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August 22, 2005

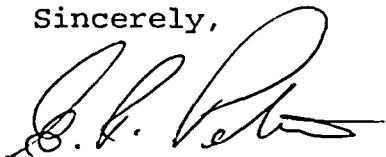
U. S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, D.C. 20555-0001

Subject: Duke Energy Corporation  
McGuire Nuclear Station Unit 1  
Docket No. 50-369  
Relief Request (RR) 05-MN-01

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 requests.

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

Sincerely,



G.R. Peterson

Attachment

A047

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. S.E. Peters, Project Manager (addressee only)  
Office of Nuclear Reactor Regulation  
U. S. Nuclear Regulatory Commission  
One White Flint North, Mail Stop 08 G9  
11555 Rockville Pike  
Rockville, MD 20852-2738

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

**ATTACHMENT**

**Relief Request 05-MN-001**

Proposed Relief in Accordance with 10 CFR 50.55a(g)(5)(iii),

Inservice Inspection Impracticability

Duke Energy Corporation

McGuire Nuclear Station – Unit 1 (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 – 1995 Edition with 1996 Addenda and \*Westinghouse Owner's Group (WCAP-14572)

Code Case N-460 is applicable

Examination Dates October 11, 2002-April 12, 2004

List 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. Impracticability/ Burden Caused by Compliance	VI. Proposed Alternate Examinations or Testing	VII. Implementation Schedule and Duration	VIII. Justification for Granting Relief
1.	1PZR-12	NC System Pressurizer Spray Nozzle to Upper Head	Exam Category B-D Item No. B03.110.002 Fig. IWB-2500-7 (b) 73.6% Volume Coverage (COVERAGE LIMITATION)	See Paragraph "A" See Attachment 1 Pages 1-23	See Paragraph "G".	See Paragraph "N".	See Paragraph "H" See Attachment 1 Pages 1-23
2.	1PZR-15	NC System Pressurizer Safety Nozzle to Upper Head	Exam Category B-D Item No. B03.110.005 Fig. IWB-2500-7(b) 73.6% Volume Coverage (COVERAGE LIMITATION)	See Paragraph "A" See Attachment 1 Pages 1-23	See Paragraph "G".	See Paragraph "N".	See Paragraph "H" See Attachment 1 Pages 1-23
3.	1PZR-16	NC System Pressurizer Relief Nozzle to Upper Head	Exam Category B-D Item No. B03.110.006 Fig. IWB-2500-7(b) 73.6% Volume Coverage (COVERAGE LIMITATION)	See Paragraph "A" See Attachment 1 Pages 1-23	See Paragraph "G".	See Paragraph "N".	See Paragraph "H" See Attachment 1 Pages 1-23
4.	IRCPA-8-1	NV System Reciprocating Charging Pump Accumulator Flange to Shell	Exam Category C-A Item No. C01.010.090 Fig. IWC-2500-1 74.4% Volume Coverage (COVERAGE LIMITATION)	See Paragraph "B" See Attachment 2 Pages 1-6	See Paragraph "G".	See Paragraph "N".	See Paragraph "I" See Attachment 2 Pages 1-6
5.	IASWINJF-1	NV System Seal Water Injection Filter 1A Shell to Upper Flange	Exam Category C-A Item No. C01.010.100 Fig. IWC-2500-1 64.4% Volume Coverage (COVERAGE LIMITATION)	See Paragraph "C" See Attachment 3 Pages 1-5	See Paragraph "G".	See Paragraph "N".	See Paragraph "J" See Attachment 3 Pages 1-5

List 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. Impracticability Burden Caused by Compliance	VI. Proposed Alternate Examinations or Testing	VII. Implementation Schedule and Duration	VIII. Justification for Granting Relief
6.	IELDHX-HD-FLG	NV System Excess Letdown Heat Exchanger Head to Flange	Exam Category C-A Item No. C01.020.021 Fig. IWC-2500-1 79.8% Volume Coverage (COVERAGE LIMITATION)	See Paragraph "D" See Attachment 4 Pages 1-11	See Paragraph "G".	See Paragraph "N".	See Paragraph "K" See Attachment 4 Pages 1-11
7.	IRCPA-10-1	NV System Reciprocating Charging Pump Accumulator Shell to Head	Exam Category C-A Item No. C01.020.080 Fig. IWC-2500-1 71.1% Volume Coverage ( COVERAGE LIMITATION)	See Paragraph "E" See Attachment 5 Pages 1-6	See Paragraph "G".	See Paragraph "N".	See Paragraph "L" See Attachment 5 Pages 1-6
8.	INVP888-1	NV System Reducer to Pipe	Exam Category R-A (Table 4.1-1) Item No. R01.011.150 Fig. IWB-2500-8 (c) & Note 1 35.6% Volume Coverage ( COVERAGE LIMITATION)	See Paragraph "F" See Attachment 6 Pages 1-5	See Paragraph "G".	See Paragraph "N".	See Paragraph "M" See Attachment 6 Pages 1-3

\*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.

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

**Paragraph A:** (The Pressurizer Spray, Safety and Relief Nozzles are carbon steel. The diameter of the Spray Nozzle is 12.750 inches with a wall thickness of 1.900 inches. The diameter of the Safety and Relief Nozzles is 15.00 inches with a wall thickness of 1.900 inches.)

During the ultrasonic examination of these welds, 100% coverage of the required examination volume could not be obtained. Coverage was limited because of the proximity of the nozzle blend radius to the weld, which prevented axial scanning from the nozzle side. The amount of coverage reported presents the aggregate coverage from all scans performed on the weld and base material. The weld volume was scanned using 45-degree and 60-degree shear waves and straight beam longitudinal waves. The 45-degree beam covered 88% of the weld and 62% of the base material; the 60-degree beam covered 78% of the weld and 54% of the base material and the straight beam covered 100% of the weld and 58% of the base material. In order to achieve more coverage, the welds 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 these welds.

**Paragraph B:** (The Reciprocating Charging Pump Accumulator Flange to Shell weld is stainless steel. The diameter of this weld is 6.660 with a wall thickness of .495 inches.)

During the ultrasonic examination of the shell to flange weld, 100% coverage of the required examination volume could not be obtained. Coverage was limited because of the proximity of the flange taper to the weld, which prevented scanning from four directions. The amount of coverage reported presents the aggregate coverage from all scans performed on the weld and base material. The weld volume was scanned using 45-degree shear waves supplemented by 60-degree longitudinal waves. The 45-degree beam covered 72% of the required examination volume in four orthogonal directions. The 60-degree beam covered 8% from one axial direction. In order to achieve more coverage, the weld would have to be redesigned to eliminate the flange taper, which is impractical. There were no recordable indications found during the inspection of this weld.

**Paragraph C:** (The Seal Water Injection Filter 1A Shell to Upper Flange is stainless steel. The diameter of this weld is 4.000 inches with a wall thickness of .438 inches.

During the ultrasonic examination of the shell to flange weld, 100% coverage of the required examination volume could not be obtained. Coverage was limited because of the proximity of the flange taper to the weld, which prevented scanning from four directions. The amount of coverage reported presents the aggregate coverage from all scans performed on the weld and base material. The weld volume was scanned using 45-degree shear waves supplemented by 60-degree longitudinal waves. The 45-degree beam covered 63% of the required examination volume in four orthogonal directions. The 60-degree beam covered 3% from one axial direction.

In order to achieve more coverage, the weld would have to be redesigned to eliminate the flange taper, which is impractical. There were no recordable indications found during the inspection of this weld.

**Paragraph D:** (The Excess Letdown Heat Exchanger Head to Flange is stainless steel-carbon steel. The diameter of this weld is 9.500 inches with a wall thickness of .750 inches.

During the ultrasonic examination of the head to flange weld, 100% coverage could not be obtained. Coverage was limited because of the proximity of the flange taper to the weld, which prevented scanning from four directions. The amount of coverage reported presents the aggregate coverage from all scans performed on the weld and base material. The weld volume was scanned using 45-degree shear waves supplemented by 45-degree longitudinal waves. The 45-degree shear wave covered 51% of the required examination volume in four orthogonal directions. The 45-degree longitudinal wave covered 28% from one axial direction. In order to achieve more coverage, the weld would have to be redesigned to eliminate the flange taper, which is impractical. There were no recordable indications found during the inspection of this weld.

**Paragraph E:** (The Reciprocating Charging Pump Accumulator Shell to Head Weld is stainless steel. The diameter of this weld is 6.660 inches with a wall thickness of .495 inches.

During the ultrasonic examination of the shell to head weld, 100% coverage of the required examination volume could not be obtained. Coverage was limited because of the proximity of the flange taper to the weld, which prevented scanning from four directions. The amount of coverage reported presents the aggregate coverage from all scans performed on the weld and base material. The weld volume was scanned using 45-degree shear waves supplemented by 60-degree longitudinal waves. The 45-degree shear wave covered 67% of the required examination volume in four orthogonal directions. The 60-degree longitudinal wave covered 12% from one axial direction. In order to achieve more coverage, the weld would have to be redesigned to eliminate the head taper, which is impractical. There were no recordable indications found during the inspection of this weld.

**Paragraph F:** (The reducer to pipe material is stainless steel. The diameter of this weld is 2.000 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 the reducer and its taper to a socket weld at an adjacent valve, which prevented scanning from four directions. The amount of coverage reported presents the aggregate coverage from all scans performed on the weld and base material. The required volume was scanned using 45-degree, 60-degree shear waves and 70-degree shear waves. The 45-degree beam covered 50% of the volume in two circumferential directions. The 60-degree beam covered 42% of the volume in one axial

direction from the reducer side of the weld. The 70-degree shear wave covered 17.4% of the volume from one axial direction from the reducer side of the weld but was not included in the percent of coverage 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:**

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 N:**

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 H:**

Ultrasonic examination of these welds for item B03.110 was conducted using personnel, qualified in accordance with ASME Section XI, Appendix VII. The examinations were also performed in accordance with the requirements of ASME Section V, Article 4 with the additional requirements of ASME Section XI, Appendix I.

The Pressurizer Nozzle to Upper Head Welds are limited due to single sided access caused by their nozzle geometry. In order to achieve more coverage, the nozzles would have to be redesigned to allow access from both sides. Therefore, the 100% volumetric examination is impractical for this weld. During the examination of these welds, techniques were utilized to obtain maximum possible coverage.

These welds are located on the upper head of the pressurizer and are not part of the reactor pressure vessel. These welds are not exposed to significant neutron fluence and are not prone to negative material property changes (i.e., embrittlement) associated with neutron bombardment. The McGuire Nuclear Station Unit 1 Pressurizer was fabricated by Westinghouse and is free from unacceptable fabrication defects. Westinghouse performed rigorous state-of-the-art inspections following fabrication to ensure no significant flaws existed. If a leak were to occur at any of the welds in question, there are methods by which the leak could be identified for prompt Engineering evaluation. A leak at any of these welds would result in the following:



- a) Increased containment humidity. This parameter is indicated in the control room and this is monitored periodically by Operations and also the Containment Ventilation System Engineer.
- b) Increased Pressurizer enclosure temperature. This parameter is continuously monitored by Operations via an Operator Aid Computer (OAC) alarm, and this is periodically monitored by the System Engineer.
- c) Increased input into the Ventilation Unit Condensate Drain Tank (VUCDT). 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.
- d) 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 Specification 3.4.13.1 is 1 gpm.
- e) Other indicators such as containment radiation monitors EMF-38, 39 and 40, monitor the containment floor and equipment sump levels.

Note: The above parameters would be used to identify a leak in the pressurizer enclosure or containment, but could not specifically identify the exact source of the leakage. A containment entry would be required to identify the exact source of the leakage.

Also, a containment walkdown is performed when the unit reaches Mode 3 (full temperature/pressure) during the unit shutdown and startup for each refueling outage. This walkdown should identify any leak at the weld in question.

No additional B03.110 welds were scheduled during this outage. No additional surface or volumetric NDE examinations were performed on these welds.

**Paragraph I:**

Ultrasonic examination of this weld for item C01.010 was conducted using personnel, qualified in accordance with ASME Section XI, Appendix VII. The examination was also performed in accordance with the requirements of ASME Section XI, Appendix III with the additional requirements of ASME Section XI, Appendix I. This weld is located on the NV System Reciprocating Charging Pump Accumulator and it 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. A leak at this weld would result in 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 Specification 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.

Also, operators perform surveillance once per shift during daily rounds of the room containing the Reciprocating Charging Pump Accumulator. This surveillance should identify any leak at the weld in question.

No additional C01.010 welds were scheduled for the Reciprocating Charging Pump Accumulator this outage. No additional surface or volumetric NDE examinations were performed on this weld.

**Paragraph J:**

Ultrasonic examination of this weld for item C01.010 was conducted using personnel, qualified in accordance with ASME Section XI, Appendix VII. The examination was also performed in accordance with the requirements of ASME Section XI, Appendix III with the additional requirements of ASME Section XI, Appendix I. This weld is located on the Seal Water Injection Filter and is not exposed to significant neutron fluence and it 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. A leak at this weld would result in 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 Specification 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.

One additional NDE ultrasonic examination was performed on the Seal Water Injection Filter 1A, Item Number C01.010.101 shell to lower flange weld. The results from this examination were acceptable with 90% coverage. No additional surface or volumetric NDE examinations were performed on this weld.

**Paragraph K:**

Ultrasonic examination of this weld for item C01.020 was conducted using personnel, qualified in accordance with ASME Section XI, Appendix VII. The examination was also performed in accordance with the requirements of ASME Section XI, Appendix III with the additional requirements of ASME Section XI, Appendix I. This weld is located on the Excess Letdown Heat Exchanger and 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. A leak at this weld would result in the following:

- a) Increased containment humidity. This parameter is indicated in the control room and it is monitored periodically by Operations and the Containment Ventilation System Engineer.
- b) Increased input into the VUCDT. 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.
- c) 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 specification in Technical Specification 3.4.13.1 is 1 gpm.
- d) Other indicators such as containment radiation monitors EMF-38, 39 and 40 monitor the containment floor and equipment sump levels.

Note: The above parameters would be used to identify a leak in the containment, but could not specifically identify this weld as the source of leakage. A containment entry would be required to identify the exact source of the leak.

Also, a containment walkdown is performed when the unit reaches Mode 3 (full temperature/pressure) during the unit shutdown and startup for each refueling outage. This walkdown should identify any leak at the weld in question.

One additional NDE ultrasonic examination was performed on the (Excess Letdown Heat Exchanger, Item Number C01.020.020 shell to head weld. The results from this examination were acceptable with 100% coverage. No additional surface or volumetric NDE examinations were performed on this weld.

**Paragraph L:**

Ultrasonic examination of this weld for item C01.020 was conducted using personnel, qualified in accordance with ASME Section XI, Appendix VII. The examinations were also performed in accordance with the requirements of ASME Section XI, Appendix III with the additional requirements of ASME Section XI, Appendix I. This weld is located on the NV System Reciprocating Charging Pump Accumulator and 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. A leak at this weld would result in 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 Specification 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.

Also, operators perform surveillance once per shift during daily rounds of the room containing the Reciprocating Charging Pump Accumulator. This surveillance should identify any leak at the weld in question.

No additional C01.020 welds were scheduled for the Reciprocating Charging Pump Accumulator this outage. No additional surface or volumetric NDE examinations were performed on this weld.

**Paragraph M:**

Ultrasonic examination of this weld for item R01.011 was conducted using personnel, procedures and equipment qualified in accordance with ASME Section XI, Appendix VIII, Supplement 2. This weld is located on the outlet side of the 1A Seal Water Injection Filter Outlet Isolation Valve (INV-494) and it is not exposed to significant neutron fluence and is not prone to negative material property changes (i.e. embrittlement) associated with neutron bombardment. A leak at this weld would result in 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.

Two additional NDE ultrasonic examinations were performed on 2.00" diameter, .344 wall thickness welds in the NV 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.

Ed Hyland, Bryan Meyer, Harry Vanpelt, Jack Knost and Andrew McGuire (MNS Systems Engineers) provided parts of Section VIII.

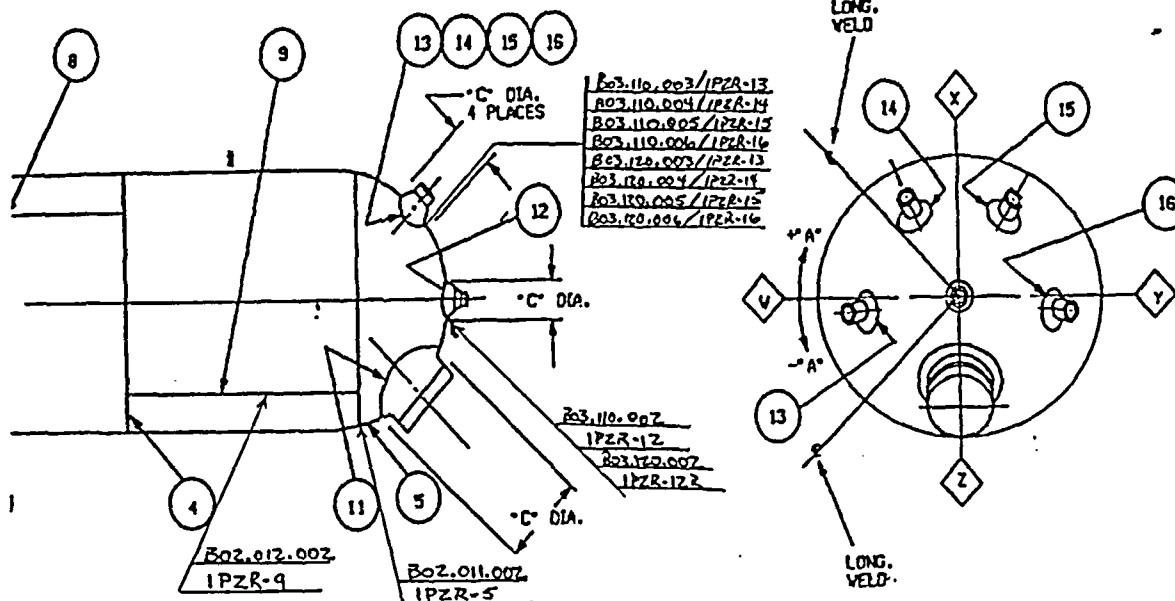
Gary Underwood (Sponsor) compiled the remaining sections of this relief request.

Sponsored By: Gary Underwood Date 7-25-05

Approved By: R. Kevin Rhyme Date 7/28/05

Attachment 1	UT Examination Data B03.110.002, B03.110.005 and B03.110.006
Attachment 2	UT Examination Data C01.010.090
Attachment 3	UT Examination Data C01.010.100
Attachment 4	UT Examination Data C01.020.021
Attachment 5	UT Examination Data C01.020.080
Attachment 6	UT Examination Data R01.011.150

UNIT: 1  
STATUS: AS MANUFACTURED  
CERTIFICATION LETTER NO.  
AUTHORITY:  
ENGR. LTR. NO.

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MCM 1201.01-0171 001

USE CONT. FULL SIZE DRUG

[illegible]

RR# 05-MN-001  
ATTACHMENT 1  
Page 1-23



# UT Vessel Examination

RR-05-11-007  
ATT: 1  
Page 2-23

Site/Unit: McGuire / 01

Procedure: NDE-640

Outage No.: MN1EOC16

Summary No.: B03.110.002

Procedure Rev.: 2

Report No.: UT-04-081

Workscope: ISI

Work Order No.: 98577763

Page: 1 of 1

Code: Section XI, 1995 thru 1996 Addenda Cat./Item: B-D/B3.110.2 Location: N/A

Drawing No.: MCM 1201.01-170 Description: Circumferential - Nozzle to Upper Head

System ID: \_\_\_\_\_

Component ID: B03.110.002 /1PZR-12 Size/Length: N/A Thickness/Diameter: 1.9" / 12.75"

Limitations: Yes - See Limitation calculations attached to Report no. UT-04-080 Start Time: 1030 Finish Time: 1035

Examination Surface: Inside ☐ Outside ☒ Surface Condition: AS GROUND

Lo Location: 9.2.3 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 00325

Temp. Tool Mfg.: FISHER Serial No.: MCNDE 27218 Surface Temp.: 69 °F

Cal. Report No.: CAL-04-142

Angle Used	0	45	45T	60	60T	
Scanning dB	38.8					

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

Comments:

FC 03-20

Results: Accept ☒ Reject ☐ Info ☐

Percent Of Coverage Obtained > 90%: No - 73.6% Reviewed Previous Data: Yes

Examiner Level II	Signature	Date	Reviewer	Signature	Date
Resor, James H.	<i>James H. Resor</i>	3/14/2004	Jay A Eaton Level III	<i>Jay A Eaton</i>	3/16/2004
Examiner Level II	Signature	Date	Site Review	Signature	Date
Leeper, Winfred C.	<i>Winfred C. Leeper</i>	3/14/2004			
Other Level II	Signature	Date	ANII Review	Signature	Date
Kobernusz, Terry	<i>Terry Kobernusz</i>	3/14/2004		<i>Terry Kobernusz</i>	3-16-04



# UT Vessel Examination

RR-05-HN-001  
ATT-1  
Page 3-23

Site/Unit: McGulre / 01  
Summary No.: B03.110.002  
Workscope: ISI

Procedure: NDE-820  
Procedure Rev.: 1  
Work Order No.: 98577763

Outage No.: MN1EOC16  
Report No.: UT-04-080  
Page: 1 of 2

Code: Section XI, 1995 thru 1996 Addenda Cat./Item: B-D/B3.110.2 Location: N/A  
Drawing No.: MCM 1201.01-170 Description: Circumferential - Nozzle to Upper Head  
System ID: \_\_\_\_\_  
Component ID: B03.110.002 /1PZR-12 Size/Length: N/A Thickness/Diameter: 1.9" / 12.75"  
Limitations: Yes - See attached Limitation Report Start Time: 1047 Finish Time: 1114

Examination Surface: Inside ☐ Outside ☒ Surface Condition: AS GROUND  
Lo Location: 9.2.3 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 00325  
Temp. Tool Mfg.: FISHER Serial No.: MCNDE 27218 Surface Temp.: 69 °F  
Cal. Report No.: CAL-04-143, CAL-04-144

Angle Used	0	45	45T	60	60T	
Scanning dB		58.7	58.7	64.8	64.8	

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

Comments:  
FC 03-29, 03-31

Results: Accept ☒ Reject ☐ Info ☐

Percent Of Coverage Obtained > 90%: No 73.6% Reviewed Previous Data: Yes

Examiner Level II Resor, James H.	Signature <i>James H. Resor</i>	Date 3/14/2004	Reviewer Jay A Eaton Level III	Signature <i>Jay A Eaton</i>	Date 3/16/2004
Examiner Level II Leeper, Winfred C.	Signature <i>Winfred C. Leeper</i>	Date 3/14/2004	Site Review	Signature	Date
Other Level II Kobernusz, Terry	Signature <i>Terry Kobernusz</i>	Date 3/14/2004	ANII Review	Signature <i>Rob Stein</i>	Date 3-18-04

R.  
G.W.  
3/17





# Limitation Record

Site/Unit: McGuire / 01  
Summary No.: B03.110.002  
Workscope: ISI

Procedure: NDE-820  
Procedure Rev.: 1  
Work Order No.: 98577763

Outage No.: MN1EOC16  
Report No.: UT-04-080  
Page: 2 of 2

## Description of Limitation:

Limited due to Nozzle Configuration. Aggregate coverage = 89% (weld) + 58.1% (Base metal) = 147.1 / 2 = 73.6% See attached calculations.

THESE CALCULATIONS ALSO APPLY TO B03.110.005 & B03.110.006

## Sketch of Limitation:

## Limitations removal requirements:

N/A

## Radiation field: N/A

Examiner	Level II	Signature	Date	Reviewer	Signature	Date
Resor, James H.			3/14/2004	Jay A Eaton Level III		3/16/2004
Examiner	Level II	Signature	Date	Site Review	Signature	Date
Leeper, Winfred C.			3/14/2004			
Other	Level II	Signature	Date	ANII Review	Signature	Date
Kobernusz, Terry			3/14/2004			3-18-04

R/E 3/22/04

RR# 05-HN-001  
ATT: 1  
Page 5-23



# Determination of Percent Coverage for UT Examinations - Vessels

ATTACHMENT  
TD UT-04-80

Site/Unit: <u>McGuire / 01</u>	Procedure: <u>NDE-820</u>	Outage No.: <u>MN1EOC16</u>
Summary No.: <u>B03.110.002</u>	Procedure Rev.: <u>1</u>	Report No.: <u>UT-04-080</u>
Workscope: <u>ISI</u>	Work Order No.: <u>98577763</u>	Page: <u>13</u> of <u>15</u>

983/16/04

## 0 deg Planar

Scan 100.000 % Length X 100.000 % volume of length / 100 = 100.000 % total for 0 deg

## 45 deg

Scan 1 100.000 % Length X 100.000 % volume of length / 100 = 100.000 % total for Scan 1

Scan 2 100.000 % Length X 54.300 % volume of length / 100 = 54.300 % total for Scan 2

Scan 3 100.000 % Length X 100.000 % volume of length / 100 = 100.000 % total for Scan 3

Scan 4 100.000 % Length X 100.000 % volume of length / 100 = 100.000 % total for Scan 4

Add totals and divide by # scans = 88.575 % total for 45 deg

## Other deg 60

Scan 1 100.000 % Length X 98.600 % volume of length / 100 = 98.600 % total for Scan 1

Scan 2 100.000 % Length X 18.500 % volume of length / 100 = 18.500 % total for Scan 2

Scan 3 100.000 % Length X 98.400 % volume of length / 100 = 98.400 % total for Scan 3

Scan 4 100.000 % Length X 98.400 % volume of length / 100 = 98.400 % total for Scan 4

Add totals and divide by # scans = 78.475 % total for 60 deg

## Percent complete coverage

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

89.017 % Total for complete exam

WELD

## Note:

Supplemental coverage may be achieved by use of other angles / methods. When used, the coverage for volume not obtained with angles as noted above shall be calculated and added to the total to provide the percent total for the complete examination.

Site Field Supervisor: [Signature]

Date: 3/16/04

R  
7587  
3/18-04



# Determination of Percent Coverage for UT Examinations - Vessels

ATTACHMENT TO  
UT-04-080

Site/Unit: McGuire / 01  
Summary No.: B03.110.002  
Workscope: ISI

Procedure: NDE-820  
Procedure Rev.: 1  
Work Order No.: 98577763

Outage No.: MN1EOC16  
Report No.: UT-04-080  
Page: 2 of 15

3/16/04

## 0 deg Planar

Scan 100.000 % Length X 58.200 % volume of length / 100 = 58.200 % total for 0 deg

## 45 deg

Scan 1 100.000 % Length X 86.600 % volume of length / 100 = 86.600 % total for Scan 1

Scan 2 100.000 % Length X 45.000 % volume of length / 100 = 45.000 % total for Scan 2

Scan 3 100.000 % Length X 58.200 % volume of length / 100 = 58.200 % total for Scan 3

Scan 4 100.000 % Length X 58.200 % volume of length / 100 = 58.200 % total for Scan 4

Add totals and divide by # scans = 62.000 % total for 45 deg

## Other deg 60

Scan 1 100.000 % Length X 82.600 % volume of length / 100 = 82.600 % total for Scan 1

Scan 2 100.000 % Length X 23.200 % volume of length / 100 = 23.200 % total for Scan 2

Scan 3 100.000 % Length X 55.200 % volume of length / 100 = 55.200 % total for Scan 3

Scan 4 100.000 % Length X 55.200 % volume of length / 100 = 55.200 % total for Scan 4

Add totals and divide by # scans = 54.050 % total for 60 deg

## Percent complete coverage

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

58.083 % Total for complete exam

BASE METAL

## Note:

Supplemental coverage may be achieved by use of other angles / methods. When used, the coverage for volume not obtained with angles as noted above shall be calculated and added to the total to provide the percent total for the complete examination.

Site Field Supervisor: [Signature]

Date: 3/16/04

R  
3/16/04  
HSC  
3-18-04

PRESSURIZER - MNS #1 NOZZLE TO HEAD

B03.110.002

TOTAL EXAM AREA

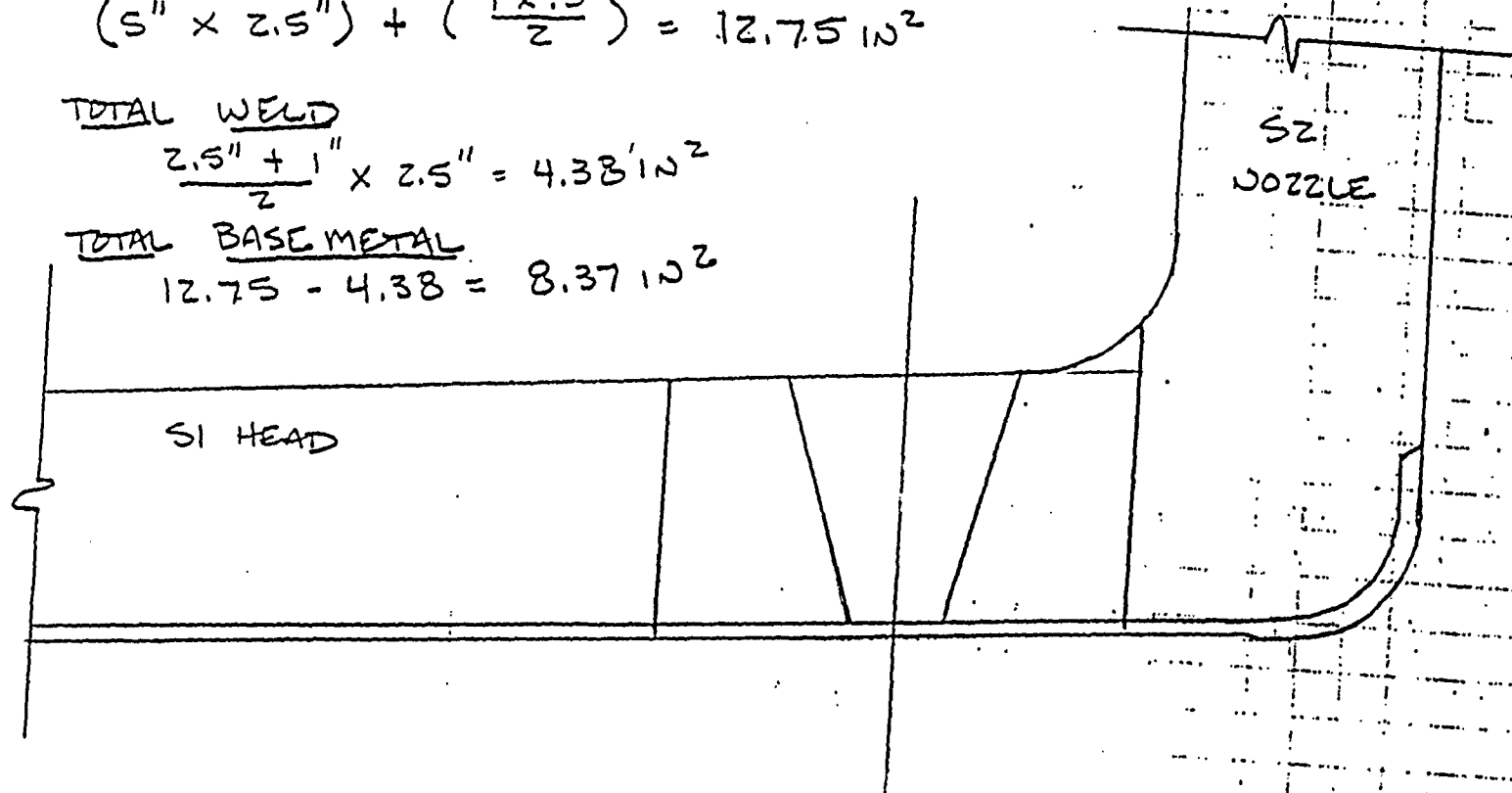
$$(5" \times 2.5") + \left( \frac{1 \times 5}{2} \right) = 12.75 \text{ IN}^2$$

TOTAL WELD

$$\frac{2.5" + 1"}{2} \times 2.5" = 4.38 \text{ IN}^2$$

TOTAL BASE METAL

$$12.75 - 4.38 = 8.37 \text{ IN}^2$$



ATTACHMENT TO UT-04-080  
PAGE 3 OF 15

R/GH  
3/22/04

3/16/04  
R  
REPO  
CMU

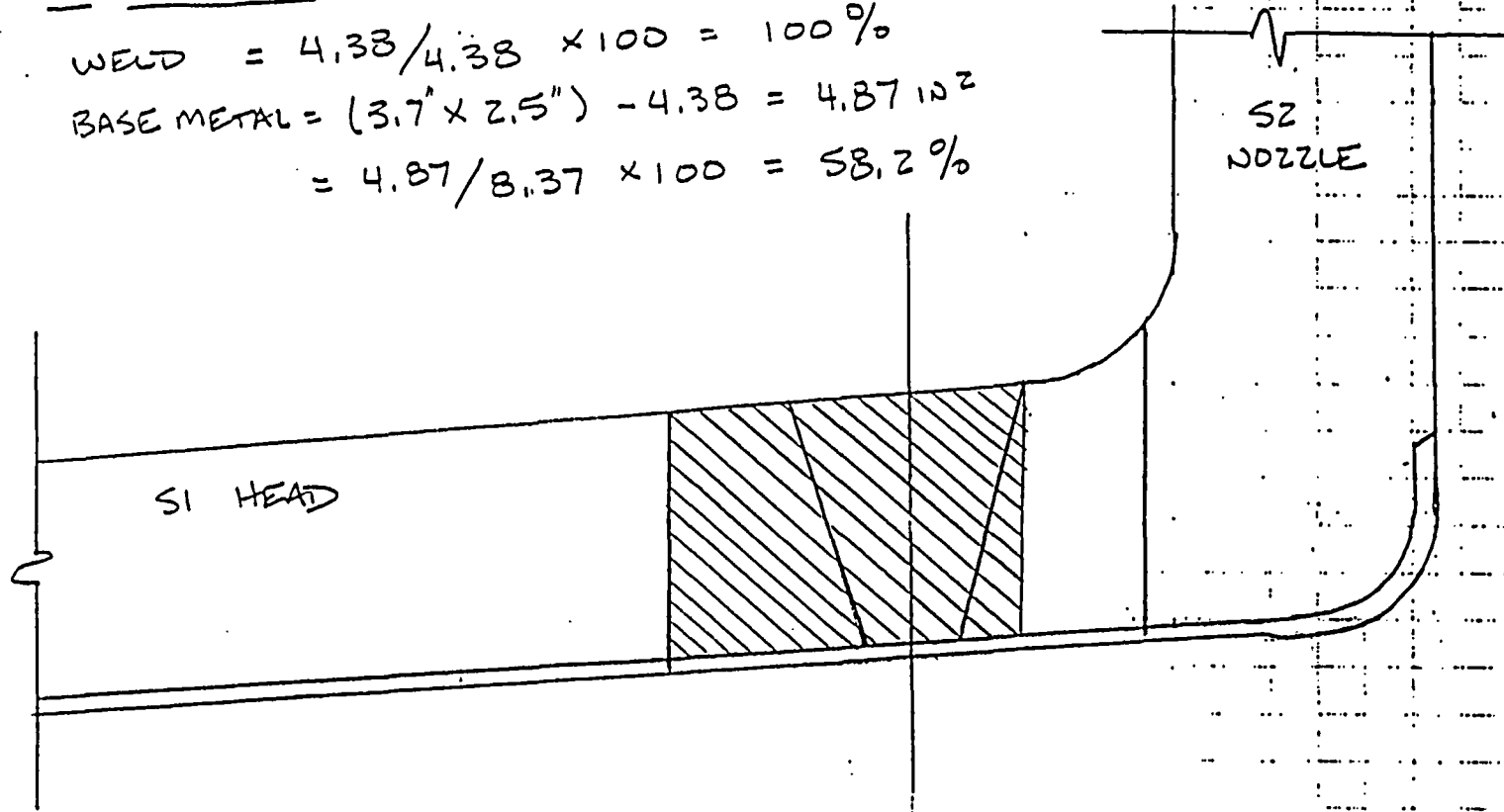
PRESSURIZER - MNS #1 NOZZLE TO HEAD

B03.110.002

0° COVERAGE

$$\text{WELD} = 4.38 / 4.38 \times 100 = 100\%$$

$$\begin{aligned} \text{BASE METAL} &= (3.7' \times 2.5'') - 4.38 = 4.87 \text{ in}^2 \\ &= 4.87 / 8.37 \times 100 = 58.2\% \end{aligned}$$



ATTACHMENT TO UT-04-032

PAGE 4 OF 15

R/G  
3/22/04

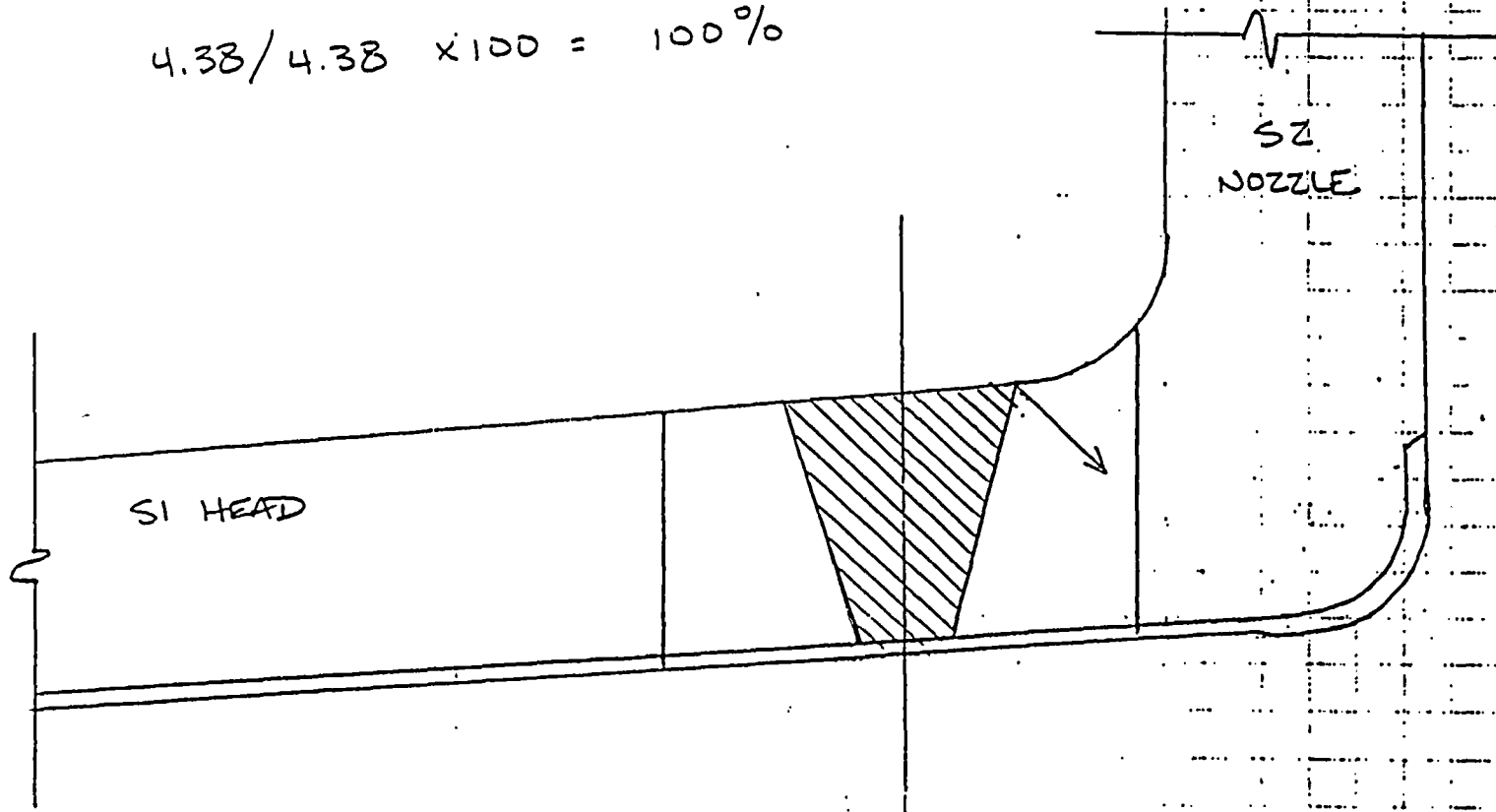
III 3/16/04  
R  
H. 009  
18-04

PRESSURIZER - MDS #1 NOZZLE TO HEAD

BO3.110.002

45° FROM SI, CW & CCW - WELD

$$4.38 / 4.38 \times 100 = 100\%$$



ATTACHMENT TO UT-04-080

PAGE 5 OF 15

R/S  
3/22/04

3/16/04

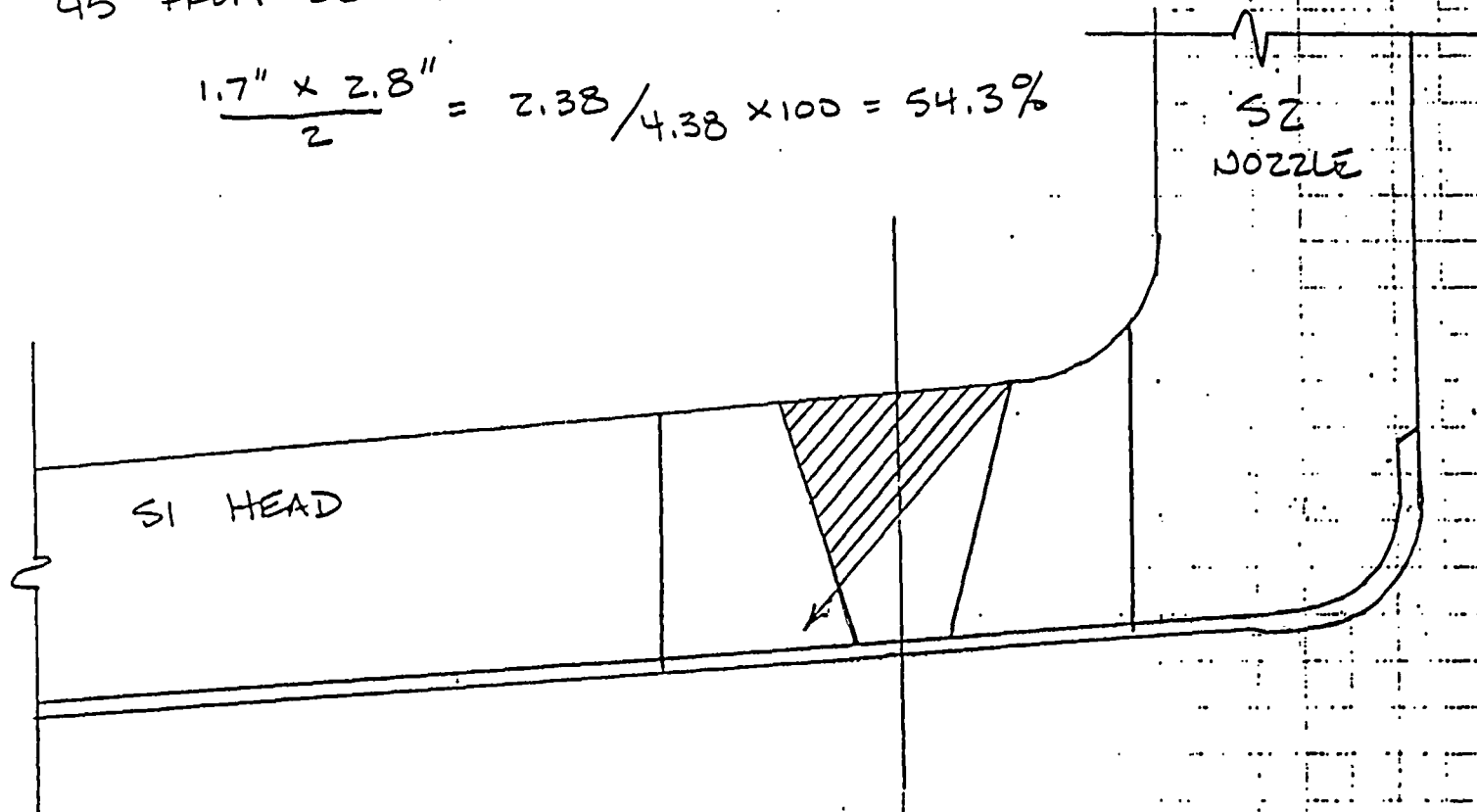
ROD 4587

PRESSURIZER - MDS #1 NOZZLE TO HEAD

B03.110.002

45° FROM SZ - WELD

$$\frac{1.7'' \times 2.8''}{2} = 2.38 / 4.38 \times 100 = 54.3\%$$



ATTACHMENT TO UT-04-080  
PAGE 6 OF 15

R/gk III 3/16/04  
R/gk  
H589  
LAP-04  
R/gk  
3/22/04

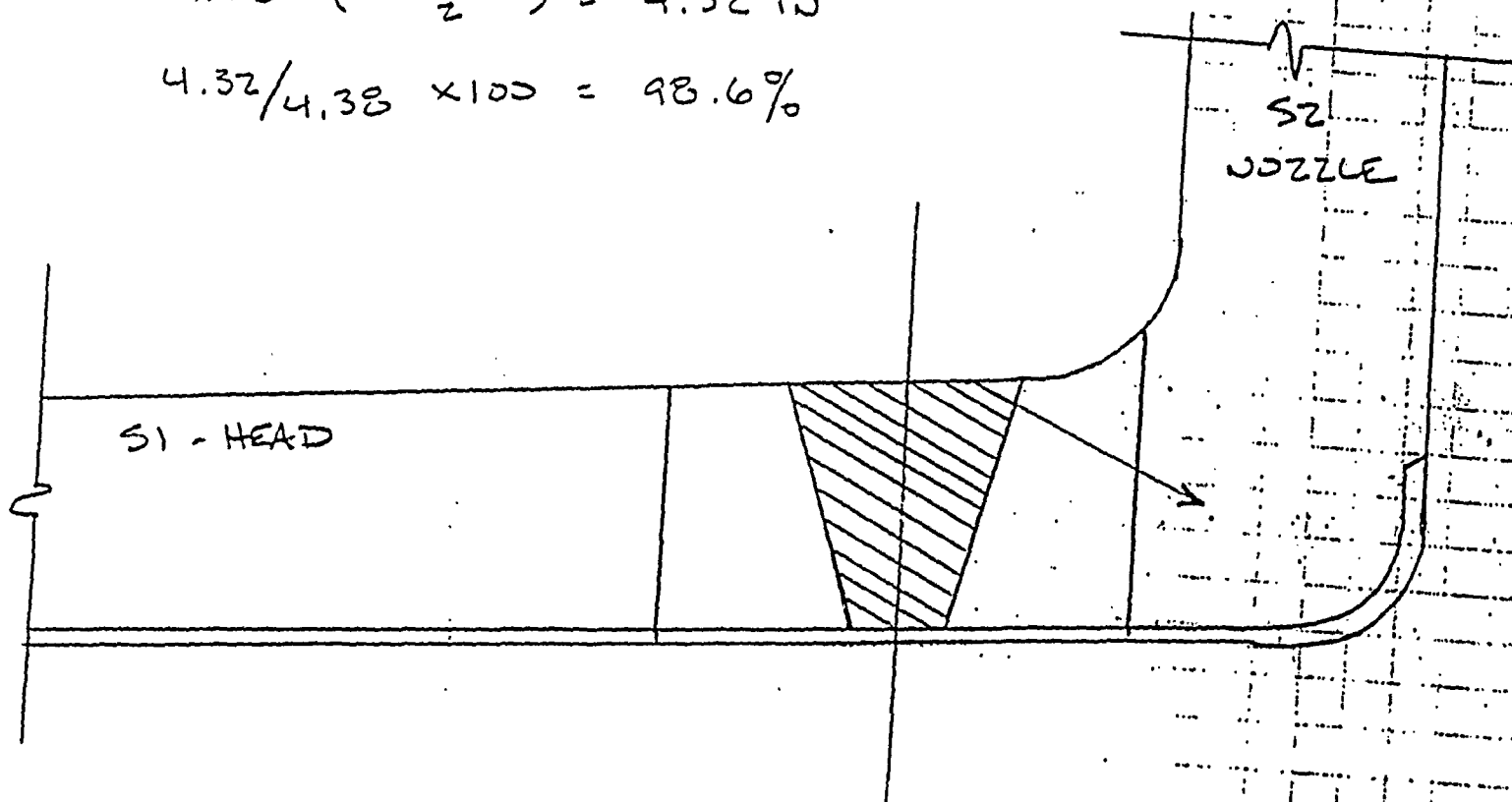
PRESSURIZER - MSS #1 NOZZLE TO HEAD

B03.110.002

60° FROM S1 - WELD

$$4.38 - \left( \frac{.25 \times .5}{2} \right) = 4.32 \text{ IN}^2$$

$$4.32 / 4.38 \times 100 = 98.6\%$$



ATTACHMENT TO UT-04-030  
PAGE 7 OF 15

3/16/04  
R/64  
3/22/04  
R/64

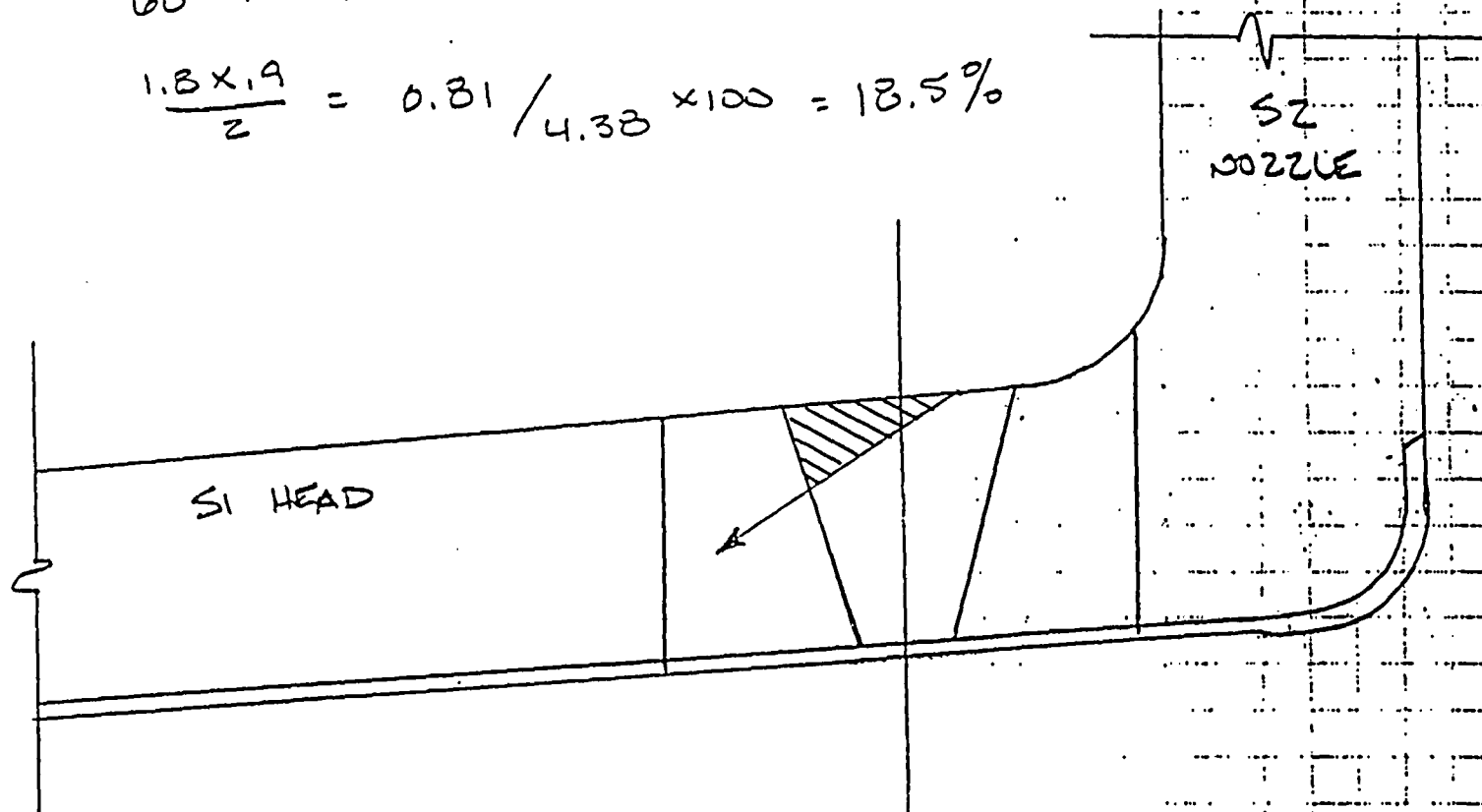


PRESSURIZER - MDS #1 NOZZLE TO HEAD

B03.110.002

60° FROM SZ - WELD

$$\frac{1.8 \times 1.9}{2} = 0.81 / 4.38 \times 100 = 18.5\%$$



ATTACHMENT TO UT-04-080

PAGE 8 OF 15

R/gu  
3/22/04

R/gu  
3/22/04  
III-3/16/04  
FB BT 0.01

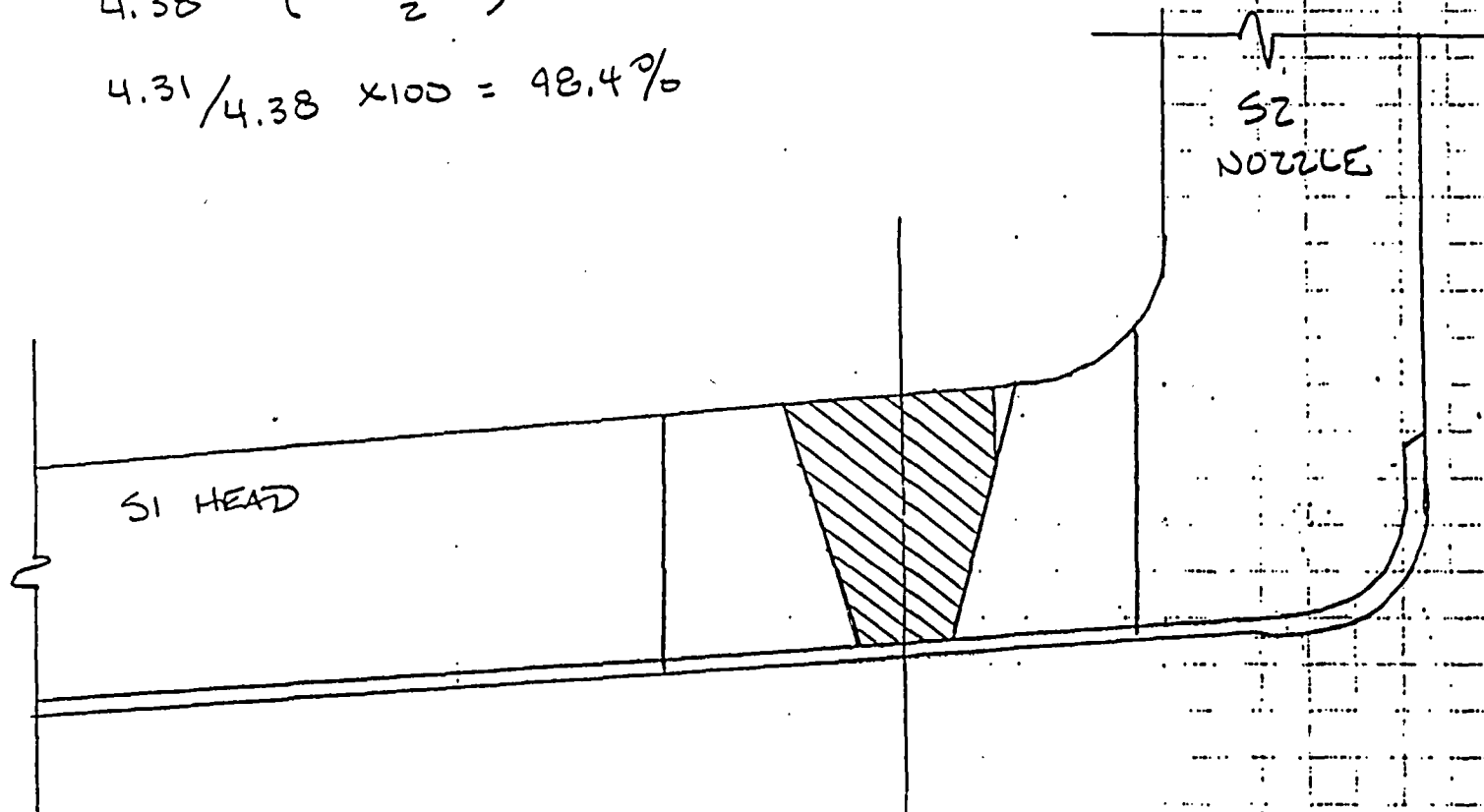
PRESSURIZER - MDS #1 NOZZLE TO HEAD

B03.110.002

60° CW & CCW - WELD

$$4.38 - \left( \frac{.2 \times .75}{2} \right) = 4.31 \text{ IN}^2$$

$$4.31 / 4.38 \times 100 = 98.4\%$$



ATTACHMENT TO UT-04-080  
PAGE 9 OF 15

R/G 3/22/04  
R. O. [Signature]  
3/16/04

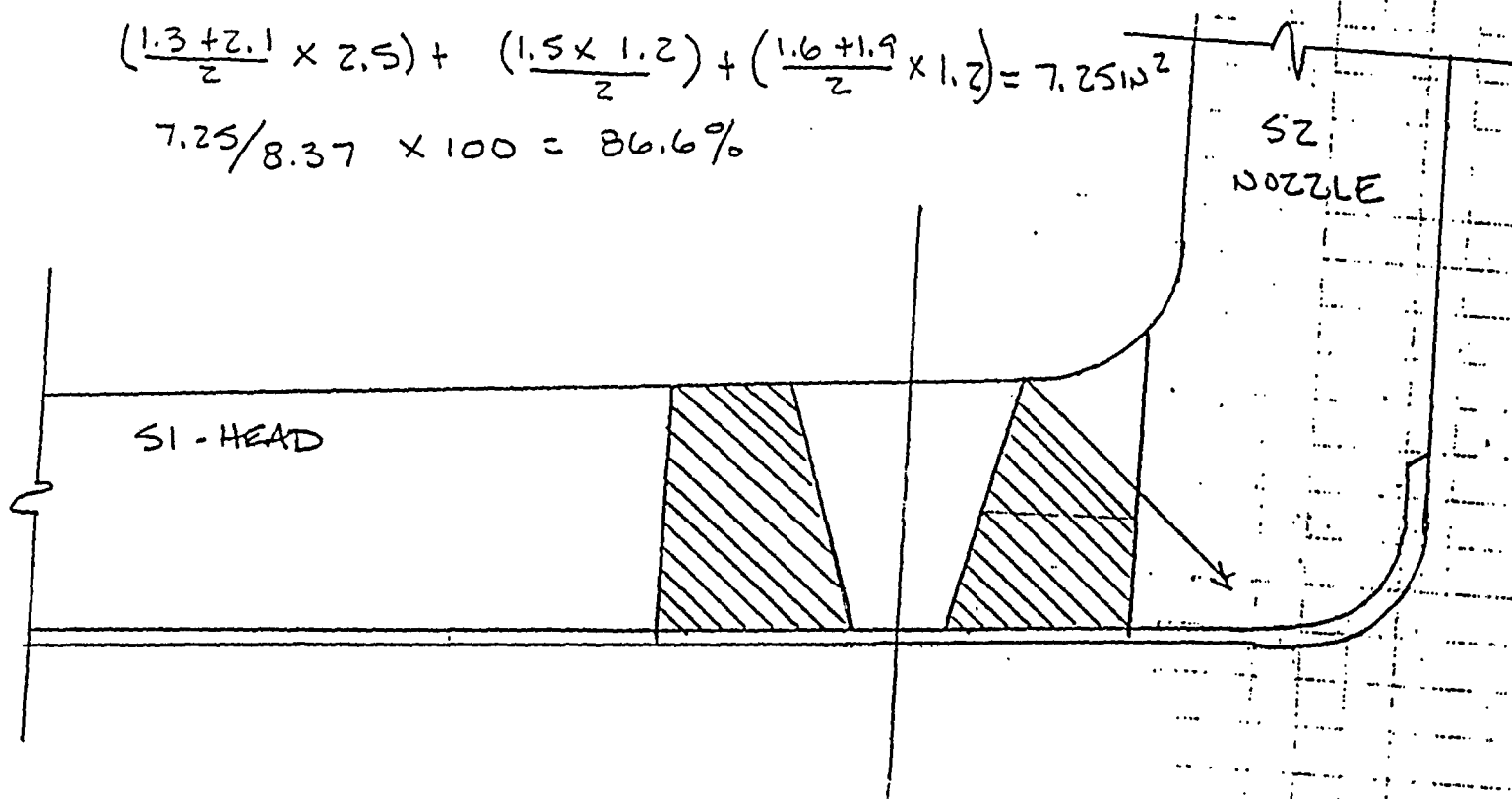
PRESSURIZER - MDS # 1 NOZZLE TO HEAD

B03.110.002

45° FROM S1 - BASE METAL

$$\left(\frac{1.3+2.1}{2} \times 2.5\right) + \left(\frac{1.5 \times 1.2}{2}\right) + \left(\frac{1.6+1.9}{2} \times 1.2\right) = 7.25 \text{ IN}^2$$

$$7.25 / 8.37 \times 100 = 86.6\%$$



ATTACHMENT TO UT-04-03C  
PAGE 10 OF 15

R/G 3/22/84  
R/G 3/16/84  
III 3/16/84

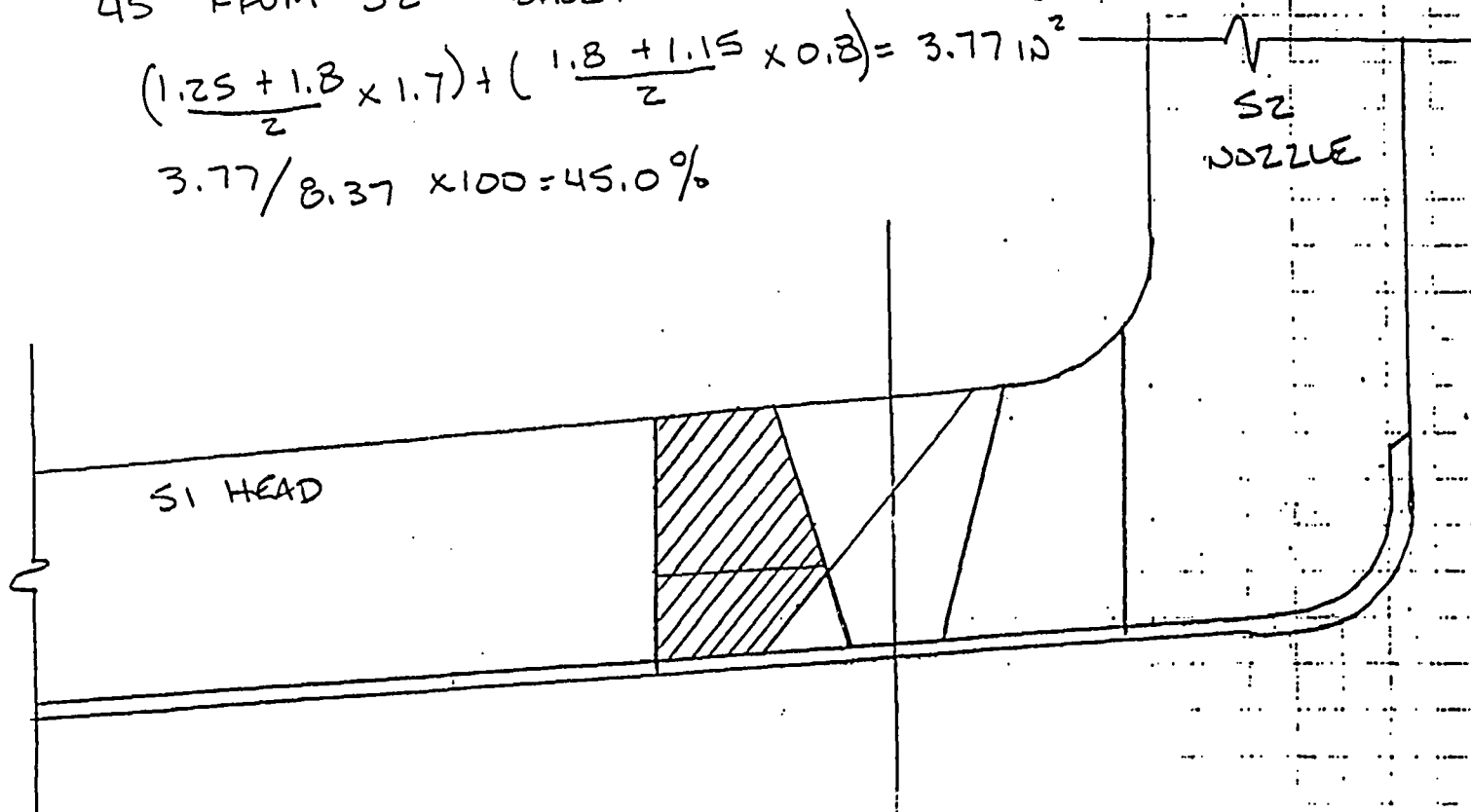
PRESSURIZER - MJS #1 NOZZLE TO HEAD

B03.110.00Z

45° FROM SZ - BASE METAL

$$\left( \frac{1.25 + 1.8}{2} \times 1.7 \right) + \left( \frac{1.8 + 1.15}{2} \times 0.8 \right) = 3.77 \text{ in}^2$$

$$3.77 / 8.37 \times 100 = 45.0\%$$



ATTACHMENT TO UT-04-08C  
PAGE 11 OF 15

R/64  
3/22/04

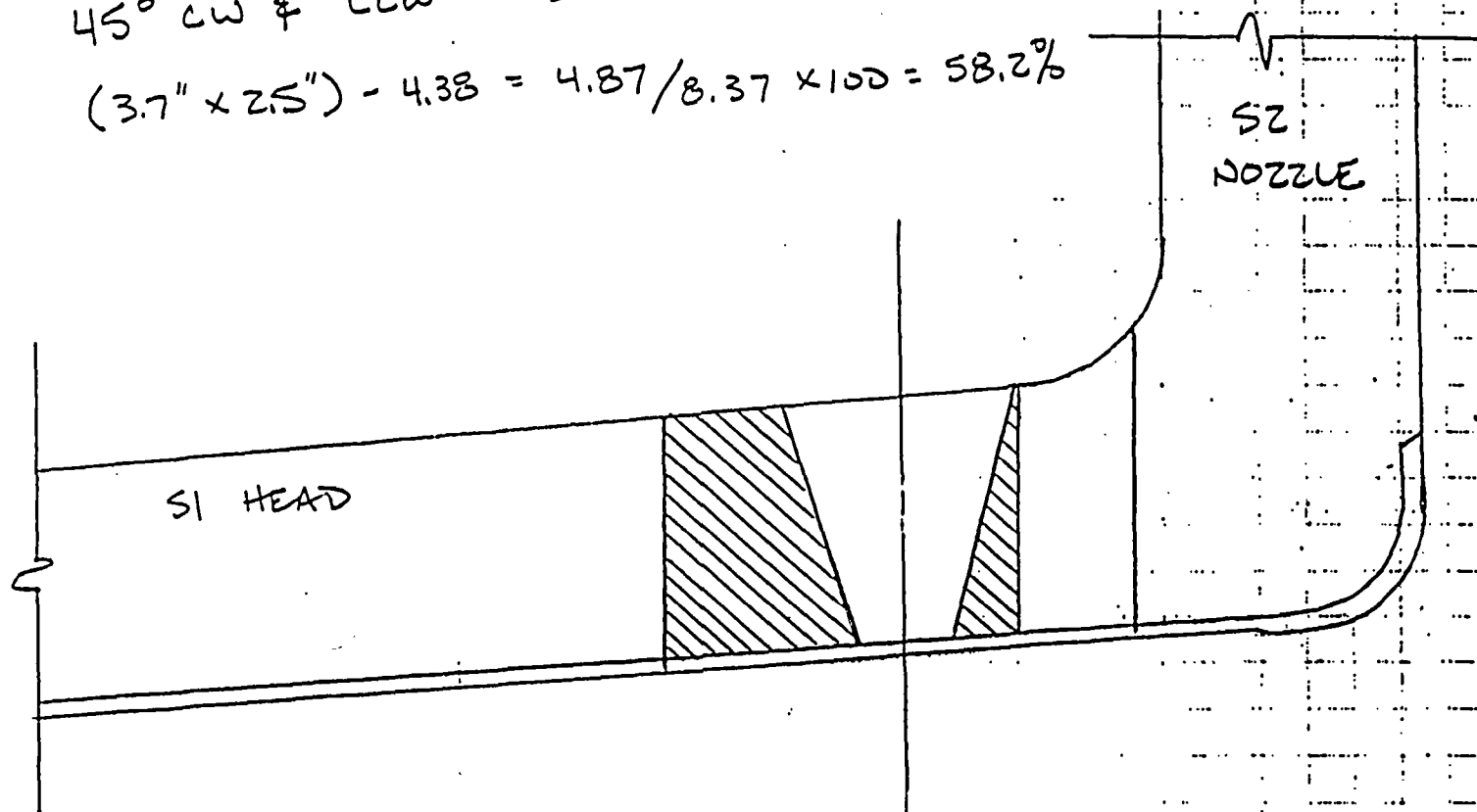
*[Signature]* III 3/16/04  
R/64

PRESSURIZER - MNS #1 NOZZLE TO HEAD

B03.110.002

45° CW & CCW - BASE METAL

$$(3.7" \times 2.5") - 4.38 = 4.87 / 8.37 \times 100 = 58.2\%$$



ATTACHMENT OF UT-04-080

PAGE 12 OF 15

R/64  
3/22/04  
R/002  
11/8/04  
15-04  
3/16/04

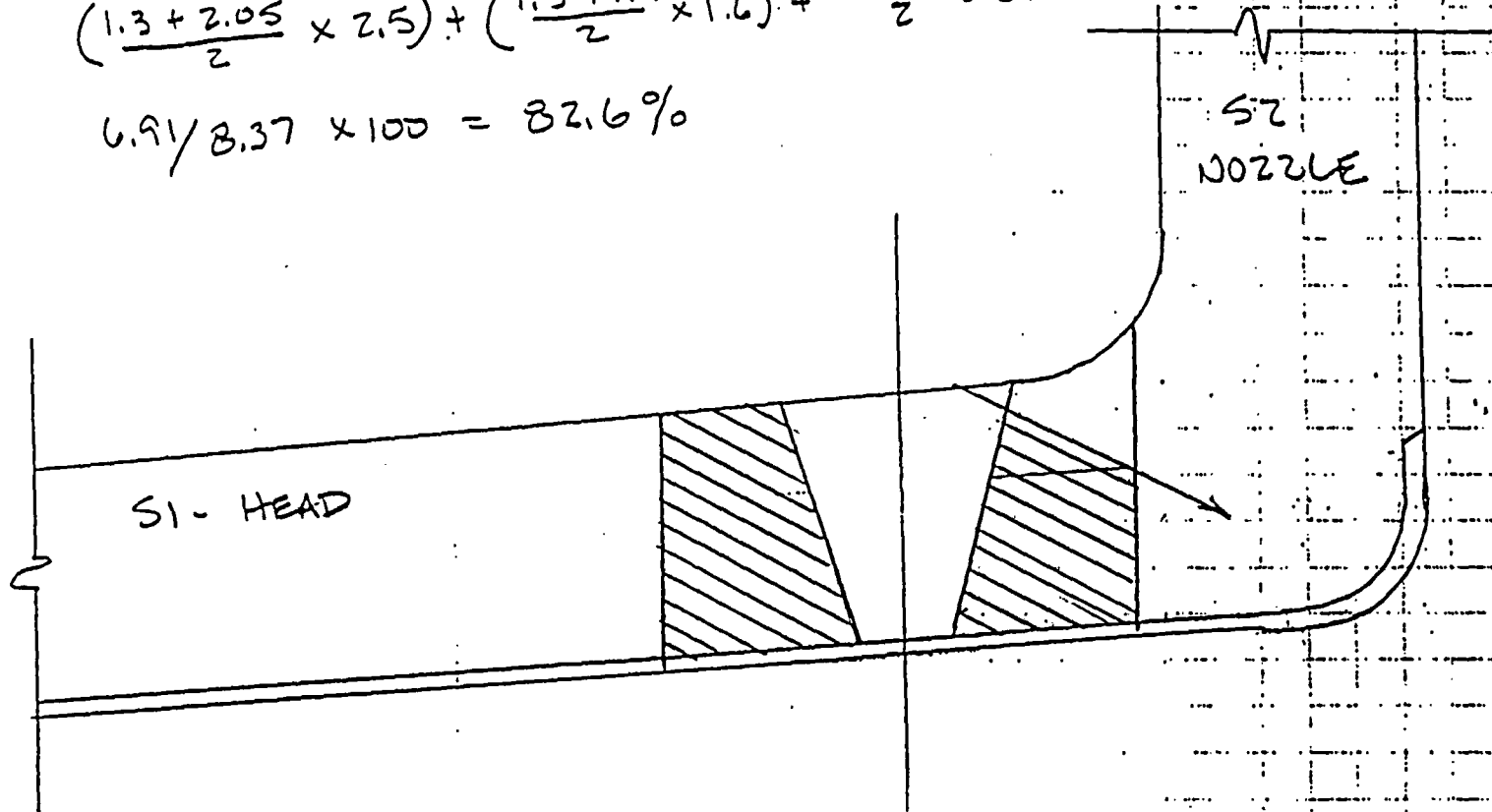
PRESSURIZER - MOD #1 NOZZLE TO HEAD

B03.110.002

60° FROM S1 - BASE METAL

$$\left( \frac{1.3 + 2.05}{2} \times 2.5 \right) + \left( \frac{1.5 + 1.9}{2} \times 1.6 \right) + \frac{1.4 \times 1.7}{2} = 6.91 \text{ IN}^2$$

$$6.91 / 8.37 \times 100 = 82.6\%$$



ATTACHED TO UT-04-08

PAGE 13 OF 15

R/ 164  
3/22/04  
HSECT  
2/2/04  
3/16/04

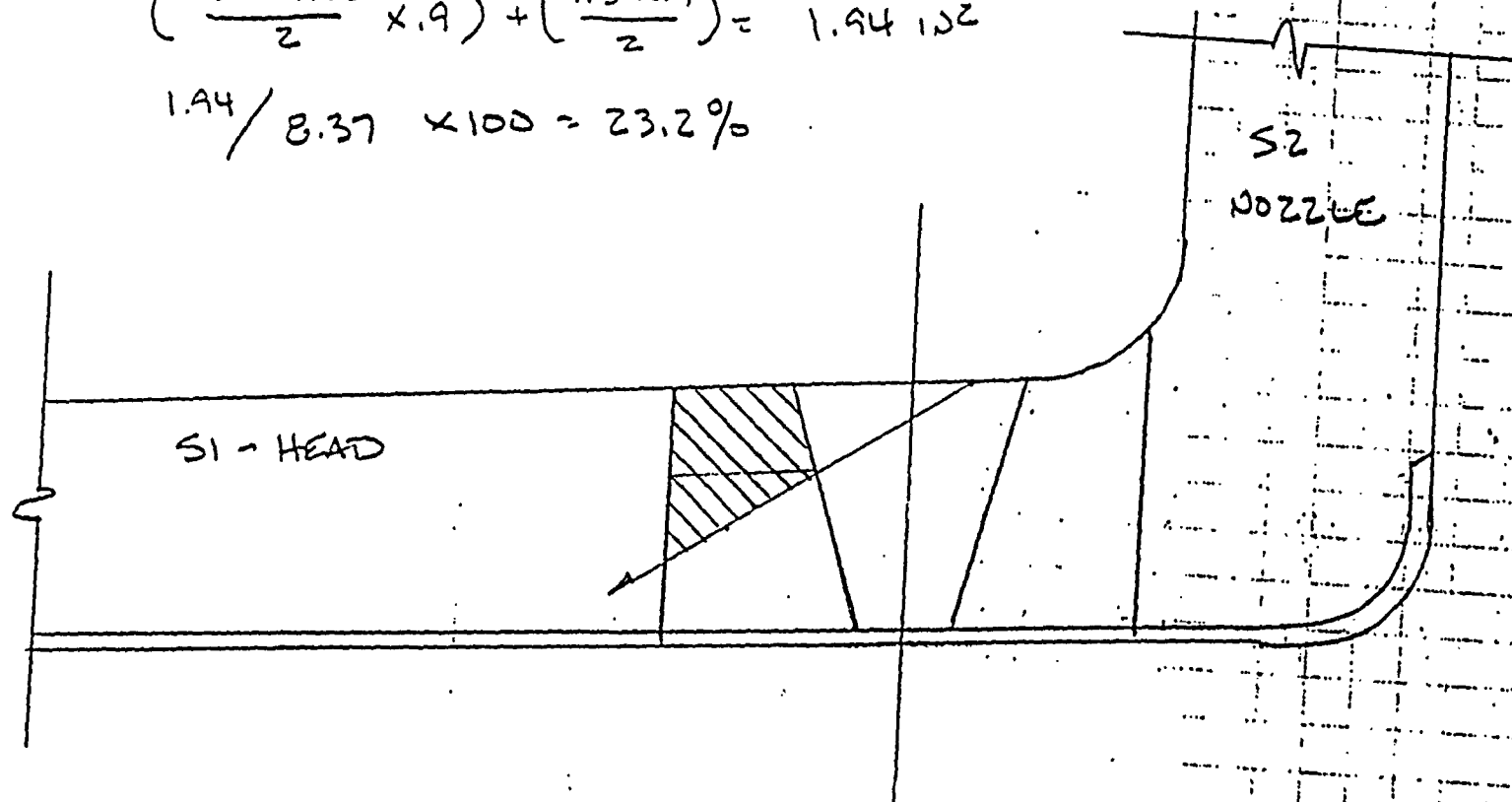
PRESSURIZER - MNS #1 NOZZLE TO HEAD

B03.110.002

60° FROM S2 - BASEMETAL

$$\left( \frac{1.25 + 1.55}{2} \times 1.9 \right) + \left( \frac{1.5 \times 1.9}{2} \right) = 1.94122$$

$$1.94 / 8.37 \times 100 = 23.2\%$$



ATTACHMENT TO UT-04-080  
PAGE 14 OF 15

R  
R/64  
3/22/04  
3/18/04

III 3/16/04

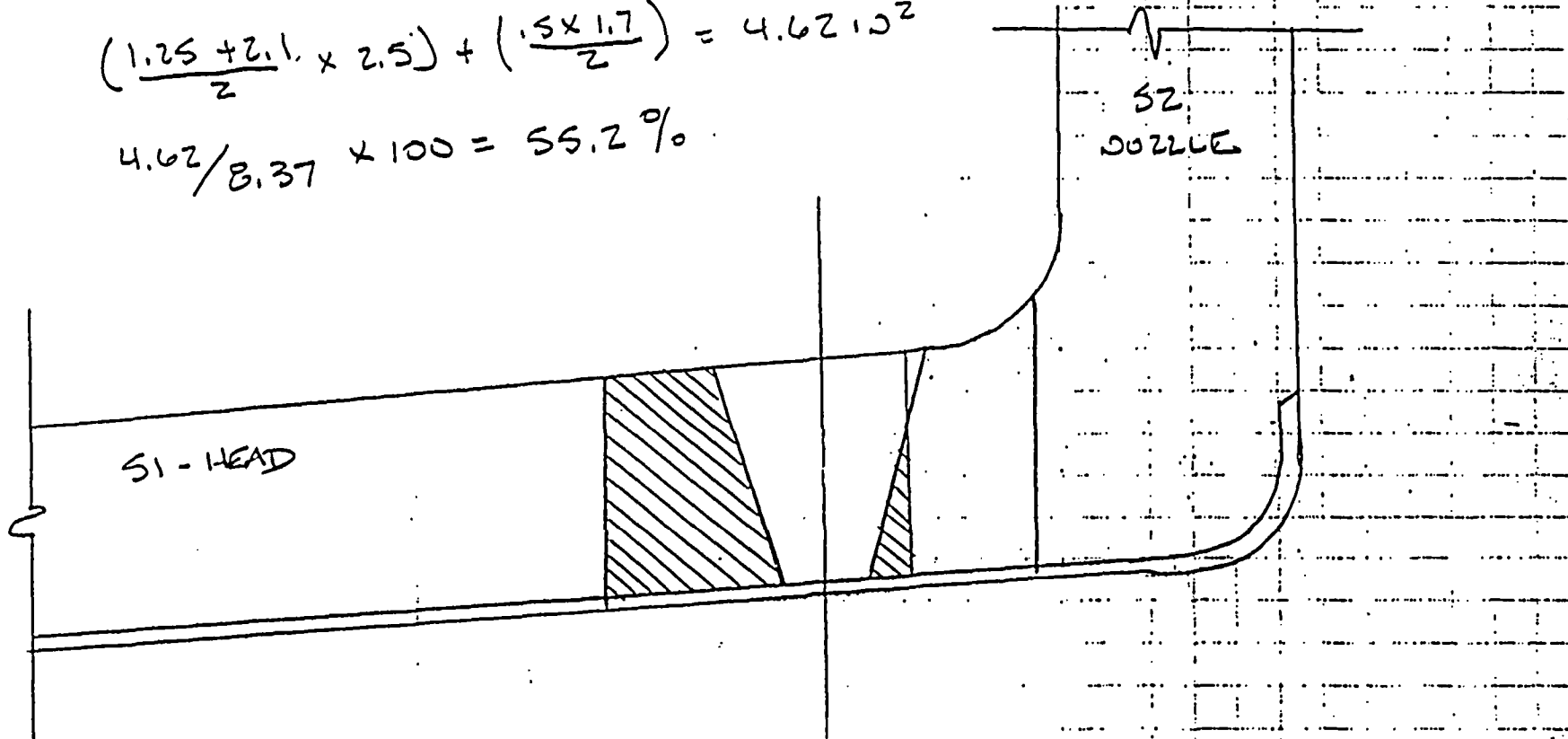
PRESSURIZER - MDS.#1 NOZZLE TO HEAD

B03.110.002

60° CW & CCW BASE METAL

$$\left( \frac{1.25 + 2.1}{2} \times 2.5 \right) + \left( \frac{1.5 \times 1.7}{2} \right) = 4.62102$$

$$4.62 / 8.37 \times 100 = 55.2\%$$



ATTACHMENT TO UT-04-08

PAGE 15 OF 15

R  
HOBCT  
R/64  
3/22/04 3/18/04

III 3/14/04





# UT Vessel Examination

RP# 65-NN-001  
ATT-1 page 20-23

Site/Unit: McGuire / 01  
Summary No.: B03.110.005  
Workscope: ISI

Procedure: NDE-640  
Procedure Rev.: 2  
Work Order No.: 98577763

Outage No.: MN1EOC16  
Report No.: UT-04-083  
Page: 1 of 1

Code: Section XI, 1995 thru 1996 Addenda Cat./Item: B-D/B3.110.5 Location: N/A  
Drawing No.: MCM 1201.01-170 Description: Circumferential - Nozzle to Upper Head  
System ID: \_\_\_\_\_  
Component ID: B03.110.005 /1PZR-15 Size/Length: N/A Thickness/Diameter: 1.9" / 15.0"  
Limitations: Yes - See Limitation calculations attached to Report no. UT-04-080 Start Time: 1035 Finish Time: 1040

Examination Surface: Inside ☐ Outside ☒ Surface Condition: AS GROUND  
Lo Location: 9.2.3 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 00325  
Temp. Tool Mfg.: FISHER Serial No.: MCNDE 27218 Surface Temp.: 69 °F

Cal. Report No.: CAL-04-142

Angle Used	0	45	45T	60	60T	
Scanning dB	38.8					

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

Comments:  
FC 03-20

Results: Accept ☒ Reject ☐ Info ☐

Percent Of Coverage Obtained > 90%: No - 73.6% Reviewed Previous Data: Yes

Examiner	Level II	Signature	Date	Reviewer	Signature	Date
Resor, James H.			3/14/2004	Jay A Eaton Level III		3/16/2004
Examiner	Level II	Signature	Date	Site Review	Signature	Date
Leeper, Winfred C.			3/14/2004			
Other	Level II	Signature	Date	ANII Review	Signature	Date
Kobernusz, Terry			3/14/2004			3-18-04



# UT Vessel Examination

Site/Unit: McGuire / 01  
 Summary No.: B03.110.005  
 Workscope: ISI

Procedure: NDE-820  
 Procedure Rev.: 1  
 Work Order No.: 98577763

Outage No.: MN1EOC16  
 Report No.: UT-04-085  
 Page: 1 of 1

Code: Section XI, 1995 thru 1996 Addenda Cat./Item: B-D/B3.110.5 Location: N/A  
 Drawing No.: MCM 1201.01-170 Description: Circumferential - Nozzle to Upper Head  
 System ID: \_\_\_\_\_  
 Component ID: B03.110.005 /1PZR-15 Size/Length: N/A Thickness/Diameter: 1.9" / 15.0"  
 Limitations: Yes - See Limitation calculations attached to Report no. UT-04-080 Start Time: 1053 Finish Time: 1120

Examination Surface: Inside ☐ Outside ☒ Surface Condition: AS GROUND  
 Lo Location: 9.2.3 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 00325  
 Temp. Tool Mfg.: FISHER Serial No.: MCNDE 27218 Surface Temp.: 69 °F  
 Cal. Report No.: CAL-04-143, CAL-04-144

Angle Used	0	45	45T	60	60T	
Scanning dB		58.7	58.7	64.8	64.8	

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

Comments:  
 FC 03-29, 03-31

Results: Accept ☒ Reject ☐ Info ☐

Percent Of Coverage Obtained > 90%: No - 73.6% Reviewed Previous Data: Yes

Examiner	Level II	Signature	Date	Reviewer	Signature	Date
Resor, James H.			3/14/2004	Jay A Eaton Level III		3/16/2004
Examiner	Level II	Signature	Date	Site Review	Signature	Date
Leeper, Winfred C.			3/14/2004			
Other	Level II	Signature	Date	ANII Review	Signature	Date
Kobernusz, Terry			3/14/2004			3-16-04

2/5/04



# UT Vessel Examination

RR 05-MN-001  
ATT-1 Page 22-23

Site/Unit: McGuire / 01  
Summary No.: B03.110.006  
Workscope: ISI

Procedure: NDE-640  
Procedure Rev.: 2  
Work Order No.: 98577763

Outage No.: MN1EOC16  
Report No.: UT-04-087  
Page: 1 of 1

Code: Section XI, 1995 thru 1996 Addenda Cat./Item: B-D/B3.110.6 Location: N/A  
Drawing No.: MCM 1201.01-170 Description: Circumferential - Nozzle to Upper Head  
System ID: \_\_\_\_\_  
Component ID: B03.110.006 /1PZR-16 Size/Length: N/A Thickness/Diameter: 1.9" / 15.0"  
Limitations: Yes - See Limitation calculations attached to Report no. UT-04-080 Start Time: 1040 Finish Time: 1045

Examination Surface: Inside ☐ Outside ☒ Surface Condition: AS GROUND  
Lo Location: 9.2.3 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 00325  
Temp. Tool Mfg.: FISHER Serial No.: MCNDE 27218 Surface Temp.: 69 °F  
Cal. Report No.: CAL-04-142

Angle Used	0	45	45T	60	60T	
Scanning dB	38.8					

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

Comments:  
FC 03-20

Results: Accept ☒ Reject ☐ Info ☐

Percent Of Coverage Obtained > 90%: No - 73.6% Reviewed Previous Data: Yes

Examiner	Level II	Signature	Date	Reviewer	Signature	Date
Resor, James H.			3/14/2004	Jay A Eaton Level III		3/16/2004
Examiner	Level II	Signature	Date	Site Review	Signature	Date
Leeper, Winfred C.			3/14/2004			
Other	Level II	Signature	Date	ANII Review	Signature	Date
Kobernusz, Terry			3/14/2004			3/18-04

B  
G  
3



# UT Vessel Examination

Site/Unit: McGuire / 01  
Summary No.: B03.110.006  
Workscope: ISI

Procedure: NDE-820  
Procedure Rev.: 1  
Work Order No.: 98577763

Outage No.: MN1EOC16  
Report No.: UT-04-088  
Page: 1 of 1

Code: Section XI, 1995 thru 1996 Addenda Cat./Item: B-D/B3.110.6 Location: N/A  
Drawing No.: MCM 1201.01-170 Description: Circumferential - Nozzle to Upper Head  
System ID: \_\_\_\_\_  
Component ID: B03.110.006 /1PZR-16 Size/Length: N/A Thickness/Diameter: 1.9" / 15.0"  
Limitations: Yes - See Limitation calculations attached to Report no. UT-04-080 Start Time: 1059 Finish Time: 1126

Examination Surface: Inside ☐ Outside ☒ Surface Condition: AS GROUND  
Lo Location: 9.2.3 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 00325  
Temp. Tool Mfg.: FISHER Serial No.: MCNDE 27218 Surface Temp.: 69 °F

Cal. Report No.: CAL-04-143, CAL-04-144

Angle Used	0	45	45T	60	60T	
Scanning dB		58.7	58.7	64.8	64.8	

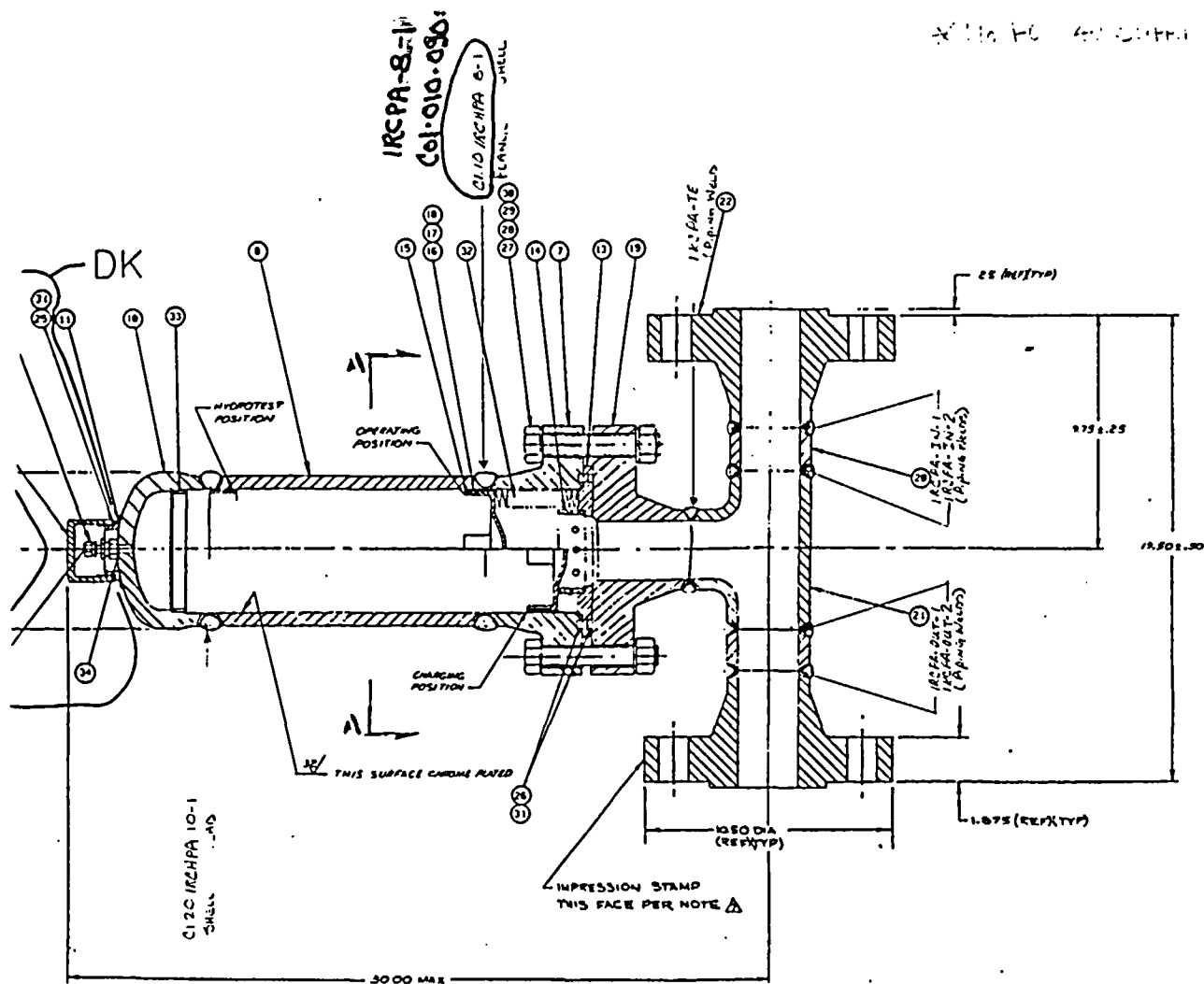
Indication(s): Yes ☐ No ☒ Scan Coverage: Upstream ☐ Downstream ☒ CW ☒ CCW ☒

Comments:  
FC 03-29, 03-31

Results: Accept ☒ Reject ☐ Info ☐

Percent Of Coverage Obtained > 90%: No - 73.6% Reviewed Previous Data: Yes

Examiner Level II	Signature	Date	Reviewer	Signature	Date
Resor, James H.		3/14/2004	Jay A Eaton Level III		3/16/2004
Examiner Level II	Signature	Date	Site Review	Signature	Date
Leeper, Winfred C.		3/14/2004			
Other Level II	Signature	Date	ANII Review	Signature	Date
Kobernusz, Terry		3/14/2004			3-18-04



MCQUIRE NUCLEAR STATION  
RECIPROCATING CHARGING PUMP ACCUMULATOR  
MP ORDER C-56584 H10639-13, R87497-13  
DUKE SPEC MCS 1201.04-4

NOTE:  
This is a preliminary design subject to  
change without notice. The user is responsible for  
the accuracy of the drawing and the user is  
responsible for the accuracy of the drawing.  
The user is responsible for the accuracy of the drawing.  
The user is responsible for the accuracy of the drawing.

MCM 1201.04-0197 001  
OA CONDITION 1

REV	DATE	DESCRIPTION	BY	CHKD	APP'D
1	12/10/04	ISSUED FOR FABRICATION	W. J. BROWN	J. L. BROWN	J. L. BROWN
2	12/10/04	REVISION 1	W. J. BROWN	J. L. BROWN	J. L. BROWN
3	12/10/04	REVISION 2	W. J. BROWN	J. L. BROWN	J. L. BROWN
4	12/10/04	REVISION 3	W. J. BROWN	J. L. BROWN	J. L. BROWN
5	12/10/04	REVISION 4	W. J. BROWN	J. L. BROWN	J. L. BROWN
6	12/10/04	REVISION 5	W. J. BROWN	J. L. BROWN	J. L. BROWN
7	12/10/04	REVISION 6	W. J. BROWN	J. L. BROWN	J. L. BROWN
8	12/10/04	REVISION 7	W. J. BROWN	J. L. BROWN	J. L. BROWN
9	12/10/04	REVISION 8	W. J. BROWN	J. L. BROWN	J. L. BROWN
10	12/10/04	REVISION 9	W. J. BROWN	J. L. BROWN	J. L. BROWN
11	12/10/04	REVISION 10	W. J. BROWN	J. L. BROWN	J. L. BROWN
12	12/10/04	REVISION 11	W. J. BROWN	J. L. BROWN	J. L. BROWN
13	12/10/04	REVISION 12	W. J. BROWN	J. L. BROWN	J. L. BROWN
14	12/10/04	REVISION 13	W. J. BROWN	J. L. BROWN	J. L. BROWN
15	12/10/04	REVISION 14	W. J. BROWN	J. L. BROWN	J. L. BROWN
16	12/10/04	REVISION 15	W. J. BROWN	J. L. BROWN	J. L. BROWN
17	12/10/04	REVISION 16	W. J. BROWN	J. L. BROWN	J. L. BROWN
18	12/10/04	REVISION 17	W. J. BROWN	J. L. BROWN	J. L. BROWN
19	12/10/04	REVISION 18	W. J. BROWN	J. L. BROWN	J. L. BROWN
20	12/10/04	REVISION 19	W. J. BROWN	J. L. BROWN	J. L. BROWN
21	12/10/04	REVISION 20	W. J. BROWN	J. L. BROWN	J. L. BROWN
22	12/10/04	REVISION 21	W. J. BROWN	J. L. BROWN	J. L. BROWN
23	12/10/04	REVISION 22	W. J. BROWN	J. L. BROWN	J. L. BROWN
24	12/10/04	REVISION 23	W. J. BROWN	J. L. BROWN	J. L. BROWN
25	12/10/04	REVISION 24	W. J. BROWN	J. L. BROWN	J. L. BROWN
26	12/10/04	REVISION 25	W. J. BROWN	J. L. BROWN	J. L. BROWN
27	12/10/04	REVISION 26	W. J. BROWN	J. L. BROWN	J. L. BROWN
28	12/10/04	REVISION 27	W. J. BROWN	J. L. BROWN	J. L. BROWN
29	12/10/04	REVISION 28	W. J. BROWN	J. L. BROWN	J. L. BROWN
30	12/10/04	REVISION 29	W. J. BROWN	J. L. BROWN	J. L. BROWN
31	12/10/04	REVISION 30	W. J. BROWN	J. L. BROWN	J. L. BROWN
32	12/10/04	REVISION 31	W. J. BROWN	J. L. BROWN	J. L. BROWN
33	12/10/04	REVISION 32	W. J. BROWN	J. L. BROWN	J. L. BROWN
34	12/10/04	REVISION 33	W. J. BROWN	J. L. BROWN	J. L. BROWN
35	12/10/04	REVISION 34	W. J. BROWN	J. L. BROWN	J. L. BROWN
36	12/10/04	REVISION 35	W. J. BROWN	J. L. BROWN	J. L. BROWN
37	12/10/04	REVISION 36	W. J. BROWN	J. L. BROWN	J. L. BROWN
38	12/10/04	REVISION 37	W. J. BROWN	J. L. BROWN	J. L. BROWN
39	12/10/04	REVISION 38	W. J. BROWN	J. L. BROWN	J. L. BROWN
40	12/10/04	REVISION 39	W. J. BROWN	J. L. BROWN	J. L. BROWN
41	12/10/04	REVISION 40	W. J. BROWN	J. L. BROWN	J. L. BROWN
42	12/10/04	REVISION 41	W. J. BROWN	J. L. BROWN	J. L. BROWN
43	12/10/04	REVISION 42	W. J. BROWN	J. L. BROWN	J. L. BROWN
44	12/10/04	REVISION 43	W. J. BROWN	J. L. BROWN	J. L. BROWN
45	12/10/04	REVISION 44	W. J. BROWN	J. L. BROWN	J. L. BROWN
46	12/10/04	REVISION 45	W. J. BROWN	J. L. BROWN	J. L. BROWN
47	12/10/04	REVISION 46	W. J. BROWN	J. L. BROWN	J. L. BROWN
48	12/10/04	REVISION 47	W. J. BROWN	J. L. BROWN	J. L. BROWN
49	12/10/04	REVISION 48	W. J. BROWN	J. L. BROWN	J. L. BROWN
50	12/10/04	REVISION 49	W. J. BROWN	J. L. BROWN	J. L. BROWN
51	12/10/04	REVISION 50	W. J. BROWN	J. L. BROWN	J. L. BROWN
52	12/10/04	REVISION 51	W. J. BROWN	J. L. BROWN	J. L. BROWN
53	12/10/04	REVISION 52	W. J. BROWN	J. L. BROWN	J. L. BROWN
54	12/10/04	REVISION 53	W. J. BROWN	J. L. BROWN	J. L. BROWN
55	12/10/04	REVISION 54	W. J. BROWN	J. L. BROWN	J. L. BROWN
56	12/10/04	REVISION 55	W. J. BROWN	J. L. BROWN	J. L. BROWN
57	12/10/04	REVISION 56	W. J. BROWN	J. L. BROWN	J. L. BROWN
58	12/10/04	REVISION 57	W. J. BROWN	J. L. BROWN	J. L. BROWN
59	12/10/04	REVISION 58	W. J. BROWN	J. L. BROWN	J. L. BROWN
60	12/10/04	REVISION 59	W. J. BROWN	J. L. BROWN	J. L. BROWN
61	12/10/04	REVISION 60	W. J. BROWN	J. L. BROWN	J. L. BROWN
62	12/10/04	REVISION 61	W. J. BROWN	J. L. BROWN	J. L. BROWN
63	12/10/04	REVISION 62	W. J. BROWN	J. L. BROWN	J. L. BROWN
64	12/10/04	REVISION 63	W. J. BROWN	J. L. BROWN	J. L. BROWN
65	12/10/04	REVISION 64	W. J. BROWN	J. L. BROWN	J. L. BROWN
66	12/10/04	REVISION 65	W. J. BROWN	J. L. BROWN	J. L. BROWN
67	12/10/04	REVISION 66	W. J. BROWN	J. L. BROWN	J. L. BROWN
68	12/10/04	REVISION 67	W. J. BROWN	J. L. BROWN	J. L. BROWN
69	12/10/04	REVISION 68	W. J. BROWN	J. L. BROWN	J. L. BROWN
70	12/10/04	REVISION 69	W. J. BROWN	J. L. BROWN	J. L. BROWN
71	12/10/04	REVISION 70	W. J. BROWN	J. L. BROWN	J. L. BROWN
72	12/10/04	REVISION 71	W. J. BROWN	J. L. BROWN	J. L. BROWN
73	12/10/04	REVISION 72	W. J. BROWN	J. L. BROWN	J. L. BROWN
74	12/10/04	REVISION 73	W. J. BROWN	J. L. BROWN	J. L. BROWN
75	12/10/04	REVISION 74	W. J. BROWN	J. L. BROWN	J. L. BROWN
76	12/10/04	REVISION 75	W. J. BROWN	J. L. BROWN	J. L. BROWN
77	12/10/04	REVISION 76	W. J. BROWN	J. L. BROWN	J. L. BROWN
78	12/10/04	REVISION 77	W. J. BROWN	J. L. BROWN	J. L. BROWN
79	12/10/04	REVISION 78	W. J. BROWN	J. L. BROWN	J. L. BROWN
80	12/10/04	REVISION 79	W. J. BROWN	J. L. BROWN	J. L. BROWN
81	12/10/04	REVISION 80	W. J. BROWN	J. L. BROWN	J. L. BROWN
82	12/10/04	REVISION 81	W. J. BROWN	J. L. BROWN	J. L. BROWN
83	12/10/04	REVISION 82	W. J. BROWN	J. L. BROWN	J. L. BROWN
84	12/10/04	REVISION 83	W. J. BROWN	J. L. BROWN	J. L. BROWN
85	12/10/04	REVISION 84	W. J. BROWN	J. L. BROWN	J. L. BROWN
86	12/10/04	REVISION 85	W. J. BROWN	J. L. BROWN	J. L. BROWN
87	12/10/04	REVISION 86	W. J. BROWN	J. L. BROWN	J. L. BROWN
88	12/10/04	REVISION 87	W. J. BROWN	J. L. BROWN	J. L. BROWN
89	12/10/04	REVISION 88	W. J. BROWN	J. L. BROWN	J. L. BROWN
90	12/10/04	REVISION 89	W. J. BROWN	J. L. BROWN	J. L. BROWN
91	12/10/04	REVISION 90	W. J. BROWN	J. L. BROWN	J. L. BROWN
92	12/10/04	REVISION 91	W. J. BROWN	J. L. BROWN	J. L. BROWN
93	12/10/04	REVISION 92	W. J. BROWN	J. L. BROWN	J. L. BROWN
94	12/10/04	REVISION 93	W. J. BROWN	J. L. BROWN	J. L. BROWN
95	12/10/04	REVISION 94	W. J. BROWN	J. L. BROWN	J. L. BROWN
96	12/10/04	REVISION 95	W. J. BROWN	J. L. BROWN	J. L. BROWN
97	12/10/04	REVISION 96	W. J. BROWN	J. L. BROWN	J. L. BROWN
98	12/10/04	REVISION 97	W. J. BROWN	J. L. BROWN	J. L. BROWN
99	12/10/04	REVISION 98	W. J. BROWN	J. L. BROWN	J. L. BROWN
100	12/10/04	REVISION 99	W. J. BROWN	J. L. BROWN	J. L. BROWN
101	12/10/04	REVISION 100	W. J. BROWN	J. L. BROWN	J. L. BROWN

RR# 05-MN-001  
ATTACHMENT 2  
PAGE 1-6



# UT Vessel Examination

Site/Unit: McGuire / 01  
Summary No.: C01.010.090  
Workscope: ISI

Procedure: NDE-330  
Procedure Rev.: 0  
Work Order No.: 98577988

Outage No.: MN1EOC16  
Report No.: UT-04-039  
Page: 1 of 4

Code: Section XI, 1995 thru 1996 Addenda Cat./Item: C-A/C1.10.90 Location: N/A  
Drawing No.: MCM 1201.04-197 Description: Circumferential - Flange to Shell  
System ID: \_\_\_\_\_  
Component ID: C01.010.090 /IRCPA-8-1 Size/Length: N/A Thickness/Diameter: .495/ 6.660  
Limitations: Yes-See Attached Limitation Report Start Time: 0950 Finish Time: 1008

Examination Surface: Inside ☐ Outside ☒ Surface Condition: AS GROUND  
Lo Location: 9.2.1 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 00325  
Temp. Tool Mfg.: FISHER Serial No.: MCNDE 27218 Surface Temp.: 68 °F  
Cal. Report No.: CAL-04-084, CAL-04-085, CAL-04-086

Angle Used	0	45	45T	60	60T	60L
Scanning dB		54	55			64

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

Comments:

Scanned at reference DB due to signal to noise ratio

Results: Accept ☒ Reject ☐ Info ☐

Percent Of Coverage Obtained > 90%: No - 74.4% Reviewed Previous Data: Yes

Examiner	Level II	Signature	Date	Reviewer	Signature	Date
Leeper, Winfred C.		<i>Winfred C. Leeper</i>	2/24/2004	Jay A Eaton Level III	<i>Jay A Eaton</i>	2/26/2004
Examiner	Level II	Signature	Date	Site Review	Signature	Date
Jordan, Joey		<i>Joey Jordan</i>	2/24/2004			
Other	Level N/A	Signature	Date	ANII Review	Signature	Date
N/A				<i>Jay A Eaton</i>	<i>3-8-04</i>	

R  
CW  
3/12/04



# Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit: McGuire / 01  
Summary No.: C01.010.090  
Workscope: ISI

Procedure: NDE-330  
Procedure Rev.: 0  
Work Order No.: 98577988

Outage No.: MN1EOC16  
Report No.: UT-04-039  
Page: 2 of 4

## 45 deg

Scan 1	<u>100.000</u>	% Length X	<u>81.700</u>	% volume of length / 100 =	<u>81.700</u>	% total for Scan 1
Scan 2	<u>100.000</u>	% Length X	<u>68.300</u>	% volume of length / 100 =	<u>68.300</u>	% total for Scan 2
Scan 3	<u>100.000</u>	% Length X	<u>69.500</u>	% volume of length / 100 =	<u>69.500</u>	% total for Scan 3
Scan 4	<u>100.000</u>	% Length X	<u>69.500</u>	% volume of length / 100 =	<u>69.500</u>	% total for Scan 4

Add totals and divide by # scans = 72.250 % total for 45 deg

Other deg - 60 (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	<u>100.000</u>	% Length X	<u>8.500</u>	% volume of length / 100 =	<u>8.500</u>	% 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;

74.375 % Total for complete exam

Site Field Supervisor: [Signature]

Date: 2/26/04

[Signature]  
HBCT  
3-8-04  
R.  
G.  
3/24/04



# Limitation Record

Site/Unit: McGulre / 01

Procedure: NDE-330

Outage No.: MN1EOC16

Summary No.: C01.010.090

Procedure Rev.: 0

Report No.: UT-04-039

Workscope: ISI

Work Order No.: 98577988

Page: 3 of 4

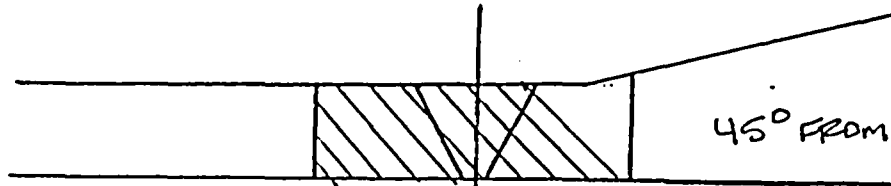
Description of Limitation:

Limited due to flange -----

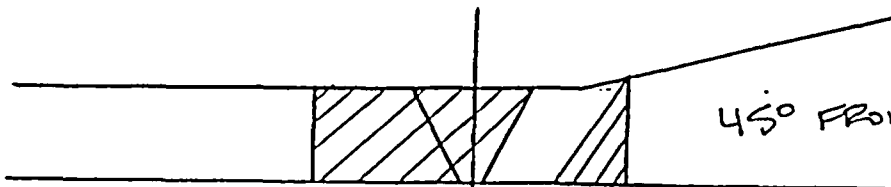
SHELL - S1

FLANGE - S2

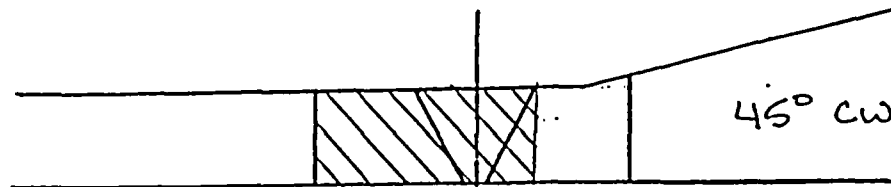
Sketch of Limitation:



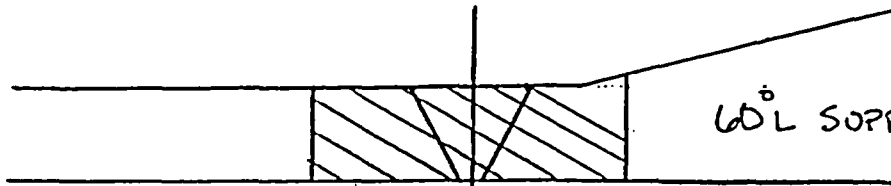
45° FROM S1 = 81.7%



45° FROM S2 = 68.3%



45° CW & CCW = 69.5%



60° SUPPLEMENTAL = 90.2%

Radiation field: N/A

SEE PAGE 4 OF 4 FOR CALCULATIONS.

Examiner	Level II	Signature	Date	Reviewer	Signature	Date
Leeper, Winfred C.		<i>Winfred C. Leeper</i>	2/24/2004	Jay A Eaton Level III	<i>Jay A Eaton</i>	2/26/2004
Examiner	Level II	Signature	Date	Site Review	Signature	Date
Jordan, Joey		<i>Joey Jordan</i>	2/24/2004			
Other	Level N/A	Signature	Date	ANII Review	Signature	Date
N/A				<i>Winfred C. Leeper</i>	<i>J-90</i>	

P. Cat  
3/24/2004





# Supplemental Report

Report No.: UT-04-039  
Page: 4 of 4

Summary No.: C01.010.090

Examiner: Leeper, Winfred C. Level: II

Reviewer: Jay A Eaton Level III Date: 2/26/2004

Examiner: Jordan, Joey Level: II

Site Review: \_\_\_\_\_ Date: \_\_\_\_\_

Other: N/A Level: N/A

ANII Review: [Signature] Date: 3-8-04

## Comments:

Total Exam Area =  $(1.65 \times 0.495) + (0.2 \times 0.05 / 2) = 0.82 \text{ sq. in.}$

## Percent of Coverage:

45° shear from S1 =  $(1.1 + 1.6 / 2) \times 0.495 = 0.67 / 0.82 \times 100 = 81.7\%$

45° shear from S2 =  $((1.15 + 0.65 / 2) \times 0.495) + (0.4 \times 0.55 / 2) = 0.56 / 0.82 \times 100 = 68.3\%$

45° shear CW & CCW =  $1.15 \times 0.495 = 0.57 / 0.82 \times 100 = 69.5\%$

60°L supplemental =  $(0.2 \times 1.65) + ((1.1 + 1.65 / 2) \times 0.295) = 0.74 / 0.82 \times 100 = 90.2\%$

Additional coverage with 60°L =  $90.2\% - 81.7\% (45^\circ \text{ shear}) = 8.5\%$

R  
3/24/2004  
HSC  
3-8-04



# UT Vessel Examination

RR 05-MN-001  
ATT-2 Page 6-6

Site/Unit: McGulre / 01  
Summary No.: C01.010.090  
Workscope: ISI

Procedure: NDE-330  
Procedure Rev.: 0  
Work Order No.: 98577988

Outage No.: MN1EOC16  
Report No.: UT-04-046  
Page: 1 of 1

Code: Section XI, 1995 thru 1996 Addenda Cat./Item: C-A/C1.10.90 Location: N/A  
Drawing No.: MCM 1201.04-197 Description: Circumferential - Flange to Shell  
System ID: \_\_\_\_\_  
Component ID: C01.010.090 /1RCPA-8-1 Size/Length: N/A Thickness/Diameter: .495/6.660"  
Limitations: Yes-See Limitation Report no. Ut-04-39 sheets 2,3 & 4. Start Time: 0850 Finish Time: 0853

Examination Surface: Inside ☐ Outside ☒ Surface Condition: AS GROUND  
Lo Location: 9.2.1 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 00325  
Temp. Tool Mfg.: FISHER Serial No.: MCNDE 27218 Surface Temp.: 68 °F  
Cal. Report No.: CAL-04-090

Angle Used	0	45	45T	60	60T	
Scanning dB		54				

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

Comments:

Scanned at Reference DB due to signal to noise ratio - Scanned upstream for additional coverage

Results: Accept ☒ Reject ☐ Info ☐

Percent Of Coverage Obtained > 90%: No - 74.4%

Reviewed Previous Data: Yes

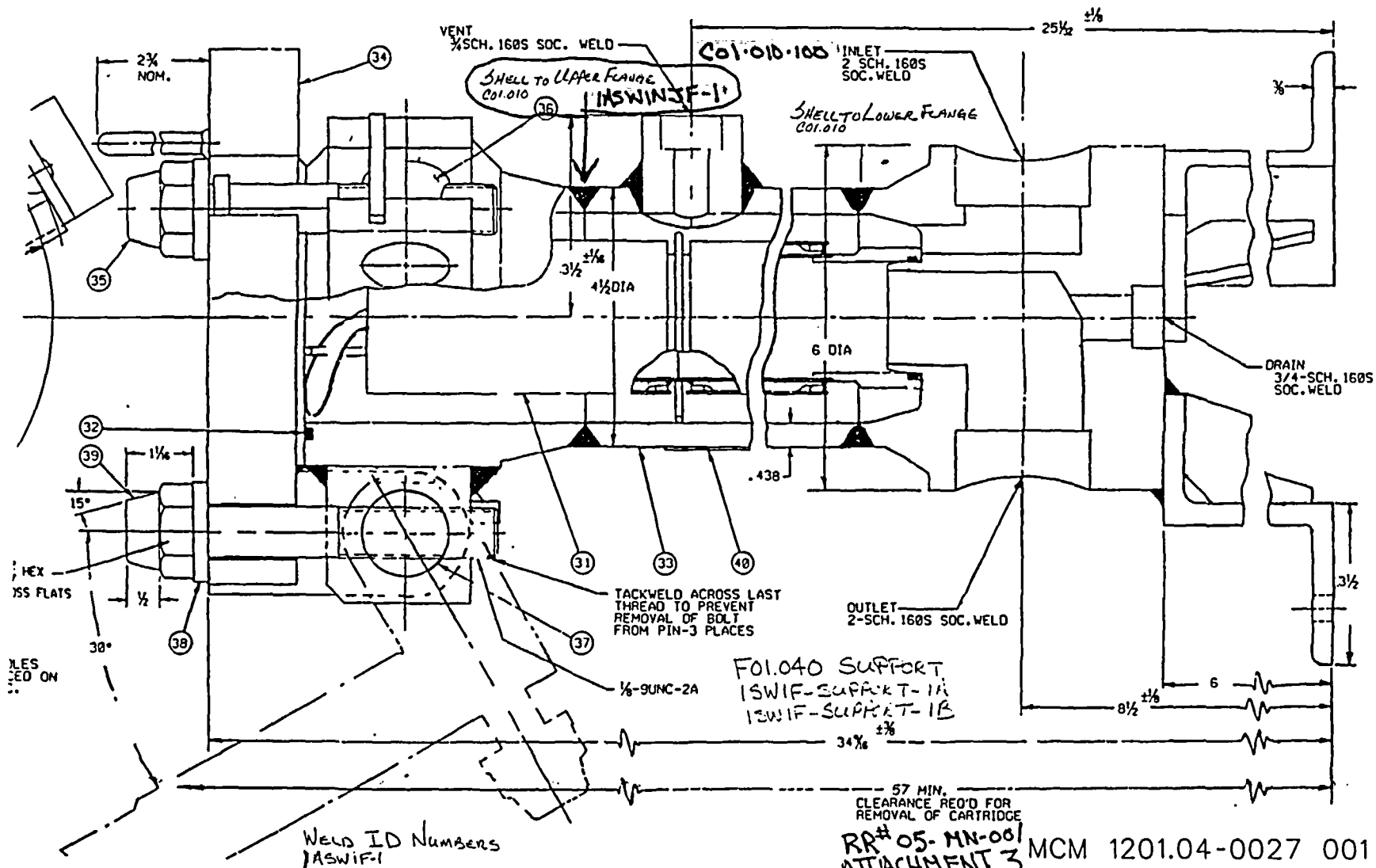
Examiner Level II Leeper, Winfred C.	Signature 	Date 2/25/2004	Reviewer Jay A Eaton Level III	Signature 	Date 2/26/2004
Examiner Level II Jordan, Joey	Signature 	Date 2/25/2004	Site Review	Signature	Date
Other Level N/A N/A	Signature	Date	ANII Review 	Signature	Date 3-8-04

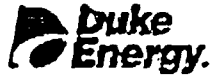
8  
6  
31

32	O-RING-COVER			83405-01	WELDED 304 SS	
33	SUMP WELDMENT			83229-01	WELDED 304 SS	
34	COVER WELDMENT			83586-31	CARBON STEEL, CHROME PLATED	
35	BOLT WELDMENT-SWING	2		82346-34	CARBON STEEL, CHROME PLATED	
36	PIN-SWING	2		82346-35	CARBON STEEL, CHROME PLATED	
37	PIN-HINGE			82352-35	CARBON STEEL, CHROME PLATED	NA
38	WASHER			83585-32	CARBON STEEL, CHROME PLATED	NA
39	BOLT-HEX HEAD			34689-31	ALUMINUM	NA
40	NAME PLATE					

1. DRILL WITH

\* No WELDED Nozzles  
\* No WELDED Attachments





# UT Vessel Examination

RR 05-MN-001  
ATT-3 page 2-5

Site/Unit: McGuire / 01

Procedure: NDE-330

Outage No.: MN1EOC16

Summary No.: C01.010.100

Procedure Rev.: 0

Report No.: UT-04-041

Workscope: ISI

Work Order No.: 98577988

Page: 1 of 4

Code: Section XI, 1995 thru 1996 Addenda Cat./Item: C-A/C1.10.100 Location: N/A

Drawing No.: MCM 1201.04-27 Description: Circumferential - Shell to Upper Flange

System ID: \_\_\_\_\_

Component ID: C01.010.100 / 1ASWINJF-1 Size/Length: N/A Thickness/Diameter: .438/4.0"

Limitations: Yes-See Attached Limitation Report Start Time: 0955 Finish Time: 1010

Examination Surface: Inside ☐ Outside ☒ Surface Condition: AS GROUND

Lo Location: 9.2.1 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 00325

Temp. Tool Mfg.: FISHER Serial No.: MCNDE 27218 Surface Temp.: 86 °F

Cal. Report No.: CAL-04-087, CAL-04-088, CAL-04-089

Angle Used	0	45	45T	60	60T	60L
Scanning dB		50	58			61

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

Comments:

Scanning DB less than reference + 14 to obtain 2 : 1 signal to noise ratio on all three scans

Results: Accept ☒ Reject ☐ Info ☐

Percent Of Coverage Obtained > 90%: No - 64.4% Reviewed Previous Data: Yes

Examiner Level II Weaver, Marlon T.	Signature <i>Marlon T. Weaver</i>	Date 2/25/2004	Reviewer Jay A Eaton Level III	Signature <i>Jay A Eaton</i>	Date 3/2/2004
Examiner Level II Jordan, Joey	Signature <i>Joey Jordan</i>	Date 2/25/2004	Site Review	Signature	Date
Other Level N/A N/A	Signature	Date	ANII Review <i>Allein</i>	Signature 3-8-04	Date



# Determination of Percent Coverage for UT Examinations - Pipe

RR 05-MN-001  
ATU-3 Page 3-5

Site/Unit:	<u>McGuire / 01</u>	Procedure:	<u>NDE-330</u>	Outage No.:	<u>MN1EOC16</u>
Summary No.:	<u>C01.010.100</u>	Procedure Rev.:	<u>0</u>	Report No.:	<u>UT-04-041</u>
Workscope:	<u>ISI</u>	Work Order No.:	<u>98577988</u>	Page:	<u>2</u> of <u>4</u>

## 45 deg

Scan 1	<u>100.000</u>	% Length X	<u>63.200</u>	% volume of length / 100 =	<u>63.200</u>	% total for Scan 1
Scan 2	<u>100.000</u>	% Length X	<u>67.600</u>	% volume of length / 100 =	<u>67.600</u>	% total for Scan 2
Scan 3	<u>100.000</u>	% Length X	<u>61.800</u>	% volume of length / 100 =	<u>61.800</u>	% total for Scan 3
Scan 4	<u>100.000</u>	% Length X	<u>61.800</u>	% volume of length / 100 =	<u>61.800</u>	% total for Scan 4

Add totals and divide by # scans = 63.600 % total for 45 deg

Other deg - 60 (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	<u>100.000</u>	% Length X	<u>3.000</u>	% volume of length / 100 =	<u>3.000</u>	% 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;

64.350 % Total for complete exam

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

Date: \_\_\_\_\_

3/2/04

R  
OK  
3/24/04  
HSSG  
3-8-04



# Limitation Record

Site/Unit: McGuire / 01

Procedure: NDE-330

Outage No.: MN1EOC16

Summary No.: C01.010.100

Procedure Rev.: 0

Report No.: UT-04-041

Workscope: ISI

Work Order No.: 98577988

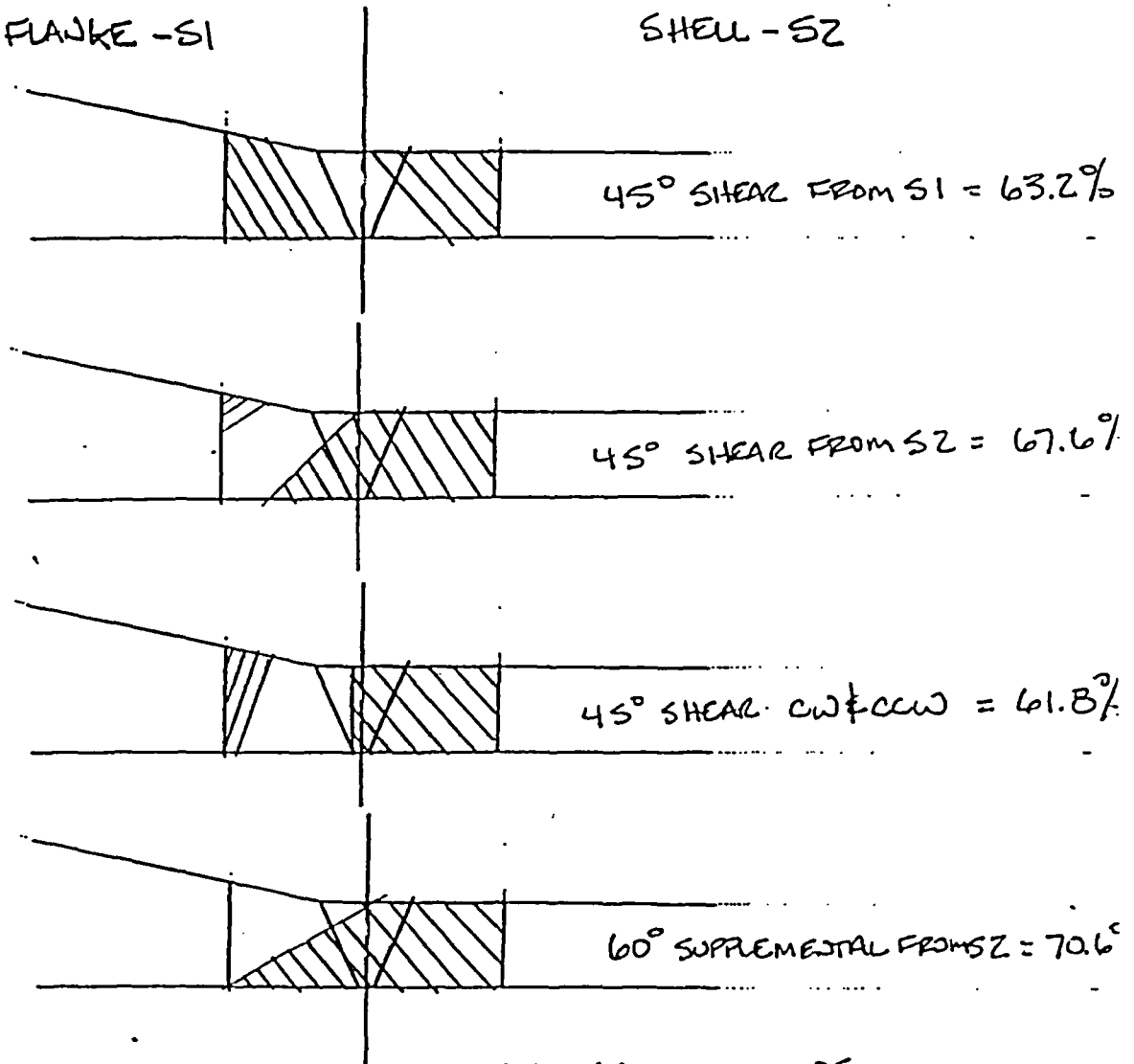
Page: 3 of 4

Description of Limitation:

Limited due to Flange configuration

UPPER FLANGE - S1

SHELL - S2



Radiation field: N/A

SEE PAGE 4 OF 4 FOR CALCULATIONS

Examiner	Level II	Signature	Date	Reviewer	Signature	Date
Weaver, Marlon T.		<i>Marlon T. Weaver</i>	2/25/2004	Jay A Eaton Level III	<i>Jay A Eaton</i>	3/2/2004
Examiner	Level II	Signature	Date	Site Review	Signature	Date
Jordan, Joey		<i>Joey Jordan</i>	2/25/2004			
Other	Level N/A	Signature	Date	ANII Review	Signature	Date
N/A					<i>3-8-04</i>	

R  
CW  
3/29/04

RR 05-MN-001  
ATTN: 3 Page 4-5



# Supplemental Report

Report No.: UT-04-041

Page: 4 of 4

Summary No.: C01.010.100

Examiner: Weaver, Marion T. Level: II

Reviewer: Jay A Eaton Level III Date: 3/2/2004

Examiner: Jordan, Joey Level: II

Site Review: \_\_\_\_\_ Date: \_\_\_\_\_

Other: N/A Level: N/A

ANII Review: \_\_\_\_\_ Date: 3-8-04

## Comments:

Total Examination Area =  $(1.5 \times 0.438) + ((0.1 \times 0.5) / 2) = 0.68 \text{ sq. in.}$

45° shear from S1 =  $((0.7 + 0.35 / 2) \times 0.438) + ((0.25 + 0.55 / 2) \times 0.5) = 0.43 / 0.68 \times 100 = 63.2\%$

45° shear from S2 =  $((0.75 + 1.25 / 2) \times 0.438) + (0.25 \times 0.2 / 2) = 0.46 / 0.68 \times 100 = 67.6\%$

45° shear CW & CCW =  $(0.7 \times 0.438) + ((0.3 + 0.1 / 2) \times 0.55) = 0.42 / 0.68 \times 100 = 61.8\%$

60°L supplemental =  $(0.7 + 1.5 / 2) \times 0.438 = 0.48 / 0.68 \times 100 = 70.6\%$

Additional coverage with 60°L =  $70.6\% - 67.6\% = 3\%$

B  
CS  
3/2/04

DIV	STATUS	INPT.	DATE
CIVIL			
TECH	A	DEC	
ECT			

**APPROVED**

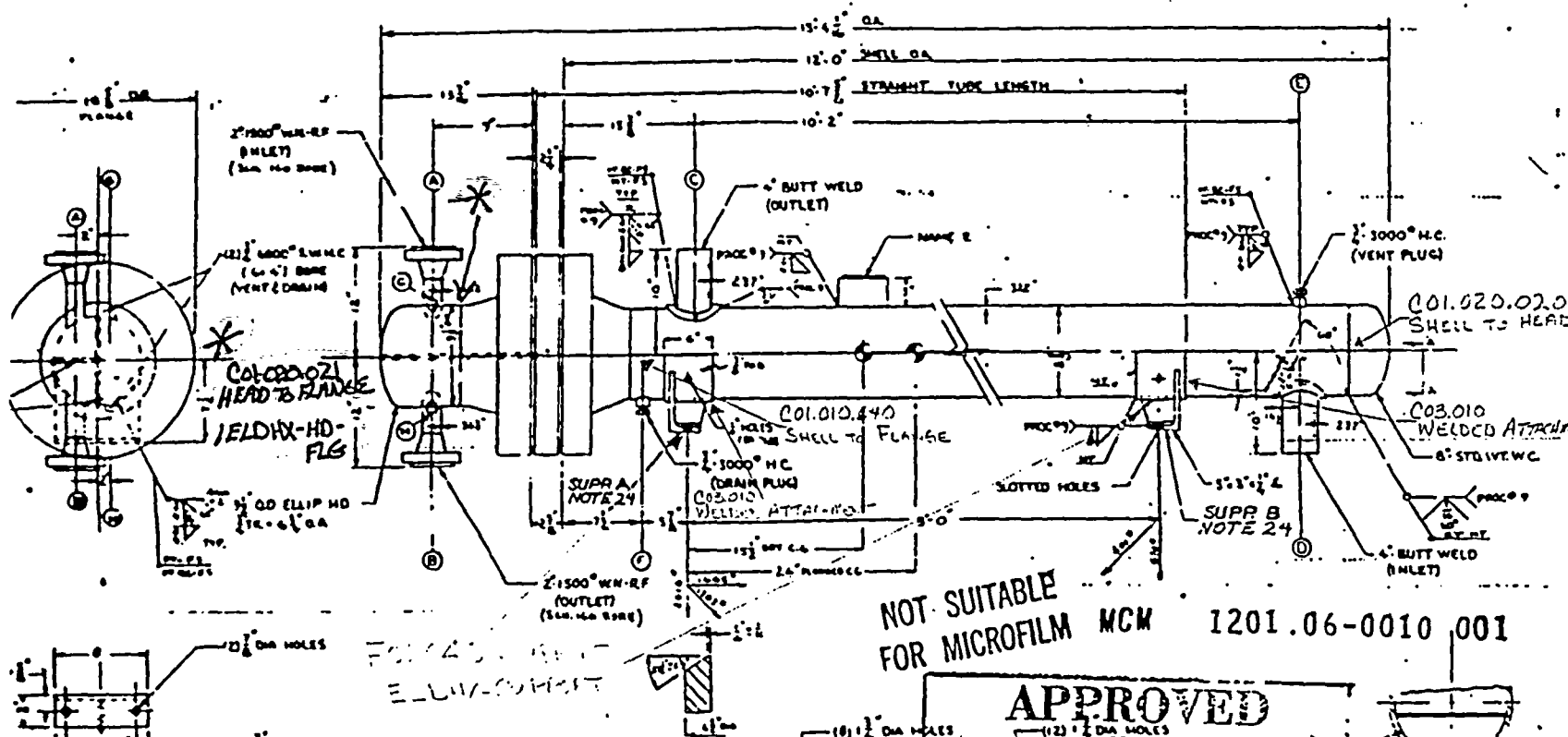
.. C : POWER CO  
AUG 19 1987

J. P. WYKE  
C. H. P. ENGINEER  
MECHANICAL DIVISION

Exam. Category C-38. MECHANICAL PHYSICS

ALL NOZZLES ARE EXEMPT PER IWC-2500-1, NOTE 2.

DUKE POWER COMPANY  
PLANT MC GUIRE NUCLEAR STATION  
UNIT: 1 and 2 SPIN: CSAHEL  
STATUS: CERTIFIED FOR CONSTRUCTION  
- CERTIFICATION: LETTER NO. DUKE-1416  
AUTHORITY: N. D. WOODSON  
ENGR. LTR. NO. PA-TE-10513



NOT SUITABLE  
FOR MICROFILM MCM 1201.06-0010 001

APPROVED

THIS APPROVAL OF ~~THE~~ <sup>THE</sup> ~~GENERAL~~ <sup>GENERAL</sup> ~~ARRANGEMENT~~ <sup>ARRANGEMENT</sup>

NOTES

CONVENTION

SOME BULLETS AND FINGERPRINTS WERE FOUND

12 BULLETS WERE FOUND IN THE

13 BULLETS WERE FOUND IN THE

ATLAS

HOTEL OR

DEPART

YEAR

FROM TO

FROM TO

DATE

NAME

WELL SITE PAGE TWO  
NEXT PAGE  
DISCUSSING ALLOW  
0  
1. VENTILITY  
WELL HEAD 1300 LBS  
WELL OF WEIGHT 1200 LBS  
2. THE SUBMERGIBLE PUMP (SPC-1510-437, ONLY  
CAPABLE OF 11 PRIMER 21 WELLS PNEUMATIC  
WELL, 4-5 WELLS (SEE C-51)  
3. THE WELLS SHALL NOT BE SHOWNED SEAL  
WELL TUBES TO TUBESHEET (ATLAS STD\*103)  
WHICH RELATE. NOT REGO  
4. SUBMERGIBLE 100%, ALL BUTT WELDS.  
5. THE PNEUMATIC ANALYSIS HAS BEEN MADE  
YES NO  
6. BOTTOM TEMPERATURE WELLS TO PUMP 4200 MOUNT  
CLOCK SPEC 657000 0101 JAMES JAN 22 1967  
7. DRAINAGE APPROACH AND RELEASE CASE  
8. HEAT TRANSFER SURFACE. 78 SQ FT.  
9. THREE (3) SETS OF (MANN) FLANGE JOINTS  
SPARE GASKETS SHALL BE. MOUNTED WITH  
EACH UNIT. TWO BEST NONWOUND STAINLESS  
10. LIQUID PENTHENT EXAMINATIONS OF  
TUBESHEETS, SHALL HEADS FLANGES AND  
CORROSION OCCURRED AFTER FLANG FORMING  
AND MACHINING BUT PRIOR TO USE ONLY  
DRAINAGE. THIS TO BE DONE IN ACCORDANCE  
WITH SPEL STD\*103  
11. ALL OUTER SURFACES OF ALL TETRA PNEUMATIC  
WELLS SHALL BE MOUNTED THE PATENTS  
INSPECTED PER ATLAS STD\*103  
12. THE WELLS SHALL BE EXTRAORDINARILY

RR#  
ATTACHMENT 4  
PAGE 1-11





## UT Base Metal Lamination

RR# 05-HN-001  
ATT-A Page 2-11Site/Unit: McGuire / 01  
Summary No.: C01.020.021  
Workscope: ISIProcedure: NDE-640  
Procedure Rev.: 2  
Work Order No.: 98578064Outage No.: MN1EOC16  
Report No.: UT-04-095  
Page: 1 of 2Code: Section XI, 1995 thru 1996 Addenda Cat./Item: C-A/C1.20.21 Location: N/A  
Drawing No.: MC-ISIN-1554-01.02 Description: Circumferential - Head to Flange  
System ID: NV  
Component ID: C01.020.021 / 1ELDHX-HD-FLG Size/Length: 9.5" SS/CS Thickness/Diameter: 0.75"  
Limitations: No Start Time: 1041 Finish Time: 1049Examination Surface: Inside ☐ Outside ☒ Surface Condition: AS GROUND  
Lo Location: Top of Heat Exchanger Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 01225  
Temp. Tool Mfg.: FISHER Serial No.: MCNDE 27220 Surface Temp.: 70 °F Scanning dB: \*  
Cal. Report No.: CAL-04-156

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: FC 03-20, \*42.0 Db on Flange side - CS & 32.0 Db on the Head side -SS.Results: Accept ☒ Reject ☐ Info ☐

Initial Section XI Examination

Percent Of Coverage Obtained > 90%: Yes - 100%Reviewed Previous Data: No

Examiner Level II	Signature	Date	Reviewer	Signature	Date
Brown, Thomas	<i>Thomas Brown</i>	3/16/2004	Jay A Eaton Level III	<i>Jay A Eaton</i>	3/19/2004
Examiner Level II	Signature	Date	Site Review	Signature	Date
Moss, Gary J.	<i>Gary J Moss</i>	3/16/2004			
Other Level N/A	Signature	Date	ANII Review	Signature	Date
N/A			<i>Jerome F. Swan</i>	<i>3/22/04</i>	



## Supplemental Report

Report No.: UT-04-095  
Page: 2 of 2

Summary No.: C01.020.021

Examiner: Brown, Thomas *Tom D Brown*  
Examiner: Moss, Gary J. *Gary J Moss*  
Other: N/A

Level: II  
Level: II  
Level: N/A

Reviewer: Jay A Eaton Level III

Site Review:

ANII Review:

Date: 3/19/2004

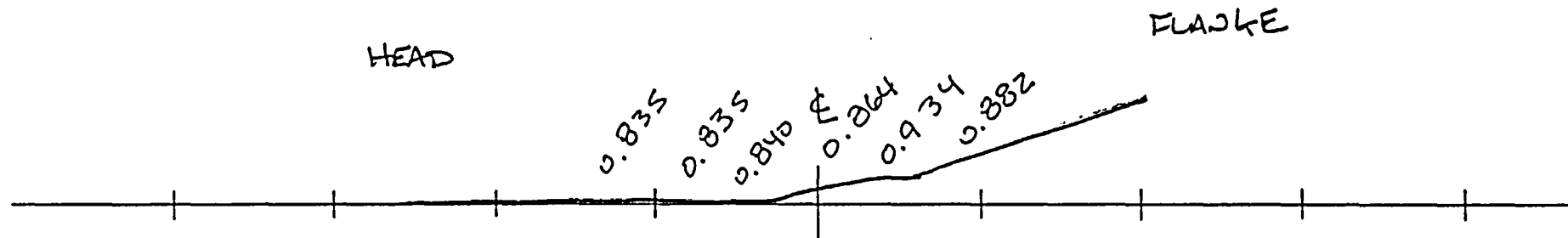
Date:

Date: 3/22/04

Comments:

Sketch or Photo:

N:\UT\IDEAL\ProfileLine2.jpg





## UT Vessel Examination

Site/Unit: McGulre / 01  
Summary No.: C01.020.021  
Workscope: ISI

Procedure: NDE-330  
Procedure Rev.: 1  
Work Order No.: 98578064

Outage No.: MN1EOC16  
Report No.: UT-04-096  
Page: 1 of 8

Code: Section XI, 1995 thru 1996 Addenda Cat./Item: C-A/C1.20.21 Location: N/A  
Drawing No.: MC-ISIN-1554-01.02 Description: Circumferential - Head to Flange  
System ID: NV  
Component ID: C01.020.021 /1ELDHX-HD-FLG Size/Length: 9.5"SS/CS Thickness/Diameter: 0.75"  
Limitations: Yes - See attached limitation reports Start Time: 1100 Finish Time: 1156

Examination Surface: Inside ☐ Outside ☒ Surface Condition: AS GROUND  
Lo Location: Top of Heat Exchanger Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 01225  
Temp. Tool Mfg.: FISHER Serial No.: MCNDE 27220 Surface Temp.: 70 °F  
Cal. Report No.: CAL-04-157, CAL-04-158, CAL-04-159

Angle Used	0	45	45T	60	60T	45L
Scanning dB		.	.			63

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

## Comments:

Scanning Db with 45° = 54.1, 56.0 Db with the 45°T CS & SS sides. 45°L scanned @ Ref. due to signal to noise ratio.

Results: Accept ☒ Reject ☐ Info ☐

Initial Section XI Examination

Percent Of Coverage Obtained > 90%: No - 79.8%

Reviewed Previous Data: No

Examiner	Level	Signature	Date	Reviewer	Signature	Date
Brown, Thomas	II		3/16/2004	Jay A Eaton Level III		3/19/2004
Examiner	Level	Signature	Date	Site Review	Signature	Date
Moss, Gary J.	II		3/16/2004			
Other	Level	Signature	Date	ANII Review	Signature	Date
N/A	N/A					3/22/04

RR 05-MN-001  
Att. A Page 5-11



## Limitation Record

Site/Unit: McGuire / 01  
Summary No.: C01.020.021  
Workscope: ISI

Procedure: NDE-330  
Procedure Rev.: 1  
Work Order No.: 98578064

Outage No.: MN1EOC16  
Report No.: UT-04-096  
Page: 2 of 8

Description of Limitation:


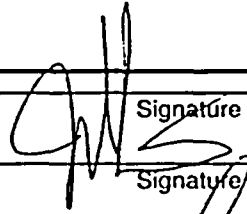
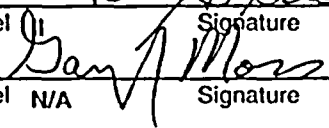
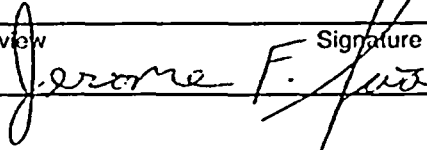
See attached calculations.

Sketch of Limitation:

Limitations removal requirements:

N/A

Radiation field: N/A

Examiner	Level II	Signature	Date	Reviewer	Signature	Date
Brown, Thomas			3/16/2004	Jay A Eaton Level III		3/19/2004
Examiner	Level II	Signature	Date	Site Review	Signature	Date
Moss, Gary J.			3/16/2004			
Other	Level N/A	Signature	Date	ANII Review	Signature	Date
N/A						3/22/04

R  
Ed  
3/25/04



# Determination of Percent Coverage for UT Examinations - Pipe

RR 05-MN-001  
At-A Page 6-11

Site/Unit:	McGuire / 01	Procedure:	NDE-330	Outage No.:	MN1EOC16
Summary No.:	C01.020.021	Procedure Rev.:	1	Report No.:	UT-04-096
Workscope:	ISI	Work Order No.:	98578064	Page:	3 of 8

## 45 deg

Scan 1	51.600	% Length X	100.000	% volume of length / 100 =	51.600	% total for Scan 1
Scan 2	51.600	% Length X	100.000	% volume of length / 100 =	51.600	% total for Scan 2
Scan 3	51.600	% Length X	100.000	% volume of length / 100 =	51.600	% total for Scan 3
Scan 4	51.600	% Length X	100.000	% volume of length / 100 =	51.600	% total for Scan 4

Add totals and divide by # scans = 51.600 % total for 45 deg

Other deg - 45 (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	48.400	% Length X	79.100	% volume of length / 100 =	38.284	% total for Scan 1
Scan 2	48.400	% Length X	37.300	% volume of length / 100 =	18.053	% total for Scan 2
Scan 3	48.400	% Length X	58.200	% volume of length / 100 =	28.169	% total for Scan 3
Scan 4	48.400	% Length X	58.200	% volume of length / 100 =	28.169	% total for Scan 4

## Percent complete coverage

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

79.769 % Total for complete exam

Site Field Supervisor:

Date:

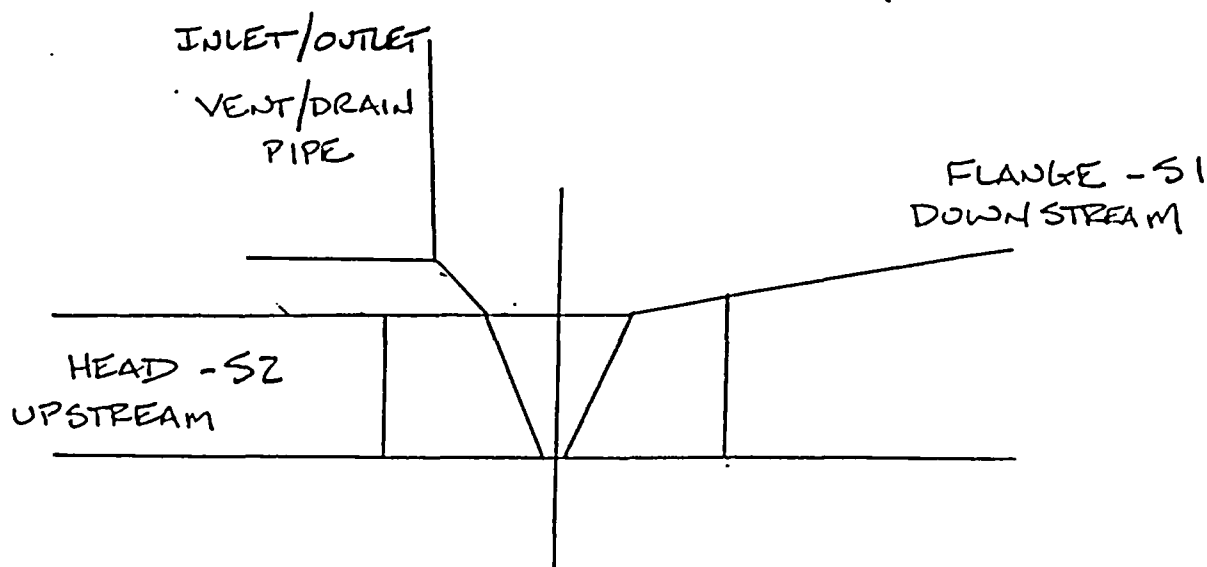
3/19/04

R/G  
3/25/14

DUKE POWER COMPANY				UT-04-096	
ISI LIMITATION REPORT					
Component/Weld ID: <u>1ELDHX-4D-FLG</u> Item No: <u>CDI.020.021</u>				remarks:	
<input checked="" type="checkbox"/> NO SCAN      SURFACE      BEAM DIRECTION <input type="checkbox"/> LIMITED SCAN <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> cw <input checked="" type="checkbox"/> ccw FROM L <u>27.0"</u> to L <u>30.25"</u> INCHES FROM W0 <u>+ .35"</u> to <u>BEYOND</u> ANGLE: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 45 <input checked="" type="checkbox"/> 60 other _____ FROM _____ DEG to _____ DEG				<u>DUE TO VENT PIPE</u>    	
<input checked="" type="checkbox"/> NO SCAN      SURFACE      BEAM DIRECTION <input type="checkbox"/> LIMITED SCAN <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> cw <input checked="" type="checkbox"/> ccw FROM L <u>0.5"</u> to L <u>4.0"</u> INCHES FROM W0 <u>+ 0.9"</u> to <u>BEYOND</u> ANGLE: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 45 <input checked="" type="checkbox"/> 60 other _____ FROM _____ DEG to _____ DEG				<u>DUE TO INLET</u> <u>CONNECTION</u>    	
<input checked="" type="checkbox"/> NO SCAN      SURFACE      BEAM DIRECTION <input type="checkbox"/> LIMITED SCAN <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> cw <input checked="" type="checkbox"/> ccw FROM L <u>11.75"</u> to L <u>16.25"</u> INCHES FROM W0 <u>+ 0.9"</u> to <u>BEYOND</u> ANGLE: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 45 <input checked="" type="checkbox"/> 60 other _____ FROM _____ DEG to _____ DEG				<u>DUE TO OUTLET</u> <u>CONNECTION</u>    	
<input checked="" type="checkbox"/> NO SCAN      SURFACE      BEAM DIRECTION <input type="checkbox"/> LIMITED SCAN <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> cw <input checked="" type="checkbox"/> ccw FROM L <u>16.75"</u> to L <u>18.25"</u> INCHES FROM W0 <u>+ .35"</u> to <u>BEYOND</u> ANGLE: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 45 <input checked="" type="checkbox"/> 60 other _____ FROM _____ DEG to _____ DEG				<u>DUE TO DRAIN PIPE</u>   <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">           Sketch(s) attached  <input checked="" type="checkbox"/> yes      <input type="checkbox"/> No         </div>	
Prepared By: <u>Gary Mon</u>		Level: <u>IB</u>		Date: <u>3/16/04</u>	
Reviewed By: <u>[Signature]</u>		Date: <u>3/21/04</u>		Sheet <u>4</u> of <u>8</u> Authorized Inspector: <u>Jerome Flawan</u> Date: <u>3/29/04</u>	

ITEM # C01.020.021

WELD# 1ELDHX-HD-FLG



TOTAL AREA OF INTEREST

$$(.75" \times 1.75") + \left( \frac{1.5 \times 1.1}{2} \right) = 1.34 \text{ in}^2$$

% OF WELD WITH 100% SCAN FROM SZ

30.5" = TOTAL LENGTH

- 3.75" = VENT PIPE

- 4.0" = INLET

- 5.0" = OUTLET

- 2.0" = DRAIN PIPE

$$15.75" \div 30.5" \times 100 = 51.6\%$$

UT-04-096

PAGE 5 OF 8

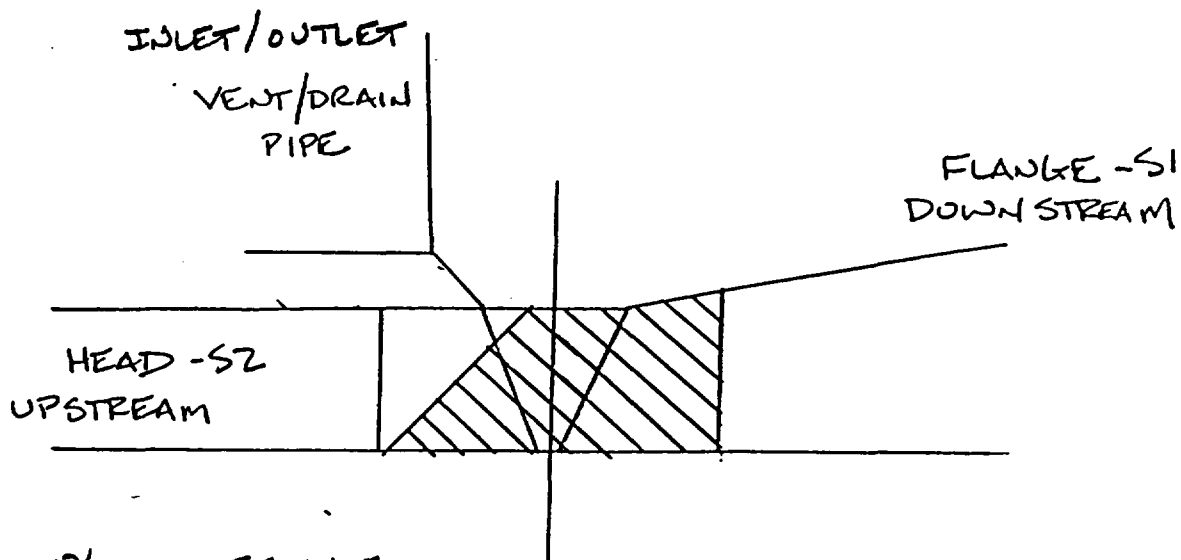
*[Signature]* 3/19/04

P/64  
3/25/04

1.1

ITEM # C01.020.021

WELD # 1ELDHX-HD-FLG



% COVERAGE

45° FROM S1 @ LIMITATIONS

$$1.34 \text{ IN}^2 - \left( \frac{.75" \times .75"}{2} \right) = 1.06 \text{ IN}^2$$

$$1.06 / 1.34 \times 100 = 79.1\%$$

UT-04-096

PAGE 6 OF 8

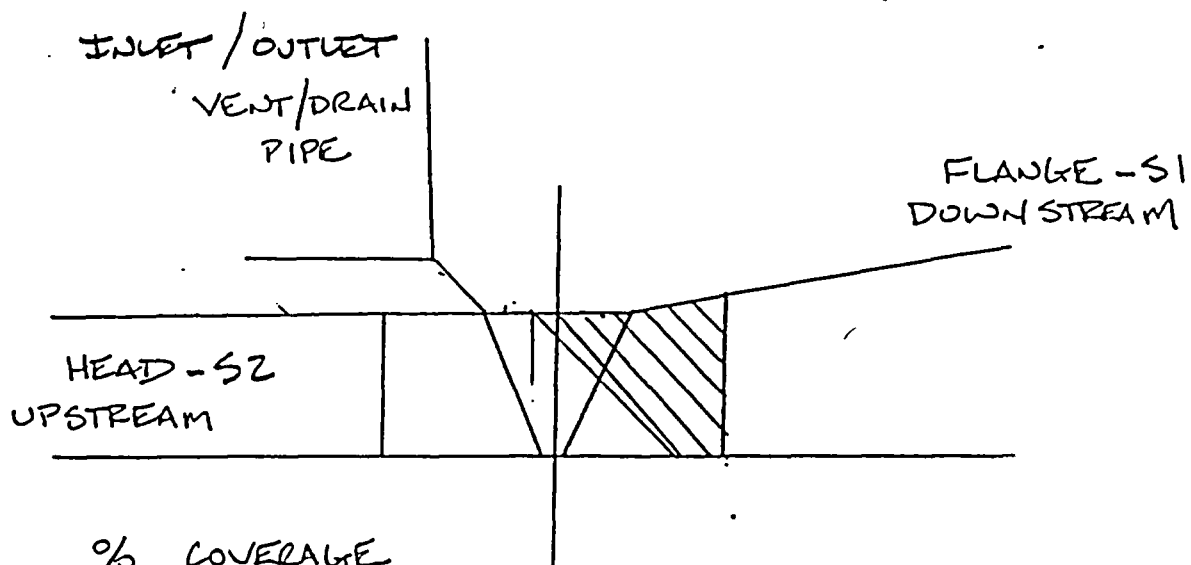
R/GM  
3/25/04

III 3/19/0



ITEM # C01.020.021

WELD # 1ELDHX-HD-FLG



% COVERAGE  
45° FROM S2 @ LIMITATIONS

$$1.34 \text{ in}^2 - (.75 \times .75) - \left( \frac{.75 \times .75}{2} \right) = .50 \text{ in}^2$$

$$.50 \div 1.34 \times 100 = 37.3\%$$

UT-04-096

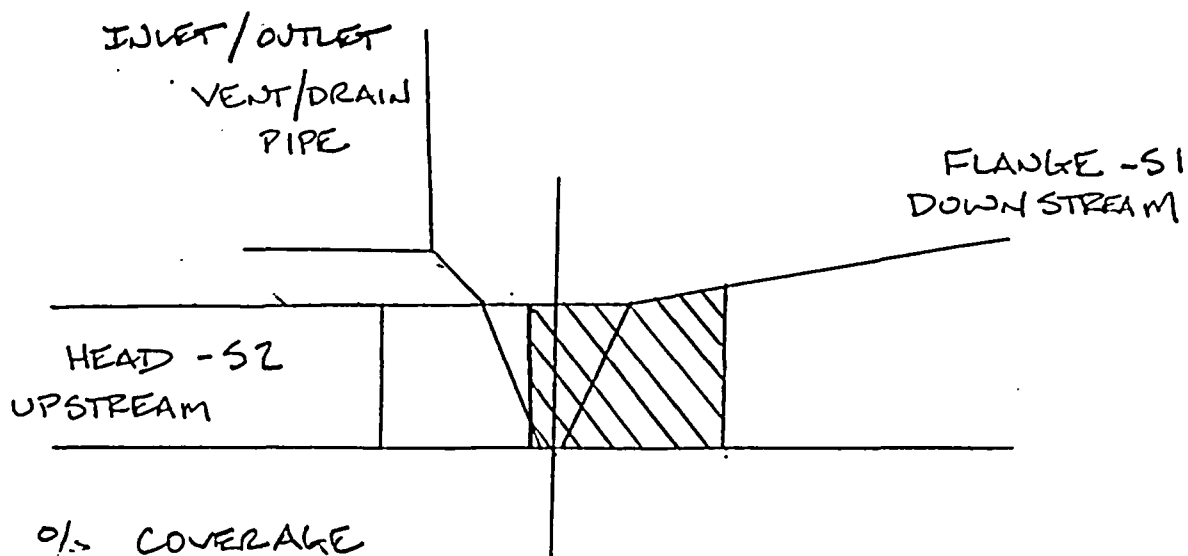
PAGE 17 OF 8

R/g  
3/25/04

*[Signature]* III 3/19/04

ITEM # C01.020.021

WELD# 1ELDHX-HD-FLG



% COVERAGE  
WITH 45° CW & CCW C LIMITATIONS

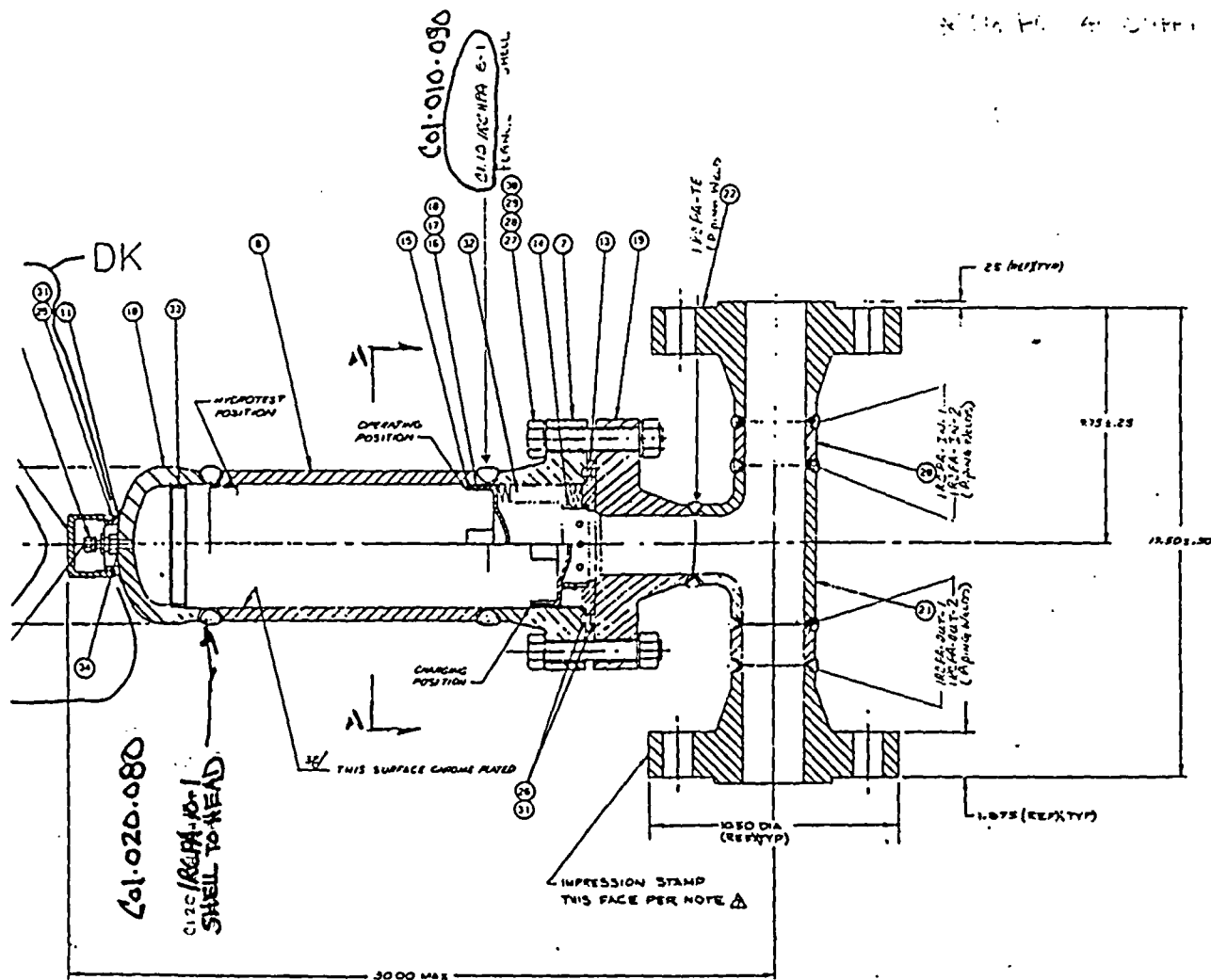
$$1.34 \text{ IN}^2 - .75" \times .75" = .78 \text{ IN}^2$$

$$.78 / 1.34 \times 100 = 58.2 \%$$

UT-04-096  
PAGE 8 OF 8

R/34  
3/25/04

III 3/19/04



MCQUIRRE NUCLEAR STATION  
RECIRCULATING CHARGING PUMP ACCUMULATOR  
HW ORDER C-56584 M10639-13, M97197-13  
DUKE SPEC MCS 1201.04-4

NOTES  
1. See any applicable construction detail supplement to this drawing for details of construction and materials.  
2. The drawing of this drawing is to be used as a guide only and is not to be used as a basis for construction.  
3. The drawing is to be used as a guide only and is not to be used as a basis for construction.  
4. The drawing is to be used as a guide only and is not to be used as a basis for construction.

MCM 1201.04-0197 001  
QA CONDITION 1

REV	DATE	BY	CHKD	APP'D	DESCRIPTION
1	12/10/64	W. J. K. JR.	W. J. K. JR.	W. J. K. JR.	REVISED DRAWING
2	12/10/64	W. J. K. JR.	W. J. K. JR.	W. J. K. JR.	REVISED DRAWING
3	12/10/64	W. J. K. JR.	W. J. K. JR.	W. J. K. JR.	REVISED DRAWING
4	12/10/64	W. J. K. JR.	W. J. K. JR.	W. J. K. JR.	REVISED DRAWING
5	12/10/64	W. J. K. JR.	W. J. K. JR.	W. J. K. JR.	REVISED DRAWING
6	12/10/64	W. J. K. JR.	W. J. K. JR.	W. J. K. JR.	REVISED DRAWING
7	12/10/64	W. J. K. JR.	W. J. K. JR.	W. J. K. JR.	REVISED DRAWING
8	12/10/64	W. J. K. JR.	W. J. K. JR.	W. J. K. JR.	REVISED DRAWING
9	12/10/64	W. J. K. JR.	W. J. K. JR.	W. J. K. JR.	REVISED DRAWING
10	12/10/64	W. J. K. JR.	W. J. K. JR.	W. J. K. JR.	REVISED DRAWING
11	12/10/64	W. J. K. JR.	W. J. K. JR.	W. J. K. JR.	REVISED DRAWING
12	12/10/64	W. J. K. JR.	W. J. K. JR.	W. J. K. JR.	REVISED DRAWING
13	12/10/64	W. J. K. JR.	W. J. K. JR.	W. J. K. JR.	REVISED DRAWING
14	12/10/64	W. J. K. JR.	W. J. K. JR.	W. J. K. JR.	REVISED DRAWING
15	12/10/64	W. J. K. JR.	W. J. K. JR.	W. J. K. JR.	REVISED DRAWING
16	12/10/64	W. J. K. JR.	W. J. K. JR.	W. J. K. JR.	REVISED DRAWING
17	12/10/64	W. J. K. JR.	W. J. K. JR.	W. J. K. JR.	REVISED DRAWING
18	12/10/64	W. J. K. JR.	W. J. K. JR.	W. J. K. JR.	REVISED DRAWING
19	12/10/64	W. J. K. JR.	W. J. K. JR.	W. J. K. JR.	REVISED DRAWING
20	12/10/64	W. J. K. JR.	W. J. K. JR.	W. J. K. JR.	REVISED DRAWING
21	12/10/64	W. J. K. JR.	W. J. K. JR.	W. J. K. JR.	REVISED DRAWING
22	12/10/64	W. J. K. JR.	W. J. K. JR.	W. J. K. JR.	REVISED DRAWING
23	12/10/64	W. J. K. JR.	W. J. K. JR.	W. J. K. JR.	REVISED DRAWING
24	12/10/64	W. J. K. JR.	W. J. K. JR.	W. J. K. JR.	REVISED DRAWING

RR# 05-MN-001  
ATTACHMENT 5  
PAGE 1-6



## UT Vessel Examination

Site/Unit: McGuire / 01  
Summary No.: C01.020.080  
Workscope: ISIProcedure: NDE-330  
Procedure Rev.: 0  
Work Order No.: 98577988Outage No.: MN1EOC16  
Report No.: UT-04-040  
Page: 1 of 4Code: Section XI, 1995 thru 1996 Addenda Cat./Item: C-A/C1.20.80 Location: N/A  
Drawing No.: MCM 1201.04-197 Description: Circumferential - Shell to Head  
System ID: \_\_\_\_\_  
Component ID: C01.020.080 /1RCPA-10-1 Size/Length: N/A Thickness/Diameter: .495 / 6.660  
Limitations: Yes-See Attached Limitation Report Start Time: 0950 Finish Time: 1008Examination Surface: Inside ☐ Outside ☒ Surface Condition: AS GROUND  
Lo Location: 9.2.1 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 00325  
Temp. Tool Mfg.: FISHER Serial No.: MCNDE 27218 Surface Temp.: 68 °F  
Cal. Report No.: CAL-04-084, CAL-04-085, CAL-04-086

Angle Used	0	45	45T	60	60T	60L
Scanning dB		54	55			64

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

Comments:

Scanned at reference DB due to signal to noise ratio

Results: Accept ☒ Reject ☐ Info ☐Percent Of Coverage Obtained > 90%: No - 71.1%Reviewed Previous Data: Yes

Examiner	Level II	Signature	Date	Reviewer	Signature	Date
Leeper, Winfred C.		<i>Winfred C. Leeper</i>	2/24/2004	Jay A Eaton Level III	<i>Jay A Eaton</i>	2/26/2004
Examiner	Level II	Signature	Date	Site Review	Signature	Date
Jordan, Joey		<i>Joey Jordan</i>	2/24/2004			
Other	Level N/A	Signature	Date	ANII Review	Signature	Date
N/A				<i>Mike</i>	<i>3-8-04</i>	

R  
G  
325



# Determination of Percent Coverage for UT Examinations - Pipe

RR# 05-MN-001  
ATT: 5 Page 3-6

Site/Unit:	McGuire / 01	Procedure:	NDE-330	Outage No.:	MN1EOC16
Summary No.:	C01.020.080	Procedure Rev.:	0	Report No.:	UT-04-040
Workscope:	ISI	Work Order No.:	98577988	Page:	2 of 4

## 45 deg

Scan 1	100.000	% Length X	51.300	% volume of length / 100 =	51.300	% total for Scan 1
Scan 2	100.000	% Length X	77.500	% volume of length / 100 =	77.500	% total for Scan 2
Scan 3	100.000	% Length X	71.500	% volume of length / 100 =	71.500	% total for Scan 3
Scan 4	100.000	% Length X	71.500	% volume of length / 100 =	71.500	% total for Scan 4

Add totals and divide by # scans = 67.950 % total for 45 deg

Other deg - 60 (to be used for supplemental scans)

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

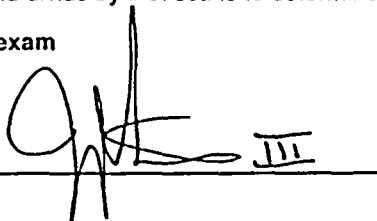
Scan 1		% Length X		% volume of length / 100 =		% total for Scan 1
Scan 2	100.000	% Length X	12.500	% volume of length / 100 =	12.500	% total for Scan 2
Scan 3		% Length X		% volume of length / 100 =		% total for Scan 3
Scan 4		% Length X		% volume of length / 100 =		% total for Scan 4

## Percent complete coverage

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

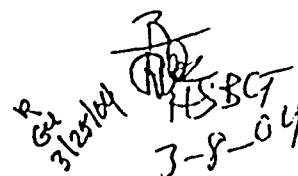
71.075 % Total for complete exam

Site Field Supervisor:



Date:

2/26/04

  
3/23/04  
HSBC  
3-8-04

RR 05-MN-001  
AT-5 Page 46



# Limitation Record

Site/Unit: McGuire / 01  
Summary No.: C01.020.080  
Workscope: ISI

Procedure: NDE-330  
Procedure Rev.: 0  
Work Order No.: 98577988

Outage No.: MN1EOC16  
Report No.: UT-04-040  
Page: 3 of 34

Description of Limitation:

Limited due to head configuration

2/26/04

SHELL - S2

HEAD - S1

Sketch of Limitation:

45° FROM S1 = 51.3%

45° FROM S2 = 77.5%

45° CW & CCW = 71.25%

60° L SUPPLEMENTAL = 90%

SEE PAGE 4 OF 4 FOR CALCULATIONS

Radiation field: N/A

Examiner	Level II	Signature	Date	Reviewer	Signature	Date
Leeper, Winfred C.		<i>Winfred C. Leeper</i>	2/24/2004	Jay A Eaton Level III	<i>Jay A Eaton</i>	2/26/2004
Examiner	Level II	Signature	Date	Site Review	Signature	Date
Jordan, Joey		<i>Joey Jordan</i>	2/24/2004			
ther	Level N/A	Signature	Date	ANII Review	Signature	Date
N/A				<i>ANII Reviewer</i>	3-8-04	

R. C. 2/25/04



# Supplemental Report

Report No.: UT-04-040Page: 4 of 4Summary No.: C01.020.080Examiner: Leeper, Winfred C. Level: IIReviewer: Jay A Eaton Level III Date: 2/26/2004Examiner: Jordan, Joey Level: II

Site Review: \_\_\_\_\_ Date: \_\_\_\_\_

Other: N/A Level: N/AANII Review: [Signature] Date: 3-8-04

## Comments:

Total Exam Area =  $(1.6 \times 0.495) + (0.25 \times 0.1 / 2) = 0.8$  sq in.

45° shear from S1 =  $(1.05 + 0.6 / 2) \times 0.495 = 0.41 / 0.8 \times 100 = 51.3\%$

45° shear from S2 =  $(1.0 + 1.5 / 2) \times 0.495 = 0.62 / 0.8 \times 100 = 77.5\%$

45° shear CW & CCW =  $1.15 \times 0.495 = 0.57 / 0.8 \times 100 = 71.25\%$

60°L supplemental from S2 =  $(0.2 \times 1.6) + (1.1 + 1.6 / 2 \times 0.295) = 0.72 / 0.8 \times 100 = 90\%$

Additional coverage gained with 60°L =  $90\% - 77.5\%$  (coverage with 45°) = 12.5%

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3/26/04



# UT Vessel Examination

Site/Unit: McGuire / 01  
Summary No.: C01.020.080  
Workscope: ISI

Procedure: NDE-330  
Procedure Rev.: 0  
Work Order No.: 98577988

Outage No.: MN1EOC16  
Report No.: UT-04-047  
Page: 1 of 1

Code: Section XI, 1995 thru 1996 Addenda Cat./Item: C-A/C1.20.80 Location: N/A

Drawing No.: MCM 1201.04-197 Description: ;Circumferential - Shell to Head

System ID: \_\_\_\_\_

Component ID: C01.020.080 /IRCPA-10-1 Size/Length: N/A Thickness/Diameter: .495/6.660"

Limitations: Yes-See Limitation Report no. UT-04-40 page 2, 3 and 4 Start Time: 0853 Finish Time: 0856

Examination Surface: Inside ☐ Outside ☒ Surface Condition: AS GROUND

Lo Location: 9.2.1 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 00325

Temp. Tool Mfg.: FISHER Serial No.: MCNDE 27218 Surface Temp.: 68 °F

Cal. Report No.: CAL-04-090

Angle Used	0	45	45T	60	60T	
Scanning dB		54				

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

Comments:

Scanned at Reference DB due to signal to noise ratio - Scanned upstream for additional coverage

Results: Accept ☒ Reject ☐ Info ☐

Percent Of Coverage Obtained >.90%: No - 71.1% Reviewed Previous Data: Yes

Examiner	Level	Signature	Date	Reviewer	Signature	Date
Leeper, Winfred C.	II	<i>Winfred C. Leeper</i>	2/25/2004	Jay A Eaton Level III	<i>Jay A Eaton</i>	2/26/2004
Examiner	Level	Signature	Date	Site Review	Signature	Date
Jordan, Joey	II	<i>Joey Jordan</i>	2/25/2004			
Other	Level	Signature	Date	ANII Review	Signature	Date
N/A	N/A			<i>3-P-04</i>		





# UT Pipe Weld Examination

Site/Unit: McGuire / 01  
 Summary No.: R01.011.150  
 Workscope: ISI

Procedure: NDE-600  
 Procedure Rev.: 15  
 Work Order No.: 98577988

Outage No.: MN1EOC16  
 Report No.: UT-04-048  
 Page: 1 of 3

Code: Section XI, 1995 thru 1996 Addenda Cat./Item: /R1.11.150 Location: \_\_\_\_\_  
 Drawing No.: MCFI-1NV175 Description: Reducer to Pipe  
 System ID: NV  
 Component ID: R01.011.150 /1NVP888-1 Size/Length: N/A Thickness/Diameter: .344/2.0  
 Limitations: Yes - see attached limitation report Start Time: 0928 Finish Time: 0938

Examination Surface: Inside ☐ Outside ☒ Surface Condition: AS GROUND  
 Lo Location: 9.1.1.4 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 01225  
 Temp. Tool Mfg.: FISHER Serial No.: MCNDE 27217 Surface Temp.: 81 °F

Cal. Report No.: CAL-04-092, CAL-04-093, CAL-04-094

Angle Used	0	45	45T	60	70	
Scanning dB			50.0	48.5	52.0	

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

Comments:

Results: Accept ☒ Reject ☐ Info ☐

INITIAL ISI EXAMINATION

Percent Of Coverage Obtained > 90%: No-35.6%

Reviewed Previous Data: No

Examiner Level III Zimmerman, David K.	Signature <i>David K. Zimmerman</i>	Date 2/25/2004	Reviewer Jay A Eaton Level III	Signature <i>Jay A Eaton</i>	Date 2/26/2004
Examiner Level II Leeper, Winfred C.	Signature <i>Winfred C. Leeper</i>	Date 2/25/2004	Site Review	Signature	Date
Other Level N/A N/A	Signature	Date	ANII Review	Signature <i>38-04</i>	Date

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RR 05-MN-001  
ATI.6 7-22-03



# Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit:	McGuire / 01	Procedure:	NDE-600	Outage No.:	MN1EOC16
Summary No.:	R01.011.150	Procedure Rev.:	15	Report No.:	UT-04-048
Workscope:	ISI	Work Order No.:	98577988	Page:	2 of 3

## 45 deg

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	100.000	% Length X	50.000	% volume of length / 100 =	50.000	% total for Scan 3
Scan 4	100.000	% Length X	50.000	% volume of length / 100 =	50.000	% total for Scan 4

Add totals and divide by # scans = 50.000 % total for 45 deg

## Other deg - 60 (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	100.000	% Length X	42.500	% volume of length / 100 =	42.500	% total for Scan 1
Scan 2	100.000	% Length X	0.000	% volume of length / 100 =	0.000	% 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;

35.625 % Total for complete exam

Site Field Supervisor: David K. [Signature]

Date: 02/25/04

OK 2/26/04

NOTE: 70° SHEAR SCAN NOT INCLUDED IN PERCENT COVERAGE DUE TO REQUIREMENTS OF 10CFR 50.55a(b)(2)(xv)(A)(2).  
BEST EFFORT SCAN WITH 70° SHEAR OBTAINED 17.4% COVER IN ONE AXIAL DIRECTION.



# Limitation Record

Site/Unit: McGuire / 01  
Summary No.: R01.011.150  
Workscope: ISI

Procedure: NDE-600  
Procedure Rev.: 15  
Work Order No.: 98577988

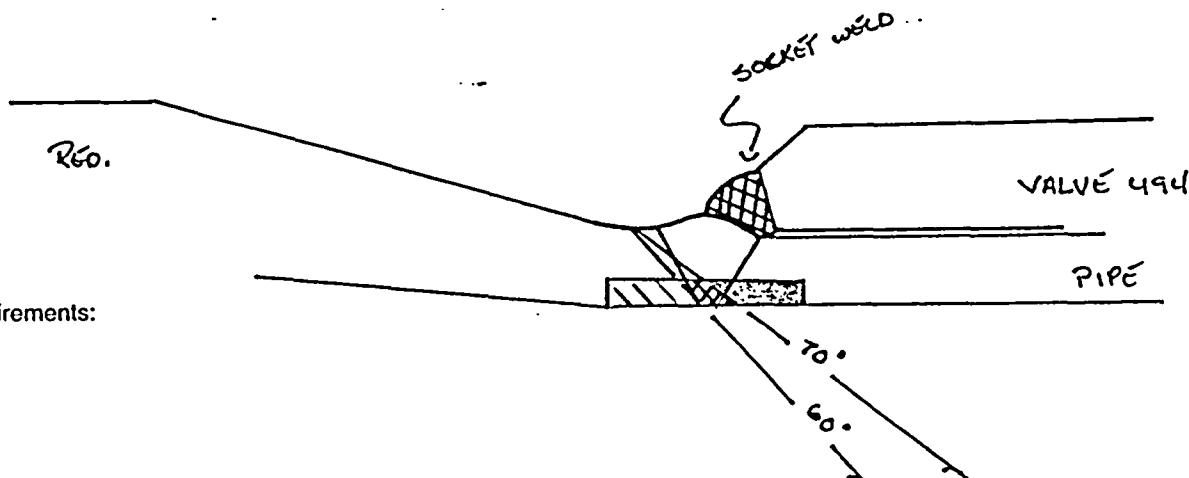
Outage No.: MN1EOC16  
Report No.: UT-04-048  
Page: 3 of 3

## Description of Limitation:

Valve 494/socket weld attaching to butt weld between pipe and reducer

## Sketch of Limitation:

$$\begin{aligned} \text{TOTAL AREA: } & .115\text{in} \times 1.0\text{in} = .115\text{in}^2 \\ 60^\circ \text{ SHEAR COVERAGE: } & \left( \frac{.40\text{in} + .45\text{in}}{2} \right) .115\text{in} = .049\text{in}^2 / .115\text{in}^2 \times 100 = 42.5\% \\ 45^\circ \text{ CW \& CCW: } & .115\text{in} \times 0.5\text{in} = .0575\text{in}^2 / .115\text{in}^2 \times 100 = 50\% \\ 70^\circ \text{ SHEAR } \xrightarrow{\text{DK 2 orks/04}} \text{60}^\circ \text{ COVERAGE: } & .115\text{in}^2 - \left[ \left( \frac{.3\text{in} + .5\text{in}}{2} \right) .115\text{in} + .049\text{in}^2 \right] = .02\text{in}^2 / .115\text{in}^2 \times 100 = 1\% \end{aligned}$$



## Limitations removal requirements:

N/A

## Radiation field:

Examiner	Level III	Signature	Date	Reviewer	Signature	Date
Zimmerman, David K.		<i>David K. Zimmerman</i>	2/25/2004	JAY EATON III	<i>Jay Eaton III</i>	2/26/04
Examiner	Level II	Signature	Date	Site Review	Signature	Date
Leeper, Winfred C.		<i>Winfred C. Leeper</i>	2/25/2004			
Other	Level	Signature	Date	ANII Review	Signature	Date
				<i>[Signature]</i>	3-8-04	

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3/25/04