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September 21, 2011

10 CFR 50.55a

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Subject: Duke Energy Carolinas, LLC (Duke Energy)
McGuire Nuclear Station, Units 1 and 2
Docket Nos. 50-369 and 50-370
Relief Request Serial # 11-MN-001
Limited Weld Examinations for Refueling Outages 1EOC20 and 2EOC19

Pursuant to 10 CFR 50.55a(g)(5)(iii), Duke Energy hereby requests NRC approval of relief for the welds listed in Table 1 of the proposed relief request. These welds were required to be examined in accordance with Inservice Inspection Plans for McGuire Units 1 and 2, Third 10-Year Inservice Inspection Interval. The details of the request are included in the enclosure.

This submittal contains no regulatory commitments.

If you have any questions or require additional information, please contact P.T. Vu at (980) 875-4302.

Sincerely,

Regis T. Repko

Enclosure

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NRR

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ENCLOSURE

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1.0 Scope of Relief Request

Relief is requested pursuant to 10 CFR 50.55a(g)(5)(iii) for welds listed in Table 1. These welds were required to be examined in accordance with Inservice Inspection Plans for the following Units.

McGuire Nuclear Station - Unit 1
Third 10-Year Inservice Inspection Interval
Interval Start Date: 12/01/2001

McGuire Nuclear Station - Unit 2
Third 10-Year Inservice Inspection Interval
Interval Start Date: 03/01/2004

Table 1					
<u>Relief Request Section Number</u>	<u>McGuire Unit Number</u>	<u>Examination Performed (Refueling Outage)</u>	<u>Weld ID Number</u>	<u>Item/Summary Number</u>	<u>Examination Data</u>
2.0	1	1EOC20	1NCIF-3613-3092	M1.R1.11.0390	See Attachment A Pages 1-6
3.0	1	1EOC20	1ELDHX-HD-FLG	M1.C1.20.0017	See Attachment A Pages 7-13
4.0	1	1EOC20	1NV1FW53-27	M1.R1.11.2170	See Attachment A Pages 14-19
5.0	1	1EOC20	1BCSHX-SH-48	M1.C1.30.0005	See Attachment A Pages 20-24
6.0	2	2EOC19	2PZR-13	M2.B3.110.0003	See Attachment B Pages 1-13
7.0	2	2EOC19	2PZR-14	M2.B3.110.0004	See Attachment B Pages 14-26
8.0	2	2EOC19	2PZR-15	M2.B3.110.0005	See Attachment B Pages 27-39
9.0	2	2EOC19	2ACSHX-SH-48	M2.C1.30.0006	See Attachment B Pages 40-43

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10.0	2	2EOC19	2NC2FW39-1	M2.R1.11.0048	See Attachment B Pages 44-51
11.0	2	2EOC19	2NC2FW40-11	M2.R1.11.0049	See Attachment B Pages 52-53
12.0	2	2EOC19	2NC2FW43-1	M2.R1.11.0050	See Attachment B Pages 54-56
13.0	2	2EOC19	2NV2FW180-1	M2.R1.11.1566	See Attachment B Pages 57-63
14.0	2	2EOC19	2NC2FW2-2	M2.R1.11.1730	See Attachment B Pages 64-72
15.0	2	2EOC19	NVFW10-20	PSI	See Attachment B Pages 73-82
16.0	2	2EOC19	NVFW180-46	PSI	See Attachment B Pages 83-88
17.0	2	2EOC19	NVFW180-45	PSI	See Attachment B Pages 89-94

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2.0 Weld #1NCIF-3613-3092

2.1. ASME Code Component(s) Affected

Unit 1 Nozzle to Pipe Weld, Weld #1NC1F-3613-3092, Summary Number M1.R1.11.0390

2.2. Applicable Code Edition and Addenda

ASME Boiler and Pressure Vessel Code, Section XI, 1998 Edition through the 2000 Addenda

2.3. Applicable Code/Licensing Requirement

WCAP-14572, Rev.1-NP-A, Supplement 2, Table 4.1-1, Examination Category R-A, Item Number R1.11, Fig.IWB-2500-8(c), 100% Volume Coverage of Examination Volume C-D-E-F

The NRC authorized the inclusion of the RI-ISI program as an acceptable alternative to the ASME Code, Section XI requirements for ASME Code Class 1 piping welds, Examination Categories B-F and B-J and ASME Code Class 2 piping welds, Examination Categories C-F-1 and C-F-2 for the third ISI interval by letter dated June 12, 2002.

2.4. Impracticality of Compliance

Surface 1: Stainless Steel Pipe
Surface 2: Stainless Steel Nozzle
NPS: 14.0 inch
Thickness: 1.406 inch

During the ultrasonic examination of this weld, 62.5% coverage of the required examination volume was obtained. The limitations were due to the nozzle configuration that did not allow complete scanning from the nozzle side (S2). Scanning requirements are described in 10CFR.50.55a(b)(2)(xv)(A)(1). The aggregate coverage was calculated as follows:

- 60° shear waves obtained 50% coverage in one axial direction (S1 – pipe)
- 60° shear waves obtained 0% coverage in one axial direction (S2 – nozzle)
- 45° shear and longitudinal waves obtained 100% coverage in one circ. direction (S3 – CW)
- 45° shear and longitudinal waves obtained 100% coverage in one circ. direction (S4 – CCW)
- The aggregate coverage was calculated to be $(50\% + 0\% + 100\% + 100\%)/4 = 62.5\%$

In order to scan all of the required volume for this weld, the nozzle would have to be redesigned to allow scanning from both sides of the weld, which is impractical. The McGuire Inservice Inspection Plan allows the use of Code Case N-460,

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which requires greater than 90% volumetric coverage of examination volume C-D-E-F. Therefore, the available coverage will not meet the acceptance criteria of this Code Case.

2.5. Proposed Alternative and Basis for Use

No alternative examinations are planned for the weld during the current inspection interval. Radiography (RT) is not a desired option because RT is limited in the ability to detect expected degradation mechanisms such as thermal fatigue cracking and stress corrosion crack initiating at the pipe inside surface. Additionally, radiography has not been qualified through performance demonstration.

2.6. Duration of Proposed Alternative

This request is for the duration of the third inservice inspection interval, currently scheduled to end on 12/01/2011.

2.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number M1.R1.11.0390 was conducted using personnel, equipment, and procedures qualified in accordance with ASME Section XI, 1998 Edition with the 2000 Addenda.

The system leakage test performed each refueling outage in accordance with Table IWB-2500-1; Examination Category B-P requires a VT-2 visual examination to detect evidence of leakage. This test and VT-2 examination provide additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), Reactor Building Normal Sump monitoring provide additional assurance that, in the event that leakage did occur through this weld, it would be detected and proper action taken.

Duke has examined the weld/component to the maximum extent possible utilizing approved examination techniques and equipment. Based on the acceptable results for the coverage completed by the volumetric examination, the pressure testing (VT-2) examinations required by Section XI, and the leakage monitoring, it is Duke's position that the combination of examinations provide a reasonable assurance of quality and safety.

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3.0 Weld #1ELDHX-HD-FLG

3.1. ASME Code Component(s) Affected

Unit 1 Heat Exchanger Head to Flange Weld, Weld #1ELDHX-HD-FLG, Summary Number M1.C1.20.0017

3.2. Applicable Code Edition and Addenda

ASME Boiler and Pressure Vessel Code, Section XI, 1998 Edition through the 2000 Addenda

3.3. Applicable Code Requirement

IWC-2500, Table IWC-2500-1, Examination Category C-A, Item Number C1.20, Fig. IWC-2500-1(a), 100% Volume Coverage of Examination Volume A-B-C-D

3.4. Impracticality of Compliance

Surface 1: Carbon Steel Flange
Surface 2: Stainless Steel Head
Diameter: 9.5 inch
Thickness: 0.750 inch

The ultrasonic examination of the Heat Exchanger head to flange weld obtained 79.77% coverage of the required examination volume. ASME Section XI, Appendix III, III-4420 requires coverage of the examination volume in two beam path directions and Appendix III, III-4430 requires scanning on the weld crown in two directions. Due to the presence of one vent pipe, one draw pipe, one inlet connection, and one outlet connection, the scanning was limited in each direction for 48.4% of the total weld length. The total aggregate percent of coverage was calculated as follows.

For 51.6% of the total weld length:

- 45° shear waves obtained 51.6% coverage in one axial direction (S1 – flange)
- 45° shear waves obtained 51.6% coverage in one axial direction (S2 – head)
- 45° shear waves obtained 51.6% coverage in one circ. direction (S3 – CW)
- 45° shear waves obtained 51.6% coverage in one circ. direction (S4 – CCW)
- This aggregate coverage was calculated to be $(51.6\% + 51.6\% + 51.6\% + 51.6\%) / 4 = 51.6\%$

For 48.4% of the total weld length:

- 45° shear waves obtained 38.28% coverage in one axial direction (S1 – flange)
- 45° shear waves obtained 18.05% coverage in one axial direction (S2 – head)
- 45° shear waves obtained 28.17% coverage in one circ. direction (S3 – CW)

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- 45° shear waves obtained 28.17% coverage in one circ. direction (S4 – CCW)
- This aggregate coverage was calculated to be $(38.28\% + 18.05\% + 28.17\% + 28.17\%)/4 = 28.17\%$

The total aggregate coverage was $51.6\% + 28.17\% = 79.77\%$

The limitations were caused by the four physical scanning limitations, all located on the S2 head side. In order to scan all of the required volume for this weld, the heat exchanger would have to be redesigned to allow scanning from both sides of the weld, which is impractical.

The McGuire Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage of examination volume A-B-C-D. The achieved coverage did not meet the acceptance criteria of this Code Case.

3.5. Proposed Alternative and Basis for Use

Radiography (RT) is not a desired option because there is no practical access for film placement.

3.6. Duration of Proposed Alternative

This request is for the duration of the third inservice inspection interval, currently scheduled to end on 12/01/2011.

3.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number M1.C1.20.0017 was conducted using personnel, equipment, and procedures qualified in accordance with ASME Section XI, 1998 Edition with the 2000 Addenda.

In addition to the above Code required volumetric examination Reactor Building Normal Sump monitoring provide additional assurance that, in the event that leakage did occur through this weld, it would be detected and proper action taken.

Duke has examined the weld/component to the maximum extent possible utilizing approved examination techniques and equipment. Based on the acceptable results for the coverage completed by the volumetric examination and the leakage monitoring, it is Duke's position that the combination of examinations provide a reasonable assurance of quality and safety.

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4.0 Weld #1NV1FW53-27

4.1. ASME Code Component(s) Affected

Unit 1 Pipe to Valve #1NV35A Weld, Weld #1NV1FW53-27, Summary Number M1.R1.11.2170

4.2. Applicable Code Edition and Addenda

ASME Boiler and Pressure Vessel Code, Section XI, 1998 Edition through the 2000 Addenda

4.3. Applicable Code/Licensing Requirement

WCAP-14572, Rev.1-NP-A, Supplement 2, Table 4.1-1, Examination Category R-A, Item Number R1.11, Fig.IWB-2500-8(c), 100% Volume Coverage of Examination Volume C-D-E-F

The NRC authorized the inclusion of the RI-ISI program as an acceptable alternative to the ASME Code, Section XI requirements for ASME Code Class 1 piping welds, Examination Categories B-F and B-J and ASME Code Class 2 piping welds, Examination Categories C-F-1 and C-F-2 for the third ISI interval by letter dated June 12, 2002.

4.4. Impracticality of Compliance

Surface 1: Stainless Steel Pipe
Surface 2: Stainless Steel Valve
NPS: 2.0 inch
Thickness: 0.436 inch

During the ultrasonic examination of this weld, 37.5% coverage of the required examination volume was obtained. The limitations were due to the valve configuration that did not allow complete scanning from the valve side (S2). Scanning requirements are described in 10CFR.50.55a(b)(2)(xv)(A)(1). The aggregate coverage was calculated as follows:

- 60° shear waves obtained 50% coverage in one axial direction (S1 – pipe)
- 60° shear waves obtained 0% coverage in one axial direction (S2 – valve)
- 45° shear and longitudinal waves obtained 50% coverage in one circ. direction (S3 – CW)
- 45° shear and longitudinal waves obtained 50% coverage in one circ. direction (S4 – CCW)
- The aggregate coverage was calculated to be $(50\% + 0\% + 50\% + 50\%)/4 = 37.5\%$

In order to scan all of the required volume for this weld, the valve would have to be redesigned to allow scanning from both sides of the weld, which is impractical. The McGuire Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage of examination volume C-

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D-E-F. Therefore, the available coverage will not meet the acceptance criteria of this Code Case.

4.5. Proposed Alternative and Basis for Use

No alternative examinations are planned for the weld during the current inspection interval. Radiography (RT) is not a desired option because RT is limited in the ability to detect expected degradation mechanisms such as thermal fatigue cracking and stress corrosion crack initiating at the pipe inside surface. Additionally, radiography has not been qualified through performance demonstration.

4.6. Duration of Proposed Alternative

This request is for the duration of the third inservice inspection interval, currently scheduled to end on 12/01/2011.

4.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number M1.R1.11.2170 was conducted using personnel, equipment, and procedures qualified in accordance with ASME Section XI, 1998 Edition with the 2000 Addenda.

The system leakage test performed each inspection period in accordance with Table IWC-2500-1; Examination Category C-H requires a VT-2 visual examination to detect evidence of leakage. This test and VT-2 examination provide additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), Reactor Building Normal Sump monitoring provide additional assurance that, in the event that leakage did occur through this weld, it would be detected and proper action taken.

Duke has examined the weld/component to the maximum extent possible utilizing approved examination techniques and equipment. Based on the acceptable results for the coverage completed by the volumetric examination, the pressure testing (VT-2) examinations required by Section XI, and the leakage monitoring, it is Duke's position that the combination of examinations provide a reasonable assurance of quality and safety.

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5.0 Weld #1BCSHX-SH-48

5.1. ASME Code Component(s) Affected

Unit 1 Heat Exchanger Tubesheet to Shell Weld, Weld #1BCSHX-SH-48, Summary Number M1.C1.30.0005

5.2. Applicable Code Edition and Addenda

ASME Boiler and Pressure Vessel Code, Section XI, 1998 Edition through the 2000 Addenda

5.3. Applicable Code Requirement

IWC-2500, Table IWC-2500-1, Examination Category C-A, Item Number C1.30, Fig. IWC-2500-2, 100% Volume Coverage of Examination Volume E-F-G-H

5.4. Impracticality of Compliance

Surface 1: Carbon Steel Tube Sheet
Surface 2: Carbon Steel Shell
Diameter: 55.25 inch
Thickness: 0.625 inch

ASME Section XI, Appendix III, III-4420 requires coverage of the examination volume in two beam path directions and Appendix III, III-4430 requires scanning on the weld crown in two directions. Because of the design of this component, these requirements could not be met. The aggregate coverage was calculated as follows:

- 35° shear waves obtained 44.29% coverage in one axial direction (S1 – tubesheet)
- 35° shear waves obtained 44.29% coverage in one axial direction (S2 – shell)
- 35° shear waves obtained 44.29% coverage in one circ. direction (S3 – CW)
- 35° shear waves obtained 44.29% coverage in one circ. direction (S4 – CCW)
- The aggregate coverage was calculated to be $(44.29\% + 44.29\% + 44.29\% + 44.29\%)/4 = 44.29\%$

The limitations were caused by the design of the attached permanent hanger supports limiting scanning from any of the required four directions. In order to scan all of the required volume for this weld, the heat exchanger would have to be redesigned to allow scanning in all directions, which is impractical.

The McGuire Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage of examination volume E-F-G-H. The achieved coverage did not meet the acceptance criteria of this Code Case.

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5.5. Proposed Alternative and Basis for Use

Radiography (RT) is not a desired option because there is no practical access for film placement.

5.6. Duration of Proposed Alternative

This request is for the duration of the third inservice inspection interval, currently scheduled to end on 12/01/2011.

5.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number M1.C1.30.0005 was conducted using personnel, equipment, and procedures qualified in accordance with ASME Section XI, 1998 Edition with the 2000 Addenda.

The system leakage test performed each inspection period in accordance with Table IWC-2500-1; Examination Category C-H requires a VT-2 visual examination to detect evidence of leakage. This test and VT-2 examination provide additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), visual observations performed during periodic surveillance testing provide additional assurance that in the event leakage did occur through this weld, it would be detected and proper action taken.

Duke has examined the weld/component to the maximum extent possible utilizing approved examination techniques and equipment. Based on the acceptable results for the coverage completed by the volumetric examination, the pressure testing (VT-2) examinations required by Section XI, and the leakage monitoring, it is Duke's position that the combination of examinations provide a reasonable assurance of quality and safety.

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6.0 Weld #2PZR-13

6.1 ASME Code Component(s) Affected

Unit 2, Pressurizer Safety/Relief Nozzle to Upper Head Weld,
Weld #2PZR-13, Summary Number M2.B3.110.0003

6.2 Applicable Code Edition and Addenda

ASME Boiler and Pressure Vessel Code, Section XI, 1998 Edition through the
2000 Addenda

6.3 Applicable Code Requirement

IWB-2500, Table IWB-2500-1, Examination Category B-D, Item Number B3.110
Fig. IWB-2500-7 (a), 100% Volume Coverage of Examination Volume A-B-C-D-
E-F-G-H-I

6.4 Impracticality of Compliance

The Pressurizer Safety/Relief Nozzle material is carbon steel and the Upper
Head material is carbon steel. This weld has a diameter of 15 inches and a wall
thickness of 2.35 inches.

Because of the weld configuration, the requirements of ASME Section V, Article
4, T-441.1.2(a), T-441.1.3, T-441.1.4, T-441.1.5 and t-441.1.6 could not be met.
The aggregate coverage was calculated from the following base and weld metal
scan results:

- Weld coverage using 35°, 45° & 60° shear waves for axial scans (S1, S2),
and 35° & 45° shear waves for circ. scans (CW, CCW) obtained 83.6%
coverage.
- Base material coverage using 35°, 45° & 60° shear wave for axial scans
(S1) and 35°, 45° and 60° shear waves for circ. scans (CW, CCW)
obtained 70.555% coverage.
- 0° scan coverage obtained 81.95% coverage.
- The aggregate coverage was calculated to be $(83.6\% + 70.555\% + 81.95\%)/3 = 78.7\%$.

The limitation was caused by the weld taper configuration created by the
attachment of the Safety/Relief nozzle to the Upper Head. In order to scan all of
the required volume for this weld, the Upper Head to Safety/Relief nozzle
attachment weld would have to be redesigned, which is impractical.

The McGuire Inservice Inspection Plan allows the use of Code Case N-460,
which requires greater than 90% volumetric coverage. The achieved coverage
did not meet the acceptable criteria of this Code Case.

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6.5. Proposed Alternative and Basis for Use

Radiography (RT) is not a desired option because there is no practical access for film placement.

6.6. Duration of Proposed Alternative

This request is for the duration of the third inservice inspection interval, currently scheduled to end on 7/15/2014.

6.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number M2.B3.110.0003 was conducted using personnel, equipment, and procedures qualified in accordance with ASME Section XI, 1998 Edition with the 2000 Addenda.

The system leakage test performed each refueling outage in accordance with Table IWB-2500-1; Examination Category B-P requires a VT-2 visual examination to detect evidence of leakage. This test and VT-2 examination provide additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), Reactor Building Normal Sump monitoring provide additional assurance that, in the event that leakage did occur through this weld, it would be detected and proper action taken.

Duke has examined the weld/component to the maximum extent possible utilizing approved examination techniques and equipment. Based on the acceptable results for the coverage completed by the volumetric examination, the pressure testing (VT-2) examinations required by Section XI, and the leakage monitoring, it is Duke's position that the combination of examinations provide a reasonable assurance of quality and safety.

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7.0 Weld #2PZR-14

7.1. ASME Code Component(s) Affected

Unit 2, Pressurizer Safety/Relief Nozzle to Upper Head Weld,
Weld #2PZR-14, Summary Number M2.B3.110.0004

7.2. Applicable Code Edition and Addenda

ASME Boiler and Pressure Vessel Code, Section XI, 1998 Edition through the
2000 Addenda

7.3. Applicable Code Requirement

IWB-2500, Table IWB-2500-1, Examination Category B-D, Item Number B3.110
Fig. IWB-2500-7 (a), 100% Volume Coverage of Examination Volume A-B-C-D-
E-F-G-H-I

7.4. Impracticality of Compliance

The Pressurizer Safety/Relief Nozzle material is carbon steel and the Upper
Head material is carbon steel. This weld has a diameter of 15 inches and a wall
thickness of 2.35 inches.

Because of the weld configuration, the requirements of ASME Section V, Article
4, T-441.1.2(a), T-441.1.3, T-441.1.4, T-441.1.5 and t-441.1.6 could not be met.
The aggregate coverage was calculated from the following base and weld metal
scan results:

- Weld coverage using 35°, 45° & 60° shear waves for axial scans (S1, S2),
and 35° & 45° shear waves for circ. scans (CW, CCW) obtained 83.6%
coverage.
- Base material coverage using 35°, 45° & 60° shear wave for axial scans
(S1) and 35°, 45° and 60° shear waves for circ. scans (CW, CCW)
obtained 70.555% coverage.
- 0° scan coverage obtained 81.95% coverage.
- The aggregate coverage was calculated to be $(83.6\% + 70.555\% + 81.95\%)/3 = 78.7\%$.

The limitation was caused by the weld taper configuration created by the
attachment of the Safety/Relief nozzle to the Upper Head. In order to scan all of
the required volume for this weld, the Upper Head to Safety/Relief nozzle
attachment weld would have to be redesigned, which is impractical.

The McGuire Inservice Inspection Plan allows the use of Code Case N-460,
which requires greater than 90% volumetric coverage. The achieved coverage
did not meet the acceptable criteria of this Code Case.

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7.5. Proposed Alternative and Basis for Use

Radiography (RT) is not a desired option because there is no practical access for film placement.

7.6. Duration of Proposed Alternative

This request is for the duration of the third inservice inspection interval, currently scheduled to end on 7/15/2014.

7.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number M2.B3.110.0004 was conducted using personnel, equipment, and procedures qualified in accordance with ASME Section XI, 1998 Edition with the 2000 Addenda.

The system leakage test performed each refueling outage in accordance with Table IWB-2500-1; Examination Category B-P requires a VT-2 visual examination to detect evidence of leakage. This test and VT-2 examination provide additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), Reactor Building Normal Sump monitoring provide additional assurance that, in the event that leakage did occur through this weld, it would be detected and proper action taken.

Duke has examined the weld/component to the maximum extent possible utilizing approved examination techniques and equipment. Based on the acceptable results for the coverage completed by the volumetric examination, the pressure testing (VT-2) examinations required by Section XI, and the leakage monitoring, it is Duke's position that the combination of examinations provide a reasonable assurance of quality and safety.

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8.0 Weld #2PZR-15

8.1 ASME Code Component(s) Affected

Unit 2, Pressurizer Safety/Relief Nozzle to Upper Head Weld,
Weld #2PZR-15, Summary Number M2.B3.110.0005

8.2 Applicable Code Edition and Addenda

ASME Boiler and Pressure Vessel Code, Section XI, 1998 Edition through the
2000 Addenda

8.3 Applicable Code Requirement

IWB-2500, Table IWB-2500-1, Examination Category B-D, Item Number B3.110
Fig. IWB-2500-7 (a), 100% Volume Coverage of Examination Volume A-B-C-D-
E-F-G-H-I

8.4 Impracticality of Compliance

The pressurizer Safety/Relief Nozzle material is carbon steel and the Upper
Head material is carbon steel. This weld has a diameter of 15 inches and a wall
thickness of 2.35 inches.

Because of the weld configuration, the requirements of ASME Section V, Article
4, T-441.1.2(a), T-441.1.3, T-441.1.4, T-441.1.5 and T-441.1.6 could not be met.
The aggregate coverage was calculated from the following base and weld metal
scan results:

- Weld coverage using 35°, 45° & 60° shear waves for axial scans (S1, S2),
and 35° & 45° shear waves for circ. scans (CW, CCW) obtained 83.6%
coverage.
- Base material coverage using 35°, 45° & 60° shear wave for axial scans
(S1) and 35°, 45° and 60° shear waves for circ. scans (CW, CCW)
obtained 70.555% coverage.
- 0° scan coverage obtained 81.95% coverage.
- The aggregate coverage was calculated to be $(83.6\% + 70.555\% + 81.95\%)/3 = 78.7\%$.

The limitation was caused by the weld taper configuration created by the
attachment of the Safety/Relief nozzle to the Upper Head. In order to scan all of
the required volume for this weld, the Upper Head to Safety/Relief nozzle
attachment weld would have to be redesigned, which is impractical.

The McGuire Inservice Inspection Plan allows the use of Code Case N-460,
which requires greater than 90% volumetric coverage. The achieved coverage
did not meet the acceptable criteria of this Code Case.

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8.5. Proposed Alternative and Basis for Use

Radiography (RT) is not a desired option because there is no practical access for film placement.

8.6. Duration of Proposed Alternative

This request is for the duration of the third inservice inspection interval, currently scheduled to end on 7/15/2014.

8.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number M2.B3.110.0005 was conducted using personnel, equipment, and procedures qualified in accordance with ASME Section XI, 1998 Edition with the 2000 Addenda.

The system leakage test performed each refueling outage in accordance with Table IWB-2500-1; Examination Category B-P requires a VT-2 visual examination to detect evidence of leakage. This test and VT-2 examination provide additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), Reactor Building Normal Sump monitoring provide additional assurance that, in the event that leakage did occur through this weld, it would be detected and proper action taken.

Duke has examined the weld/component to the maximum extent possible utilizing approved examination techniques and equipment. Based on the acceptable results for the coverage completed by the volumetric examination, the pressure testing (VT-2) examinations required by Section XI, and the leakage monitoring, it is Duke's position that the combination of examinations provide a reasonable assurance of quality and safety.

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9.0 Weld #2ACSHX-SH-48

9.1. ASME Code Component(s) Affected

Unit 2, Exchanger Shell to Tubesheet Weld #2ACSHX-SH-48, Summary Number M2.C1.30.0006

9.2. Applicable Code Edition and Addenda

ASME Boiler and Pressure Vessel Code, Section XI, 1998 Edition through the 2000 Addenda

9.3. Applicable Code Requirement

IWC-2500, Table IWC-2500-1, Examination Category CA, Item Number C1.30 Fig. IWC-2500-2, 100% Volume Coverage of Examination Volume E-F-G-H

9.4. Impracticality of Compliance

The material is carbon steel. This weld has a diameter of 55.25 inches and a wall thickness of 0.625 inch.

ASME Section XI, Appendix III, III-4420 requires coverage of the examination volume in two beam path directions. ASME Section XI, Appendix III, III 4430 requires scanning on the weld crown in two directions. The total aggregate percent coverage was calculated as follows:

- 45° shear waves obtained 23.4% coverage in one axial direction (S1 - tubesheet)
- 45° shear waves obtained 23.4% coverage in one axial direction (S2 - shell)
- 45° shear waves obtained 23.4% coverage in one circ. direction (CW).
- 45° shear waves obtained 23.4% coverage in one circ. direction (CCW).
- The aggregate coverage was calculated to be $(23.4\% + 23.4\% + 23.4\% + 23.4\%)/4 = 23.4\%$.

In order to obtain more coverage the welded supports would have to be removed to allow additional access. This is impractical.

The McGuire Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage of examination volume E-F-G-H. Therefore, the available coverage will not meet the criteria of this Code Case.

9.5. Proposed Alternative and Basis for Use

Radiography (RT) is not a desired option because there is no practical access for film placement.

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9.6. Duration of Proposed Alternative

This request is for the duration of the third inservice inspection interval, currently scheduled to end on 7/15/2014.

9.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number M2.C1.30.0006 was conducted using personnel, equipment, and procedures qualified in accordance with ASME Section XI, 1998 Edition with the 2000 Addenda.

The system leakage test performed each inspection period in accordance with Table IWC-2500-1; Examination Category C-H requires a VT-2 visual examination to detect evidence of leakage. This test and VT-2 examination provide additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), visual observations performed during periodic surveillance testing provide additional assurance that in the event leakage did occur through this weld, it would be detected and proper action taken.

Duke has examined the weld/component to the maximum extent possible utilizing approved examination techniques and equipment. Based on the acceptable results for the coverage completed by the volumetric examination, the pressure testing (VT-2) examinations required by Section XI, and the leakage monitoring, it is Duke's position that the combination of examinations provide a reasonable assurance of quality and safety.

10.0 Weld #2NC2FW39-1

10.1. ASME Code Component(s) Affected

Unit 2, Nozzle to Pipe Weld #2NC2FW39-1, Summary Number M2.R1.11.0048

10.2. Applicable Code Edition and Addenda

ASME Boiler and Pressure Vessel Code, Section XI, 1998 Edition through the 2000 Addenda

10.3. Applicable Code/Licensing Requirement

WCAP-14572, Rev.1-NP-A, Supplement 2, Table 4.1-1, Examination Category R-A, Item Number R1.11, Fig.IWB-2500-8(c), 100% Volume Coverage of Examination Volume C-D-E-F

The NRC authorized the inclusion of the RI-ISI program as an acceptable alternative to the ASME Code, Section XI requirements for ASME Code Class 1 piping welds, Examination Categories B-F and B-J and ASME Code Class 2 piping welds, Examination Categories C-F-1 and C-F-2 for the third ISI interval by letter dated June 12, 2002.

10.4. Impracticality of Compliance

Surface 1: Stainless Steel Nozzle
Surface 2: Stainless Steel Pipe
NPS: 1.5 inch
Thickness: 0.281 inch

Scanning requirements are described in 10CFR.50.55a(b)(2)(xv)(A)(1). The aggregate coverage was calculated as follows:

- 45° shear waves obtained 0% coverage in one axial direction (S1 – nozzle)
- 45° shear waves obtained 50% coverage in one axial direction (S2 – pipe)
- 38° shear and longitudinal waves obtained 27.7 % coverage in one circ. direction (S3 – CW)
- 38° shear and longitudinal waves obtained 27.7% coverage in one circ. direction (S4 – CCW)
- The aggregate coverage was calculated to be $(0\% + 50\% + 27.7\% + 27.7\%)/4 = 26.35\%$

In order to scan all of the required volume for this weld, the nozzle would have to be redesigned to allow scanning from both sides of the weld, which is impractical. The McGuire Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage of examination volume C-

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D-E-F. Therefore, the available coverage will not meet the acceptance criteria of this Code Case.

10.5. Proposed Alternative and Basis for Use

No alternative examinations are planned for the weld during the current inspection interval. Radiography (RT) is not a desired option because RT is limited in the ability to detect expected degradation mechanisms such as thermal fatigue cracking and stress corrosion crack initiating at the pipe inside surface. Additionally, radiography has not been qualified through performance demonstration.

10.6. Duration of Proposed Alternative

This request is for the duration of the third inservice inspection interval, currently scheduled to end on 7/15/2014.

10.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number M2.R1.11.0048 was conducted using personnel, equipment, and procedures qualified in accordance with ASME Section XI, 1998 Edition with the 2000 Addenda.

The system leakage test performed each refueling outage in accordance with Table IWB-2500-1; Examination Category B-P requires a VT-2 visual examination to detect evidence of leakage. This test and VT-2 examination provide additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), Reactor Building Normal Sump monitoring provide additional assurance that, in the event that leakage did occur through this weld, it would be detected and proper action taken.

Duke has examined the weld/component to the maximum extent possible utilizing approved examination techniques and equipment. Based on the acceptable results for the coverage completed by the volumetric examination, the pressure testing (VT-2) examinations required by Section XI, and the leakage monitoring, it is Duke's position that the combination of examinations provide a reasonable assurance of quality and safety.

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11.0 Weld #2NC2FW40-11

11.1. ASME Code Component(s) Affected

Unit 2, Nozzle to Pipe Weld #2NC2FW40-11, Summary Number M2.R1.11.0049

11.2. Applicable Code Edition and Addenda

ASME Boiler and Pressure Vessel Code, Section XI, 1998 Edition through the 2000 Addenda

11.3. Applicable Code/Licensing Requirement

WCAP-14572, Rev.1-NP-A, Supplement 2, Table 4.1-1, Examination Category R-A, Item Number R1.11, Fig.IWB-2500-8(c), 100% Volume Coverage of Examination Volume C-D-E-F

The NRC authorized the inclusion of the RI-ISI program as an acceptable alternative to the ASME Code, Section XI requirements for ASME Code Class 1 piping welds, Examination Categories B-F and B-J and ASME Code Class 2 piping welds, Examination Categories C-F-1 and C-F-2 for the third ISI interval by letter dated June 12, 2002.

11.4. Impracticality of Compliance

Surface 1: Stainless Steel Nozzle
Surface 2: Stainless Steel Pipe
NPS: 1.5 inch
Thickness: 0.281 inch

Scanning requirements are described in 10CFR.50.55a(b)(2)(xv)(A)(1). The aggregate coverage was calculated as follows:

- 45° shear waves obtained 0% coverage in one axial direction (S1 – nozzle)
- 45° shear waves obtained 50% coverage in one axial direction (S2 – pipe)
- 38° shear and longitudinal waves obtained 50% coverage in one circ. direction (S3 – CW)
- 38° shear and longitudinal waves obtained 50% coverage in one circ. direction (S4 – CCW)
- The aggregate coverage was calculated to be $(0\% + 50\% + 50\% + 50\%)/4 = 37.5\%$

In order to scan all of the required volume for this weld, the nozzle would have to be redesigned to allow scanning from both sides of the weld, which is impractical. The McGuire Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage of examination volume C-D-E-F. Therefore, the available coverage will not meet the acceptance criteria of this Code Case.

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11.5. Proposed Alternative and Basis for Use

No alternative examinations are planned for the weld during the current inspection interval. Radiography (RT) is not a desired option because RT is limited in the ability to detect expected degradation mechanisms such as thermal fatigue cracking and stress corrosion crack initiating at the pipe inside surface. Additionally, radiography has not been qualified through performance demonstration.

11.6. Duration of Proposed Alternative

This request is for the duration of the third inservice inspection interval, currently scheduled to end on 7/15/2014.

11.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number M2.R1.11.0049 was conducted using personnel, equipment, and procedures qualified in accordance with ASME Section XI, 1998 Edition with the 2000 Addenda.

The system leakage test performed each refueling outage in accordance with Table IWB-2500-1; Examination Category B-P requires a VT-2 visual examination to detect evidence of leakage. This test and VT-2 examination provide additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), Reactor Building Normal Sump monitoring provide additional assurance that, in the event that leakage did occur through this weld, it would be detected and proper action taken.

Duke has examined the weld/component to the maximum extent possible utilizing approved examination techniques and equipment. Based on the acceptable results for the coverage completed by the volumetric examination, the pressure testing (VT-2) examinations required by Section XI, and the leakage monitoring, it is Duke's position that the combination of examinations provide a reasonable assurance of quality and safety.

12.0 Weld #2NC2FW43-1

12.1. ASME Code Component(s) Affected

Unit 2, Nozzle to Pipe Weld #2NC2FW43-1, Summary Number M2.R1.11.0050

12.2. Applicable Code Edition and Addenda

ASME Boiler and Pressure Vessel Code, Section XI, 1998 Edition through the 2000 Addenda

12.3. Applicable Code/Licensing Requirement

WCAP-14572, Rev.1-NP-A, Supplement 2, Table 4.1-1, Examination Category R-A, Item Number R1.11, Fig.IWB-2500-8(c), 100% Volume Coverage of Examination Volume C-D-E-F

The NRC authorized the inclusion of the RI-ISI program as an acceptable alternative to the ASME Code, Section XI requirements for ASME Code Class 1 piping welds, Examination Categories B-F and B-J and ASME Code Class 2 piping welds, Examination Categories C-F-1 and C-F-2 for the third ISI interval by letter dated June 12, 2002.

12.4. Impracticality of Compliance

Surface 1: Stainless Steel Nozzle
Surface 2: Stainless Steel Pipe
NPS: 1.5 inch
Thickness: 0.281 inch

Scanning requirements are described in 10CFR.50.55a(b)(2)(xv)(A)(1). The aggregate coverage was calculated as follows:

- 45° shear waves obtained 0% coverage in one axial direction (S1 – nozzle)
- 45° shear waves obtained 50% coverage in one axial direction (S2 – pipe)
- 38° shear and longitudinal waves obtained 50% coverage in one circ. direction (S3 – CW)
- 38° shear and longitudinal waves obtained 50% coverage in one circ. direction (S4 – CCW)
- The aggregate coverage was calculated to be $(0\% + 50\% + 50\% + 50\%)/4 = 37.5\%$

In order to scan all of the required volume for this weld, the nozzle would have to be redesigned to allow scanning from both sides of the weld, which is impractical. The McGuire Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage of examination volume C-

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D-E-F. Therefore, the available coverage will not meet the acceptance criteria of this Code Case.

12.5. Proposed Alternative and Basis for Use

No alternative examinations are planned for the weld during the current inspection interval. Radiography (RT) is not a desired option because RT is limited in the ability to detect expected degradation mechanisms such as thermal fatigue cracking and stress corrosion crack initiating at the pipe inside surface. Additionally, radiography has not been qualified through performance demonstration.

12.6. Duration of Proposed Alternative

This request is for the duration of the third inservice inspection interval, currently scheduled to end on 7/15/2014.

12.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number M2.R1.11.0050 was conducted using personnel, equipment, and procedures qualified in accordance with ASME Section XI, 1998 Edition with the 2000 Addenda.

The system leakage test performed each refueling outage in accordance with Table IWB-2500-1; Examination Category B-P requires a VT-2 visual examination to detect evidence of leakage. This test and VT-2 examination provide additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), Reactor Building Normal Sump monitoring provide additional assurance that, in the event that leakage did occur through this weld, it would be detected and proper action taken.

Duke has examined the weld/component to the maximum extent possible utilizing approved examination techniques and equipment. Based on the acceptable results for the coverage completed by the volumetric examination, the pressure testing (VT-2) examinations required by Section XI, and the leakage monitoring, it is Duke's position that the combination of examinations provide a reasonable assurance of quality and safety.

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13.0 Weld #2NV2FW180-1

13.1. ASME Code Component(s) Affected

Unit 2, Nozzle to Pipe Weld ID #2NV2FW180-1, Summary Number M2.R1.11.1566

13.2. Applicable Code Edition and Addenda

ASME Boiler and Pressure Vessel Code, Section XI, 1998 Edition through the 2000 Addenda

13.3. Applicable Code/Licensing Requirement

WCAP-14572, Rev.1-NP-A, Supplement 2, Table 4.1-1, Examination Category R-A, Item Number R1.11, Fig.IWB-2500-8(c), 100% Volume Coverage of Examination Volume C-D-E-F

The NRC authorized the inclusion of the RI-ISI program as an acceptable alternative to the ASME Code, Section XI requirements for ASME Code Class 1 piping welds, Examination Categories B-F and B-J and ASME Code Class 2 piping welds, Examination Categories C-F-1 and C-F-2 for the third ISI interval by letter dated June 12, 2002.

13.4. Impracticality of Compliance

Surface 1: Stainless Steel Reducer
Surface 2: Stainless Steel Pipe
NPS: 2.0 inch
Thickness: 0.344 inch

Scanning requirements are described in 10CFR.50.55a(b)(2)(xv)(A)(1). The aggregate coverage was calculated as follows:

- 45° shear waves obtained 0% coverage in one axial direction (S1 – reducer)
- 45° shear waves obtained 50% coverage in one axial direction (S2 – pipe)
- 45° shear and longitudinal waves obtained 75% coverage in one circ. direction (S3 – CW)
- 45° shear and longitudinal waves obtained 75% coverage in one circ. direction (S4 – CCW)
- The aggregate coverage was calculated to be $(0\% + 50\% + 75\% + 75\%)/4 = 50.0\%$

In order to scan all of the required volume for this weld, the nozzle would have to be redesigned to allow scanning from both sides of the weld, which is impractical. The McGuire Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage of examination volume C-D-E-F. Therefore, the available coverage will not meet the acceptance criteria of this Code Case.

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13.5. Proposed Alternative and Basis for Use

No alternative examinations are planned for the weld during the current inspection interval. Radiography (RT) is not a desired option because RT is limited in the ability to detect expected degradation mechanisms such as thermal fatigue cracking and stress corrosion crack initiating at the pipe inside surface. Additionally, radiography has not been qualified through performance demonstration.

13.6. Duration of Proposed Alternative

This request is for the duration of the third inservice inspection interval, currently scheduled to end on 7/15/2014.

13.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number M2.R1.11.1566 was conducted using personnel, equipment, and procedures qualified in accordance with ASME Section XI, 1998 Edition with the 2000 Addenda.

The system leakage test performed each inspection period in accordance with Table IWC-2500-1; Examination Category C-H requires a VT-2 visual examination to detect evidence of leakage. This test and VT-2 examination provide additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), visual observations performed during operator rounds provide additional assurance that in the event leakage did occur through this weld, it would be detected and proper action taken.

Duke has examined the weld/component to the maximum extent possible utilizing approved examination techniques and equipment. Based on the acceptable results for the coverage completed by the volumetric examination, the pressure testing (VT-2) examinations required by Section XI, and the leakage monitoring, it is Duke's position that the combination of examinations provide a reasonable assurance of quality and safety.

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14.0 Weld #2NC2FW2-2

14.1. ASME Code Component(s) Affected

Unit 2, Nozzle to Pipe Weld #2NC2FW2-2, Summary Number M2.R1.11.1730

14.2. Applicable Code Edition and Addenda

ASME Boiler and Pressure Vessel Code, Section XI, 1998 Edition through the 2000 Addenda

14.3. Applicable Code/Licensing Requirement

WCAP-14572, Rev.1-NP-A, Supplement 2, Table 4.1-1, Examination Category R-A, Item Number R1.11, Fig.IWB-2500-8(c), 100% Volume Coverage of Examination Volume C-D-E-F

The NRC authorized the inclusion of the RI-ISI program as an acceptable alternative to the ASME Code, Section XI requirements for ASME Code Class 1 piping welds, Examination Categories B-F and B-J and ASME Code Class 2 piping welds, Examination Categories C-F-1 and C-F-2 for the third ISI interval by letter dated June 12, 2002.

14.4. Impracticality of Compliance

Surface 1: Stainless Steel Pipe
Surface 2: Stainless Steel Nozzle
NPS: 14.0 inch
Thickness: 1.406 inch

Scanning requirements are described in 10CFR.50.55a(b)(2)(xv)(A)(1). The aggregate coverage was calculated as follows:

- 45° shear waves obtained 50% coverage in one axial direction (S1 – pipe)
- 45° shear waves obtained 5.6% coverage in one axial direction (S2 – nozzle)
- 45° shear and longitudinal waves obtained 100% coverage in one circ. direction (S3 – CW)
- 45° shear and longitudinal waves obtained 100% coverage in one circ. direction (S4 – CCW)
- The aggregate coverage was calculated to be $(50\% + 5.6\% + 100\% + 100\%)/4 = 63.9\%$

In order to scan all of the required volume for this weld, the nozzle would have to be redesigned to allow scanning from both sides of the weld, which is impractical. The McGuire Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage of examination volume C-D-E-F. Therefore, the available coverage will not meet the acceptance criteria of this Code Case.

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14.5. Proposed Alternative and Basis for Use

No alternative examinations are planned for the weld during the current inspection interval. Radiography (RT) is not a desired option because RT is limited in the ability to detect expected degradation mechanisms such as thermal fatigue cracking and stress corrosion crack initiating at the pipe inside surface. Additionally, radiography has not been qualified through performance demonstration.

14.6. Duration of Proposed Alternative

This request is for the duration of the third inservice inspection interval, currently scheduled to end on 7/15/2014.

14.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number M2.R1.11.1730 was conducted using personnel, equipment, and procedures qualified in accordance with ASME Section XI, 1998 Edition with the 2000 Addenda.

The system leakage test performed each refueling outage in accordance with Table IWB-2500-1; Examination Category B-P requires a VT-2 visual examination to detect evidence of leakage. This test and VT-2 examination provide additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), Reactor Building Normal Sump monitoring provide additional assurance that, in the event that leakage did occur through this weld, it would be detected and proper action taken.

Duke has examined the weld/component to the maximum extent possible utilizing approved examination techniques and equipment. Based on the acceptable results for the coverage completed by the volumetric examination, the pressure testing (VT-2) examinations required by Section XI, and the leakage monitoring, it is Duke's position that the combination of examinations provide a reasonable assurance of quality and safety.

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15.0 Weld #2NV2FW10-20

15.1. ASME Code Component(s) Affected

Unit 2, Pipe to Flange Weld ID = 2NV2FW10-20, Summary Number PSI

15.2. Applicable Code Edition and Addenda

ASME Boiler and Pressure Vessel Code, Section XI, 1998 Edition through the 2000 Addenda

15.3. Applicable Code/Licensing Requirement

IWC-2500, Table IWC-2500-1, Examination Category C-F-1, Item Number C5.21
Figure IWC-2500-7(a), 100% Volume Coverage of Examination Volume C-D-E-F

15.4. Impracticality of Compliance

Surface 1: Stainless Steel Pipe
Surface 2: Stainless Steel Flange
NPS: 3.0 inch
Thickness: 0.216 inch

Scanning requirements are described in 10CFR.50.55a(b)(2)(xv)(A)(1). The aggregate coverage was calculated as follows:

- 45° shear waves obtained 50% coverage in one axial direction (S1 – pipe)
- 45° shear waves obtained 0% coverage in one axial direction (S2 – flange)
- 45° shear and longitudinal waves obtained 50% coverage in one circ. direction (S3 – CW)
- 45° shear and longitudinal waves obtained 50% coverage in one circ. direction (S4 – CCW)
- The aggregate coverage was calculated to be $(50\% + 0\% + 50\% + 50\%)/4 = 37.5\%$

In order to scan all of the required volume for this weld, the flange would have to be redesigned to allow scanning from both sides of the weld, which is impractical. The McGuire Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage of examination volume C-D-E-F. Therefore, the available coverage will not meet the acceptance criteria of this Code Case.

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15.5. Proposed Alternative and Basis for Use

This weld was inspected by radiography (RT) in order to meet Section III requirements, and found to be free of weld fabrication defects. A pre-service ultrasonic inspection was also performed as a baseline for future inservice (ISI) inspections, and was examined using procedure, equipment, and personnel qualified in accordance with ASME Section XI, Appendix VIII. For future ISI inspections, RT is not a desired option because RT has not been qualified through performance demonstration.

15.6. Duration of Proposed Alternative

This request is for the duration of the third inservice inspection interval, currently scheduled to end on 7/15/2014.

15.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number PSI was conducted using personnel, equipment, and procedures qualified in accordance with ASME Section XI, 1998 Edition with the 2000 Addenda.

The system leakage test performed each inspection period in accordance with Table IWC-2500-1; Examination Category C-H requires a VT-2 visual examination to detect evidence of leakage. This test and VT-2 examination provide additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), visual observations performed during operator rounds provide additional assurance that in the event leakage did occur through this weld, it would be detected and proper action taken.

Duke has examined the weld/component to the maximum extent possible utilizing approved examination techniques and equipment. Based on the acceptable results for the coverage completed by the volumetric examination, the pressure testing (VT-2) examinations required by Section XI, and the leakage monitoring, it is Duke's position that the combination of examinations provide a reasonable assurance of quality and safety.

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16.0 Weld #2NV2FW180-46

16.1. ASME Code Component(s) Affected

Unit 2, Pipe to Valve 2NV 1025, Weld #2NV2FW180-46, Summary Number PSI

16.2. Applicable Code Edition and Addenda

ASME Boiler and Pressure Vessel Code, Section XI, 1998 Edition through the 2000 Addenda

16.3. Applicable Code/Licensing Requirement

IWC-2500, Table IWC-2500-1, Examination Category C-F-1, Item Number C5.21
Figure IWC-2500-7(a), 100% Volume Coverage of Examination Volume C-D-E-F

16.4. Impracticality of Compliance

Surface 1: Stainless Steel Valve
Surface 2: Stainless Steel Pipe
NPS: 4.0 inch
Thickness: 0.237 inch

Scanning requirements are described in 10CFR.50.55a(b)(2)(xv)(A)(1). The aggregate coverage was calculated as follows:

- 45° shear waves obtained 0% coverage in one axial direction (S1 – valve)
- 45° shear waves obtained 25% coverage in one axial direction (S2 – pipe)
- 45° shear and longitudinal waves obtained 50% coverage in one circ. direction (S3 – CW)
- 45° shear and longitudinal waves obtained 50% coverage in one circ. direction (S4 – CCW)
- The aggregate coverage was calculated to be $(0\% + 25\% + 50\% + 50\%)/4 = 31.25\%$

In order to scan all of the required volume for this weld, the valve would have to be redesigned to allow scanning from both sides of the weld, which is impractical. The McGuire Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage of examination volume C-D-E-F. Therefore, the available coverage will not meet the acceptance criteria of this Code Case.

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16.5. Proposed Alternative and Basis for Use

This weld was inspected by radiography (RT) in order to meet Section III requirements, and found to be free of weld fabrication defects. A pre-service ultrasonic inspection was also performed as a baseline for future inservice (ISI) inspections, and was examined using procedure, equipment, and personnel qualified in accordance with ASME Section XI, Appendix VIII. For future ISI inspections, RT is not a desired option because RT has not been qualified through performance demonstration.

16.6. Duration of Proposed Alternative

This request is for the duration of the third inservice inspection interval, currently scheduled to end on 7/15/2014.

16.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number PSI was conducted using personnel, equipment, and procedures qualified in accordance with ASME Section XI, 1998 Edition with the 2000 Addenda.

The system leakage test performed each inspection period in accordance with Table IWC-2500-1; Examination Category C-H requires a VT-2 visual examination to detect evidence of leakage. This test and VT-2 examination provide additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), visual observations performed during operator rounds provide additional assurance that in the event leakage did occur through this weld, it would be detected and proper action taken.

Duke has examined the weld/component to the maximum extent possible utilizing approved examination techniques and equipment. Based on the acceptable results for the coverage completed by the volumetric examination, the pressure testing (VT-2) examinations required by Section XI, and the leakage monitoring, it is Duke's position that the combination of examinations provide a reasonable assurance of quality and safety.

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17.0 Weld #2NV2FW180-45

17.1. ASME Code Component(s) Affected

Unit 2, Elbow to Valve 2NV 1025, Weld #2NV2FW180-45 Summary Number PSI

17.2. Applicable Code Edition and Addenda

ASME Boiler and Pressure Vessel Code, Section XI, 1998 Edition through the 2000 Addenda

17.3. Applicable Code/Licensing Requirement

IWC-2500, Table IWC-2500-1, Examination Category C-F-1, Item Number C5.21
Figure IWC-2500-7(a), 100% Volume Coverage of Examination Volume C-D-E-F

17.4. Impracticality of Compliance

Surface 1: Stainless Steel Valve
Surface 2: Stainless Steel Elbow
NPS: 4.0 inch
Thickness: 0.237 inch

Scanning requirements are described in 10CFR.50.55a(b)(2)(xv)(A)(1). The aggregate coverage was calculated as follows:

- 45° shear waves obtained 0% coverage in one axial direction (S1 – valve)
- 45° shear waves obtained 50% coverage in one axial direction (S2 – elbow)
- 45° shear and longitudinal waves obtained 50% coverage in one circ. direction (S3 – CW)
- 45° shear and longitudinal waves obtained 50% coverage in one circ. direction (S4 – CCW)
- The aggregate coverage was calculated to be $(0\% + 50\% + 50\% + 50\%)/4 = 37.5\%$

In order to scan all of the required volume for this weld, the valve would have to be redesigned to allow scanning from both sides of the weld, which is impractical. The McGuire Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage of examination volume C-D-E-F. Therefore, the available coverage will not meet the acceptance criteria of this Code Case.

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17.5. Proposed Alternative and Basis for Use

This weld was inspected by radiography (RT) in order to meet Section III requirements, and found to be free of weld fabrication defects. A pre-service ultrasonic inspection was also performed as a baseline for future inservice (ISI) inspections, and was examined using procedure, equipment, and personnel qualified in accordance with ASME Section XI, Appendix VIII. For future ISI inspections, RT is not a desired option because RT has not been qualified through performance demonstration.

17.6. Duration of Proposed Alternative

This request is for the duration of the third inservice inspection interval, currently scheduled to end on 7/15/2014.

17.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number PSI was conducted using personnel, equipment, and procedures qualified in accordance with ASME Section XI, 1998 Edition with the 2000 Addenda.

The system leakage test performed each inspection period in accordance with Table IWC-2500-1; Examination Category C-H requires a VT-2 visual examination to detect evidence of leakage. This test and VT-2 examination provide additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), visual observations performed during operator rounds provide additional assurance that in the event leakage did occur through this weld, it would be detected and proper action taken.

Duke has examined the weld/component to the maximum extent possible utilizing approved examination techniques and equipment. Based on the acceptable results for the coverage completed by the volumetric examination, the pressure testing (VT-2) examinations required by Section XI, and the leakage monitoring, it is Duke's position that the combination of examinations provide a reasonable assurance of quality and safety.

Attachment A
Weld Examination Data



UT Pipe Weld Examination

Site/Unit: McGuire / 1

Procedure: PDI-UT-2

Outage No.: M1-20

Summary No.: M1.R1.11.0390

Procedure Rev.: C

Report No.: UT-10-135

Workscope: ISI

Work Order No.: 01859546

Page: 1 of 6

Code: 1998/2000 Addenda Cat./Item: R-AR1.11 Location: _____

Drawing No.: MCFI-1NC53 Description: Nozzle to Pipe

System ID: NC

Component ID: 1NC1F-3613-3092 Size/Length: N/A Thickness/Diameter: 1.40/14.0/SS

Limitations: See attached sheet Start Time: 1031 Finish Time: 1120

Examination Surface: Inside Outside Surface Condition: AS GROUND

Lo Location: 9.1.1.1 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 09325

Temp. Tool Mfg.: Lutron Serial No.: MCNDE32828 Surface Temp.: 72 °F

Cal. Report No.: CAL-16-328, 329 & 330

Angle Used	0	45	45T	60	60RL	
Scanning dB		39.7	39.7	55.9	71.2	

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

Comments:
FC 08-04, 09-02, 09-08, 10-09

Results: Accept Reject Info

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

Examiner	Level	I-I	Signature	Date	Reviewer	Signature	Date
Muirhead, Barry A.			<i>Barry A. Muirhead</i>	3/25/2010	Moss, Gary	<i>Gary A. Moss</i>	3/31/2010
Examiner	Level	I-I	Signature	Date	Site Review	Signature	Date
Hollis, Jacob			<i>Jacob R. Hollis</i>	3/25/2010	N/A		
Other	Level	N/A	Signature	Date	ANTI Review	Signature	Date
N/A					Jerome Swan	<i>J.F. Swan</i>	4-4-10 4/4/2010



Ultrasonic Indication Report

Site/Unit: McGuire / 1
 Summary No.: M1.R1.11.0390
 Workscope: ISI

Procedure: PDI-UT-2
 Procedure Rev.: C
 Work Order No.: 01859546

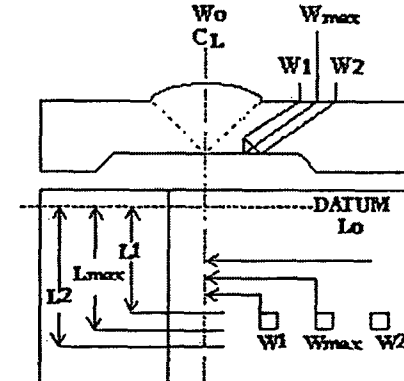
Outage No.: M1-20
 Report No.: UT-10-135
 Page: 2 of 6

Search Unit Angle: 60 °
 Wo Location: Centerline of Weld
 Lo Location: 9.1.1.1

- Piping Welds
- Ferritic Vessels $\geq 2^{\circ}T$
- Other _____

MP	Metal Path	Wmax	Distance From Wo To S.U. At Maximum Response
RBR	Remaining Back Reflection	W1	Distance From Wo At Of Max (Forward)
L	Distance From Datum	W2	Distance From Wo At Of Max (Forward)

Comments: N/A



Angle	Indication No.	% Of DAC	W Max		Forward Of Max		Backward Of Max		L1 Of Max	L Max	L2 Of Max	RBR Amp.	Remarks
			W	MP	W1	MP	W2	MP					
60	1	75	2.3	2.60	N/A	N/A	N/A	N/A	360	0"	Int.	N/A	Geometry

Examiner	Level	II-N	Signature	Date	Reviewer	Signature	Date
Muirhead, Barry A.			<i>Barry Muirhead</i>	3/25/2010	<i>Barry Muirhead</i>		4-1-10
Examiner	Level	II-N	Signature	Date	Site Review	Signature	Date
Hollis, Jacob			<i>Jacob Hollis</i>	3/25/2010			
Other	Level	N/A	Signature	Date	ANII Review	Signature	Date
N/A						<i>J. Sullivan</i>	4-4-10

DUKE POWER COMPANY

ISI LIMITATION REPORT

Component/Weld ID: 1NC1F-3613-3092 Item No: M1.R1.11.0390

remarks:

NO SCAN SURFACE BEAM DIRECTION
 LIMITED SCAN 1 2 1 2 cw ccw
 FROM L N/A to L N/A INCHES FROM W0 CL to Beyond
 ANGLE: 0 45 60 other _____ FROM 0 DEG to 360 DEG

Nozzle configuration

NO SCAN SURFACE BEAM DIRECTION
 LIMITED SCAN 1 2 1 2 cw ccw
 FROM L _____ to L _____ INCHES FROM W0 _____ to _____
 ANGLE: 0 45 60 other _____ FROM _____ DEG to _____ DEG

NO SCAN SURFACE BEAM DIRECTION
 LIMITED SCAN 1 2 1 2 cw ccw
 FROM L _____ to L _____ INCHES FROM W0 _____ to _____
 ANGLE: 0 45 60 other _____ FROM _____ DEG to _____ DEG

NO SCAN SURFACE BEAM DIRECTION
 LIMITED SCAN 1 2 1 2 cw ccw
 FROM L _____ to L _____ INCHES FROM W0 _____ to _____
 ANGLE: 0 5 60 other _____ FROM _____ DEG to _____ DEG

Sketch(s) attached

yes No

Prepared By: Barry Muirhead *Barry Muirhead* Level: II Date: 03/25/10

Sheet 23 of 86 ^{BM} ₃₋₃₁₋₁₀

Reviewed By: David K. Z... *David K. Z...* Date: 3/31/10

Authorized Inspector: J. E. Swan *J. E. Swan* Date: 4-4-10



Supplemental Report

ATTACHMENT A
PAGE 4 OF 24

Report No.: UT-10-135

Page: 4 of 6

Summary No.: M1.R1.11.0390

Examiner: Muirhead, Barry A. *Barry A. Muirhead*

Level: II-N

Reviewer: Moss, Gary *Gary Moss*

Date: 3/31/2010

Examiner: Hollis, Jacob *Jacob R. Hollis*

Level: II-N

Site Review: N/A

Date: _____

Other: N/A

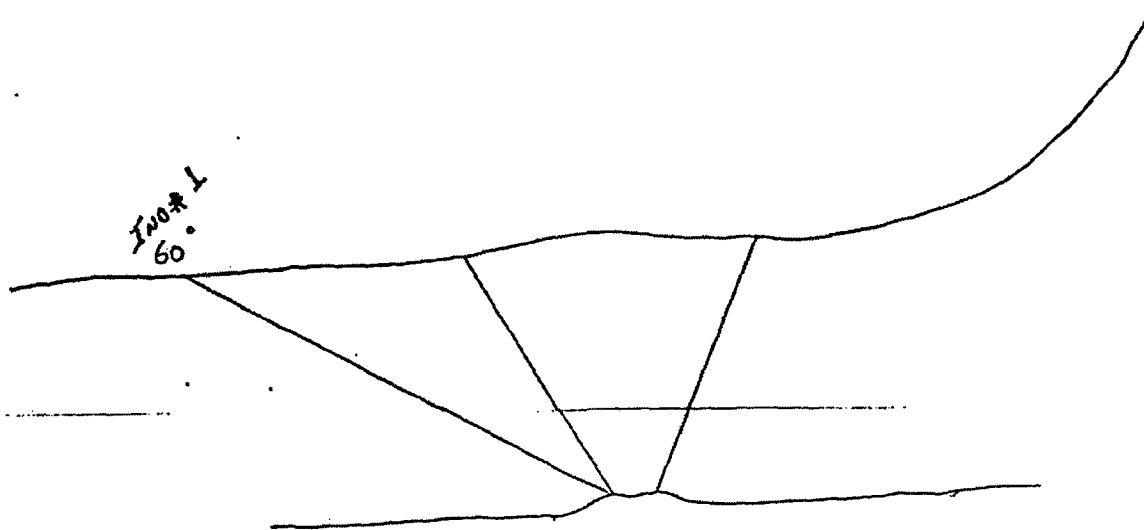
Level: N/A

ANII Review: Jerome Swan *Jerome Swan*

Date: 4/4/2010

Comments: Ind. #1 is a geometric reflector from the weld root configuration. Used 60° shear and 60°RL, confirmed using previous data.

Sketch or Photo:





Supplemental Report

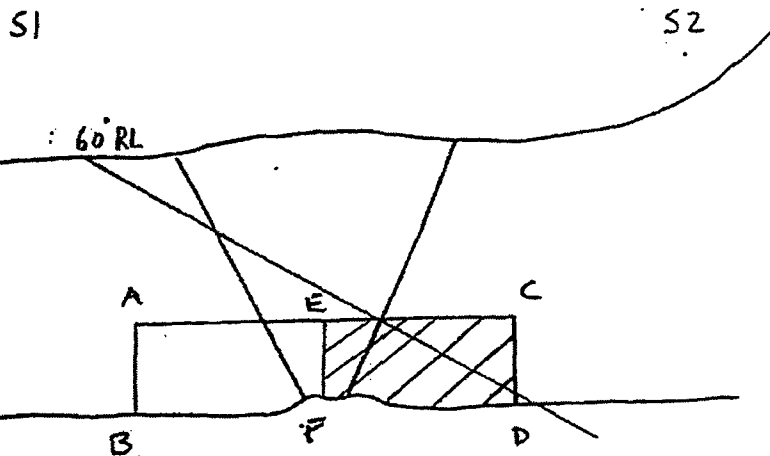
Report No.: UT-10-135
Page: 5 of 6

Summary No.: M1.R1.11.0390

Examiner: <u>Multhead, Barry A.</u> <i>Barry Multhead</i>	Level: <u>II-N</u>	Reviewer: <u>Moss, Gary</u> <i>Gary Moss</i>	Date: <u>3/31/2010</u>
Examiner: <u>Hollis, Jacob</u> <i>Jacob P. Hollis</i>	Level: <u>II-N</u>	Site Review: <u>N/A</u>	Date: _____
Other: <u>N/A</u>	Level: <u>N/A</u>	ANII Review: <u>Jerome Swan</u> <i>Jerome Swan</i>	Date: <u>4/4/2010</u>

Comments:

Sketch or Photo:



Total Area of Interest

ABCD: $2.0 \times .47 = .94 \text{ in}^2$

(S1) ABEF: $1.0 \times .47 = .47 \text{ in}^2$

S1 = 50%

S2 = 0% $250/4 = 62.5\%$

CLW = 100%

CCW = 100%

Area of Supplemental

EFCD: $1.0 \times .47 = .47 \text{ in}^2$



Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit: <u>McGuire / 1</u>	Procedure: <u>POI-UT-2</u>	Outage No.: <u>M1-20</u>
Summary No.: <u>M1.R1.11.0390</u>	Procedure Rev.: <u>C</u>	Report No.: <u>UT-10-135</u>
Workscope: <u>ISI</u>	Work Order No.: <u>01859546</u>	Page: <u>6</u> of <u>6</u>

45 deg

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

Add totals and divide by # scans = 100.000 % total for 45 deg

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

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

Scan 1	<u>100.000</u> % Length X	<u>50.000</u> % volume of length / 100 =	<u>50.000</u> % total for Scan 1
Scan 2	<u>100.000</u> % Length X	<u>0.000</u> % volume of length / 100 =	<u>0.000</u> % total for Scan 2
Scan 3	<u> </u> % Length X	<u> </u> % volume of length / 100 =	<u> </u> % total for Scan 3
Scan 4	<u> </u> % Length X	<u> </u> % volume of length / 100 =	<u> </u> % total for Scan 4

Percent complete coverage

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

62.500 % Total for complete exam

Site Field Supervisor: James J. McQuillen

Date: 4-7-10



UT Vessel Examination

Site/Unit: McGuire / 1
 Summary No.: M1.C1.20.0017
 Workscope: ISI

Procedure: NDE-3630
 Procedure Rev.: 1
 Work Order No.: 01859548

Outage No.: M1-20
 Report No.: UT-10-137
 Page: 1 of 7

Code: 1998/2000 Addenda Cat./Item: C-A/C1.20 Location: _____
 Drawing No.: MC-ISIN-1554-01.02 Description: Head To Flange
 System ID: NV
 Component ID: 1ELDHX-HD-FLG Size/Length: N/A Thickness/Diameter: 0.75/9.5/SS-CS
 Limitations: Yes - See attached limitation sheet Start Time: 1040 Finish Time: 1120

Examination Surface: Inside Outside Surface Condition: AS GROUND

Lo Location: Top Dead Center Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 09325

Temp. Tool Mfg.: Fluke Serial No.: OCQUA33090 Surface Temp.: 64 °F

Cal. Report No.: CAL-10-334, 335, 336 & 337

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

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

Comments:

60°RL used for supplemental coverage
 *CS side-83.2db/SS side-54.0db Axial scan
 **CS side-87.8db/SS side-61.0db Circ. Scan
 ***CS & SS side scanned at 83.0db due to signal to noise ratio

Results: Accept Reject Info FC 09-01, 09-05, 10-10

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

Examiner	Level	N-N	Signature	Date	Reviewed	Signature	Date
Hendrickson, Matthew				3/26/2010			4-1-10
Examiner	Level	II-N	Signature	Date	Site Review	Signature	Date
Griebel, David M.				3/26/2010			
Other	Level	N/A	Signature	Date	ANII Review	Signature	Date
N/A							4-4-10

DUKE POWER COMPANY ISI LIMITATION REPORT

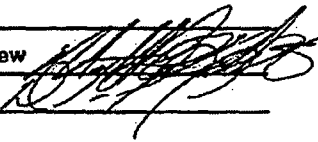
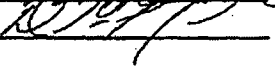
Component/Weld ID: <u>1ELDHX-HD-FLG</u> Item No: <u>M1.C1.20.0017</u>		remarks:
<input checked="" type="checkbox"/> NO SCAN <input type="checkbox"/> LIMITED SCAN	SURFACE <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	BEAM DIRECTION <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> cw <input checked="" type="checkbox"/> ccw
FROM L <u>26.75"</u> to L <u>"30.50"</u> INCHES FROM W0 <u>+3.5"</u> to <u>Beyond</u>		Vent pipe.
ANGLE: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 45 <input checked="" type="checkbox"/> 60 other _____ FROM <u>N/A</u> DEG to <u>N/A</u> DEG		
<input checked="" type="checkbox"/> NO SCAN <input type="checkbox"/> LIMITED SCAN	SURFACE <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	BEAM DIRECTION <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> cw <input checked="" type="checkbox"/> ccw
FROM L <u>0.25"</u> to L <u>4.25"</u> INCHES FROM W0 <u>+0.9"</u> to <u>Beyond</u>		Inlet connection
ANGLE: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 45 <input type="checkbox"/> 60 other _____ FROM <u>N/A</u> DEG to <u>N/A</u> DEG		
<input checked="" type="checkbox"/> NO SCAN <input type="checkbox"/> LIMITED SCAN	SURFACE <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	BEAM DIRECTION <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> cw <input checked="" type="checkbox"/> ccw
FROM L <u>11.5"</u> to L <u>16.5"</u> INCHES FROM W0 <u>+0.9"</u> to <u>Beyond</u>		Outlet connection
ANGLE: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 45 <input checked="" type="checkbox"/> 60 other _____ FROM <u>N/A</u> DEG to <u>N/A</u> DEG		
<input checked="" type="checkbox"/> NO SCAN <input type="checkbox"/> LIMITED SCAN	SURFACE <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	BEAM DIRECTION <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> cw <input checked="" type="checkbox"/> ccw
FROM L <u>16.5"</u> to L <u>18.5"</u> INCHES FROM W0 <u>+3.5"</u> to <u>Beyond</u>		Draw Pipe
ANGLE: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 45 <input checked="" type="checkbox"/> 60 other _____ FROM <u>N/A</u> DEG to <u>N/A</u> DEG		Sketch(s) attached <input checked="" type="checkbox"/> yes <input type="checkbox"/> No
Prepared By: <u>Matthew Hendrickson</u>	Level: <u>II</u>	Date: <u>03/26/10</u>
Reviewed By: <u>David K...</u>	Date: <u>3/31/10</u>	Authorized Inspector: <u>J. Fl...</u> Date: <u>4-4-10</u>
Sheet <u>2</u> of <u>7</u>		


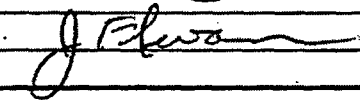


Supplemental Report

Report No.: UT-10-137
Page: 3 of 7

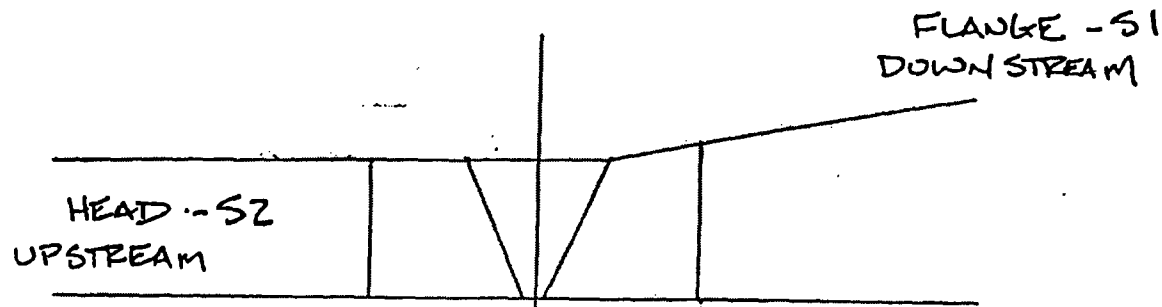
Summary No.: M1.C1.20.0017

Examiner: Hendrickson, Matthew  Level: II-N
Examiner: Griebel, David M.  Level: II-N
Other: N/A Level: N/A

Reviewer: David K. Z...  Date: 3/31/10
Site Review: _____ Date: _____
ANII Review: J. Flawan  Date: 4-4-10

Comments: Weld # 1ELDHX-HD-FLG

Sketch or Photo:



TOTAL AREA OF INTEREST
 $(.75" \times 1.75") + \left(\frac{.5" \times 1}{2}\right) = 1.34 \text{ IN}^2$

- % OF WELD WITH 100% SCAN
30.5" = TOTAL WELD LENGTH
- 3.75" = VENT PIPE
- 4.00" = INLET
- 5.00" = OUTLET
- 2.00" = DRAIN PIPE

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

* FULL SCALE *



Supplemental Report

ATTACHMENT A
PAGE 10 OF 24

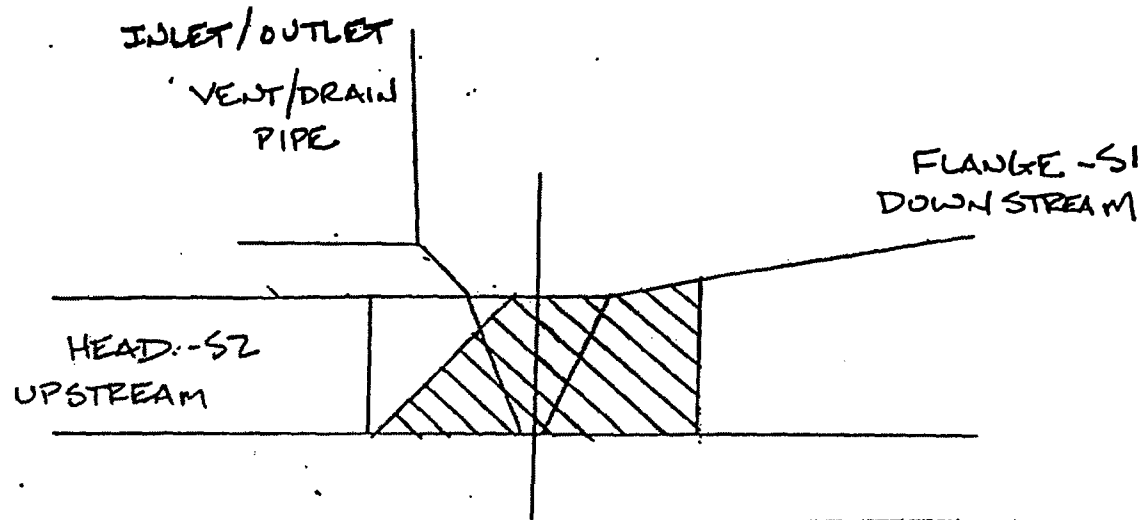
Report No.: UT-10-137
Page: 4 of 7

Summary No.: M1.C1.20.0017

Examiner: <u>Hendrickson, Matthew</u>	Level: <u>II-N</u>	Reviewer: <u>David K. B.</u>	Date: <u>3/31/10</u>
Examiner: <u>Griebel, David M.</u>	Level: <u>II-N</u>	Site Review: _____	Date: _____
Other: <u>N/A</u>	Level: <u>N/A</u>	ANII Review: <u>J. Flanagan</u>	Date: <u>4-4-10</u>

Comments: WELD # 1ELDHX-HD-FLG

Sketch or Photo:



% COVERAGE
 45° FROM S1 @ LIMITATIONS
 $1.34 \text{ IN}^2 - \left(\frac{.75 \text{\"} \times .75 \text{\"}}{2} \right) = 1.06 \text{ IN}^2$
 $1.06 / 1.34 \times 100 = 79.1 \%$

* FULL SCALE *



Supplemental Report

Report No.: UT-10-137

Page: 5 of 7

Summary No.: M1.C1.20.0017

Examiner: Hendrickson, Matthew

Level: II-N

Reviewer: David K. Z...

Date: 3/31/10

Examiner: Griebel, David M.

Level: II-N

Site Review: J. Flawa

Date: 4-4-10

Other: N/A

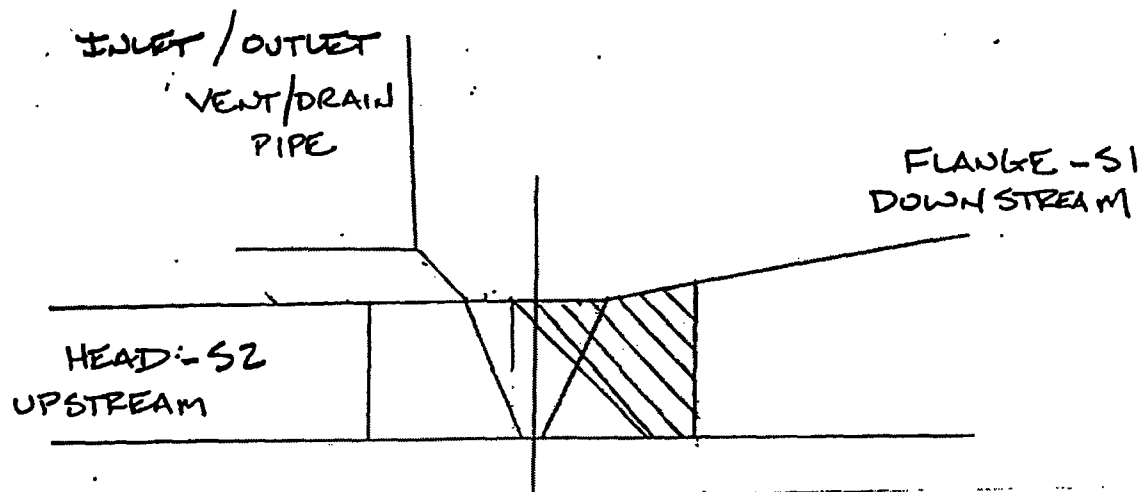
Level: N/A

ANII Review: J. Flawa

Date: 4-4-10

Comments: WELD # 1ELDHX-HD-FLG

Sketch or Photo:



% COVERAGE
45° FROM S2 @ LIMITATIONS

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

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

* FULL SCALE *



Supplemental Report

ATTACHMENT A
PAGE 12 OF 24

Report No.: UT-10-137
Page: 6 of 7

Summary No.: M1.C1.20.0017

Examiner: Hendrickson, Matthew

Level: II-N

Reviewer: David B. III

Date: 3/31/10

Examiner: Griebel, David M.

Level: II-N

Site Review: J. Flanagan

Date: 4-4-10

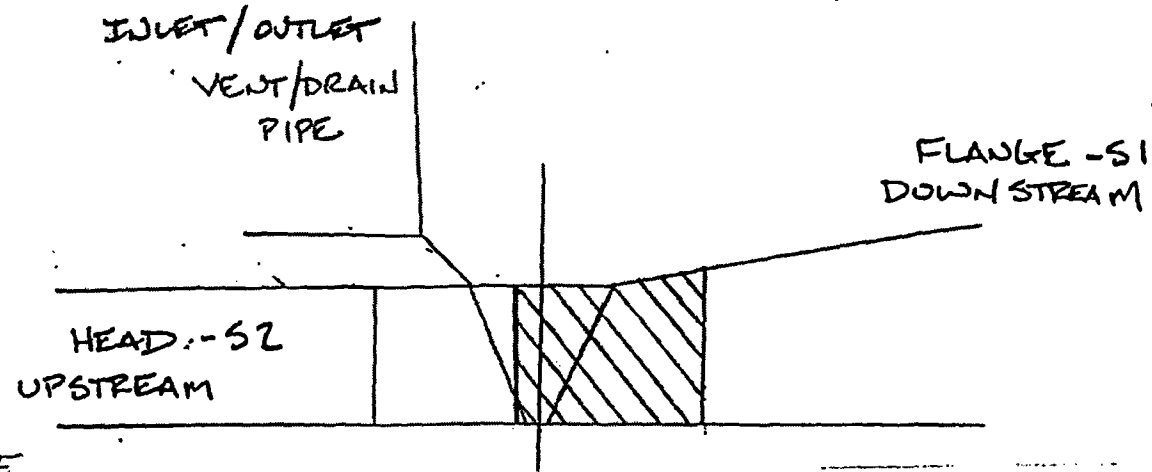
Other: N/A

Level: N/A

ANII Review: J. Flanagan

Comments: WELD # 1ELDHX-HD-FLG

Sketch or Photo:



% COVERAGE
 WITH 45° CW & CCW & LIMITATIONS
 $1.34 \text{ IN}^2 - (.75" \times .75") = .78 \text{ IN}^2$
 $.78 / 1.34 \times 100 = 58.2\%$

* FULL SCALE *



Determination of Percent Coverage for UT Examinations - Vessels

Site/Unit: <u>McGuire / 1</u>	Procedure: <u>NDE-3630</u>	Outage No.: <u>M1-20</u>
Summary No.: <u>M1.C1.20.0017</u>	Procedure Rev.: <u>1</u>	Report No.: <u>UT-10-137</u>
Workscope: <u>ISI</u>	Work Order No.: <u>01859546</u>	Page: <u>7</u> of <u>7</u>

0 deg Planar

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

45 deg

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

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

Other deg 45

Scan 1	<u>48.400</u>	% Length X	<u>79.100</u>	% volume of length / 100 =	<u>38.284</u>	% total for Scan 1
Scan 2	<u>48.400</u>	% Length X	<u>37.300</u>	% volume of length / 100 =	<u>18.053</u>	% total for Scan 2
Scan 3	<u>48.400</u>	% Length X	<u>58.200</u>	% volume of length / 100 =	<u>28.169</u>	% total for Scan 3
Scan 4	<u>48.400</u>	% Length X	<u>58.200</u>	% volume of length / 100 =	<u>28.169</u>	% total for Scan 4

Add totals and divide by # scans = 28.169 % total for 45 deg

Percent complete coverage

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

51.600
28.169

79.769
DEC
3/31/10

~~39.884~~ % Total for complete exam

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: *David K. [Signature]*

Date: 3/31/10



UT Pipe Weld Examination

Site/Unit: McGuire / 1
 Summary No.: M1.R1.11.2170
 Workscope: ISI

Procedure: NDE-600
 Procedure Rev.: 17
 Work Order No.: 01859546

Outage No.: M1-20
 Report No.: UT-10-110
 Page: 1 of 4

Code: 1998/2000 Addenda Cat./Item: R-AR1.11 Location: _____

Drawing No.: MCFI-1NV53 Description: VALVE TO PIPE

System ID: NV

Component ID: 1NV1FW53-27 Size/Length: N/A Thickness/Diameter: 0.436/2.0/SS

Limitations: See attached sheet Start Time: 1121 Finish Time: 1141

Examination Surface: Inside Outside Surface Condition: AS GROUND

Lo Location: 9.1.1.1 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 09325

Temp. Tool Mfg.: Lutron Serial No.: MCNDE32824 Surface Temp.: 65 °F

Cal. Report No.: CAL-10-310, 311, & 312

Angle Used	0	45	45T	60	70	
Scanning dB			47.9	34.4	49.3	

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

Comments:
FC 08-03

Results: Accept Reject Info Initial Section XI Exam

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

Examiner	Level	II-N	Signature	Date	Reviewer	Signature	Date
Mauldin, Larry E.			<i>Larry E. Mauldin</i>	3/23/2010	Moss, Gary	<i>Gary Moss</i>	3/25/2010
Examiner	Level	II-N	Signature	Date	Site Review	Signature	Date
Bull, W. Keith			<i>W. Keith Bull</i>	3/23/2010	N/A		
Other	Level	N/A	Signature	Date	ANTI Review	Signature	Date
N/A					Jerome Swan	<i>J. F. Swan</i>	4/4/2010

DUKE POWER COMPANY

ISI LIMITATION REPORT

Component/Weld ID: <u>1NV1FW53-27</u> Item No: <u>M1.R1.11.2170</u>		remarks: Due to valve 1NV35-A configuration
<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>N/A</u> to L <u>N/A</u> INCHES FROM W0 <u>0.25"</u> to <u>Beyond</u> ANGLE: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 45 <input checked="" type="checkbox"/> 60 other _____ FROM <u>0</u> DEG to <u>360</u> DEG		
<input type="checkbox"/> NO SCAN SURFACE BEAM DIRECTION <input type="checkbox"/> LIMITED SCAN <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw FROM L _____ to L _____ INCHES FROM W0 _____ to _____ ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 other _____ FROM _____ DEG to _____ DEG		
<input type="checkbox"/> NO SCAN SURFACE BEAM DIRECTION <input type="checkbox"/> LIMITED SCAN <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw FROM L _____ to L _____ INCHES FROM W0 _____ to _____ ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 other _____ FROM _____ DEG to _____ DEG		
<input type="checkbox"/> NO SCAN SURFACE BEAM DIRECTION <input type="checkbox"/> LIMITED SCAN <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw FROM L _____ to L _____ INCHES FROM W0 _____ to _____ ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 other _____ FROM _____ DEG to _____ DEG	Sketch(s) attached <input checked="" type="checkbox"/> yes <input type="checkbox"/> No	
Prepared By: <u>Larry Mauldin</u> Level: <u>II</u> Date: <u>03/23/10</u>	Sheet <u>2</u> of <u>4</u>	
Reviewed By: <u>Gary Ross</u> Date: <u>3-25-10</u>	Authorized Inspector: <u>J. Filson</u> Date: <u>4-4-10</u>	



Supplemental Report

Report No.: UT-10-110
Page: 3 of 4

Summary No.: M1.R1.11.2170

Examiner: Mauldin, Larry E. *Larry E. Mauldin*
Examiner: Bull, W. Keith *W. Keith Bull*
Other: N/A

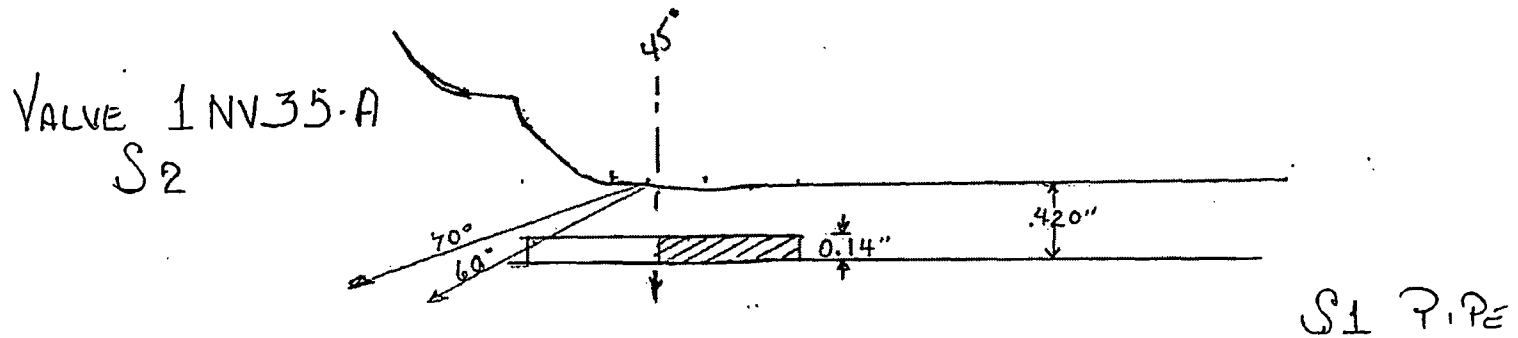
Level: II-N
Level: II-N
Level: N/A

Reviewer: Gay A. Mon
Site Review: _____
ANII Review: J. F. Swan

Date: 3-25-10
Date: _____
Date: 4-4-10

Comments:

Sketch or Photo:



EXAM AREA $1.5" \times 0.14" = .21 = .2 \text{ sq. in.}$
 AREA of COVERAGE $.2 \div 2 = .1 \text{ sq. in.} \times 100 = 50\%$



Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit: <u>McGuire / 1</u>	Procedure: <u>NDE-600</u>	Outage No.: <u>M1-20</u>
Summary No.: <u>M1.R1.11.2170</u>	Procedure Rev.: <u>17</u>	Report No.: <u>UT-10-110</u>
Workscope: <u>ISI</u>	Work Order No.: <u>01859546</u>	Page: <u>4</u> of <u>4</u>

45 deg

Scan 1	<u> </u> % Length X <u> </u>	% volume of length / 100 = <u> </u>	% total for Scan 1
Scan 2	<u> </u> % Length X <u> </u>	% volume of length / 100 = <u> </u>	% total for Scan 2
Scan 3	<u>100.000</u> % Length X <u>50.000</u>	% volume of length / 100 = <u>50.000</u>	% total for Scan 3
Scan 4	<u>100.000</u> % Length X <u>50.000</u>	% volume of length / 100 = <u>50.000</u>	% 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	<u>100.000</u> % Length X <u>50.000</u>	% volume of length / 100 = <u>50.000</u>	% total for Scan 1
Scan 2	<u>0.000</u> % Length X <u>0.000</u>	% volume of length / 100 = <u>0.000</u>	% total for Scan 2
Scan 3	<u> </u> % Length X <u> </u>	% volume of length / 100 = <u> </u>	% total for Scan 3
Scan 4	<u> </u> % Length X <u> </u>	% volume of length / 100 = <u> </u>	% total for Scan 4

Percent complete coverage

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

37.500 % Total for complete exam

Site Field Supervisor: David R. 3

Date: 03/25/2010



UT Base Metal Lamination

Site/Unit: McGuire / 1
 Summary No.: M1.R1.11.2170
 Workscope: ISI

Procedure: NDE-640
 Procedure Rev.: 5
 Work Order No.: 01859546

Outage No.: N/A
 Report No.: BOP-UT-10-217
 Page: 1 of 2

Code: 1998/2000 Addenda Cat./Item: R-AR1.11 Location: _____
 Drawing No.: MCFI-1NV53 Description: Valve to Pipe
 System ID: NV
 Component ID: 1NV1FW53-27 Size/Length: N/A Thickness/Diameter: 0.436"/2.0/SS
 Limitations: None Start Time: 1115 Finish Time: 1120

Examination Surface: Inside Outside Surface Condition: AS GROUND
 Lo Location: 9.1.1.1 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 09325
 Temp. Tool Mfg.: Lutron Serial No.: MCNDE32824 Surface Temp.: 65 °F Scanning dB: 38.9
 Cal. Report No.: CAL-10-313

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: N/A

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

Examiner	Level	Signature	Date	Reviewer	Signature	Date
Mauldin, Larry E.	II-N	<i>Larry E. Mauldin</i>	3/23/2010	<i>Gary Moore</i>		3-25-10
Examiner	Level	Signature	Date	Site Review	Signature	Date
Bull, W. Keith	II-N	<i>W. Keith Bull</i>	3/23/2010			
Other	Level	Signature	Date	ANII Review	Signature	Date
N/A	N/A			<i>J.F. Swan</i>		4-1-10



Supplemental Report

Report No.: BOP-UT-10-217

Page: 2 of 2

Summary No.: M1.R1.11.2170

Examiner: Mauldin, Larry E. *Larry E. Mauldin*

Level: II-N

Reviewer: *Gary A. Mor*

Date: 3-25-10

Examiner: Bull, W. Keith *W. Keith Bull*

Level: II-N

Site Review: _____

Date: _____

Other: N/A

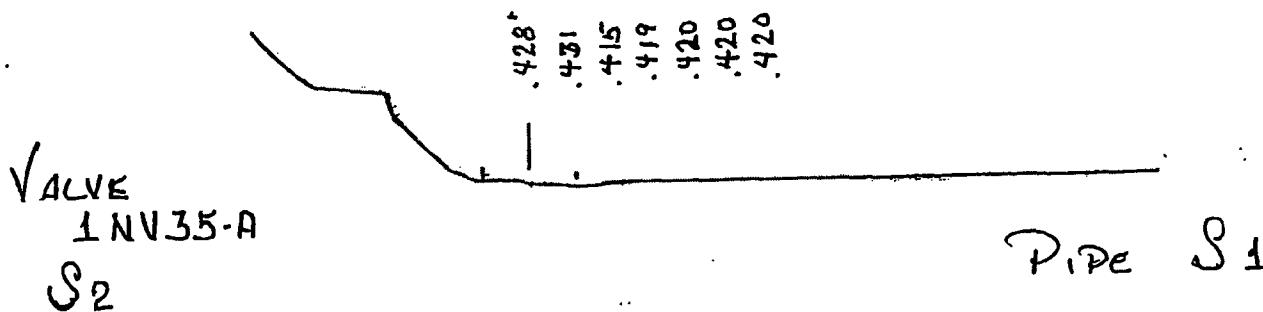
Level: N/A

ANII Review: *J. F. Swann*

Date: 4-1-10

Comments:

Sketch or Photo:





UT Vessel Examination

Site/Unit: McGuire / 1
 Summary No.: M1.C1.30.0005
 Workscope: ISI

Procedure: NDE-3630
 Procedure Rev.: 1
 Work Order No.: 01859545

Outage No.: M1-20
 Report No.: UT-10-103
 Page: 1 of 5

Code: 1998/2000 Addenda Cat./Item: C-A/C1.30 Location: _____
 Drawing No.: MCM 1201.06-25 Description: Shell To Tubesheet
 System ID: NS
 Component ID: 1BCSHX-SH-48 Size/Length: N/A Thickness/Diameter: 1.625/55.250/CS
 Limitations: Yes Start Time: 1355 Finish Time: 1433

Examination Surface: Inside Outside Surface Condition: AS GROUND
 Lo Location: 9.2.1 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 09325
 Temp. Tool Mfg.: D.A.S Serial No.: MCNDE32795 Surface Temp.: 73 °F
 Cal. Report No.: CAL-10-288

Angle Used	0	45	45T	60	60T	35
Scanning dB						50.5

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

Comments:

Scan @ 50.5db due to signal to noise ratio.

Results: Accept Reject Info FC 09-01, 09-05, 10-10
 Percent Of Coverage Obtained > 90%: No Reviewed Previous Data: Yes

Examiner	Level	II-N	Signature	Date	Reviewer	Signature	Date
Muirhead, Barry A.			<i>Barry Muirhead</i>	3/2/2010	<i>Gay Moto</i>		3/2/10
Examiner	Level	II-N	Signature	Date	Site Review	Signature	Date
Leeper, Winfred C.			<i>Winfred C. Leeper</i>	3/2/2010			
Other	Level	II-N	Signature	Date	ANII Review	Signature	Date
Hollis, Jacob			<i>Jacob R. Hollis</i>	3/2/2010	<i>J.F. Hollis</i>		4-1-10



Supplemental Report

Report No.: UT-10-103
Page: 2 of 5

Summary No.: M1.C1.30.0005

Examiner: Mulrhead, Barry A. *[Signature]*

Level: II-N

Reviewer: *[Signature]*

Date: 3-17-10

Examiner: Leeper, Winfred C. *[Signature]*

Level: II-N

Site Review: *[Signature]*

Date:

Other: Hollis, Jacob *[Signature]*

Level: II-N

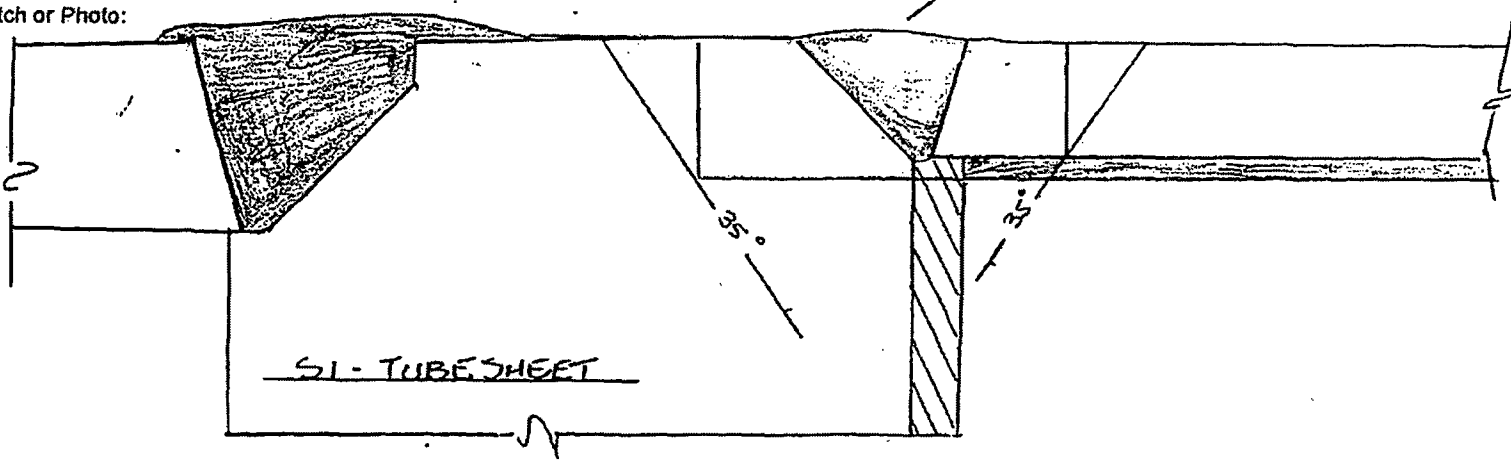
ANII Review: *[Signature]*

Date: 4-1-10

Comments:

IBCSHK-SH-48

Sketch or Photo:



SR-SHELL

100% COVERAGE FOR 77.5 inches of
weld length Total weld length = 175 inches
77.5"/175" (100) = 44.29%

DUKE POWER COMPANY ISI LIMITATION REPORT

Component/Weld ID: <u>1BCSHX-SH-48</u> Item No: <u>M1.C1.30.0005</u>		remarks:
<input checked="" type="checkbox"/> NO SCAN <input type="checkbox"/> LIMITED SCAN FROM L <u>12.0"</u> to L <u>28.0"</u> ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 other <u>35</u>	SURFACE <input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 INCHES FROM W0 <u>S1+1.5</u> to <u>S2+5</u> FROM <u>N/A</u> DEG to <u>N/A</u> DEG	BEAM DIRECTION <input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input checked="" type="checkbox"/> cw <input checked="" type="checkbox"/> ccw FROM <u>N/A</u> DEG to <u>N/A</u> DEG
		16" due to permanent support hanger
<input checked="" type="checkbox"/> NO SCAN <input type="checkbox"/> LIMITED SCAN FROM L <u>38.0"</u> to L <u>50.0"</u> ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 other <u>35</u>	SURFACE <input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 INCHES FROM W0 <u>S1+1.5</u> to <u>S2+5</u> FROM <u>N/A</u> DEG to <u>N/A</u> DEG	BEAM DIRECTION <input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input checked="" type="checkbox"/> cw <input checked="" type="checkbox"/> ccw FROM <u>N/A</u> DEG to <u>N/A</u> DEG
		12" due to permanent support hanger
<input checked="" type="checkbox"/> NO SCAN <input type="checkbox"/> LIMITED SCAN FROM L <u>60.0"</u> to L <u>72.0"</u> ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 other <u>35</u>	SURFACE <input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 INCHES FROM W0 <u>S1+1.5</u> to <u>S2+5</u> FROM <u>N/A</u> DEG to <u>N/A</u> DEG	BEAM DIRECTION <input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input checked="" type="checkbox"/> cw <input checked="" type="checkbox"/> ccw FROM <u>N/A</u> DEG to <u>N/A</u> DEG
		12" due to permanent support hanger
<input checked="" type="checkbox"/> NO SCAN <input type="checkbox"/> LIMITED SCAN FROM L <u>81.0"</u> to L <u>96.0"</u> ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 5 <input type="checkbox"/> 60 other <u>35</u>	SURFACE <input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 INCHES FROM W0 <u>S1+1.5</u> to <u>S2+5</u> FROM <u>N/A</u> DEG to <u>N/A</u> DEG	BEAM DIRECTION <input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input checked="" type="checkbox"/> cw <input checked="" type="checkbox"/> ccw FROM <u>N/A</u> DEG to <u>N/A</u> DEG
		15" due to permanent support hanger
		Sketch(s) attached <input checked="" type="checkbox"/> yes <input type="checkbox"/> No
Prepared By: <u>Winfred Leeper</u>	Level: <u>II</u>	Date: <u>03/02/2010</u>
Reviewed By: <u>Benj. Mars</u>	Date: <u>3/20/10</u>	Authorized Inspector: <u>J. Elwan</u> Date: <u>4-1-10</u>
		Sheet <u>3</u> of <u>5</u>

DUKE POWER COMPANY
ISI LIMITATION REPORT

Component/Weld ID: <u>1BCSHX-SH-48</u> Item No: <u>M1.C1.30.0005</u>			Remarks:
<input checked="" type="checkbox"/> NO SCAN	SURFACE	BEAM DIRECTION	9" due to permanent support
<input type="checkbox"/> LIMITED SCAN	<input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	<input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input checked="" type="checkbox"/> cw <input checked="" type="checkbox"/> ccw	hanger
FROM L <u>106.0"</u> to L <u>115.0"</u> INCHES FROM W0 <u>S1+1.5</u> to <u>S2+5</u>			
ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 other <u>35</u> FROM <u>N/A</u> DEG to <u>N/A</u> DEG			
<input checked="" type="checkbox"/> NO SCAN	SURFACE	BEAM DIRECTION	16" due to permanent support
<input type="checkbox"/> LIMITED SCAN	<input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	<input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input checked="" type="checkbox"/> cw <input checked="" type="checkbox"/> ccw	hanger
FROM L <u>125.0"</u> to L <u>141.0"</u> INCHES FROM W0 <u>S1+1.5</u> to <u>S2+5</u>			
ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 other <u>35</u> FROM <u>N/A</u> DEG to <u>N/A</u> DEG			
<input checked="" type="checkbox"/> NO SCAN	SURFACE	BEAM DIRECTION	10" due to permanent support
<input type="checkbox"/> LIMITED SCAN	<input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	<input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input checked="" type="checkbox"/> cw <input checked="" type="checkbox"/> ccw	hanger
FROM L <u>150.0"</u> to L <u>160.0"</u> INCHES FROM W0 <u>S1+1.5</u> to <u>S2+5</u>			
ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 other <u>35</u> FROM <u>N/A</u> DEG to <u>N/A</u> DEG			
<input checked="" type="checkbox"/> NO SCAN	SURFACE	BEAM DIRECTION	7.5" due to permanent support
<input type="checkbox"/> LIMITED SCAN	<input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	<input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input checked="" type="checkbox"/> cw <input checked="" type="checkbox"/> ccw	hanger
FROM L <u>170.0"</u> to L <u>2.5"</u> INCHES FROM W0 <u>S1+1.5</u> to <u>S2+5</u>			Sketch(s) attached
ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 5 <input type="checkbox"/> 60 other <u>35</u> FROM <u>N/A</u> DEG to <u>N/A</u> DEG			<input checked="" type="checkbox"/> yes <input type="checkbox"/> No
Prepared By: <u>Winfred Leeper</u> <i>Winfred Leeper</i>	Level: <u>II</u>	Date: <u>03/02/2010</u>	Sheet <u>4</u> of <u>5</u>
Reviewed By: <u>Gary Mers</u>	Date: <u>3-20-10</u>	Authorized Inspector: <u>J. F. Swan</u>	Date: <u>4-1-10</u>



Determination of Percent Coverage for UT Examinations - Vessels

Site/Unit: <u>McGuire / 1</u>	Procedure: <u>NDE-3630</u>	Outage No.: <u>M1-20</u>
Summary No.: <u>M1.C1.30.0005</u>	Procedure Rev.: <u>1</u>	Report No.: <u>UT-10-103</u>
Workscope: <u>ISI</u>	Work Order No.: <u>01859545</u>	Page: <u>5</u> of <u>5</u>

0 deg Planar

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

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

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

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

Other deg 35°

Scan 1 44.290 % Length X 100.000 % volume of length / 100 = 44.290 % total for Scan 1

Scan 2 44.290 % Length X 100.000 % volume of length / 100 = 44.290 % total for Scan 2

Scan 3 44.290 % Length X 100.000 % volume of length / 100 = 44.290 % total for Scan 3

Scan 4 44.290 % Length X 100.000 % volume of length / 100 = 44.290 % total for Scan 4

Add totals and divide by # scans = 44.290 % total for 35° deg

Percent complete coverage

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

44.290 % Total for complete exam

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: *David K. [Signature]*

Date: 03/17/2010

Attachment B

Weld Examination Data



UT Vessel Examination

Site/Unit: McGuire / 2
 Summary No.: M2.B3.110.0003
 Workscope: ISI

Procedure: NDE-820
 Procedure Rev.: 4
 Work Order No.: 01845833

Outage No.: M2-19
 Report No.: UT-09-097
 Page: 1 of 1

Code: 1998/2000 A Cat./Item: B-D/B3.110 Location: _____
 Drawing No.: MCM 2201.01-15 Description: NOZZLE to HEAD
 System ID: NC
 Component ID: 2PZR-13 Size/Length: N/A Thickness/Diameter: 2.35 / 15.000
 Limitations: Yes Start Time: 1340 Finish Time: 1549

Examination Surface: Inside Outside Surface Condition: As Manufactured
 Lo Location: 9.2.3 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 08125
 Temp. Tool Mfg.: Fluke Serial No.: OCQUA33090 Surface Temp.: 84 °F
 Cal. Report No.: CAL-09-259,260, 261, 262, 263, 264 & 265

Angle Used	0	45	45T	60	60T	35
Scanning dB	40.1	53	53	66.6	66.6	64

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

Comments:
60RL scanning db - 82.5
Jake Ross Level II *[Signature]* **09/07/2009**

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

Examiner	Level	Signature	Date	Reviewed	Signature	Date
Leeper, Winfred C.	II-N	<i>Winfred C. Leeper</i>	9/7/2009	<i>Sam Mars</i>		10-1-09
Examiner	Level	Signature	Date	Site Review	Signature	Date
Dean, Steven	II-N	<i>Steve Dean</i>	9/7/2009			
Other	Level	Signature	Date	ANII Review	Signature	Date
Ellis II, Kenneth R.	II-N	<i>Kenneth R. Ellis II</i>	9/7/2009	<i>J.F. Swan</i>		10-4-09

[Handwritten initials]
11-12-09

Pressurizer Safety/Relief Nozzle to Head % of Coverage

Item No. : M2.B3.110.0003

Weld No. : 2PZR-13

Weld Coverage

<u>Scan</u>	<u>Angle</u>	<u>% Coverage Obtained</u>
S1	45°	95.13
S1	60°	93
S2	35°	45.89
S2	45°	34.65
CW	35°	100
CW	45°	100
CCW	35°	100
CCW	45°	<u>100</u>
	Total	668.67

$$668.67 \div 8 = \underline{83.6} \quad \% \text{ Coverage}$$

Base Material Coverage

S1	35°,45°&60°	78.01
CW & CCW	35°,45°&60°	<u>63.1</u>
	Total	141.11

$$141.11 \div 2 = \underline{70.555} \quad \% \text{ Coverage}$$

$$\underline{0^\circ \text{ Scan Coverage}} = \underline{81.95} \quad \% \text{ Coverage}$$

Aggregate Coverage = Weld + Base Material + 0° ÷ 3

$$= \underline{78.7} \quad \% \text{ Coverage}$$

Inspector / Date : David L. [Signature] / 11/9/24/09

Page 1 of 12

R
64
11-12-09

ATTACHMENT B
PAGE 2 OF 94

DUKE POWER COMPANY

ISI LIMITATION REPORT

Component/Weld ID: <u>2PZR - 13</u> Item No: <u>M2.B3.110.0003</u>		remarks: Nozzle configuration Nozzle configuration Nozzle configuration Nozzle configuration Sketch(s) attached <input checked="" type="checkbox"/> yes <input type="checkbox"/> No
<input checked="" type="checkbox"/> NO SCAN SURFACE BEAM DIRECTION <input type="checkbox"/> LIMITED SCAN <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw FROM L <u>N/A</u> to L <u>N/A</u> INCHES FROM W0 <u>+0.1"</u> to <u>Beyond</u> ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input checked="" type="checkbox"/> 60 other <u>35</u> FROM <u>0</u> DEG to <u>360</u> DEG		
<input checked="" type="checkbox"/> NO SCAN SURFACE BEAM DIRECTION <input type="checkbox"/> LIMITED SCAN <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw FROM L <u>N/A</u> to L <u>N/A</u> INCHES FROM W0 <u>+0.5"</u> to <u>Beyond</u> ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input checked="" type="checkbox"/> 60 other _____ FROM <u>0</u> DEG to <u>360</u> DEG		
<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 type="checkbox"/> cw <input type="checkbox"/> ccw FROM L <u>N/A</u> to L <u>N/A</u> INCHES FROM W0 <u>-0.2"</u> to <u>Beyond</u> ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input checked="" type="checkbox"/> 60 other _____ FROM <u>0</u> DEG to <u>360</u> DEG		
<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 type="checkbox"/> cw <input type="checkbox"/> ccw FROM L _____ to L _____ INCHES FROM W0 <u>-0.6"</u> to <u>Beyond</u> ANGLE: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 5 <input type="checkbox"/> 60 other <u>35</u> FROM <u>0</u> DEG to <u>360</u> DEG		
Prepared By: <u>Steve Dean</u> Level: <u>II</u> Date: <u>09/09/09</u>	Sheet <u>2</u> of <u>12</u>	
Reviewed By: <u>Gay Moss</u> Date: <u>10-1-09</u>	Authorized Inspector: <u>J. Flawan</u> Date: <u>10-4-09</u>	

G.R.
11-2-09

DUKE ENERGY COMPANY ISI LIMITATION REPORT

Summary #: <u>2PZR-13</u> Component ID <u>M2.B3.110.0003</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 type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> cw <input checked="" type="checkbox"/> ccw FROM L <u>N/A</u> to L <u>N/A</u> INCHES FROM W0 <u>1.2</u> to <u>Beyond</u> ANGLE: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 45 <input checked="" type="checkbox"/> 60 other <u>35</u> FROM <u>0</u> DEG to <u>360</u> DEG			Nozzle Configuration	
<input checked="" type="checkbox"/> NO SCAN SURFACE BEAM DIRECTION <input type="checkbox"/> LIMITED SCAN <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> cw <input checked="" type="checkbox"/> ccw FROM L <u>N/A</u> to L <u>N/A</u> INCHES FROM W0 <u>1.5</u> to <u>Beyond</u> ANGLE: <input checked="" type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 other _____ FROM <u>0</u> DEG to <u>360</u> DEG			Nozzle Configuration	
<input type="checkbox"/> NO SCAN SURFACE BEAM DIRECTION <input type="checkbox"/> LIMITED SCAN <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw FROM L _____ to L _____ INCHES FROM W0 _____ to _____ ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 other _____ FROM _____ DEG to _____ DEG				
<input type="checkbox"/> NO SCAN SURFACE BEAM DIRECTION <input type="checkbox"/> LIMITED SCAN <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw FROM L _____ to L _____ INCHES FROM W0 _____ to _____ ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 other _____ FROM _____ DEG to _____ DEG			Sketch(s) attached <input checked="" type="checkbox"/> yes SD 11/19/09 SD 11/19/09 <input type="checkbox"/> No <input checked="" type="checkbox"/> No	
Prepared By: <u>Steve Dean</u> <i>[Signature]</i> Level: <u>II</u> Date: <u>9/09/09</u>		Sheet <u>3</u> of <u>12</u>		
Reviewed By: <u>Dan Morris</u> <i>[Signature]</i> Date: <u>10-1-09</u>		Authorized Inspector: <u>J. E. Swan</u> <i>[Signature]</i> Date: <u>10-4-09</u>		

SD 11-12-09

Pressurizer Safety / Relief Nozzle to Head
Total Area Weld & Base Material

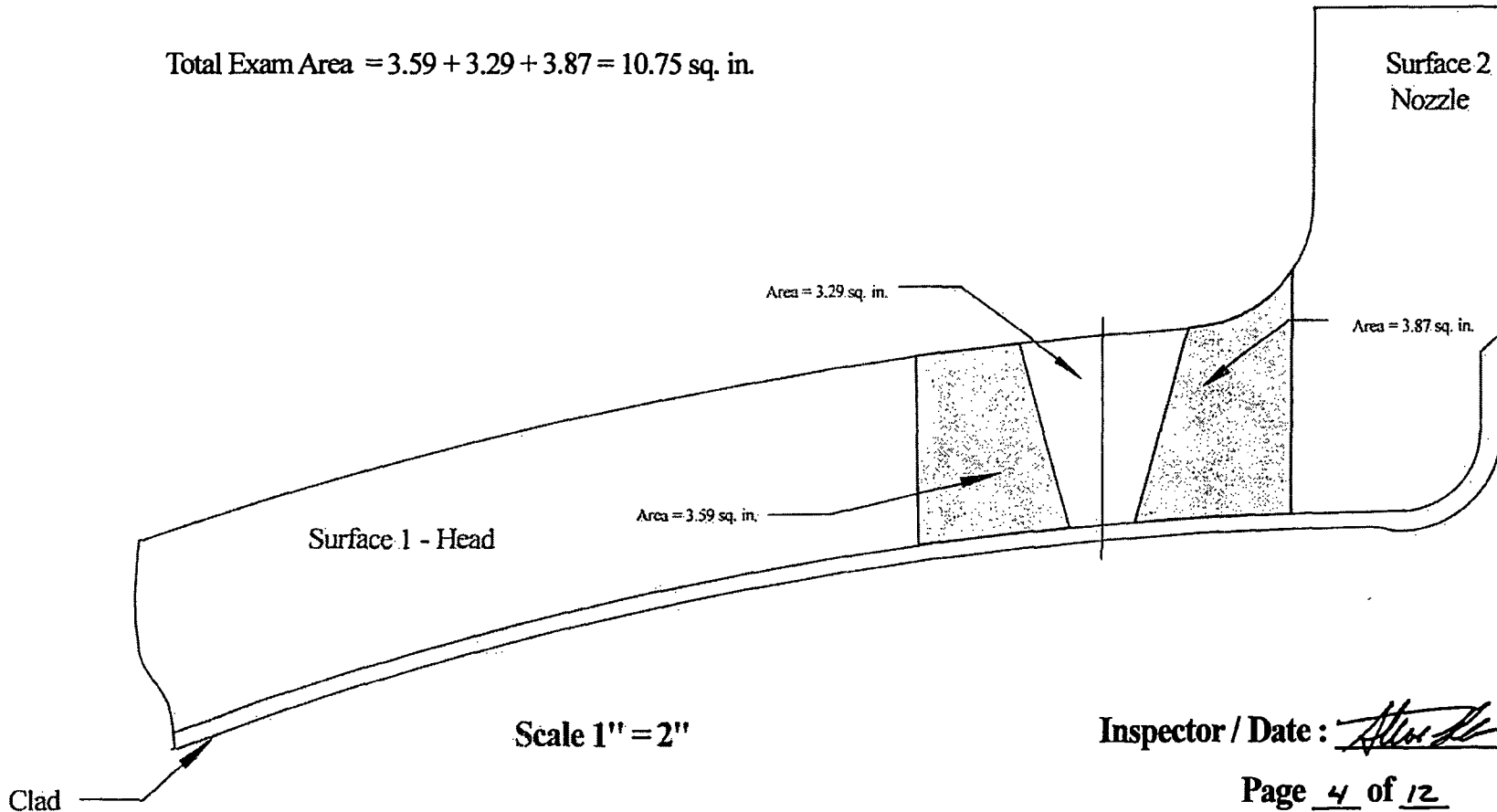
Item No. : M2.B3.110.0003

Weld No. : 2PZR-13

Total Weld Area = 3.29 sq. in.

Total Area of Base Material = 3.59 + 3.87 = 7.46 sq. in.

Total Exam Area = 3.59 + 3.29 + 3.87 = 10.75 sq. in.



Inspector / Date : Atkins 9-9-09

Pressurizer Safety / Relief Nozzle to Head

Weld Material Coverage - Axial Scans

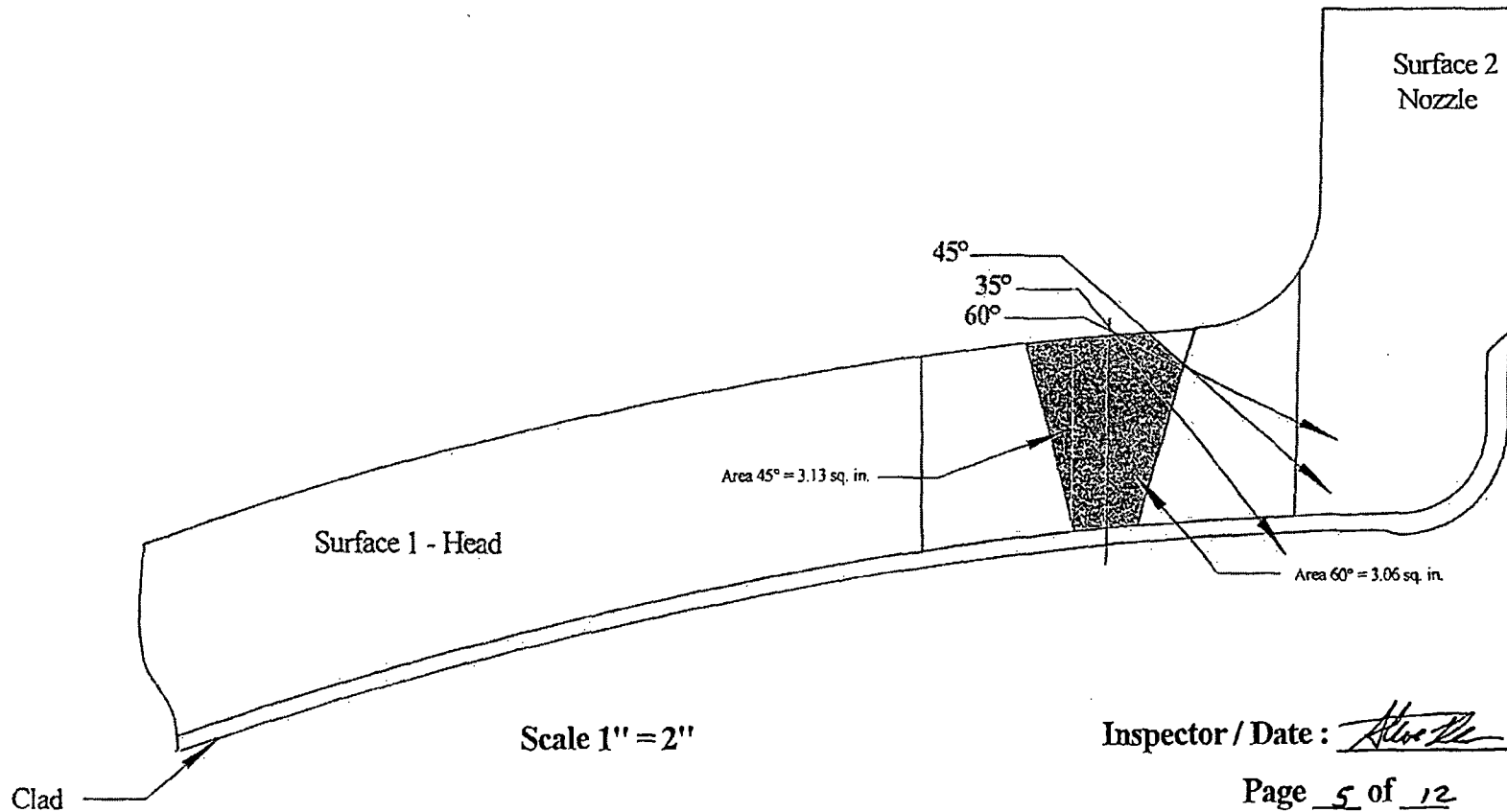
Item No. : M2.B3.110.0003

Weld No. : 2PZR-13

100% Coverage 35°, 45°, 60° Scans CW, CCW from Surface 1

Total Weld Coverage 45° from Surface 1 = $3.13 / 3.29 \times 100 = 95.13\%$

Total Weld Coverage 60° from Surface 1 = $3.06 / 3.29 \times 100 = 93.0\%$

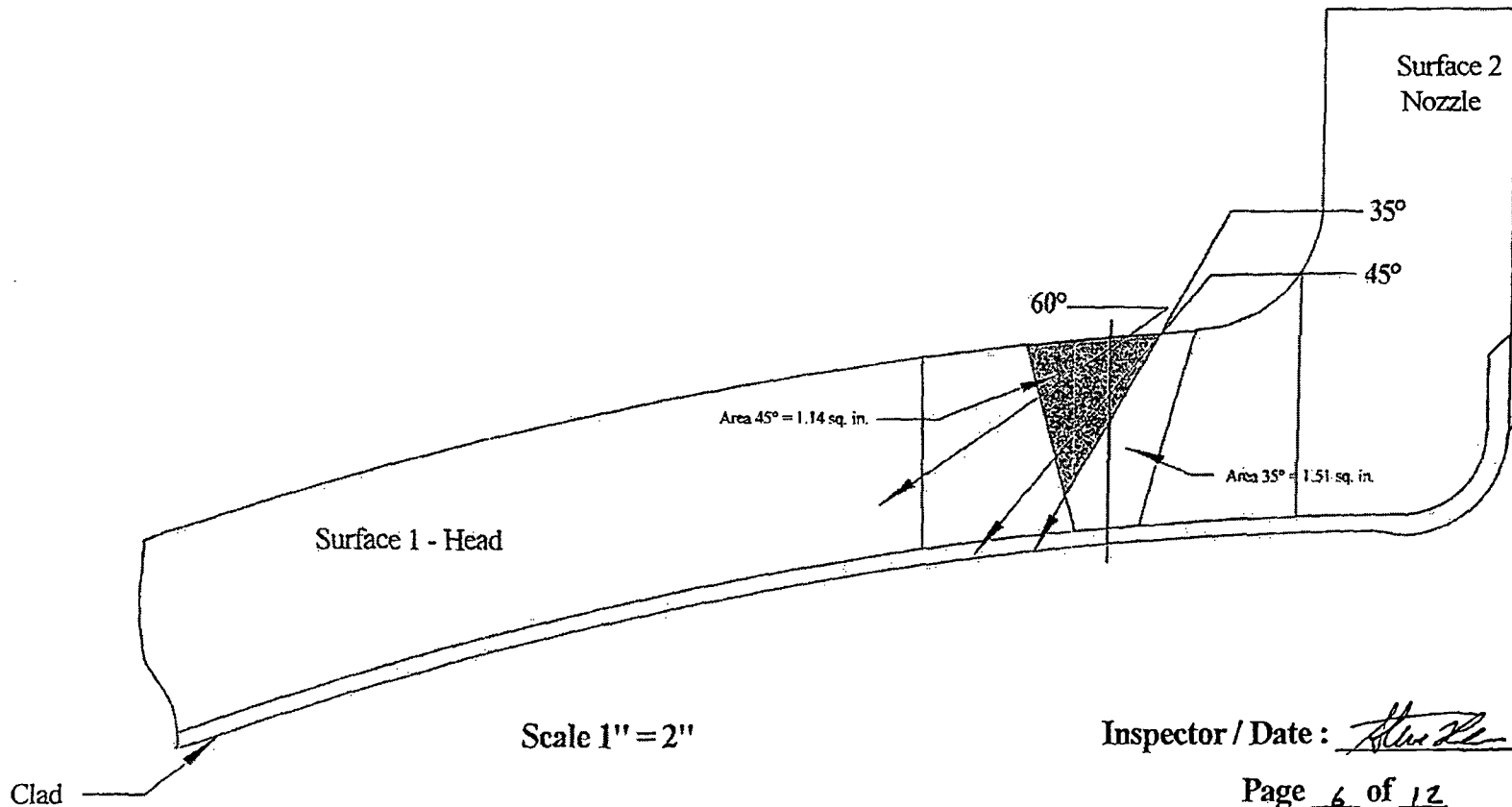


Pressurizer Safety / Relief Nozzle to Head Weld Coverage - Axial & Circumferential Scans

Item No. : M2.B3.110.0003

Weld No. : 2PZR-13

100% Coverage 35°, 45°, & 60° Scans CW, CCW, from Surface 2
Total Weld Coverage 35° from Surface 2 = $1.51 / 3.29 \times 100 = 45.89\%$
Total Weld Coverage 45° from Surface 2 = $1.14 / 3.29 \times 100 = 34.65\%$



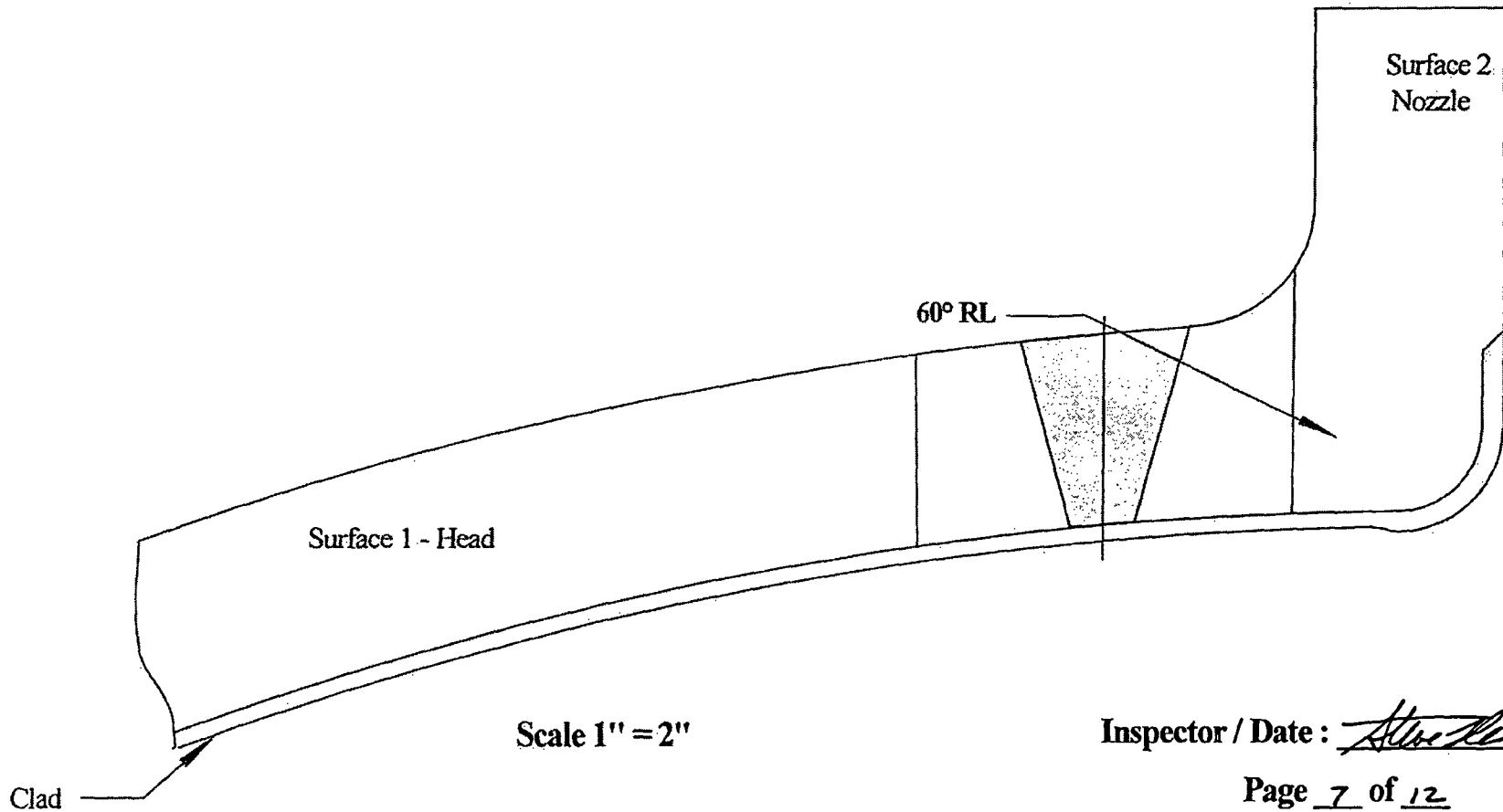
Inspector / Date : [Signature] 9-9-09

Pressurizer Safety / Relief Nozzle to Head
Weld Material Coverage - 60° RL Axial Scan

ATTACHMENT B
PAGE 8 OF 94

Item No. : M2.B3.110.0003

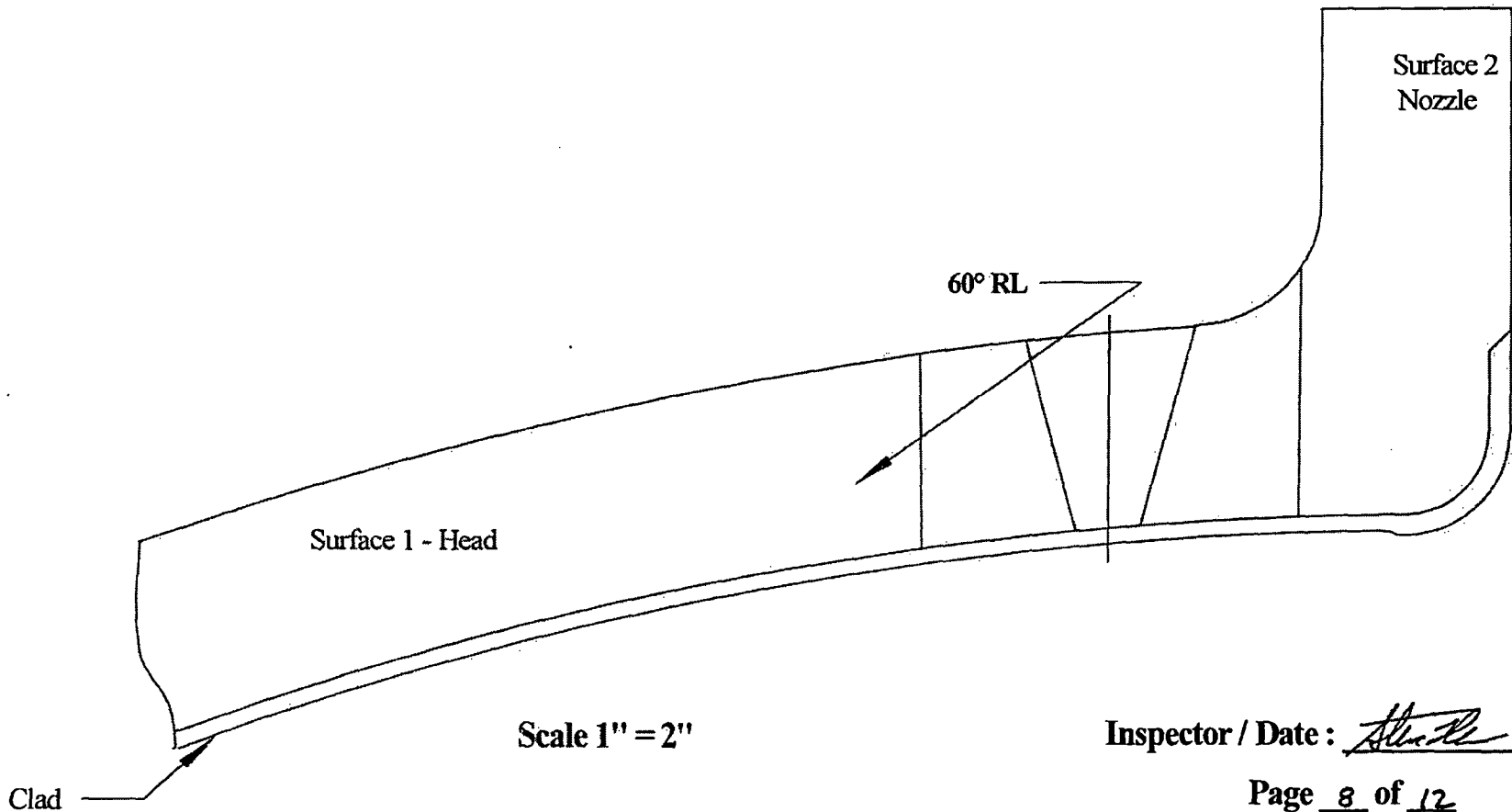
Weld No. : 2PZR-13



Pressurizer Safety / Relief Nozzle to Head
Weld Coverage - 60° RL Axial Scan

Item No. : M2.B3.110.0003

Weld No. : 2PZR-13



Inspector / Date: Steve R 9-9-09

60-2111
11/2/09

Pressurizer Safety / Relief Nozzle to Head

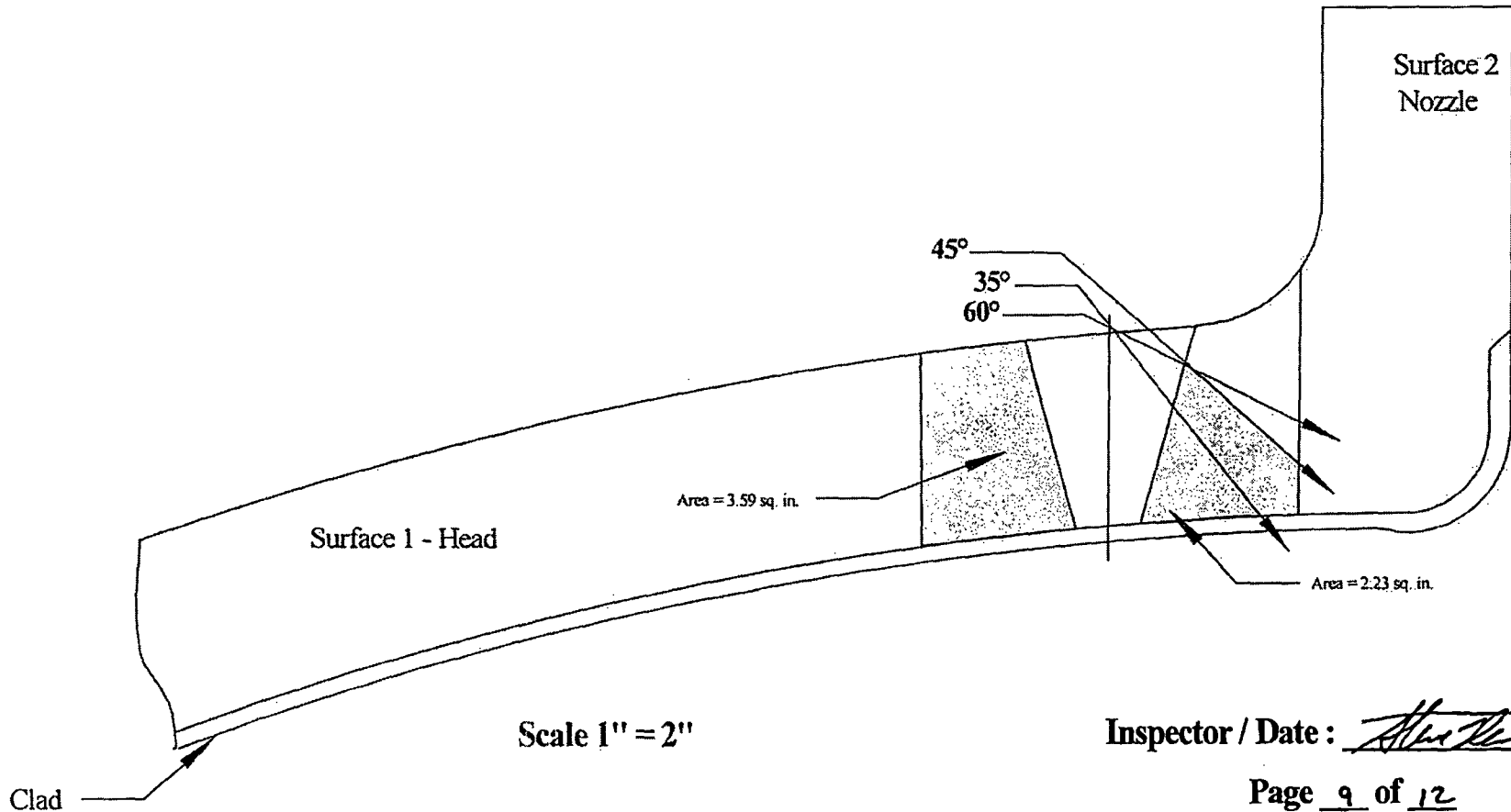
Base Material Coverage - Axial Scans

Item No. : M2.B3.110.0003

Weld No. : 2PZR-13

Total Area of Base Material = $3.59 + 2.23 = 5.82$ sq. in.

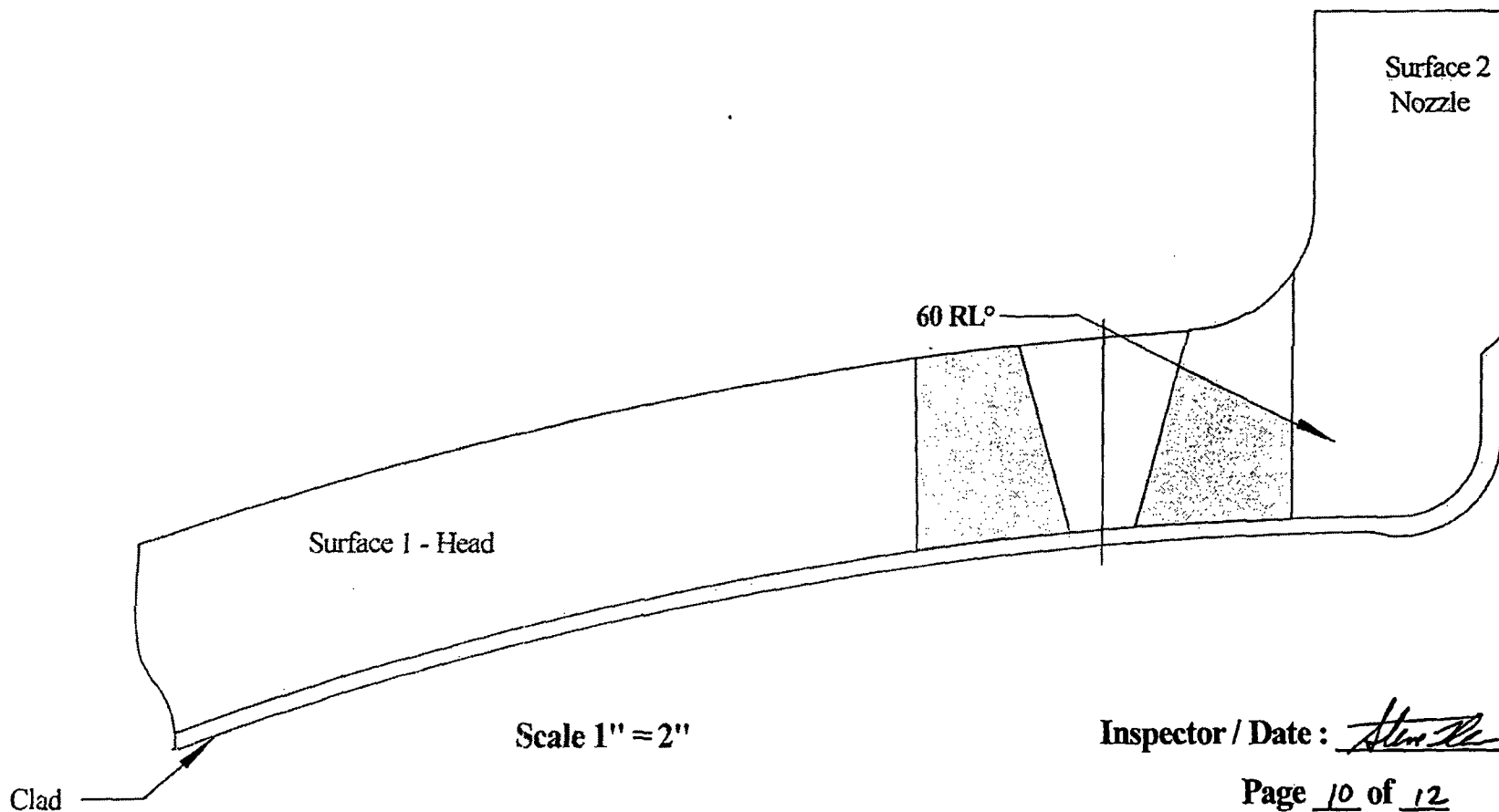
Total Base Material Scan Coverage = $5.82 / 7.46 \times 100 = 78.01$ %



Pressurizer Safety / Relief Nozzle to Head
Base Material Coverage - 60° RL Axial Scan

Item No. : M2.B3.110.0003

Weld No. : 2PZR-13



Pressurizer Safety / Relief Nozzle to Head
Base Material Coverage - Circumferential Scans

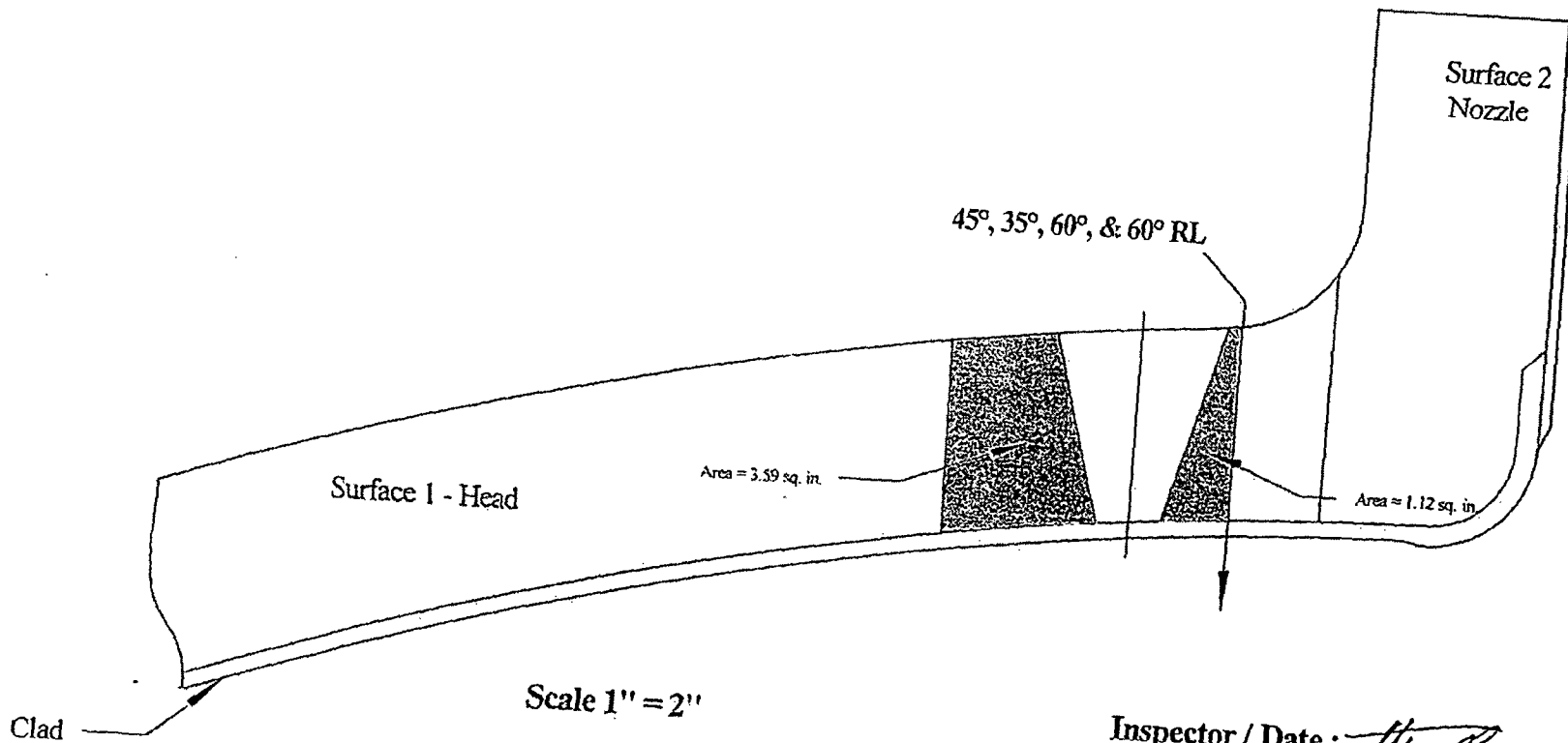
ATTACHMENT B
PAGE 12 OF 94

Item No. : M2.B3.110.0003

Weld No. : 2PZR-13

Total Area of Base Material = $3.59 + 1.12 = 4.71$ sq. in.

Total Base Material Scan Coverage = $4.71 / 7.46 \times 100 = 63.1$ %



Inspector / Date : [Signature] 9-9-09

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Pressurizer Safety / Relief Nozzle to Head

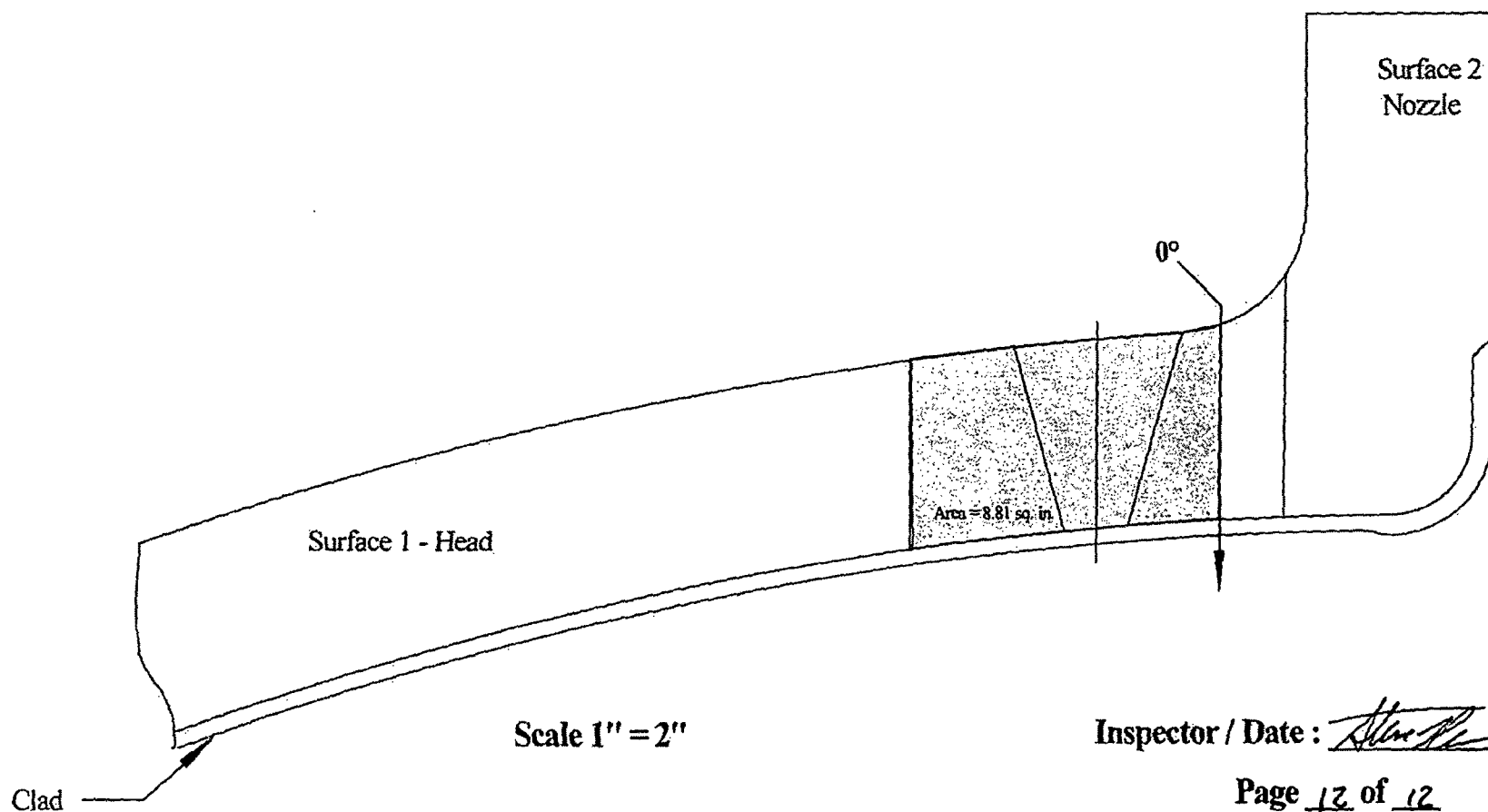
0° Scan Coverage

Item No. : M2.B3.110.0003

Weld No. : 2PZR-13

0° Scan Total Area = 8.81 sq. in.

Total 0° Scan Coverage = $8.81 / 10.75 \times 100 = 81.95 \%$



Inspector / Date : *[Signature]* 9-9-09

[Handwritten]
11-12-09



UT Vessel Examination

ATTACHMENT B
PAGE 14 OF 94

Site/Unit: McGuire / 2
Summary No.: M2.B3.110.0004
Workscope: ISI

Procedure: NDE-820
Procedure Rev.: 4
Work Order No.: 01845833

Outage No.: M2-19
Report No.: UT-09-099
Page: 1 of 1

Code: 1998/2000 A Cat./Item: B-D/B3.110 Location: _____
Drawing No.: MCM 2201.01-015 Description: NOZZLE to HEAD
System ID: NC
Component ID: 2PZR-14 Size/Length: N/A Thickness/Diameter: 2.35 / 15.000
Limitations: Yes Start Time: 1410 Finish Time: 1542

Examination Surface: Inside Outside Surface Condition: As Manufactured

Lo Location: 9.2.3 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 08125

Temp. Tool Mfg.: Fluke Serial No.: OCQUA33090 Surface Temp.: 84 °F

Cal. Report No.: CAL-09-259, 260, 261, 262, 263, 264 & 265

Angle Used	0	45	45T	60	60T	35
Scanning dB	40.1	53	53	66.6	66.6	64

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

Comments:

60RL scanning db - 82.5
Jake Ross Level II *Jake Ross* 09/07/2009

Results: Accept Reject Info

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

Examiner	Level	Signature	Date	Reviewed	Signature	Date
Leeper, Winfred C.	II-N	<i>Winfred C. Leeper</i>	9/7/2009	<i>Sanj Man</i>		10-1-09
Examiner	Level	Signature	Date	Site Review	Signature	Date
Dean, Steven	II-N	<i>Steven Dean</i>	9/7/2009			
Other	Level	Signature	Date	ANII Review	Signature	Date
Ellis II, Kenneth R.	II-N	<i>Kenneth R. Ellis</i>	9/7/2009	<i>JF Swann</i>		10-4-09

RTS
11/2/09

Pressurizer Safety/Relief Nozzle to Head % of Coverage

Item No. : M2.B3.110.0004

Weld No. : 2PZR-14

Weld Coverage

<u>Scan</u>	<u>Angle</u>	<u>% Coverage Obtained</u>
S1	45°	95.13
S1	60°	93
S2	35°	45.89
S2	45°	34.65
CW	35°	100
CW	45°	100
CCW	35°	100
CCW	45°	<u>100</u>
Total		668.67

$$668.67 \div 8 = \underline{83.6} \quad \% \text{ Coverage}$$

Base Material Coverage

S1	35°,45°&60°	78.01
CW & CCW	35°,45°&60°	<u>63.1</u>
Total		141.11

$$141.11 \div 2 = \underline{70.555} \quad \% \text{ Coverage}$$

$$\underline{0^\circ \text{ Scan Coverage}} = \underline{81.95} \quad \% \text{ Coverage}$$

Aggregate Coverage = Weld + Base Material + 0° ÷ 3

$$= \underline{78.7} \quad \% \text{ Coverage}$$

Inspector / Date : David K. Z III / 09/24/09

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R
G
4
11-2-09

ATTACHMENT B
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DUKE POWER COMPANY

ISI LIMITATION REPORT

Component/Weld ID: <u>2PZR - 14</u> Item No: <u>M2.B3.110.0004</u>		remarks:
<input checked="" type="checkbox"/> NO SCAN SURFACE BEAM DIRECTION <input type="checkbox"/> LIMITED SCAN <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw FROM L <u>N/A</u> to L <u>N/A</u> INCHES FROM W0 <u>+0.1"</u> to <u>Beyond</u> ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input checked="" type="checkbox"/> 60 other <u>35</u> FROM <u>0</u> DEG to <u>360</u> DEG	Nozzle configuration	
<input checked="" type="checkbox"/> NO SCAN SURFACE BEAM DIRECTION <input type="checkbox"/> LIMITED SCAN <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw FROM L <u>N/A</u> to L <u>N/A</u> INCHES FROM W0 <u>+0.5"</u> to <u>Beyond</u> ANGLE: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 45 <input type="checkbox"/> 60 other _____ FROM <u>0</u> DEG to <u>360</u> DEG	Nozzle configuration	
<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 type="checkbox"/> cw <input type="checkbox"/> ccw FROM L <u>N/A</u> to L <u>N/A</u> INCHES FROM W0 <u>-0.2"</u> to <u>Beyond</u> ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input checked="" type="checkbox"/> 60 other _____ FROM <u>0</u> DEG to <u>360</u> DEG	Nozzle configuration	
<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 type="checkbox"/> cw <input type="checkbox"/> ccw FROM L _____ to L _____ INCHES FROM W0 <u>-0.6</u> to <u>Beyond</u> ANGLE: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 5 <input type="checkbox"/> 60 other <u>35</u> FROM _____ DEG to _____ DEG	Nozzle configuration Sketch(s) attached <input checked="" type="checkbox"/> yes <input type="checkbox"/> No	
Prepared By: Steve Dean <i>[Signature]</i>	Level: II	Date: 09/09/09
Reviewed By: <i>[Signature]</i>		Date: 10-1-09
Authorized Inspector: <i>[Signature]</i>		Date: 10-4-09
Sheet <u>2</u> of <u>12</u>		

REV 11/2/09

DUKE POWER COMPANY ISI LIMITATION REPORT

Component/Weld ID: <u>2PZR - 14</u>		Item No: <u>M2.B3.110.0004</u>		remarks:
<input checked="" type="checkbox"/> NO SCAN	SURFACE	BEAM DIRECTION		Nozzle configuration
<input type="checkbox"/> LIMITED SCAN	<input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	<input type="checkbox"/> 1 <input type="checkbox"/> 2	<input checked="" type="checkbox"/> cw <input checked="" type="checkbox"/> ccw	
FROM L <u>N/A</u> to L <u>N/A</u>	INCHES FROM W0 <u>1.2</u> to <u>Beyond</u>			
ANGLE: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 45 <input checked="" type="checkbox"/> 60	other <u>35</u>	FROM <u>0</u> DEG to <u>360</u> DEG		
<input checked="" type="checkbox"/> NO SCAN	SURFACE	BEAM DIRECTION		Nozzle configuration
<input type="checkbox"/> LIMITED SCAN	<input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	<input type="checkbox"/> 1 <input type="checkbox"/> 2	<input checked="" type="checkbox"/> cw <input checked="" type="checkbox"/> ccw	
FROM L <u>N/A</u> to L <u>N/A</u>	INCHES FROM W0 <u>1.5</u> to <u>Beyond</u>			
ANGLE: <input checked="" type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60	other _____	FROM <u>0</u> DEG to <u>360</u> DEG		
<input type="checkbox"/> NO SCAN	SURFACE	BEAM DIRECTION		
<input type="checkbox"/> LIMITED SCAN	<input type="checkbox"/> 1 <input type="checkbox"/> 2	<input type="checkbox"/> 1 <input type="checkbox"/> 2	<input type="checkbox"/> cw <input type="checkbox"/> ccw	
FROM L _____ to L _____	INCHES FROM W0 _____ to _____			
ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60	other _____	FROM _____ DEG to _____ DEG		
<input type="checkbox"/> NO SCAN	SURFACE	BEAM DIRECTION		
<input type="checkbox"/> LIMITED SCAN	<input type="checkbox"/> 1 <input type="checkbox"/> 2	<input type="checkbox"/> 1 <input type="checkbox"/> 2	<input type="checkbox"/> cw <input type="checkbox"/> ccw	
FROM L _____ to L _____	INCHES FROM W0 _____ to _____			
ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 5 <input type="checkbox"/> 60	other _____	FROM _____ DEG to _____ DEG		
			Sketch(s) attached	
			<input checked="" type="checkbox"/> yes <input type="checkbox"/> No	
Prepared By: <u>Steve Dean</u>	Level: <u>II</u>	Date: <u>09/09/09</u>	Sheet <u>3</u> of <u>12</u>	
Reviewed By: <u>Gay Moss</u>	Date: <u>10-1-09</u>	Authorized Inspector: <u>J. Elwan</u>	Date: <u>10-4-09</u>	

11/2/09

Pressurizer Safety / Relief Nozzle to Head

Total Area Weld & Base Material

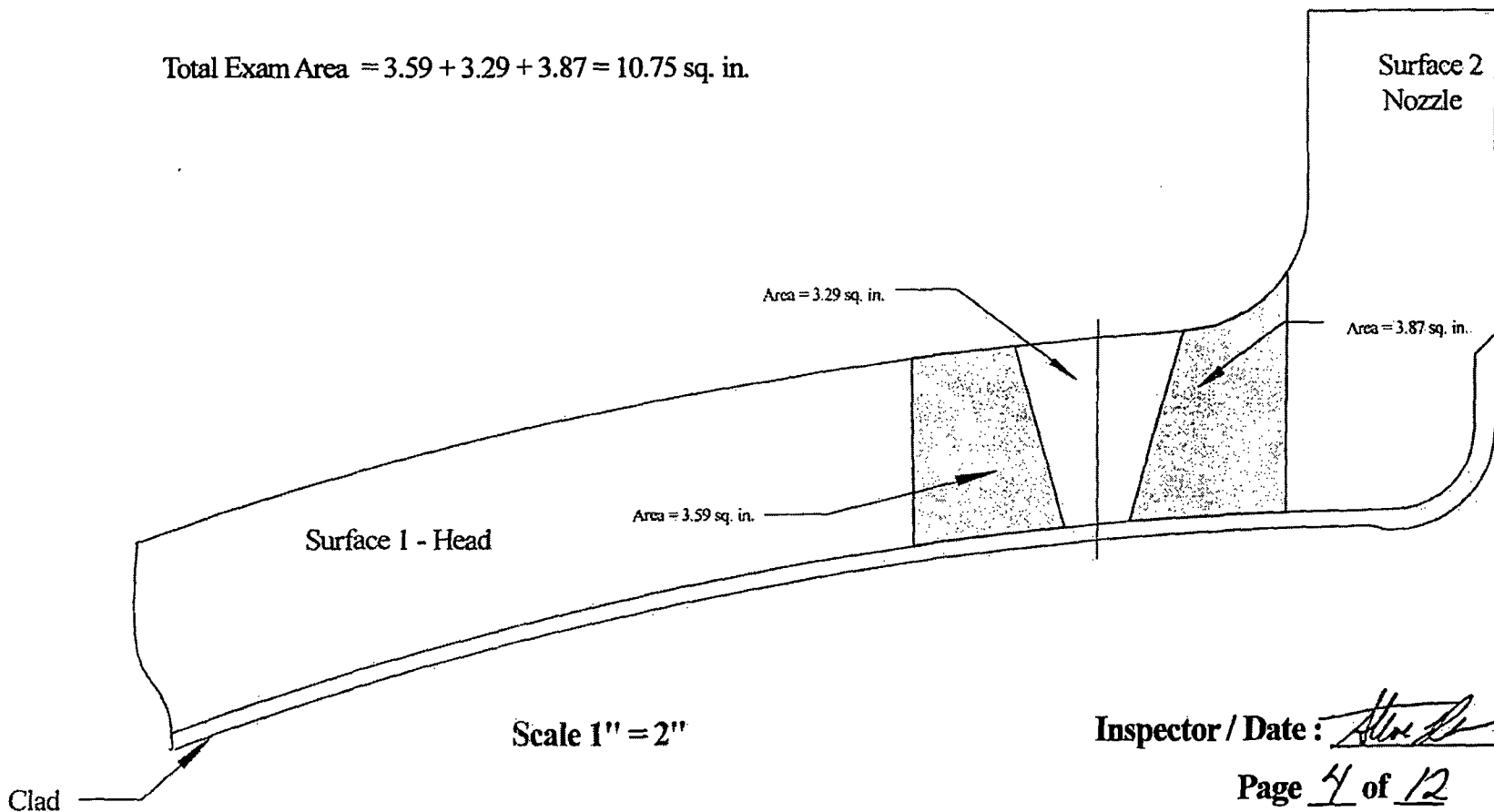
Item No. : M2.B3.110.0004

Weld No. : 2PZR-14

Total Weld Area = 3.29 sq. in.

Total Area of Base Material = 3.59 + 3.87 = 7.46 sq. in.

Total Exam Area = 3.59 + 3.29 + 3.87 = 10.75 sq. in.



Pressurizer Safety / Relief Nozzle to Head

Weld Material Coverage - Axial Scans

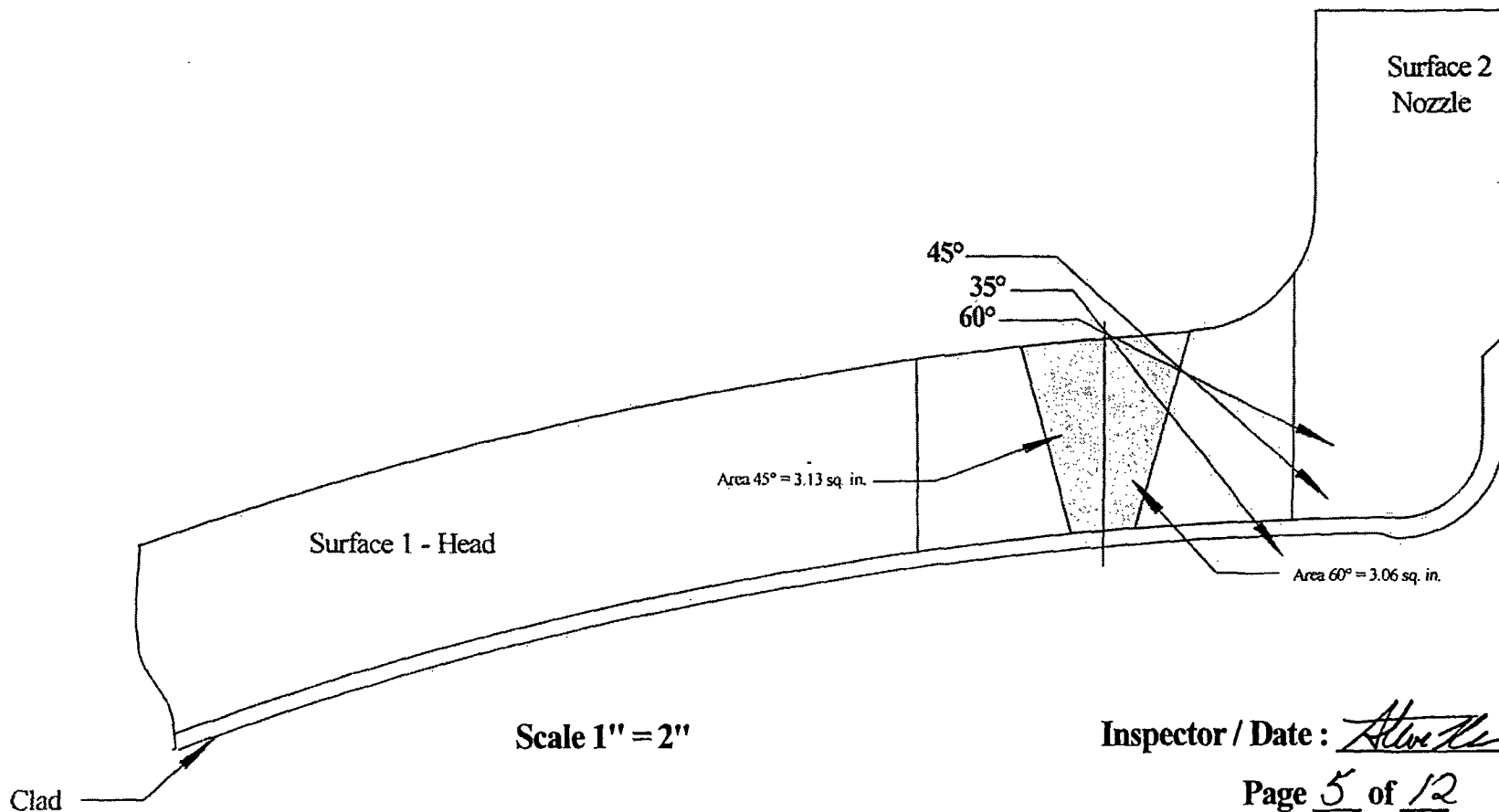
Item No. : M2.B3.110.0004

Weld No. : 2PZR-14

100% Coverage 35°, 45°, 60° Scans CW, CCW from Surface 1

Total Weld Coverage 45° from Surface 1 = $3.13 / 3.29 \times 100 = 95.13\%$

Total Weld Coverage 60° from Surface 1 = $3.06 / 3.29 \times 100 = 93.0\%$



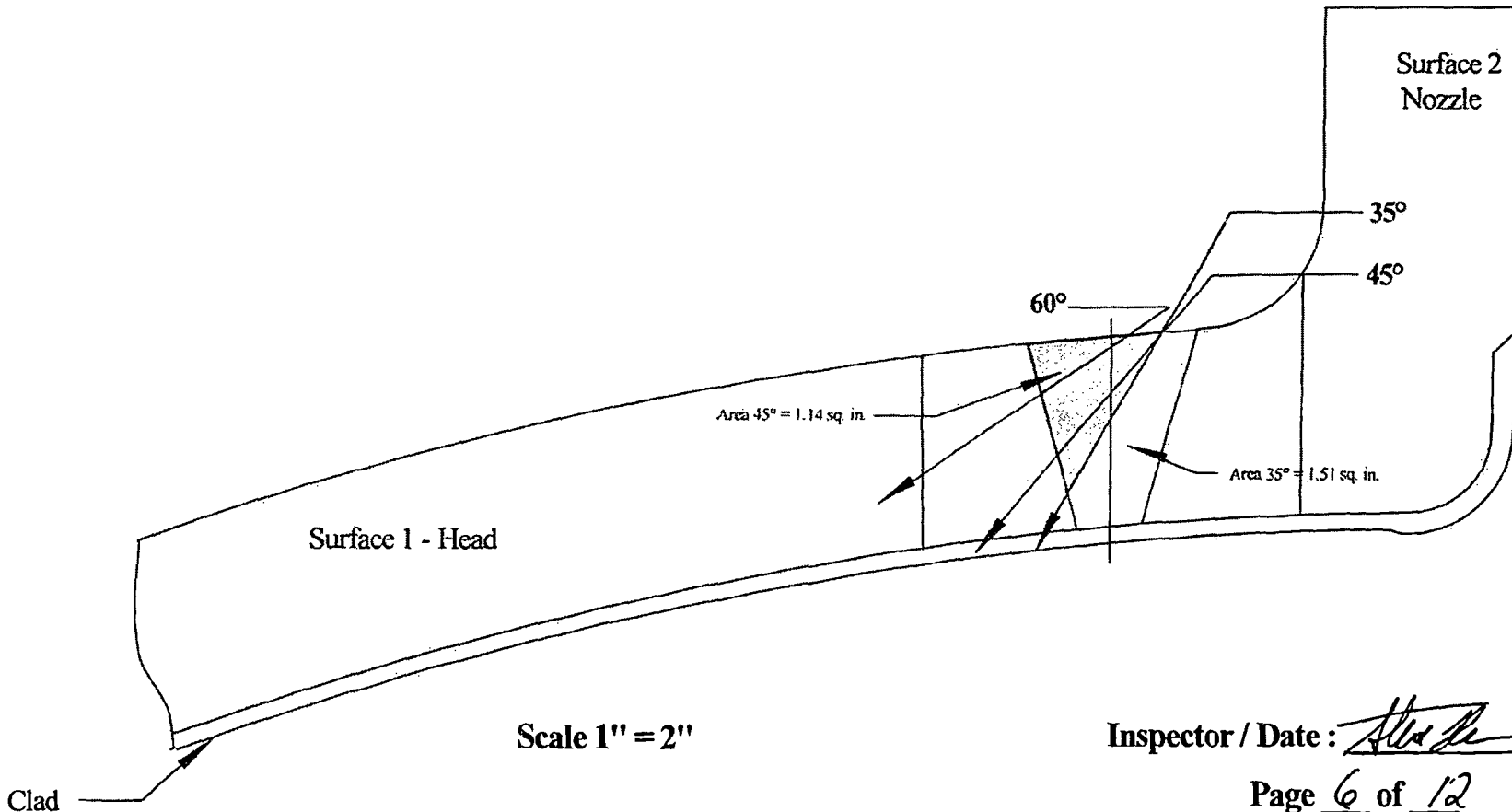
11-12-09

Pressurizer Safety / Relief Nozzle to Head Weld Coverage - Axial & Circumferential Scans

Item No. : M2.B3.110.0004

Weld No. : 2PZR-14

100% Coverage 35°, 45°, & 60° Scans CW, CCW, from Surface 2
Total Weld Coverage 35° from Surface 2 = $1.51 / 3.29 \times 100 = 45.89\%$
Total Weld Coverage 45° from Surface 2 = $1.14 / 3.29 \times 100 = 34.65\%$

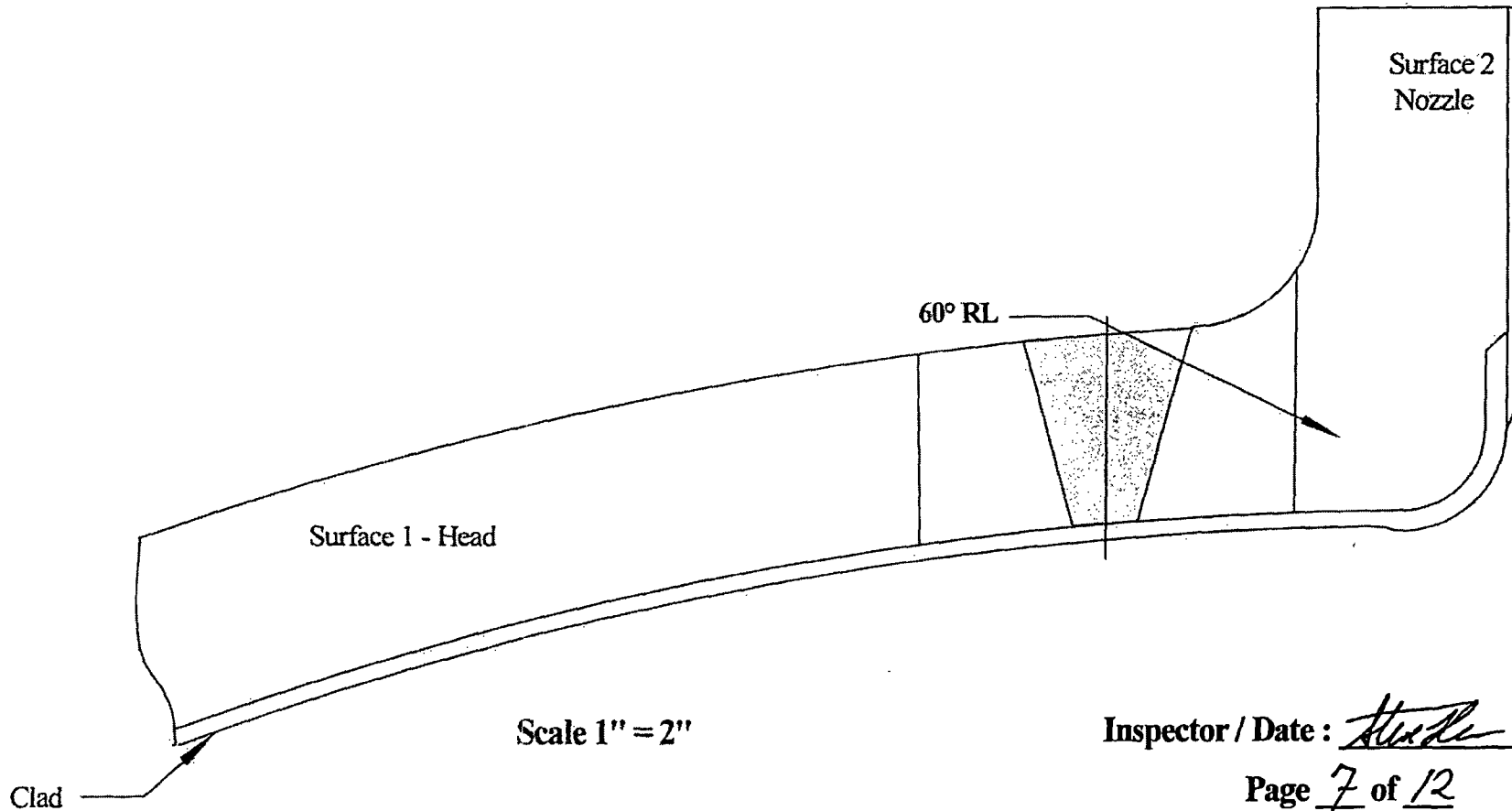


Pressurizer Safety / Relief Nozzle to Head

Weld Material Coverage - 60° RL Axial Scan

Item No. : M2.B3.110.0004

Weld No. : 2PZR-14



Inspector / Date : Sturte 9-9-09

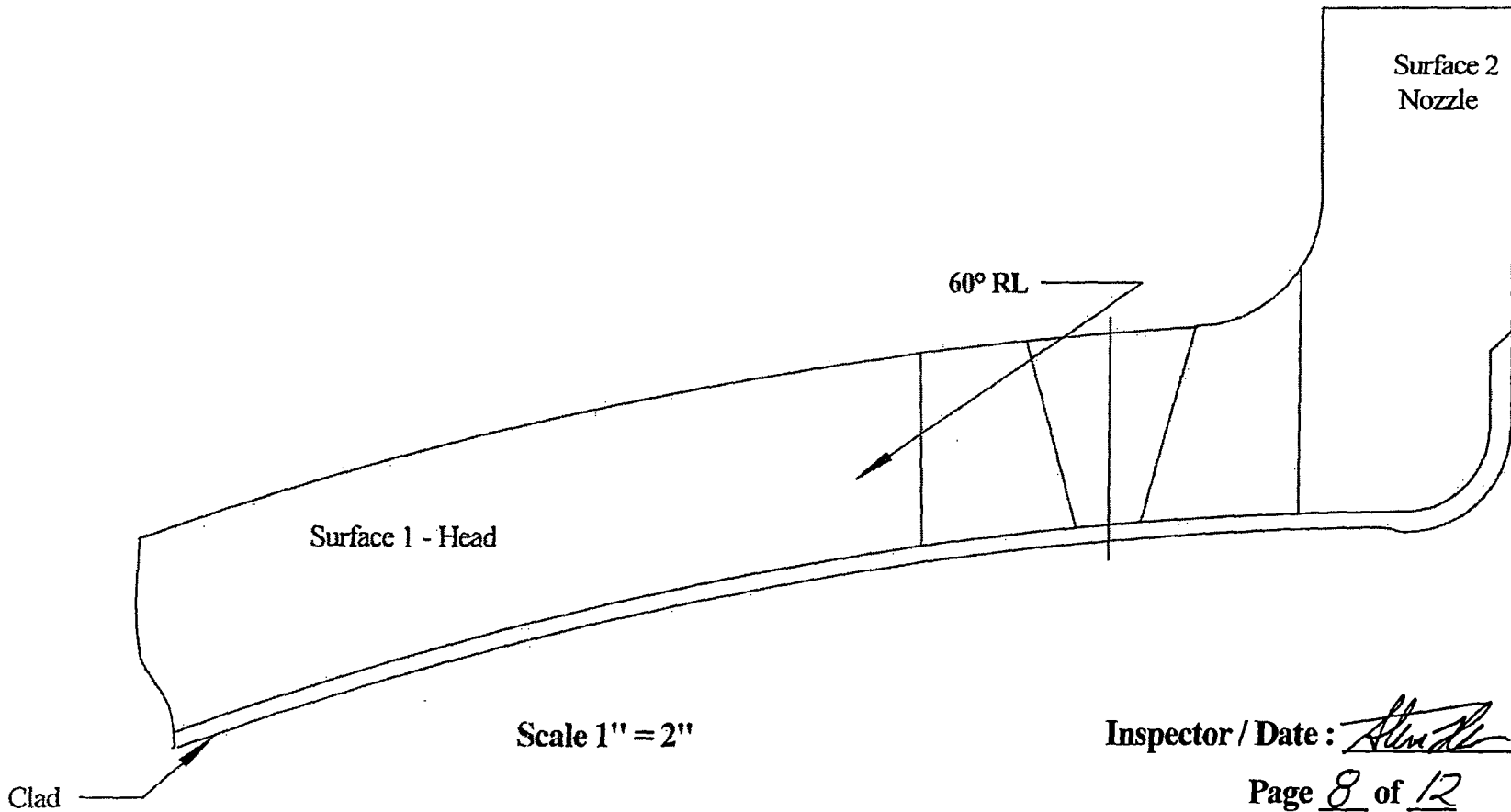
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ES
11/2/09

Pressurizer Safety / Relief Nozzle to Head
Weld Coverage - 60° RL Axial Scan

Item No. : M2.B3.110.0004

Weld No. : 2PZR-14



Pressurizer Safety / Relief Nozzle to Head

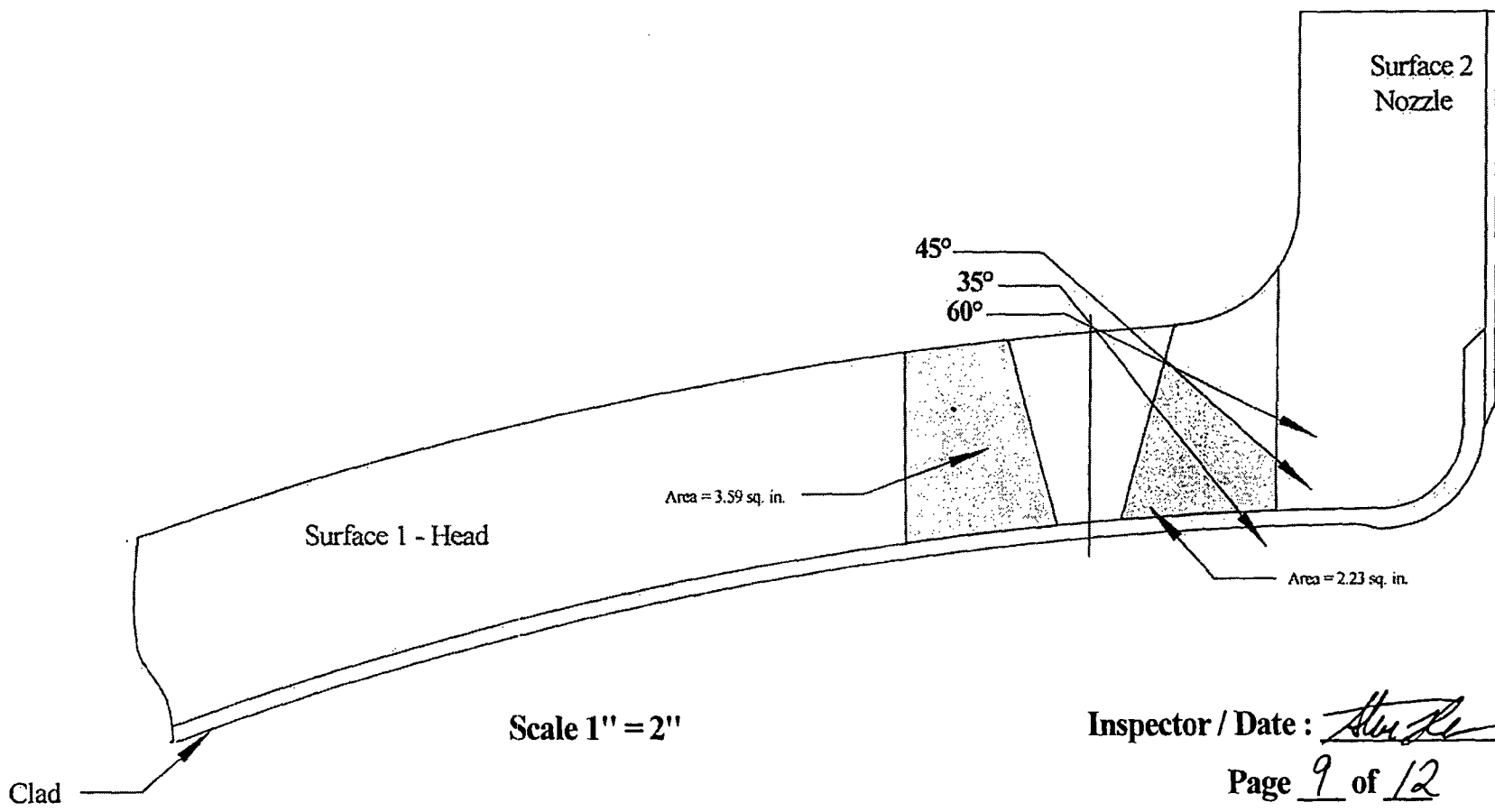
Base Material Coverage - Axial Scans

Item No. : M2.B3.110.0004

Weld No. : 2PZR-14

Total Area of Base Material = 3.59 + 2.23 = 5.82 sq. in.

Total Base Material Scan Coverage = $5.82 / 7.46 \times 100 = 78.01 \%$



Inspector / Date : Steve 9-9-09

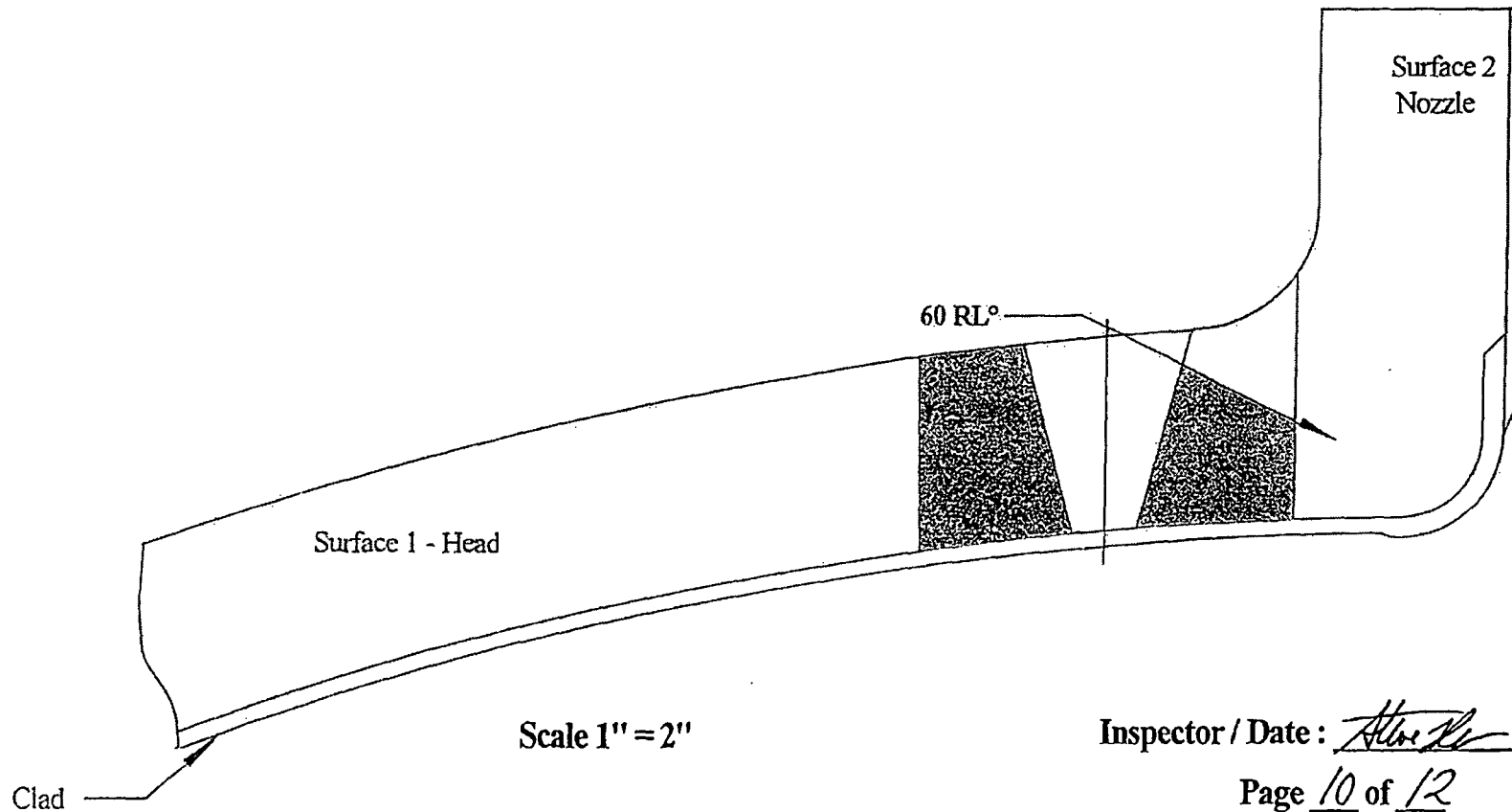
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Pressurizer Safety / Relief Nozzle to Head
Base Material Coverage - 60° RL Axial Scan

Item No. : M2.B3.110.0004

Weld No. : 2PZR-14



Inspector / Date : Alan K 9-9-09

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Pressurizer Safety / Relief Nozzle to Head

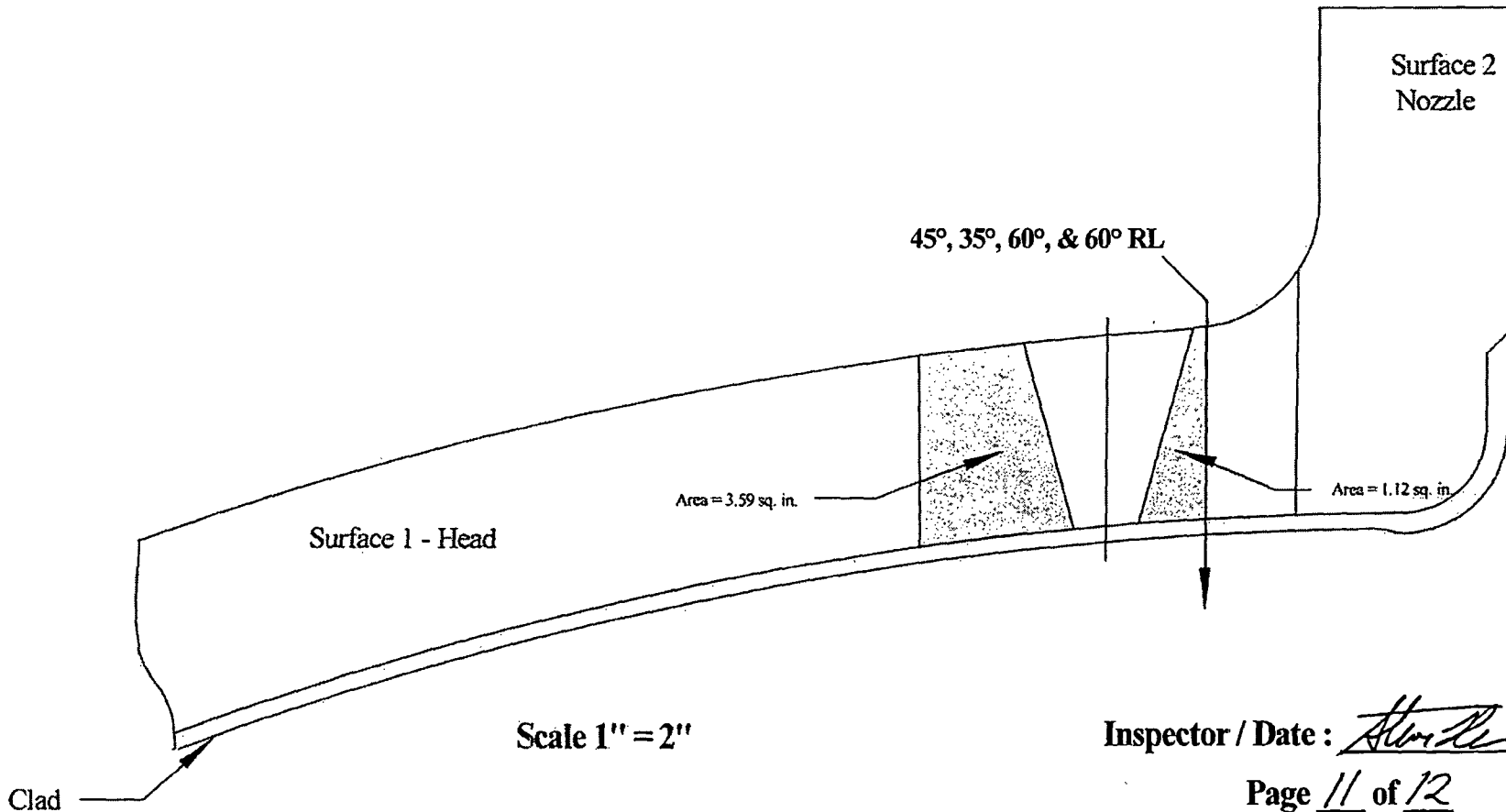
Base Material Coverage - Circumferential Scans

Item No. : M2.B3.110.0004

Weld No. : 2PZR-14

Total Area of Base Material = $3.59 + 1.12 = 4.71$ sq. in.

Total Base Material Scan Coverage = $4.71 / 7.46 \times 100 = 63.1 \%$



11/12/09

Inspector / Date : Alvarez 9-9-09

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Pressurizer Safety / Relief Nozzle to Head

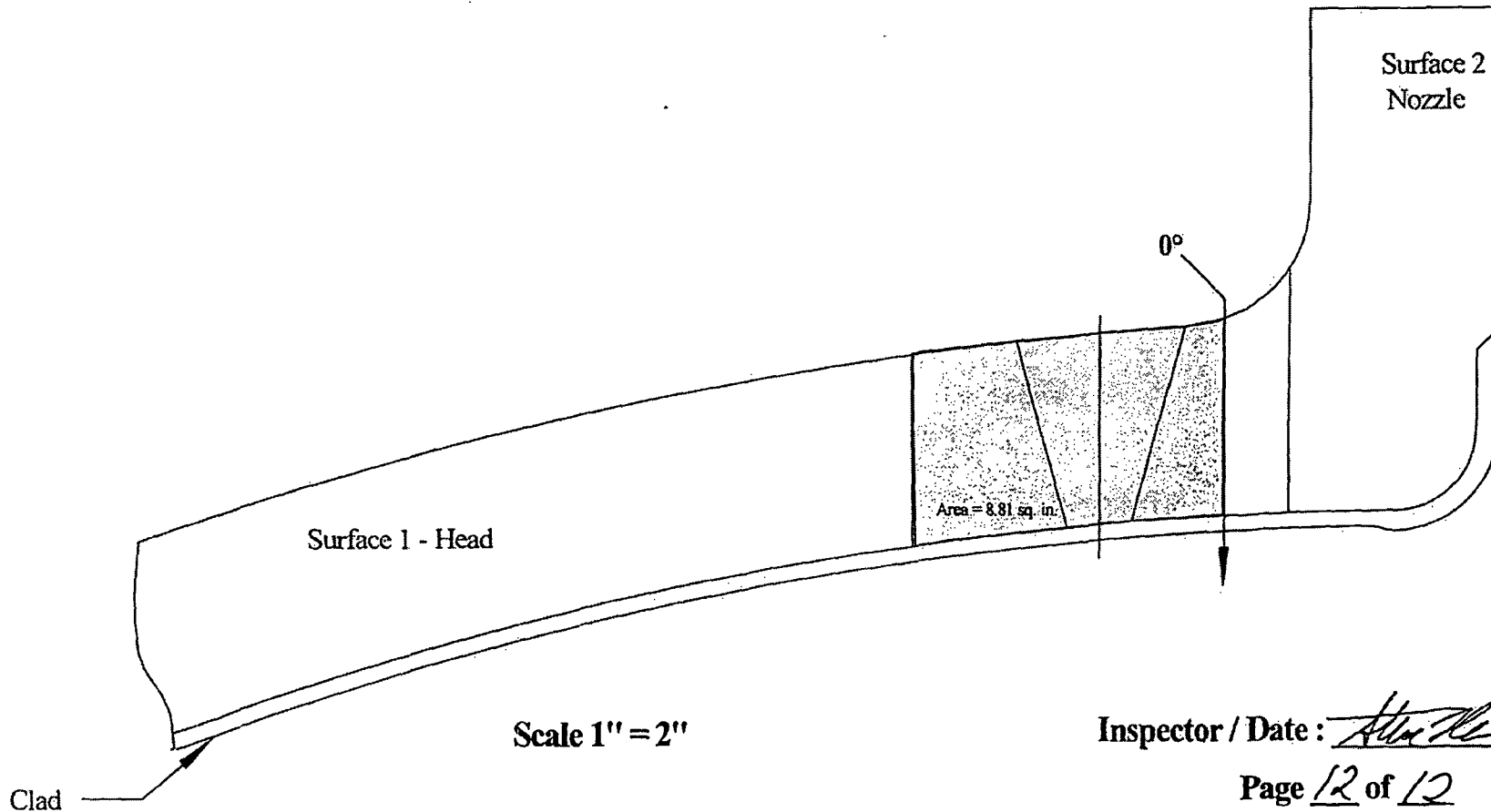
0° Scan Coverage

Item No. : M2.B3.110.0004

Weld No. : 2PZR-14

0° Scan Total Area = 8.81 sq. in.

Total 0° Scan Coverage = $8.81 / 10.75 \times 100 = 81.95 \%$





UT Vessel Examination

Site/Unit: McGuire / 2
Summary No.: M2.B3.110.0005
Workscope: ISI

Procedure: NDE-820
Procedure Rev.: 4
Work Order No.: 01845833

Outage No.: M2-19
Report No.: UT-09-098
Page: 1 of 1

Code: 1998/2000 A Cat./Item: B-D/B3.110 Location: _____
Drawing No.: MCM 2201.01-015 Description: NOZZLE to HEAD
System ID: NC
Component ID: 2PZR-15 Size/Length: N/A Thickness/Diameter: 2.35 / 15.000
Limitations: Yes Start Time: 1354 Finish Time: 1541

Examination Surface: Inside Outside Surface Condition: As Manufactured

Lo Location: 9.2.3 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 08125

Temp. Tool Mfg.: Fluke Serial No.: OCQUA33090 Surface Temp.: 84 °F

Cal. Report No.: CAL-09-259, 260, 261, 262, 263, 264 & 265

Angle Used	0	45	45T	60	60T	35
Scanning dB	40.1	53	53	66.6	66.6	64

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

Comments:

60RL scanning db - 82.5
Jake Ross Level II *Jake Ross* 09/07/2009

Results: Accept Reject Info

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

Examiner	Level	Signature	Date	Reviewer	Signature	Date
Leeper, Winfred C.	II-N	<i>Winfred C. Leeper</i>	9/7/2009	<i>Sam Mox</i>		10-1-09
Examiner	Level	Signature	Date	Site Review	Signature	Date
Dean, Steven	II-N	<i>Steve Dean</i>	9/7/2009			
Other	Level	Signature	Date	ANII Review	Signature	Date
Ellis II, Kenneth R.	II-N	<i>Kenneth R. Ellis II</i>	9/7/2009	<i>JF Swann</i>		10-4-09

*R
G
11/2/09*

Pressurizer Safety/Relief Nozzle to Head % of Coverage

Item No. : M2.B3.110.0005

Weld No. : 2PZR-15

Weld Coverage

<u>Scan</u>	<u>Angle</u>	<u>% Coverage Obtained</u>
S1	45°	95.13
S1	60°	93
S2	35°	45.89
S2	45°	34.65
CW	35°	100
CW	45°	100
CCW	35°	100
CCW	45°	<u>100</u>
Total		668.67

$$668.67 \div 8 = \underline{83.6} \quad \% \text{ Coverage}$$

Base Material Coverage

S1	35°,45°&60°	78.01
CW & CCW	35°,45°&60°	<u>63.1</u>
Total		141.11

$$141.11 \div 2 = \underline{70.555} \quad \% \text{ Coverage}$$

$$\underline{0^\circ \text{ Scan Coverage}} = \underline{81.95} \quad \% \text{ Coverage}$$

$$\text{Aggregate Coverage} = \text{Weld} + \text{Base Material} + 0^\circ \div 3$$

$$= \underline{78.7} \quad \% \text{ Coverage}$$

Inspector / Date : David K. Z III / 09/24/09

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09/24/09

ATTACHMENT B
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DUKE POWER COMPANY
ISI LIMITATION REPORT

Component/Weld ID: <u>2PZR - 15</u>		Item No: <u>M2.B3.110.0005</u>		remarks:
<input checked="" type="checkbox"/> NO SCAN	SURFACE	BEAM DIRECTION		Nozzle configuration
<input type="checkbox"/> LIMITED SCAN	<input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	<input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	<input type="checkbox"/> cw <input type="checkbox"/> ccw	
FROM L <u>N/A</u> to L <u>N/A</u>	INCHES FROM W0 <u>+0.1</u>	to <u>Beyond</u>		
ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input checked="" type="checkbox"/> 60	other <u>35</u>	FROM <u>0</u> DEG to <u>360</u> DEG		
<input checked="" type="checkbox"/> NO SCAN	SURFACE	BEAM DIRECTION		Nozzle configuration
<input type="checkbox"/> LIMITED SCAN	<input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	<input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	<input type="checkbox"/> cw <input type="checkbox"/> ccw	
FROM L <u>N/A</u> to L <u>N/A</u>	INCHES FROM W0 <u>+0.5</u>	to <u>Beyond</u>		
ANGLE: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 45 <input type="checkbox"/> 60	other _____	FROM <u>0</u> DEG to <u>360</u> DEG		
<input checked="" type="checkbox"/> NO SCAN	SURFACE	BEAM DIRECTION		Nozzle configuration
<input type="checkbox"/> LIMITED SCAN	<input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	<input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	<input type="checkbox"/> cw <input type="checkbox"/> ccw	
FROM L <u>N/A</u> to L <u>N/A</u>	INCHES FROM W0 <u>+0.2</u>	to <u>Beyond</u>		
ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input checked="" type="checkbox"/> 60	other _____	FROM <u>0</u> DEG to <u>360</u> DEG		
<input checked="" type="checkbox"/> NO SCAN	SURFACE	BEAM DIRECTION		Nozzle configuration
<input type="checkbox"/> LIMITED SCAN	<input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	<input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	<input type="checkbox"/> cw <input type="checkbox"/> ccw	
FROM L _____ to L _____	INCHES FROM W0 <u>-0.6</u>	to <u>Beyond</u>		Sketch(s) attached
ANGLE: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 5 <input type="checkbox"/> 60	other <u>35</u>	FROM <u>0</u> DEG to <u>360</u> DEG		<input checked="" type="checkbox"/> yes <input type="checkbox"/> No
Prepared By: Steve Dean <i>[Signature]</i>	Level: II	Date: 09/09/200/	Sheet <u>2</u> of <u>12</u>	
Reviewed By: <i>[Signature]</i>	Date: <u>10-1-09</u>	Authorized Inspector: <i>[Signature]</i>	Date: <u>10-4-09</u>	

8/11/09

DUKE POWER COMPANY ISI LIMITATION REPORT

Component/Weld ID: <u>2PZR - 15</u> Item No: <u>M2.B3.110.0005</u>		remarks:	
<input checked="" type="checkbox"/> NO SCAN <input type="checkbox"/> LIMITED SCAN FROM L <u>N/A</u> to L <u>N/A</u> ANGLE: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 45 <input checked="" type="checkbox"/> 60 other <u>35</u>	SURFACE <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 INCHES FROM W0 <u>1.2</u> to <u>Beyond</u> FROM <u>0</u> DEG to <u>360</u> DEG	BEAM DIRECTION <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> cw <input checked="" type="checkbox"/> ccw Nozzle configuration 	
<input checked="" type="checkbox"/> NO SCAN <input type="checkbox"/> LIMITED SCAN FROM L <u>N/A</u> to L <u>N/A</u> ANGLE: <input checked="" type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 other _____	SURFACE <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 INCHES FROM W0 <u>1.5</u> to <u>Beyond</u> FROM <u>0</u> DEG to <u>360</u> DEG	BEAM DIRECTION <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> cw <input checked="" type="checkbox"/> ccw Nozzle configuration 	
<input type="checkbox"/> NO SCAN <input type="checkbox"/> LIMITED SCAN FROM L _____ to L _____ ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 other _____	SURFACE <input type="checkbox"/> 1 <input type="checkbox"/> 2 INCHES FROM W0 _____ to _____ FROM _____ DEG to _____ DEG	BEAM DIRECTION <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw 	
<input type="checkbox"/> NO SCAN <input type="checkbox"/> LIMITED SCAN FROM L _____ to L _____ ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 5 <input type="checkbox"/> 60 other _____	SURFACE <input type="checkbox"/> 1 <input type="checkbox"/> 2 INCHES FROM W0 _____ to _____ FROM _____ DEG to _____ DEG	BEAM DIRECTION <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw Sketch(s) attached <input checked="" type="checkbox"/> yes <input type="checkbox"/> No	
Prepared By: <u>Steve Dean</u> <i>[Signature]</i>	Level: <u>II</u>	Date: <u>09/09/2009</u>	Sheet <u>3</u> of <u>12</u>
Reviewed By: <u>Maya Mon</u> <i>[Signature]</i>	Date: <u>10-1-09</u>	Authorized Inspector: <u>J. F. Swan</u> <i>[Signature]</i>	Date: <u>10-4-09</u>

8
11-12-09

Pressurizer Safety / Relief Nozzle to Head Total Area Weld & Base Material

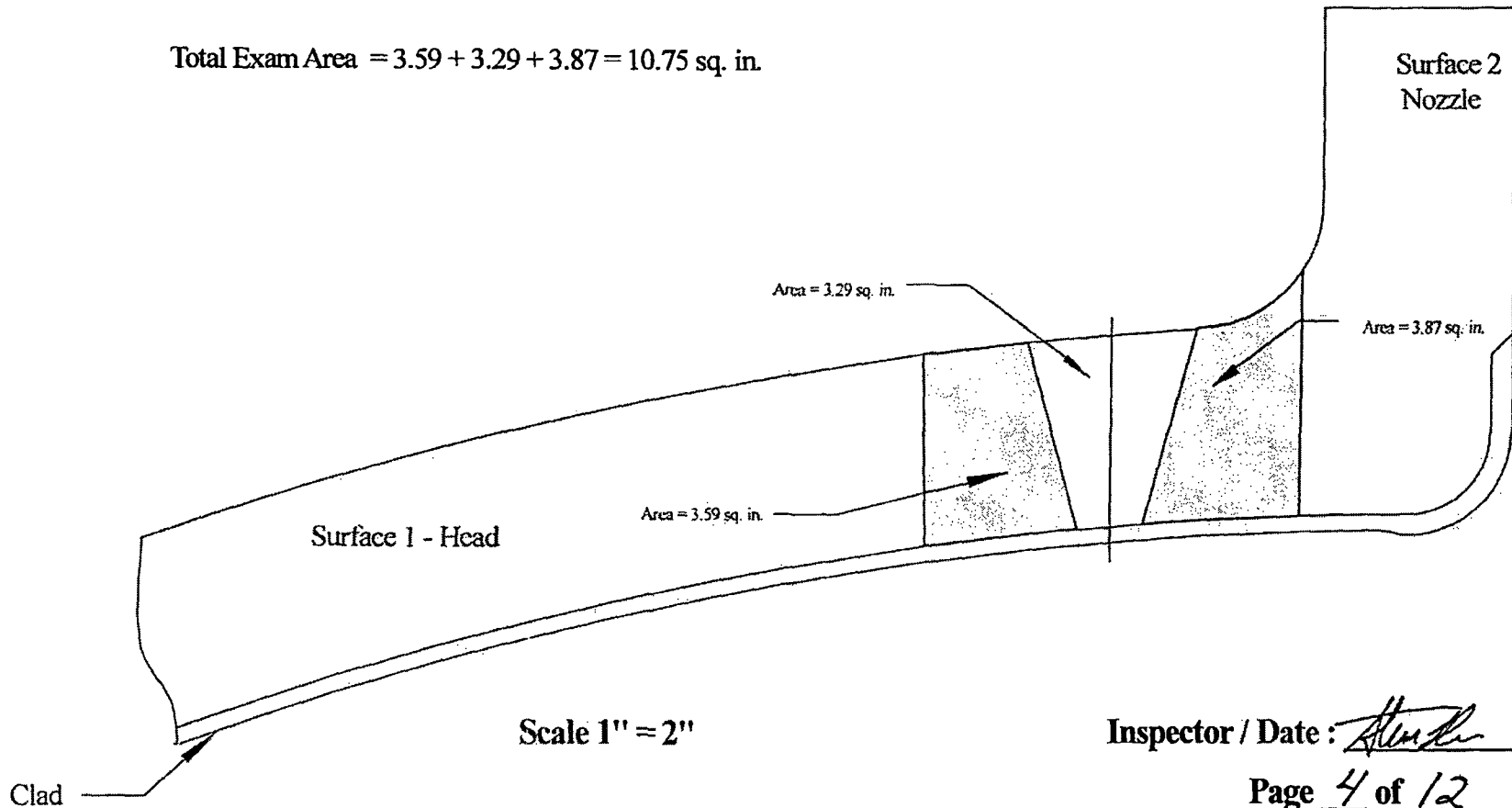
Item No. : M2.B3.110.0005

Weld No. : 2PZR-15

Total Weld Area = 3.29 sq. in.

Total Area of Base Material = 3.59 + 3.87 = 7.46 sq. in.

Total Exam Area = 3.59 + 3.29 + 3.87 = 10.75 sq. in.



Pressurizer Safety / Relief Nozzle to Head

Weld Material Coverage - Axial Scans

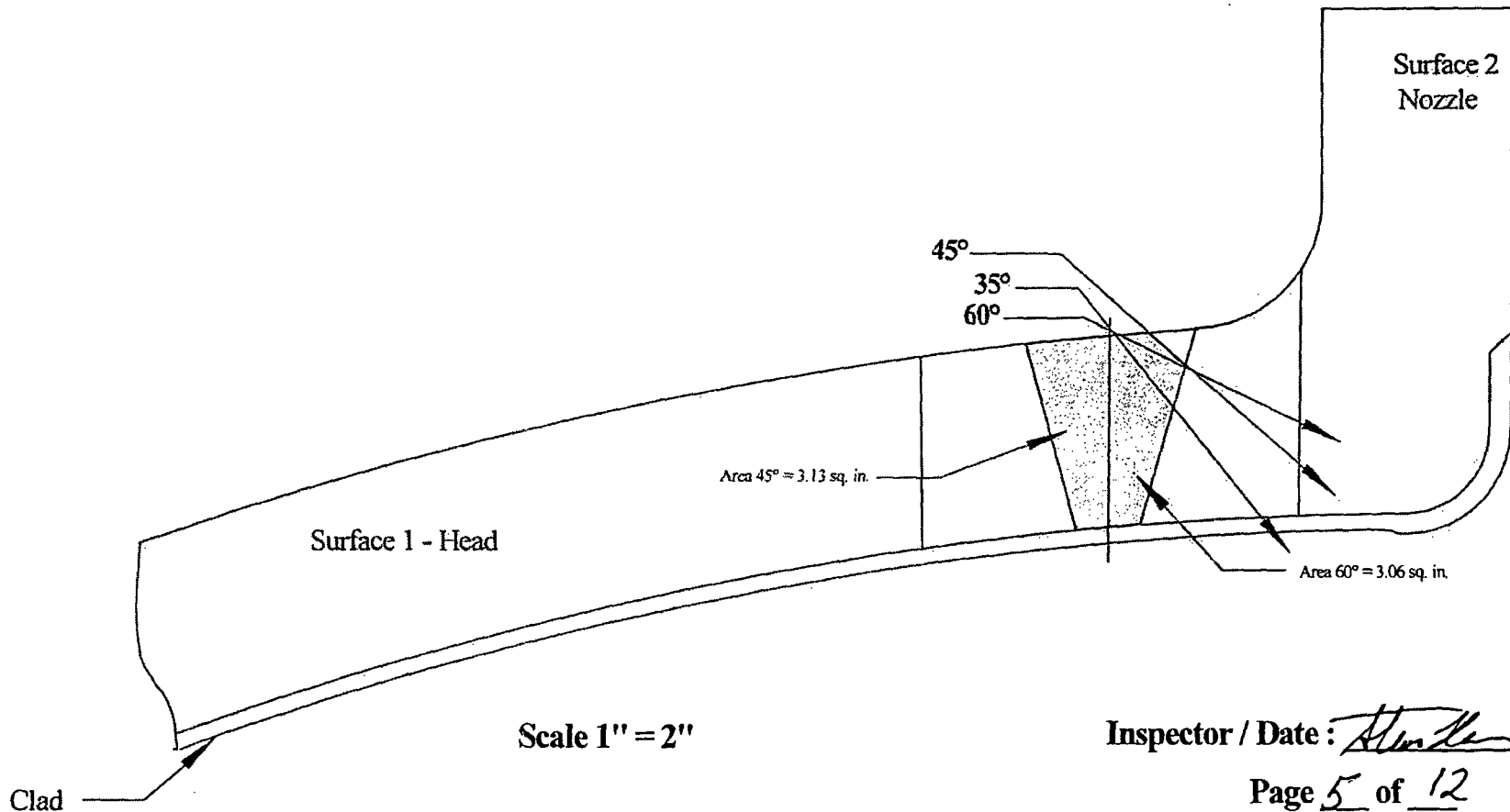
Item No. : M2.B3.110.0005

Weld No. : 2PZR-15

100% Coverage 35°, 45°, 60° Scans CW, CCW from Surface 1

Total Weld Coverage 45° from Surface 1 = $3.13 / 3.29 \times 100 = 95.13\%$

Total Weld Coverage 60° from Surface 1 = $3.06 / 3.29 \times 100 = 93.0\%$



Inspector / Date : Sturtevant 9-9-09

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8/24/09
11/2/09

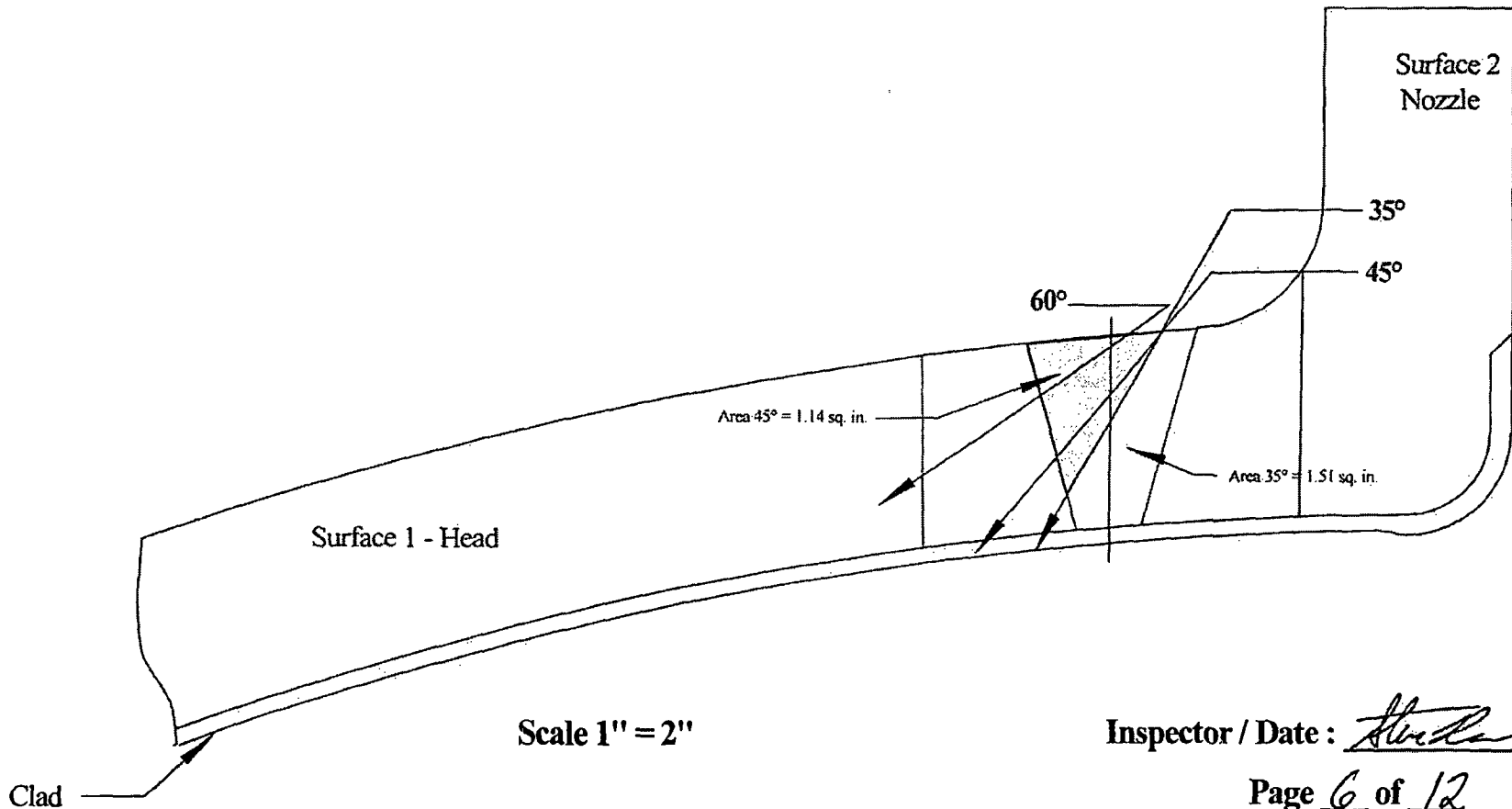
Pressurizer Safety / Relief Nozzle to Head

Weld Coverage - Axial & Circumferential Scans

Item No. : M2.B3.110.0005

Weld No. : 2PZR-15

100% Coverage 35°, 45°, & 60° Scans CW, CCW, from Surface 2
Total Weld Coverage 35° from Surface 2 = $1.51 / 3.29 \times 100 = 45.89\%$
Total Weld Coverage 45° from Surface 2 = $1.14 / 3.29 \times 100 = 34.65\%$



Inspector / Date : Stucka 9-9-09

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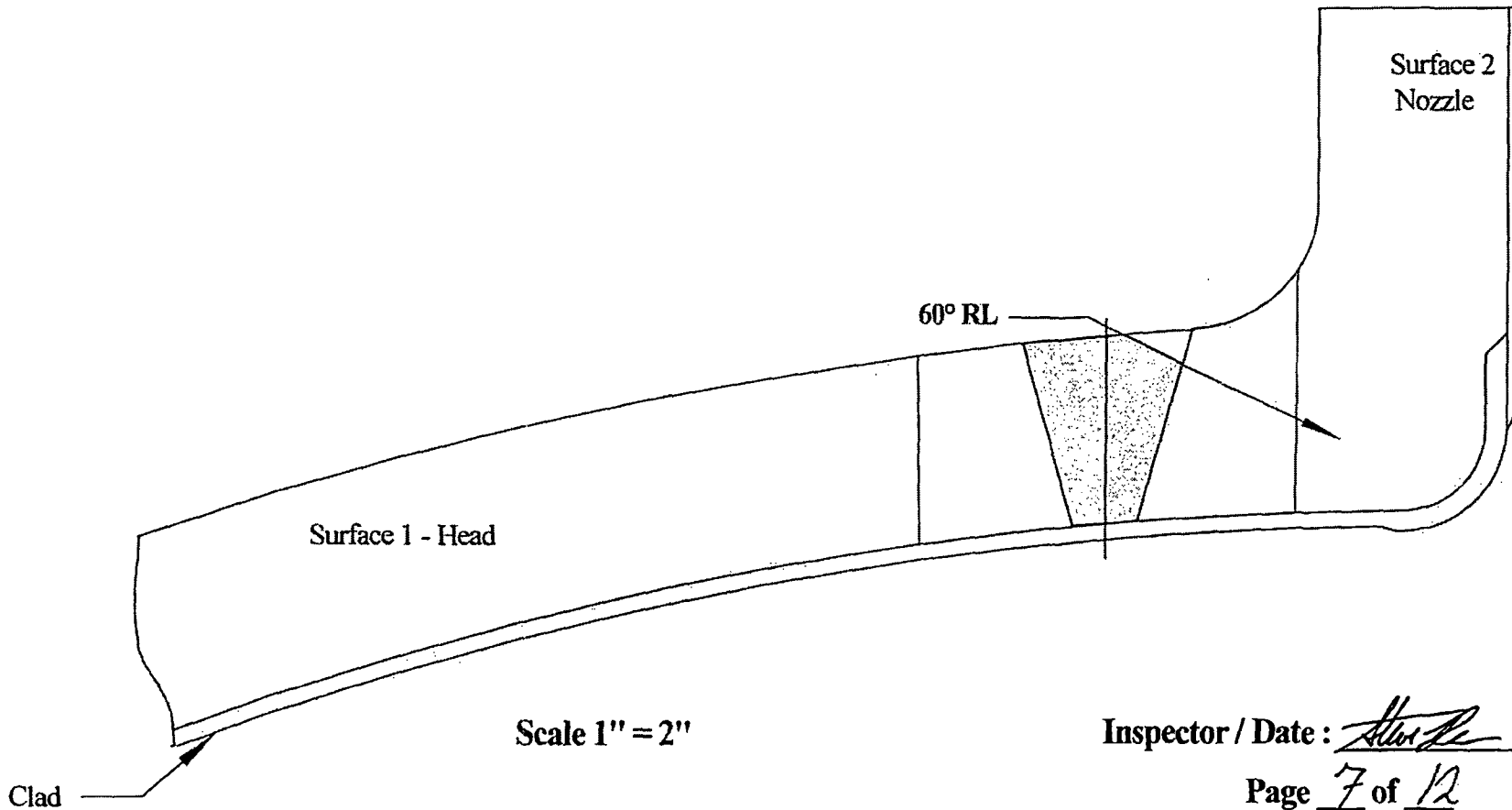
R.
01
11/12/09

Pressurizer Safety / Relief Nozzle to Head

Weld Material Coverage - 60° RL Axial Scan

Item No. : M2.B3.110.0005

Weld No. : 2PZR-15



Inspector / Date : Steve R 9-9-09

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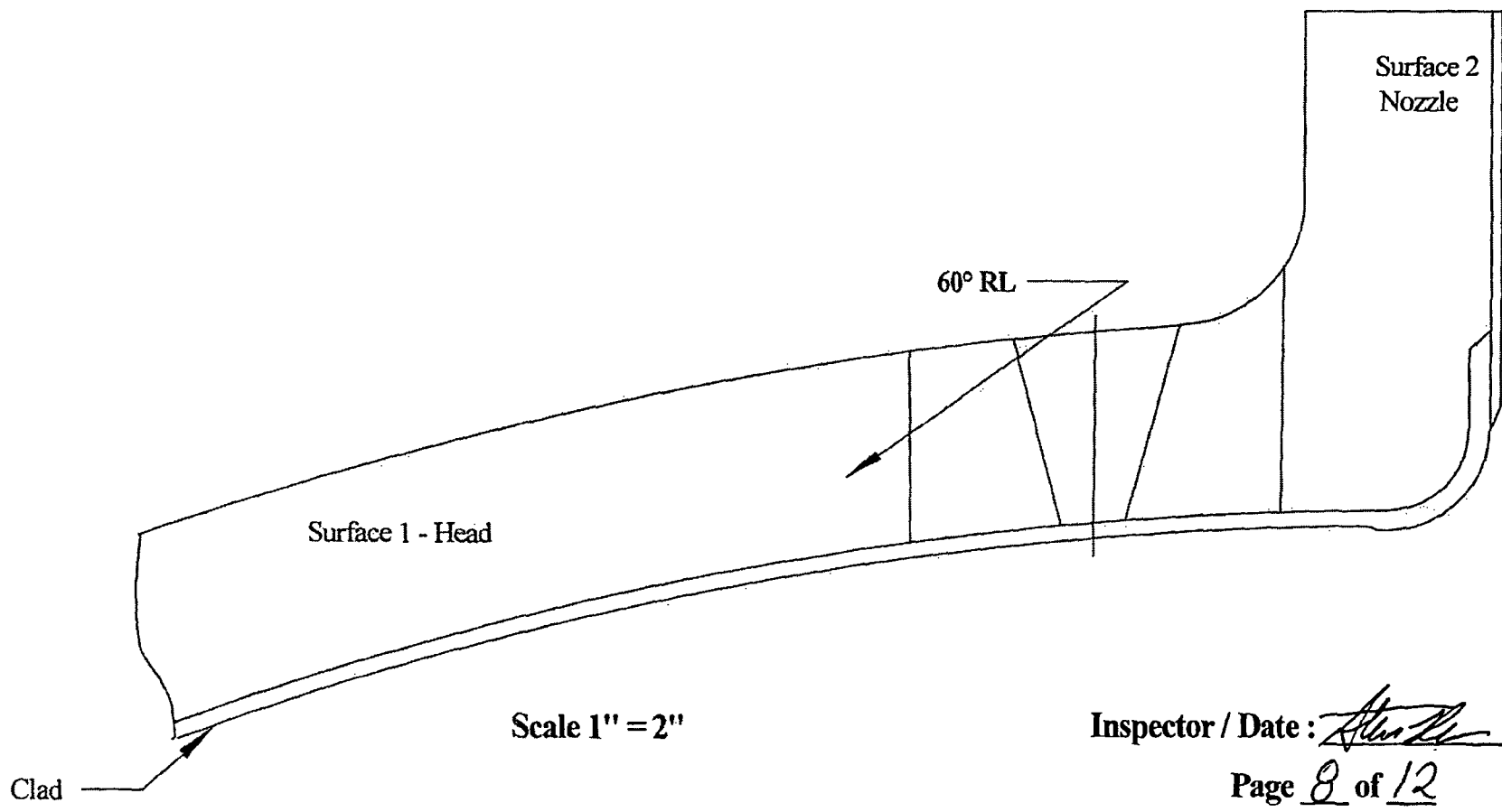
11-12-09

Pressurizer Safety / Relief Nozzle to Head

Weld Coverage - 60° RL Axial Scan

Item No. : M2.B3.110.0005

Weld No. : 2PZR-15



Inspector / Date : Alan L... 9-9-09

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R. J. 11-12-09

Pressurizer Safety / Relief Nozzle to Head

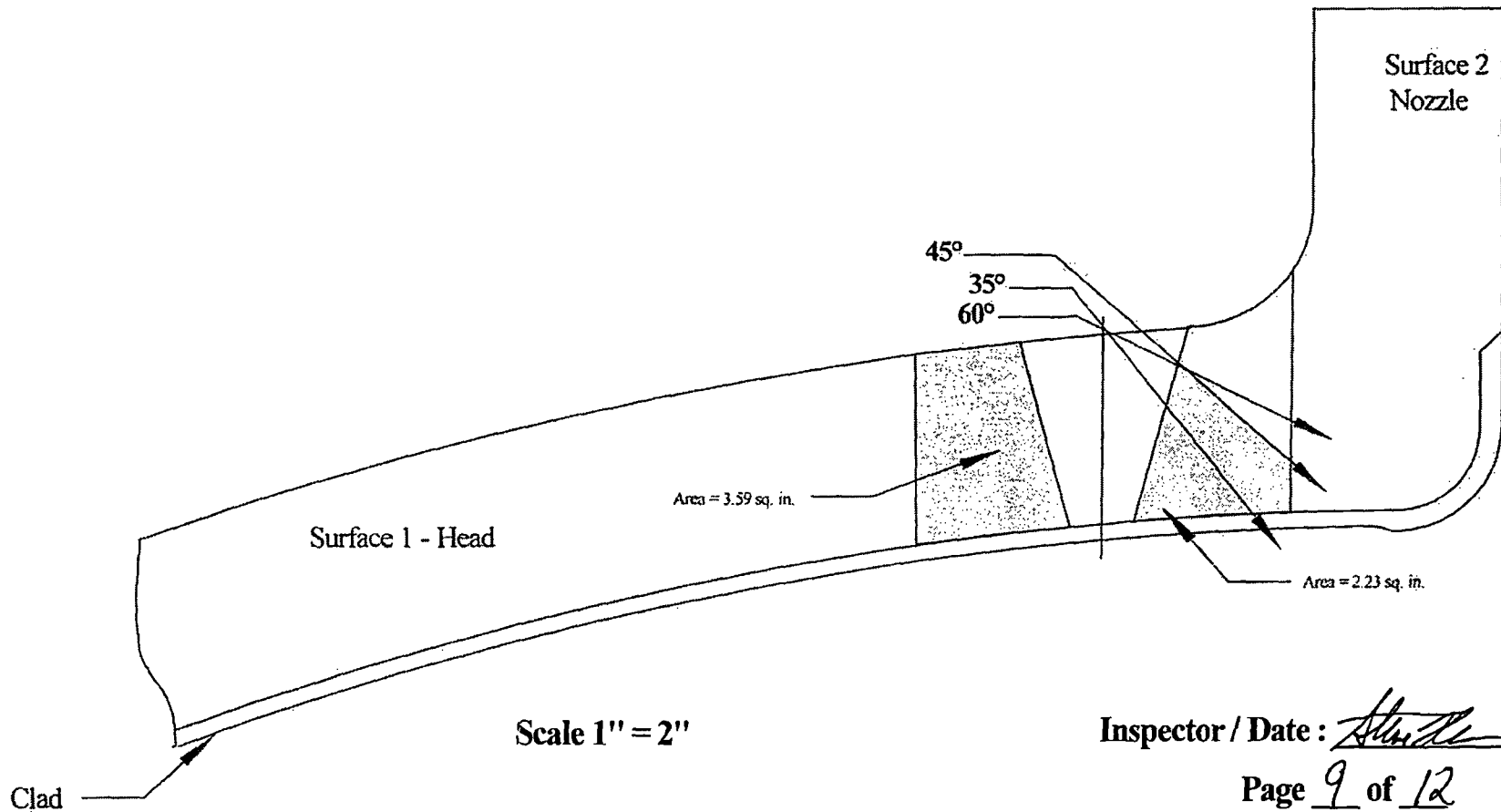
Base Material Coverage - Axial Scans

Item No. : M2.B3.110.0005

Weld No. : 2PZR-15

Total Area of Base Material = $3.59 + 2.23 = 5.82$ sq. in.

Total Base Material Scan Coverage = $5.82 / 7.46 \times 100 = 78.01$ %



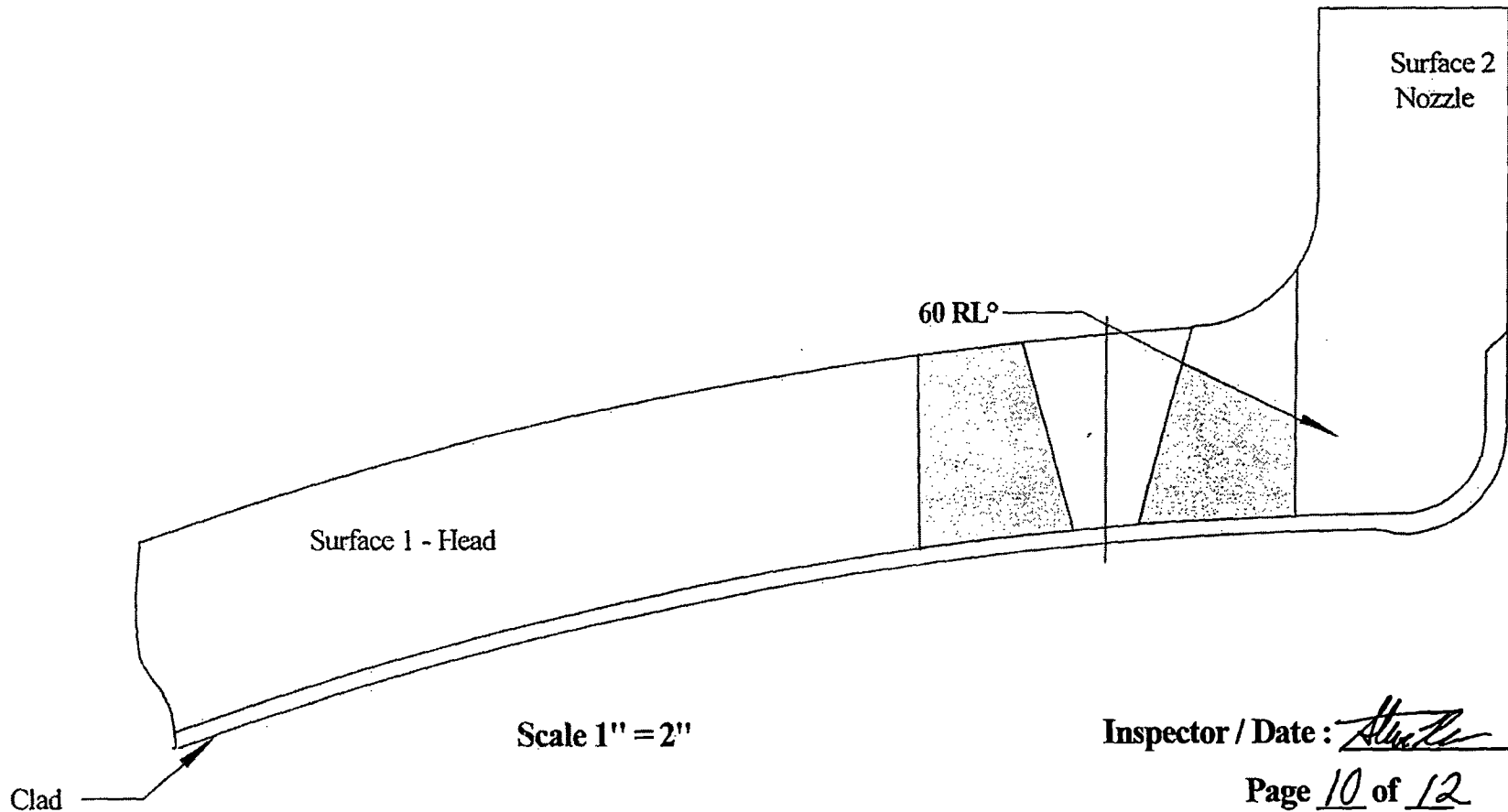
Inspector / Date : Steve 9-9-09

Page 9 of 12

Pressurizer Safety / Relief Nozzle to Head
Base Material Coverage - 60° RL Axial Scan

Item No. : M2.B3.110.0005

Weld No. : 2PZR-15



Pressurizer Safety / Relief Nozzle to Head

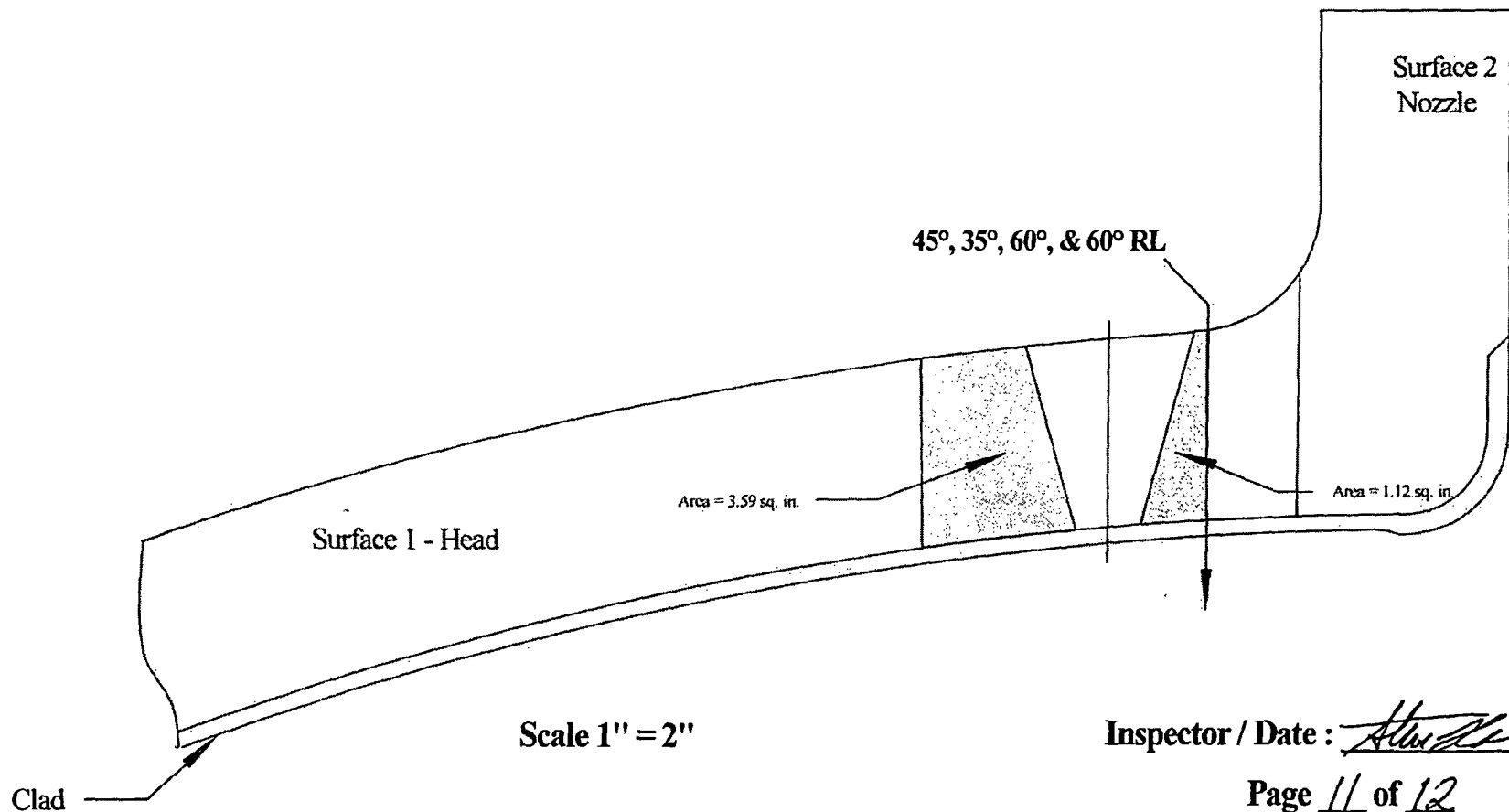
Base Material Coverage - Circumferential Scans

Item No. : M2.B3.110.0005

Weld No. : 2PZR-15

Total Area of Base Material = 3.59 + 1.12 = 4.71 sq. in.

Total Base Material Scan Coverage = $4.71 / 7.46 \times 100 = 63.1 \%$



E. 11/12/09

Pressurizer Safety / Relief Nozzle to Head

ATTACHMENT B
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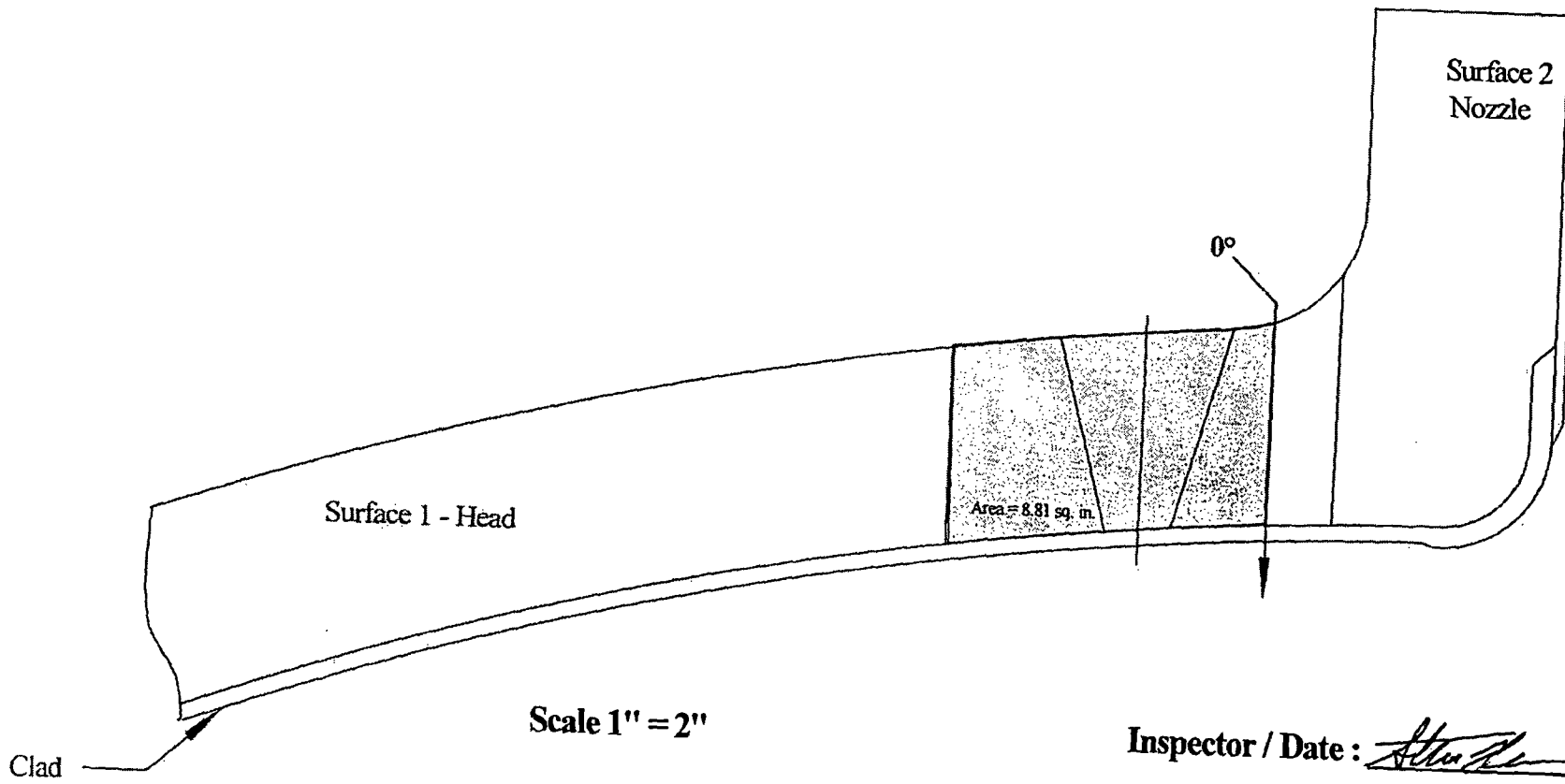
0° Scan Coverage

Item No. : M2.B3.110.0005

Weld No. : 2PZR-15

0° Scan Total Area = 8.81 sq. in.

Total 0° Scan Coverage = $8.81 / 10.75 \times 100 = 81.95 \%$



Inspector / Date : Altman 9-9-09

Page 12 of 12

8/21/09



UT Vessel Examination

Site/Unit: McGuire / 2
 Summary No.: M2.C1.30.0006
 Workscope: ISI

Procedure: NDE-3630
 Procedure Rev.: 1
 Work Order No.: 01845739

Outage No.: M2-19
 Report No.: UT-09-037
 Page: 1 of 4

Code: 1998/2000 A Cat./Item: C-A/C1.30 Location: _____
 Drawing No.: MCM 1201.06-025 Description: SHELL to TUBESHEET
 System ID: NS
 Component ID: 2ACSHX-SH-48 Size/Length: N/A Thickness/Diameter: 0.625/55.250
 Limitations: Yes Start Time: 1102 Finish Time: 1125

Examination Surface: Inside Outside Surface Condition: AS GROUND

Lo Location: 9.2.1 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 08125

Temp. Tool Mfg.: Fluke Serial No.: OCQUA33090 Surface Temp.: 80 °F

Cal. Report No.: CAL-09-184, CAL-09-185

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

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

Comments:
 *Transducer .5" diameter 45.5db; Transducer .25" diameter 51.2 db

Results: Accept Reject Info FC 09-01

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

Examiner	Level	Signature	Date	Reviewed	Signature	Date
Leeper, Winfred C.	II-N	<i>Winfred C. Leeper</i>	8/20/2009	<i>Barry A. Muirhead</i>	<i>Barry A. Muirhead</i>	9/30/09
Examiner	Level	Signature	Date	Site Review	Signature	Date
Muirhead, Barry A.	II-N	<i>Barry A. Muirhead</i>	8/20/2009			
Other	Level	Signature	Date	ANII Review	Signature	Date
N/A	N/A				<i>J.F. [Signature]</i>	10-4-09

R
G
11-14



Determination of Percent Coverage for UT Examinations - Vessels

Site/Unit: <u>McGuire / 2</u>	Procedure: <u>NDE-3630</u>	Outage No.: <u>M2-19</u>
Summary No.: <u>M2.C1.30.0006</u>	Procedure Rev.: <u>1</u>	Report No.: <u>UT-09-037</u>
Workscope: <u>ISI</u>	Work Order No.: <u>01845739</u>	Page: <u>42</u> of <u>4</u>

DLZ
9/28/09

0 deg Planar

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

45 deg

Scan 1 23.400 % Length X 100.000 % volume of length / 100 = 23.400 % total for Scan 1

Scan 2 23.400 % Length X 100.000 % volume of length / 100 = 23.400 % total for Scan 2

Scan 3 23.400 % Length X 100.000 % volume of length / 100 = 23.400 % total for Scan 3

Scan 4 23.400 % Length X 100.000 % volume of length / 100 = 23.400 % total for Scan 4

Add totals and divide by # scans = 23.400 % total for 45 deg

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

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

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

Percent complete coverage

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

23.400 % Total for complete exam

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: David K. Z...

Date: 9/28/09

ATTACHMENT B
PAGE 41 OF 94

DUKE POWER COMPANY		
ISI LIMITATION REPORT		
Component/Weld ID: <u>2ACSHX-SH-48</u> Item No: <u>M2.C1.30.0006</u>		remarks:
<input checked="" type="checkbox"/> NO SCAN SURFACE BEAM DIRECTION <input type="checkbox"/> LIMITED SCAN <input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input checked="" type="checkbox"/> cw <input checked="" type="checkbox"/> ccw FROM L <u>0-10"</u> to L <u>0+10"</u> INCHES FROM W0 <u>S1+1.5</u> to <u>S2+1.5</u> ANGLE: <input checked="" type="checkbox"/> 0 <input checked="" type="checkbox"/> 45 <input type="checkbox"/> 60 other _____ FROM _____ DEG to _____ DEG	These areas are not accessible to prep the weld, due to weld supports	
<input checked="" type="checkbox"/> NO SCAN SURFACE BEAM DIRECTION <input type="checkbox"/> LIMITED SCAN <input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input checked="" type="checkbox"/> cw <input checked="" type="checkbox"/> ccw FROM L <u>0+20"</u> to L <u>0+65.5"</u> INCHES FROM W0 <u>S1+1.5</u> to <u>S2+5</u> ANGLE: <input checked="" type="checkbox"/> 0 <input checked="" type="checkbox"/> 45 <input type="checkbox"/> 60 other _____ FROM _____ DEG to _____ DEG	100% of weld examined in areas that were scanned.	
<input checked="" type="checkbox"/> NO SCAN SURFACE BEAM DIRECTION <input type="checkbox"/> LIMITED SCAN <input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input checked="" type="checkbox"/> cw <input checked="" type="checkbox"/> ccw FROM L <u>0+77.5"</u> to L <u>0+95.5"</u> INCHES FROM W0 <u>S1+1.5</u> to <u>S2+5</u> ANGLE: <input checked="" type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 other _____ FROM _____ DEG to _____ DEG	Total coverage = 24% <u>23.4%</u> DK2 <div style="text-align: right; font-size: small;">9/28/09</div>	
<input checked="" type="checkbox"/> NO SCAN SURFACE BEAM DIRECTION <input type="checkbox"/> LIMITED SCAN <input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input checked="" type="checkbox"/> cw <input checked="" type="checkbox"/> ccw FROM L <u>0.105.5"</u> to L <u>0+155"</u> INCHES FROM W0 <u>S1+1.5</u> to <u>S2+5</u> ANGLE: <input checked="" type="checkbox"/> 0 <input checked="" type="checkbox"/> 5 <input type="checkbox"/> 60 other _____ FROM _____ DEG to _____ DEG	Sketch(s) attached <input checked="" type="checkbox"/> yes <input type="checkbox"/> No	
Prepared By: <u>Winfred Leeper</u> <i>Winfred Leeper</i> Level: <u>II</u> Date: <u>08/20/09</u>	Sheet <u>3</u> of <u>4</u>	
Reviewed By: <u>J.E. Houser</u> <i>J.E. Houser</i> Date: <u>11-23-09</u>	Authorized Inspector: <u>J. Edwards</u> <i>J. Edwards</i>	Date: <u>10-4-09</u>



Supplemental Report

ATTACHMENT B
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Report No.: UT-09-037

Page: 4 of 4

Summary No.: M2.C1.30.0006

Examiner: Leeper, Winfred C. *Winfred C. Leeper*
Examiner: Muirhead, Barry A. *Barry A. Muirhead*
Other: N/A

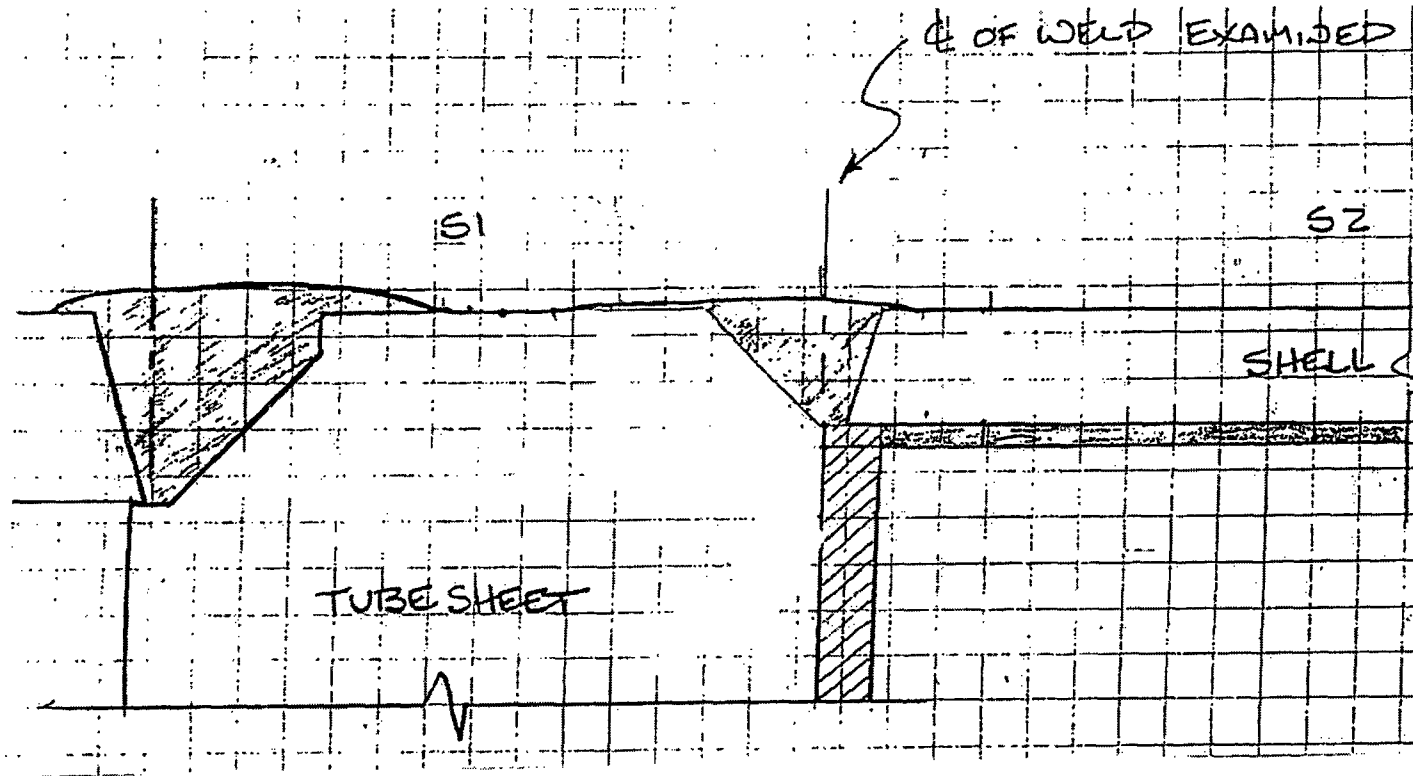
Level: II-N
Level: II-N
Level: N/A

Reviewer: Harry Moss
Site Review: _____
ANII Review: J. Flew

Date: 9-21-09
Date: _____
Date: 10-4-09

Comments:

Sketch or Photo:





UT Pipe Weld Examination

Site/Unit: McGuire / 2
 Summary No.: M2.R1.11.0048
 Workscope: ISI

Procedure: PDI-UT-2
 Procedure Rev.: C
 Work Order No.: 01845833

Outage No.: M2-19
 Report No.: UT-09-091
 Page: 1 of 8

Code: 1998/2000 Addenda Cat./Item: R-A/R1.11 Location: _____
 Drawing No.: MCFI-2NC39 Description: Pipe to Nozzle
 System ID: NC
 Component ID: 2NC2FW39-1 Size/Length: N/A Thickness/Diameter: 0.281 / 1.5/SS
 Limitations: See Limitations Report Start Time: 1305 Finish Time: 1325

Examination Surface: Inside Outside Surface Condition: AS GROUND
 Lo Location: 9.1.1.4 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 08125
 Temp. Tool Mfg.: D.A.S Serial No.: MCNDE32633 Surface Temp.: 80 °F

Cal. Report No.: CAL-09-249, CAL-09-250, & CAL-09-251

Angle Used	0	45	45T	60	38T	70
Scanning dB		49.8			64.0	60.9

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

Comments:
FC 08-01, 08-04, 09-02

Results: Accept Reject Info

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

Examiner	Level	Signature	Date	Reviewer	Signature	Date
Tucker, David K.	II-N	<i>David K. Tucker</i>	9/21/2009	<i>James J. McCallister</i>		9-29-09
Examiner	Level	Signature	Date	Site Review	Signature	Date
Koster, Rickey	II-N	<i>Rickey Koster</i>	9/21/2009			
Other	Level	Signature	Date	ANII Review	Signature	Date
N/A	N/A				<i>J.F. [Signature]</i>	10-7-09

832
11/16/09

Circumferential Scan Impingement Angle Calculation

(ID/OD ratio must equal or exceed 45°)

$$\text{OD} = 1.90''$$

$$\text{ID} = 1.90'' - (2 \times .281'') = 1.338''$$

$$\text{ID/OD} = 1.338''/1.90'' = .704 = \text{Sin } 44.77^\circ$$

Calculation to determine needed impingement angle

$$\text{ID/OD} \times \sin 60^\circ = .704 \times \sin 60^\circ = .610 = 37.6^\circ$$

Use 38° for circ. scan

Inspector / Date David K. B. ^{TCT} | 9/29/09

DUKE POWER COMPANY ISI LIMITATION REPORT

Component/Weld ID: <u>2NC2FW-39-1</u> Item No: <u>M2.R1.11.0048</u>		remarks:
<input checked="" type="checkbox"/> NO SCAN	SURFACE	BEAM DIRECTION
<input type="checkbox"/> LIMITED SCAN	<input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	<input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw
FROM L <u>N/A</u> to L <u>N/A</u>	INCHES FROM W0 <u>.5"</u>	to <u>Beyond</u>
ANGLE: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 45 <input type="checkbox"/> 60	other _____	FROM <u>0</u> DEG to <u>360</u> DEG
<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 type="checkbox"/> cw <input type="checkbox"/> ccw
FROM L <u>N/A</u> to L <u>N/A</u>	INCHES FROM W0 <u>.4"</u>	to <u>Beyond</u>
ANGLE: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 45 <input type="checkbox"/> 60	other <u>70</u>	FROM <u>0</u> DEG to <u>360</u> DEG
<input checked="" type="checkbox"/> NO SCAN	SURFACE	BEAM DIRECTION
<input type="checkbox"/> LIMITED SCAN	<input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> cw <input checked="" type="checkbox"/> ccw
FROM L <u>N/A</u> to L <u>N/A</u>	INCHES FROM W0 <u>.35</u>	to <u>Beyond</u>
ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60	other <u>38</u>	FROM <u>0</u> DEG to <u>360</u> DEG
<input type="checkbox"/> NO SCAN	SURFACE	BEAM DIRECTION
<input type="checkbox"/> LIMITED SCAN	<input type="checkbox"/> 1 <input type="checkbox"/> 2	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw
FROM L _____ to L _____	INCHES FROM W0 _____	to _____
ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 5 <input type="checkbox"/> 60	other _____	FROM _____ DEG to _____ DEG
		Sketch(s) attached
		<input checked="" type="checkbox"/> yes <input type="checkbox"/> No
Prepared By: <u>David Tucker</u>	Level: <u>II</u>	Date: <u>09/21/09</u>
Reviewed By: <u>Gary M...</u>	Date: <u>11-23-09</u>	Authorized Inspector: <u>J.F. Swan</u> Date: <u>10-7-09</u>
		Sheet <u>3</u> of <u>8</u>



Supplemental Report

ATTACHMENT B
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Report No.: UT-09-091

Page: 4 of 8

Summary No.: M2.R1.11.0048

Examiner: Tucker, David K. *[Signature]*

Level: II-N

Reviewer: James J. McAdams *[Signature]*

Date: 9-29-09

Examiner: Koster, Rickey *[Signature]*

Level: II-N

Site Review: J. Flanagan *[Signature]*

Date: _____

Other: N/A

Level: N/A

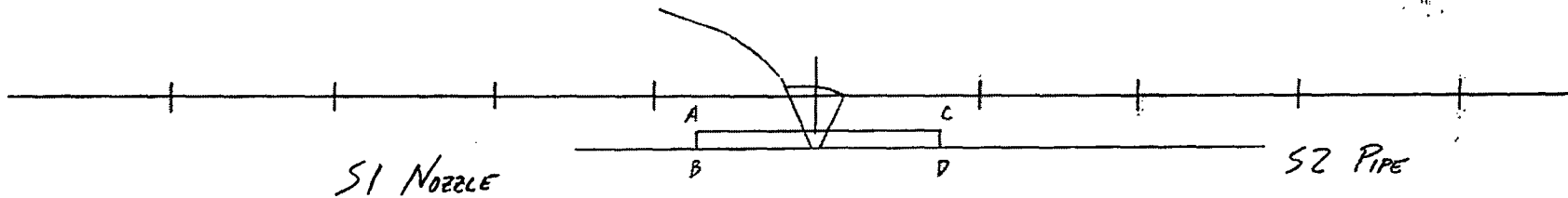
ANII Review: _____

Date: 10-7-09

Comments: Area of Interest - S1 Nozzle

$$ABCD: .09in \times 1.45in = .13in^2$$

Sketch or Photo: Z:\UT\IDDEAL\ProfileLine2.jpg



SCALE: Full



Supplemental Report


ATTACHMENT B

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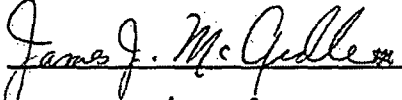
Report No.: UT-09-091

Page: 5 of 8


Summary No.: M2.R1.11.0048

Examiner: Tucker, David K. 

Level: II-N

Reviewer: James J. McQuillen 

Date: 9-29-09

Examiner: Koster, Rickey 

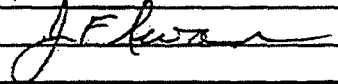
Level: II-N

Site Review: _____

Date: _____

Other: N/A

Level: N/A

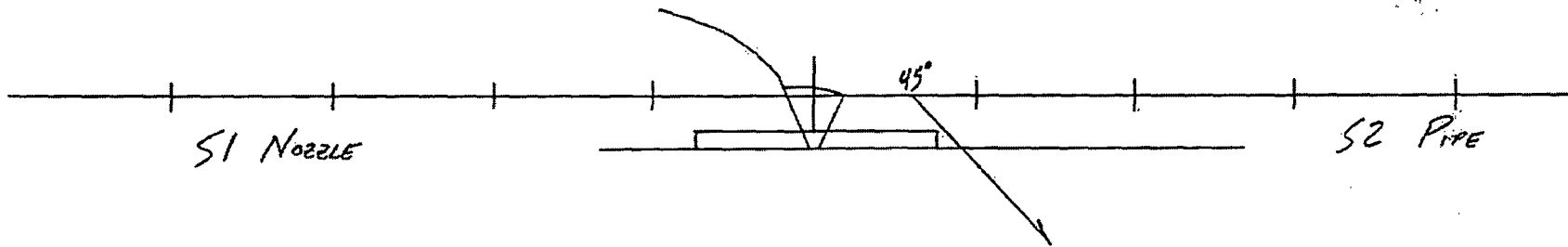
ANII Review: J. F. Lewis 

Date: 10-7-09

Comments: S1 Axial Scan

No Coverage: 0%

Sketch or Photo: Z:\UT\IDEAL\ProfileLine2.jpg



SCALE: FULL



Supplemental Report

Report No.: UT-09-091

Page: 6 of 8

Summary No.: M2.R1.11.0048

Examiner: Tucker, David K. *[Signature]*
 Examiner: Koster, Rickey *[Signature]*
 Other: N/A

Level: II-N
 Level: II-N
 Level: N/A

Reviewer: James J. McQuillan *[Signature]*
 Site Review: _____
 ANII Review: J. F. Swan *[Signature]*

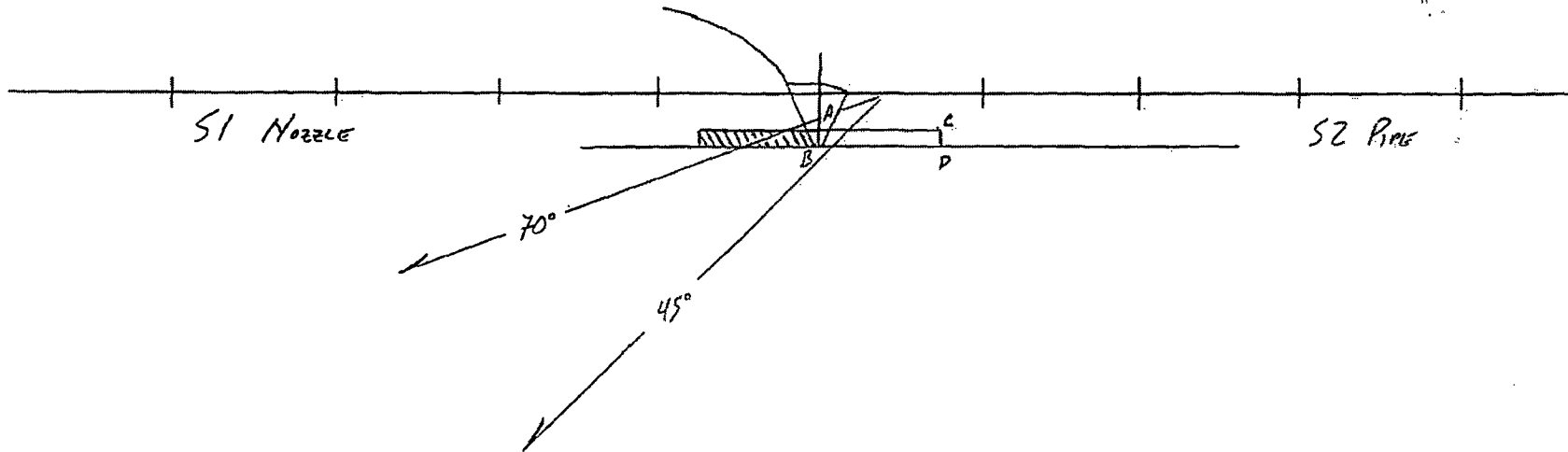
Date: 9-29-09
 Date: _____
 Date: 10-7-09

Comments: S2 Axial Scan

$$ABCD: \frac{.09 \text{ in}^2 \times 1.45 \text{ in}^2}{2} = .065 \text{ in}^2$$

$$.065 \text{ in}^2 / 1.3 \text{ in}^2 (100) = \underline{50\%}$$

Sketch or Photo: Z:\UT\IDEAL\ProfileLine2.jpg



SCALE: Full



Supplemental Report

Report No.: UT-09-091
Page: 7 of 8

Summary No.: M2.R1.11.0048

Examiner: Tucker, David K.  Level: II-N

Reviewer: James J. McCallen  Date: 9-29-09

Examiner: Koster, Rickey  Level: II-N

Site Review: _____ Date: _____

Other: N/A Level: N/A

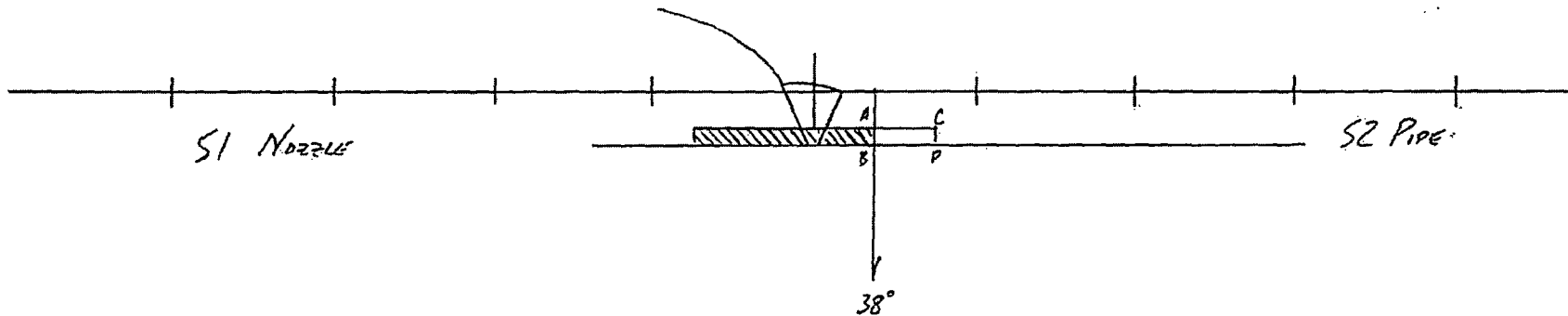
ANII Review: J. Flanagan  Date: 10-9-09

Comments: CW, CCW Circ. Scan

$$ABCD: .09\text{in} \times .40\text{in} = .036\text{in}^2$$

$$.036\text{in}^2 / 1.3\text{in}^2 (100) = \underline{27.7\%}$$

Sketch or Photo: Z:\UTIDDEAL\ProfileLine2.jpg



SCALE: Full



Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit: <u>McGuire / 2</u>	Procedure: <u>PDI-UT-2</u>	Outage No.: <u>M2-19</u>
Summary No.: <u>M2.R1.11.0048</u>	Procedure Rev.: <u>C</u>	Report No.: <u>UT-09-091</u>
Workscope: <u>ISI</u>	Work Order No.: <u>01845833</u>	Page: <u>8</u> of <u>8</u>

45 deg

Scan 1	<u>100.000</u>	% Length X	<u>0.000</u>	% volume of length / 100 =	<u>0.000</u>	% total for Scan 1
Scan 2	<u>100.000</u>	% Length X	<u>50.000</u>	% volume of length / 100 =	<u>50.000</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

Add totals and divide by # scans = 25.000 % total for 45 deg

Other deg - 38 (to be used for supplemental scans)

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

Scan 1		% Length X		% volume of length / 100 =		% total for Scan 1
Scan 2		% Length X		% volume of length / 100 =		% total for Scan 2
Scan 3	<u>100.000</u>	% Length X	<u>27.700</u>	% volume of length / 100 =	<u>27.700</u>	% total for Scan 3
Scan 4	<u>100.000</u>	% Length X	<u>27.700</u>	% volume of length / 100 =	<u>27.700</u>	% total for Scan 4

Percent complete coverage

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

26.350 % Total for complete exam

Site Field Supervisor: David K. Ziff

Date: 9/29/09



UT Pipe Weld Examination

Site/Unit: McGuire / 2
 Summary No.: M2.R1.11.0049
 Workscope: ISI

Procedure: PDI-UT-2
 Procedure Rev.: C
 Work Order No.: 01845833

Outage No.: M2-19
 Report No.: UT-09-090
 Page: 1 of 2

Code: 1998/2000 Addenda Cat./Item: R-A/R1.11 Location: _____
 Drawing No.: MCFI-2NC40 Description: Pipe to Nozzle
 System ID: NC
 Component ID: 2NC2FW40-11 Size/Length: N/A Thickness/Diameter: 0.281/1.5/SS
 Limitations: See limitation sheet Start Time: 0817 Finish Time: 0852

Examination Surface: Inside Outside Surface Condition: AS GROUND
 Lo Location: 9.2.3 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 08125
 Temp. Tool Mfg.: Fluke Serial No.: OCQUA33090 Surface Temp.: 78 °F

Cal. Report No.: CAL-09-246, CAL-09-247, CAL-09-248

Angle Used	0	45	45T	60	70	38
Scanning dB		41.9			60.5	37.5

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

Comments:
FC 08-01, 08-04, 09-02

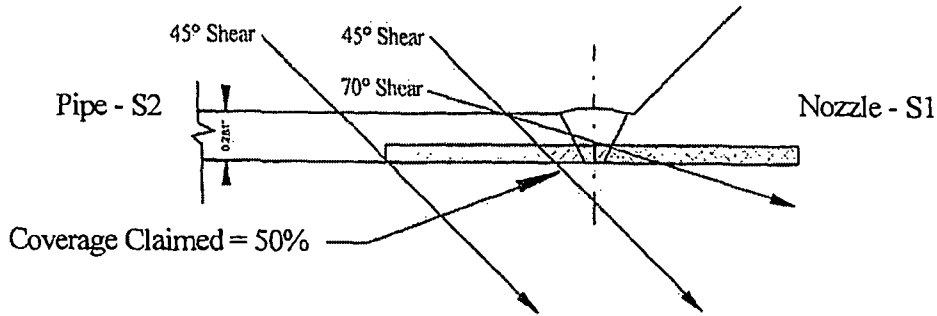
Results: Accept Reject Info
 Percent Of Coverage Obtained > 90%: No

Reviewed Previous Data: Yes

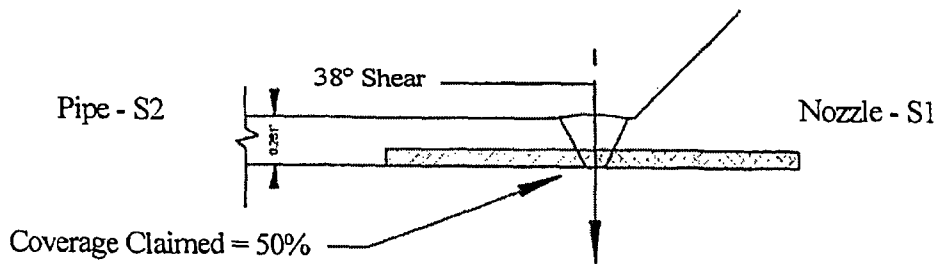
Examiner	Level	Signature	Date	Reviewer	Signature	Date
Ellis II, Kenneth R.	II-N	<i>[Signature]</i>	9/23/2009	<i>[Signature]</i>		9-30-09
Examiner	Level	Signature	Date	Site Review	Signature	Date
Hendrickson, Matthew	II-N	<i>[Signature]</i>	9/23/2009			
Other	Level	Signature	Date	ANII Review	Signature	Date
N/A	N/A			<i>[Signature]</i>		10-4-09

[Handwritten initials]
11/16/09

Axial Scan Coverage



Circ. Scan Coverage



Scale : 1" = 1"

% Coverage Calculations

S1 = Nozzle =	0%	(0% of the length x 0% of the volume)
S2 = Pipe =	50%	(100% of the length x 50% of the volume)
S3 = CW =	50%	(100% of the length x 50% of the volume)
S4 = CCW =	<u>50%</u>	(100% of the length x 50% of the volume)
Total	= 150 / 4 =	<u>37.5 %</u> Aggregate Coverage

Inspector / Date: Kenneth R. Ellis / 9.23.09



UT Pipe Weld Examination

ATTACHMENT B
PAGE 54 OF 94

Site/Unit: McGuire / 2
Summary No.: M2.R1.11.0050
Workscope: ISI

Procedure: PDI-UT-2
Procedure Rev.: C
Work Order No.: 01845833

Outage No.: M2-19
Report No.: UT-09-057
Page: 1 of 1

Code: 1998/2000 Addenda Cat./Item: R-A/R1.11 Location: _____
Drawing No.: MCFI-2NC43 Description: Pipe to Nozzle
System ID: NC
Component ID: 2NC2FW43-1 Size/Length: N/A Thickness/Diameter: 0.281/1.50/SS
Limitations: Yes - See attached limitation report Start Time: 1013 Finish Time: 1115

Examination Surface: Inside Outside Surface Condition: AS GROUND
Lo Location: 9.2.3 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 08125
Temp. Tool Mfg.: Fluke Serial No.: OCQUA33090 Surface Temp.: 75 °F

Cal. Report No.: CAL-09-229, CAL-09-231, CAL-09-232

Angle Used	0	45	45T	60	70	38
Scanning dB		53.2			66.5	44.3

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

Comments:
FC 08-01, 08-04, 09-02

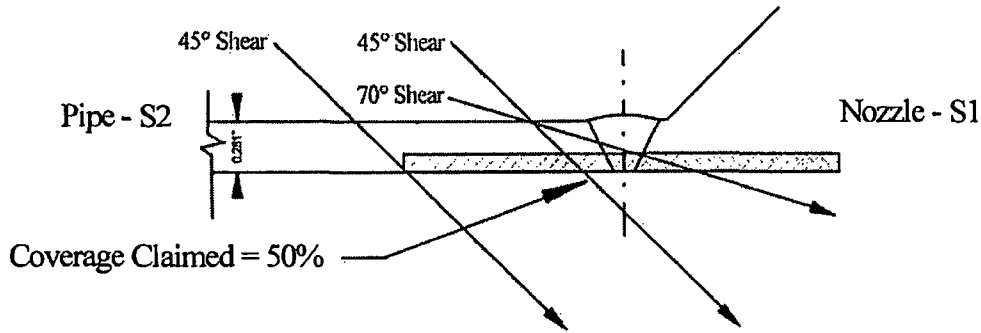
Results: Accept Reject Info

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

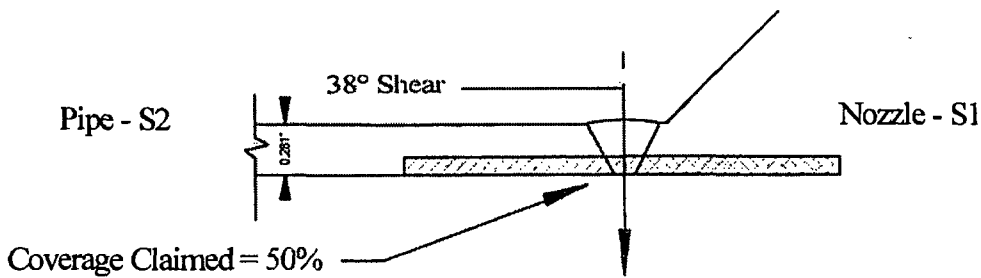
Examiner	Level	II-N	Signature	Date	Reviewer	Signature	Date
Ellis II, Kenneth R.			<i>Kenneth R. Ellis</i>	9/17/2009	<i>Barry Melch</i>		9-23-09
Examiner	Level	II-N	Signature	Date	Site Review	Signature	Date
Ransom, Greg J.			<i>Greg Ransom</i>	9/17/2009			
Other	Level	N/A	Signature	Date	ANII Review	Signature	Date
N/A					<i>JF Swan</i>		9-27-09

R
G
11-16-09

Axial Scan Coverage



Circ. Scan Coverage



Scale : 1" = 1"

% Coverage Calculations

S1 = Nozzle =	0%	(0% of the length x 0% of the volume)
S2 = Pipe =	50%	(100% of the length x 50% of the volume)
S3 = CW =	50%	(100% of the length x 50% of the volume)
S4 = CCW =	50%	(100% of the length x 50% of the volume)
Total	= 150 / 4	= <u>37.5 %</u> Aggregate Coverage

Inspector / Date:

James J. McQuillen
James J. McQuillen 10-1-09

R.S.
11/16/09

DUKE POWER COMPANY ISI LIMITATION REPORT

Component/Weld ID: <u>2NC2FW43-1</u> Item No: <u>M2.R1.11.0050</u>		remarks: Nozzle Configuration Nozzle Configuration Nozzle Configuration Nozzle Configuration Nozzle Configuration Sketch(s) attached <input checked="" type="checkbox"/> yes <input type="checkbox"/> No
<input type="checkbox"/> NO SCAN SURFACE BEAM DIRECTION <input checked="" type="checkbox"/> LIMITED SCAN <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw FROM L <u>N/A</u> to L <u>N/A</u> INCHES FROM W0 <u>CL</u> to <u>.5</u> ANGLE: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 45 <input type="checkbox"/> 60 other _____ FROM <u>0</u> DEG to <u>360</u> DEG		
<input checked="" type="checkbox"/> NO SCAN SURFACE BEAM DIRECTION <input type="checkbox"/> LIMITED SCAN <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw FROM L <u>N/A</u> to L <u>N/A</u> INCHES FROM W0 <u>CL</u> to <u>Beyond</u> ANGLE: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 45 <input type="checkbox"/> 60 other <u>70</u> FROM <u>0</u> DEG to <u>360</u> DEG		
<input checked="" type="checkbox"/> NO SCAN SURFACE BEAM DIRECTION <input type="checkbox"/> LIMITED SCAN <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> cw <input checked="" type="checkbox"/> ccw FROM L <u>N/A</u> to L <u>N/A</u> INCHES FROM W0 <u>CL</u> to <u>Beyond</u> ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 other <u>38</u> FROM <u>0</u> DEG to <u>360</u> DEG		
<input type="checkbox"/> NO SCAN SURFACE BEAM DIRECTION <input type="checkbox"/> LIMITED SCAN <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw FROM L _____ to L _____ INCHES FROM W0 _____ to _____ ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 5 <input type="checkbox"/> 60 other _____ FROM _____ DEG to _____ DEG		
Prepared By: <u>Kenneth Ellis</u> Level: <u>II</u> Date: <u>09/17/09</u>	Sheet <u>2</u> of <u>2</u>	
Reviewed By: <u>DE Housen</u> Date: <u>9-17-09</u>	Authorized Inspector: <u>J. F. [Signature]</u> Date: <u>10-7-09</u>	



UT Base Metal Lamination

ATTACHMENT B
PAGE 57 OF 94

Site/Unit: McGuire / 2
 Summary No.: M2.R1.11.1566
 Workscope: BOP

Procedure: NDE-640
 Procedure Rev.: 5
 Work Order No.: 01845739

Outage No.: N/A
 Report No.: BOP-UT-09-140
 Page: 1 of 2

Code: 1998/2000A Cat./Item: R-A/R1.11 Location: _____
 Drawing No.: MCFI-2NV180 Description: REDUCER TO PIPE
 System ID: NV
 Component ID: 2NV2FW180-1 Size/Length: N/A Thickness/Diameter: .344/2"SS
 Limitations: None Start Time: 0913 Finish Time: 0918

Examination Surface: Inside Outside Surface Condition: AS GROUND
 Lo Location: 9.1.1.1 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 08125
 Temp. Tool Mfg.: Fluke Serial No.: OCQUA33090 Surface Temp.: 97 °F Scanning dB: 52.4
 Cal. Report No.: CAL-09-199

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: N/A

Results: Accept Reject Info

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

Examiner Level II-N Dean, Steven	Signature <i>[Signature]</i>	Date 8/26/2009	Reviewer Barry Muirhead	Signature <i>[Signature]</i>	Date 9/14/2009
Examiner Level II-N Ellis II, Kenneth R.	Signature <i>[Signature]</i>	Date 8/26/2009	Site Review N/A	Signature	Date
Other Level N/A N/A	Signature	Date	ANII Review Jerome Swan	Signature <i>[Signature]</i>	Date 9/24/2009



Supplemental Report

Report No.: BOP-UT-09-140

Page: 2 of 2

Summary No.: M2.R1.11.1566

Examiner: Dean, Steven *Steven Dean*

Level: II-N

Reviewer: Barry Mink

Date: 9-14-09

Examiner: Ellis II, Kenneth R. *Kenneth R. Ellis II*

Level: II-N

Site Review: _____

Date: _____

Other: N/A

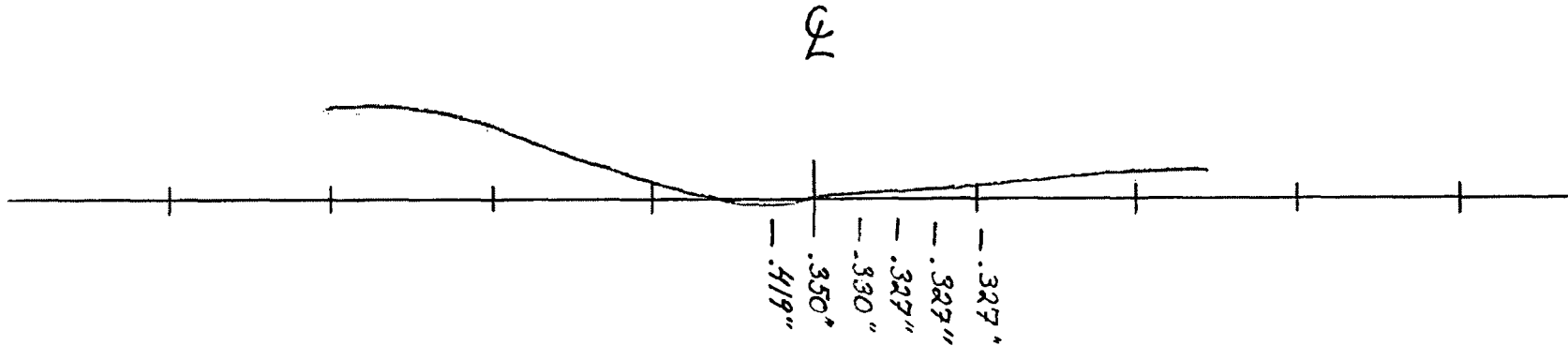
Level: N/A

ANII Review: J. Blanton

Date: 9-25-09

Comments: WELD: 2FW180-1

Sketch or Photo: Z:\UT\IDEAL\ProfileLine2.jpg





UT Pipe Weld Examination

Site/Unit: McGuire / 2 Procedure: PDI-UT-2 Outage No.: M2-19
 Summary No.: M2.R1.11.1566 Procedure Rev.: C Report No.: UT-09-042
 Workscope: ISI Work Order No.: 01845739 Page: 1 of 15 *geh*

Code: 1998/2000 A Cat./Item: R-A/R1.11 Location: _____
 Drawing No.: MCFI-2NV180 Description: Reducer to Pipe
 System ID: NV
 Component ID: 2NV2FW180-1 Size/Length: N/A Thickness/Diameter: 0.344/2.0/SS
 Limitations: None Start Time: 1447 Finish Time: 1500

Examination Surface: Inside Outside Surface Condition: AS GROUND

Lo Location: 9.1.1.1 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 08125

Temp. Tool Mfg.: Fluke Serial No.: OCQUA33090 Surface Temp.: 97 °F

Cal. Report No.: CAL-09-197 & CAL-09-198

Angle Used	0	45	45T	60	70	
Scanning dB		41.4	41.4		63.5	

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

Comments:
Limited Exam

Results: Accept Reject Info **Initial Section XI Exam**

Percent Of Coverage Obtained > 90%: No Reviewed Previous Data: N/A

Examiner	Level	Signature	Date	Reviewer	Signature	Date
Dean, Steven	II-N	<i>Steven Dean</i>	8/26/2009	<i>Barry Michael</i>		9-14-09
Examiner	Level	Signature	Date	Site Review	Signature	Date
Ellis II, Kenneth R.	II-N	<i>Kenneth R. Ellis II</i>	8/26/2009			
Other	Level	Signature	Date	ANII Review	Signature	Date
N/A	N/A			<i>J.F. Swann</i>		9-25-09

GF
11-18-09

ATTACHMENT B
PAGE 60 OF 94

Summary No: M2.R1.11.1566

Pipe OD = 2.5"

Circumference = 7.85"

Area examined axially on Surface 1 = 0%

Area examined axially on Surface 2 = 50%

Area examined circumferentially CW = 75%

Area examined circumferentially CCW = 75%

Total area covered = $(0 + 50 + 75 + 75) \div 4 = 50.0\%$

Examiner:


James J. Mc Ardle III

Level: III UT

Date: 12/21/2009

DUKE POWER COMPANY

ISI LIMITATION REPORT

Component/Weld ID: <u>2NV2FW 180-1</u> ^{2.24.09} <i>Handwritten</i> Item No: <u>M2.R1.11.1566</u>		remarks: Reducer configuration
<input checked="" type="checkbox"/> NO SCAN SURFACE BEAM DIRECTION <input type="checkbox"/> LIMITED SCAN <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw	FROM L <u>N/A</u> to L <u>N/A</u> INCHES FROM W0 <u>-.3</u> to <u>Beyond</u> ANGLE: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 45 <input type="checkbox"/> 60 other <u>70°</u> FROM <u>0°</u> DEG to <u>360</u> DEG	
<input type="checkbox"/> NO SCAN SURFACE BEAM DIRECTION <input type="checkbox"/> LIMITED SCAN <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw	FROM L _____ to L _____ INCHES FROM W0 _____ to _____ ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 other _____ FROM _____ DEG to _____ DEG	
<input checked="" type="checkbox"/> NO SCAN SURFACE BEAM DIRECTION <input type="checkbox"/> LIMITED SCAN <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> cw <input checked="" type="checkbox"/> ccw	FROM L <u>N/A</u> to L <u>N/A</u> INCHES FROM W0 <u>-.3</u> to <u>Beyond</u> ANGLE: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 45 <input type="checkbox"/> 60 other _____ FROM _____ DEG to _____ DEG	Reducer configuration
<input type="checkbox"/> NO SCAN SURFACE BEAM DIRECTION <input type="checkbox"/> LIMITED SCAN <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw	FROM L _____ to L _____ INCHES FROM W0 _____ to _____ ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 5 <input type="checkbox"/> 60 other _____ FROM _____ DEG to _____ DEG	Sketch(s) attached <input checked="" type="checkbox"/> yes <input type="checkbox"/> No
Prepared By: <u>Kenneth Ellis</u> <i>Handwritten</i> Level: <u>II</u> Date: <u>08/26/2009</u>		Sheet <u>3</u> of <u>65</u> <i>Handwritten</i> <u>9-25-09</u>
Reviewed By: <u>Barry Martin</u> <i>Handwritten</i> Date: <u>9-14-09</u>		Authorized Inspector: <u>J.F. [Signature]</u> <i>Handwritten</i> Date: <u>9-25-09</u>

F
OK
11-18-09



Supplemental Report

Report No.: UT-09-042

Page: 74 of 85
9.25.09 9.25.09

Summary No.: M2.R1.11.1566

Examiner: Dean, Steven *[Signature]*

Level: II-N

Reviewer: Barry Meeker

Date: 9-14-09

Examiner: Ellis II, Kenneth R. *[Signature]*

Level: II-N

Site Review: _____

Date: _____

Other: N/A

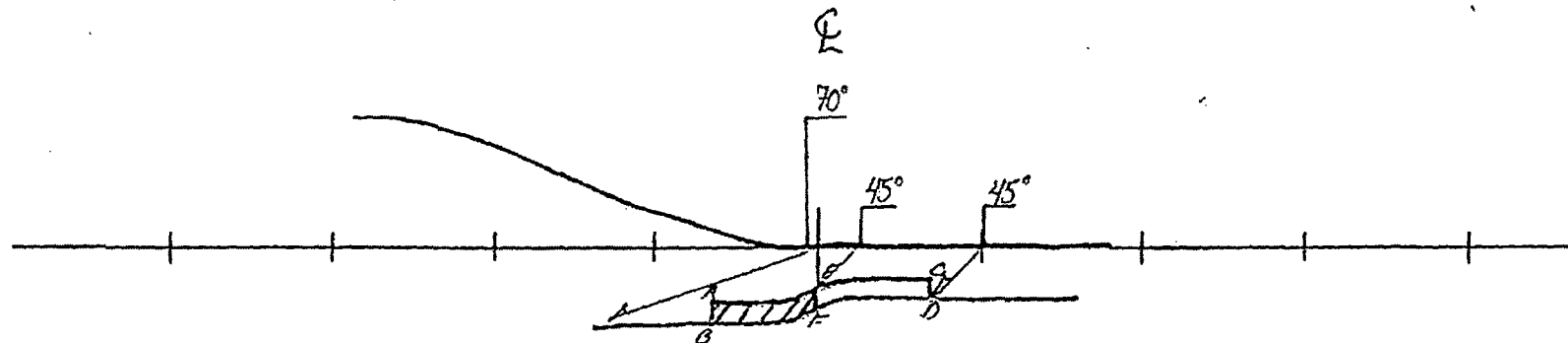
Level: N/A

ANII Review: J. [Signature]

Date: 9-25-09

Comments: S2 Axial

Sketch or Photo: Z:\UT\IDEAL\ProfileLine2.jpg



AREA OF INTEREST

$$ABCD: 1.3 \sin X \cdot .115 \sin = .1495 \text{ in}^2$$

AXIAL COVERAGE

$$EFGH: .65 \sin X \cdot .115 \sin = .0748 \text{ in}^2$$

$$.0748 \text{ in}^2 / .1495 \text{ in}^2 (100) = 50.0\%$$

S1- REDUCER

SCALE: FULL

S2- PIPE

11



Supplemental Report

Report No.: UT-09-042

Page: 85 of 85 gch
Sch 9-25-09 9-25-09

Summary No.: M2.R1.11.1566

Examiner: Dean, Steven *Steven Dean*

Level: II-N

Reviewer: *Barry Meek*

Date: 9-14-09

Examiner: Ellis II, Kenneth R. *Kenneth R. Ellis II*

Level: II-N

Site Review:

Date:

Other: N/A

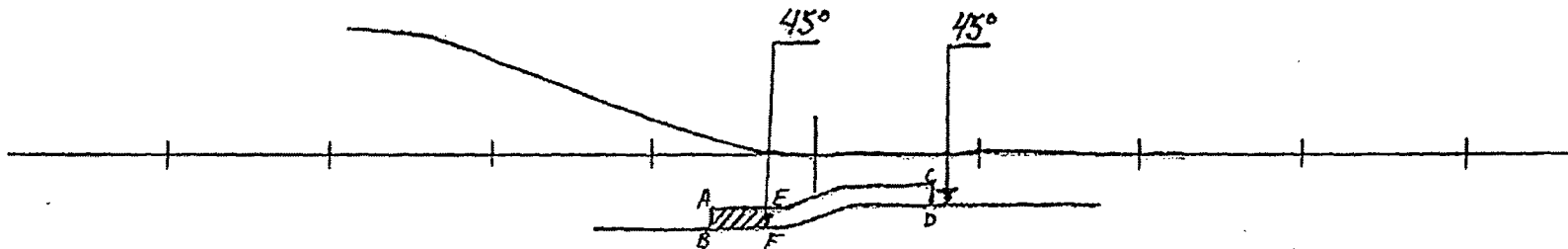
Level: N/A

ANII Review: *J. Flanagan*

Date: 9-25-09

Comments: CW, CCW Coverage

Sketch or Photo: Z:\UT\IDEAL\ProfileLine2.jpg



COVERAGE OBTAINED

$$EFCO: .975'' \cdot .115'' = .112 \text{ in}^2$$

$$.112 \text{ in}^2 / .1495 \text{ in}^2 (100) = 74.18\% = 75.0\%$$

S1-RED

SCALE: FULL

S2-PIPE

*B
8/17*



UT Pipe Weld Examination

ATTACHMENT B
PAGE 64 OF 94

Site/Unit: McGuire / 2 Procedure: PDI-UT-2 Outage No.: M2-19
 Summary No.: M2.R1.11.1730 Procedure Rev.: C Report No.: UT-09-055
 Workscope: ISI Work Order No.: 01845833 Page: 1 of 9

Code: 1998/2000 Addenda Cat./Item: R-A/R1.11 Location: _____
 Drawing No.: MCFI-2NC2 Description: Nozzle to Pipe
 System ID: NC
 Component ID: ZNC2FW2-2 Size/Length: N/A Thickness/Diameter: 1.406/14.0
 Limitations: YES - See Limitation Sheet Start Time: 1108 Finish Time: 1215

Examination Surface: Inside Outside Surface Condition: AS GROUND

Lo Location: 9.1.1.1 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 08125

Temp. Tool Mfg.: FISHER Serial No.: MCNDE32768 Surface Temp.: 74 °F

Cal. Report No.: CAL-09-223 & CAL-09-224

Angle Used	0	45	45T	60		
Scanning dB		37.7	37.7	66.4		

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

Comments:

FC 08-01, 08-04, 09-02

DMG 9-11-09
DMG 9-11-09

Results: Accept Reject Info

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

Examiner	Level	II-N	Signature	Date	Reviewer	Signature	Date
Griebel, David M.			<i>[Signature]</i>	9/11/2009	<i>Barry Michael</i>		9-23-09
Examiner	Level	II-N	Signature	Date	Site Review	Signature	Date
Koster, Rickey			<i>[Signature]</i>	9/11/2009			
Other	Level		Signature	Date	ANII Review	Signature	Date
					<i>J. F. Lewis</i>		9-27-09

*R
GJ
11-18-09*



Ultrasonic Indication Report

ATTACHMENT B
PAGE 65 OF 94

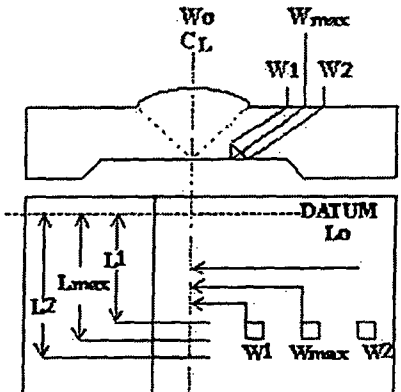
Site/Unit: McGuire / 2
 Summary No.: M2.R1.11.1730
 Workscope: ISI

Procedure: PDI-UT-2
 Procedure Rev.: C
 Work Order No.: 01845833

Outage No.: M2-19
 Report No.: UT-09-055
 Page: 2 of 9

Search Unit Angle: 45 & 60 °
 Wo Location: Weld Centerline
 Lo Location: 9.1.1.1

- Piping Welds
- Ferritic Vessels $\geq 2"$ T
- Other _____



MP	Metal Path	Wmax	Distance From Wo To S.U. At Maximum Response
RBR	Remaining Back Reflection	W1	Distance From Wo At Of Max (Forward)
L	Distance From Datum	W2	Distance From Wo At Of Max (Forward)

Comments: **Indication recorded is the trailing shear component from the 60° RL.**

Angle	Indication No.	% Of DAC	W Max		Forward Of Max		Backward Of Max		L1 Of Max	L Max	L2 Of Max	RBR Amp.	Remarks
			W	MP	W1	MP	W2	MP					
60°	1	78	.75"	1.5"	N/A	N/A	N/A	N/A	10.0"	N/A	N/A		Geometry - 360° Intermittent
									C.W.				

Examiner	Level	II-N	Signature	Date	Reviewer	Signature	Date
Griebel, David M.			<i>[Signature]</i>	9/11/2009	Barry M... <i>[Signature]</i>		9-23-09
Examiner	Level	II-N	Signature	Date	Site Review	Signature	Date
Koster, Rickey			<i>[Signature]</i>	9/11/2009			
Other	Level		Signature	Date	ANII Review	Signature	Date
						<i>[Signature]</i>	9-27-09

R
GW
11-18-09



Supplementar Report

ATTACHMENT B
PAGE 60 OF 94

Report No.: UT-0005

Page: 3 of 9

Summary No.: M2.R1.11.1730

Examiner: Griebel, David M. *[Signature]*

Level: II-N

Reviewer: Barry Muehler

Date: 9-23-09

Examiner: Koster, Rickey *[Signature]*

Level: II-N

Site Review: _____

Date: _____

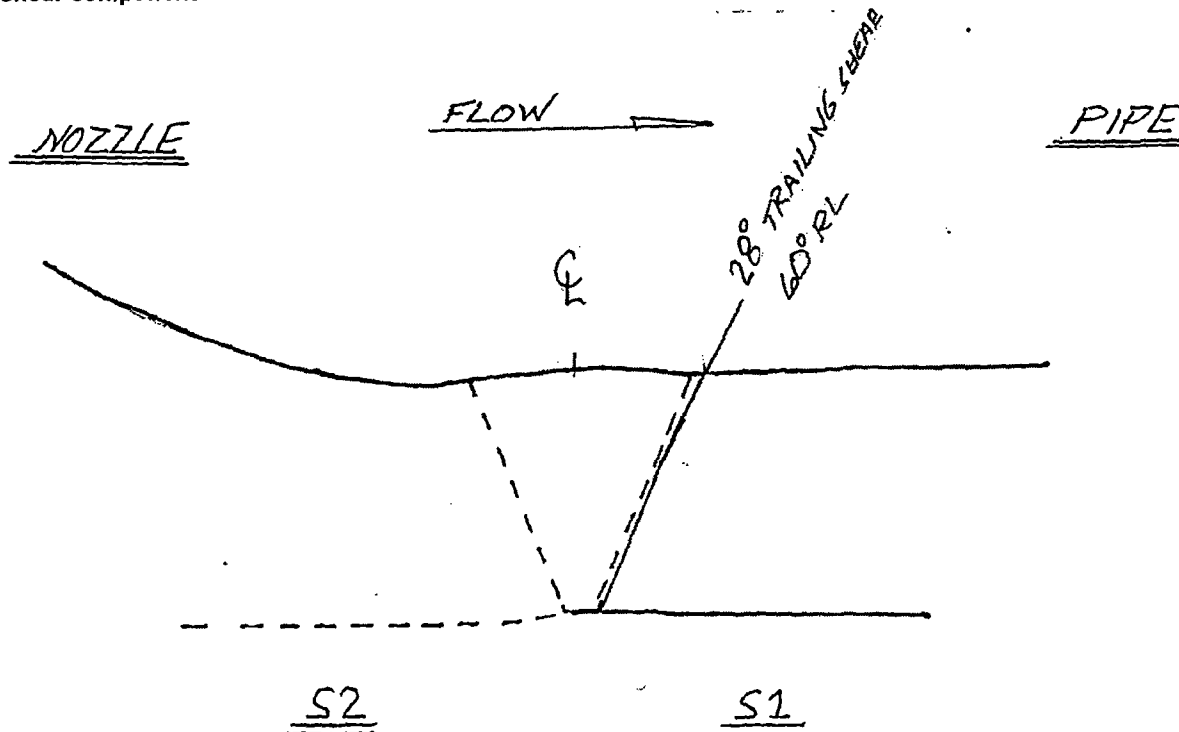
Other: _____

Level: _____

ANII Review: J. Flew

Date: 9-22-09

Comments: 60°RL - Trailing shear component



[Handwritten initials]
11/8/09



Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit: McGuire / 2 Procedure: PDI-UT-2 Outage No.: M2-19
 Summary No.: M2.R1.11.1730 Procedure Rev.: C Report No.: UT-09-055
 Workscope: ISI Work Order No.: 01845833 Page: 4 ^{DEZ} of 9

45 deg

Scan 1	<u>100.000</u>	% Length X	<u>50.000</u>	% volume of length / 100 =	<u>50.000</u>	% total for Scan 1
Scan 2	<u>100.000</u>	% Length X	<u>5.600</u>	% volume of length / 100 =	<u>5.600</u>	% total for Scan 2
Scan 3	<u>100.000</u>	% Length X	<u>100.000</u>	% volume of length / 100 =	<u>100.000</u>	% total for Scan 3
Scan 4	<u>100.000</u>	% Length X	<u>100.000</u>	% volume of length / 100 =	<u>100.000</u>	% total for Scan 4

Add totals and divide by # scans = 63.900 % total for 45 deg

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

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

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

Percent complete coverage

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

63.900 % Total for complete exam

Site Field Supervisor: David K. Z III

Date: 9/22/09

ATTACHMENT B
PAGE 67 OF 94

DUKE POWER COMPANY ISI LIMITATION REPORT

Component/Weld ID: <u>2NC2FW2-2</u> Item No: <u>M2.R1.11.1730</u>		remarks: Limited scan on nozzle side due to nozzle configuration
<input type="checkbox"/> NO SCAN SURFACE BEAM DIRECTION <input checked="" type="checkbox"/> LIMITED SCAN <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw FROM L _____ to L <u>360°</u> INCHES FROM W0 <u>CL+1.0"</u> to <u>Beyond</u> ANGLE: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 45 <input type="checkbox"/> 60 other _____ FROM _____ DEG to _____ DEG		
<input type="checkbox"/> NO SCAN SURFACE BEAM DIRECTION <input checked="" type="checkbox"/> LIMITED SCAN <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw FROM L _____ to L <u>360°</u> INCHES FROM W0 <u>CL+1.0"</u> to <u>Beyond</u> ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input checked="" type="checkbox"/> 60 other _____ FROM _____ DEG to _____ DEG		
<input type="checkbox"/> NO SCAN SURFACE BEAM DIRECTION <input type="checkbox"/> LIMITED SCAN <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw FROM L _____ to L _____ INCHES FROM W0 _____ to _____ ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 other _____ FROM _____ DEG to _____ DEG		
<input type="checkbox"/> NO SCAN SURFACE BEAM DIRECTION <input type="checkbox"/> LIMITED SCAN <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw FROM L _____ to L _____ INCHES FROM W0 _____ to _____ ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 other _____ FROM _____ DEG to _____ DEG	Sketch(s) attached <input checked="" type="checkbox"/> yes <input type="checkbox"/> No	
Prepared By: <u>David Griebel</u> Level: <u>II</u> Date: <u>09/11/09</u>	Sheet <u>5</u> of <u>9</u>	
Reviewed By: <u>Bang</u> Date: <u>11-18-09</u>	Authorized Inspector: <u>J. Swan</u> Date: <u>9-27-09</u>	



Supplemental Report

Report No.: UT-09-055

Page: 6 of 9

Summary No.: M2.R1.11.1730

Examiner: Griebel, David M. *[Signature]*

Level: II-N

Reviewer: Barry Mendenhall

Date: 9-23-09

Examiner: Koster, Rickey *[Signature]*

Level: II-N

Site Review: _____

Date: _____

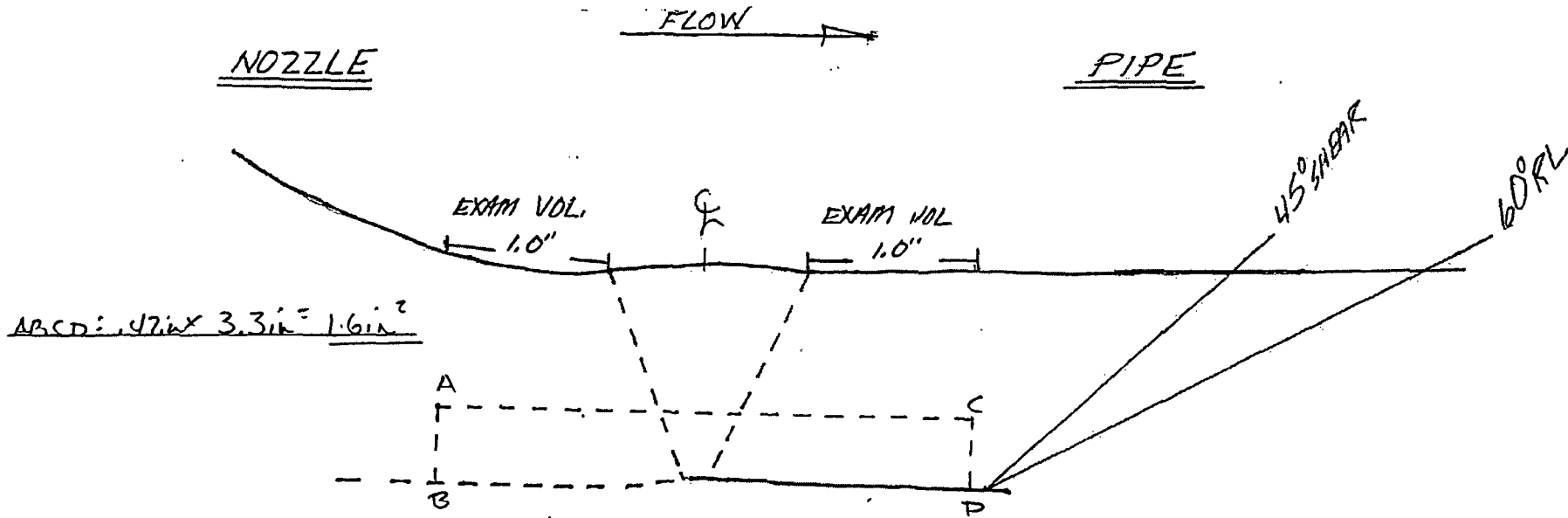
Other: _____

Level: _____

ANII Review: J. Flawer

Date: 9-27-09

Comments: Area of Interest



$ABCD: .47in \times 3.3in = 1.6in^2$

RISK INFORMED EXAM = 1.0" OF BASE MATERIAL
 FROM EACH SIDE OF THE WELD. WHERE COUNTER BORE
 DOES NOT EXIST. FC 08-01

[Handwritten initials]
 9/22/09



Supplemental Report

Report No.: UT-09-033

Page: 7 of 9

Summary No.: M2.R1.11.1730

Examiner: Griebl, David M. *[Signature]*

Level: II-N

Reviewer: Barry Madal *[Signature]*

Date: 9-23-09

Examiner: Koster, Rickey *[Signature]*

Level: II-N

Site Review: _____

Date: _____

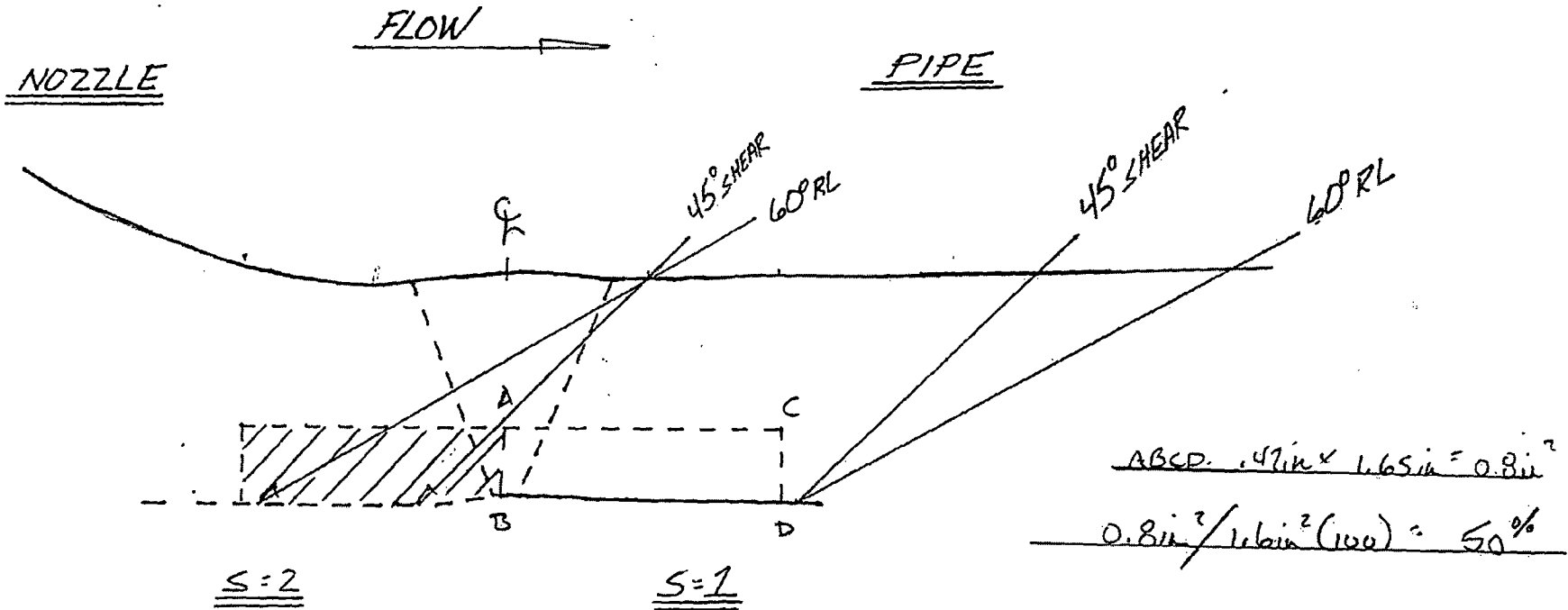
Other: _____

Level: _____

ANII Review: J. F. [Signature]

Date: 9-27-09

Comments: Axial Exam 45° shear & 60°RL





Supplemental Report

ATTACHMENT B
PAGE 71 OF 94

Report No.: UT-09-025

Page: 8 of 9

Summary No.: M2.R1.11.1730

Examiner: Griebel, David M.

Level: II-N

Reviewer: Barry M. [Signature]

Date: 9-23-09

Examiner: Koster, Rickey

Level: II-N

Site Review: [Signature]

Date: [Signature]

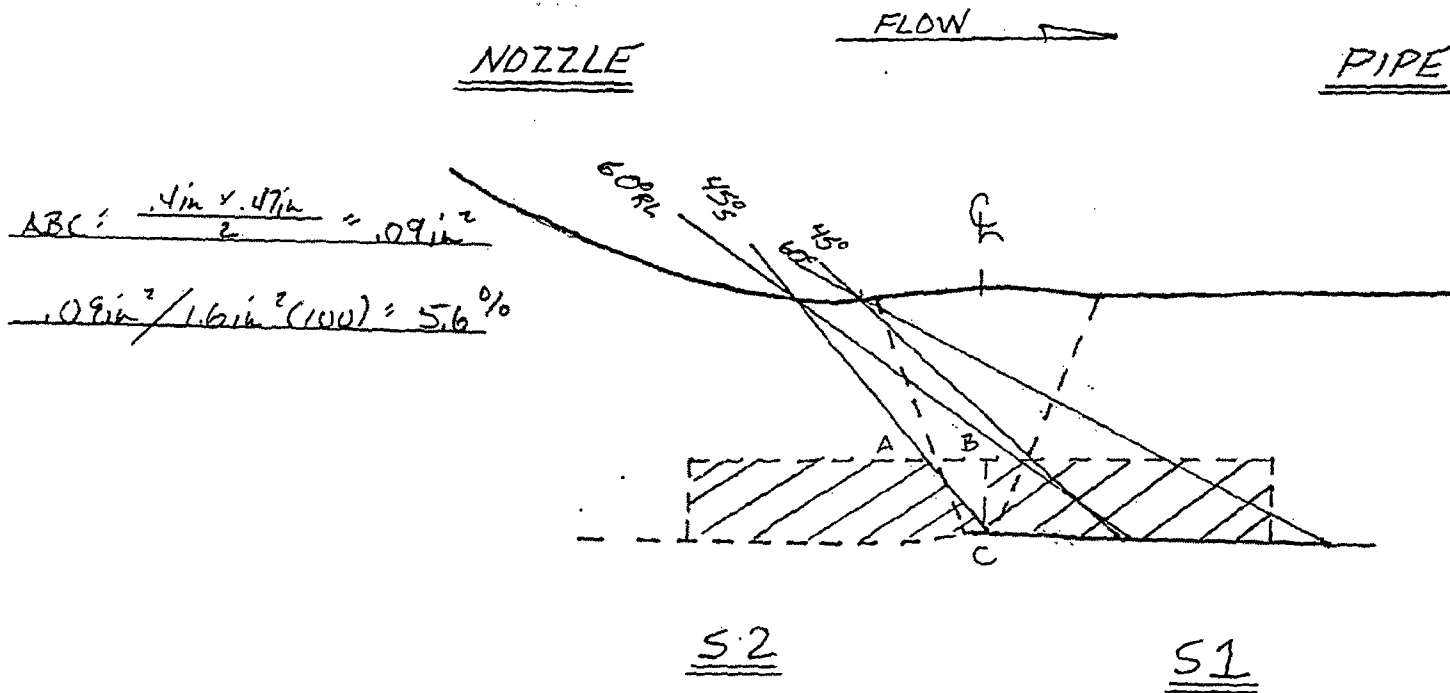
Other: [Signature]

Level: [Signature]

ANII Review: [Signature]

Date: 9-27-09

Comments: Axial Exam 45° shear & 60°RL





Supplemental Report

ATTACHMENT B
PAGE 72 OF 94

Report No.: UT-55

Page: 9 of 9

Summary No.: M2.R1.11.1730

Examiner: Griebel, David M.

Level: II-N

Reviewer: Barry Mahler

Date: 9-23-09

Examiner: Koster, Rickey

Level: II-N

Site Review: _____

Date: _____

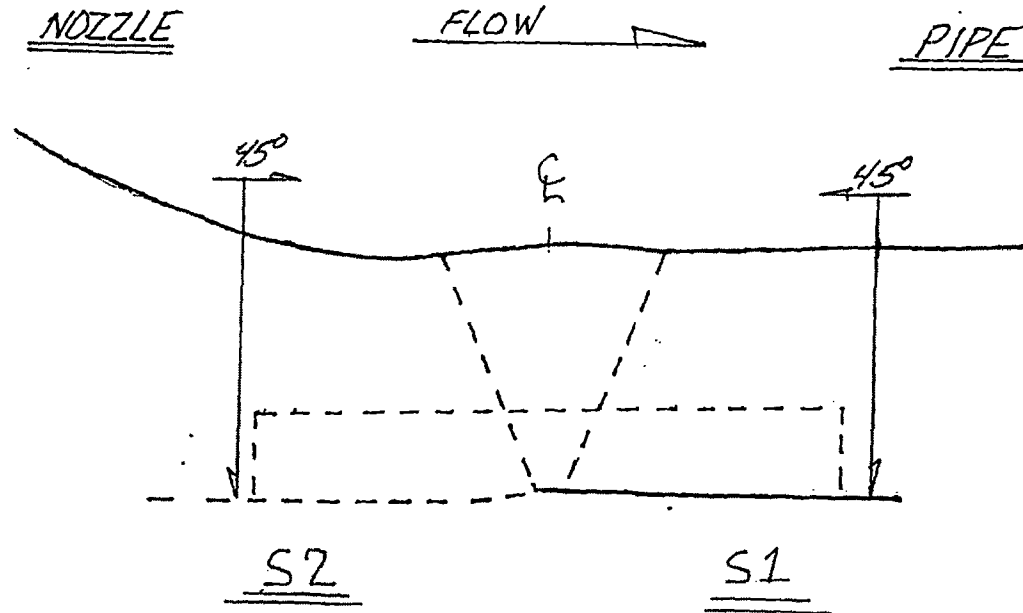
Other: _____

Level: _____

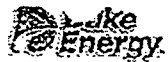
ANII Review: J. F. Swanson

Date: 9-27-09

Comments: CW & CW 45° shear



100% COVERAGE



UT Base Metal Lamination

Site/Unit: McGuire / 2 Procedure: NDE-640 Outage No.: N/A
 Summary No.: NVFW10-20 Procedure Rev.: 5 Report No.: BOP-UT-09-155
 Workscope: BOP Work Order No.: 01738678 Page: 1 of 2

Code: N/A Cat./Item: N/A Location: N/A
 Drawing No.: N/A Description: PIPE TO FLANGE
 System ID: NV
 Component ID: NVFW10-20 Size/Length: 3" SCH 40 Thickness/Diameter: .215
 Limitations: Yes - See attached limitation sheet Start Time: 1350 Finish Time: 1400

Examination Surface: Inside Outside Surface Condition: AS GROUND
 Lo Location: 9.1.1.2 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 08125
 Temp. Tool Mfg.: D.A.S Serial No.: MCNDE32835 Surface Temp.: 74 °F Scanning dB: 26
 Cal. Report No.: CAL-09-208, CAL-09-209, CAL-09-210 & CAL-09-212

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: N/A

Results: Accept Reject Info INITIAL PSI EXAM
 Percent Of Coverage Obtained > 90%; Yes Reviewed Previous Data: NO

Examiner	Level	II-N	Signature	Date	Reviewed	Signature	Date
Ross, Jake E.			<i>[Signature]</i>	8/26/2009	<i>[Signature]</i>		10-20-09
Examiner	Level	II-N	Signature	Date	Site Review	Signature	Date
Day, John, C.			<i>[Signature]</i>	8/26/2009			
Other	Level	N/A	Signature	Date	ANII Review	Signature	Date
N/A					<i>[Signature]</i>		10-26-09



Supplemental Report

Report No.: BOP-UT-09-155

Page: 2 of 2

Summary No.: NVFW10-20

Examiner: Ross, Jake E. *[Signature]*

Level: II-N

Reviewer: *[Signature]*

Date: 10-20-09

Examiner: Day, John, C. *[Signature]*

Level: II-N

Site Review: *[Signature]*

Date:

Other: N/A

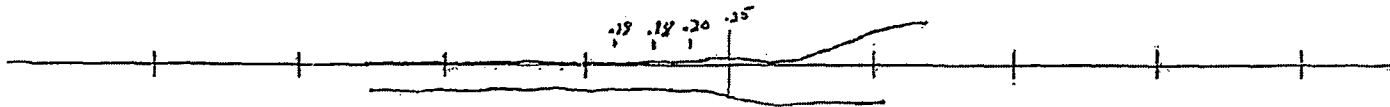
Level: N/A

ANII Review: *[Signature]*

Date: 10-26-09

Comments:

Sketch or Photo: Z:\UT\IDEAL\ProfileLine2.jpg





UT Pipe Weld Examination

Site/Unit: McGuire / 2 Procedure: PDI-UT-2 Outage No.: N/A
 Summary No.: NVFW10-20 Procedure Rev.: C Report No.: BOP-UT-09-151
 Workscope: BOP Work Order No.: 01738678 Page: 1 of 8

Code: N/A Cat./Item: N/A Location: N/A
 Drawing No.: N/A Description: N/A
 System ID: NV
 Component ID: NV-FW-10-20 Size/Length: N/A Thickness/Diameter: .216/3/SS
 Limitations: Yes - See attached limitation report Start Time: 1401 Finish Time: 1440

Examination Surface: Inside Outside Surface Condition: AS GROUND

Lo Location: 9.1.1.1 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 08125

Temp. Tool Mfg.: D.A.S Serial No.: MCNDE32835 Surface Temp.: 74 °F

Cal. Report No.: CAL-09-208, CAL-09-209, CAL-09-210 & CAL-09-212

Angle Used	0	45	45T	60	70	
Scanning dB		51.2	51.2		69.2	

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

Comments:
FC 08-01, 08-04, 09-02

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

Examiner	Level	Signature	Date	Reviewer	Signature	Date
Ross, Jake E.	II-N	<i>[Signature]</i>	8/26/09	<i>[Signature]</i>		9-30-09
Examiner	Level	Signature	Date	Site Review	Signature	Date
Day, John, C.	II-N	<i>[Signature]</i>	8/26/09			
Other	Level	Signature	Date	ANII Review	Signature	Date
N/A	N/A			<i>[Signature]</i>		10-4-09



Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit: <u>McGuire / 2</u>	Procedure: <u>PDI-UT-2</u>	Outage No.: <u>N/A</u>
Summary No.: <u>NVFW10-20</u>	Procedure Rev.: <u>C</u>	Report No.: <u>BOP-UT-09-151</u>
Workscope: <u>BOP</u>	Work Order No.: <u>01738678</u>	Page: <u>2</u> of <u>8</u>

45 deg

Scan 1	<u>100.000</u>	% Length X	<u>50.000</u>	% volume of length / 100 =	<u>50.000</u>	% total for Scan 1
Scan 2	<u>100.000</u>	% Length X	<u>0.000</u>	% volume of length / 100 =	<u>0.000</u>	% total for Scan 2
Scan 3	<u>100.000</u>	% Length X	<u>50.000</u>	% volume of length / 100 =	<u>50.000</u>	% total for Scan 3
Scan 4	<u>100.000</u>	% Length X	<u>50.000</u>	% volume of length / 100 =	<u>50.000</u>	% total for Scan 4

Add totals and divide by # scans = 37.500 % total for 45 deg

Other deg - 1 (to be used for supplemental scans)

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

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

Percent complete coverage

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

37.500 % Total for complete exam

Site Field Supervisor: 

Date: 09/24/09

DUKE POWER COMPANY				
ISI LIMITATION REPORT				
Component/Weld ID: <u>NVFW10-20</u> Item No: <u>01738678</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 type="checkbox"/> cw <input type="checkbox"/> ccw	PIPE TO FLANGE
FROM L <u>N/A</u> to L <u>N/A</u> INCHES FROM W0 <u>0.5</u> to <u>Beyond</u>			CONFIGURATION	
ANGLE: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 45 <input type="checkbox"/> 60 other _____ FROM <u>0</u> DEG to <u>360</u> DEG				
<input checked="" type="checkbox"/> NO SCAN	SURFACE	BEAM DIRECTION		PIPE TO FLANGE
<input type="checkbox"/> LIMITED SCAN	<input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	<input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	<input type="checkbox"/> cw <input type="checkbox"/> ccw	CONFIGURATION
FROM L <u>N/A</u> to L <u>N/A</u> INCHES FROM W0 <u>0.3</u> to <u>Beyond</u>				
ANGLE: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 45 <input type="checkbox"/> 60 other <u>70</u> FROM <u>0</u> DEG to <u>360</u> DEG				
<input checked="" type="checkbox"/> NO SCAN	SURFACE	BEAM DIRECTION		PIPE TO FLANGE
<input type="checkbox"/> LIMITED SCAN	<input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	<input type="checkbox"/> 1 <input type="checkbox"/> 2	<input checked="" type="checkbox"/> cw <input checked="" type="checkbox"/> ccw	CONFIGURATION
FROM L <u>N/A</u> to L <u>N/A</u> INCHES FROM W0 <u>CL</u> to <u>Beyond</u>				
ANGLE: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 45 <input type="checkbox"/> 60 other _____ FROM <u>0</u> DEG to <u>360</u> DEG				
<input type="checkbox"/> NO SCAN	SURFACE	BEAM DIRECTION		
<input type="checkbox"/> LIMITED SCAN	<input type="checkbox"/> 1 <input type="checkbox"/> 2	<input type="checkbox"/> 1 <input type="checkbox"/> 2	<input type="checkbox"/> cw <input type="checkbox"/> ccw	
FROM L _____ to L _____ INCHES FROM W0 _____ to _____			Sketch(s) attached	
ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 5 <input type="checkbox"/> 60 other _____ FROM _____ DEG to _____ DEG				<input checked="" type="checkbox"/> yes <input type="checkbox"/> No
Prepared By: <u>Jake Ross</u> <i>Jake Ross</i>		Level: <u>II</u>	Date: <u>08/26/09</u>	
Reviewed By: <u>Bang Mohd</u> <i>Bang Mohd</i>		Date: <u>9-30-09</u>		Authorized Inspector: <u>JF</u> <i>JF</i>
Sheet <u>3</u> of <u>8</u>			Date: <u>10-4-09</u>	



Supplemental Report

Report No.: BO-rJT-09-151

Page: 4 of 8

Summary No.: NVFW10-20

Examiner: Ross, Jake E. *[Signature]*
Examiner: Day, John, C. *[Signature]*
Other: N/A

Level: II-N
Level: II-N
Level: N/A

Reviewer: Bang Michel
Site Review: _____
ANII Review: [Signature]

Date: 9-30-09
Date: _____
Date: 10-4-09

Comments: Area of Interest

Sketch or Photo: Z:\UT\IDDEAL\ProfileLine2.jpg

ABCD: .07in x 1.4in = 0.10in²



SURFACE 1 -

SCALE: FULL

SURFACE 2



Supplemental Report

Report No.: BO-UT-09-151

Page: 5 of 8

Summary No.: NVFW10-20

Examiner: Ross, Jake E.

Level: II-N

Reviewer: Bang M...

Date: 9-30-09

Examiner: Day, John, C.

Level: II-N

Site Review: J. E...

Date:

Other: N/A

Level: N/A

ANII Review:

Date: 10-4-09

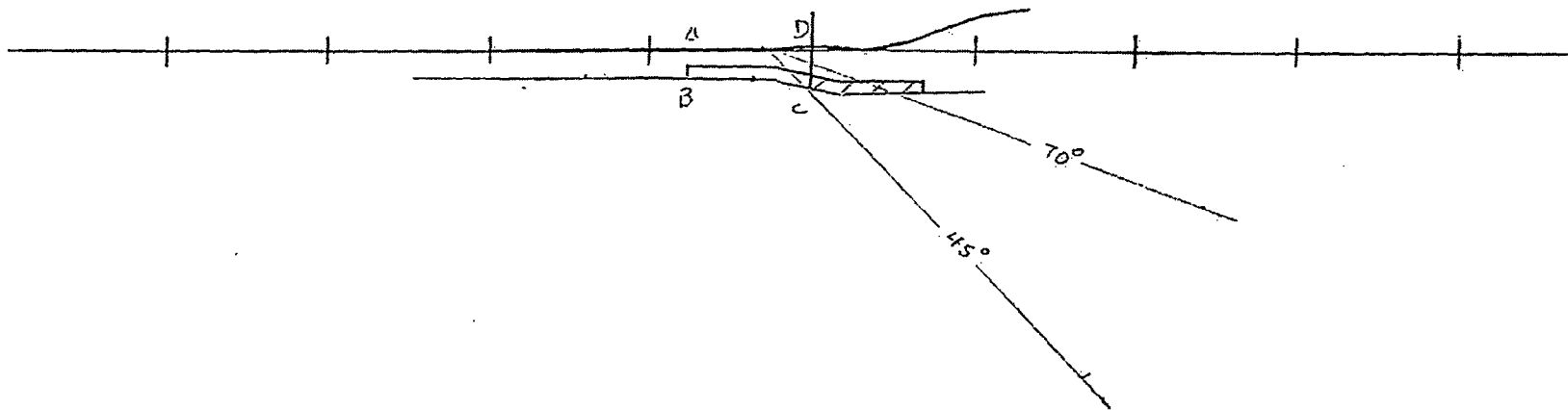
Comments: S1 Axial Coverage

Sketch or Photo: Z:\UT\IDEAL\ProfileLine2.jpg

45° & 70° COVERAGE

ABCD: 0.7in x .70in = 0.05in²

0.05in² / 0.10in² (100) = 50%



SURFACE 1

SCALE: FULL

SURFACE 2



Supplemental Report

Report No.: BOP-UT-09-151

Page: 6 of 8

Summary No.: NVFW10-20

Examiner: Ross, Jake E. *[Signature]*

Level: II-N

Reviewer: Bang Mue

Date: 9-30-09

Examiner: Day, John, C. *[Signature]*

Level: II-N

Site Review: _____

Date: _____

Other: N/A

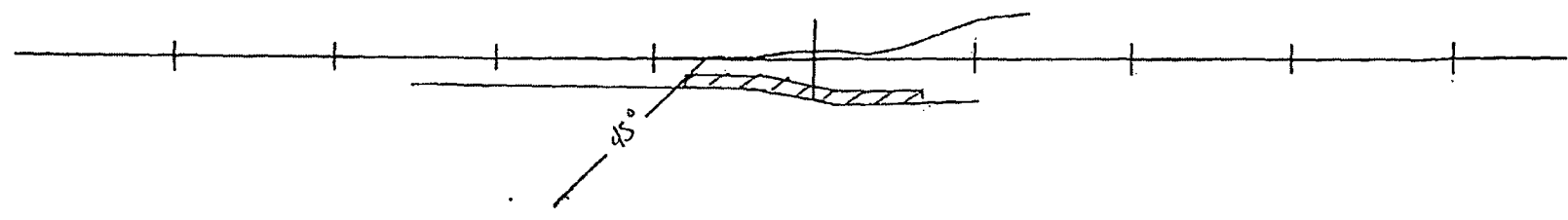
Level: N/A

ANII Review: J. Elwan

Date: 10-4-09

Comments: S1 Axial Coverage

Sketch or Photo: Z:\UT\IDEAL\ProfileLine2.jpg



SURFACE 1

SCALE: Full

SURFACE 2



Supplemental Report

Report No.: BOP-UT-09-151

Page: 7 of 8

Summary No.: NVFW10-20

Examiner: Ross, Jake E. *[Signature]*

Level: II-N

Reviewer: Benz Michel

Date: 9-30-09

Examiner: Day, John, C. *[Signature]*

Level: II-N

Site Review: _____

Date: _____

Other: N/A

Level: N/A

ANII Review: J. F. [Signature]

Date: 10-4-09

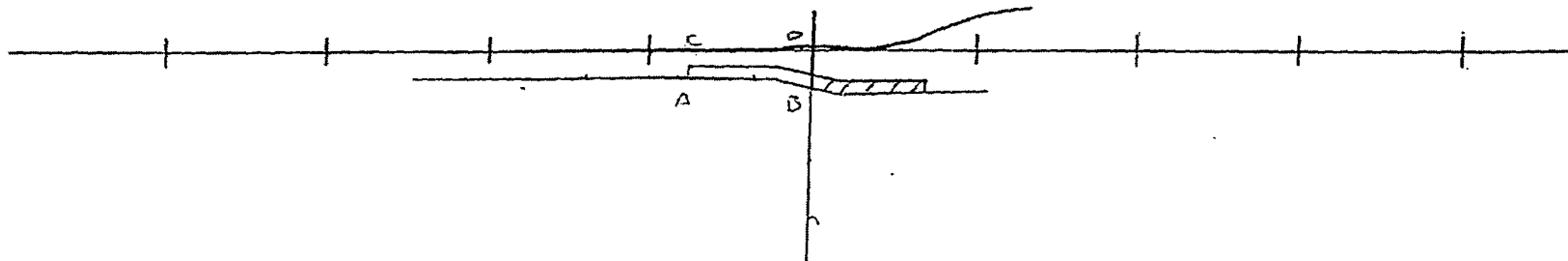
Comments: CW, CCW Coverage

Sketch or Photo: Z:\UT\IDEAL\ProfileLine2.jpg

45° COVERAGE

$ABCD = .07in \times .70in = .05in^2$

$.05in^2 / .10in^2 (100) = 50\%$



SURFACE 1 -

SCALE: FULL

SURFACE 2



Supplemental Report

Report No.: BOP-UT-09-151
Page: 8 of 8

Summary No.: NVFW10-20

Examiner: Ross, Jake E. *[Signature]*
Examiner: Day, John, C. *[Signature]*
Other: N/A

Level: II-N
Level: II-N
Level: N/A

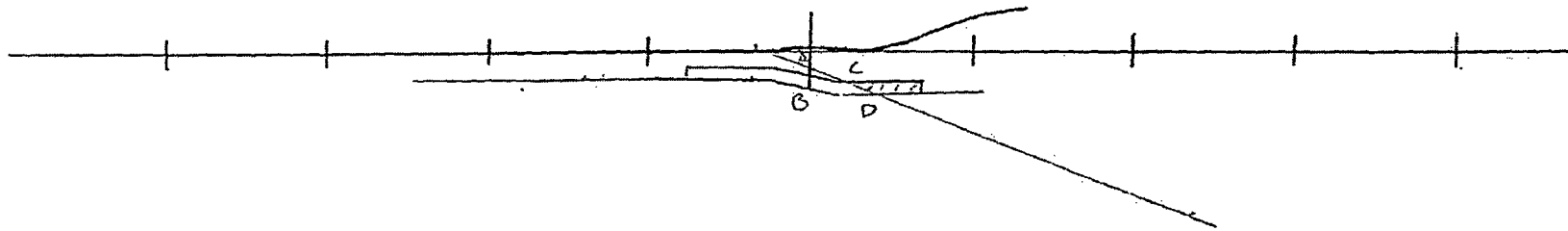
Reviewer: *[Signature]*
Site Review: *[Signature]*
ANII Review: *[Signature]*

Date: 9-30-09
Date:
Date: 10-4-09

Comments: Supplemental Coverage

Sketch or Photo: Z:\UTIDDEAL\ProfileLine2.jpg

70° CONIC PAGE
ABCD: $0.7 \text{ in} \left(\frac{.7 \sin^2 .4 \text{ in}}{2} \right) = 0.3 \text{ in}^2$
 $0.3 \text{ in}^2 / 10 \text{ in}^2 (100) = 3.0 \%$



SURFACE 1 -

SCALE: FULL

SURFACE 2



UT Base Metz. Lamination

Site/Unit: McGuire / 2 Procedure: NDE-640 Outage No.: N/A
 Summary No.: NVFW180-46 Procedure Rev.: 5 Report No.: BOP-UT-09-157
 Workscope: BOP Work Order No.: 01738678 Page: 1 of 2

Code: N/A Cat./Item: N/A Location: N/A
 Drawing No.: N/A Description: Pipe to valve
 System ID: NV
 Component ID: 2NVFW180-46 Size/Length: 4" SCH 40 Thickness/Diameter: .237
 Limitations: Yes - See attached limitation sheet Start Time: 1320 Finish Time: 1330

Examination Surface: Inside Outside Surface Condition: AS GROUND
 Lo Location: 9.1.1.1 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 08125
 Temp. Tool Mfg.: D.A.S Serial No.: MCNDE32835 Surface Temp.: 74 °F Scanning dB: 26
 Cal. Report No.: CAL-09-208, CAL-09-209, CAL-09-210 & CAL-09-212

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: N/A

Results: Accept Reject Info INITIAL PSI EXAM
 Percent Of Coverage Obtained > 90%: Yes Reviewed Previous Data: NO

Examiner	Level	Signature	Date	Reviewer	Signature	Date
Ross, Jake E.	II-N	<i>[Signature]</i>	8/26/2009	<i>[Signature]</i>		10-20-09
Examiner	Level	Signature	Date	Site Review	Signature	Date
Day, John, C.	II-N	<i>[Signature]</i>	8/26/2009			
Other	Level	Signature	Date	ANII Review	Signature	Date
N/A	N/A			<i>[Signature]</i>		10-26-09



Supplemental Report

Report No.: BOP-UT-09-157
Page: 2 of 2

Summary No.: NVFW180-46

Examiner: Ross, Jake E. *[Signature]*
Examiner: Day, John, C. *[Signature]*
Other: N/A

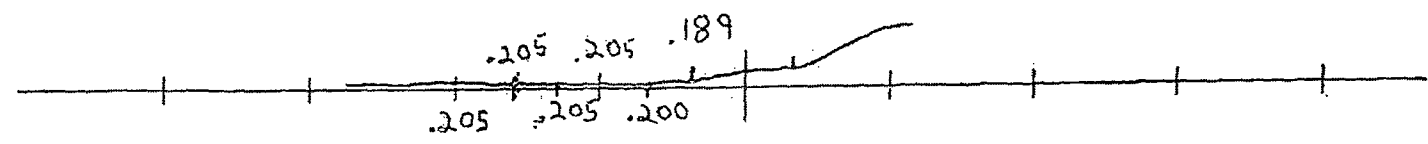
Level: II-N
Level: II-N
Level: N/A

Reviewer: *[Signature]*
Site Review: *[Signature]*
ANII Review: *[Signature]*

Date: 10-20-09
Date: ~~10-20-09~~
Date: 10-26-09

Comments: Limitation

Sketch or Photo: Z:\UT\IDEAL\ProfileLine2.jpg





UT Pipe Weld Examination

Site/Unit: McGuire / 2 Procedure: PDI-UT-2 Outage No.: N/A
 Summary No.: NVFW180-46 Procedure Rev.: C Report No.: BOP-UT-09-154
 Workscope: BOP Work Order No.: 01738678 Page: 1 of 4

Code: N/A Cal./Item: N/A Location: N/A
 Drawing No.: N/A Description: Elbow pipe to valve
 System ID: NV 08/20/09
 Component ID: NVFW180-46 Size/Length: N/A Thickness/Diameter: .2374"/SS
 Limitations: See attachments Start Time: 1410 Finish Time: 1450

Examination Surface: Inside Outside Surface Condition: AS GROUND
 Lo Location: 9.1.1.1 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 08125
 Temp. Tool Mfg.: D.A.S Serial No.: MCNDE32835 Surface Temp.: 74 °F

Cal. Report No.: CAL-09-208, CAL-09-209, CAL-09-210 & CAL-09-212

Angle Used	0	45	45T	60	70	
Scanning dB		51.2	51.2		68.9	

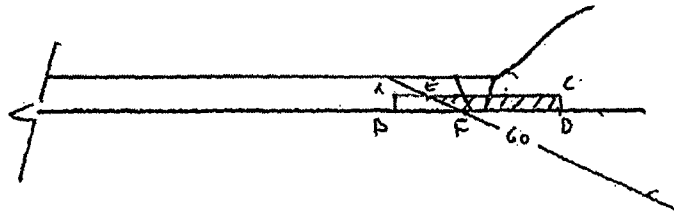
Indication(s): Yes No Scan Coverage: Upstream Downstream CW CCW

Comments:
FC 08-01, 08-04, 09-02

Results: Accept Reject Info INITIAL PSI EXAM
 Percent Of Coverage Obtained > 90%: No Reviewed Previous Data: NO

Examiner	Level	Signature	Date	Reviewer	Signature	Date
Ross, Jake E.	II-N	<i>[Signature]</i>	8/26/2009	<i>[Signature]</i>		10-20-09
Examiner	Level	Signature	Date	Site Review	Signature	Date
Day, John, C.	II-N	<i>[Signature]</i>	8/26/2009			
Other	Level	Signature	Date	ANII Review	Signature	Date
N/A	N/A			<i>[Signature]</i>		10-26-09

2MNS NVFW180-46



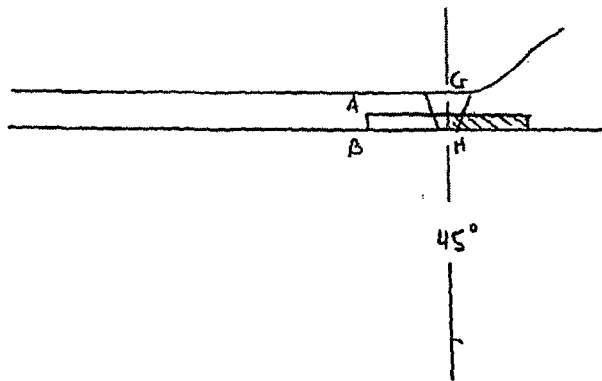
AREA OF INTEREST

ABCD: $1.0\text{in} \times 0.8\text{in} = 0.08\text{in}^2$

AXIAL SCAN

ABEF: $\left(\frac{1.0\text{in} + 0.3\text{in}}{2}\right) \times 0.8\text{in} = 0.02\text{in}^2$

$\frac{0.02\text{in}^2}{0.08\text{in}^2(100)} = 25\%$



CIRC SCAN - end, end

ABGH: $0.5\text{in} \times 0.8\text{in} = 0.04\text{in}^2$

$\frac{0.04\text{in}^2}{0.08\text{in}^2(100)} = 50\%$

Examiner David K. [Signature] III Date 10/18/09

DUKE POWER COMPANY		
ISI LIMITATION REPORT		
Component/Weld ID: <u>NVFW180-46</u> Item No: <u>N/A</u>		remarks:
<input checked="" type="checkbox"/> NO SCAN SURFACE BEAM DIRECTION <input type="checkbox"/> LIMITED SCAN <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input checked="" type="checkbox"/> cw <input checked="" type="checkbox"/> ccw FROM L <u>0"</u> to L <u>14.1"</u> INCHES FROM W0 <u>N/A</u> to <u>N/A</u> ANGLE: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 45 <input type="checkbox"/> 60 other _____ FROM <u>N/A</u> DEG to <u>N/A</u> DEG	No scan on valve side due to taper.supplemental scan with 70° shear from elbow side	
<input type="checkbox"/> NO SCAN SURFACE BEAM DIRECTION <input type="checkbox"/> LIMITED SCAN <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw FROM L _____ to L _____ INCHES FROM W0 _____ to _____ ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 other _____ FROM _____ DEG to _____ DEG		
<input type="checkbox"/> NO SCAN SURFACE BEAM DIRECTION <input type="checkbox"/> LIMITED SCAN <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw FROM L _____ to L _____ INCHES FROM W0 _____ to _____ ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 other _____ FROM _____ DEG to _____ DEG		
<input type="checkbox"/> NO SCAN SURFACE BEAM DIRECTION <input type="checkbox"/> LIMITED SCAN <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw FROM L _____ to L _____ INCHES FROM W0 _____ to _____ ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 other _____ FROM _____ DEG to _____ DEG		
<input type="checkbox"/> NO SCAN SURFACE BEAM DIRECTION <input type="checkbox"/> LIMITED SCAN <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw FROM L _____ to L _____ INCHES FROM W0 _____ to _____ ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 5 <input type="checkbox"/> 60 other _____ FROM _____ DEG to _____ DEG	Sketch(s) attached <input type="checkbox"/> yes <input type="checkbox"/> No	
Prepared By: <u>Jake Ross</u> <i>[Signature]</i> Level: <u>II</u> Date: <u>08/26/09</u>	Sheet <u>3</u> of <u>4</u>	
Reviewed By: <u>[Signature]</u> Date: <u>10-20-09</u>	Authorized Inspector: <u>[Signature]</u> Date: <u>10-26-09</u>	



Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit: <u>McGulre / 2</u>	Procedure: <u>PDI-UT-2</u>	Outage No.: <u>N/A</u>
Summary No.: <u>NVFW180-46</u>	Procedure Rev.: <u>C</u>	Report No.: <u>BOP-UT-09-154</u>
Worksopce: <u>BOP</u>	Work Order No.: <u>01738678</u>	Page: <u>4</u> of <u>4</u>

45 deg

Scan 1	<u>100.000</u>	% Length X	<u>0.000</u>	% volume of length / 100 =	<u>0.000</u>	% total for Scan 1
Scan 2	<u>100.000</u>	% Length X	<u>25.000</u>	% volume of length / 100 =	<u>25.000</u>	% total for Scan 2
Scan 3	<u>100.000</u>	% Length X	<u>50.000</u>	% volume of length / 100 =	<u>50.000</u>	% total for Scan 3
Scan 4	<u>100.000</u>	% Length X	<u>50.000</u>	% volume of length / 100 =	<u>50.000</u>	% total for Scan 4

Add totals and divide by # scans = 31.250 % total for 45 deg

Other deg - 1 (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> </u>	% Length X	<u> </u>	% volume of length / 100 =	<u> </u>	% total for Scan 1
Scan 2	<u> </u>	% Length X	<u> </u>	% volume of length / 100 =	<u> </u>	% total for Scan 2
Scan 3	<u> </u>	% Length X	<u> </u>	% volume of length / 100 =	<u> </u>	% total for Scan 3
Scan 4	<u> </u>	% Length X	<u> </u>	% volume of length / 100 =	<u> </u>	% total for Scan 4

Percent complete coverage

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

31.250 % Total for complete exam

Site Field Supervisor: David K. Z III

Date: 10/18/09



UT Base Metal Lamination

Site/Unit: McGuire / 2 Procedure: NDE-640 Outage No.: N/A
 Summary No.: NVFW180-45 Procedure Rev.: 5 Report No.: BOP-UT-09-156
 Workscope: BOP Work Order No.: 01738678 Page: 1 of 2

Code: N/A Cat./Item: N/A Location: N/A
 Drawing No.: N/A Description: ELBOW TO VALVE
 System ID: NV
 Component ID: NVFE180-45 Size/Length: 4" SCH 40 Thickness/Diameter: .237
 Limitations: Yes - See attached limitation sheet Start Time: 1330 Finish Time: 1340

Examination Surface: Inside Outside Surface Condition: AS GROUND
 Lo Location: 9.1.1.1 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 08125
 Temp. Tool Mfg.: D.A.S Serial No.: MCNDE32835 Surface Temp.: 74 °F Scanning dB: 26
 Cal. Report No.: CAL-09-208, CAL-09-209, CAL-09-210 & CAL-09-212

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: N/A

Results: Accept Reject Info INITIAL PSI EXAM
 Percent Of Coverage Obtained > 90%: Yes Reviewed Previous Data: NO

Examiner	Level	Signature	Date	Reviewer	Signature	Date
Ross, Jake E.	II-N	<i>[Signature]</i>	8/26/2009	<i>[Signature]</i>		10-20-09
Examiner	Level	Signature	Date	Site Review	Signature	Date
Day, John, C.	II-N	<i>[Signature]</i>	8/26/2009			
Other	Level	Signature	Date	ANII Review	Signature	Date
N/A	N/A				<i>[Signature]</i>	10-26-09



Supplemental Report

Report No.: BOP-UT-09-156

Page: 2 of 2

Summary No.: NVFW180-45

Examiner: Ross, Jake E. *Jake Ross*

Level: II-N

Reviewer: *DE Jensen*

Date: 10-20-09

Examiner: Day, John, C. *John Day*

Level: II-N

Site Review: _____

Date: _____

Other: N/A

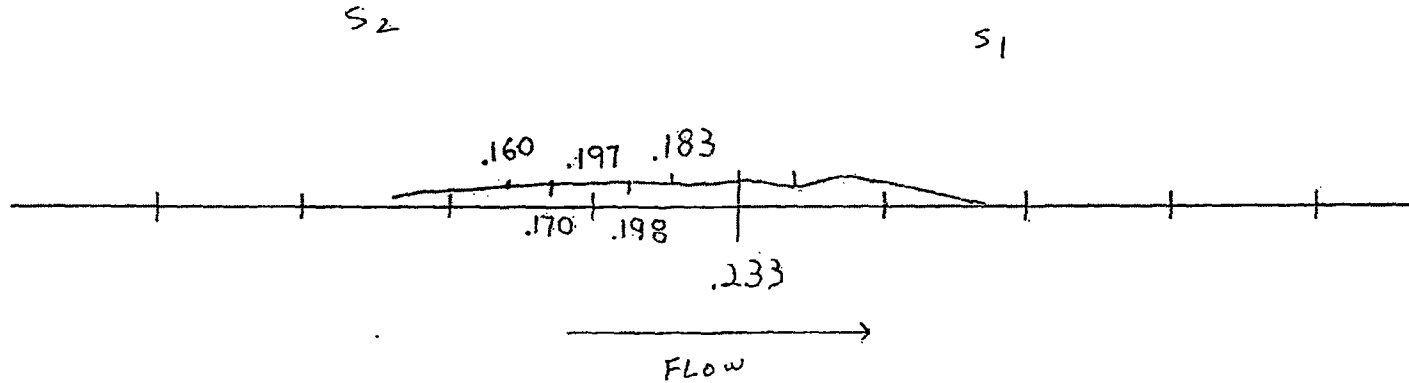
Level: N/A

ANII Review: *J Jensen*

Date: 10-26-09

Comments:

Sketch or Photo: Z:\UT\IDEAL\ProfileLine2.jpg





UT Pipe Weld Examination

Site/Unit: McGuire / 2 Procedure: PDI-UT-2 Outage No.: N/A
 Summary No.: NVFW180-45 Procedure Rev.: C Report No.: BOP-UT-09-152
 Workscope: BOP Work Order No.: 01738678 Page: 1 of 4

Code: N/A Cat./Item: N/A Location: N/A
 Drawing No.: N/A Description: Elbow to valve
 System ID: 2NV
 Component ID: NVFW180-45 Size/Length: N/A Thickness/Diameter: .237/4"SS
 Limitations: Yes - See attached limitation report. Start Time: 1415 Finish Time: 1445

Examination Surface: Inside Outside Surface Condition: AS GROUND
 Lo Location: 9.1.1.2 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 08125
 Temp. Tool Mfg.: D.A.S Serial No.: MCNDE32835 Surface Temp.: 74 °F

Cal. Report No.: CAL-09-208, CAL-09-209, CAL-09-210 & CAL-09- CAL-09-212

Angle Used	0	45	45T	60	70	
Scanning dB		51.2	51.2		68.9	

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

Comments:
FC 80-01, 08-04, 09-02

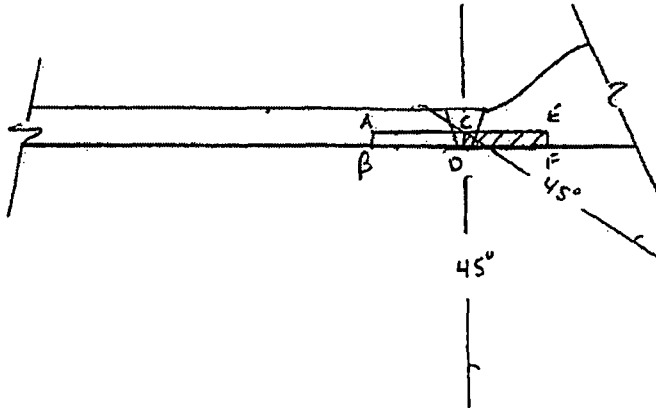
Results: Accept Reject Info INITIAL PSI EXAM
 Percent Of Coverage Obtained > 90%: No Reviewed Previous Data: NO

Examiner	Level	Signature	Date	Reviewer	Signature	Date
Ross, Jake E.	II-N	<i>[Signature]</i>	8/26/2009	<i>[Signature]</i>		10-20-09
Examiner	Level	Signature	Date	Site Review	Signature	Date
Day, John, C.	II-N	<i>[Signature]</i>	8/26/2009			
Other	Level	Signature	Date	ANII Review	Signature	Date
N/A	N/A			<i>[Signature]</i>		10-26-09

2MNS NVFW180-45

SZ-ELBOW

VALVE- S1



AREA OF INTEREST

ABFE: $1.0in \times .08in = .08in^2$

COVERAGE: SZ, CW, CCW

COVERAGE: S1 = 0%

ABCD: $0.5in \times .08in = .04in^2$

$.04in^2 / .08in^2 (100) = 50\%$

Examiner David K. Z^{III} Date 10/18/09

DUKE POWER COMPANY			
ISI LIMITATION REPORT			
Component/Weld ID: <u>NVFW180-45</u> Item No: <u>N/A</u>		remarks:	
<input checked="" type="checkbox"/> NO SCAN SURFACE BEAM DIRECTION <input type="checkbox"/> LIMITED SCAN <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input checked="" type="checkbox"/> cw <input checked="" type="checkbox"/> ccw	FROM L <u>0"</u> to L <u>14.1"</u> INCHES FROM W0 <u>0</u> to <u>Beyond</u> ANGLE: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 45 <input type="checkbox"/> 60 other _____ FROM <u>N/A</u> DEG to <u>N/A</u> DEG		No scan on valve side due to taper supplemental scan with 70° shear from elbow side
<input type="checkbox"/> NO SCAN SURFACE BEAM DIRECTION <input type="checkbox"/> LIMITED SCAN <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw	FROM L _____ to L _____ INCHES FROM W0 _____ to _____ ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 other _____ FROM _____ DEG to _____ DEG		
<input type="checkbox"/> NO SCAN SURFACE BEAM DIRECTION <input type="checkbox"/> LIMITED SCAN <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw	FROM L _____ to L _____ INCHES FROM W0 _____ to _____ ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 other _____ FROM _____ DEG to _____ DEG		
<input type="checkbox"/> NO SCAN SURFACE BEAM DIRECTION <input type="checkbox"/> LIMITED SCAN <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw	FROM L _____ to L _____ INCHES FROM W0 _____ to _____ ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 other _____ FROM _____ DEG to _____ DEG		
<input type="checkbox"/> NO SCAN SURFACE BEAM DIRECTION <input type="checkbox"/> LIMITED SCAN <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw	FROM L _____ to L _____ INCHES FROM W0 _____ to _____ ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 other _____ FROM _____ DEG to _____ DEG		Sketch(s) attached <input checked="" type="checkbox"/> yes <input type="checkbox"/> No
Prepared By: <u>Jake Ross</u> <i>[Signature]</i>	Level: <u>II</u>	Date: <u>08/26/09</u>	Sheet <u>3</u> of <u>4</u>
Reviewed By: <u>DE Houston</u> <i>[Signature]</i>	Date: <u>10-20-09</u>	Authorized Inspector: <u>J. [Signature]</u>	Date: <u>10-26-09</u>

ATTACHMENT B
PAGE 94 OF 94



Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit: McGuire / 2 Procedure: PDI-UT-2 Outage No.: N/A
Summary No.: NVFW180-45 Procedure Rev.: C Report No.: BOP-UT-09-152
Workscope: BOP Work Order No.: 01738678 Page: 4 of 4

45 deg

Scan 1	<u>100.000</u>	% Length X	<u>0.000</u>	% volume of length / 100 =	<u>0.000</u>	% total for Scan 1
Scan 2	<u>100.000</u>	% Length X	<u>50.000</u>	% volume of length / 100 =	<u>50.000</u>	% total for Scan 2
Scan 3	<u>100.000</u>	% Length X	<u>50.000</u>	% volume of length / 100 =	<u>50.000</u>	% total for Scan 3
Scan 4	<u>100.000</u>	% Length X	<u>50.000</u>	% volume of length / 100 =	<u>50.000</u>	% total for Scan 4

Add totals and divide by # scans = 37.500 % total for 45 deg

Other deg - 1 (to be used for supplemental scans)

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

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

Percent complete coverage

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

37.500 % Total for complete exam

Site Field Supervisor: David K. [Signature]

Date: 10/18/09