XI, Figure IWC-2500-7 (a), Examination Volume C-D-E-F.

III. Code Requirement from which Relief is Requested:

Relief is requested from the requirement to examine 100% of Volume C-D-E-F.

IV. Basis for Relief:

Pipe to Valve 3PR-2 weld 3-20B-21-18-18 (Item C05.051.046) is limited to 66.67% coverage of the required volume due to the proximity of a penetration. In order to achieve more coverage, the penetration would have to be removed or re-designed to allow scanning from both sides of the weld. That would be impractical. Reference Attachment A for a drawing of the pipe to valve 3PR-2 weld.

Reference Attachment B for a copy of the examination records for the weld addressed in this request.

V. Alternate Examinations or Testing:

The use of radiography as an alternate volumetric examination of the weld/component referenced in this request is not a viable option. Restrictions to performing radiography are primarily due to limited access for placement of film due to the proximity of the penetration. No additional examinations are planned during the current interval for weld 3-20B-21-18-18. Duke Energy Corporation will continue to use the most current ultrasonic techniques available to obtain maximum coverage for future examinations of this weld.

VI. Justification for the Granting of Relief:

The Code requires 100% volumetric examination of the subject weld. However, as discussed in Section IV above, the 100% volumetric examination is impractical. To meet Code examination requirements, modification would be necessary to allow scanning from both sides of the weld. A modification of this nature would not be practical for Duke Energy.

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, Supplements 2 and 3 of the 1995 Edition with the 1996 Addenda as administered by the PDI. This weld was inspected by visual examination during construction and verified to be free from unacceptable surface fabrication defects.

Duke Energy Corporation will use the existing pressure test program established for this piping segment to compliment the limited examination coverage.

VII. Implementation Schedule:

Duke Energy Corporation will continue to use ultrasonic examination procedures to obtain maximum coverage to the extent practical for inspections in future intervals of the item number referenced in Section I of this Request for Relief.

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

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

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

L. C. Keith, Oconee ISI Plan Manager compiled and completed this request.

Sponsored By: Larry C. Keith Date: 2-18-02

Approved By: R. Kevin Rhyne Date: 2/18/02

Attachment A
Request for Relief 02-001
Page 1 of 1

FORM QR 27 | REVISION 1

PARADISE
ELLENBURG
RLM

DUKE POWER COMPANY
CONSTRUCTION DEPARTMENT

R.B. WALL PURGE LINE PENETRATIONS

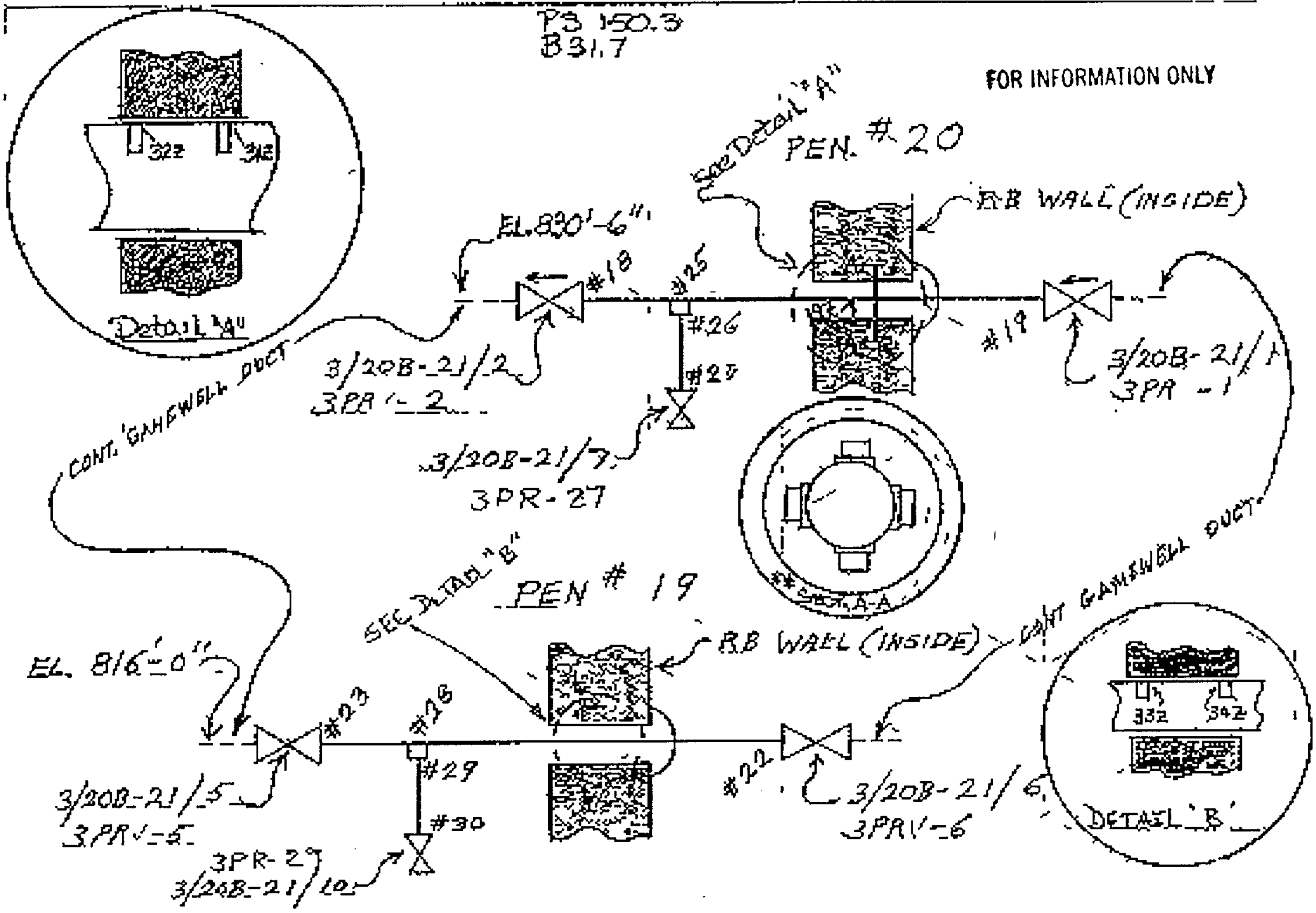
ISOMETRIC SKETCH

PROJECT OCONEE SYSTEM 20B-21 SUB SYSTEMS (1) UNIT 3 R.B. ISO. NO.* 18 REV. NO. 3

CLASS C MATERIAL CFE WELDING PROCEDURE L-250 P5/P19 LAST WELD NO.* 34 DATE 7-15

P3 150.3
B31.7

FOR INFORMATION ONLY



*NOTE: THESE WELDS TRANSFERRED FROM ISO. 1 PT III (SYS. 20B-20)
**REF HGR #3-20B-21 R5A-H3609

ERN:0X0092S8

REF DWG NOS DWG	REV	SIZE × WALL THICKNESS	WELD NUMBERS	NDT CODE	SQ REV NO	CHANGES VIT NOS	ISO REV NO	±	CHANGES WELD NOS
2439C	1	48"φ x 500"	18, 19, 22, 23,	8		12-13-72 ADD. COMP. + 198 … ; 332, 342 …			
2479A	2								
2479D	2	1"φ x 133"	25-30,	0					
OFD-116A-3.1									
		Attach. Welds: 312, 322, 192, 332, 342							
PO-116A-3									

*ALL WELD NUMBERS SHOWN ABOVE ARE PRECEDED BY THE ISO. NO.
D.L.O.

DUKE POWER COMPANY

ULTRASONIC EXAMINATION DATA SHEET FOR LAMINAR REFLECTORS

Exam Start: 1152		NDE-UT-3A
Exam Finish: 1244		Revision 2

Station: Oconee	Unit: 3	Component/Weld ID: 3-20B-21-18-18	Date: 10/25/2001
Nominal Material Thickness (in): 0.5		Weld Length (in.): 151.0"	Surface Temperature: 99 Deg F
Measured Material Thickness (in): 0.542		Lo: 9.1.1.1	Pyrometer S/N: MCNDE 27217
Surface Condition: AS GROUND		Calibration Sheet No: 0103013	Cal Due: 2/14/2002
Examiner: Jay A. Eaton	Level: III		Configuration: Pipe to Valve (Valve 3PR-2)
Examiner: James L. Panel	Level: II		VALVE Flow PIPE
Procedure: NDE-640	Rev: 1 FC: *		S1 to S2

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: * 95-18, 95-19

Limitations: see NDE-UT-4 ☐ None: ☐

Sheet 1 of 10

Reviewed By: Jay Moss Level: II Date: 10-25-01

Authorized Inspector: Date: 10/30/01

Item No: C05.051.046

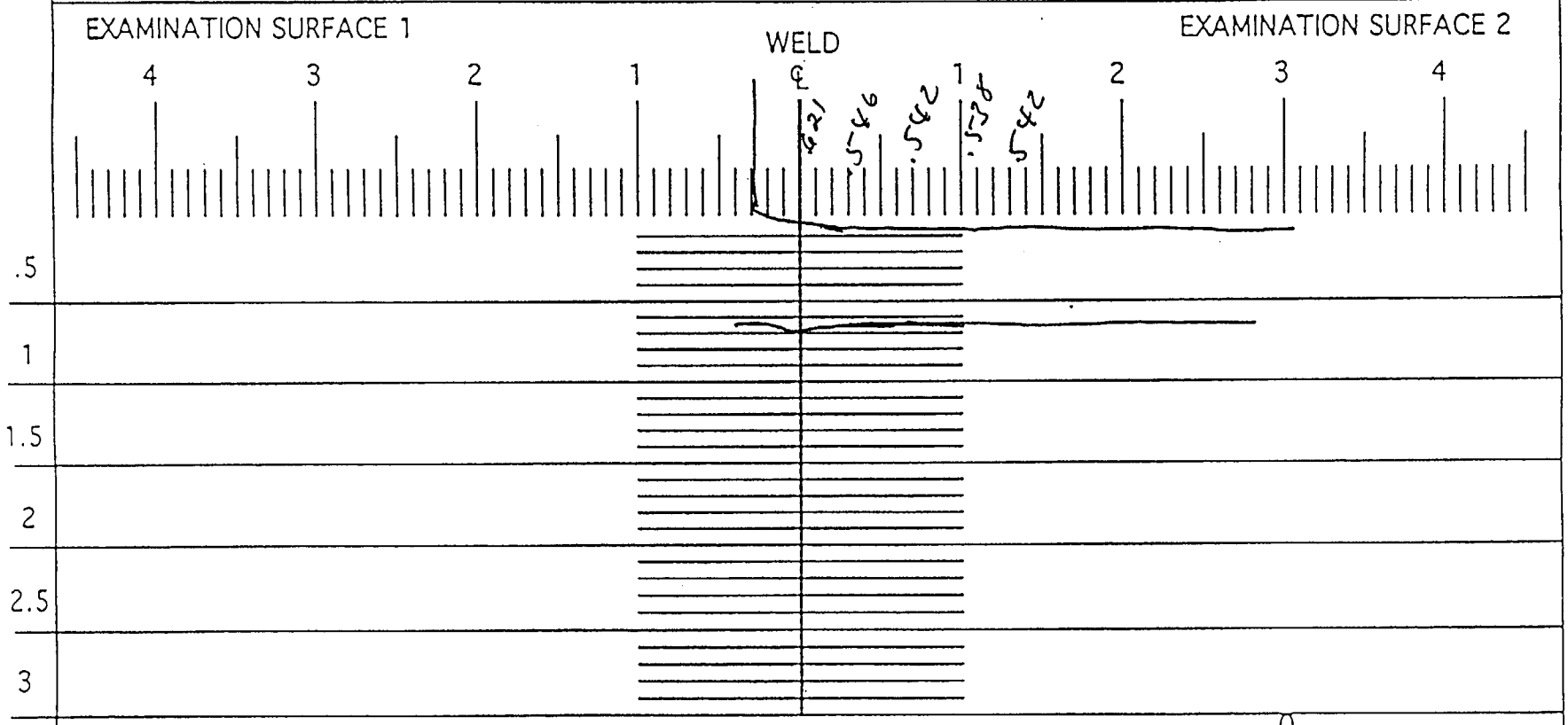
Attachment B
Request for Relief 02-001
Page 1 of 10

DUKE POWER COMPANY

UT PROFILE/PLOT SHEET

NDE-UT-5

Revision 1

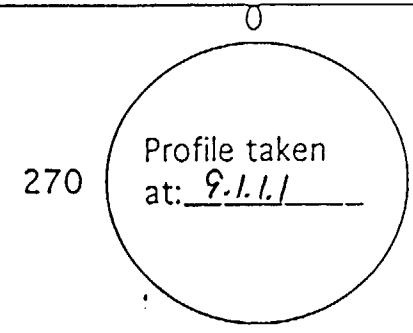


Component ID/Weld No. 3-20B-21-18-18

: Remarks:

Item No: C05.051.046

Examiner:	Level: III	Date: 10/25/01
Reviewed By: Gary Moore	Level: II	Date: 10-25-01
Authorized Inspector:		Date: 10/30/01



Sheet 2 of ~~6~~ 10

Attachment B
Request for Relief 02-001
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DUKE POWER COMPANY
ULTRASONIC INDICATION RECORD FOR PIPING

FORM NDE-UT-10
Revision 0

Station: Oconee	Unit: 3	Component/Weld ID: 3-20B-21-18-18	Date: 10/25/2001
Surface Condition: AS GROUND		Item No: C05.051.046	
Examiner: Jay A. Eaton Level: III		Procedure: NDE-600 Rev: 14 FC: N/A	
Examiner: James L. Panel Level: II		Lo: 9.1.1.1 Configuration: Pipe to Valve (Valve 3PR-2)	
Calibration Sheet No: 0103012		S2 to S1 Scan Surface: OD	

IND #	∠	% FSH	Mp Max	W Max	L Max	L1 20 % FSH	L2 20 % FSH	Beam Dir.	Exam Surf.	Scan	Damps	Remarks
1	60	60	1.3	1.0"	6.0"	360°	INT.IND	1	2	AXIAL	NO	

Attachment B
Request for Relief 02-001
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Reviewed By: Gary J. Moss	Level: II	Date: 10-25-01	Authorized Inspector:	Date: 10/30/01

Sheet 3 of 10 from

DUKE POWER COMPANY

UT PROFILE/PLOT SHEET

NDE-UT-5

Revision 1

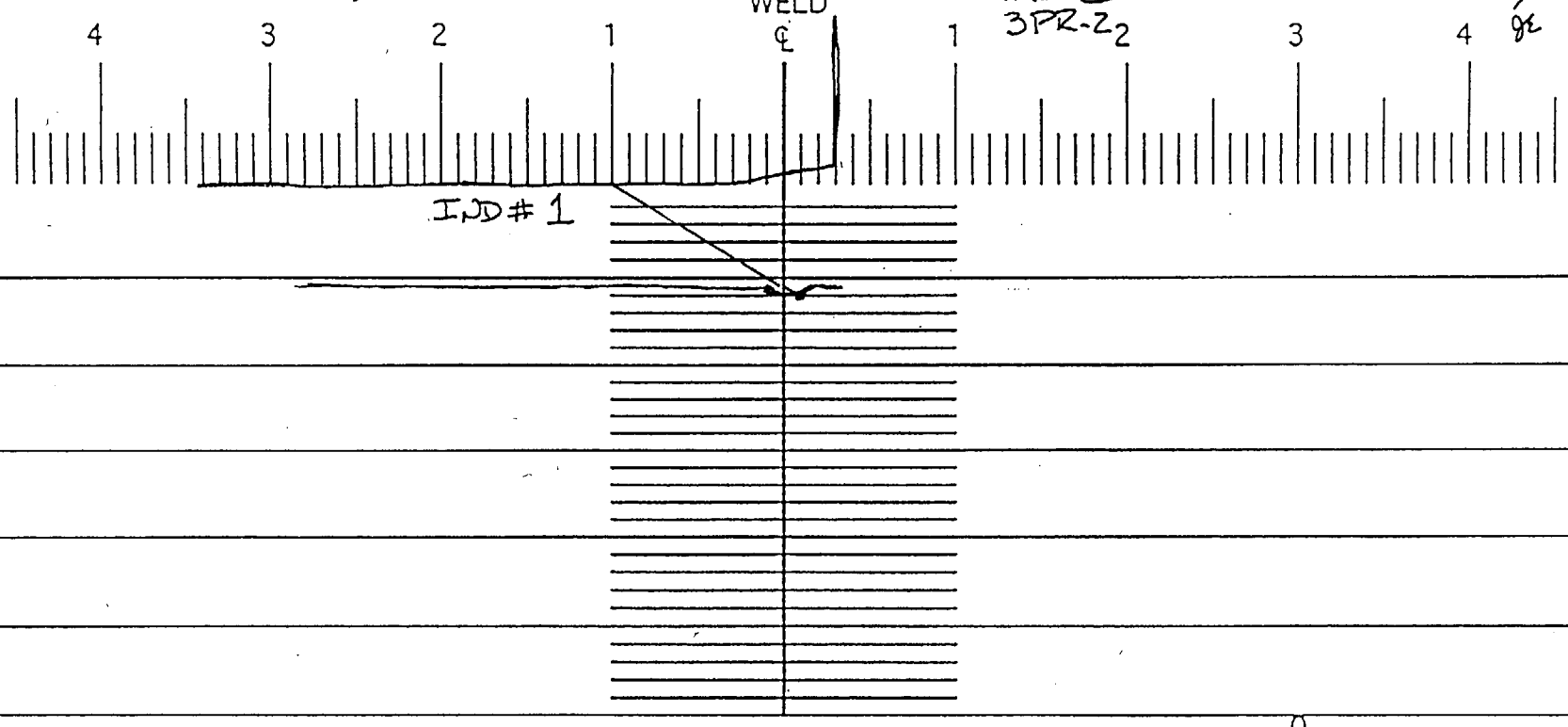
Z

EXAMINATION SURFACE X - PIPE

WELD ℄

VALVE - 3PR-Z2

EXAMINATION SURFACE Z / 1

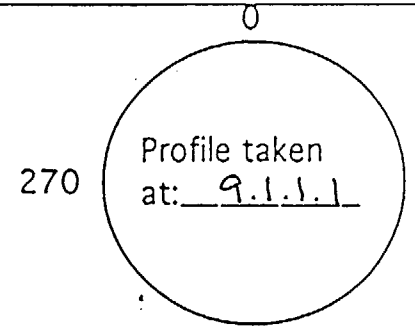


Component ID/Weld No. 3-20B-21-18-18

: Remarks:

Item No: C05.051.046

Examiner:	Level: III	Date: 10/25/01
Reviewed By:	Level: II	Date: 10-25-01
Authorized Inspector:		Date: 10/30/01



Sheet 4 of 10

Attachment B
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DUKE POWER COMPANY
ISI LIMITATION REPORT

FORM NDE-UT-4
Revision 1

Component/Weld ID: 3-20B-21-18-18 | Item No: C05.051.046 | Remarks:

☒ NO SCAN
☐ LIMITED SCAN

SURFACE: ☒ 1 ☐ 2
BEAM DIRECTION: ☐ 1 ☒ 2 ☒ cw ☒ ccw

FROM L N/A to L N/A
INCHES FROM WO .2" to BEYOND
ANGLE: ☒ 0 ☒ 45 ☒ 60 ☐ Other _____
FROM 0 DEG to 360 DEG

Remarks: DUE TO VALVE CONFIGURATION

☐ NO SCAN
☐ LIMITED SCAN

SURFACE: ☐ 1 ☐ 2
BEAM DIRECTION: ☐ 1 ☐ 2 ☐ cw ☐ ccw

FROM L _____ to L _____
INCHES FROM WO _____ to _____
ANGLE: ☐ 0 ☐ 45 ☐ 60 ☐ Other _____
FROM _____ DEG to _____ DEG

☐ NO SCAN
☐ LIMITED SCAN

SURFACE: ☐ 1 ☐ 2
BEAM DIRECTION: ☐ 1 ☐ 2 ☐ cw ☐ ccw

FROM L _____ to L _____
INCHES FROM WO _____ to _____
ANGLE: ☐ 0 ☐ 45 ☐ 60 ☐ Other _____
FROM _____ DEG to _____ DEG

☐ NO SCAN
☐ LIMITED SCAN

SURFACE: ☐ 1 ☐ 2
BEAM DIRECTION: ☐ 1 ☐ 2 ☐ cw ☐ ccw

FROM L _____ to L _____
INCHES FROM WO _____ to _____
ANGLE: ☐ 0 ☐ 45 ☐ 60 ☐ Other _____
FROM _____ DEG to _____

Prepared By: [signature] Level: III Date: 10/25/01 **Sketch(s) attached** ☒ yes ☐ no Sheet 5 of 10

Reviewed By: Gary Moss Date: 10-25-01 Authorized Inspector: [signature] Date: 10/25/01

Attachment B
Request for Relief 02-001
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DUKE POWER COMPANY ULTRASONIC INDICATION RESOLUTION SHEET	Form NDE-UT-8 Revision 1

Acceptance Standard:

INDICATION #1 WAS DETERMINED TO BE A GEOMETRIC REFLECTOR DUE TO I.D. WELD ROOT GEOMETRY. THIS WAS CONFIRMED BY 1. THE SIGNAL WOULD NOT HOLD UP TO SKEWING 2. THE 70° SHEAR WAVE RESPONSE WAS 10% FSH VERSES 60% FSH WITH THE 60° SHEAR WAVE 3. PLOTTING OF THE INDICATION.

Item No: C05.051.046

Acceptable Indications: #1

Rejectable Indications: NONE

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

Examiner:	Level:	Date:	[redacted]	Sheet 6 of 10
Jay A. Eaton	III	10/25/2001		
Reviewer:	Level:	Date:	Authorized Inspector:	Date:
Gary Moore	III	10-25-01		10/30/01

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Request for Relief 02-001
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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	Volume Calculation
SEE DRAWINGS 0.16 SQ.IN.	0.16 SQ.IN. X 151 IN. = 24.16 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	60	1	.14	151	21.14	24.16	
2	45	CW	.09	151	13.59	24.16	
3	45	CCW	.09	151	13.59	24.16	
					48.32	72.48	66.67

Original
Initial ☐ Final ☑
ANII W EH DATE 10/30/01
HSBI & I Co.
Resign 1/28/02

Item No: C05.051.046

Prepared By: Level: III Date: 1/22/02

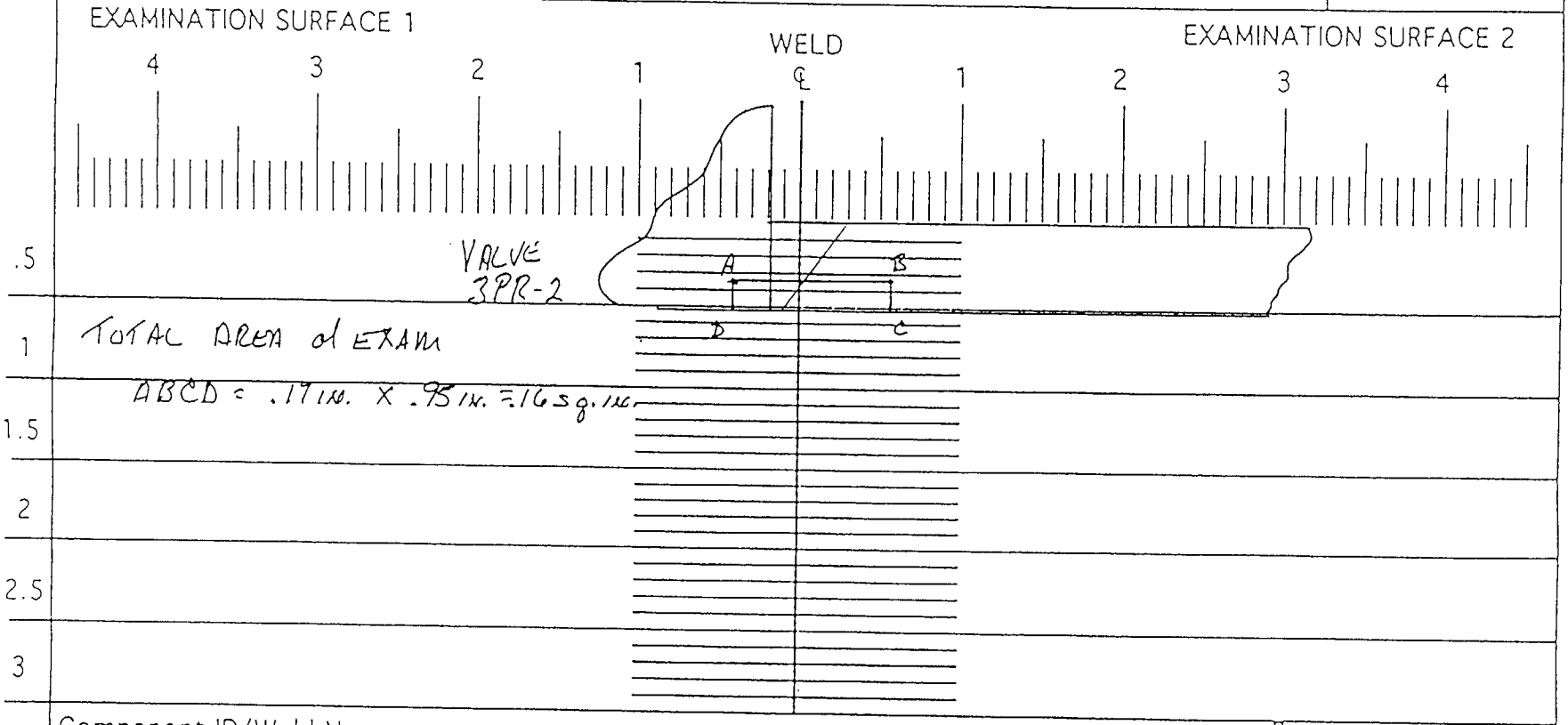
Reviewed By: James J. McAuliffe III Level: III Date: 1-22-02

DUKE POWER COMPANY

UT PROFILE/PLOT SHEET

NDE-UT-5

Revision 1



Component ID/Weld No. 3-20B-21-18-18

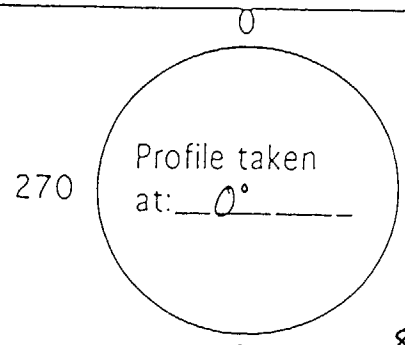
: Remarks:

Item No: C05.051.046

Examiner: | Level: III | Date: 10/25/01

Reviewed By: Gary A Moore | Level: III | Date: 10-25-01

Authorized Inspector: William Gilbert | Date: 10/29/01



Sheet 8 of 10

P G

Attachment B
Request for Relief 02-001
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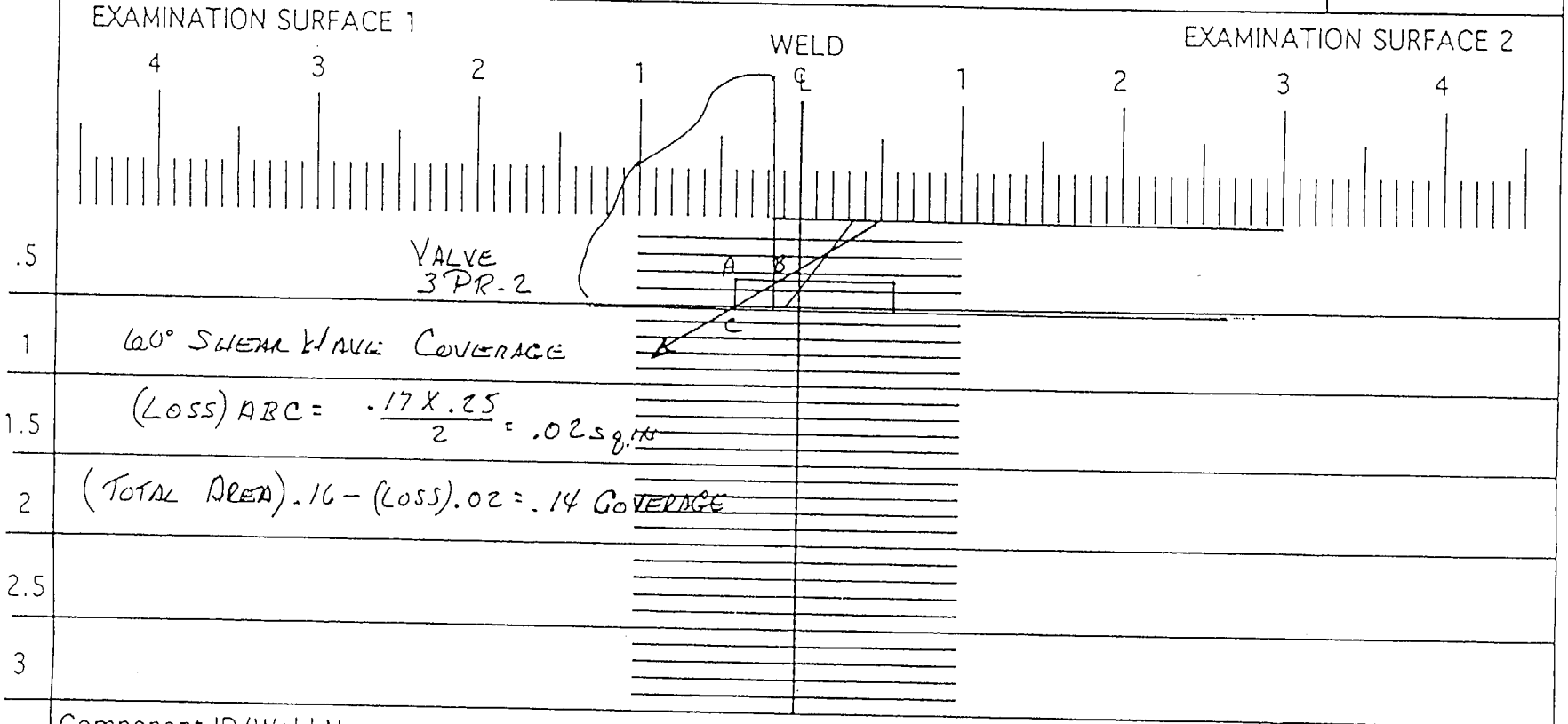
DUKE POWER COMPANY

UT PROFILE/PLOT SHEET

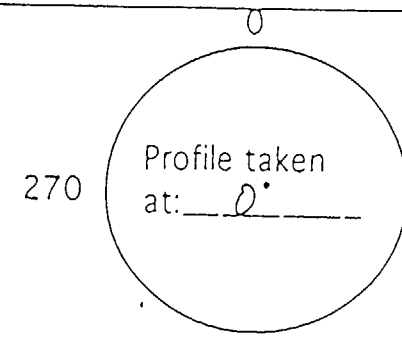
NDE-UT-5

Revision 1



Component ID/Weld No. 3-20B-21-18-18

: Remarks:



Item No: C05.051.046

Examiner:	Level: III	Date: 10/25/01
Reviewed By: Dan M Morgan	Level: II	Date: 10-25-01
Authorized Inspector: Walter E Allen		Date: 10/30/01

Sheet 9 of 10

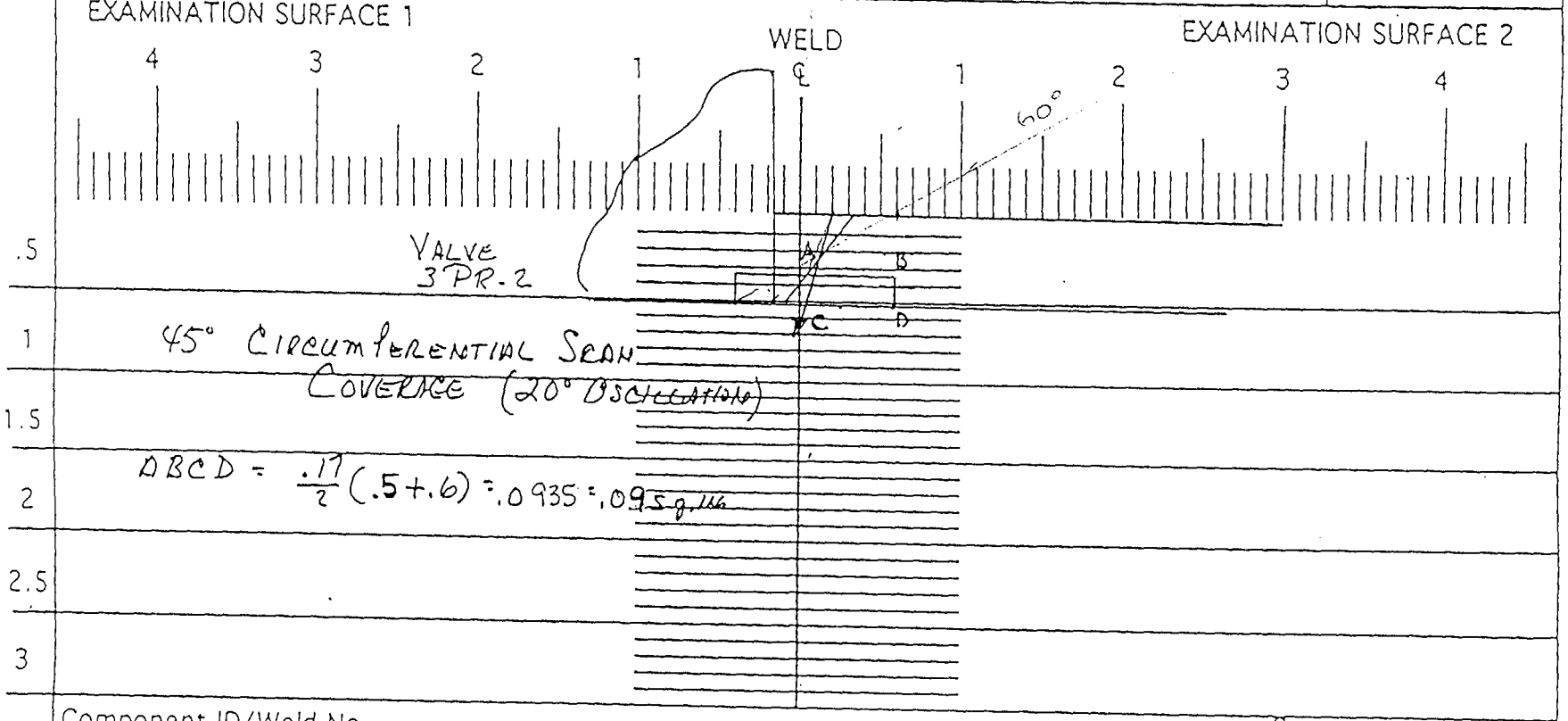
Attachment B
Request for Relief 02-001
Page 9 of 10

DUKE POWER COMPANY

UT PROFILE/PLOT SHEET

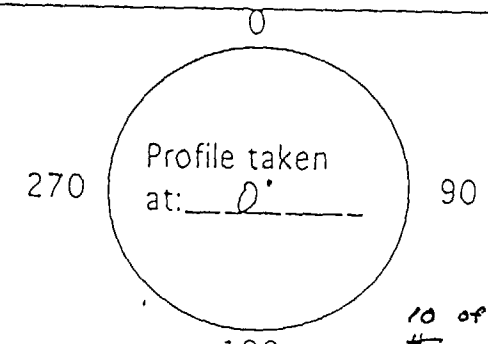
NDE-UT-5

Revision 1



Component ID/Weld No. 3-20B-21-18-18

: Remarks:



Item No: C05.051.046

Examiner:	Level: III	Date: 1/22/02
Reviewed By: James J. Wilson III	Level: III	Date: 1-22-02
Authorized Inspector: C.T. Smith		Date: 1-28-02

For WEH 10/5.1

Sheet 10 of 10

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