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April 4, 2006

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

Subject: Duke Energy Corporation  
McGuire Nuclear Station Unit 2  
Docket No. 50-370  
Relief Request (RR) 05-MN-002

Pursuant to 10 CFR 50.55a(a)(3), Duke requests approval to use alternatives to Section XI of the ASME Boiler and Pressure Vessel Code. Compliance with the specified requirements of this section would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. However, the proposed alternatives will provide an acceptable level of quality and safety. Specific details are described in the attached relief request.

Questions on this matter should be directed to Norman T. Sinms, McGuire Regulatory Compliance, at (704) 875-4685.

Sincerely,

G.R. Peterson

Attachments

A047

U.S. Nuclear Regulatory Commission  
April 4, 2006  
Page 2

cc w/attachment:

Mr. W.D. Travers  
Regional Administrator, Region II  
U. S. Nuclear Regulatory Commission  
Atlanta Federal Center  
61 Forsyth Street, SW, Suite 23T85  
Atlanta, Georgia 30303

Mr. J.F. Stang Jr., Project Manager (addressee only)  
Office of Nuclear Reactor Regulation  
U. S. Nuclear Regulatory Commission  
One White Flint North, Mail Stop 08-H4A  
11555 Rockville Pike  
Rockville, MD 20852-2738

Mr. J.B. Brady  
Senior NRC Resident Inspector  
McGuire Nuclear Station

**ATTACHMENT**

**Relief Request 05-MN-002**

**Proposed Relief in Accordance with 10 CFR 50.55a(g)(5)(iii),  
Inservice Inspection Impracticality  
Duke Energy Corporation**

**McGuire Nuclear Station – Unit 2 (EOC-16)**

**Third 10-Year Interval – Inservice Inspection Plan**

**Interval Start Date= December 1, 2001 Interval End Date= December 1, 2011**

**ASME Section XI Code – 1998 Edition with 2000 Addenda and \*Westinghouse Owner’s Group (WCAP-14572)**

**Code Case N-460 is applicable**

**Examination Dates October 06, 2003-April 14, 2005**

Request Number	I. Limited Area/Weld I.D. Number	II. System/ Component for Which Relief is Requested: Area or Weld to be Examined	III. Code Requirement from Which Relief is Requested: 100% Exam Volume Coverage Exam Category Item No. Fig. No. Limitation Percentage	IV. & V. Impracticality/ Burden Caused by Compliance	VI. Proposed Alternate Examinations or Testing	VII. Implementation Schedule and Duration	VIII. Justification for Granting Relief
1.	2NC2F2-8C	NC Reactor Coolant System Pipe to Pipe Cap	Exam Category R-A Table 4.1-1 Item Number R01.011.013 Fig. IWB-2500-8 *(c) & Note 1 87.00% Volume Coverage	See Paragraph “A” See Attachment 1 Pages 1-7	See Paragraph “G”.	See Paragraph “H”.	See Paragraph “D” See Attachment 1 Pages 1-7
2.	2NI2FW27-13	NI Safety Injection System Pipe to Elbow	Exam Category R-A Table 4.1-1 Item No. R01.011.069 Fig. IWB-2500-8 *(c) & Note 1 89.80% Volume Coverage	See Paragraph “B” See Attachment 2 Pages 1-5	See Paragraph “G”.	See Paragraph “H”.	See Paragraph “E” See Attachment 2 Pages 1-5
3.	2NI2FW27-15	NI Safety Injection System Tee to Reducer	Exam Category R-A Table 4.1-1 Item No. R01.011.071 Fig. IWB-2500-8 *(c) & Note 1 89.80% Volume Coverage	See Paragraph “C” See Attachment 3 Pages 1-5	See Paragraph “G”.	See Paragraph “H”.	See Paragraph “E” See Attachment 3 Pages 1-5

**\*Piping Welds examined under the RI-ISI Program developed in accordance with methodology contained in the Westinghouse Owner’s Group (WOG) Topical Report, WCAP-14572, Revision 1-NPA and Request for Relief 01-005 approved by SER, dated June 12, 2002.**

**\*\*WCAP-14572 Table 4.1-1 Examination Category R-A lists the Examination Requirement as Figure No. IWB-2500-8 (c) <sup>1</sup> which normally applies to NPS 4” or larger. Since the risk-informed program requires a volumetric examination, this figure was used to define the exam volume on these less than NPS 4” welds also.**

**IV. & V. Impracticality/Burden caused by Code Compliance**

**Paragraph A:** (The pipe to pipe cap material is stainless steel. The diameter of this weld is 2.00 inches with a wall thickness of .344 inches.)

During the ultrasonic examination of this weld, 100% coverage of the required examination volume could not be obtained. Coverage was limited because of the proximity of an I-beam near the weld. The amount of coverage reported represents the aggregate coverage from all scans performed on the weld and base material. The required volume was scanned using 45-degree, 60-degree, and 70-degree shear waves. The 45-degree beam had an aggregate coverage of 88% of the volume in two circumferential directions. The 60-degree beam had an axial coverage in two directions, 81.3% on the pipe side of the weld and 90.7% on the pipe cap side of the weld. The 70-degree shear wave covered 100% of the inside surface from one axial direction from the pipe cap side of the weld but was not included in the percentage of coverage calculation because of the requirements in 10CFR50.55a(b)(2)(xv)(A)(2). In order to achieve more coverage, the I-beam would have to be redesigned to allow scanning from both sides of the weld, which is impractical. There were no recordable indications found during the inspection of this weld.

**Paragraph B:** (The pipe to elbow material is stainless steel. The diameter of this weld is 3.000 inches with a wall thickness of .438 inches.)

During the ultrasonic examination of this weld, 100% coverage of the required examination volume could not be obtained. Coverage was limited because an area 3" long on the elbow intrados limited the scan surface in the throat area, which prevented scanning from four directions. The amount of coverage reported represents the aggregate coverage from all scans performed on the weld and base material. The required volume was scanned using 45-degree, 60-degree, and 70-degree shear waves. The 45-degree beam covered 100% of the volume in two circumferential directions. The 60-degree beam had an axial coverage in two directions, 72.7% on the elbow side of the weld and 86.4% on the pipe side of the weld. The 70-degree shear wave covered 33.3% of the volume from one axial direction from the pipe side of the weld but was not included in the percent of coverage calculation because of the requirements in 10CFR50.55a(b)(2)(xv)(A)(2). In order to achieve more coverage, the weld would have to be redesigned to allow scanning from both sides of the weld, which is impractical. There were no recordable indications found during the inspection of this weld.

**Paragraph C:** (The Tee to reducer material is stainless steel. The diameter of this weld is 3.000 inches with a wall thickness of .438 inches.)

During the ultrasonic examination of this weld, 100% coverage of the required examination volume could not be obtained. Coverage was limited to the examination volume because of an area 3" long on the tee side of the weld due to the tee configuration, this prevented scanning from four directions. The amount of coverage reported represents the aggregate coverage from all scans performed on the weld and base material. The required volume was scanned using 45-degree, 60-degree, and 70-degree shear waves. The 45-degree beam covered 100% of the volume in two circumferential directions. The 60-degree beam had an axial coverage in two directions, 72.7% on the tee side of the weld and 86.4% on the reducer side of the weld. The 70-degree shear wave covered 33.3% of the volume from one axial direction from the reducer side of the weld but was not included in the percent of coverage calculation because of the requirements in 10CFR50.55a(b)(2)(xv)(A)(2). In order to achieve more coverage, the weld would have to be redesigned to allow scanning from both sides of the weld, which is impractical. There were no recordable indications found during the inspection of this weld.

**VI. Proposed Alternate Examinations or Testing**

**Paragraph G:**

None. The scheduled 10-year code examination was performed on the referenced area/welds and it resulted in the noted limited coverage of the required ultrasonic volume. No additional examinations are planned for the area/weld during the current inspection interval.

**VII. Implementation Schedule and Duration**

**Paragraph H:**

None. The scheduled 10-year code examination was performed on the referenced area/welds and it resulted in the noted limited coverage of the required ultrasonic volume. No additional examinations are planned for the area/weld during the current inspection interval.

**VIII. Justification for Granting Relief**

**Paragraph D:** Ultrasonic examination of the weld for item R01.011 was conducted using personnel, qualified in accordance with ASME Section XI, Appendix VIII, Supplements 2 and 3. The examination was performed in accordance with the requirements of ASME Section VIII, Supplement 2. The 2" pipe to pipe cap weld is located on the 2B Cold Leg inside containment; this is part of the NC (Reactor Coolant System) boundary. This weld would normally see NC pressure leakage and would be noted per monitoring listed later in this paragraph. This weld is not exposed to significant neutron fluence and is not prone to negative material property changes (i.e., embrittlement) associated with neutron bombardment. If a leak were to occur at the weld in question, there are methods by which the leak could be identified for prompt Engineering evaluation. The plant is designed to detect the following:

- a) Increased containment humidity. This parameter is indicated in the control room and is monitored periodically by Operations and also monitored by the Containment Ventilation System Engineer. Ventilation Unit Condensate Drain Tank (VUCDT) level, and lower containment humidity are all recorded in Autolog at the start of each shift.
- b) Increased temperatures in lower containment, Steam Generator compartment, Pressurizer compartment, or incore sump room. These temperatures are monitored continuously by the OAC alarm, and are periodically monitored by the System Engineer. The OAC alarm is set for immediate Operations notification when an alarm set point is exceeded.
- c) Increased input into the VUCDT level. This parameter is monitored continuously by Operations via an OAC alarm and also periodically by the Liquid Radwaste System Engineer and Reactor Coolant System Engineer. The OAC alarm is set for immediate Operations notification when an alarm set point is exceeded.
- d) Increase in unidentified reactor coolant leakage. This parameter would be exhibited during performance of reactor coolant leakage calculation, which is required by Technical Specifications to be performed every 72 hours. The unidentified leakage limit in Technical Specification 3.4.13.1 is 1 gpm.
- e) Increased Containment Floor and Equipment Sump levels. These levels are closely monitored by the Liquid Waste Recycle and Reactor Coolant System Engineer and alarmed for immediate Operations notification.
- f) Change in the Volume Control Tank (VCT) level rate (a more negative rate is set to alarm to Operations at -1.0 gpm). This is closely monitored by the Chemical and Volume Control System Engineer.

Note: Although diverse means are available to identify a leak in containment, containment entry would be required to identify the exact source of the leakage.

In addition, a Mode 3 containment walkdown is performed each refueling outage at shutdown and startup to identify any leaks.

No additional NDE ultrasonic examinations were performed on welds 2.00", .344 wall thickness in this outage.

**Paragraph E:** Ultrasonic examination of the weld for item R01.011 was conducted using personnel, qualified in accordance with ASME Section XI, Appendix VIII, Supplements 2 and 3. The examination was performed in accordance with the requirements of ASME Section VIII, Supplement 2. These welds are located on the outlet side of the 1A Seal Water Injection Filter Outlet Isolation Valve (1NV-494) and they are not exposed to significant neutron fluence and are not prone to negative material property changes (i.e. embrittlement) associated with neutron bombardment. The plant is designed to detect the following:

- a) Abnormal Volume Control Tank (VCT) level trends and/or unexpected auto make-ups.
- b) Increase in unidentified reactor coolant leakage. This parameter would be exhibited during performance of the reactor coolant leakage calculation, which is required by

Technical Specifications to be performed every 72 hours. The unidentified leakage specification in Technical Specifications 3.4.13.1 is 1 gpm.

- c) Increase in ND/NS Sump inputs. This parameter is monitored periodically by the Liquid Radwaste System Engineer.
- d) These welds are exposed to charging pump discharge pressure during outage testing PT/2/A/4209/012A, B and leakage would be noted during the startup containment walk down.

Three additional ultrasonic examinations were performed on 3.00", .438 wall thickness pipe welds in the NI System. The results from these examinations were acceptable with 100% coverage.

**IX. Other Information**

Jim McArdle (Principal UT NDE Level III Examiner) provided Sections III., IV. V. and part of Section VIII.

Robert Kirk Jr. (MNS Systems Engineer) provided part of Section VIII.

Gary Underwood (Sponsor) compiled the remaining sections of this relief request.

Sponsored By: Gary Underwood Date 3-2-06

Approved By: R. Kevin Rhyme Date 3/8/06

- Attachment 1 UT Examination Data R01.011.013
- Attachment 2 UT Examination Data R01.011.069
- Attachment 3 UT Examination Data R01.011.071

**REQUEST RELIEF 05-MN-002**

**ATTACHMENT 1**

**PAGES 1-7**



# UT Base Metal Examination

Request Relief # 03-MAR-05  
ATTACHMENT 1  
Page 1 of 7

Site/Unit: McGuire / 2  
Summary No.: R01.011.013  
Workscope: ISI

Procedure: NDE-640  
Procedure Rev.: 3  
Work Order No.: 98650332

Outage No.: MNS2EOC16  
Report No.: UT-05-047  
Page: 1 of 2

Code: 1998 thru 2000 Addenda      Cat./Item: R-A/R1.11.13      Location: N/A  
Drawing No.: MCFI-2NC40      Description: Pipe to Pipe Cap  
System ID: NC  
Component ID: R01.011.013 /2NC2F2-8C      Size/Length: N/A      Thickness/Diameter: .344 / 2.0  
Limitations: None      Start Time: 0930      Finish Time: 0935

Examination Surface:    Inside     Outside       Surface Condition: AS GROUND  
Lo Location: B Pump Side      Wo Location: Centerline of Weld      Couplant: ULTRAGEL II      Batch No.: 03125  
Temp. Tool Mfg.: FISHER      Serial No.: MCNDE 27218      Surface Temp.: 70 °F      Scanning dB: 56.3  
Cal. Report No.: CAL-05-055

Ind. No.	% Loss Back Wall	Amplitude % Full Screen	Position One				Position Max				Position Two				Remarks
			L1	W1	W2	MP	LM	W1	W2	MP	L2	W1	W2	MP	
NRI															

Comments:

Results:    Accept     Reject     Info       Initial Section XI Exam  
Percent Of Coverage Obtained > 90%: Yes-100%      Reviewed Previous Data: No

Examiner	Level	Signature	Date	Reviewer	Signature	Date
Moss, Gary J.	I	<i>Gary J. Moss</i>	3/22/2005	<i>[Signature]</i>	III	3/23/05
Examiner	Level	Signature	Date	Site Review	Signature	Date
Jones, Russel	II	<i>[Signature]</i>	3/22/2005			
Other	Level	Signature	Date	ANII Review	Signature	Date
N/A	N/A			<i>[Signature]</i>		3/25/05

R  
C  
A  
A



# Supplemental Report

RR# 05-MN-002  
ATTACHMENT 1  
Page 2 of 17  
UT-05-047

Report No.:

Page: 2 of 2

Summary No.: R01,011,013

Examiner: Moss, Gary J. *Gary J. Moss*

Examiner: Jones, Russel *Russel Jones*

Other: N/A

Level: II

Level: II

Level: N/A

Reviewer: *JFK III*

Site Review: *JFK III*

ANII Review: *JFK III*

Date: 3/23/05

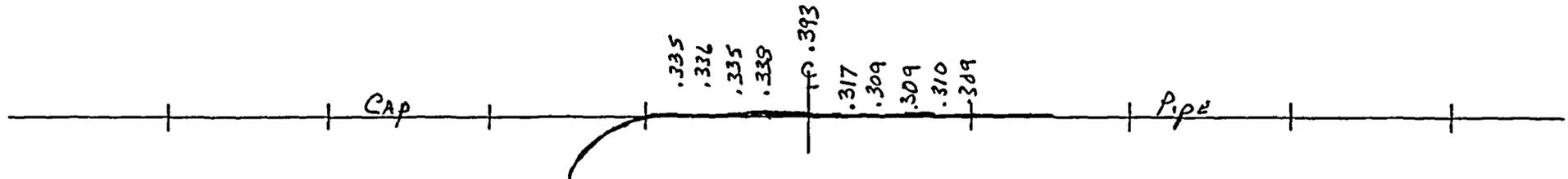
Date: 3/25/05

Date: 3/25/05

Comments:

Sketch or Photo:

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# UT Pipe Weld Examination

RR\*05-AN-002  
ATTACHMENT 1  
Page 3 of 7

Site/Unit: McGuire / 2

Procedure: NDE-600

Outage No.: MNS2EOC16

Summary No.: R01.011.013

Procedure Rev.: 15

Report No.: UT-05-048

Workscope: ISI

Work Order No.: 98650332

Page: 1 of 5

Code: 1998 thru 2000 Addenda Cat./Item: R-A/R1.11.13 Location: N/A

Drawing No.: MCFI-2NC40 Description: Pipe to Pipe Cap

System ID: NC

Component ID: R01.011.013 /2NC2F2-8C Size/Length: N/A Thickness/Diameter: .344 / 2.0

Limitations: Yes - See Attached Limitation Report Start Time: 0942 Finish Time: 1007

Examination Surface: Inside  Outside  Surface Condition: AS GROUND

Lo Location: B Pump Side Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 03125

Temp. Tool Mfg.: FISHER Serial No.: MCNDE 27218 Surface Temp.: 70 °F

Cal. Report No.: CAL-05-056, CAL-05-057, CAL-05-058

Angle Used	0	45	45T	60	70	
Scanning dB			39	48.6	50.5	

Indication(s): Yes  No  Scan Coverage: Upstream  Downstream  CW  CCW

Comments:

Results: Accept  Reject  Info

Initial Section XI Exam

Percent Of Coverage Obtained > 90%: No - 87.0%

Reviewed Previous Data: No

Examiner	Level	Signature	Date	Reviewer	Signature	Date
Moss, Gary J.	II		3/22/2005		III	3/24/05
Examiner	Level	Signature	Date	Site Review	Signature	Date
Jones, Russel	II		3/22/2005			
Other	Level	Signature	Date	ANII Review	Signature	Date
N/A	N/A					3/25/05

RR  
05  
4/14/05

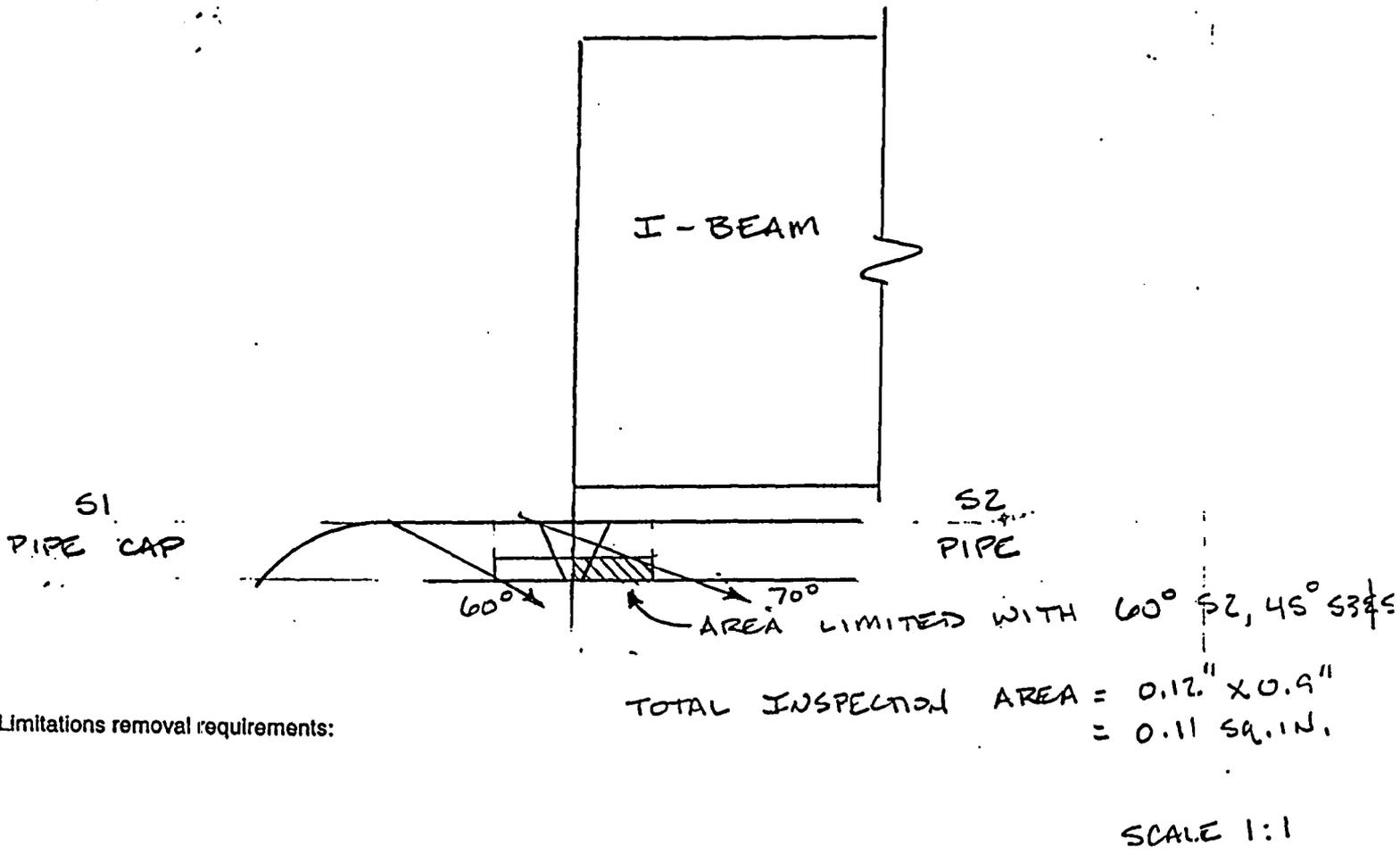
# Limitation Record

Site/Unit: <u>McGuire / 2</u>	Procedure: <u>NDE-600</u>	Outage No.: <u>MNS2EOC16</u>
Summary No.: <u>R01.011.013</u>	Procedure Rev.: <u>15</u>	Report No.: <u>UT-05-048</u>
Workscope: <u>ISI</u>	Work Order No.: <u>98650332</u>	Page: <u>2</u> of <u>5</u>

**Description of Limitation:**

Limited scan on the surface 2 side of the weld from the C/L and beyond, Lo + 2.95" to Lo + 4.15" due to an i-beam.

**Sketch of Limitation:**



**Limitations removal requirements:**

**Radiation field:**

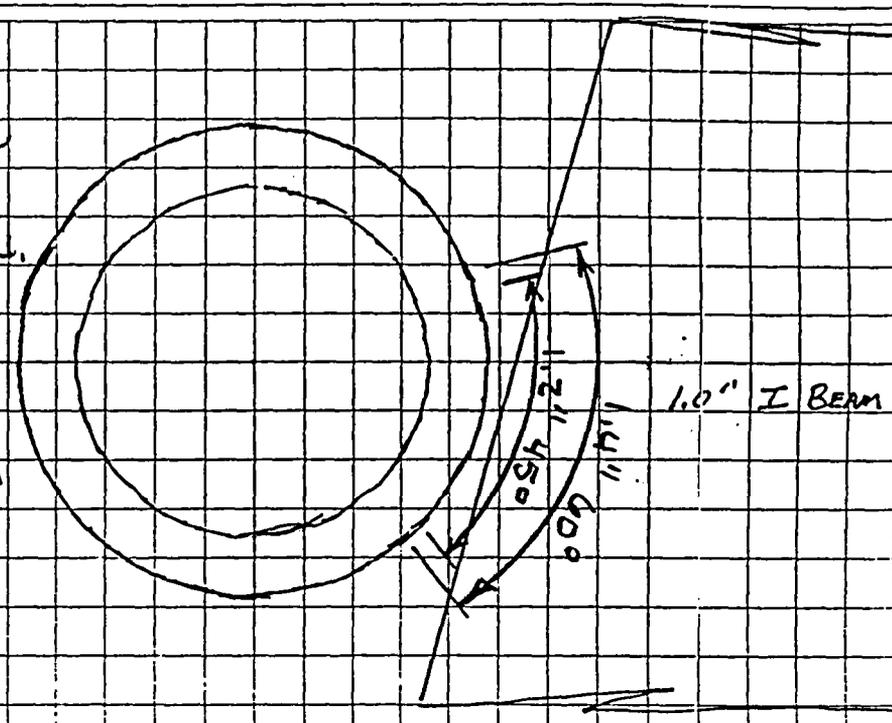
Examiner	Level II	Signature	Date	Reviewer	Signature	Date
Moss, Gary J.		<i>[Signature]</i>	3/22/2005	<i>[Signature]</i>	III	3/24/05
Examiner	Level II	Signature	Date	Site Review	Signature	Date
Jones, Russel		<i>[Signature]</i>	3/22/2005			
ther	Level N/A	Signature	Date	ANII Review	Signature	Date
N/A				<i>[Signature]</i>		3/25/05

RR# 05-MN-08  
PAGE 5 OF 7

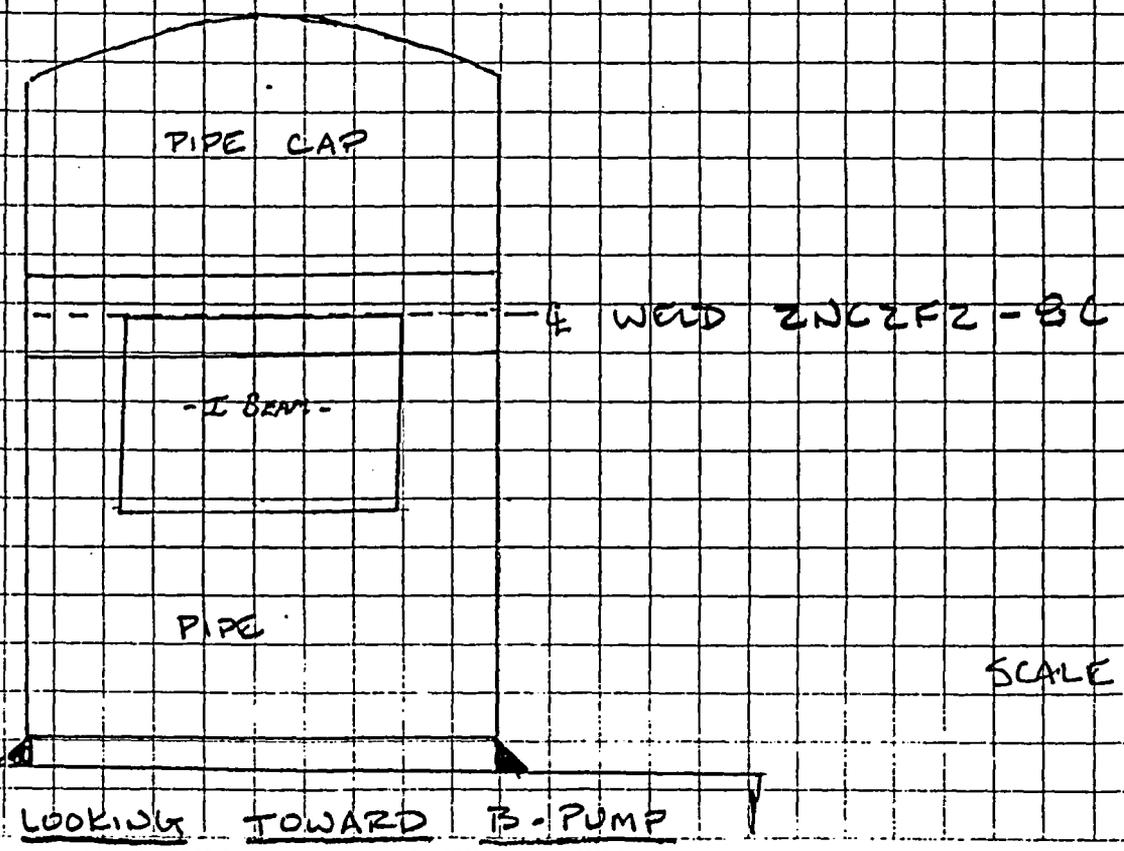
Station MCLUIRE Unit Z Rev. \_\_\_\_\_ File No. \_\_\_\_\_ Sheet 3 of 5  
Subject SCANNING LIMITATION WELD # ZNCZFZ-8C  
By [Signature] III Date 3/23/05  
Prob No. ITEM # R01,011,013 Checked By \_\_\_\_\_ Date \_\_\_\_\_

PIPE DIA. = 2.375"  
t = 0.344"  
WELD LENGTH = 2.375" x  $\pi$   
= 7.5"  
INSPECTION AREA = 0.11 sq. in.

← B. Pump →  
INSPECTION VOLUME =  
= 0.11 sq. in. x 7.5"  
= 0.83 cu. in.



PLAN VIEW



[Signature]  
SCALE: 1:1  
3/23/05

RR # 05-MN-002  
Att. 1  
Page 6 of 7

LIMITATIONAL CALCULATION

ITEM NO. Z01.011.013

WELD NO. ZNL2FZ-8C

VOLUME OF WELD SCANNED 100% IN 2 DIRECTIONS WITH 60°

$$7.5" - 1.4" = 6.1"$$

$$\frac{6.1}{7.5} \times 100 = 81.3\%$$

S1 SCAN 60°

$$\begin{aligned}
&= 81.3\% + (50\% \text{ FOR } 1.4") \\
&= 81.3\% + \frac{18.7}{2} \\
&= 81.3\% + 9.4\% \\
&= 90.7\%
\end{aligned}$$

S2 SCAN 60° = 81.3%

VOLUME OF WELD SCANNED 100% CW & CCW 45°

$$7.5" - 1.2" = 6.3"$$

$$\frac{6.3}{7.5} \times 100 = 84.0\%$$

S3 & S4 SCAN 45° FROM S1 SIDE

$$\begin{aligned}
&= 84.0\% + (50\% \text{ FOR } 1.2") \\
&= 84.0\% + \frac{16}{2} \\
&= 84.0\% + 8\% \\
&= 92.0\%
\end{aligned}$$

*JHK* III  
3/23/05

S3 & S4 SCAN 45° FROM S2 SIDE = 84.0%

$$\underline{\underline{S3 \& S4 45^\circ \text{ AGGREGATE \%}} = \frac{92.0 + 84.0}{2} = 88\%$$

RR # 05.MN-002  
NTI-1  
P&T 10/17



# Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit: <u>McGuire / 2</u>	Procedure: <u>NDE-600</u>	Outage No.: <u>MNS2EOC16</u>
Summary No.: <u>R01.011.013</u>	Procedure Rev.: <u>15</u>	Report No.: <u>UT-05-048</u>
Workscope: <u>ISI</u>	Work Order No.: <u>98650332</u>	Page: <u>5</u> of <u>5</u>

45 deg ~~45~~ 60 DEG

60°	Scan 1	<u>100.000</u>	% Length X	<u>90.700</u>	% volume of length / 100 =	<u>90.700</u>	% total for Scan 1
60°	Scan 2	<u>100.000</u>	% Length X	<u>81.300</u>	% volume of length / 100 =	<u>81.300</u>	% total for Scan 2
45°	Scan 3	<u>100.000</u>	% Length X	<u>88.000</u>	% volume of length / 100 =	<u>88.000</u>	% total for Scan 3
45°	Scan 4	<u>100.000</u>	% Length X	<u>88.000</u>	% volume of length / 100 =	<u>88.000</u>	% total for Scan 4

Add totals and divide by # scans = 87.000 % total for 45 deg

Other deg - \_\_\_\_\_ (to be used for supplemental scans)

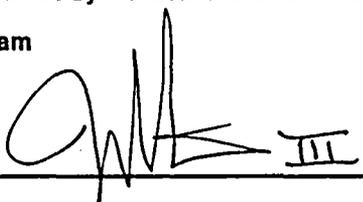
The data to be listed below is for coverage that was not obtained with the 45 deg scans.

Scan 1	_____	% Length X	_____	% volume of length / 100 =	_____	% total for Scan 1
Scan 2	_____	% Length X	_____	% volume of length / 100 =	_____	% total for Scan 2
Scan 3	_____	% Length X	_____	% volume of length / 100 =	_____	% total for Scan 3
Scan 4	_____	% Length X	_____	% volume of length / 100 =	_____	% total for Scan 4

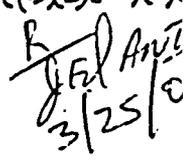
### Percent complete coverage

Add totals for each scan required and divide by # of scans to determine;

87.000 % Total for complete exam

Site Field Supervisor:  III Date: 3/23/05

NOTE: 70° SHEAR SCAN NOT INCLUDED IN PERCENT COVERAGE BECAUSE OF THE REQUIREMENTS OF 10CFR 50.559(b)(2)(vi)(A).

  
3/25/05

**REQUEST RELIEF 05-MN-002**

**ATTACHMENT 2**

**PAGES 1-5**



# UT Base Metal Examination

Request Relief # 05-MA-002  
ATTACHMENT 2  
Page 1 of 5

Site/Unit: McGuire / 2  
Summary No.: R01.011.069  
Workscope: ISI

Procedure: NDE-640  
Procedure Rev.: 3  
Work Order No.: 98650332

Outage No.: MNS2EOC16  
Report No.: UT-05-042  
Page: 1 of 2

Code: 1998 thru 2000 Addenda Cat./Item: R-A/R1.11.69 Location: N/A  
Drawing No.: MCFI-2NI27 Description: Pipe to Elbow  
System ID: NI  
Component ID: R01.011.069 /2NI2FW27-13 Size/Length: N/A Thickness/Diameter: .438 / 3.0  
Limitations: None Start Time: 1032 Finish Time: 1034

Examination Surface: Inside  Outside  Surface Condition: AS GROUND  
Lo Location: 9.1.1.2 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 03125  
Temp. Tool Mfg.: FISHER Serial No.: MCNDE 27221 Surface Temp.: 72 °F Scanning dB: 63.3  
Cal. Report No.: CAL-05-051

Ind. No.	% Loss Back Wall	Amplitude % Full Screen	Position One				Position Max				Position Two				Remarks
			L1	W1	W2	MP	LM	W1	W2	MP	L2	W1	W2	MP	
NRI															

Comments:

Results: Accept  Reject  Info  Initial Section XI Exam  
Percent Of Coverage Obtained > 90%: Yes-100% Reviewed Previous Data: No

Examiner Level III Houser, Gayle E.	Signature <i>Gayle E. Houser</i>	Date 3/22/2005	Reviewer <i>[Signature]</i>	Signature III	Date 3/23/05
Examiner Level II-N Brown, Thomas	Signature <i>Thomas Brown</i>	Date 3/22/2005	Site Review	Signature	Date
Other Level N/A N/A	Signature	Date	ANII Review <i>[Signature]</i>	Signature	Date 3/25/05

R  
FA  
3/23/05



# Supplemental Report

Request Relief # 06-MN-802

Page 2 of 5

Report No.: UT-05-042

Page: 2 of 2

Summary No.: R01.011.009

Examiner: Houser, Gayle E. *G. E. Houser*

Level: III

Reviewer: *John III*

Date: 3/23/05

Examiner: Brown, Thomas *Tom Brown*

Level: II-N

Site Review: *J. Brown*

Date: 3/25/05

Other: N/A

Level: N/A

ANII Review: *J. Brown*

8604/665

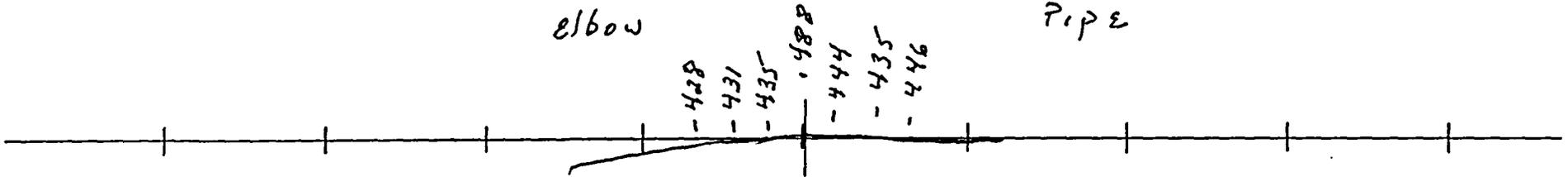
Comments:

Sketch or Photo:

E:\UT\IDEAL\ProfileLine2.jpg

elbow

PIPE





# UT Pipe Weld Examination

RR # 05-NN-002  
Att. # 2  
Page 3 of 5

Site/Unit: McGuire / 2

Procedure: NDE-600

Outage No.: MNS2EOC16

Summary No.: R01.011.069

Procedure Rev.: 15

Report No.: UT-05-014

Workscope: ISI

Work Order No.: 98650332

Page: 1 of 3

Code: 1998 thru 2000 Addenda

Cat./Item: R-A/R1.11.69

Location: N/A

Drawing No.: MCFI-2NI27

Description: Pipe to Elbow

System ID: NI

Component ID: R01.011.069 /2NI2FW27-13

Size/Length: N/A Thickness/Diameter: .438 / 3.0

Limitations: Yes

Start Time: 1034 Finish Time: 1046

Examination Surface: Inside  Outside

Surface Condition: AS GROUND

Lo Location: 9.1.1.2

Wo Location: Centerline of Weld

Couplant: ULTRAGEL II

Batch No.: 03125

Temp. Tool Mfg.: FISHER

Serial No.: MCNDE 27221

Surface Temp.: 72 °F

Cal. Report No.: CAL-05-052, CAL-05-053, CAL-05-054

Angle Used	0	45	45T	60	70	
Scanning dB			47	54	56	

Indication(s): Yes  No

Scan Coverage: Upstream  Downstream  CW  CCW

Comments:

Results: Accept  Reject  Info

Initial Section XI Exam

Percent Of Coverage Obtained > 90%: No - 89.8%

Reviewed Previous Data: No

Examiner	Level	Signature	Date	Reviewer	Signature	Date
Houser, Gayle E.	III	<i>Gayle E. Houser</i>	3/22/2005	<i>[Signature]</i>	III	3/24/05
Examiner	Level	Signature	Date	Site Review	Signature	Date
Brown, Thomas	II-N	<i>Thomas Brown</i>	3/22/2005			
Other	Level	Signature	Date	ANII Review	Signature	Date
N/A	N/A			<i>[Signature]</i>		3/27/05

R  
01  
11/05

RR # 05-MN-004  
 AT # 2 Page 4 of 5



# Limitation Record

Site/Unit: McGuire / 2  
 Summary No.: R01.011.069  
 Workscope: ISI

Procedure: NDE-600  
 Procedure Rev.: 15  
 Work Order No.: 98650332

Outage No.: MINS2EOC16  
 Report No.: UT-05-014  
 Page: 2 of 3

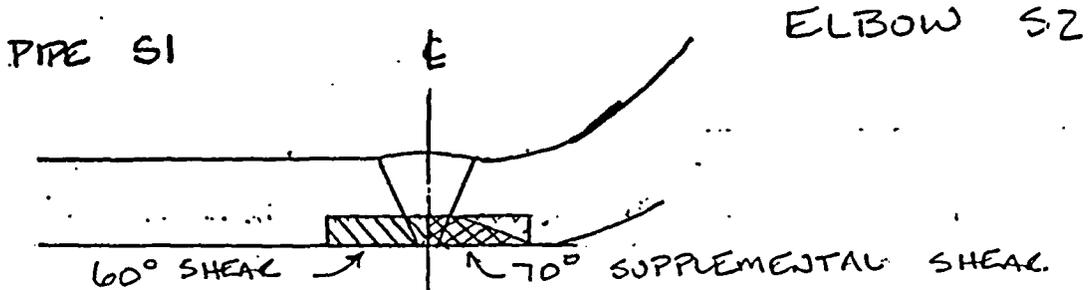
**Description of Limitation:**

Limited area 3" long on elbow side of weld due to limited scan surface in throat area.

**Sketch of Limitation:**

DIA<sub>1</sub> = 0.35"  
 WELD LENGTH = 11"  
 t = 0.438"

SCALE 1:1



TOTAL EXAM AREA = .15 X 1.0 = .15 IN<sup>2</sup>  
 TOTAL EXAM VOLUME = .15 X 11" = 1.65 CU. IN.  
 TOTAL 60° 100% SCAN = 11" - 3" = 8"  $\frac{8}{11} \times 100 = 72.7\%$   
 S1-60° = 72.7% +  $\frac{27.3}{2} = 86.4\%$   
 S2-60° = 72.7%  
 S3-45° = 100%  
 S4-45° = 100%

**Limitations removal requirements:**

70° SUPPLEMENTAL SCAN  
 $= (0.2 \times 0.15) + \frac{0.3 \times .15}{2} = .05$   
 $\frac{.05}{0.15} \times 100 = 33.3\%$

**Radiation field:**

Examiner	Level	Signature	Date	Reviewer	Signature	Date
Houser, Gayle E.	III	<i>[Signature]</i>	3/22/2005	<i>[Signature]</i>	JII	3/24/05
Brown, Thomas	II-N	<i>[Signature]</i>	3/22/2005	Site Review	Signature	Date
Other N/A	Level N/A	Signature	Date	ANII Review	Signature	Date

*[Handwritten signatures and dates]*  
 J.F. [Signature] 3/27/05  
 [Signature]

RR 05-MN-002  
ATLZ Page 5 of 5



# Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit: <u>McGuire / 2</u>	Procedure: <u>NDE-600</u>	Outage No.: <u>MNS2EOC16</u>
Summary No.: <u>R01.011.069</u>	Procedure Rev.: <u>15</u>	Report No.: <u>UT-05-014</u>
Workscope: <u>ISI</u>	Work Order No.: <u>98650332</u>	Page: <u>3</u> of <u>3</u>

45 deg & 60 DEG.

60° - Scan 1	<u>100.000</u>	% Length X	<u>86.400</u>	% volume of length / 100 =	<u>86.400</u>	% total for Scan 1
60° - Scan 2	<u>100.000</u>	% Length X	<u>72.700</u>	% volume of length / 100 =	<u>72.700</u>	% total for Scan 2
45° - Scan 3	<u>100.000</u>	% Length X	<u>100.000</u>	% volume of length / 100 =	<u>100.000</u>	% total for Scan 3
45° - Scan 4	<u>100.000</u>	% Length X	<u>100.000</u>	% volume of length / 100 =	<u>100.000</u>	% total for Scan 4

Add totals and divide by # scans = 89.775 % total for 45 deg

Other deg - \_\_\_\_\_ (to be used for supplemental scans)

The data to be listed below is for coverage that was not obtained with the 45 deg scans.

Scan 1	_____	% Length X	_____	% volume of length / 100 =	_____	% total for Scan 1
Scan 2	_____	% Length X	_____	% volume of length / 100 =	_____	% total for Scan 2
Scan 3	_____	% Length X	_____	% volume of length / 100 =	_____	% total for Scan 3
Scan 4	_____	% Length X	_____	% volume of length / 100 =	_____	% total for Scan 4

### Percent complete coverage

Add totals for each scan required and divide by # of scans to determine;

89.775 % Total for complete exam

Site Field Supervisor: \_\_\_\_\_

Date: 3/24/05

NOTE: 70° SHEAR SCAN NOT INCLUDED IN PERCENT COVERAGE  
CAUSE OF THE REQUIREMENTS OF 10 CFR 50.55a (b)(2)(XV)(A)(2)  
BEST EFFORT SCAN WITH 70° OBTAINED 33.3% COVERAGE ON  
THE FAR SIDE OF THE WELD IN THE LIMITED AREA.

**REQUEST RELIEF 05-MN-002**

**ATTACHMENT 3**

**PAGES 1-5**





# Supplemental Report

RR # 05-MN-002  
ATT: 3  
Page 2 of 5

Report No.: UT-05-044

Page: 2 of 2

Summary No.: R01.011.071

Examiner: Houser, Gayle E. *G. E. Houser*

Level: III

Reviewer: *[Signature]* III

Date: 3/23/05

Examiner: Brown, Thomas *Tom D. Brown*

Level: II-N

Site Review: *[Signature]*

Date: 3/25/05

Other: N/A

Level: N/A

ANII Review: *[Signature]*

Date: 3/25/05

R/Rev 4/6/05

Comments:

Sketch or Photo:

E:\UT\IDEAL\ProfileLine2.jpg

*TEE*

*.580*

*.522*

*.565*

*.490*

*.500*

*.510*

*.485*

*Reducer*





# UT Pipe Weld Examination

RR # 05-NH-002  
ATT-3  
Page 3 of 5

Site/Unit: McGuire / 2

Procedure: NDE-600

Outage No.: MNS2EOC16

Summary No.: R01.011.071

Procedure Rev.: 15

Report No.: UT-05-046

Workscope: ISI

Work Order No.: 98650332

Page: 1 of 3

Code: 1998 thru 2000 Addenda Cat./Item: R-AR1.11.71 Location: N/A

Drawing No.: MCFI-2NI27 Description: Tee to Reducer

System ID: NI

Component ID: R01.011.071 /2NI2FW27-15 Size/Length: N/A Thickness/Diameter: .438 / 3.0

Limitations: Yes Start Time: 1004 Finish Time: 1022

Examination Surface: Inside  Outside  Surface Condition: AS GROUND

Lo Location: 9.1.1.1 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 03125

Temp. Tool Mfg.: FISHER Serial No.: MCNDE 27221 Surface Temp.: 72 °F

Cal. Report No.: CAL-05-052, CAL-05-053, CAL-05-054

Angle Used	0	45	45T	60	70	
Scanning dB			47	54	56	

Indication(s): Yes  No  Scan Coverage: Upstream  Downstream  CW  CCW

Comments:

Results: Accept  Reject  Info  Initial Section XI Exam

Percent Of Coverage Obtained > 90%: No - 89.8% Reviewed Previous Data: No

Examiner Level III Houser, Gayle E.	Signature <i>[Signature]</i>	Date 3/22/2005	Reviewer <i>[Signature]</i>	Signature <i>[Signature]</i>	Date 3/24/05
Examiner Level II-N Brown, Thomas	Signature <i>[Signature]</i>	Date 3/22/2005	Site Review <i>[Signature]</i>	Signature <i>[Signature]</i>	Date 3/27/05
Other Level N/A N/A	Signature <i>[Signature]</i>	Date	ANII Review <i>[Signature]</i>	Signature <i>[Signature]</i>	Date 3/27/05

R  
3/24/05

RR# 05-NH-004  
 HN-3 Page 1 of 5



# Limitation Record

R. G. Allen

Site/Unit: McGuire / 2  
 Summary No.: R01.011.071  
 Workscope: ISI

Procedure: NDE-600  
 Procedure Rev.: 15  
 Work Order No.: 98650332

Outage No.: MNS2EOC16  
 Report No.: UT-05-046  
 Page: 2 of 3

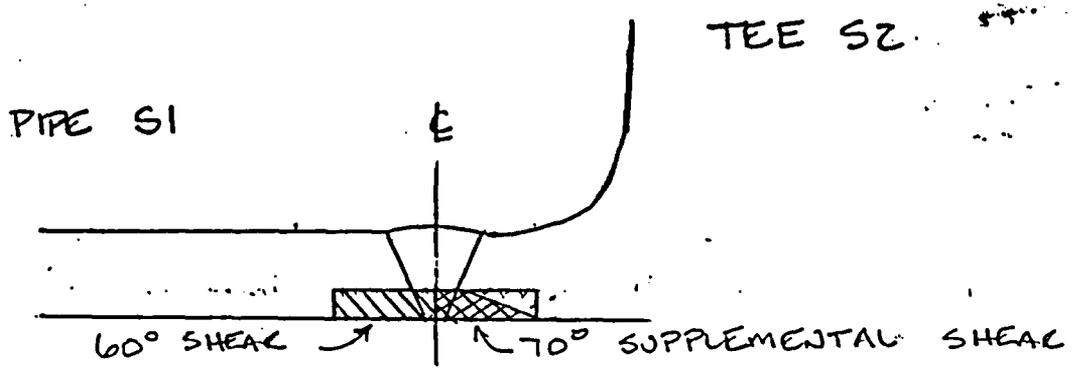
**Description of Limitation:**

Limited area 3" long on Tee side of weld due to Tee Configuration

**Sketch of Limitation:**

SCALE 1:1

DIA<sub>1</sub> = 3.5"  
 WELD LENGTH = 11"  
 t = 0.438"



TOTAL EXAM AREA = .15 x 1.0 = .15 IN<sup>2</sup>  
 TOTAL EXAM VOLUME = .15 x 11" = 1.65 CU. IN.  
 TOTAL 60° 100% SCAN = 11" - 3" = 8"  $\frac{8}{11} \times 100 = 72.7\%$   
 S1-60° = 72.7% +  $\frac{27.3}{2} = 86.4\%$   
 S2-60° = 72.7%  
 S3-45° = 100%  
 S4-45° = 100%

**Limitations removal requirements:**

70° SUPPLEMENTAL SCAN  
 $= \frac{(0.2 \times 0.15) + 0.3 \times 0.15}{2} = .05$   
 $\frac{.05}{0.15} \times 100 = 33.3\%$

**Radiation field:**

Examiner	Level .III	Signature	Date	Reviewer	Signature	Date
Houser, Gayle E.		<i>AE Houser</i>	3/22/2005	<i>[Signature]</i>	III	3/24/05
Examiner	Level II-N	Signature	Date	Site Review	Signature	Date
Brown, Thomas		<i>Tom D. Brown</i>	3/22/2005			
Other	Level N/A	Signature	Date	ANII Review	Signature	Date
N/A				<i>J.F. Swan</i>		3/27/05

RR # 05-MN-002  
ATT.3 Page 5 of 5



# Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit: <u>McGuire / 2</u>	Procedure: <u>NDE-600</u>	Outage No.: <u>MINS2EOC16</u>
Summary No.: <u>R01.011.071</u>	Procedure Rev.: <u>15</u>	Report No.: <u>UT-05-046</u>
Workscope: <u>ISI</u>	Work Order No.: <u>98650332</u>	Page: <u>3</u> of <u>3</u>

45 deg & 60 DEG.

60° - Scan 1	<u>100.000</u>	% Length X	<u>86.400</u>	% volume of length / 100 =	<u>86.400</u>	% total for Scan 1
60° - Scan 2	<u>100.000</u>	% Length X	<u>72.700</u>	% volume of length / 100 =	<u>72.700</u>	% total for Scan 2
45° - Scan 3	<u>100.000</u>	% Length X	<u>100.000</u>	% volume of length / 100 =	<u>100.000</u>	% total for Scan 3
45° - Scan 4	<u>100.000</u>	% Length X	<u>100.000</u>	% volume of length / 100 =	<u>100.000</u>	% total for Scan 4

Add totals and divide by # scans = 89.775 % total for 45 deg

Other deg - \_\_\_\_\_ (to be used for supplemental scans)

The data to be listed below is for coverage that was not obtained with the 45 deg scans.

Scan 1	_____	% Length X	_____	% volume of length / 100 =	_____	% total for Scan 1
Scan 2	_____	% Length X	_____	% volume of length / 100 =	_____	% total for Scan 2
Scan 3	_____	% Length X	_____	% volume of length / 100 =	_____	% total for Scan 3
Scan 4	_____	% Length X	_____	% volume of length / 100 =	_____	% total for Scan 4

### Percent complete coverage

Add totals for each scan required and divide by # of scans to determine;

89.775 % Total for complete exam

Site Field Supervisor: \_\_\_\_\_

Date: 3/24/05

*Handwritten initials*

NOTE: 70° SHEAR SCAN NOT INCLUDED IN PERCENT COVERAGE  
CAUSE OF THE REQUIREMENTS OF 10 CFR 50.55a (b)(2)(XV)(A)(2)  
BEST EFFORT SCAN WITH 70° OBTAINED 33.3% COVERAGE ON  
THE FAR SIDE OF THE WELD IN THE LIMITED AREA.