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

Subject: Duke Energy Carolinas, LLC
Oconee Nuclear Station Units 1 and 2
Docket No. 50-269, -270
Fourth Ten-Year Inservice Inspection Plan
Request for Relief No. 11-ON-001

Pursuant to 10 CFR 50.55a(g)(5)(iii), attached is a Request for Relief from the requirement to examine 100% of the volume specified by the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, Rules for Inservice Inspection of Nuclear Power Plant Components, 1998 Edition with 2000 Addenda (as modified by Code Case N-460).

The attached Request for Relief 11-ON-001 is to allow Duke Energy to take credit for the enclosed Table 1 list of limited ultrasonic examinations on welds associated with various systems and components during Unit 1 EOC25 and Unit 2 EOC24 refueling outages. The ultrasonic examination coverage of the subject Unit 1 and 2 welds did not meet the 90% examination requirements of Code Case N-460. The obtainable volume coverage for weld examination is indicated on Attachments A and B of the relief request. Achievement of greater examination coverage for these welds is impractical due to piping/valve geometry and interferences. Therefore, Duke Energy requests that the NRC grant relief as authorized under 10 CFR 50.55(g)(6)(i).

If there are any questions or further information is needed you may contact Corey Gray at (864)-873-6325.

Sincerely,

TPGillespie

T. Preston Gillespie Jr.,
Site Vice President

Attachment A
Attachment B

A047
NRR

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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.

Oconee Nuclear Station - Unit 1
Fourth 10-Year Inservice Inspection Interval
Interval Start Date: 01/01/2004

Oconee Nuclear Station - Unit 2
Fourth 10-Year Inservice Inspection Interval
Interval Start Date: 09/09/2004

Table 1

Relief Request Section Number	Oconee Unit Number	Examination Performed (Refueling Outage)	Weld ID Number	Item/Summary Number	Examination Data
2.0	1	1EOC25	1-PZR-WP26-4	O1.B3.110.0006	See Attachment A Pages 1-8
3.0	1	1EOC25	1-PZR-WP26-5	O1.B3.110.0007	See Attachment A Pages 9-16
4.0	1	1EOC25	1-PZR-WP26-6	O1.B3.110.0008	See Attachment A Pages 17-24
5.0	1	1EOC25	1-PZR-WP26-1	O1.B3.110.0009	See Attachment A Pages 25-32
6.0	1	1EOC25	1-PZR-WP26-2	O1.B3.110.0010	See Attachment A Pages 33-40
7.0	1	1EOC25	1-51A-1-53755-V1	O1.B3.150.0003	See Attachment A Pages 41-48
8.0	1	1EOC25	1-51A-1-53755-V2	O1.B3.150.0004	See Attachment A Pages 49-56

9.0	1	1EOC25	1LP-209-8L	O1.B9.11.0003	See Attachment A Pages 57-60
10.0	1	1EOC25	1PIA2-9	O1.B9.11.0050	See Attachment A Pages 61-68
11.0	1	1EOC25	1PDA2-1	O1.B9.11.0062	See Attachment A Pages 69-76
12.0	1	1EOC25	1-53A-02-65L	O1.C5.11.0028	See Attachment A Pages 77-81
13.0	1	1EOC25	1-51A-04-1C	O1.C5.21.0004	See Attachment A Pages 82-88
14.0	1	1EOC25	1HP-387-118A	O1.C5.21.0027	See Attachment A Pages 89-93
15.0	1	1EOC25	1HP-193-17	O1.C5.21.0040	See Attachment A Pages 94-97
16.0	1	1EOC25	1-51A-02-16BH	O1.C5.21.0051	See Attachment A Pages 98-102
17.0	1	1EOC25	1-HP-0187-184	PRESERVICE	See Attachment A Pages 103-107
18.0	1	1EOC25	1-HP-0187-185	PRESERVICE	See Attachment A Pages 108-112
19.0	2	2EOC24	2-PZR-WP34	O2.B3.110.0002	See Attachment B Pages 1-10
20.0	2	2EOC24	2-PZR-WP33-3	O2.B3.110.0003	See Attachment B Pages 11-20

21.0	2	2EOC24	2-PZR-WP33-1	O2.B3.110.0005	See Attachment B Pages 21-30
22.0	2	2EOC24	2-PIA1-8	O2.B9.11.0046	See Attachment B Pages 31-37
23.0	2	2EOC24	2-PDA2-1	O2.B9.11.0053	See Attachment B Pages 38-44
24.0	2	2EOC24	2-PDB2-1	O2.B9.11.0063	See Attachment B Pages 45-51
25.0	2	2EOC24	2LP-215-27	O2.C5.11.0038	See Attachment B Pages 52-55
26.0	2	2EOC24	2HP-341-V1	O2.C5.21.0035	See Attachment B Pages 56-58
27.0	2	2EOC24	2-51A-0029-94	PRESERVICE	See Attachment B Pages 59-64
28.0	2	2EOC24	2-HP-0396-23	PRESERVICE	See Attachment B Pages 65-68

2.0 Weld #1-PZR-WP26-4

2.1. ASME Code Component(s) Affected

Unit 1 Pressurizer Upper Shell to Sampling Nozzle Weld, Weld #1-PZR-WP26-4, Summary Number O1.B3.110.0006

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 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

2.4. Impracticality of Compliance

- Surface 1: Shell - Carbon steel
- Surface 2: Sampling nozzle - Carbon steel
- Diameter: 5.750 in.
- Thickness: 6.187 in.

The ultrasonic examination of this weld obtained 34.7% coverage of the required examination volume. 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 15.4% coverage.
- Base material coverage using 35°, 45°& 60° shear wave for axial scans (S1) and 35°& 45° shear waves for circ. scans (CW, CCW) obtained 54.8% coverage.
- 0° scan coverage obtained 33.9% coverage.
- The aggregate coverage was calculated to be (15.4% + 54.8% + 33.9%)/3 = 34.7%.

The limitation was caused by the design of the sampling nozzle not allowing for scanning from the nozzle side of the weld. In order to scan all of the required volume for this weld, the nozzle would have to be redesigned, which is impractical.

The Oconee 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-E-F-G-H-I. The achieved coverage did not meet the acceptance criteria of this Code Case.

2.5. Proposed Alternative and Basis for Use

No substitution alternative for this weld is available which would provide better coverage.

2.6. Duration of Proposed Alternative

This request is for the duration of the fourth inservice inspection interval, currently scheduled to end on July 15, 2014

2.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number O1.B3.110.0006 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 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 provides additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), Reactor Building Normal Sump monitoring provides 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 provides a reasonable assurance of quality and safety.

3.0 Weld #1-PZR-WP26-5

3.1. ASME Code Component(s) Affected

Unit 1 Pressurizer Upper Shell to Sampling Nozzle Weld, Weld #1-PZR-WP26-5, Summary Number O1.B3.110.0007

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

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

3.4. Impracticality of Compliance

- Surface 1: Shell - Carbon steel
- Surface 2: Sampling nozzle - Carbon steel
- Diameter: 5.750 in.
- Thickness: 6.187 in.

The ultrasonic examination of this weld obtained 34.7% coverage of the required examination volume. 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 15.4% coverage.
- Base material coverage using 35°, 45°& 60° shear wave for axial scans (S1) and 35°& 45° shear waves for circ. scans (CW, CCW) obtained 54.8% coverage.
- 0° scan coverage obtained 33.9% coverage.
- The aggregate coverage was calculated to be (15.4% + 54.8% + 33.9%)/3 = 34.7%.

The limitation was caused by the design of the sampling nozzle not allowing for scanning from the nozzle side of the weld. In order to scan all of the required volume for this weld, the nozzle would have to be redesigned, which is impractical.

The Oconee 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-E-F-G-H-I. The achieved coverage did not meet the acceptance criteria of this Code Case.

3.5. Proposed Alternative and Basis for Use

No substitution alternative for this weld is available which would provide better coverage.

3.6. Duration of Proposed Alternative

This request is for the duration of the fourth inservice inspection interval, currently scheduled to end on July 15, 2014.

3.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number O1.B3.110.0007 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 provides additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), Reactor Building Normal Sump monitoring provides 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 provides a reasonable assurance of quality and safety.

4.0 Weld #1-PZR-WP26-6

4.1. ASME Code Component(s) Affected

Unit 1 Pressurizer Upper Shell to Sampling Nozzle Weld, Weld #1-PZR-WP26-6, Summary Number O1.B3.110.0008

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 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

4.4. Impracticality of Compliance

- Surface 1: Shell - Carbon steel
- Surface 2: Sampling nozzle - Carbon steel
- Diameter: 5.750 in.
- Thickness: 6.187 in.

The ultrasonic examination of this weld obtained 34.7% coverage of the required examination volume. 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 15.4% coverage.
- Base material coverage using 35°, 45°& 60° shear wave for axial scans (S1) and 35°& 45° shear waves for circ. scans (CW, CCW) obtained 54.8% coverage.
- 0° scan coverage obtained 33.9% coverage.
- The aggregate coverage was calculated to be (15.4% + 54.8% + 33.9%)/3 = 34.7%.

The limitation was caused by the design of the sampling nozzle not allowing for scanning from the nozzle side of the weld. In order to scan all of the required volume for this weld, the nozzle would have to be redesigned, which is impractical.

The Oconee 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-E-F-G-H-I. The achieved coverage did not meet the acceptance criteria of this Code Case.

4.5. Proposed Alternative and Basis for Use

No substitution alternative for this weld is available which would provide better coverage.

4.6. Duration of Proposed Alternative

This request is for the duration of the fourth inservice inspection interval, currently scheduled to end on July 15, 2014.

4.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number O1.B3.110.0008 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 provides additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), Reactor Building Normal Sump monitoring provides 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 provides a reasonable assurance of quality and safety.

5.0 Weld #1-PZR-WP26-1

5.1. ASME Code Component(s) Affected

Unit 1 Pressurizer Heater Belt Shell to Sampling Nozzle Weld, Weld #1-PZR-WP26-1, Summary Number O1.B3.110.0009

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

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

5.4. Impracticality of Compliance

- Surface 1: Shell - Carbon steel
- Surface 2: Sampling nozzle - Carbon steel
- Diameter: 5.750 in.
- Thickness: 6.187 in.

The ultrasonic examination of this weld obtained 34.7% coverage of the required examination volume. 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 15.4% coverage.
- Base material coverage using 35°, 45°& 60° shear wave for axial scans (S1) and 35°& 45° shear waves for circ. scans (CW, CCW) obtained 54.8% coverage.
- 0° scan coverage obtained 33.9% coverage.
- The aggregate coverage was calculated to be (15.4% + 54.8% + 33.9%)/3 = 34.7%.

The limitation was caused by the design of the sampling nozzle not allowing for scanning from the nozzle side of the weld. In order to scan all of the required volume for this weld, the nozzle would have to be redesigned, which is impractical.

The Oconee 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-E-F-G-H-I. The achieved coverage did not meet the acceptance criteria of this Code Case.

5.5. Proposed Alternative and Basis for Use

No substitution alternative for this weld is available which would provide better coverage.

5.6. Duration of Proposed Alternative

This request is for the duration of the fourth inservice inspection interval, currently scheduled to end on July 15, 2014

5.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number O1.B3.110.0009 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 provides additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), Reactor Building Normal Sump monitoring provides 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 provides a reasonable assurance of quality and safety.

6.0 Weld #1-PZR-WP26-2

6.1. ASME Code Component(s) Affected

Unit 1 Pressurizer Heater Belt Shell to Sampling Nozzle Weld, Weld #1-PZR-WP26-2, Summary Number O1.B3.110.0010

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

- Surface 1: Shell - Carbon steel
- Surface 2: Sampling nozzle - Carbon steel
- Diameter: 5.750 in.
- Thickness: 6.187 in.

The ultrasonic examination of this weld obtained 34.7% coverage of the required examination volume. 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 15.4% coverage.
- Base material coverage using 35°, 45°& 60° shear wave for axial scans (S1) and 35°& 45° shear waves for circ. scans (CW, CCW) obtained 54.8% coverage.
- 0° scan coverage obtained 33.9% coverage.
- The aggregate coverage was calculated to be (15.4% + 54.8% + 33.9%)/3 = 34.7%.

The limitation was caused by the design of the sampling nozzle not allowing for scanning from the nozzle side of the weld. In order to scan all of the required volume for this weld, the nozzle would have to be redesigned, which is impractical.

The Oconee 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-E-F-G-H-I. The achieved coverage did not meet the acceptance criteria of this Code Case.

6.5. Proposed Alternative and Basis for Use

No substitution alternative for this weld is available which would provide better coverage.

6.6. Duration of Proposed Alternative

This request is for the duration of the fourth inservice inspection interval, currently scheduled to end on July 15, 2014.

6.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number O1.B3.110.00010 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 provides additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), Reactor Building Normal Sump monitoring provides 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 provides a reasonable assurance of quality and safety.

7.0 Weld #1-51A-1-53755-V1

7.1. ASME Code Component(s) Affected

Unit 1 Letdown Cooler 1B Nozzle to Channel Body Weld, Weld #1-51A-1-53755-V1, Summary Number O1.B3.150.0003

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 B3.150 Figure 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 Letdown Cooler Channel Body to Nozzle material is stainless steel. This weld has a diameter of NPS 3.0 inches and a wall thickness of 0.875 inches.

The ultrasonic examination of this weld obtained 54.6% coverage of the required examination volume. Scanning requirements are described in 10CFR.50.55a(b)(2)(xv) (A)(1). The aggregate coverage was calculated from the following:

Letdown Cooler Nozzle to Channel Body		
Item No. 01.B3.150.0003 / Weld No. 1-51A-1-53755-V1		
Base Material Coverage		
Scan	Radius View	Non-Radius View
Axial	68.2%	52.7%
Circ	65.2%	54.4%
Aggregate @ 68.2 + 52.7 + 65.2 + 54.4 = 240.5/4 = 60.1%		
Weld Material Coverage		
Scan	Radius View	Non-Radius View
Axial-S1	45.9%	26.0%
Axial-S2	0.0%	0.0%
Circ-S2	94.1%	66.3%
Circ-S2	94.1%	66.3%
Aggregate @ 45.9 + 26.0 + 0.0 + 0.0 + 94.1 + 66.3 + 94.1 + 66.3 = 392.7/8 = 49.1%		
Total Aggregate @ 60.1 + 49.1 = 109.2/2 = 54.6%		

The individual scan results are recorded on the table above. The limitation was caused by the weld taper configuration created by the attachment of the nozzle to the channel body. In order to scan all of the required volume for this weld, the nozzle to channel body would have to be redesigned to allow scanning from both sides of the weld, which is impractical. There were no recordable indications found during the examination of this weld. This weld was examined using

procedures and personnel qualified in accordance with ASME Section XI, Appendix III.

The Oconee 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-E-F-G-H-I. The achieved coverage did not meet the acceptance criteria of this Code Case.

7.5. Proposed Alternative and Basis for Use

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

No other substitution alternative for this weld is available which would provide better coverage.

7.6. Duration of Proposed Alternative

This request is for the duration of the fourth inservice inspection interval, currently scheduled to end on July 15, 2014.

7.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number O1.B3.150.0003 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 provides additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), Reactor Building Normal Sump monitoring provides 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 provides a reasonable assurance of quality and safety.

8.0 Weld #1-51A-1-53755-V2

8.1. ASME Code Component(s) Affected

Unit 1 Letdown Cooler 1B Nozzle to Channel Body Weld, Weld #1-51A-1-53755-V2, Summary Number O1.B3.150.0004

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 B3.150 Figure 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 Letdown Cooler Channel Body to Nozzle material is stainless steel. This weld has a diameter of NPS 3.0 inches and a wall thickness of 0.875 inches.

The ultrasonic examination of this weld obtained 54.6% coverage of the required examination volume. Scanning requirements are described in 10CFR.50.55a(b)(2)(xv) (A)(1). The aggregate coverage was calculated from the following:

Letdown Cooler Nozzle to Channel Body		
Item No. 01.B3.150.0004 / Weld No. 1-51A-1-53755-V2		
Base Material Coverage		
Scan	Radius View	Non-Radius View
Axial	68.2%	52.7%
Circ	65.2%	54.4%
Aggregate @ 68.2 + 52.7 + 65.2 + 54.4 = 240.5/4 = 60.1%		
Weld Material Coverage		
Scan	Radius View	Non-Radius View
Axial-S1	45.9%	26.0%
Axial-S2	0.0%	0.0%
Circ-S2	94.1%	66.3%
Circ-S2	94.1%	66.3%
Aggregate @ 45.9 + 26.0 + 0.0 + 0.0 + 94.1 + 66.3 + 94.1 + 66.3 = 392.7/8 = 49.1%		
Total Aggregate @ 60.1 + 49.1 = 109.2/2 = 54.6%		

The individual scan results are recorded on the table above. The limitation was caused by the weld taper configuration created by the attachment of the nozzle to the channel body configuration. In order to scan all of the required volume for this weld, the nozzle to channel body would have to be redesigned to allow scanning from both sides of the weld, which is impractical. There were no recordable indications found during the examination of this weld. This weld was

examined using procedures, equipment, and personnel qualified in accordance with ASME Section XI, Appendix III.

The Oconee 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-E-F-G-H-I. The achieved coverage did not meet the acceptance criteria of this Code Case.

8.5. Proposed Alternative and Basis for Use

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

No other substitution alternative for this weld is available which would provide better coverage.

8.6. Duration of Proposed Alternative

This request is for the duration of the fourth inservice inspection interval, currently scheduled to end on July 15, 2014.

8.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number O1.B3.150.0004 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 provides additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), Reactor Building Normal Sump monitoring provides 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 provides a reasonable assurance of quality and safety.

9.0 Weld #1LP-209-8L

9.1. ASME Code Component(s) Affected

Unit 1 Valve 1CF-13 to Elbow Piping Weld, Weld #1LP-209-8L, Summary Number O1.B9.11.0003

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

IWB-2500, Table IWB-2500-1, Examination Category B-J, Item Number B9.11 Figure IWB-2500-8 (c), 100% Volume Coverage of Examination Volume C-D-E-F

9.4. Impracticality of Compliance

The valve material is cast stainless steel and the elbow material is stainless steel. This weld has a diameter of NPS 14.0 inches and a wall thickness of 1.25 inches.

The ultrasonic examination of this weld obtained 37.500% coverage of the required examination volume. Scanning requirements are described in 10CFR.50.55a(b)(2)(xv) (A)(1). The aggregate coverage was calculated from the following:

- 45° obtained 50% coverage in one axial direction (S1 - elbow)
- 45° obtained 0% coverage in one axial direction (S2 - valve)
- 45° shear waves obtained 50% coverage in one circ. directions (S3 - CW)
- 45° shear waves obtained 50% coverage in one circ. directions (S4 - CCW)
- The aggregate coverage was calculated to be (50% + 0% + 50% + 50%)/4 = 37.500%.

The individual scan results are recorded on the form labeled "Determination of Percent Coverage for UT Examinations – Pipe. The limitation was caused by the cast stainless material and the weld taper configuration created by the attachment of the valve to elbow configuration. In order to scan all of the required volume for this weld, the valve would have to be replaced with forged stainless steel and would have to be redesigned to allow scanning from both sides of the weld, which is impractical. There were no recordable indications found during the examination of this weld. This weld was examined using procedures, equipment, and personnel qualified in accordance with ASME Section XI, Appendix VIII.

The Oconee 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. The achieved coverage did not meet the acceptance criteria of this Code Case.

9.5. Proposed Alternative and Basis for Use

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.

No substitution alternative for this weld is available which would provide better coverage.

9.6. Duration of Proposed Alternative

This request is for the duration of the fourth inservice inspection interval, currently scheduled to end on July 15, 2014.

9.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number O1.B9.11.0003 was conducted using personnel, equipment, and procedures qualified in accordance with ASME Section XI, 1998 Edition with the 2000 Addenda.

In addition to the volumetric examination with limited coverage, Duke performed a surface examination (code required) on this B9.11 item. The result from the surface examination was acceptable.

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 provides additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric, surface, and pressure test), Reactor Building Normal Sump monitoring provides 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 acceptable results of the surface examinations performed during this outage, the pressure testing (VT-2) examinations required by Section XI, and the leakage monitoring, it is Duke's position that the combination of examinations provides a reasonable assurance of quality and safety.

10.0 Weld #1PIA2-9

10.1. ASME Code Component(s) Affected

Unit 1 Reactor Coolant Pump 1A2 Casing Nozzle to Safe-End Piping Weld, Weld #1PIA2-9, Summary Number O1.B9.11.0050

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 Requirement

IWB-2500, Table IWB-2500-1, Examination Category B-J, Item Number B9.11 Figure IWB-2500-8 (c), 100% Volume Coverage of Examination Volume C-D-E-F

10.4. Impracticality of Compliance

The Pump Casing Nozzle material is cast stainless steel and the pipe material is stainless steel. This weld has a diameter of 36.50 inches and a wall thickness of 2.330 inches.

The ultrasonic examination of this weld obtained 36.275% coverage of the required examination volume. Scanning requirements are described in 10CFR.50.55a(b)(2)(xv) (A)(1). The aggregate coverage was calculated from the following:

- 60° shear waves obtained 0% coverage in one axial direction (S1 - nozzle)
- 60° shear waves obtained 45.10% coverage in one axial direction (S2 - pipe)
- 45° shear waves obtained 50% coverage in one circ. directions (S3 - CW)
- 45° shear waves obtained 50% coverage in one circ. directions (S4 - CCW)
- The aggregate coverage was calculated to be (0% + 45.10% + 50% + 50%)/4 = 36.275%.
- In addition, a best effort examination was performed in axial direction (S1) using 60° and 70° longitudinal waves to the extent possible in the upper 2/3 area of interest.

The individual scan results are recorded on the form labeled "Determination of Percent Coverage for UT Examinations – Pipe. The limitation was caused by the cast stainless material and the weld taper configuration created by the attachment of the nozzle to safe end configuration. In order to scan all of the required volume for this weld, the pump would have to be replaced with forged stainless steel and would have to be redesigned to allow scanning from both sides of the weld, which is impractical. There were no recordable indications found during the examination of this weld. This weld was examined using procedures, equipment, and personnel qualified in accordance with ASME Section XI, Appendix VIII.

The Oconee 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. The achieved coverage did not meet the acceptance criteria of this Code Case.

10.5. Proposed Alternative and Basis for Use

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.

No substitution alternative for this weld is available which would provide better coverage.

10.6. Duration of Proposed Alternative

This request is for the duration of the fourth inservice inspection interval, currently scheduled to end on July 15, 2014.

10.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number O1.B9.11.0050 was conducted using personnel, equipment, and procedures qualified in accordance with ASME Section XI, 1998 Edition with the 2000 Addenda.

Duke performed a surface examination (code required) on this B9.11 item. The result from the surface examination was acceptable.

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 provides additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric, surface, and pressure test), Reactor Building Normal Sump monitoring provides 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 acceptable results of the surface examinations performed during this outage, the pressure testing (VT-2) examinations required by Section XI, and the leakage monitoring, it is Duke's position that the combination of examinations provides a reasonable assurance of quality and safety.

11.0 Weld #1PDA2-1

11.1. ASME Code Component(s) Affected

Unit 1 Reactor Coolant Pump 1A2 Casing Nozzle to Safe-End Weld, Weld #1PDA2-1, Summary Number O1.B9.11.0062

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 Requirement

IWB-2500, Table IWB-2500-1, Examination Category B-J, Item Number B9.11 Figure IWB-2500-8 (c), 100% Volume Coverage of Examination Volume C-D-E-F

11.4. Impracticality of Compliance

The Pump Casing Nozzle material is cast stainless steel and the pipe material is stainless steel. This weld has a diameter of 33.50 inches and a wall thickness of 2.33 inches.

The ultrasonic examination of this weld obtained 37.500% coverage of the required examination volume. Scanning requirements are described in 10CFR.50.55a(b)(2)(xv) (A)(1). The aggregate coverage was calculated from the following:

- 45 shear waves obtained 50% coverage in one axial direction (S1 - pipe)
- 45 shear waves obtained 0% coverage in one axial direction (S2 - nozzle)
- 45° shear waves obtained 50% coverage in one circ. directions (S3 - CW)
- 45° shear waves obtained 50% coverage in one circ. directions (S4 - CCW)
- The aggregate coverage was calculated to be (50% + 0% + 50% + 50%)/4 = 37.500%.
- In addition, a best effort examination was performed in axial direction (S1) using 60° and 70° longitudinal waves to the extent possible in the upper 2/3 area of interest.

The individual scan results are recorded on the form labeled "Determination of Percent Coverage for UT Examinations – Pipe. The limitation was caused by the cast stainless material and the weld taper configuration created by the attachment of the nozzle to safe end configuration. In order to scan all of the required volume for this weld, the pump would have to be replaced with forged stainless steel and would have to be redesigned to allow scanning from both sides of the weld, which is impractical. There were no recordable indications found during the examination of this weld. This weld was examined using procedures, equipment, and personnel qualified in accordance with ASME Section XI, Appendix VIII.

The Oconee 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. The achieved coverage did not meet the acceptance criteria of this Code Case.

11.5. Proposed Alternative and Basis for Use

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.

No substitution alternative for this weld is available which would provide better coverage.

11.6. Duration of Proposed Alternative

This request is for the duration of the fourth inservice inspection interval, currently scheduled to end on July 15, 2014.

11.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number O1.B9.11.0062 was conducted using personnel, equipment, and procedures qualified in accordance with ASME Section XI, 1998 Edition with the 2000 Addenda.

In addition to the volumetric examination with limited coverage, Duke performed a surface examination (code required) on this B9.11 item. The result from the surface examination was acceptable.

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 provides additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric, surface, and pressure test), Reactor Building Normal Sump monitoring provides 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 acceptable results of the surface examinations performed during this outage, the pressure testing (VT-2) examinations required by Section XI, and the leakage monitoring, it is Duke's position that the combination of examinations provides a reasonable assurance of quality and safety.

12.0 Weld #1-53A-02-65L

12.1. ASME Code Component(s) Affected

Unit 1 Pipe to Valve 1LP-47 Weld, Weld #1-53A-02-65L, Summary Number O1.C5.11.0028

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 Requirement

IWC-2500, Table IWC-2500-1, Examination Category C-F-1, Item Number C5.11 Figure IWC-2500-7(a), 100% Volume Coverage of Examination Volume C-D-E-F

12.4. Impracticality of Compliance

The valve material is cast stainless steel and the pipe material is stainless steel. This weld has a diameter of NPS 10.0 inches and a wall thickness of 1.125 inches.

During the ultrasonic examination of this weld, 37.50% coverage of the required examination volume was obtained. 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 – pipe)
- 45° shear waves obtained 50% coverage in one circ. direction (S3 – CW)
- 45° shear 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 replaced with forged stainless steel, which is impractical. There were no recordable indications found during the examination of this weld.

The Oconee 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.

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.

No substitution alternative for this weld is available which would provide better coverage.

12.6. Duration of Proposed Alternative

This request is for the duration of the fourth inservice inspection interval, currently scheduled to end on July 15, 2014.

12.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number O1.C5.11.0028 was conducted using personnel, equipment, and procedures qualified in accordance with ASME Section XI, 1998 Edition with the 2000 Addenda.

In addition to the volumetric examination with limited coverage, Duke performed a surface examination (code required) on this C5.11 item. The result from the surface examination was acceptable.

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 provides additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric, surface, and pressure test), Reactor Building Normal Sump monitoring provides 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 acceptable results of the surface examinations performed during this outage, the pressure testing (VT-2) examinations required by Section XI, and the leakage monitoring, it is Duke's position that the combination of examinations provides a reasonable assurance of quality and safety.

13.0 Weld #1-51A-04-1C

13.1. ASME Code Component(s) Affected

Unit 1 Pipe to Valve 1HP-194 Weld, Weld #1-51A-04-1C, Summary Number O1.C5.21.0004

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 Requirement

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

13.4. Impracticality of Compliance

The valve material is forged stainless steel and the pipe material is stainless steel seamless pipe. This weld has a diameter of NPS 4.0 inches and a wall thickness of .674 inches.

- 45° shear waves obtained 50% coverage in one axial direction (S1 - pipe)
- 45° shear waves obtained 0% coverage in one axial direction (S2 - valve)
- 38° shear waves obtained 50% coverage in one circ direction (S3 - CW)
- 38° shear 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, which is impractical.

The Oconee 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.

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.

No substitution alternative for this weld is available which would provide better coverage.

13.6. Duration of Proposed Alternative

This request is for the duration of the fourth inservice inspection interval, currently scheduled to end on July 15, 2014.

13.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number O1.C5.21.0004 was conducted using personnel, equipment, and procedures qualified in accordance with ASME Section XI, 1998 Edition with the 2000 Addenda.

In addition to the volumetric examination with limited coverage, Duke performed a surface examination (code required) on this C5.21 item. The result from the surface examination was acceptable.

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 provides additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric, surface, and pressure test), Reactor Building Normal Sump monitoring provides 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 acceptable results of the surface examinations performed during this outage, the pressure testing (VT-2) examinations required by Section XI, and the leakage monitoring, it is Duke's position that the combination of examinations provides a reasonable assurance of quality and safety.

14.0 Weld #1HP-387-118A

14.1. ASME Code Component(s) Affected

Unit 1 Elbow to Valve 1HP-118 Weld, Weld #1HP-387-118A, Summary Number O1.C5.21.0027

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 Requirement

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

14.4. Impracticality of Compliance

The valve material is forged stainless steel and the elbow material is stainless steel seamless pipe. This weld has a diameter of NPS 4.0 inches and a wall thickness of .531 inches.

During the ultrasonic examination of this weld, 75% coverage of the required examination volume was obtained. Scanning requirements are described in 10CFR.50.55a(b)(2)(xv)(A)(1). The aggregate coverage was calculated as follows:

- 60° shear waves obtained 100% coverage in one axial direction (S1 – pipe)
- 60° shear waves obtained 100% coverage in one axial direction (S2 – valve)
- 45° shear waves obtained 50% coverage in one circ. direction (S3 – CW)
- 45° shear waves obtained 50% coverage in one circ. direction (S4 – CCW)
- The aggregate coverage was calculated to be (100% +100% +50% + 50%)/4 = 75%

In order to scan all of the required volume for this weld, the valve would have to be redesigned. There were no recordable indications found during the examination of this weld.

The Oconee 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.

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.

No substitution alternative for this weld is available which would provide better coverage.

14.6. Duration of Proposed Alternative

This request is for the duration of the fourth inservice inspection interval, currently scheduled to end on July 15, 2014.

14.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number O1.C5.21.0027 was conducted using personnel, equipment, and procedures qualified in accordance with ASME Section XI, 1998 Edition with the 2000 Addenda.

In addition to the volumetric examination with limited coverage, Duke performed a surface examination (code required) on this C5.21 item. The result from the surface examination was acceptable.

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 provides additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric, surface, 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 acceptable results of the surface examinations performed during this outage, the pressure testing (VT-2) examinations required by Section XI, and the leakage monitoring, it is Duke's position that the combination of examinations provides a reasonable assurance of quality and safety.

15.0 Weld #1HP-193-17

15.1. ASME Code Component(s) Affected

Unit 1 Pipe to Tee Weld, Weld #1HP-193-17, Summary Number O1.C5.21.0040

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 Requirement

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

15.4. Impracticality of Compliance

The pipe and tee material is stainless steel. This weld has a diameter of NPS 2.5 inches and a wall thickness of .375 inches.

During the ultrasonic examination of this weld, 37.50% coverage of the required examination volume was obtained. 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 – tee)
- 45° shear waves obtained 50% coverage in one circ. direction (S3 – CW)
- 45° shear 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 tee would have to be redesigned, which is impractical. There were no recordable indications found during the examination of this weld.

The Oconee 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.

15.5. 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.

No substitution alternative for this weld is available which would provide better coverage.

15.6. Duration of Proposed Alternative

This request is for the duration of the fourth inservice inspection interval, currently scheduled to end on July 15, 2014.

15.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number O1.C5.21.0040 was conducted using personnel, equipment, and procedures qualified in accordance with ASME Section XI, 1998 Edition with the 2000 Addenda.

In addition to the volumetric examination with limited coverage, Duke performed a surface examination (code required) on this C5.21 item. The result from the surface examination was acceptable.

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 provides additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric, surface, 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 acceptable results of the surface examinations performed during this outage, the pressure testing (VT-2) examinations required by Section XI, and the leakage monitoring, it is Duke's position that the combination of examinations provides a reasonable assurance of quality and safety.

16.0 Weld #1-51A-02-16BH

16.1. ASME Code Component(s) Affected

Unit 1 Pipe to Flange Weld, Weld #1-51A-02-16BH, Summary Number O1.C5.21.0051

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 Requirement

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

16.4. Impracticality of Compliance

The pipe to flange material is stainless steel. This weld has a diameter of NPS 4.0 inches and a wall thickness of .531 inches.

- 60° shear waves obtained 0% coverage in one axial direction (S1 - flange)
- 60° shear waves obtained 50% coverage in one axial direction (S2 - pipe)
- 45° shear waves obtained 50% coverage in one axial direction (S3 - CW)
- 45° shear waves obtained 50% coverage in one axial direction (S4 - CCW)
- The limitation was caused by the taper on the flange side of the weld.
- 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 flange would have to be redesigned, which is impractical.

The Oconee 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.

16.5. 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.

No substitution alternative for this weld is available which would provide better coverage.

16.6. Duration of Proposed Alternative

This request is for the duration of the fourth inservice inspection interval, currently scheduled to end on July 15, 2014.

16.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number O1.C5.21.0051 was conducted using personnel, equipment, and procedures qualified in accordance with ASME Section XI, 1998 Edition with the 2000 Addenda.

In addition to the volumetric examination with limited coverage, Duke performed a surface examination (code required) on this C5.21 item. The result from the surface examination was acceptable.

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 provides additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric, surface, 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 acceptable results of the surface examinations performed during this outage, the pressure testing (VT-2) examinations required by Section XI, and the leakage monitoring, it is Duke's position that the combination of examinations provides a reasonable assurance of quality and safety.

17.0 Weld #1HP-0187-184

17.1. ASME Code Component(s) Affected

Unit 1 Pipe to Valve 1HP140 Weld, Weld #1HP-0187-184, 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 Requirement

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

17.4. Impracticality of Compliance

The valve material is cast stainless steel and the pipe material is stainless steel seamless pipe. This weld has a diameter of NPS 4.0 inches and a wall thickness of .531 inches.

During the ultrasonic examination of this weld, 37.5% coverage of the required examination volume was obtained. 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 waves obtained 50% coverage in one circ. direction (S3 – CW)
- 45° shear 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. There were no recordable indications found during the examination of this weld.

The Oconee 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.

17.5. 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.

No substitution alternative for this weld is available which would provide better coverage.

17.6. Duration of Proposed Alternative

This request is for the duration of the fourth inservice inspection interval, currently scheduled to end on July 15, 2014.

17.7. Justification for Granting Relief

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

In addition to the volumetric examination with limited coverage, Duke performed a surface examination (code required) on this C5.21 item. The result from the surface examination was acceptable.

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 provides additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric, surface, 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 acceptable results of the surface examinations performed during this outage, the pressure testing (VT-2) examinations required by Section XI, and the leakage monitoring, it is Duke's position that the combination of examinations provides a reasonable assurance of quality and safety.

18.0 Weld #1HP-0187-185

18.1. ASME Code Component(s) Affected

Unit 1 Pipe to Valve 1HP139 Weld, Weld #1HP-0187-185, Summary Number PSI

18.2. Applicable Code Edition and Addenda

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

18.3. Applicable Code Requirement

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

18.4. Impracticality of Compliance

The valve material is forged stainless steel and the pipe material is stainless steel seamless pipe. This weld has a diameter of NPS 4.0 inches and a wall thickness of .531 inches.

During the ultrasonic examination of this weld, 37.5% coverage of the required examination volume was obtained. Scanning requirements are described in 10CFR.50.55a(b)(2)(xv)(A)(1). The aggregate coverage was calculated as follows:

- 60° shear waves obtained 0% coverage in one axial direction (S1 – valve)
- 60° shear waves obtained 50% coverage in one axial direction (S2 – pipe)
- 45° shear waves obtained 50% coverage in one circ. direction (S3 – CW)
- 45° shear 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. There were no recordable indications found during the examination of this weld.

The Oconee 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.

18.5. 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.

No substitution alternative for this weld is available which would provide better coverage.

18.6. Duration of Proposed Alternative

This request is for the duration of the fourth inservice inspection interval, currently scheduled to end on July 15, 2014.

18.7. Justification for Granting Relief

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

In addition to the volumetric examination with limited coverage, Duke performed a surface examination (code required) on this C5.21 item. The result from the surface examination was acceptable.

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 provides additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric, surface, 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 acceptable results of the surface examinations performed during this outage, the pressure testing (VT-2) examinations required by Section XI, and the leakage monitoring, it is Duke's position that the combination of examinations provides a reasonable assurance of quality and safety.

19.0 Weld #2-PZR-WP34

19.1. ASME Code Component(s) Affected

Unit 2 Pressurizer Upper Head to Spray Nozzle Weld, Weld #2-PZR-WP34, Summary Number O2.B3.110.0002

19.2. Applicable Code Edition and Addenda

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

19.3. 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

19.4. Impracticality of Compliance

Component:

- Surface 1: Upper Head - Carbon steel
- Surface 2: Spray nozzle - Carbon steel
- Diameter: 7.750 in.
- Thickness: 4.750 in.

Scan requirements are described in 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. The aggregate coverage was calculated from the following base and weld metal scan results:

- Base material coverage provided an aggregate coverage of 77.1%
- Weld metal coverage provided an aggregate coverage of 75.0%
- The total obtained aggregate coverage was (77.1 + 75.0 = 152.1)/2 = 76.1%

The limitation was caused by the design of the spray nozzle not allowing for scanning from the nozzle side of the weld. In order to scan all of the required volume for this weld, the spray nozzle would have to be redesigned, which is impractical.

The Oconee 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-E-F-G-H-I. Therefore, the available coverage will not meet the acceptance criteria of this Code Case.

19.5. Proposed Alternative and Basis for Use

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

No other substitution alternative for this weld is available which would provide better coverage.

19.6. Duration of Proposed Alternative

This request is for the duration of the fourth inservice inspection interval, currently scheduled to end on July 15, 2014

19.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number O2.B3.110.0002 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 provides additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), Reactor Building Normal Sump monitoring provides 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 provides a reasonable assurance of quality and safety.

20.0 Weld #2-PZR-WP33-3

20.1. ASME Code Component(s) Affected

Unit 2 Pressurizer Upper Head to Relief Nozzle Weld, Weld #2-PZR-WP33-3, Summary Number O2.B3.110.0003

20.2. Applicable Code Edition and Addenda

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

20.3. 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

20.4. Impracticality of Compliance

Component:

- Surface 1: Upper Head - Carbon steel
- Surface 2: Relief nozzle - Carbon steel
- Diameter: 6.875 in.
- Thickness: 4.750 in.

Scan requirements are described in 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. The aggregate coverage was calculated from the following base and weld metal scan results:

- Base material coverage provided an aggregate coverage of 69.3%
- Weld metal coverage provided an aggregate coverage of 73.1%
- The total obtained aggregate coverage was (69.3 + 73.1 = 142.4)/2 = 71.2%

The limitation was caused by the design of the relief nozzle not allowing for scanning from the nozzle side of the weld. In order to scan all of the required volume for this weld, the relief nozzle would have to be redesigned, which is impractical.

The Oconee 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-E-F-G-H-I. Therefore, the available coverage will not meet the acceptance criteria of this Code Case.

20.5. Proposed Alternative and Basis for Use

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

No other substitution alternative for this weld is available which would provide better coverage.

20.6. Duration of Proposed Alternative

This request is for the duration of the fourth inservice inspection interval, currently scheduled to end on July 15, 2014

20.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number O2.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 provides additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), Reactor Building Normal Sump monitoring provides 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 provides a reasonable assurance of quality and safety.

21.0 Weld #2-PZR-WP33-1

21.1. ASME Code Component(s) Affected

Unit 2 Pressurizer Upper Head to Relief Nozzle Weld, Weld #2-PZR-WP33-1, Summary Number O2.B3.110.0005

21.2. Applicable Code Edition and Addenda

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

21.3. 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

21.4. Impracticality of Compliance

Component:

- Surface 1: Upper Head - Carbon steel
- Surface 2: Relief nozzle - Carbon steel
- Diameter: 6.875 in.
- Thickness: 4.750 in.

Scan requirements are described in 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. The aggregate coverage was calculated from the following base and weld metal scan results:

- Base material coverage provided an aggregate coverage of 69.3%
- Weld metal coverage provided an aggregate coverage of 73.1%
- The total obtained aggregate coverage was (69.3 + 73.1 = 142.2)/2 = 71.2%

The limitation was caused by the design of the relief nozzle not allowing for scanning from the nozzle side of the weld. In order to scan all of the required volume for this weld, the relief nozzle would have to be redesigned, which is impractical.

The Oconee 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-E-F-G-H-I. Therefore, the available coverage will not meet the acceptance criteria of this Code Case.

21.5. Proposed Alternative and Basis for Use

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

No other substitution alternative for this weld is available which would provide better coverage.

21.6. Duration of Proposed Alternative

This request is for the duration of the fourth inservice inspection interval, currently scheduled to end on July 15, 2014

21.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number O2.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 provides additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), Reactor Building Normal Sump monitoring provides 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 provides a reasonable assurance of quality and safety.

22.0 Weld #2-PIA1-8

22.1. ASME Code Component(s) Affected

Unit 2 Reactor Coolant Pump 2A1 Casing Nozzle to Safe-End Piping Weld, Weld #2-PIA1-8, Summary Number O2.B9.11.0046

22.2. Applicable Code Edition and Addenda

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

22.3. Applicable Code Requirement

IWB-2500, Table IWB-2500-1, Examination Category B-J, Item Number B9.11 Figure IWB-2500-8 (c), 100% Volume Coverage of Examination Volume C-D-E-F

22.4. Impracticality of Compliance

Component configuration:

- Surface 1: Cast stainless steel pump casing
- Surface 2: Stainless steel safe end
- NPS: 33.50 in.
- Thickness: 2.330 in.

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

- 60° shear waves obtained 0.0% coverage in one axial direction (S1 - pump casing)
- 60° shear waves obtained 50% coverage in one axial direction (S2 - safe end)
- 45° shear waves obtained 50% coverage in one circ. direction (CW).
- 45° shear waves obtained 50% coverage in one circ. direction (CCW).
- The aggregate coverage was calculated to be (0.0% + 50.0% + 50% + 50%)/4 = 37.5%.
- In addition, a best effort examination was performed using 60° and 70° longitudinal waves to the extent possible from the cast stainless side in the upper 2/3 area of interest.

The limitation was caused by the cast stainless steel pump casing material. In order to scan all of the required volume for this weld, the pump casing would have to be redesigned, which is impractical.

The Oconee 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.

22.5. Proposed Alternative and Basis for Use

This weld was examined using procedures, equipment, and personnel qualified in accordance with ASME Section XI, Appendix VIII. 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 service induced flaws. Additionally, radiography has not been qualified through performance demonstration.

22.6. Duration of Proposed Alternative

This request is for the duration of the fourth inservice inspection interval, currently scheduled to end on July 15, 2014

22.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number O2.B9.11.0046 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 provides additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), Reactor Building Normal Sump monitoring provides 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 provides a reasonable assurance of quality and safety.

23.0 Weld #2-PDA2-1

23.1. ASME Code Component(s) Affected

Unit 2 Reactor Coolant Pump 2A2 Casing Nozzle to Safe-End Piping Weld, Weld #2-PDA2-1, Summary Number O2.B9.11.0053

23.2. Applicable Code Edition and Addenda

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

23.3. Applicable Code Requirement

IWB-2500, Table IWB-2500-1, Examination Category B-J, Item Number B9.11 Figure IWB-2500-8 (c), 100% Volume Coverage of Examination Volume C-D-E-F

23.4. Impracticality of Compliance

Component configuration:

- Surface 1: Stainless steel safe end
- Surface 2: Cast stainless steel pump casing
- NPS: 33.50 in.
- Thickness: 2.330 in.

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

- 60° shear waves obtained 54.8% coverage in one axial direction (S1 - safe end)
- 60° shear waves obtained 0.0% coverage in one axial direction (S2 - pump casing)
- 45° shear waves obtained 50% coverage in one circ. direction (CW).
- 45° shear waves obtained 50% coverage in one circ. direction (CCW).
- The aggregate coverage was calculated to be (54.8% + 0.0% + 50% + 50%)/4 = 38.7%.
- In addition, a best effort examination was performed using 60° and 70° longitudinal waves to the extent possible from the cast stainless side in the upper 2/3 area of interest.

The limitation was caused by the pump casing material. In order to scan all of the required volume for this weld, the pump casing would have to be redesigned, which is impractical.

The Oconee 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.

23.5. Proposed Alternative and Basis for Use

This weld was examined using procedures, equipment, and personnel qualified in accordance with ASME Section XI, Appendix VIII. 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 service induced flaws. Additionally, radiography has not been qualified through performance demonstration.

23.6. Duration of Proposed Alternative

This request is for the duration of the fourth inservice inspection interval, currently scheduled to end on July 15, 2014

23.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number O2.B9.11.0053 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 provides additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), Reactor Building Normal Sump monitoring provides 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 provides a reasonable assurance of quality and safety.

24.0 Weld #2-PDB2-1

24.1. ASME Code Component(s) Affected

Unit 2 Reactor Coolant Pump 2B2 Casing Nozzle to Safe-End Piping Weld, Weld #2-PDB2-1, Summary Number O2.B9.11.0063

24.2. Applicable Code Edition and Addenda

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

24.3. Applicable Code Requirement

IWB-2500, Table IWB-2500-1, Examination Category B-J, Item Number B9.11 Figure IWB-2500-8 (c), 100% Volume Coverage of Examination Volume C-D-E-F

24.4. Impracticality of Compliance

Component configuration:

- Surface 1: Stainless steel safe end
- Surface 2: Cast stainless steel pump casing
- NPS: 33.50 in.
- Thickness: 2.330 in.

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

- 60° shear waves obtained 58% coverage in one axial direction (S1 - safe end)
- 60° shear waves obtained 0.0% coverage in one axial direction (S2 - pump casing)
- 45° shear waves obtained 50% coverage in one circ. direction (CW).
- 45° shear waves obtained 50% coverage in one circ. direction (CCW).
- The aggregate coverage was calculated to be (58.0% + 0.0% + 50% + 50%)/4 = 39.5%.
- In addition, a best effort examination was performed using 60° and 70° longitudinal waves to the extent possible from the cast stainless side in the upper 2/3 area of interest.

The limitation was caused by the pump casing material. In order to scan all of the required volume for this weld, the pump casing would have to be redesigned, which is impractical.

The Oconee 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.

24.5. Proposed Alternative and Basis for Use

This weld was examined using procedures, equipment, and personnel qualified in accordance with ASME Section XI, Appendix VIII. 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 service induced flaws. Additionally, radiography has not been qualified through performance demonstration.

24.6. Duration of Proposed Alternative

This request is for the duration of the fourth inservice inspection interval, currently scheduled to end on July 15, 2014

24.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number O2.B9.11.0063 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 provides additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), Reactor Building Normal Sump monitoring provides 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 provides a reasonable assurance of quality and safety.

25.0 Weld #2LP-215-27

25.1. ASME Code Component(s) Affected

Unit 2 Pipe to Valve 2LP-177 Weld, Weld #2LP-215-27, Summary Number O2.C5.11.0038

25.2. Applicable Code Edition and Addenda

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

25.3. Applicable Code Requirement

IWC-2500, Table IWC-2500-1, Examination Category C-F-1, Item Number C5.11 Figure IWC-2500-7(a), 100% Volume Coverage of Examination Volume C-D-E-F

25.4. Impracticality of Compliance

Component configuration:

- Surface 1: Forged stainless steel valve
- Surface 2: Stainless steel pipe
- NPS: 10.0 in.
- Thickness: 1.0 in.

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

- 60° shear waves obtained 100% coverage in one axial direction (S1 - valve)
- 45° shear waves obtained 99.4% coverage in one axial direction (S2 - pipe)
- 45° shear waves obtained 50% coverage in one circ. direction (CW).
- 45° shear waves obtained 50% coverage in one circ. direction (CCW).
- The aggregate coverage was calculated to be (100.0% + 99.4% + 50% + 50%)/4 = 74.9%.

The limitation was caused by the taper of the valve body, and a weld-o-let. In order to scan all of the required volume for this weld, the valve would have to be redesigned, which is impractical.

The Oconee 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.

25.5. Proposed Alternative and Basis for Use

This weld was examined using procedures, equipment, and personnel qualified in accordance with ASME Section XI, Appendix VIII. 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 service induced flaws. Additionally, radiography has not been qualified through performance demonstration.

25.6. Duration of Proposed Alternative

This request is for the duration of the fourth inservice inspection interval, currently scheduled to end on July 15, 2014

25.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number O2.C5.11.0038 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 provides additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), Reactor Building Normal Sump monitoring provides 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 provides a reasonable assurance of quality and safety.

26.0 Weld #2HP-341-V1

26.1. ASME Code Component(s) Affected

Unit 2 Pipe to Valve 2HP-120 Weld, Weld #2HP-341-V1, Summary Number O2.C5.21.0035

26.2. Applicable Code Edition and Addenda

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

26.3. Applicable Code 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

26.4. Impracticality of Compliance

Component configuration:

- Surface 1: Forged stainless steel valve
- Surface 2: Stainless steel pipe
- NPS: 2.5 in.
- Thickness: 0.375 in.

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

- 60° shear waves obtained 0.0% coverage in one axial direction (S1 - valve)
- 60° shear waves obtained 50% coverage in one axial direction (S2 - pipe)
- 45° shear waves obtained 100% coverage in one circ. direction (CW).
- 45° shear waves obtained 100% coverage in one circ. direction (CCW).
- The aggregate coverage was calculated to be (0.0% + 50% + 100% + 100%)/4 = 62.5%.

The limitation was caused by the taper of the valve body. In order to scan all of the required volume for this weld, the valve would have to be redesigned, which is impractical.

The Oconee 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.

26.5. Proposed Alternative and Basis for Use

This weld was examined using procedures, equipment, and personnel qualified in accordance with ASME Section XI, Appendix VIII. 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 service induced flaws. Additionally, radiography has not been qualified through performance demonstration.

26.6. Duration of Proposed Alternative

This request is for the duration of the fourth inservice inspection interval, currently scheduled to end on July 15, 2014

26.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number O2.C5.21.0035 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 provides additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric, surface, 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 acceptable results of the surface examinations performed during this outage, the pressure testing (VT-2) examinations required by Section XI, and the leakage monitoring, it is Duke's position that the combination of examinations provides a reasonable assurance of quality and safety.

27.0 Weld #2-51A-0029-94

27.1. ASME Code Component(s) Affected

Unit 2 Pipe to Valve 2HP-139 Weld, Weld #2-51A-0029-94, PSI

27.2. Applicable Code Edition and Addenda

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

27.3. Applicable Code Requirement

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

27.4. Impracticality of Compliance

Component configuration:

- Surface 1: Forged stainless steel valve
- Surface 2: Stainless steel pipe
- NPS: 4.0 in.
- Thickness: 0.531 in.

Scanning requirements are described in 10CFR.50.55a(b)(2)(xv) (A)(1). The aggregate coverage was calculated from the following data:

- 60° shear waves obtained 0.0% coverage in one axial direction (S1 - valve)
- 60° shear waves obtained 50% coverage in one axial direction (S2 - pipe)
- 45° shear waves obtained 50% coverage in one circ. direction (CW).
- 45° shear waves obtained 50% coverage in one circ. direction (CCW).
- The aggregate coverage was calculated to be (0.0% + 50% + 50% + 50%)/4 = 37.5%.

The limitation was caused by the taper of the valve body. In order to scan all of the required volume for this weld, the valve would have to be redesigned, which is impractical.

The Oconee 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.

27.5. Proposed Alternative and Basis for Use

This weld was examined using procedures, equipment, and personnel qualified in accordance with ASME Section XI, Appendix VIII. 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 service induced flaws. Additionally, radiography has not been qualified through performance demonstration.

27.6. Duration of Proposed Alternative

This request is for the duration of the fourth inservice inspection interval, currently scheduled to end on July 15, 2014

27.7. Justification for Granting Relief

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

In addition to the volumetric examination with limited coverage, Duke performed a surface examination (code required) on this PSI item. The result from the surface examination was acceptable.

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 provides additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric, surface, 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 acceptable results of the surface examinations performed during this outage, the pressure testing (VT-2) examinations required by Section XI, and the leakage monitoring, it is Duke's position that the combination of examinations provides a reasonable assurance of quality and safety.

28.0 Weld #2-HP-0396-23

28.1 ASME Code Component(s) Affected

Unit 2 Pipe to Valve 2HP-140 Weld, Weld #2-HP-0396-23, PSI

28.2 Applicable Code Edition and Addenda

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

28.3 Applicable Code Requirement

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

28.4 Impracticality of Compliance

Component configuration:

- Surface 1: Cast stainless steel valve
- Surface 2: Stainless steel pipe
- NPS: 4.0 in.
- Thickness: 0.531 in.

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

- 60° shear waves obtained 0.0% coverage in one axial direction (S1 - valve)
- 60° shear waves obtained 50% coverage in one axial direction (S2 - pipe)
- 45° shear waves obtained 50% coverage in one circ. direction (CW).
- 45° shear waves obtained 50% coverage in one circ. direction (CCW).
- The aggregate coverage was calculated to be (0.0% + 50% + 50% + 50%)/4 = 37.5%.

The limitation was caused by the valve material and taper of the body. In order to scan all of the required volume for this weld, the valve would have to be redesigned, which is impractical.

The Oconee 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.

28.5 Proposed Alternative and Basis for Use

This weld was examined using procedures, equipment, and personnel qualified in accordance with ASME Section XI, Appendix VIII. 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 service induced flaws. Additionally, radiography has not been qualified through performance demonstration.

28.6 Duration of Proposed Alternative

This request is for the duration of the fourth inservice inspection interval, currently scheduled to end on July 15, 2014

28.7 Justification for Granting Relief

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

In addition to the volumetric examination with limited coverage, Duke performed a surface examination (code required) on this PSI item. The result from the surface examination was acceptable.

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 provides additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric, surface, 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 acceptable results of the surface examinations performed during this outage, the pressure testing (VT-2) examinations required by Section XI, and the leakage monitoring, it is Duke's position that the combination of examinations provides a reasonable assurance of quality and safety.

ATTACHMENT A
PAGE 1 OF 112

Duke Energy

UT Vessel Examination

Site/Unit: Oconee / 1 | Procedure: NDE-820 | Outage No.: O1-25
Summary No.: O1.B3.110.0006 | Procedure Rev.: 4 | Report No.: UT-09-323
Workscope: ISI | Work Order No.: 01846474 | Page: 1 of 2

Code: 1998/2000A | Cat./Item: B-D /B3.110 | Location:
Drawing No.: ISI-OCN1-002 | Description: Nozzle to Shell
System ID: 50
Component ID: 1-PZR-WP26-4 | Size/Length: N/A | Thickness/Diameter: 6.187/5.75/CS
Limitations: Due to nozzle configuration- see supplemental sheet | Start Time: 0835 | Finish Time: 1135

Examination Surface: Inside ☐ Outside ☑ | Surface Condition: GROUND SMOOTH
Lo Location: 9.2.3 | Wo Location: Centerline of Weld | Couplant: ULTRAGEL II | Batch No.: 09125
Temp. Tool Mfg.: FISHER | Serial No.: MCNDE32768 | Surface Temp.: 67 °F
Cal. Report No.: CAL-09-411, 412, 413 & 414

Angle Used	0	45	45T	60	60T	60RL
Scanning dB		57.6	57.6	71.8	71.8	72

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

Comments:
35° - 57.8 db; 35T° - 57.8 db
Additional Examiner - Dave Griebel, Level II, 10/28/09

Results: Accept ☐ Reject ☑ Info ☐ | Additional Examiner - John C. Day, Level II, 10/28/09
Percent Of Coverage Obtained > 90%: No | Reviewed Previous Data: Yes

Examiner Hollis, Jacob	Level II-N	Signature	Date 10/28/2009	Reviewer		Signature	Date 11-9-09
Examiner Dean, Steven	Level II-N	Signature	Date 10/28/2009	Site Review N/A		Signature	Date
Other N/A	Level N/A	Signature	Date	ANII Review		Signature	Date 11/9/09

DUKE POWER COMPANY
ISI LIMITATION REPORT

UT-09-323

Component/Weld ID: 1-PZR-WP26-4 **Item No:** O1.B3.110.0006

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 -1" to Beyond
ANGLE: ☒ 0 ☒ 45 ☒ 60 other * FROM 0 DEG to 360 DEG

*35 & 60RL angles
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 4 INCHES FROM W0 _____ to _____
ANGLE: ☐ 0 ☐ 45 ☐ 60 other _____ FROM _____ DEG to _____ DEG

Sketch(s) attached
☒ yes ☐ No

Prepared By: Jacob Hollis Jacob R. Hollis Level: II Date: 10/28/09 Sheet 2 2

Reviewed By: Barry Marks Date: 11-4-09 Authorized Inspector: [signature] Date: 11/5/09

ATTACHMENT A
PAGE 3 OF 12

PZR Sampling Nozzle to Shell % of Coverage

Item No. : 01.B3.110.0006 Weld No. : WP26-4

Weld Coverage

Scan	Angle	% Coverage Obtained
S1	35°,45° & 60°	61.46
S2	35°,45° & 60°	0
CW	35° & 45°	0
CCW	35° & 45°	0
	Total	61.46

61.46 ÷ 4 = **15.4** % Coverage

Base Material Coverage

S1	35°,45° & 60°	67.2
CW & CCW	45°&35°	42.4
	Total	109.6

109.6 ÷ 2 = **54.8** % Coverage

0° Scan Coverage = **33.9** % Coverage

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

= **34.7** **% Coverage**

Inspector / Date : David K. Z 10/29/09

ATTACHMENT TO REPORT UT-09-323
Page 1 of 6

Pressurizer Sampling Nozzle to Shell

Item No. : 01.B3.110.0006

Weld No. : WP26-4

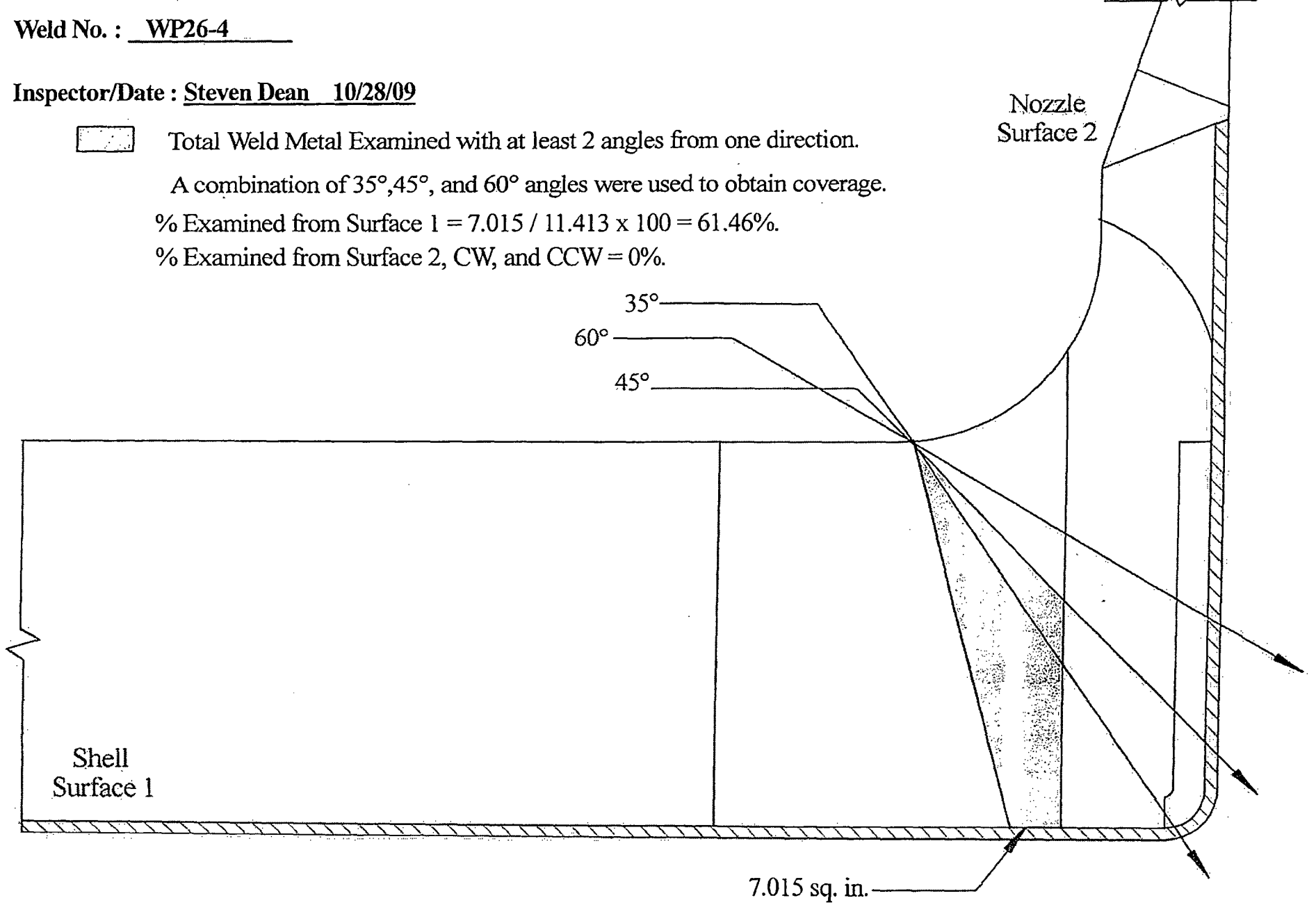
Inspector/Date : Steven Dean 10/28/09

Total Weld Metal Examined with at least 2 angles from one direction.

A combination of 35°,45°, and 60° angles were used to obtain coverage.

% Examined from Surface 1 = 7.015 / 11.413 x 100 = 61.46%.

% Examined from Surface 2, CW, and CCW = 0%.



ATTACHMENT A
PAGE 5 OF 12

Pressurizer Sampling Nozzle to Shell

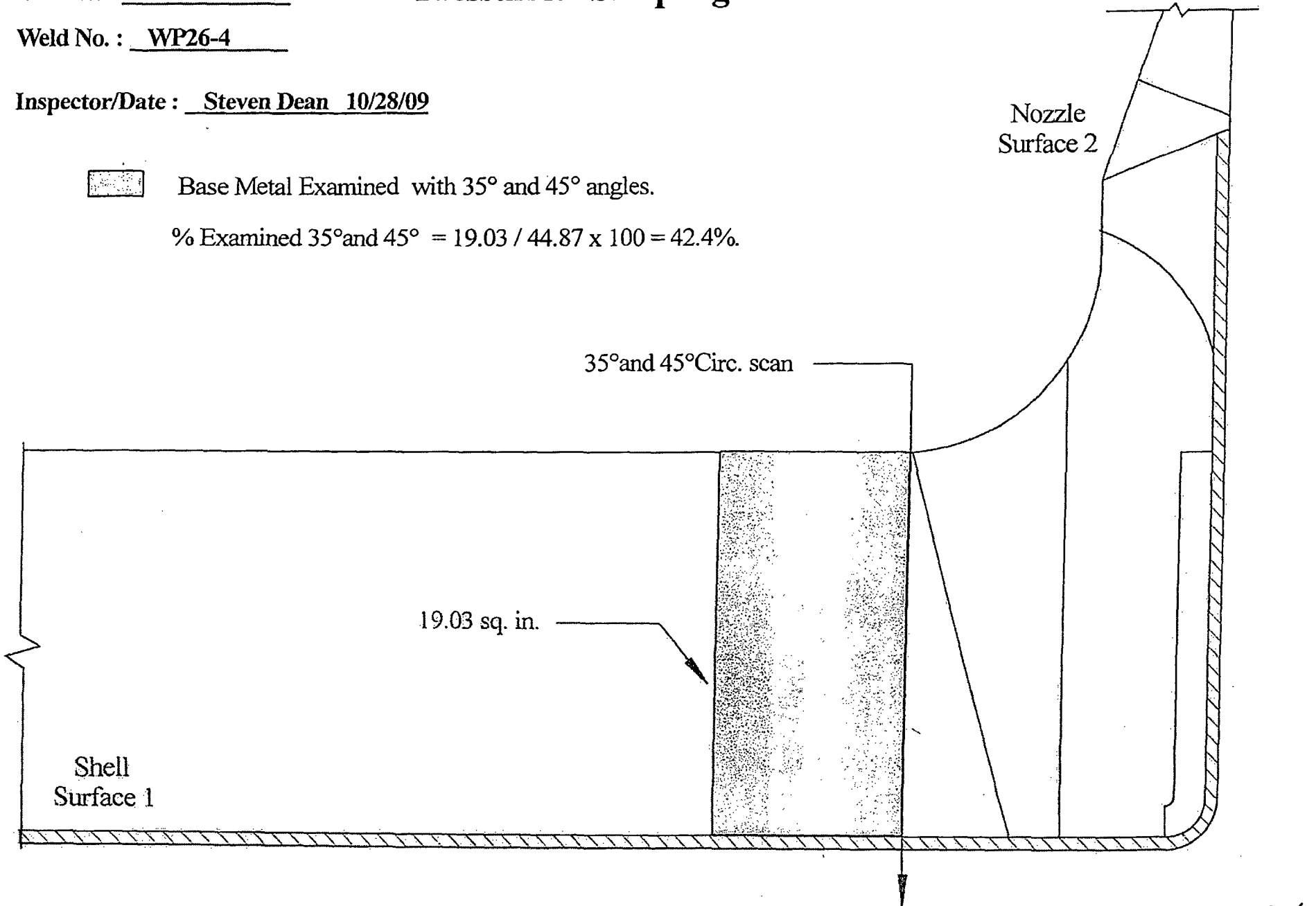
Item No. : 01.B3.110.0006

Weld No. : WP26-4

Inspector/Date : Steven Dean 10/28/09

Base Metal Examined with 35° and 45° angles.

% Examined 35°and 45° = 19.03 / 44.87 x 100 = 42.4%.



ATTACHMENT A
PAGE 6 OF 12

Pressurizer Sampling Nozzle to Shell

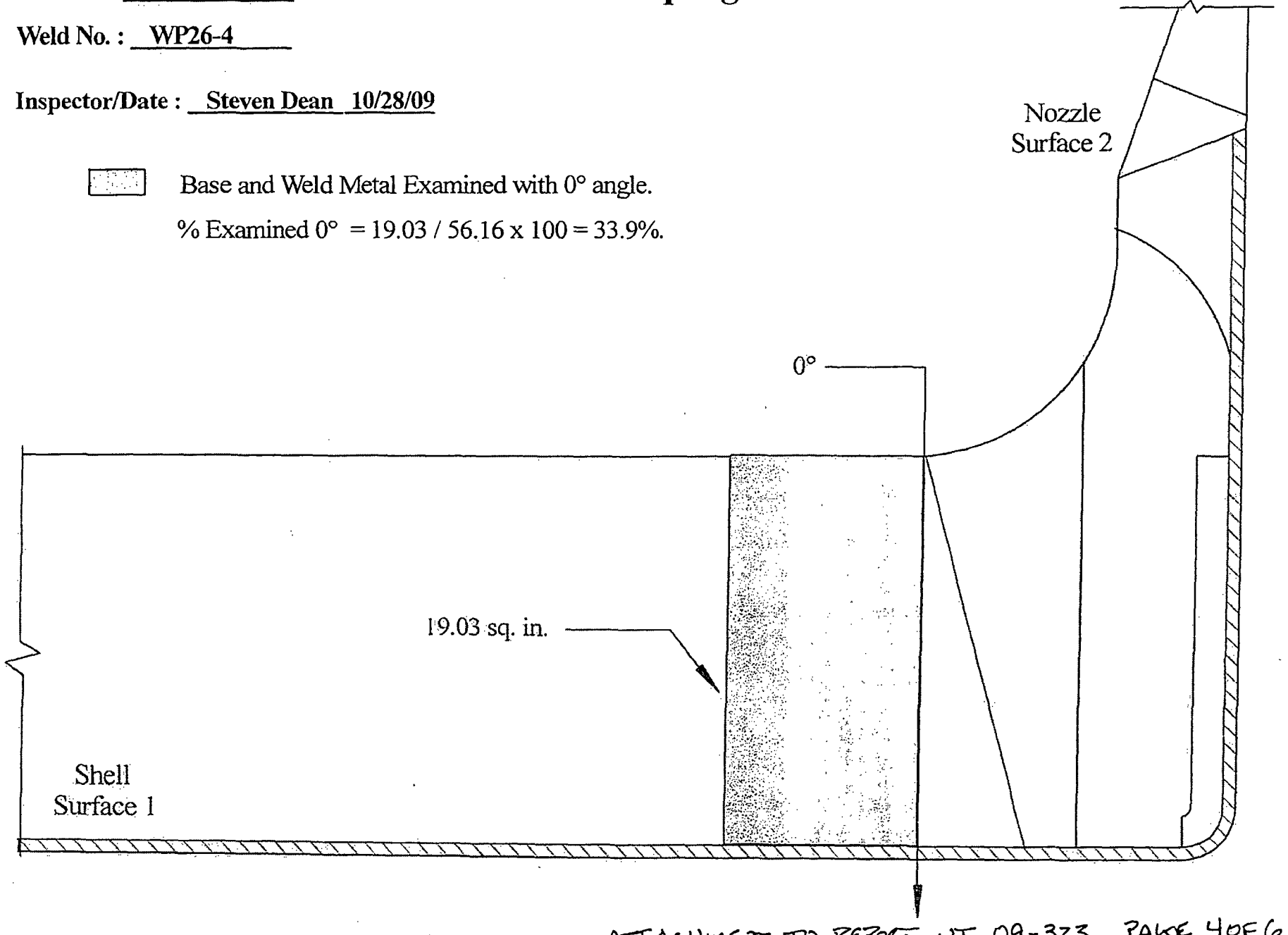
Item No. : 01.B3.110.0006

Weld No. : WP26-4

Inspector/Date : Steven Dean 10/28/09

Base and Weld Metal Examined with 0° angle.

% Examined 0° = 19.03 / 56.16 x 100 = 33.9%.



ATTACHMENT TO REPORT UT-09-323 PAGE 4 OF 6

Pressurizer Sampling Nozzle to Shell

Item No. : 01.B3.110.0006

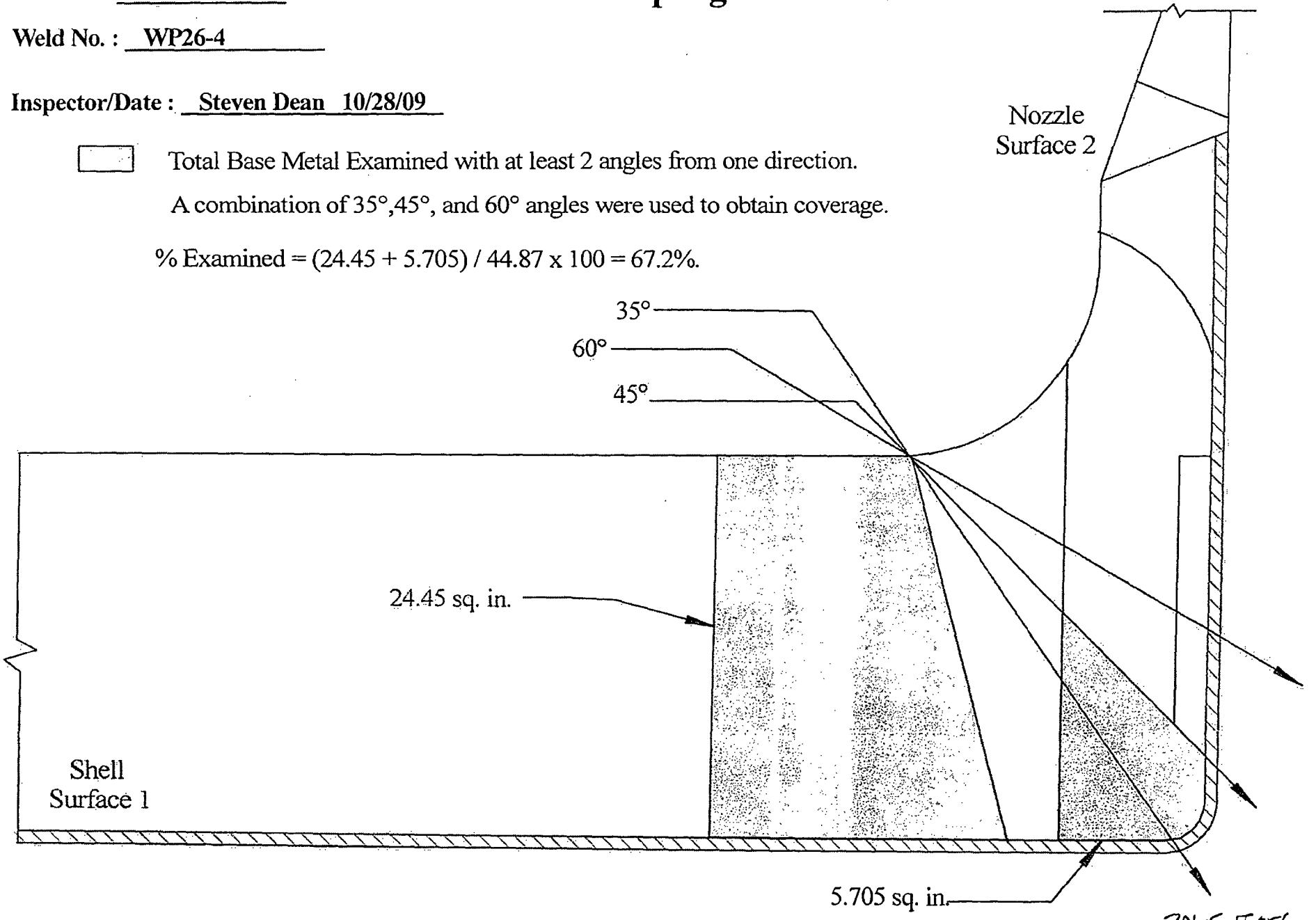
Weld No. : WP26-4

Inspector/Date : Steven Dean 10/28/09

Total Base Metal Examined with at least 2 angles from one direction.

A combination of 35°,45°, and 60° angles were used to obtain coverage.

% Examined = (24.45 + 5.705) / 44.87 x 100 = 67.2%.

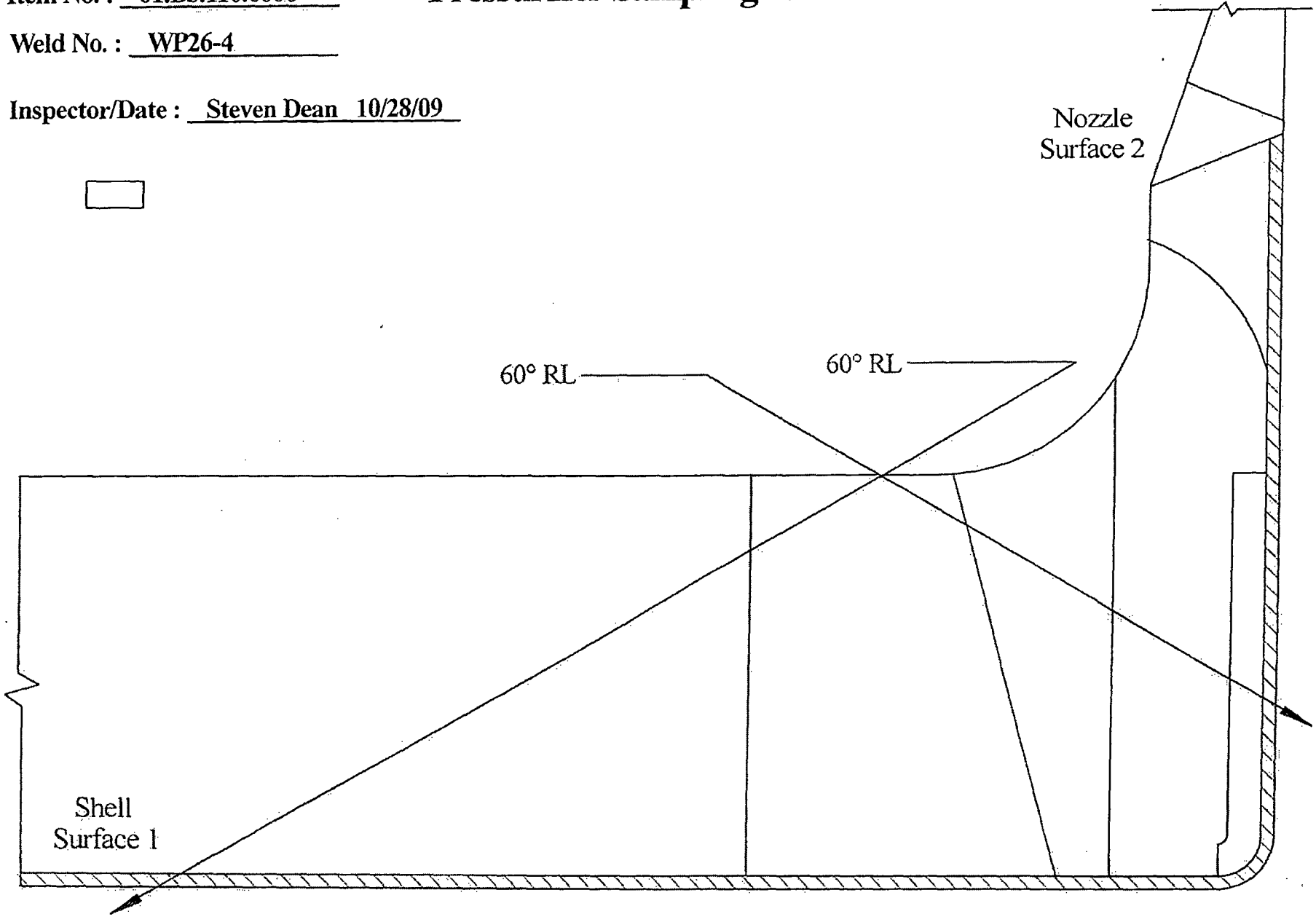


Pressurizer Sampling Nozzle to Shell

Item No. : 01.B3.110.0006

Weld No. : WP26-4

Inspector/Date : Steven Dean 10/28/09



Duke Energy

UT Vessel Examination

Site/Unit: Oconee / 1 | Procedure: NDE-820 | Outage No.: O1-25
Summary No.: O1.B3.110.0007 | Procedure Rev.: 4 | Report No.: UT-09-325
Workscope: ISI | Work Order No.: 01846474 | Page: 1 of 2

Code: 1998/2000A | Cat./Item: B-D /B3.110 | Location:
Drawing No.: ISI-OCN1-002 | Description: Nozzle to Shell
System ID: 50
Component ID: 1-PZR-WP26-5 | Size/Length: N/A | Thickness/Diameter: 6.187/5.75/CS
Limitations: Due to nozzle configuration- see supplemental sheet | Start Time: 0835 | Finish Time: 1135

Examination Surface: Inside ☐ Outside ☑ | Surface Condition: GROUND SMOOTH
Lo Location: 9.2.3 | Wo Location: Centerline of Weld | Couplant: ULTRAGEL II | Batch No.: 09125
Temp. Tool Mfg.: FISHER | Serial No.: MCNDE32768 | Surface Temp.: 67 °F
Cal. Report No.: CAL-09-411, 412, 413 & 414

Angle Used	0	45	45T	60	60T	60RL
Scanning dB		57.6	57.6	71.8	71.8	72

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

Comments:
35° - 57.8 db; 35T° - 57.8 db
Additional Examiner - Dave Griebel, Level II, 10/28/09

Results: Accept ☐ Reject ☑ Info ☐
Additional Examiner - John C. Day, Level II, 10/28/09
Percent Of Coverage Obtained > 90%: No | Reviewed Previous Data: Yes

Examiner	Level	Signature	Date	Reviewer	Signature	Date
Hollis, Jacob	II-N	Jacob R. Hollis	10/28/2009			11-9-09
Examiner	Level	Signature	Date	Site Review	Signature	Date
Dean, Steven	II-N		10/28/2009	N/A		
Other	Level	Signature	Date	ANII Review	Signature	Date
N/A	N/A		10/28/2009			11/9/09

DUKE POWER COMPANY
ISI LIMITATION REPORT

UT-09-325

Component/Weld ID: 1-PZR-WP26-5 **Item No:** O1.B3.110.0007

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 -1" to Beyond
ANGLE: ☒ 0 ☒ 45 ☒ 60 other * FROM 0 DEG to 360 DEG

*35 & 60RL angles
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 4 INCHES FROM W0 _____ to _____
ANGLE: ☐ 0 ☐ 5 ☐ 60 other _____ FROM _____ DEG to _____ DEG

Sketch(s) attached
☒ yes ☐ No

Prepared By: Jacob Hollis Jacob R. Hollis Level: II Date: 10/28/09 Sheet 2 2

Reviewed By: Barry Marsh Date: 11-4-09 Authorized Inspector: [signature] Date: 11/5/09

ATTACHMENT A
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PZR Sampling Nozzle to Shell % of Coverage

Item No. : 01.B3.110.0007 **Weld No. :** WP26-5

Weld Coverage

Scan	Angle	% Coverage Obtained
S1	35°,45° & 60°	61.46
S2	35°,45° & 60°	0
CW	35° & 45°	0
CCW	35° & 45°	0
	Total	61.46

61.46 ÷ 4 = **15.4** % Coverage

Base Material Coverage

S1	35°,45° & 60°	67.2
CW & CCW	45°&35°	42.4
	Total	109.6

109.6 ÷ 2 = **54.8** % Coverage

0° Scan Coverage = **33.9** % Coverage

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

= **34.7** **% Coverage**

ATTACHMENT TO REPORT
UT-09-325

Inspector / Date : David C. Z 10/29/09

Pressurizer Sampling Nozzle to Shell

Item No. : 01.B3.110.0007

Weld No. : WP26-5

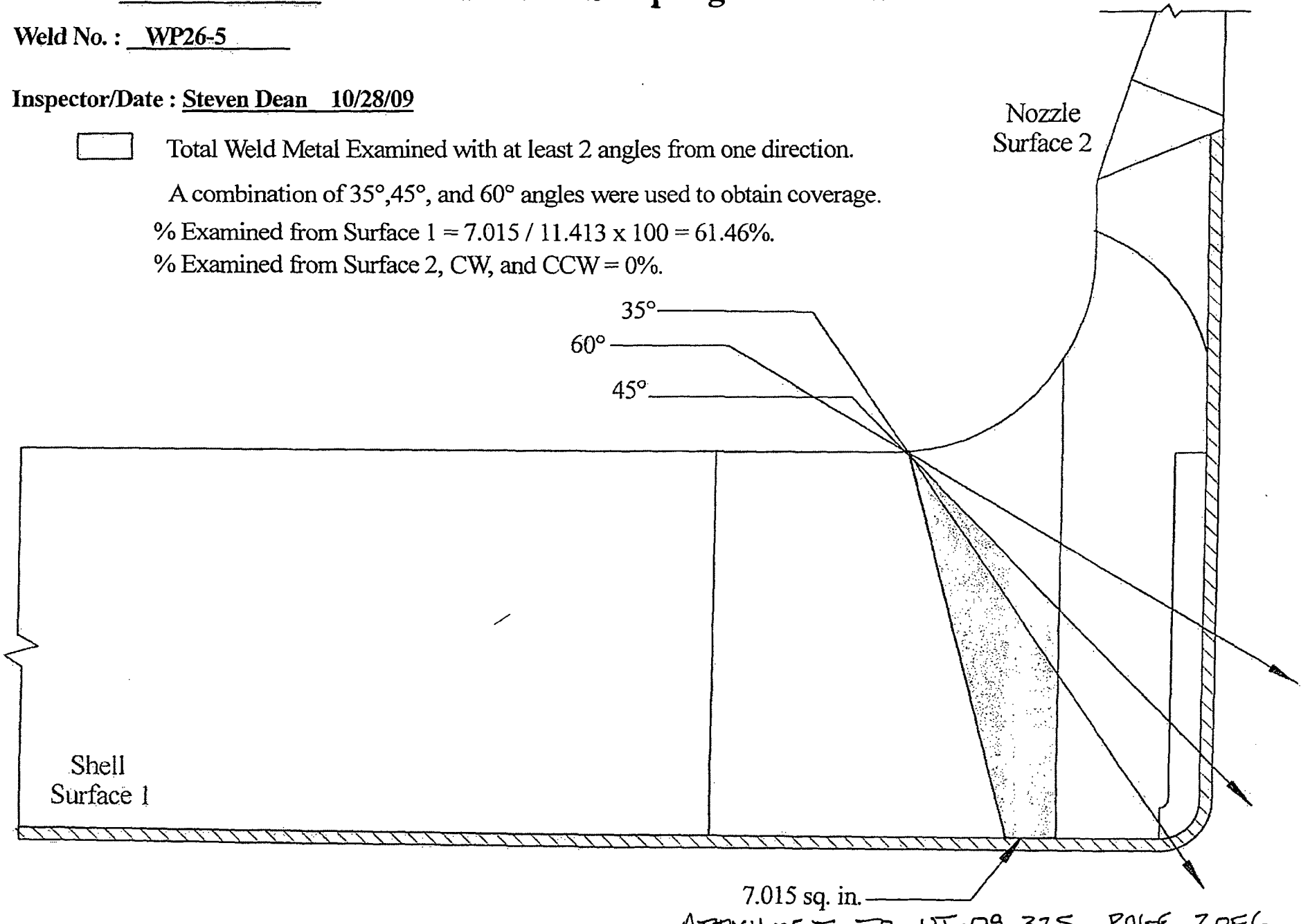
Inspector/Date : Steven Dean 10/28/09

☐ Total Weld Metal Examined with at least 2 angles from one direction.

A combination of 35°,45°, and 60° angles were used to obtain coverage.

% Examined from Surface 1 = 7.015 / 11.413 x 100 = 61.46%.

% Examined from Surface 2, CW, and CCW = 0%.



ATTACHMENT A
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Pressurizer Sampling Nozzle to Shell

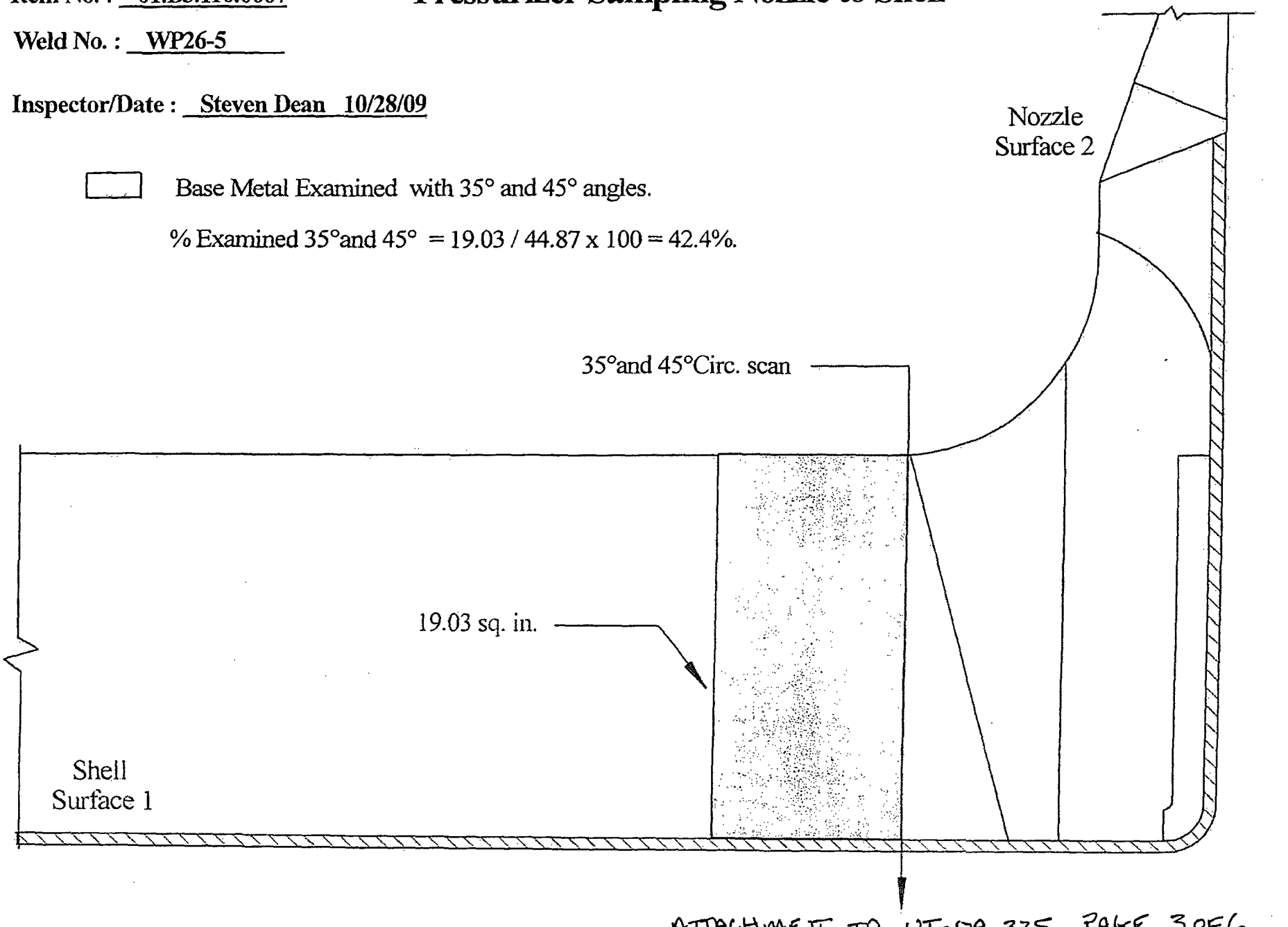
Item No. : 01.B3.110.0007

Weld No. : WP26-5

Inspector/Date : Steven Dean 10/28/09

Base Metal Examined with 35° and 45° angles.

% Examined 35°and 45° = 19.03 / 44.87 x 100 = 42.4%.



ATTACHMENT TO UT-09-325 PAGE 3 OF 6

Pressurizer Sampling Nozzle to Shell

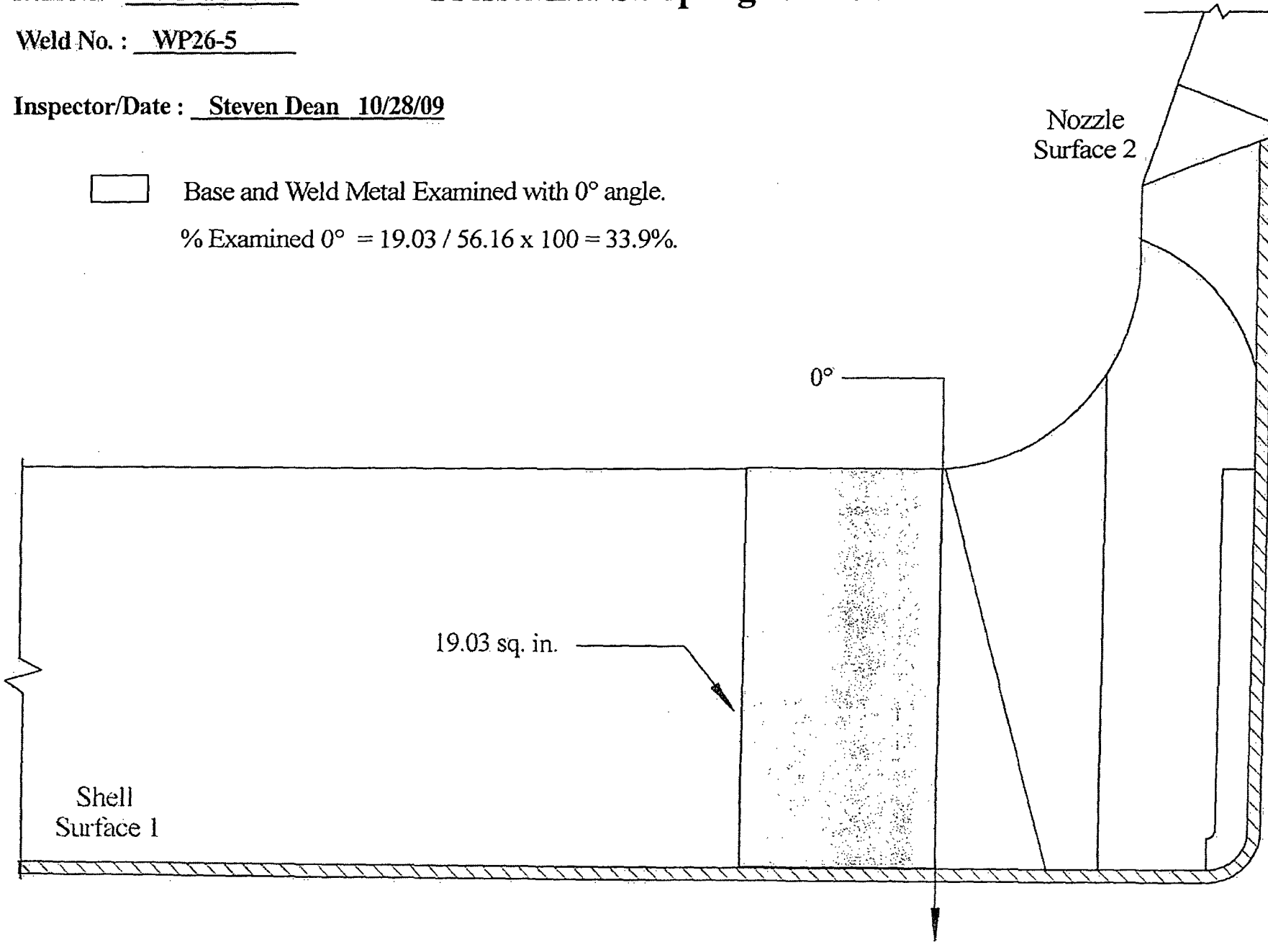
Item No. : 01.B3.110.0007

Weld No. : WP26-5

Inspector/Date : Steven Dean 10/28/09

Base and Weld Metal Examined with 0° angle.

% Examined 0° = 19.03 / 56.16 x 100 = 33.9%.



Pressurizer Sampling Nozzle to Shell

Item No. : 01.B3.110.0007

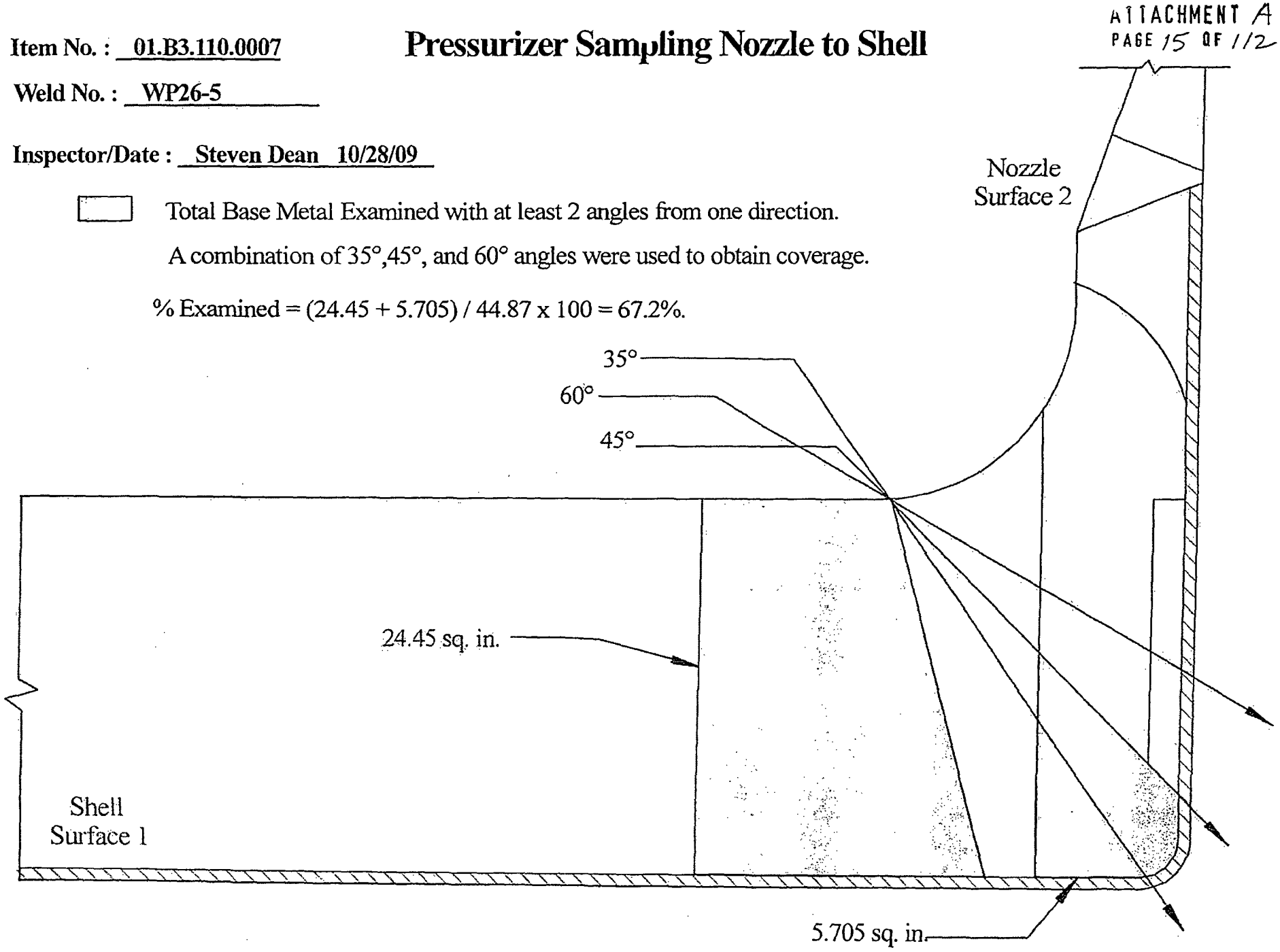
Weld No. : WP26-5

Inspector/Date : Steven Dean 10/28/09

Total Base Metal Examined with at least 2 angles from one direction.

A combination of 35°,45°, and 60° angles were used to obtain coverage.

% Examined = (24.45 + 5.705) / 44.87 x 100 = 67.2%.



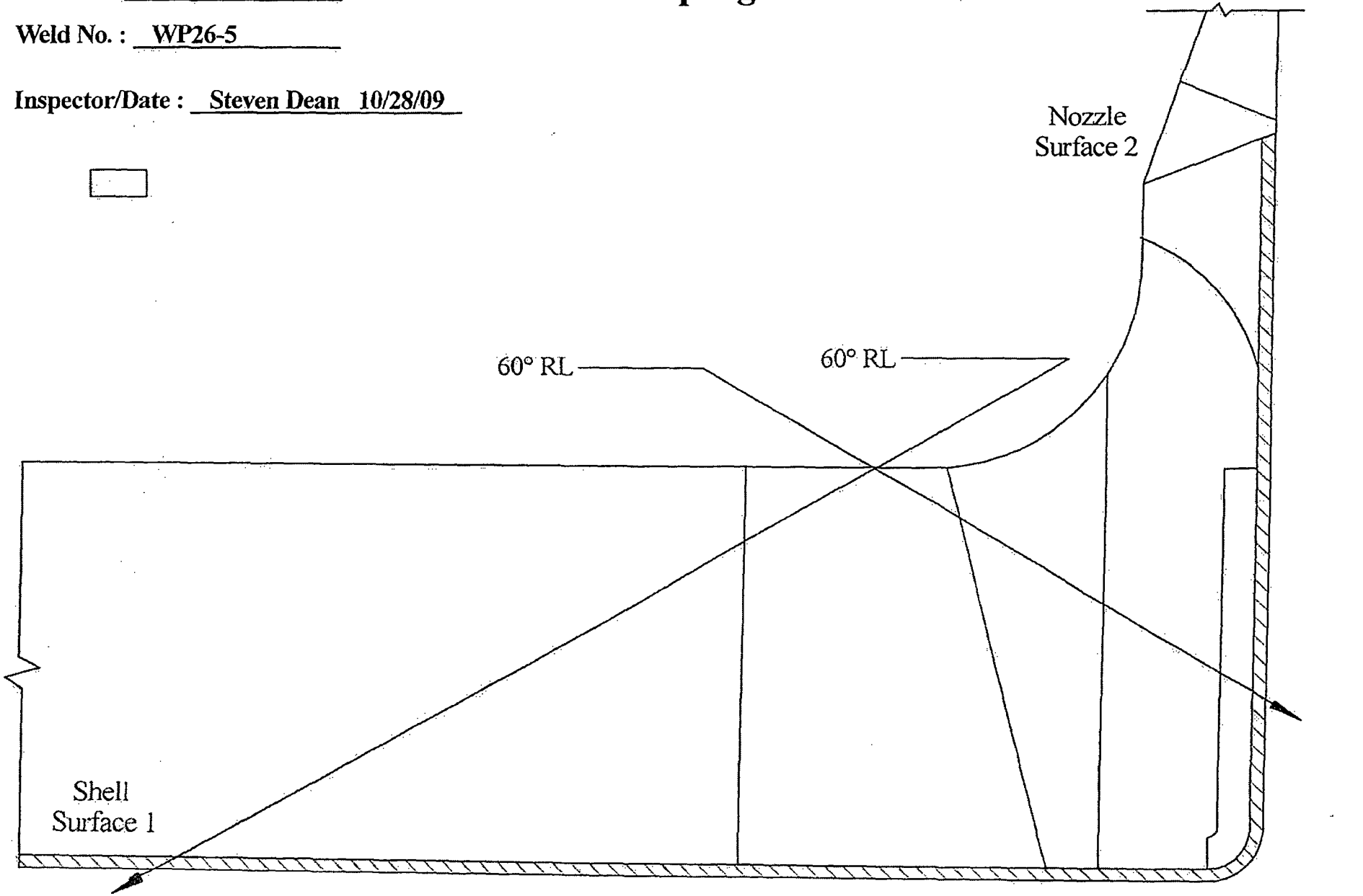
ATTACHMENT A
PAGE 16 OF 112

Item No. : 01.B3.110.0007

Pressurizer Sampling Nozzle to Shell

Weld No. : WP26-5

Inspector/Date : Steven Dean 10/28/09



ATTACHMENT TO UT-09-325 PAGE 6 OF 6

Duke Energy

UT Vessel Examination

Site/Unit:	Oconee / 1	Procedure:	NDE-820	Outage No.:	O1-25
Summary No.:	O1.B3.110.0008	Procedure Rev.:	4	Report No.:	UT-09-326
Workscope:	ISI	Work Order No.:	01846474	Page:	1 of 2

Code: 1998/2000A Cat./Item: B-D /B3.110 Location:

Drawing No.: ISI-OCN1-002 Description: Nozzle to Shell

System ID: 50

Component ID: 1-PZR-WP26-6 Size/Length: N/A Thickness/Diameter: 6.187/5.75/CS

Limitations: Due to nozzle configuration- see supplemental sheet Start Time: 0835 Finish Time: 1135

Examination Surface: Inside ☐ Outside ☑ Surface Condition: GROUND SMOOTH

Lo Location: 9.2.3 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 09125

Temp. Tool Mfg.: FISHER Serial No.: MCNDE32768 Surface Temp.: 67 °F

Cal. Report No.: CAL-09-411, 412, 413 & 414

Angle Used	0	45	45T	60	60T	60RL
Scanning dB		57.6	57.6	71.8	71.8	72

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

Comments:

35° - 57.8 db; 35T° - 57.8 db Additional Examiner - Dave Griebel, Level II, 10/28/09

Results: Accept ☐ Reject ☑ Info ☐ Additional Examiner - John C. Day, Level II, 10/28/09

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

Examiner Hollis, Jacob	Level II-N	Signature Jacob R. Hollis	Date 10/28/2009	Reviewed	Signature Daniel Moss	Date 11-9-09
Examiner Dean, Steven	Level II-N	Signature Steven Dean	Date 10/28/2009	Site Review N/A	Signature	Date
Other N/A	Level N/A	Signature	Date 10/28/2009	ANII Review	Signature	Date 11/9/09

DUKE POWER COMPANY

ISI LIMITATION REPORT

UT-09-326

Component/Weld ID: 1-PZR-WP26-6 **Item No:** O1.B3.110.0008

Remarks: *35 & 60RL angles; nozzle configuration

☒ NO SCAN — SURFACE ☒ 1 ☒ 2 — BEAM DIRECTION ☒ 1 ☒ 2 ☒ cw ☒ ccw
☐ LIMITED SCAN
FROM L N/A to L N/A INCHES FROM W0 -1" to Beyond
ANGLE: ☒ 0 ☒ 45 ☒ 60 other * FROM 0 DEG to 360 DEG

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

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

☐ NO SCAN — SURFACE ☐ 1 ☐ 2 — BEAM DIRECTION ☐ 1 ☐ 2 ☐ cw ☐ ccw
☐ LIMITED SCAN
FROM L _____ to L 4 INCHES FROM W0 _____ to _____
ANGLE: ☐ 0 ☐ 5 ☐ 60 other _____ FROM _____ DEG to _____ DEG

Sketch(s) attached ☒ yes ☐ No

Prepared By: Jacob Hollis Level: II Date: 10/28/09 Sheet 2 2

Reviewed By: Date: 11-4-09 Authorized Inspector: Date: 11/5/09

ATTACHMENT A
PAGE 19 OF 112

PZR Sampling Nozzle to Shell % of Coverage

Item No. : 01.B3.110.0008 Weld No. : WP26-6

Weld Coverage

Scan	Angle	% Coverage Obtained	
S1	35°,45° & 60°	61.46	
S2	35°,45° & 60°	0	
CW	35° & 45°	0	
CCW	35° & 45°	0	
	Total	61.46	
61.46 ÷ 4 =		15.4	% Coverage

Base Material Coverage

S1	35°,45° & 60°	67.2	
CW & CCW	45°&35°	42.4	
	Total	109.6	
109.6 ÷ 2 =		54.8	% Coverage

0° Scan Coverage = **33.9** % Coverage

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

= **34.7** **% Coverage**

ATTACHMENT TO REPORT
UT-09-326

Inspector / Date : David K. Z 10/29/09

Pressurizer Sampling Nozzle to Shell

Item No. : 01.B3.110.0008

Weld No. : WP26-6

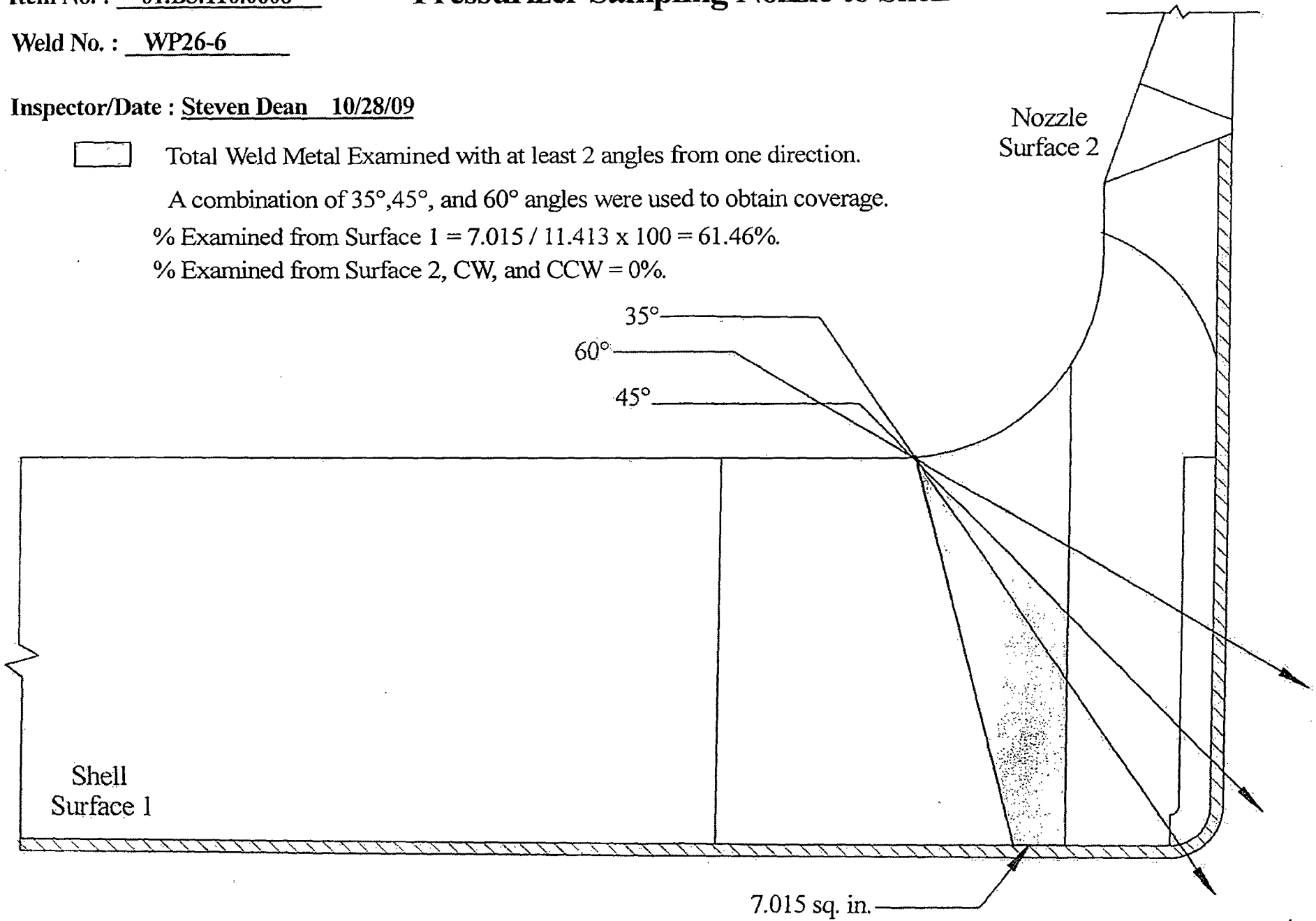
Inspector/Date : Steven Dean 10/28/09

☐ Total Weld Metal Examined with at least 2 angles from one direction.

A combination of 35°,45°, and 60° angles were used to obtain coverage.

% Examined from Surface 1 = 7.015 / 11.413 x 100 = 61.46%.

% Examined from Surface 2, CW, and CCW = 0%.



Pressurizer Sampling Nozzle to Shell

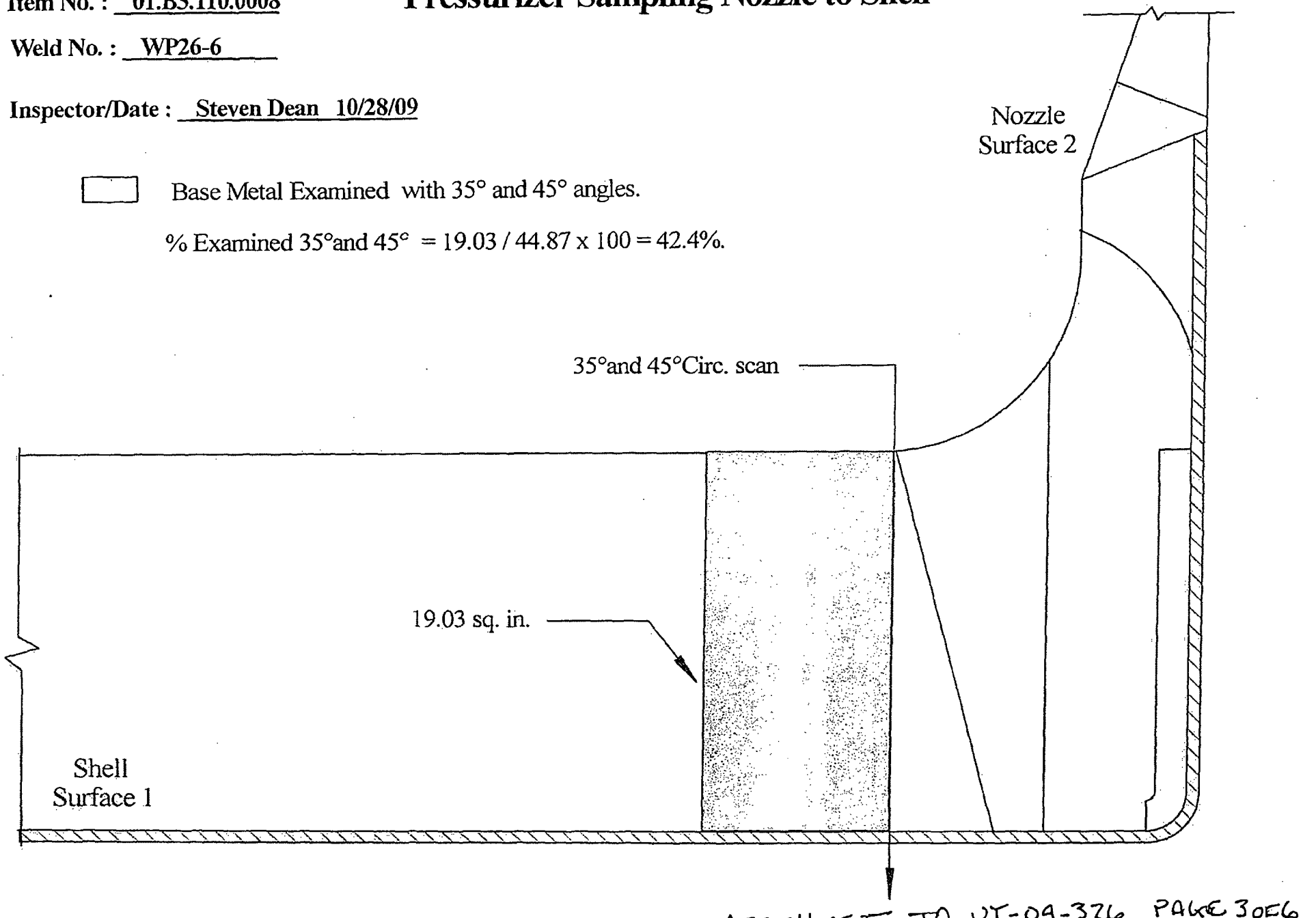
Item No. : 01.B3.110.0008

Weld No. : WP26-6

Inspector/Date : Steven Dean 10/28/09

Base Metal Examined with 35° and 45° angles.

% Examined 35°and 45° = 19.03 / 44.87 x 100 = 42.4%.



Pressurizer Sampling Nozzle to Shell

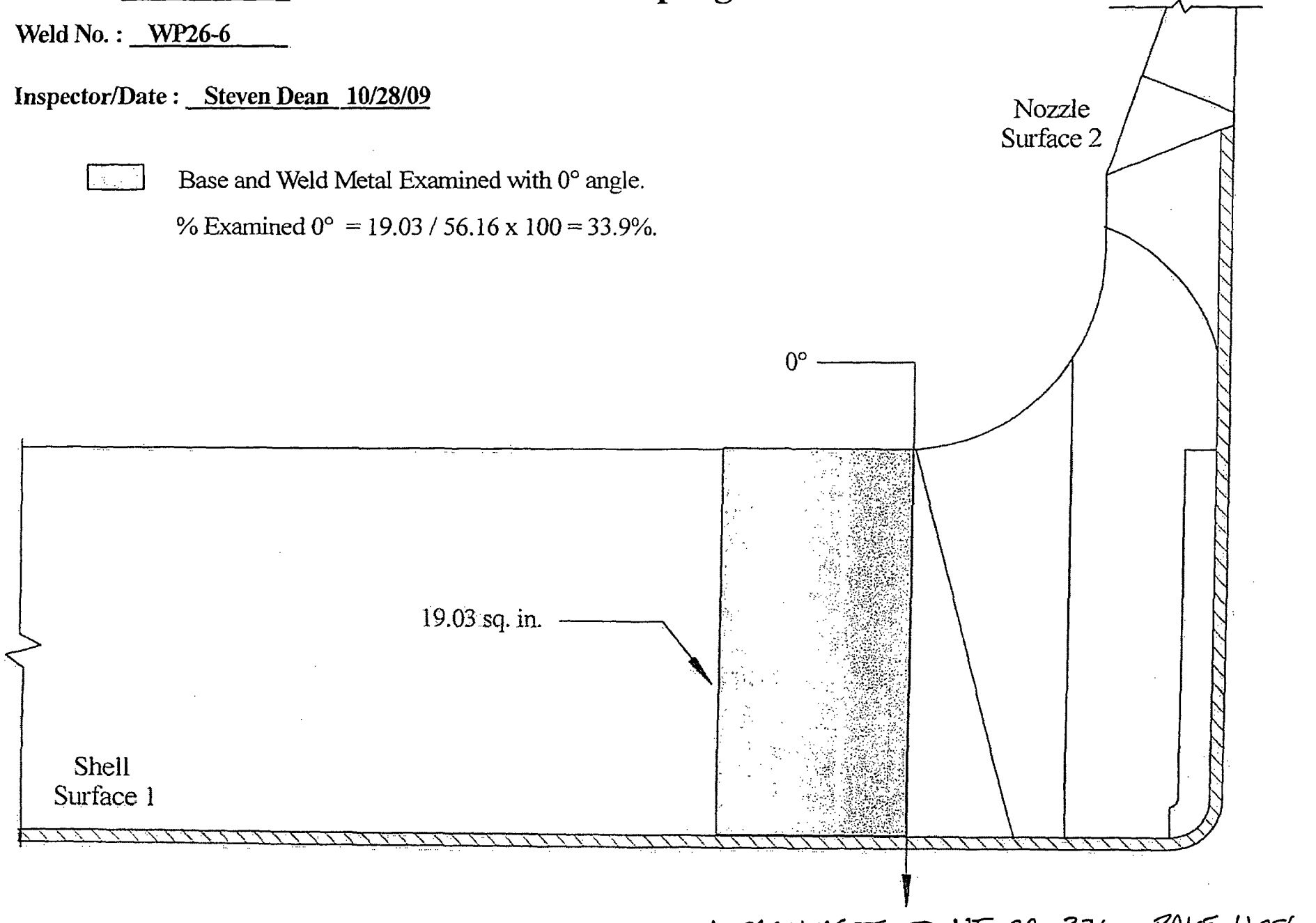
Item No. : 01.B3.110.0008

Weld No. : WP26-6

Inspector/Date : Steven Dean 10/28/09

Base and Weld Metal Examined with 0° angle.

% Examined 0° = 19.03 / 56.16 x 100 = 33.9%.



Pressurizer Sampling Nozzle to Shell

Item No. : 01.B3.110.0008

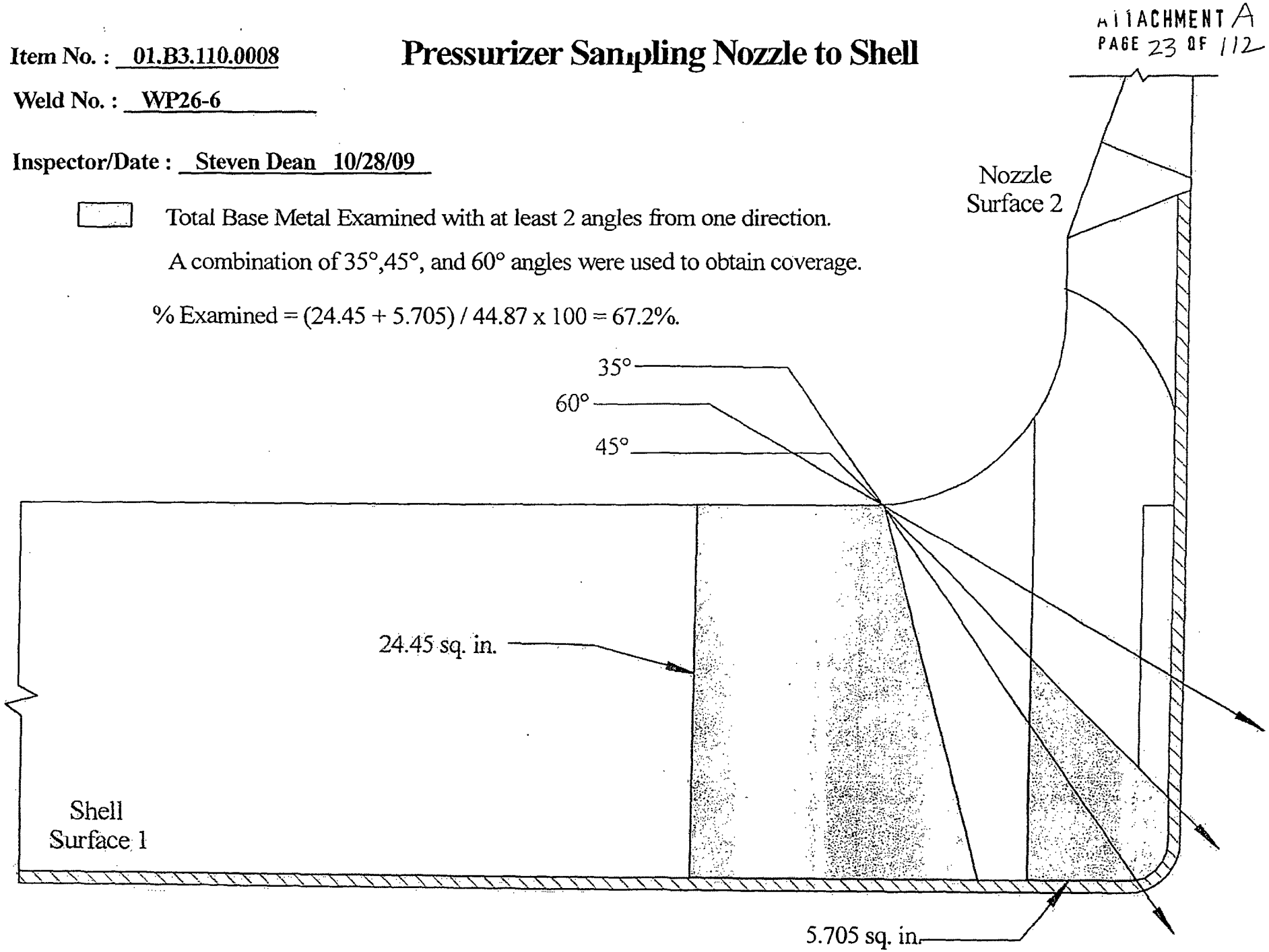
Weld No. : WP26-6

Inspector/Date : Steven Dean 10/28/09

Total Base Metal Examined with at least 2 angles from one direction.

A combination of 35°,45°, and 60° angles were used to obtain coverage.

% Examined = (24.45 + 5.705) / 44.87 x 100 = 67.2%.

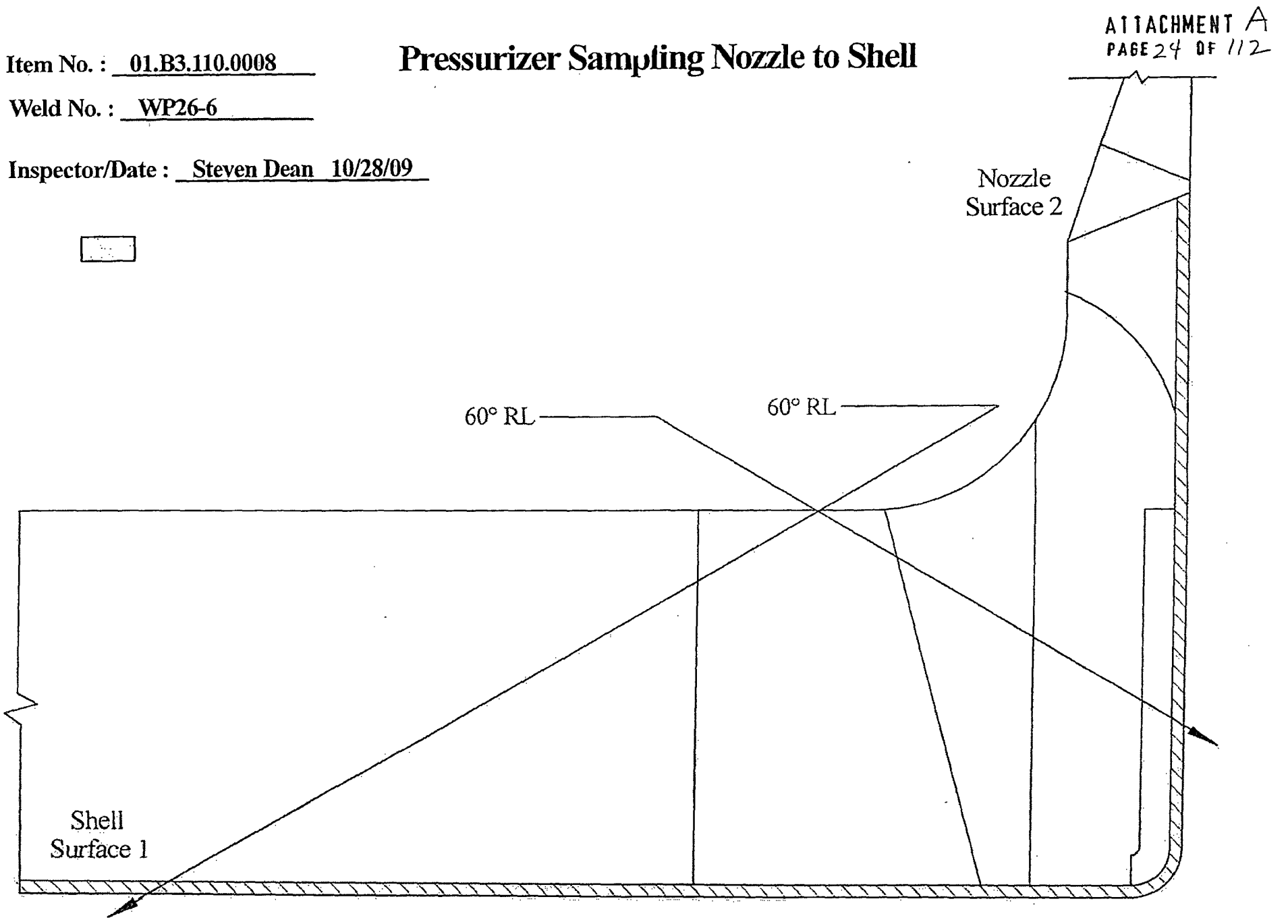


Pressurizer Sampling Nozzle to Shell

Item No. : 01.B3.110.0008

Weld No. : WP26-6

Inspector/Date : Steven Dean 10/28/09



Duke Energy

UT Vessel Examination

Site/Unit: Oconee / 1 | Procedure: NDE-820 | Outage No.: O1-25
Summary No.: O1.B3.110.0009 | Procedure Rev.: 4 | Report No.: UT-09-327
Workscope: ISI | Work Order No.: 01846474 | Page: 1 of 2

Code: 1998/2000A | Cat./Item: B-D /B3.110 | Location:
Drawing No.: ISI-OCN1-002 | Description: Nozzle to Shell
System ID: 50
Component ID: 1-PZR-WP26-1 | Size/Length: N/A | Thickness/Diameter: 6.187/5.75/CS
Limitations: Due to nozzle configuration, see supplemental sheet | Start Time: 0835 | Finish Time: 1135

Examination Surface: Inside ☐ Outside ☑ | Surface Condition: GROUND SMOOTH
Lo Location: 9.2.3 | Wo Location: Centerline of Weld | Couplant: ULTRAGEL II | Batch No.: 09125
Temp. Tool Mfg.: FISHER | Serial No.: MCNDE32768 | Surface Temp.: 67 °F
Cal. Report No.: CAL-09-411, 412, 413 & 414

Angle Used	0	45	45T	60	60T	60RL
Scanning dB		57.6	57.6	71.8	71.8	72

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

Comments:
35° - 57.8 db; 35T° - 57.8 db
Additional Examiner - Dave Griebel, Level II, 10/28/09

Results: Accept ☐ Reject ☑ Info ☐ | Additional Examiner - John C. Day, Level II, 10/28/09
Percent Of Coverage Obtained > 90%: No | Reviewed Previous Data: Yes

Examiner	Level	Signature	Date	Reviewer	Signature	Date
Hollis, Jacob	II-N	Jacob R. Hollis	10/28/2009	Daryl Moss		11-9-09
Examiner	Level	Signature	Date	Site Review	Signature	Date
Dean, Steven	II-N	Steven Dean	10/28/2009	N/A		
Other	Level	Signature	Date	ANII Review	Signature	Date
N/A	N/A		10/28/2009			11/9/09

ATTACHMENT A
PAGE 26 OF 112

DUKE POWER COMPANY

ISI LIMITATION REPORT

UT-09-327

Component/Weld ID: 1-PZR-WP26-1 **Item No:** O1.B3.110.0009

☒ NO SCAN SURFACE BEAM DIRECTION
☐ LIMITED SCAN ☒ 1 ☒ 2 ☒ 1 ☒ 2 ☒ cw ☒ ccw
FROM L N/A to L N/A INCHES FROM W0 -1" to Beyond
ANGLE: ☒ 0 ☒ 45 ☒ 60 other * FROM 0 DEG to 360 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 ☐ 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

Remarks:
*35 & 60RL angles
nozzle configuration

Sketch(s) attached
☒ yes ☐ No

Prepared By: Jacob Hollis Level: II Date: 10/28/09
Sheet 2 2
Reviewed By: Date: 11-4-09
Authorized Inspector: Date: 11/5/09

ATTACHMENT A
PAGE 27 OF 112

PZR Sampling Nozzle to Shell % of Coverage

Item No. : 01.B3.110.0009 **Weld No. :** WP26-1

Weld Coverage

Scan	Angle	% Coverage Obtained
S1	35°,45° & 60°	61.46
S2	35°,45° & 60°	0
CW	35° & 45°	0
CCW	35° & 45°	0
	Total	61.46

61.46 ÷ 4 = **15.4** % Coverage

Base Material Coverage

S1	35°,45° & 60°	67.2
CW & CCW	45°&35°	42.4
	Total	109.6

109.6 ÷ 2 = **54.8** % Coverage

0° Scan Coverage = **33.9** % Coverage

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

= **34.7** **% Coverage**

ATTACHMENT TO REPORT
UT-09-327

Inspector / Date : David K... 10/29/09

Pressurizer Sampling Nozzle to Shell

Item No. : 01.B3.110.0009

Weld No. : WP26-1

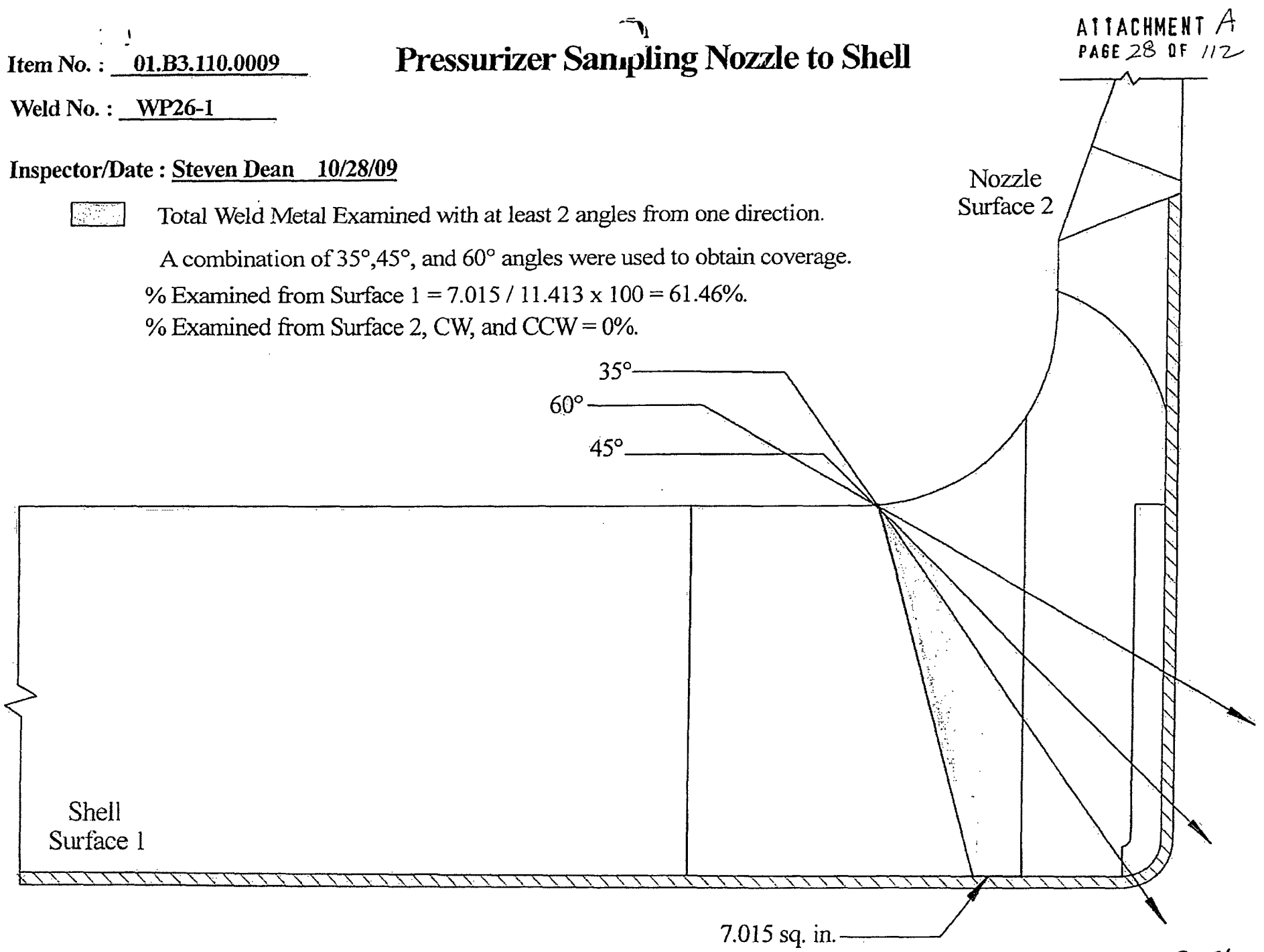
Inspector/Date : Steven Dean 10/28/09

Total Weld Metal Examined with at least 2 angles from one direction.

A combination of 35°,45°, and 60° angles were used to obtain coverage.

% Examined from Surface 1 = 7.015 / 11.413 x 100 = 61.46%.

% Examined from Surface 2, CW, and CCW = 0%.



Pressurizer Sampling Nozzle to Shell

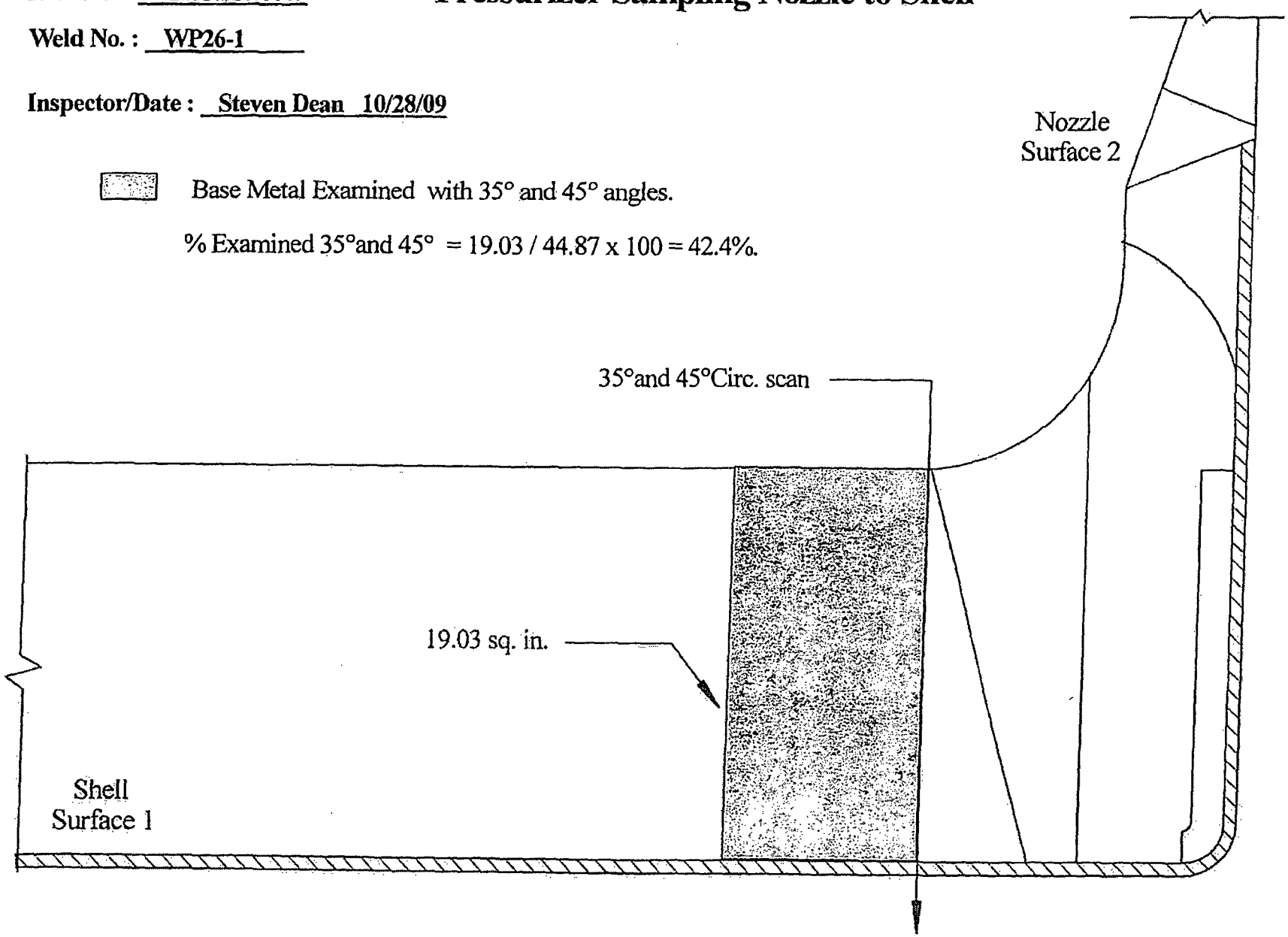
Item No. : 01.B3.110.0009

Weld No. : WP26-1

Inspector/Date : Steven Dean 10/28/09

Base Metal Examined with 35° and 45° angles.

% Examined 35°and 45° = 19.03 / 44.87 x 100 = 42.4%.



Pressurizer Sampling Nozzle to Shell

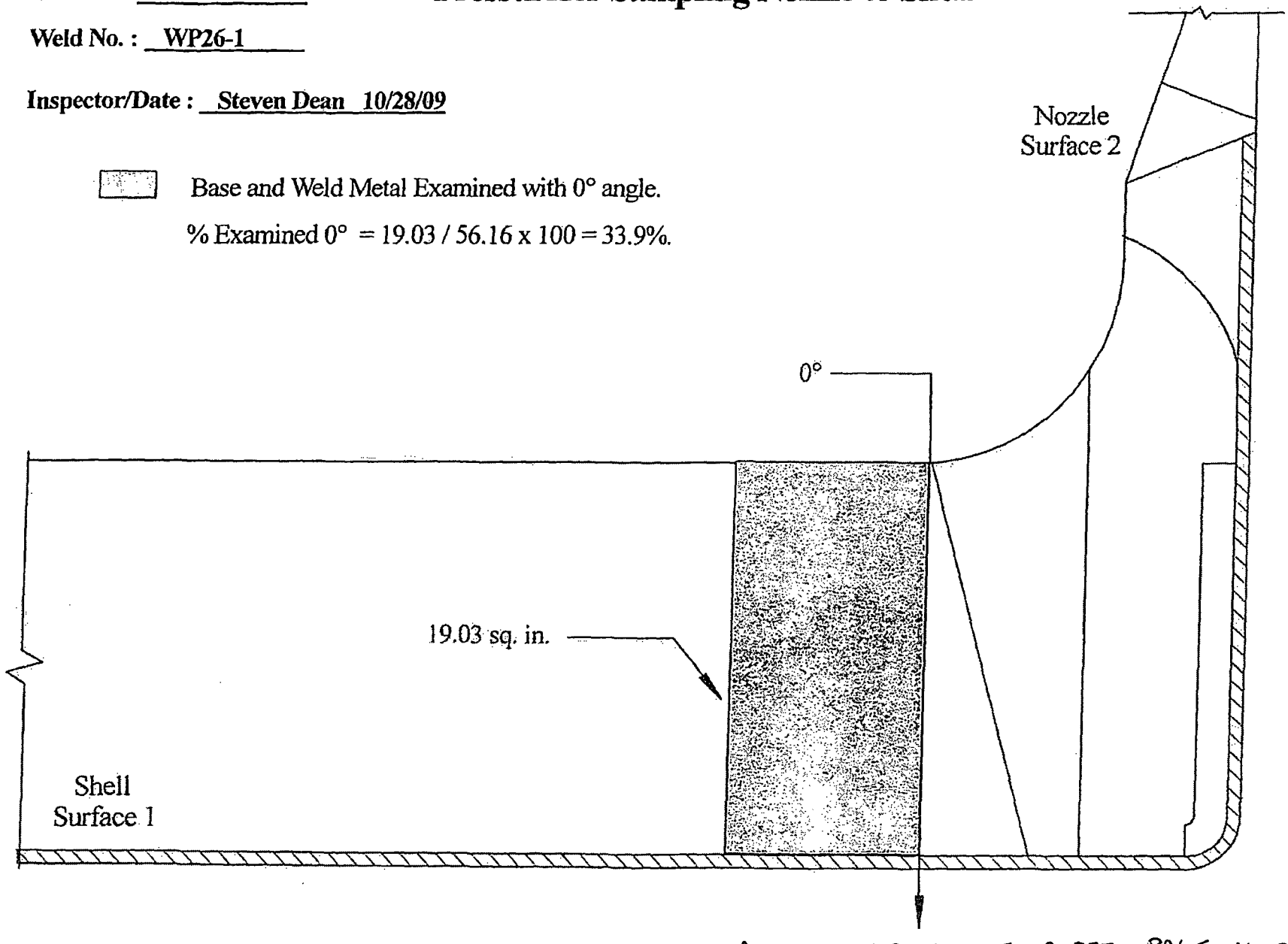
Item No. : 01.B3.110.0009

Weld No. : WP26-1

Inspector/Date : Steven Dean 10/28/09

Base and Weld Metal Examined with 0° angle.

% Examined 0° = 19.03 / 56.16 x 100 = 33.9%.



Pressurizer Sampling Nozzle to Shell

Item No. : 01.B3.110.0009

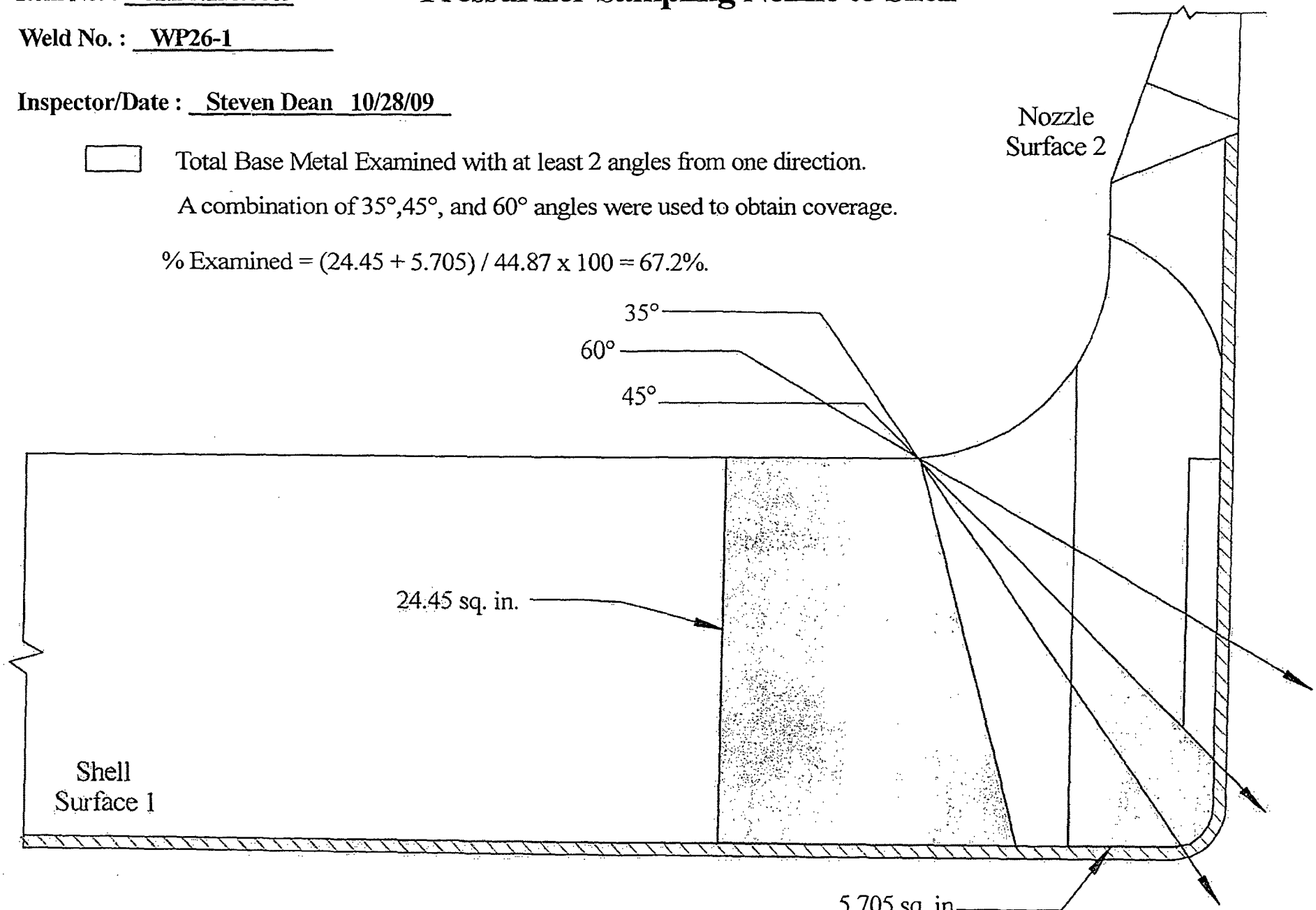
Weld No. : WP26-1

Inspector/Date : Steven Dean 10/28/09

☐ Total Base Metal Examined with at least 2 angles from one direction.

A combination of 35°,45°, and 60° angles were used to obtain coverage.

% Examined = (24.45 + 5.705) / 44.87 x 100 = 67.2%.

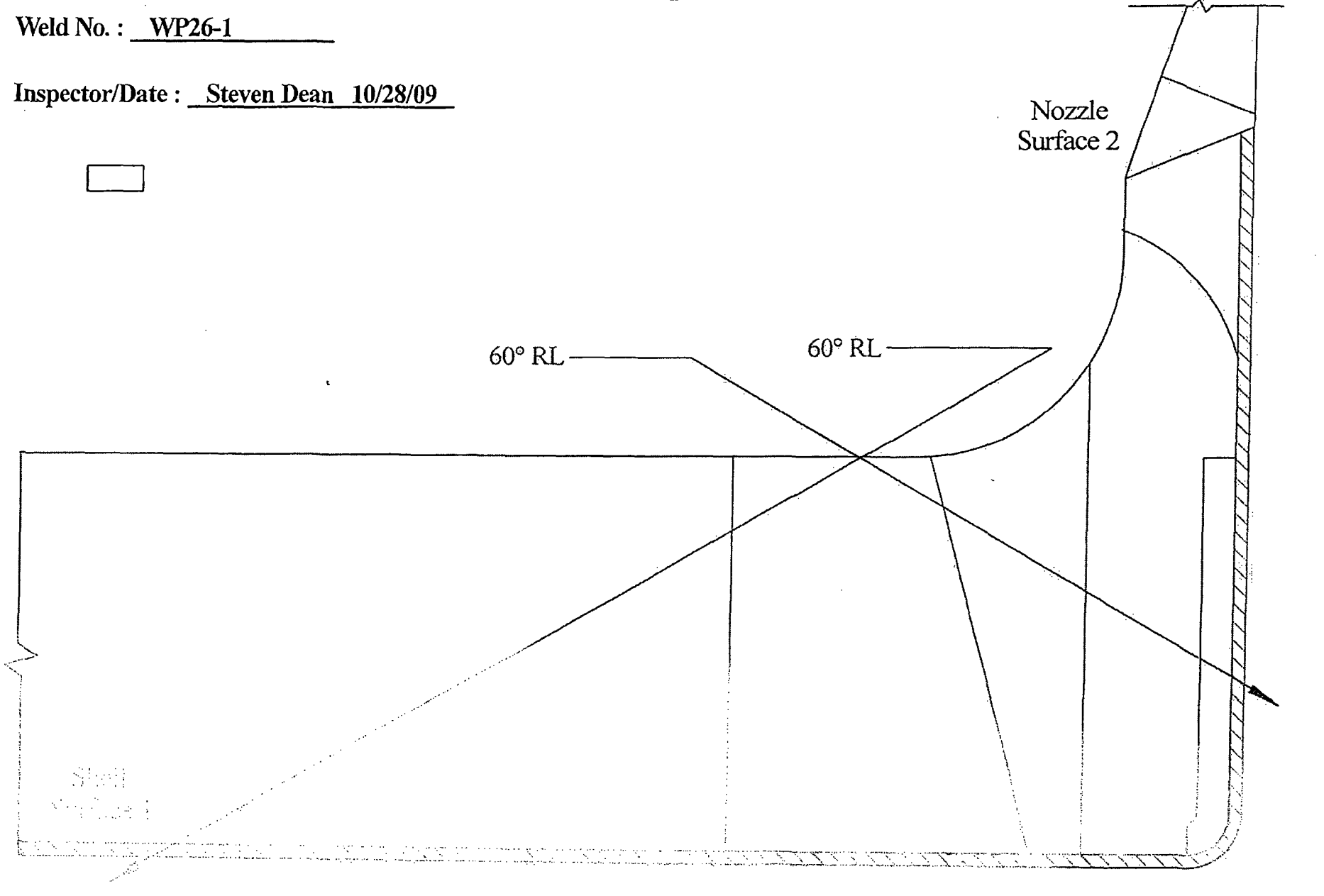


Item No. : 01.B3.110.0009

Pressurizer Sampling Nozzle to Shell

Weld No. : WP26-1

Inspector/Date : Steven Dean 10/28/09



Duke Energy

UT Vessel Examination

Site/Unit: Oconee / 1 | Procedure: NDE-820 | Outage No.: O1-25
Summary No.: O1.B3.110.0010 | Procedure Rev.: 4 | Report No.: UT-09-324
Workscope: ISI | Work Order No.: 01846474 | Page: 1 of 2

Code: 1998/2000A | Cat./Item: B-D /B3.110 | Location:
Drawing No.: ISI-OCN1-002 | Description: Nozzle to Shell
System ID: 50
Component ID: 1-PZR-WP26-2 | Size/Length: N/A | Thickness/Diameter: 6.187/5.75/CS
Limitations: Due to nozzle configuration- see supplemental sheet | Start Time: 0835 | Finish Time: 1135

Examination Surface: Inside ☐ Outside ☑ | Surface Condition: GROUND SMOOTH
Lo Location: 9.2.3 | Wo Location: Centerline of Weld | Couplant: ULTRAGEL II | Batch No.: 09125
Temp. Tool Mfg.: FISHER | Serial No.: MCNDE32768 | Surface Temp.: 67 °F
Cal. Report No.: CAL-09-411, 412, 413 & 414

Angle Used	0	45	45T	60	60T	60RL
Scanning dB		57.6	57.6	71.8	71.8	72

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

Comments:
35° - 57.8 db; 35T° - 57.8 db
Additional Examiner - Dave Griebel, Level II, 10/28/09

Results: Accept ☐ Reject ☑ Info ☐
Additional Examiner - John C. Day, Level II, 10/28/09
Percent Of Coverage Obtained > 90%: No | Reviewed Previous Data: Yes

Examiner Hollis, Jacob	Level II-N	Signature	Date 10/28/2009	Reviewer	Signature	Date 11-9-09
Examiner Dean, Steven	Level II-N	Signature	Date 10/28/2009	Site Review N/A	Signature	Date
Other N/A	Level N/A	Signature	Date	ANII Review	Signature	Date 11/9/09

ATTACHMENT
PAGE 34 OF 112

DUKE POWER COMPANY

ISI LIMITATION REPORT

UT-09-324

Component/Weld ID: 1-PZR-WP26-2 **Item No:** O1.B3.110.0010

Remarks:
*35 & 60RL angles
nozzle configuration

☒ NO SCAN SURFACE BEAM DIRECTION
☐ LIMITED SCAN ☒ 1 ☒ 2 ☒ 1 ☒ 2 ☒ cw ☒ ccw
FROM L N/A to L N/A INCHES FROM W0 -1" to Beyond
ANGLE: ☒ 0 ☒ 45 ☒ 60 other * FROM 0 DEG to 360 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 ☐ 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

Sketch(s) attached
☒ yes ☐ No

Prepared By: Jacob Hollis Level: II Date: 10/28/09 Sheet 2 2

Reviewed By: Date: 11-4-09 Authorized Inspector: Date: 11/5/09

ATTACHMENT PAGE 35 OF 112

PZR Sampling Nozzle to Shell % of Coverage

Item No. : 01.B3.110.0010 Weld No. : WP26-2

Weld Coverage

Scan	Angle	% Coverage Obtained
S1	35°,45° & 60°	61.46
S2	35°,45° & 60°	0
CW	35° & 45°	0
CCW	35° & 45°	0
	Total	61.46

61.46 ÷ 4 = **15.4** % Coverage

Base Material Coverage

S1	35°,45° & 60°	67.2
CW & CCW	45°&35°	42.4
	Total	109.6

109.6 ÷ 2 = **54.8** % Coverage

0° Scan Coverage = **33.9** % Coverage

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

= **34.7** **% Coverage**

ATTACHMENT TO REPORT UT-09-324

Inspector / Date : David K. Zan 10/29/09

Page 1 of 6

Item No. : 01.B3.110.0010

Pressurizer Sampling Nozzle to Shell

Weld No. : WP26-2

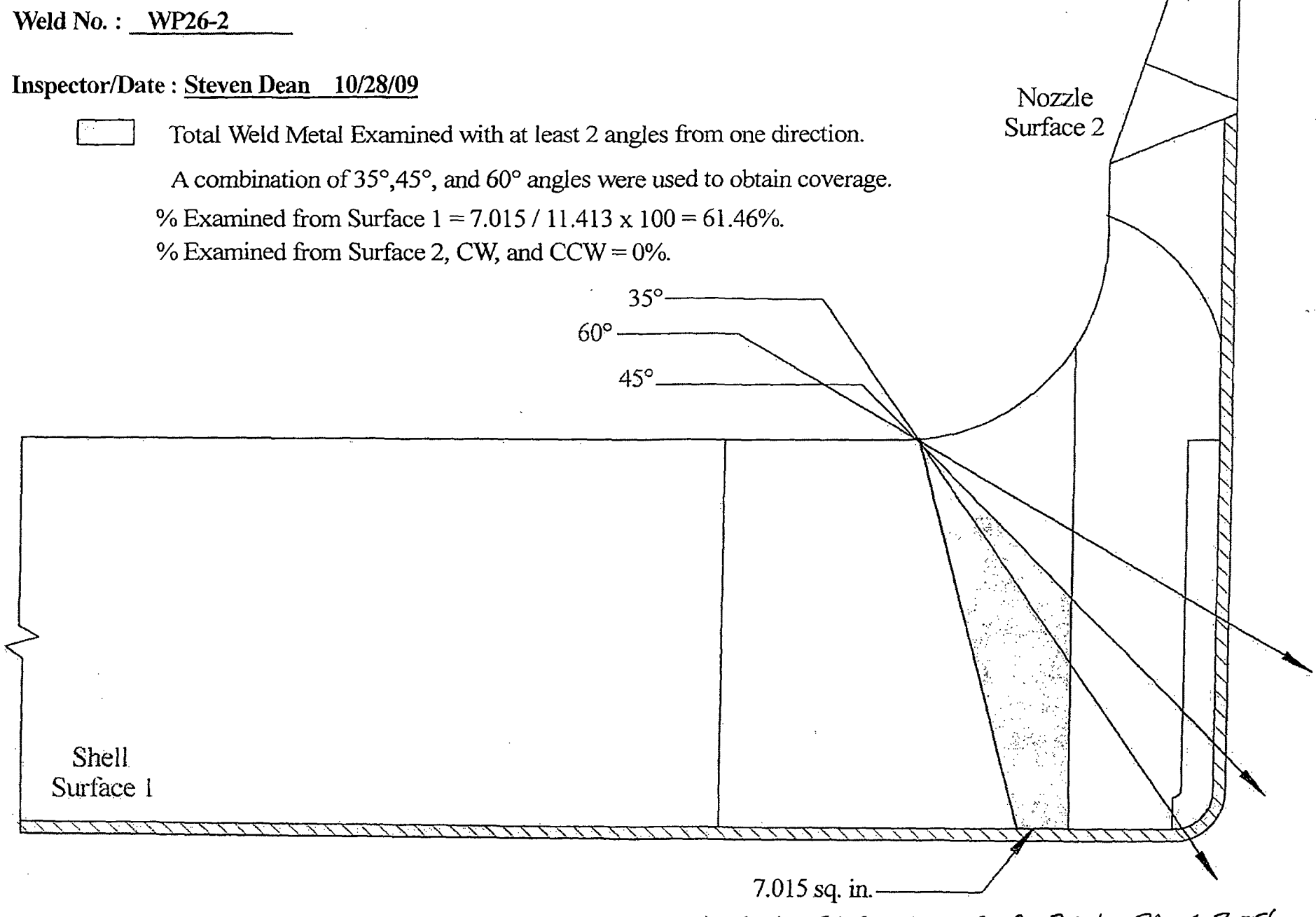
Inspector/Date : Steven Dean 10/28/09

☐ Total Weld Metal Examined with at least 2 angles from one direction.

A combination of 35°,45°, and 60° angles were used to obtain coverage.

% Examined from Surface 1 = 7.015 / 11.413 x 100 = 61.46%.

% Examined from Surface 2, CW, and CCW = 0%.



ATTACHMENT A
PAGE 37 OF 112

Pressurizer Sampling Nozzle to Shell

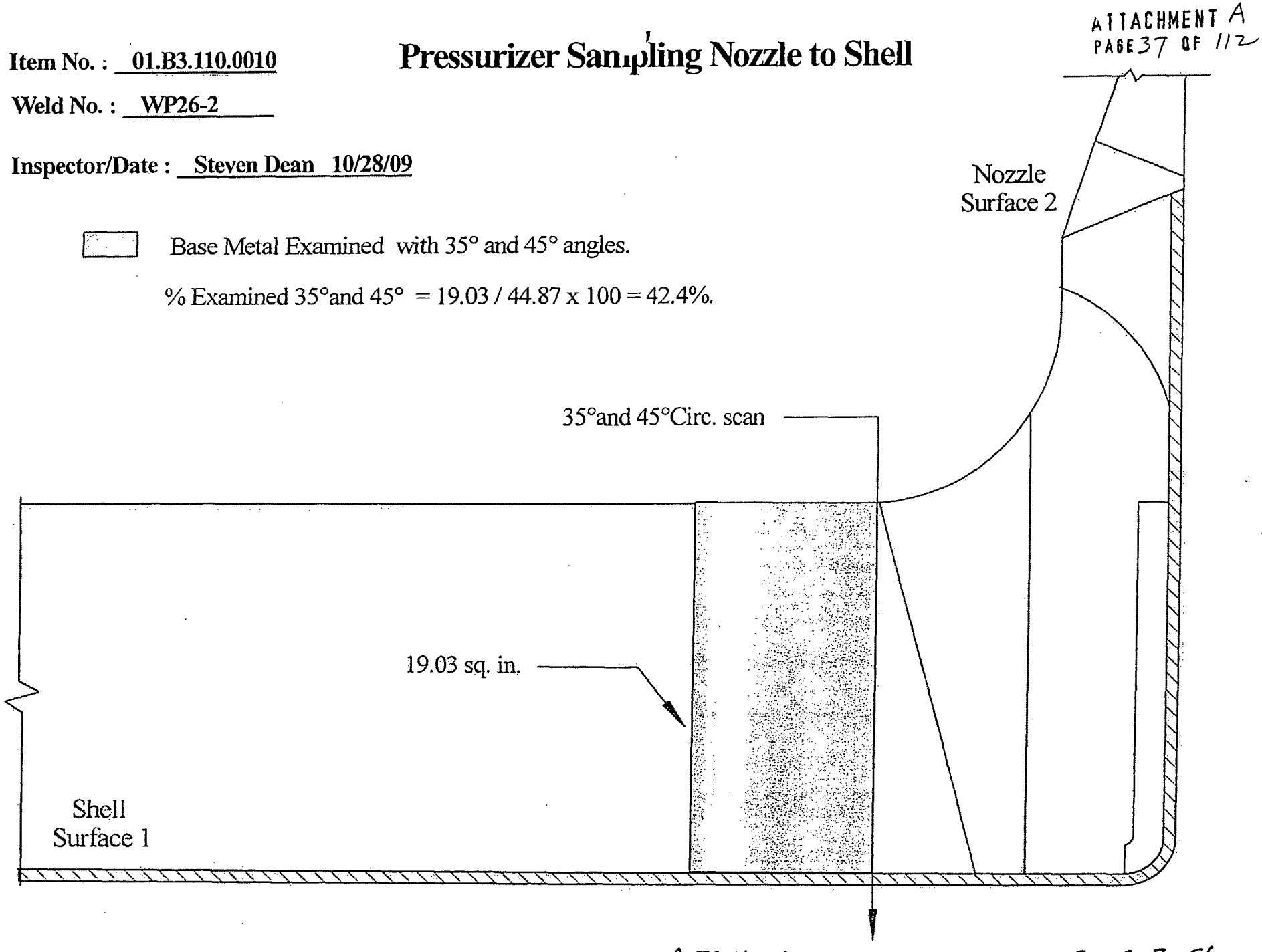
Item No. : 01.B3.110.0010

Weld No. : WP26-2

Inspector/Date : Steven Dean 10/28/09

Base Metal Examined with 35° and 45° angles.

% Examined 35°and 45° = 19.03 / 44.87 x 100 = 42.4%.



Pressurizer Sampling Nozzle to Shell

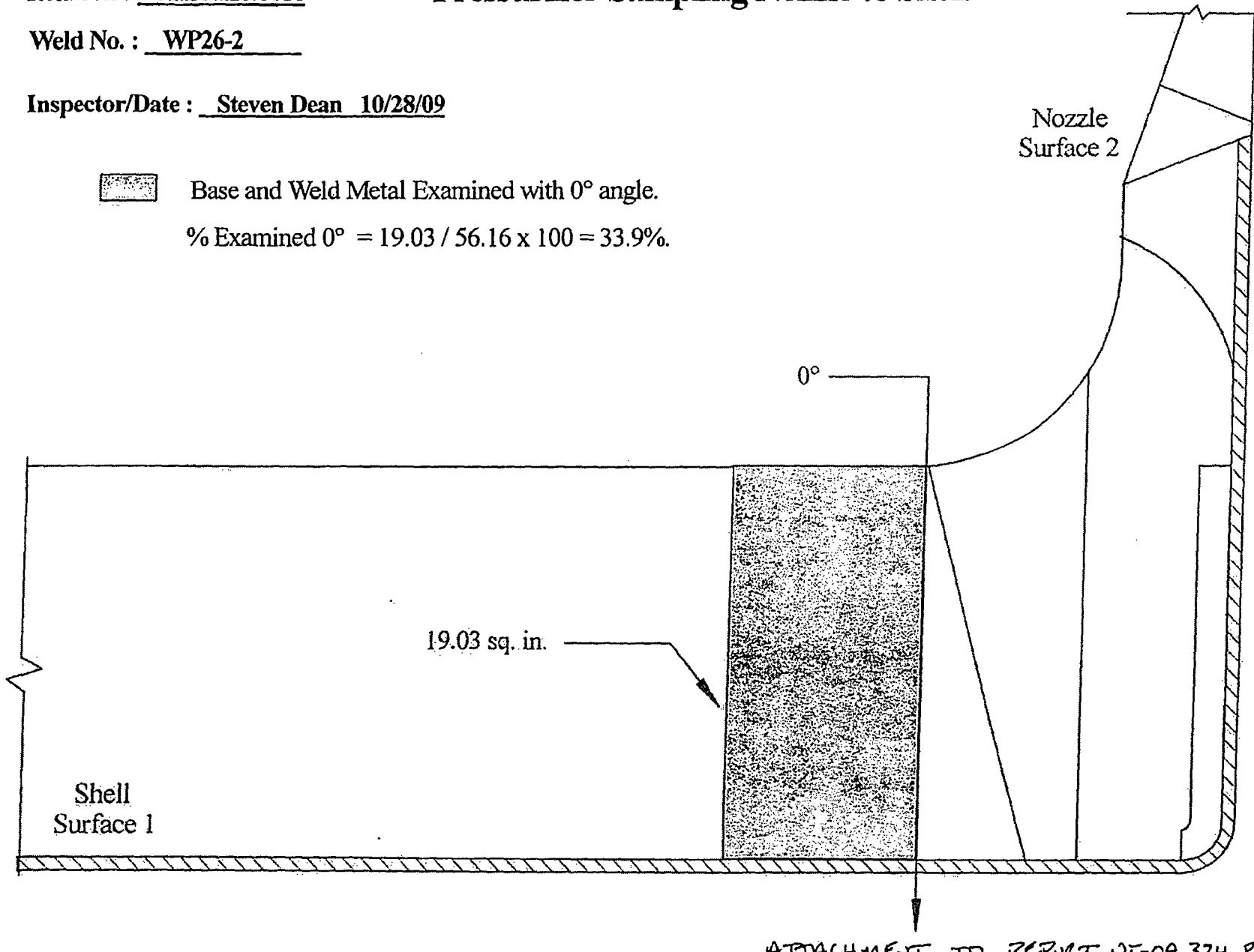
Item No. : 01.B3.110.0010

Weld No. : WP26-2

Inspector/Date : Steven Dean 10/28/09

Base and Weld Metal Examined with 0° angle.

% Examined 0° = 19.03 / 56.16 x 100 = 33.9%.



ATTACHMENT TO REPORT UT-09-324 PAGE 4.

Pressurizer Sampling Nozzle to Shell

Item No. : 01.B3.110.0010

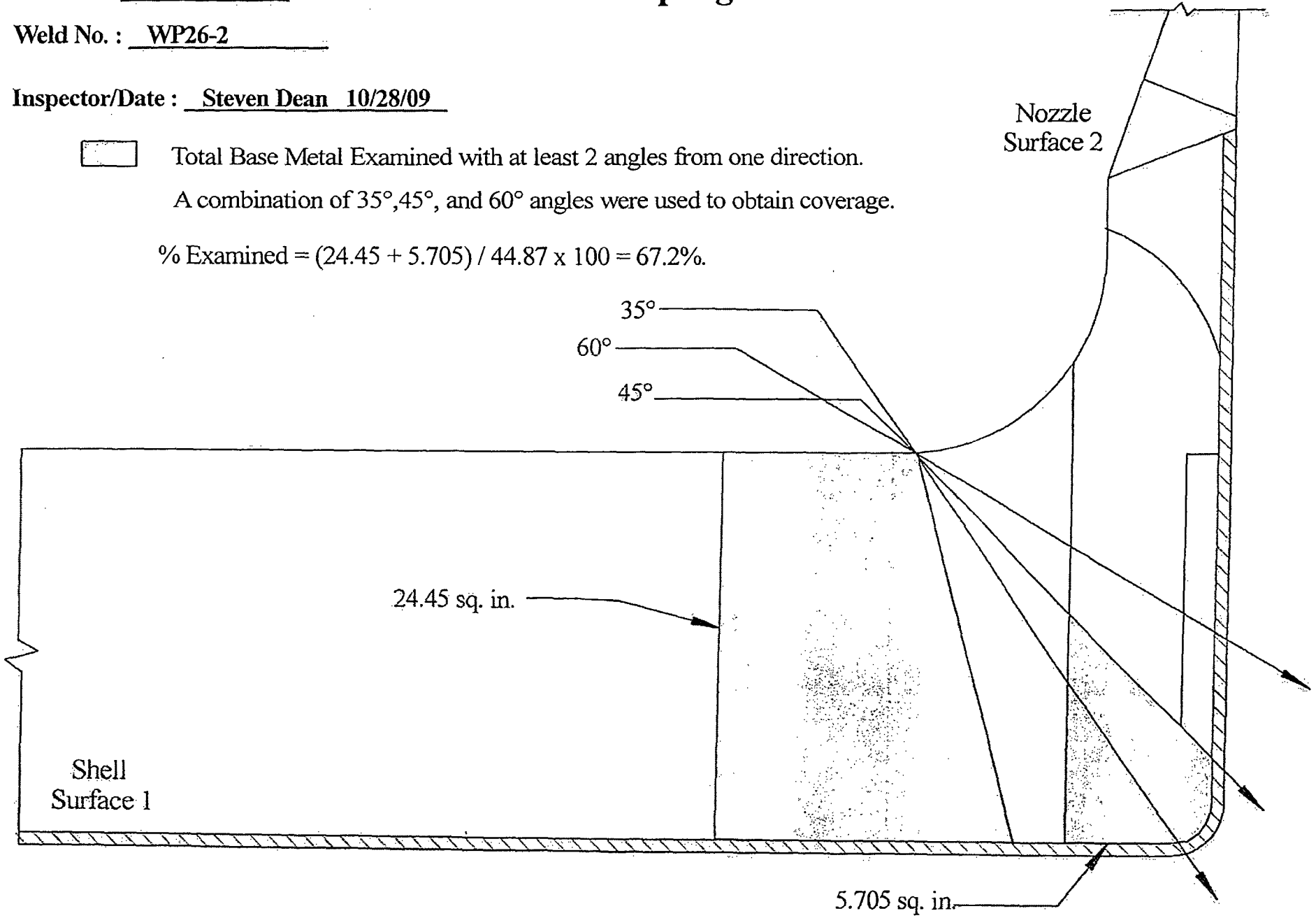
Weld No. : WP26-2

Inspector/Date : Steven Dean 10/28/09

Total Base Metal Examined with at least 2 angles from one direction.

A combination of 35°,45°, and 60° angles were used to obtain coverage.

% Examined = (24.45 + 5.705) / 44.87 x 100 = 67.2%.

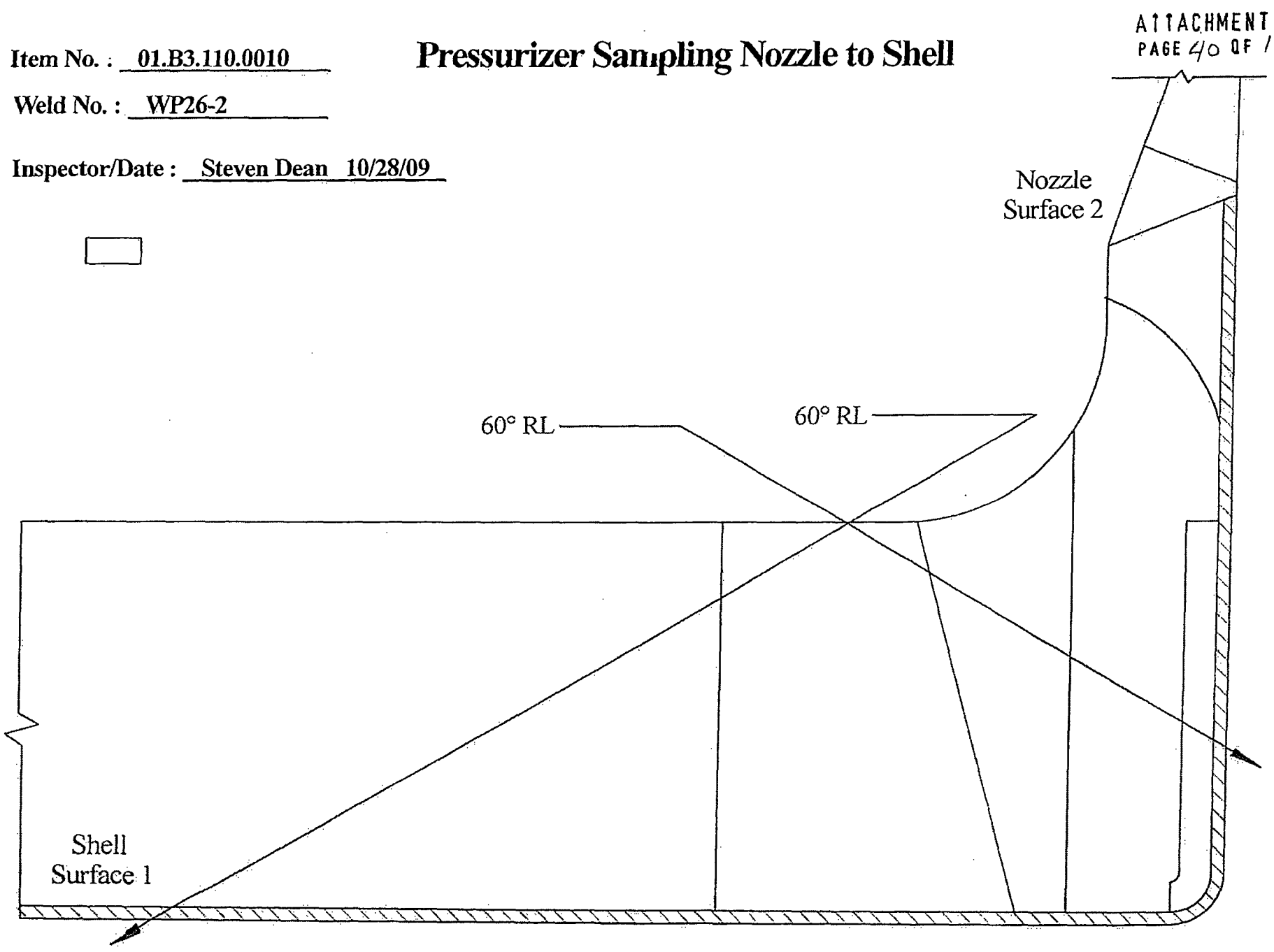


Pressurizer Sampling Nozzle to Shell

Item No. : 01.B3.110.0010

Weld No. : WP26-2

Inspector/Date : Steven Dean 10/28/09



Duke Energy

UT Vessel Examination

Site/Unit: Oconee / 1 | Procedure: NDE-3630 | Outage No.: O1-25
Summary No.: O1.B3.150.0003 | Procedure Rev.: 1 | Report No.: UT-09-335
Workscope: ISI | Work Order No.: 01838272 | Page: 1 of 8 BM 11-2-09 SCH 11-5-09

Code: 1998/2000A | Cat./Item: B-D /B3.150 | Location:
Drawing No.: 1-53755 | Description: Nozzle to Channel Body
System ID: 51A
Component ID: 1-51A-1-53755-V1 | Size/Length: N/A | Thickness/Diameter: 0.875/3.0/SS
Limitations: Yes - See supplemental sheet | Start Time: 1415 | Finish Time: 1520

Examination Surface: Inside ☐ Outside ☑ | Surface Condition: AS GROUND
Lo Location: 9.1.1.1 | Wo Location: Centerline of Weld | Couplant: ULTRAGEL II | Batch No.: 09125
Temp. Tool Mfg.: FISHER | Serial No.: MCNDE32770 | Surface Temp.: 71 °F
Cal. Report No.: CAL-09-419, 420, 421, 422 & 423

Angle Used	0	45	45T	60	60T	70L
Scanning dB		43.0	61.7	50.2	61.0	46.0

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

Comments:

Scanning db lowered from +14db to maintain 2:1 signal to noise ratio

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.			10/29/2009				11-2-09
Examiner	Level II-N	Signature	Date	Site Review		Signature	Date
Dean, Steven			10/29/2009				
Other	Level N/A	Signature	Date	ANII Review		Signature	Date
N/A							11/3/09

Letdown Cooler Nozzle to Channel Body

Weld No. : 1-51A-1-53755-VL

Item No. : 01.B3.150.0003

BASE MATERIAL AREA OF INTEREST

ABCD : $.875in\left(\frac{.45in+1.2in}{2}\right) = .77in^2$

GFH : $\frac{\pi(.45in^2)}{4} = .16in^2$

EFHJ : $1.8in \times .45in = .81in^2$

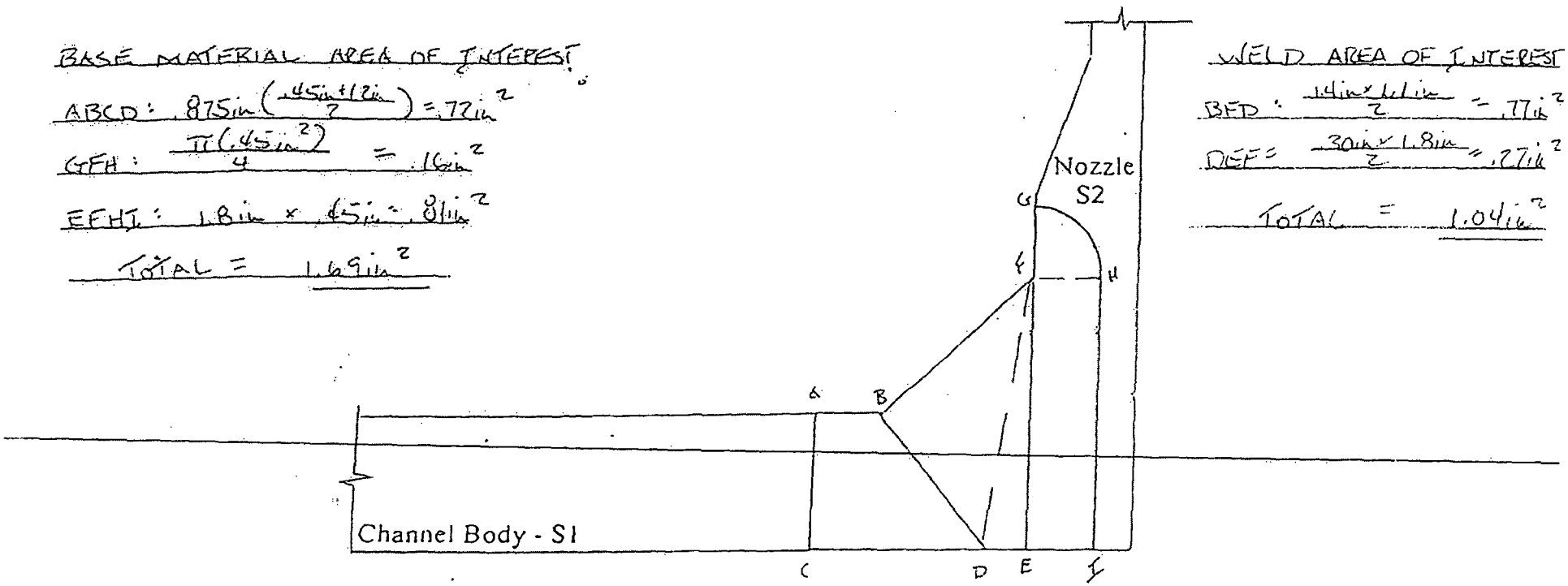
TOTAL = $1.69in^2$

WELD AREA OF INTEREST

BFD : $\frac{.14in \times 1.1in}{2} = .77in^2$

DEF : $\frac{.30in \times 1.8in}{2} = .27in^2$

TOTAL = $1.04in^2$



Scale: 1" = 1"

David C Zimmerman III 10/29/09

2 of 8 sgh

Letdown Cooler Nozzle to Channel Body

Weld No. : 1-51A-1-53755-11

Item No. : 01.B3.150.0003

BASE METAL COVERAGE - AXIAL

CDE: $\frac{\pi (.45in^2)}{4} = .16in^2$

BCEF: $.45in\left(\frac{1.5in + 1.35in}{2}\right) = .64in^2$

$.64in^2 + .16in^2 = .80in^2$

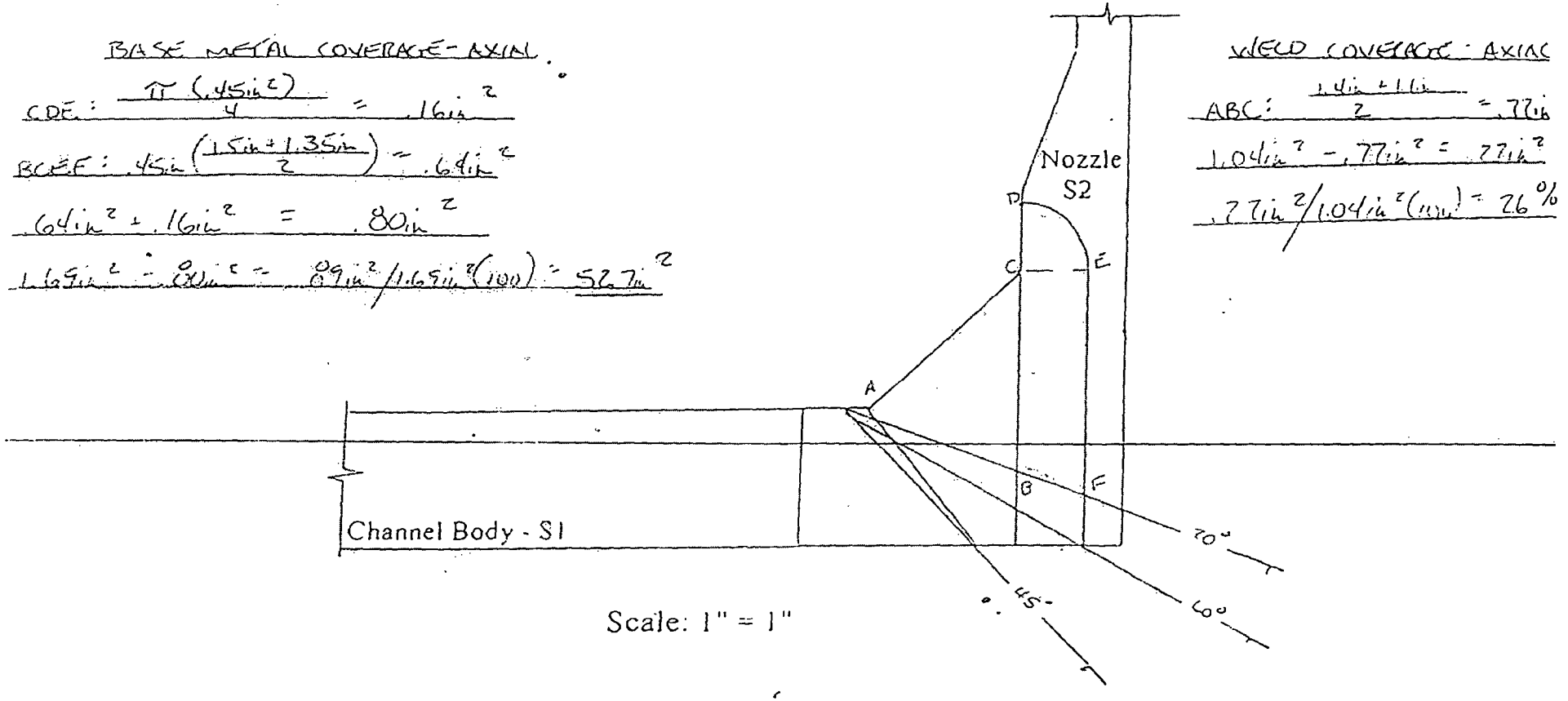
$1.65in^2 - .80in^2 = .89in^2 / 1.65in^2 (100) = 52.7\%$

WELD COVERAGE: AXIAL

ABC: $\frac{1.4in + 1.4in}{2} = .77in$

$1.04in^2 - .77in^2 = .27in^2$

$.27in^2 / 1.04in^2 (100) = 26\%$



Scale: 1" = 1"

Derrick Z. III 10/29/08

3 of 8 sch

4 of 9 11-09

Letdown Cooler Nozzle to Channel Body

Weld No. : 1-514-1-53755-V1

Item No. 01.B3.150.0003

BASE METAL COVERAGE-CIRC

ABCD: .75in × .875in = .22in²

IFG: $\frac{.2in \times 1.4in}{2}$ = .07in²

IGH: $\frac{.35in \times 1.4in}{2}$ = .25in²

HPJ: $\frac{.85in \times .30in}{2}$ = .13in²

LMN: $\frac{\pi(.45in^2)}{4}$ = .16in²

IJP: $\frac{.30in \times .60in}{2}$ = .09in²

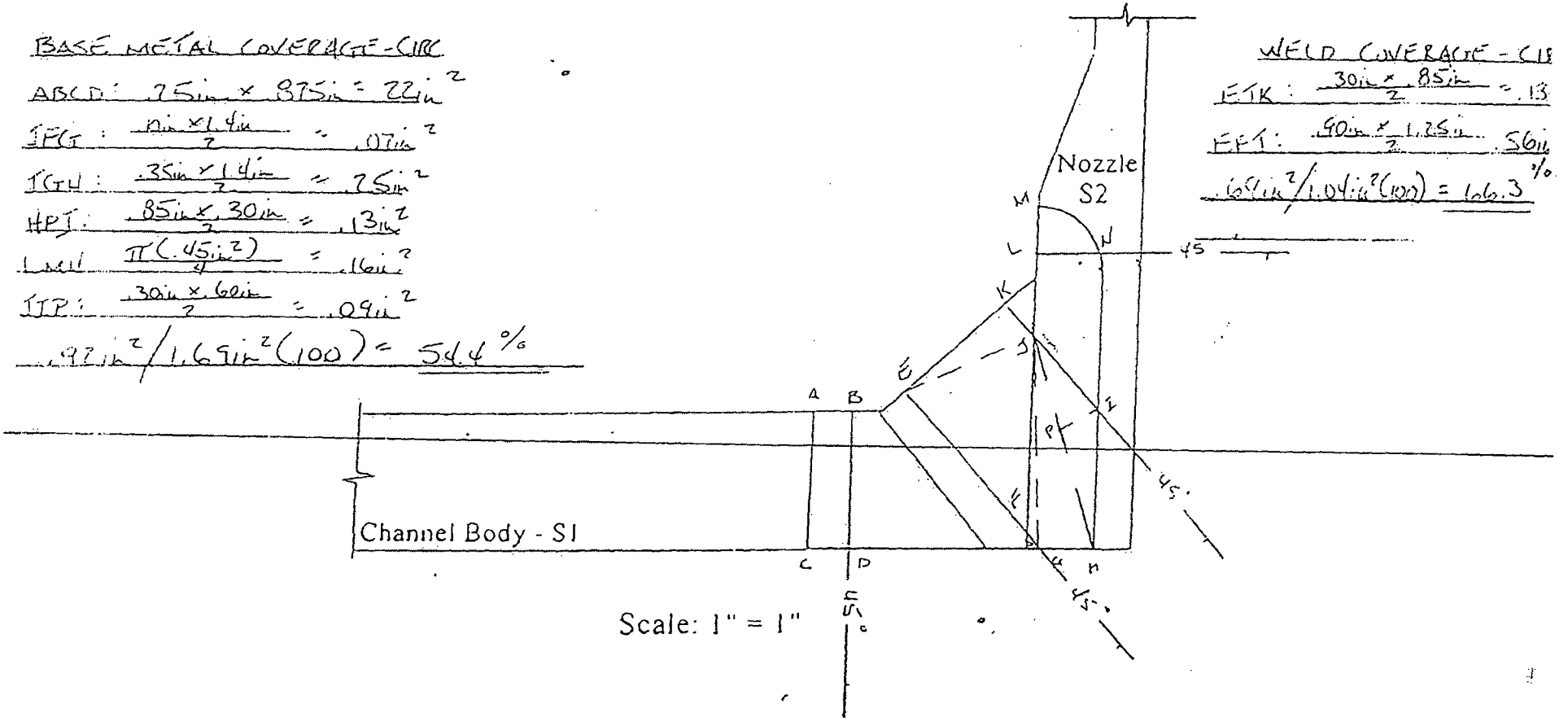
.92in²/1.69in²(100) = 54.4 %

WELD COVERAGE - CIR

EJK: $\frac{.30in \times .85in}{2}$ = .13

EFJ: $\frac{.90in \times 1.25in}{2}$ = .56in

.69in²/1.04in²(100) = 66.3 %



Scale: 1" = 1"

David K Z III 10/29/09

Letdown Cooler Nozzle to Channel Body (Radius View)

eld No. : 1-51A-1-53155-V1

Item No. : 01.B3.150.0003

BASE METAL AREA OF INTEREST

ABCD: .875in × .46in = .39in²

CDE: $\frac{.875in \times .45in}{2}$ = .20in²

HML: $\frac{.50in \times .20in}{2}$ = .05in²

MJKL: .44in × 1.25in = .55in²

IJK: $\frac{\pi(.45^2)}{4}$ = .16in²

TOTAL = 1.35in²

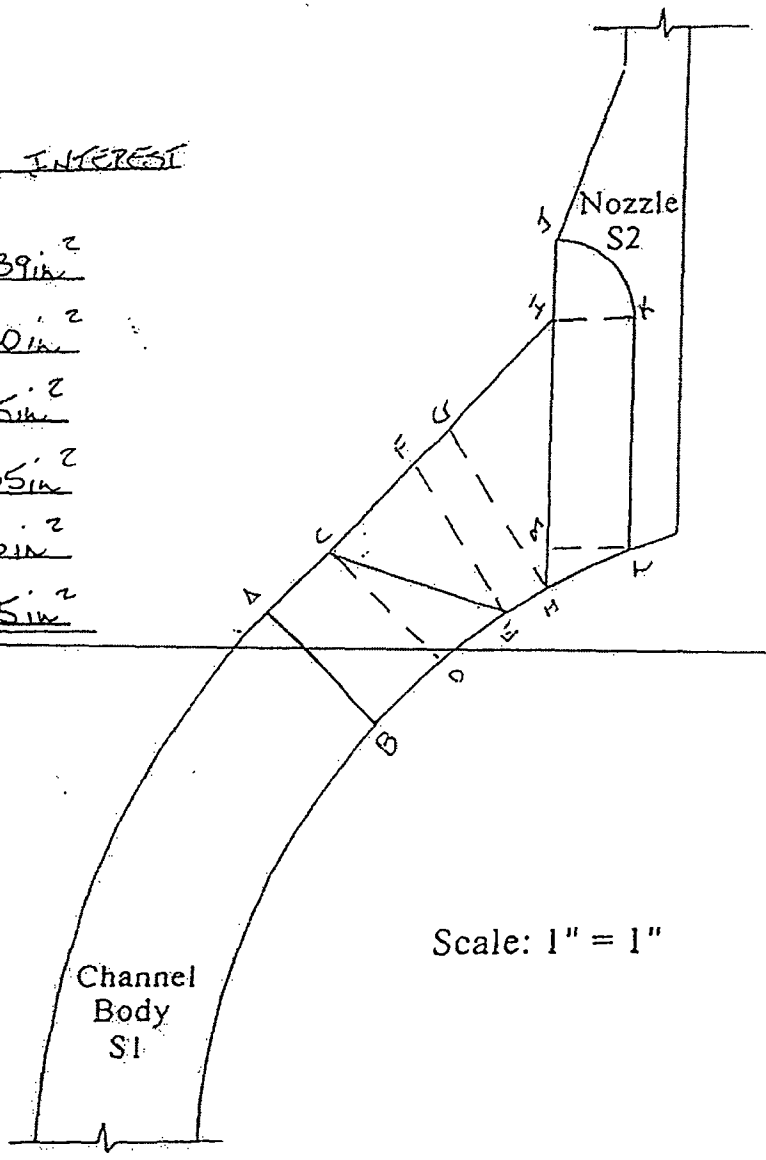
WELD AREA OF INTEREST

CEF: $\frac{.65in \times .875in}{2}$ = .28in²

EFGH: .25in × .875in = .22in²

GHI: $\frac{.80in \times .875in}{2}$ = .35in²

TOTAL = 0.85in²



Scale: 1" = 1"

David B. III 10/29/09

5 of 8

6 OF 9 Sch 1.5.09

Letdown Cooler Nozzle to Channel Body (Radius View)

eld No. : 1-51A-1-53755-V1

Item No. : 01B3.150.0003

BASE MATERIAL COVERAGE - AXIAL

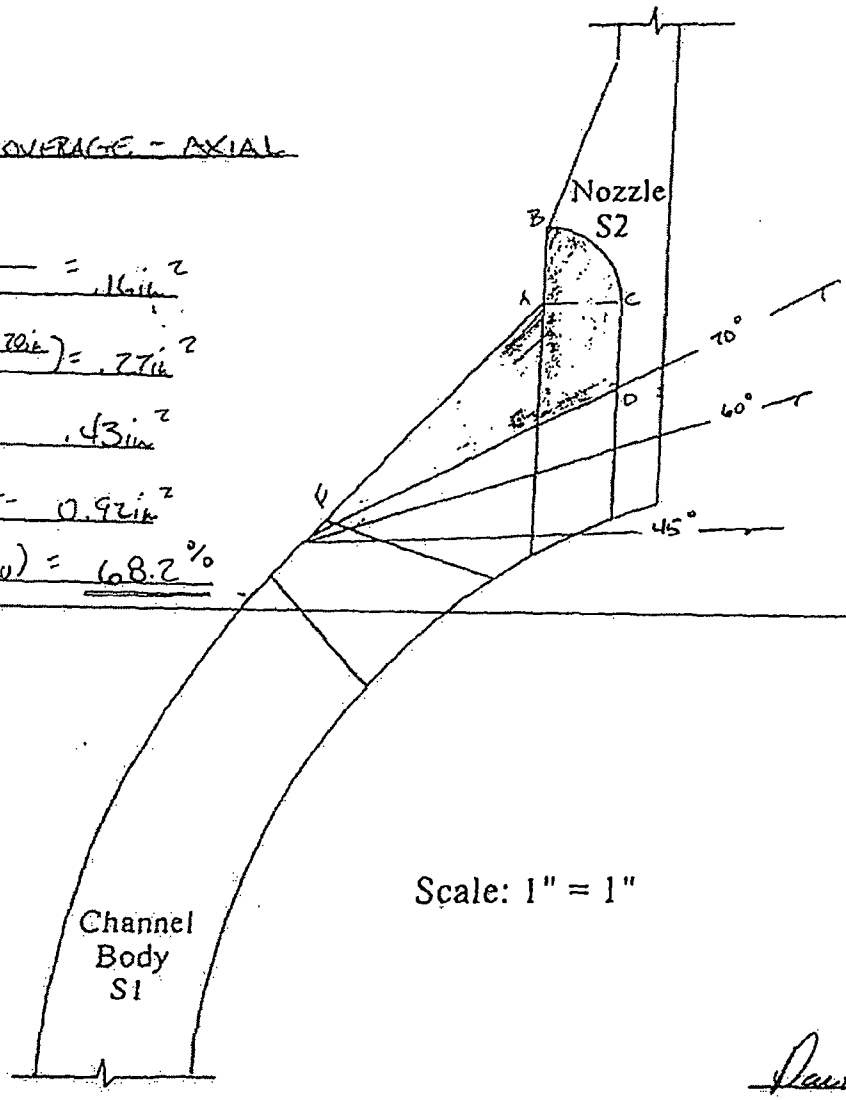
ABC : $\frac{\pi(.45^2)}{2}$ = .16in²

ACDE : .45in $\left(\frac{.50in + .70in}{2}\right)$ = .27in²

.27in² + .16in² = .43in²

1.35in² - .43in² = 0.92in²

0.92in²/1.35in²(100) = 68.2%



WELD COVERAGE - AXIAL

AEF : $\frac{1.3in \times .70in}{2}$ = .46in²

.85in² - .46in² = .39in²

.39in²/.85in²(100) = 45.9%

Scale: 1" = 1"

David K. B. III 10/29/09

6 of 8 each

~~7 ME 9~~ 11.5.09

Let.. own Cooler Nozzle to Chan el Body (Radius View)

ATTACHMENT A
PAGE 47 OF 112

eld No. : 1-51A-1-53755-V1

Item No. : 01.B3.150.0003

BASE METAL COVERAGE - CIRC

CDEF : .45in ((1.0in + .30in) / 2) = .29in²

... : (.875in × .45in) / 2 = .20in²

GHJK : .875in ... = .39in²

TOTAL = .88in²

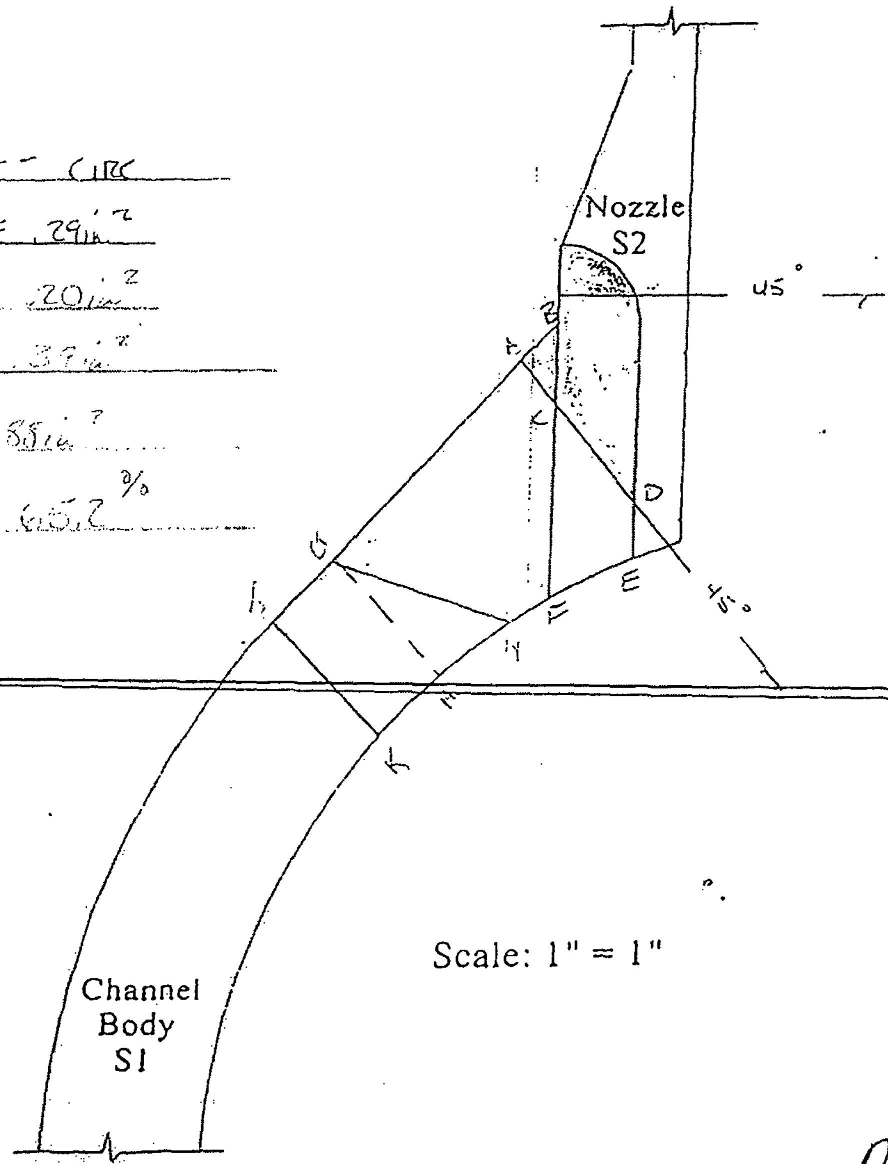
.88in² / 1.35in² (100) = 65.2 %

WELD COVERAGE - CIRC

ABC: (.30in × .30in) / 2 = .05in²

.85in² - .05in² = .80in²

.80in² / .85in² (100) = 94.1 %



Scale: 1" = 1"

David K. ... III 10/29/09

~~8 of 9~~ 7 of 8 gch 11.5.09

ATTACHMENT A
PAGE 48 OF 112

Letdown Cooler Nozzle to Channel Body		
Item No. 01.B3.150.0003 / Weld No. 1-51A-1-53755-V1		
Base Material Coverage		
Scan	Radius View	Non-Radius View
Axial	68.2%	52.7%
Circ	65.2%	54.4%
Aggregate @ 68.2 + 52.7 + 65.2 + 54.4 = 240.5/4 = 60.1%		
Weld Material Coverage		
Scan	Radius View	Non-Radius View
Axial-S1	45.9%	26.0%
Axial-S2	0.0%	0.0%
Circ-S2	94.1%	66.3%
Circ-S2	94.1%	66.3%
Aggregate @ 45.9 + 26.0 + 0.0 + 0.0 + 94.1 + 66.3 + 94.1 + 66.3 = 392.7/8 = 49.1%		
Total Aggregate @ 60.1 + 49.1 = 109.2/2 = 54.6%		

Level III David K. Z

Date 10/29/09

8 of 8 sch
~~9 of 9~~ 11.5.09

Duke Energy

UT Vessel Examination

Site/Unit:	Oconee / 1	Procedure:	NDE-3630	Outage No.:	O1-25
Summary No.:	O1.B3.150.0004	Procedure Rev.:	1	Report No.:	UT-09-336
Workscope:	ISI	Work Order No.:	01838272	Page:	1 of 18 Sht

(1.5".09)

Code:	1998/2000A	Cat./Item:	B-D /B3.150	Location:	
Drawing No.:	1-53755	Description:	Nozzle to Channel Body		
System ID:	51A				
Component ID:	1-51A-1-53755-V2	Size/Length:	N/A	Thickness/Diameter:	0.875/3.0/SS
Limitations:	Yes - See supplemental sheet	Start Time:	1415	Finish Time:	1520

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

Lo Location: 9.1.1.1 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 09125

Temp. Tool Mfg.: FISHER Serial No.: MCNDE32770 Surface Temp.: 71 °F

Cal. Report No.: CAL-09-419, 420, 421, 422 & 423

Angle Used	0	45	45T	60	60T	70L
Scanning dB		43.0	61.7	50.2	61.0	46.0

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

Comments:

Scanning db lowered from +14db to maintain 2:1 signal to noise ratio

Results: Accept ☐ Reject ☑ Info ☐

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

Examiner Level II-N Griebel, David M.	Signature	Date 10/29/2009	Reviewer	Barry Mitchell	Signature	Date 11-2-09
Examiner Level II-N Dean, Steven	Signature	Date 10/29/2009	Site Review		Signature	Date
Other Level N/A N/A	Signature	Date	ANII Review		Signature	Date 11/3/09

Letdown Cooler Nozzle to Channel Body

Weld No. : 1-51A-1-53755-V2

Item No. : 01.B3.150.0004

BASE MATERIAL AREA OF INTEREST

ABCD: $.875in\left(\frac{.45in+1.2in}{2}\right) = .72in^2$

GFH: $\frac{\pi(.45in^2)}{4} = .16in^2$

EFHJ: $1.8in \times .45in = .81in^2$

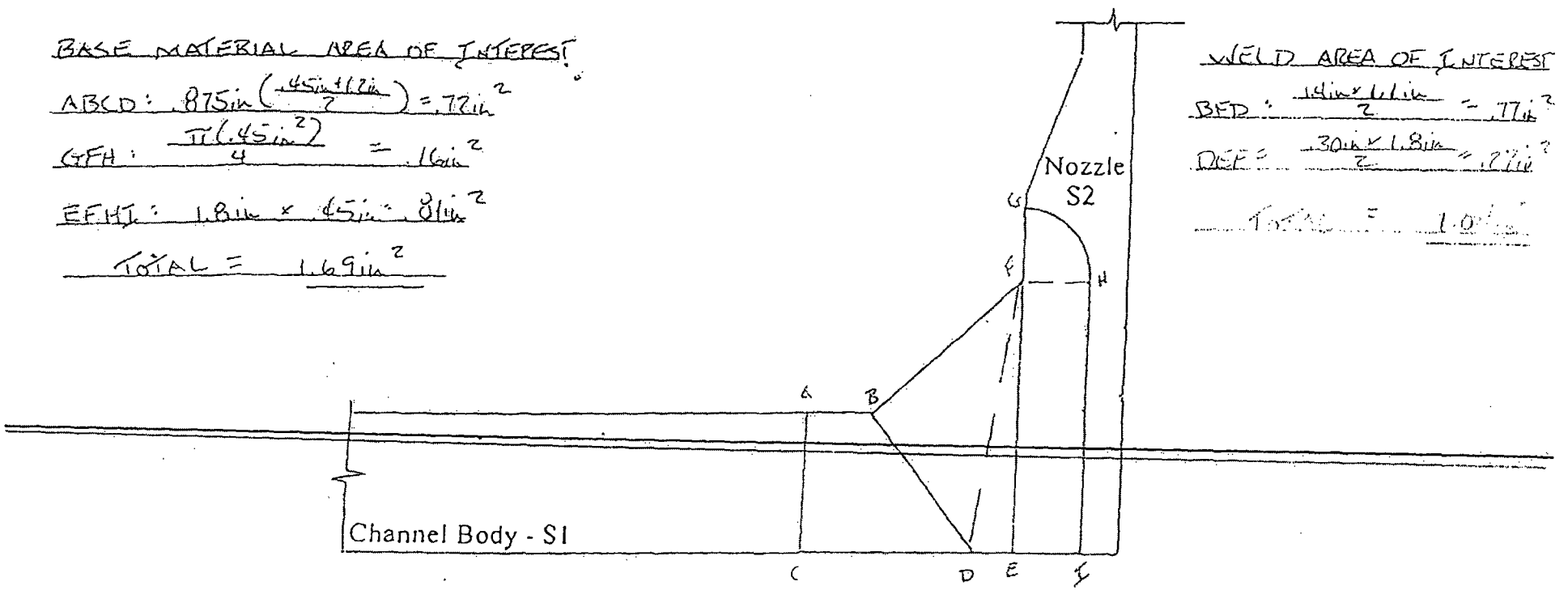
TOTAL = $1.69in^2$

WELD AREA OF INTEREST

BED: $\frac{1.4in \times 1.1in}{2} = .77in^2$

DEF: $\frac{.30in \times 1.8in}{2} = .27in^2$

TOTAL = $1.04in^2$



Scale: 1" = 1"

10/29/09

2 of 8 sht

Letdown Cooler Nozzle to Channel Body

Weld No. : 1-51A-1-53755-V2

Item No. : 01.B3.150.0004

BASE METAL COVERAGE - AXIAL

CDE: $\frac{\pi (.45in^2)}{4} = .16in^2$

BCEF: $.45in \left(\frac{1.5in + 1.35in}{2}\right) = .64in^2$

$.64in^2 + .16in^2 = .80in^2$

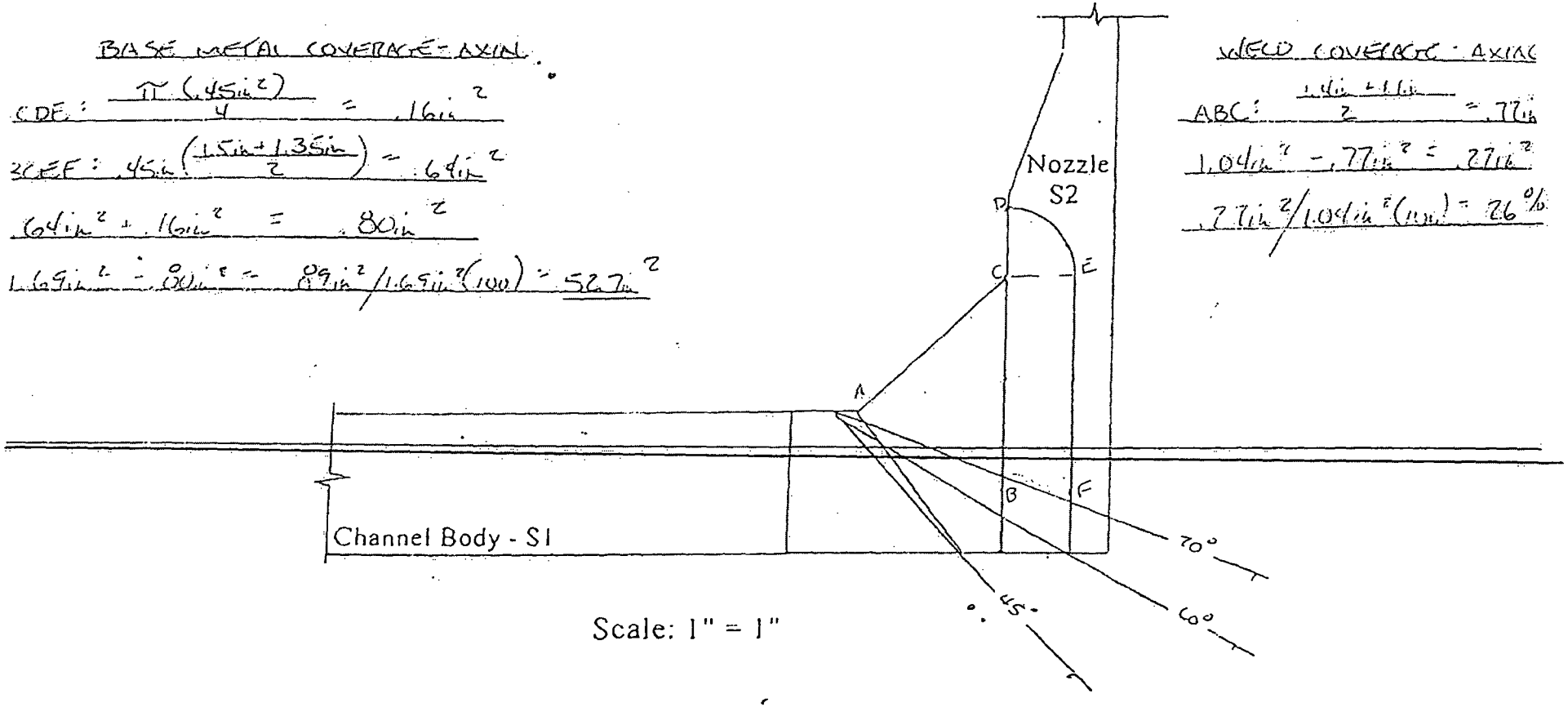
$1.69in^2 \div .80in^2 = .89in^2 / 1.69in^2 (100) = 52.7\%$

WELD COVERAGE - AXIAL

ABC: $\frac{1.4in + 1.4in}{2} = .77in^2$

$1.04in^2 - .77in^2 = .27in^2$

$.27in^2 / 1.04in^2 (100) = 26\%$



Scale: 1" = 1"

David E. Z - III 10/29/09

3 of 8 each

Letdown Cooler Nozzle to Channel Body

Weld No. : 1-51A-1-53755-V2

Item No. 01.B3.150.0004

BASE METAL COVERAGE - CIRC

ABCD: .75in × .875in = .22in²

EFG: $\frac{.2in \times 1.4in}{2}$ = .07in²

FGH: $\frac{.35in \times 1.4in}{2}$ = .25in²

HPJ: $\frac{.85in \times .30in}{2}$ = .13in²

Lwld $\frac{\pi(.45in^2)}{4}$ = .16in²

IJP: $\frac{.30in \times .60in}{2}$ = .09in²

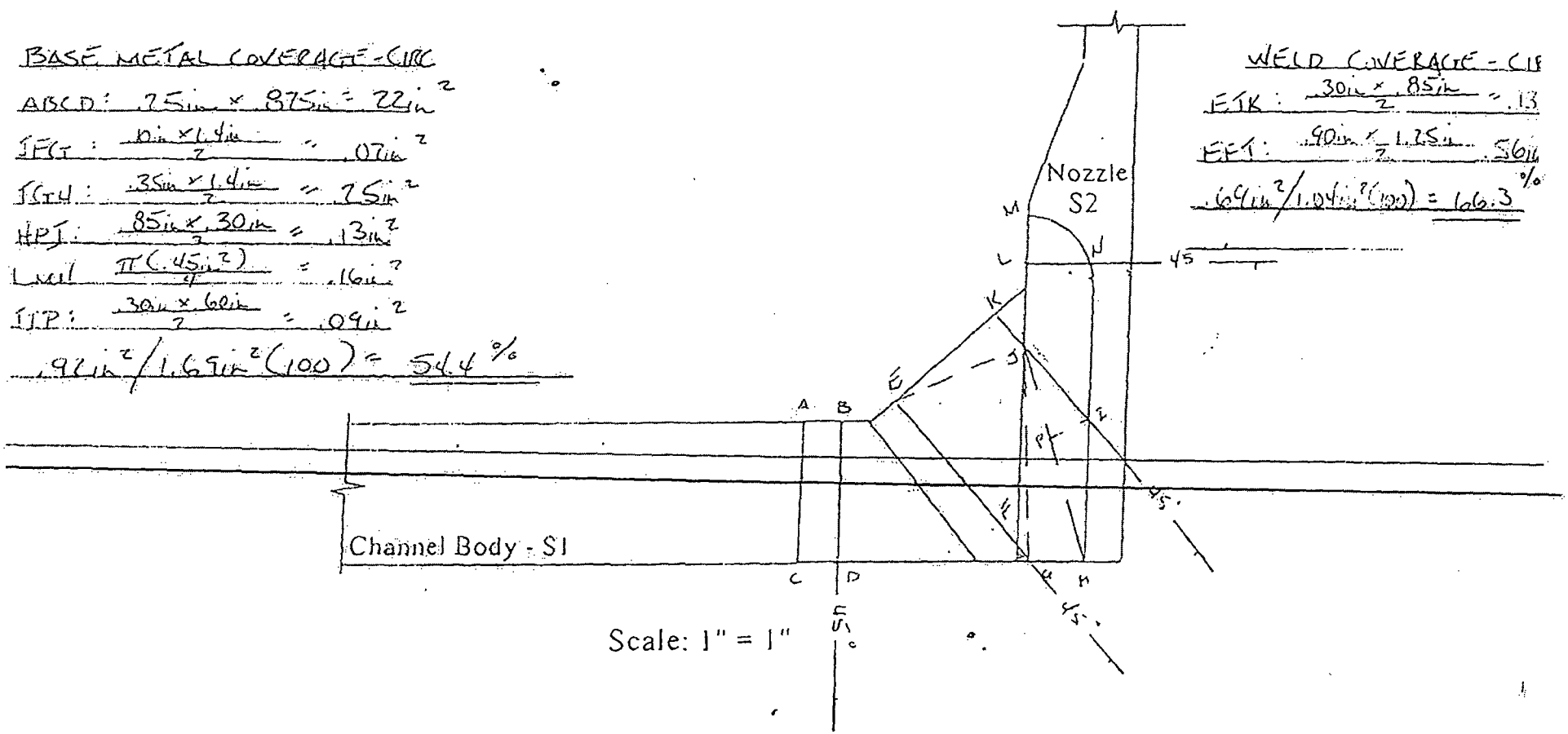
.92in²/1.69in²(100) = 54.4 %

WELD COVERAGE - CIR

EJK: $\frac{.30in \times .85in}{2}$ = .13

EFT: $\frac{.90in \times 1.25in}{2}$ = .56

.69in²/1.04in²(100) = 166.3 %



David K. Z III 10/29/09

4 of 8 SKT

Letdown Cooler Nozzle to Channel Body (Radius View)

Id No. : 1-51A-1-53155-V2

Item No. : 01.B3.150.0004

BASE METAL AREA OF INTEREST

ABCD: .875in × .45in = .39in²

CDE: $\frac{.875in \times .45in}{2}$ = .20in²

HML: $\frac{.50in \times .20in}{2}$ = .05in²

MTKL: .44in × 1.25in = .55in²

IK: $\frac{\pi(.45^2)}{4}$ = .16in²

TOTAL = 1.35in²

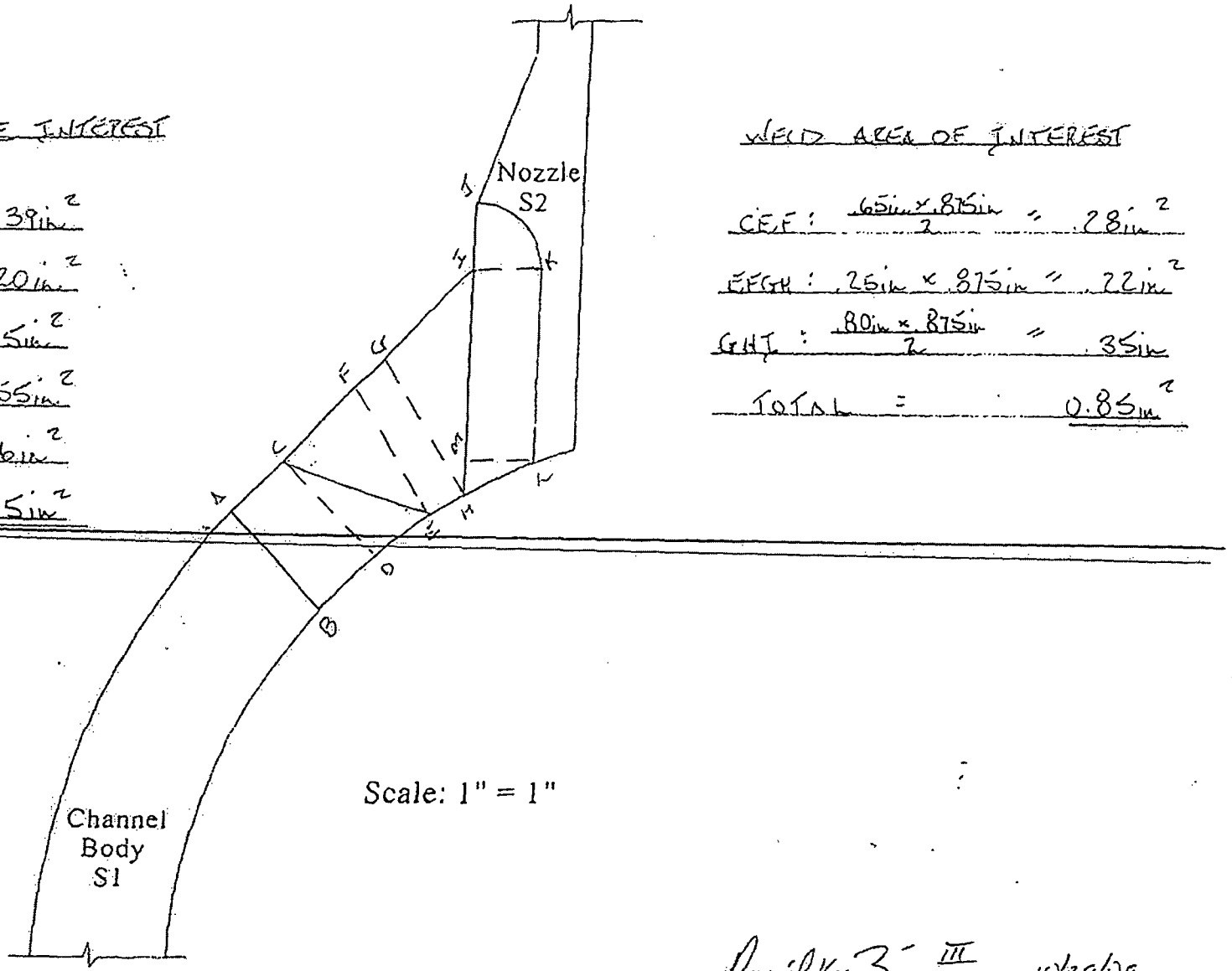
WELD AREA OF INTEREST

CEF: $\frac{.65in \times .875in}{2}$ = .28in²

EFGH: .25in × .875in = .22in²

GHJ: $\frac{.80in \times .875in}{2}$ = .35in²

TOTAL = 0.85in²



Scale: 1" = 1"

David K. Z III 10/29/09

5 of 8 get
11-5-09

Letdown Cooler Nozzle to Channel Body (Radius View)

d No. : 1-51A-1-53755-V2

Item No. : 01.B3.150.0004

BASE MATERIAL COVERAGE - AXIAL

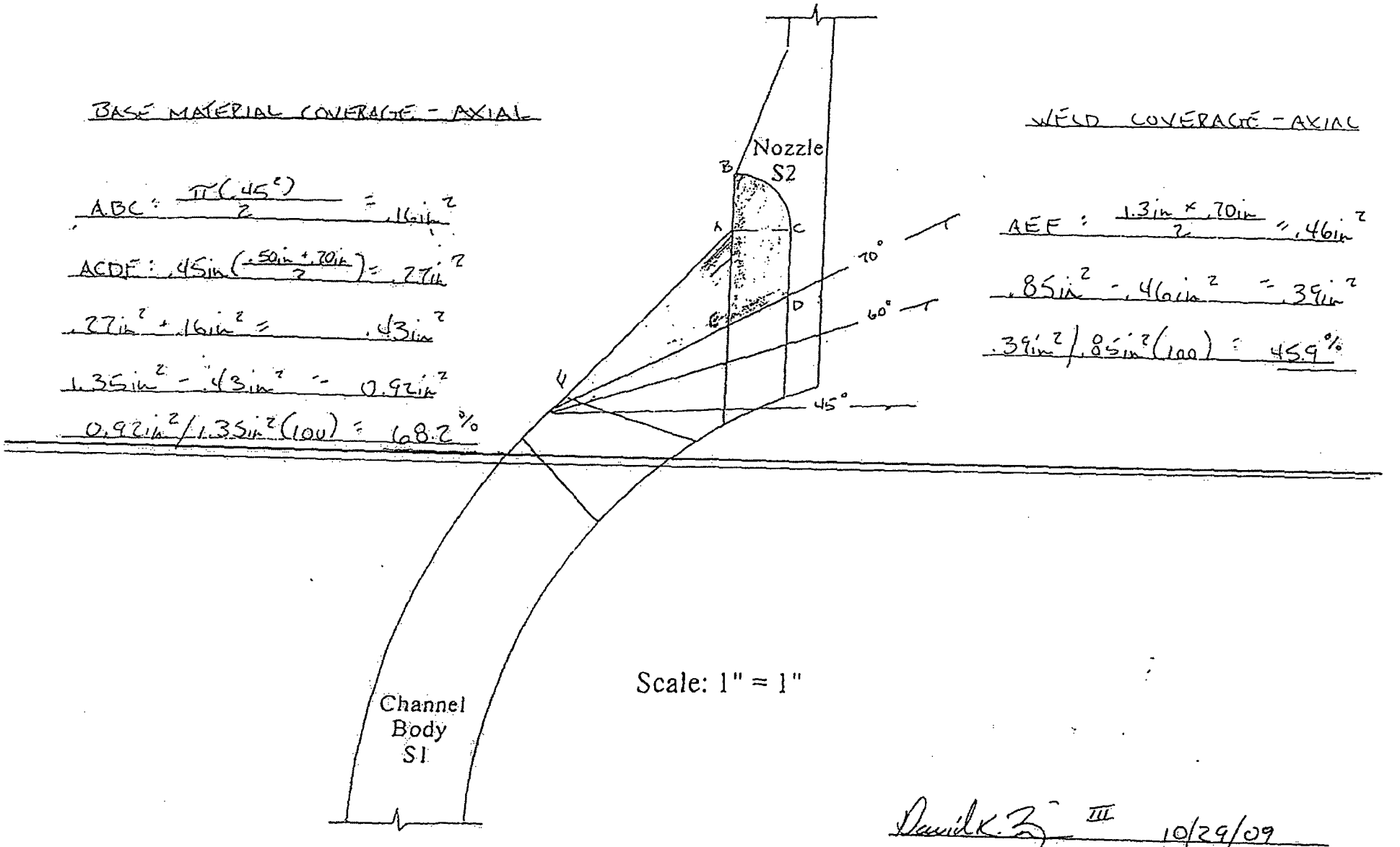
ABC : $\frac{\pi(.45^2)}{2}$ = .16in²

ACDE : .45in $(\frac{.50in + .70in}{2})$ = .27in²

.27in² + .16in² = .43in²

1.35in² - .43in² = 0.92in²

0.92in²/1.35in²(100) = 68.2%



WELD COVERAGE - AXIAL

AEF : $\frac{1.3in \times .70in}{2}$ = .46in²

.85in² - .46in² = .39in²

.39in²/.85in²(100) = 45.9%

Scale: 1" = 1"

David K. Z III 10/29/09

6 of 8 sch 11.5.09

Letdown Cooler Nozzle to Channel Body (Radius View)

d No.: 1-51A-1-53755-V2

Item No.: 01.B3.150.0004

BASE METAL COVERAGE - CIRC

CDEF: .45in (1.0in² − .30in²) / 2 = .29in²

ABJK: .85in × .45in = .70in²

CHJK: .85in × .45in = .70in²

TOTAL .80in²

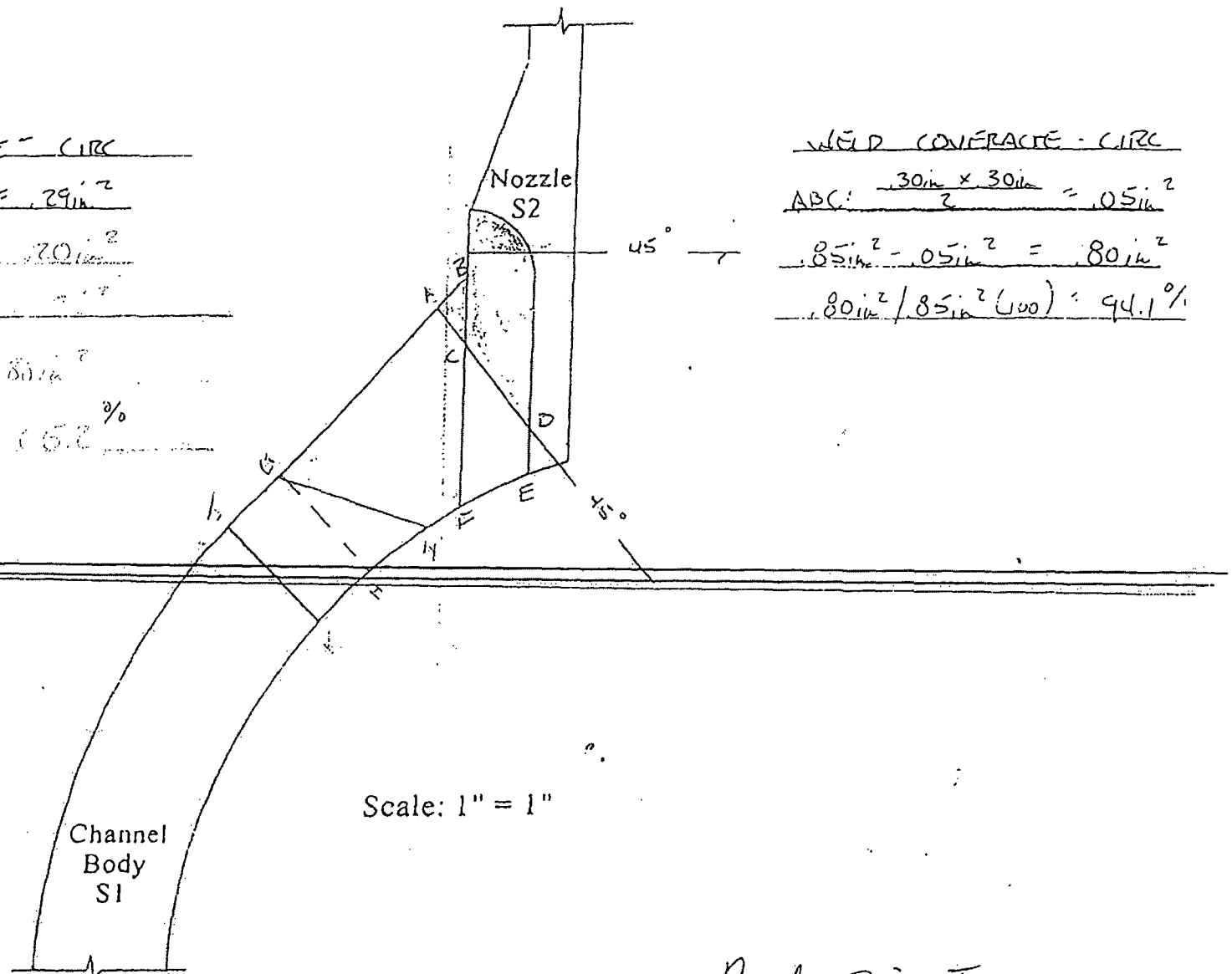
.88in² / 1.35in² × 100 = 65.2 %

WELD COVERAGE - CIRC

ABC: .30in × .30in / 2 = .05in²

.85in² − .05in² = .80in²

.80in² / .85in² (100) = 94.1 %



Scale: 1" = 1"

David K. Zimmerman III 10/29/09

7 of 8 9c41-5-09

ATTACHMENT A
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Letdown Cooler Nozzle to Channel Body		
Item No. 01.B3.150.0004 / Weld No. 1-51A-1-53755-V2		
Base Material Coverage		
Scan	Radius View	Non-Radius View
Axial	68.2%	52.7%
Circ	65.2%	54.4%
Aggregate @ 68.2 + 52.7 + 65.2 + 54.4 = 240.5/4 = 60.1%		
Weld Material Coverage		
Scan	Radius View	Non-Radius View
Axial-S1	45.9%	26.0%
Axial-S2	0.0%	0.0%
Circ-S2	94.1%	66.3%
Circ-S2	94.1%	66.3%
Aggregate @ 45.9 + 26.0 + 0.0 + 0.0 + 94.1 + 66.3 + 94.1 + 66.3 = 392.7/8 = 49.1%		
Total Aggregate @ 60.1 + 49.1 = 109.2/2 = 54.6%		

Level III David K. B

Date 10/29/09

8 of 8 sht
~~4 of 4~~ 11.5.09

Duke Energy

UT Pipe Weld Examination

Site/Unit:	Oconee / 1	Procedure:	PDI-UT-2	Outage No.:	O1-25
Summary No.:	O1.B9.11.0003	Procedure Rev.:	C	Report No.:	UT-09-315
Workscope:	ISI	Work Order No.:	01841875	Page:	1 of 4

Code: 1998/2000A Cat./Item: B-J /B9.11 Location:

Drawing No.: 1LP-209 Description: Elbow to Valve 1CF-13 (Cast SS)

System ID: 53A

Component ID: 1LP-209-8L Size/Length: N/A Thickness/Diameter: 1.25/14.0/SS

Limitations: See attached report Start Time: 1449 Finish Time: 1527

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

Lo Location: 9.1.1.1 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 09125

Temp. Tool Mfg.: Fluke Serial No.: OCQUA33090 Surface Temp.: 72 °F

Cal. Report No.: CAL-09-390 & CAL-09-391

Angle Used	0	45	45T	60		
Scanning dB		40.3	40.3	58.2		

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

Comments:

N/A

Results: Accept ☐ Reject ☑ Info ☐

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

Examiner Ellis II, Kenneth R.	Level II-N	Signature	Date 10/27/2009	Reviewer Barry Markert	Signature / Date 10-29-09
Examiner Day, John, C.	Level II-N	Signature	Date 10/27/2009	Site Review	Signature / Date
Other N/A	Level N/A	Signature	Date	ANII Review	Signature / Date 10/30/09

Duke Energy

Ultrasonic Indication Report

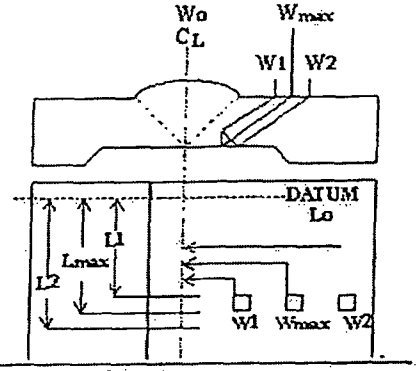
Site/Unit:	Oconee / 1	Procedure:	PDI-UT-2	Outage No.:	O1-25
Summary No.:	O1.B9.11.0003	Procedure Rev.:	C	Report No.:	UT-09-315
Workscope:	ISI	Work Order No.:	01841875	Page:	2 of 4

Search Unit Angle: 45° & 60°RL °

Wo Location: Weld Centerline

Lo Location: 9.1.1.1

(•) Piping Welds
( ) Ferritic Vessels ≥ 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: N/A

Angle	Indication No.	% Of DAC	W Max W	W Max MP	Forward Of Max W1	Forward Of Max MP	Backward Of Max W2	Backward Of Max MP	L1 Of Max	L Max	L2 Of Max	RBR Amp.	Remarks
NRI													

Examiner: Ellis II, Kenneth R.	Level: II-N	Signature: Kenneth R. Ellis II	Date: 10/27/2009	Reviewer: Barry Mahan	Signature	Date: 10-29-09
Examiner: Day, John, C.	Level: II-N	Signature: John C. Day	Date: 10/27/2009	Site Review	Signature	Date
Other: N/A	Level: N/A	Signature	Date	ANII Review	Signature: [illegible]	Date: 10/30/09

DUKE POWER COMPANY

ISI LIMITATION REPORT

UT-09-315

Component/Weld ID: 1LP-209-8L **Item No:** O1.B9.11.0003

remarks:

☒ NO SCAN SURFACE BEAM DIRECTION — No coverage due to pipe
☐ LIMITED SCAN ☐ 1 ☒ 2 ☒ 1 ☐ 2 ☐ cw ☐ ccw — configuration
FROM L N/A to L N/A INCHES FROM W0 CL to Beyond
ANGLE: ☐ 0 ☒ 45 ☐ 60 other 60L FROM 0 DEG to 360 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 ☐ 45 ☐ 60 other _____ FROM _____ DEG to _____ DEG

☐ NO SCAN SURFACE BEAM DIRECTION
☐ LIMITED SCAN ☐ 1 ☐ 2 ☐ 1 ☐ 2 ☐ cw ☐ ccw
FROM L _____ to L 4 INCHES FROM W0 _____ to _____
ANGLE: ☐ 0 ☐ 5 ☐ 60 other _____ FROM _____ DEG to _____ DEG

Sketch(s) attached ☒ yes ☐ No

Prepared By: Kenneth Ellis Level: II Date: 10/27/09 Sheet 3 of 4

Reviewed By: Date: 10-29-09 Authorized Inspector: Date: 10/30/09

ATTACHMENT A
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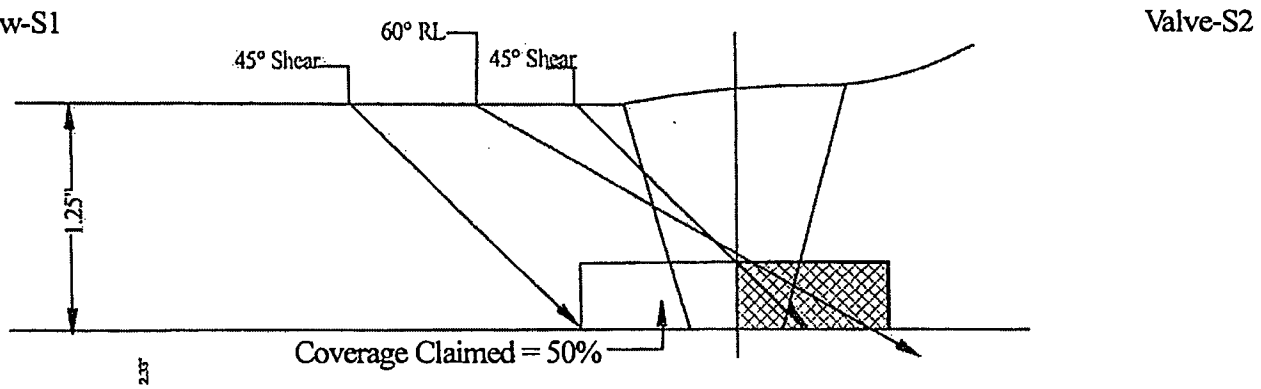
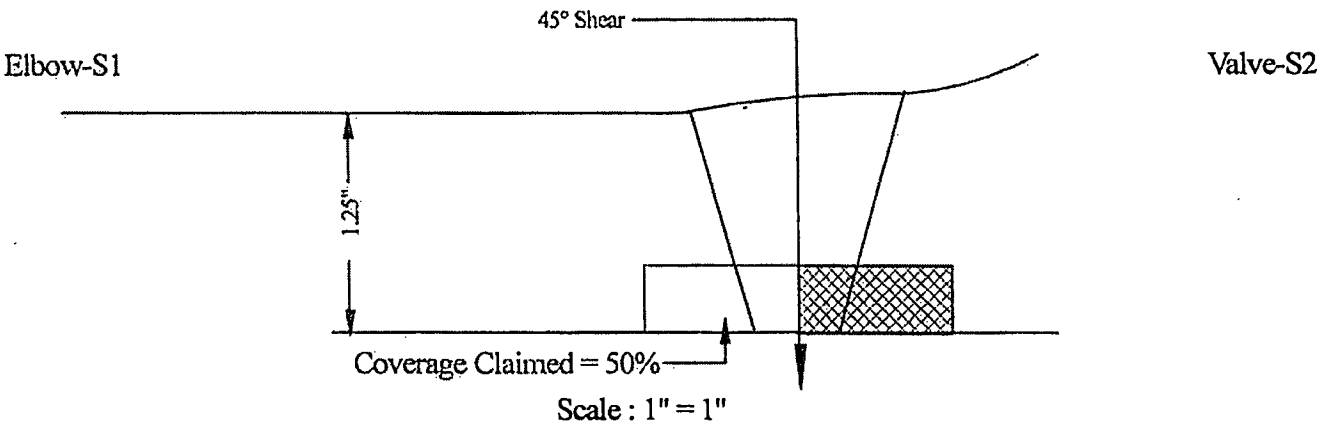
Axial Scan Coverage

Item No. O1.B9.11.0003 Weld No. 1LP-209-8L



Circ. Scan Coverage



% Coverage Calculations

S1 = Elbow = 50% (100% of the length x 50% of the volume)

S2 = Valve = 0% (0% of the length x 0% 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 = 37.5 % Aggregate Coverage

UT-09-315

Inspector / Date: [signature] 10-29-09

David K. [signature] 10/29/09

Duke Energy

UT Pipe Weld Examination

Site/Unit:	Oconee / 1	Procedure:	PDI-UT-2	Outage No.:	O1-25
Summary No.:	O1.B9.11.0050	Procedure Rev.:	C	Report No.:	UT-09-261
Workscope:	ISI	Work Order No.:	01841933	Page:	1 of 5

Code: 1998/2000A Cat./Item: B-J /B9.11 Location:

Drawing No.: ISI-OCN1-008 Description: Safe end to RC Pump 1A2

System ID: 50

Component ID: 1-PIA2-9 Size/Length: N/A Thickness/Diameter: 2.330/36.5/SS

Limitations: Yes Start Time: 0958 Finish Time: 1043

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

Lo Location: RT stamp #1 Wo Location: WELD CENTERLINE Couplant: ULTRAGEL II Batch No.: 09125

Temp. Tool Mfg.: FISHER Serial No.: MCNDE32768 Surface Temp.: 67 °F

Cal. Report No.: CAL-09-327, CAL-09-328, CAL-09-329

Angle Used	0	45	45T	60	60L	
Scanning dB		52.5	52.5	62.5	63.8	

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 Tucker, David K.	Signature David K. Tucker	Date 10/18/2009	Reviewer Barry [illegible]	Signature	Date 10-28-09
Examiner Level II-N Hollis, Jacob	Signature Jack R. Hollis	Date 10/18/2009	Site Review	Signature	Date
Other Level N/A N/A	Signature	Date	ANII Review	Signature C E Smith	Date 10/30/09

DUKE POWER COMPANY

ISI LIMITATION REPORT

UT-09-261

Component/Weld ID: 1PIA2-9 Item No: O1.B9.11.0050

remarks: Pipe to pump configuration

☒ 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 60L FROM 0 DEG to 360 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 ☐ 45 ☐ 60 other _____ FROM _____ DEG to _____ DEG

☒ NO SCAN SURFACE BEAM DIRECTION
☐ LIMITED SCAN ☐ 1 ☐ 2 ☐ 1 ☐ 2 ☐ cw ☐ ccw

FROM L _____ to L 4 INCHES FROM W0 _____ to _____

ANGLE: ☐ 0 ☐ 5 ☐ 60 other _____ FROM _____ DEG to _____ DEG

Sketch(s) attached
☒ yes ☐ No

Prepared By: David Tucker Level: II Date: 10/18/09 Sheet 2 of 5

Reviewed By: Barry Date: 10-28-09 Authorized Inspector: Date: 10/30/09

ATTACHMENT A
PAGE 63 OF 112

Duke Energy

Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit:	Oconee / 1	Procedure:	PDI-UT-2	Outage No.:	O1-25
Summary No.:	O1.B9.11.0050	Procedure Rev.:	C	Report No.:	UT-09-261
Workscope:	ISI	Work Order No.:	01841933	Page:	3 of 5

45 deg

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

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

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

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

Scan 1	100.000	% Length X	0.000	% volume of length / 100 =	0.000	% total for Scan 1
Scan 2	100.000	% Length X	45.100	% volume of length / 100 =	45.100	% 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;

36.275 **% Total for complete exam**

Site Field Supervisor: **Rodney Sheffield** Rodney Sheffield Date: 10-28-09

Duke Energy

Supplemental Report

Report No.: UT-09-261

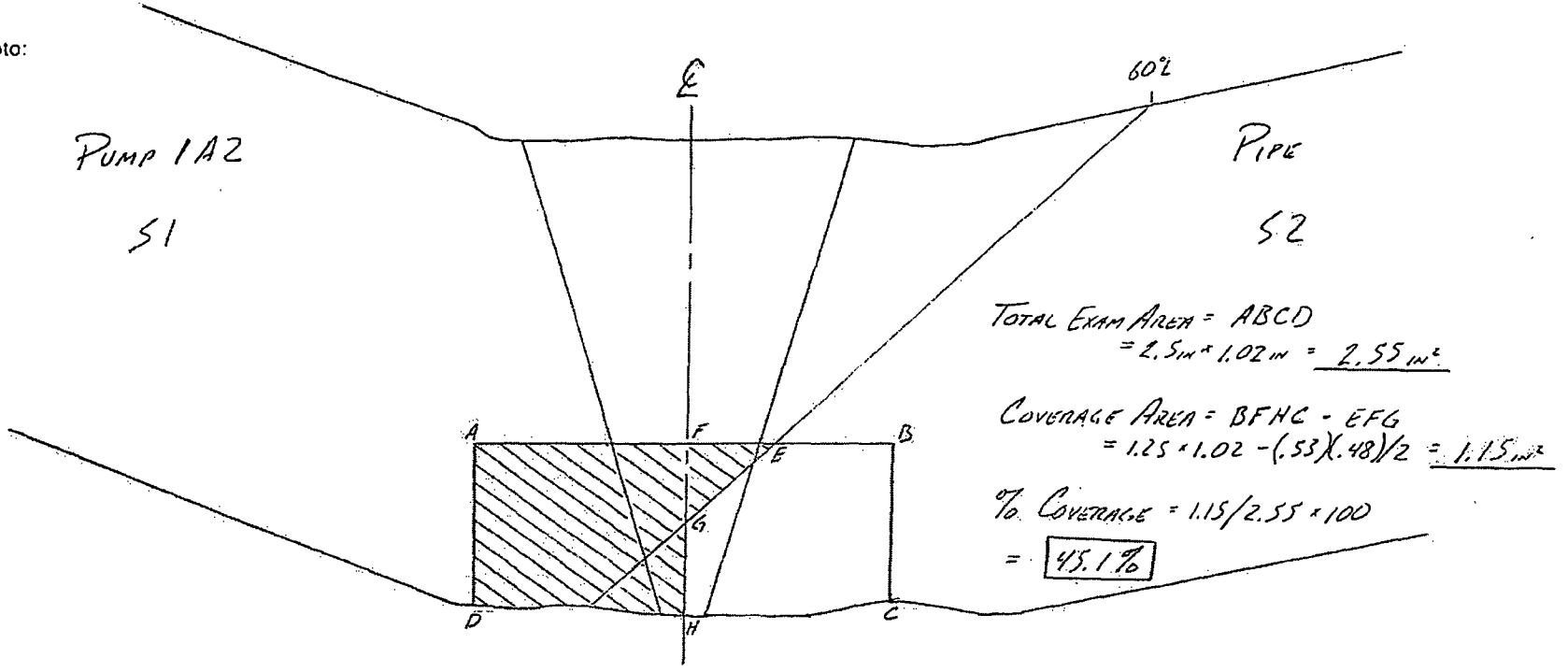
Page: 4 of 5

Summary No.: O1.B9.11.0050

Examiner:	Tucker, David K.		Level:	II-N	Reviewer:	Barry Markt	Date: 10-28-09
Examiner:	Hollis, Jacob	Jacob R. Hollis	Level:	II-N	Site Review:		Date:
Other:	N/A		Level:	N/A	ANII Review:		Date: 10/30/09

Comments: **Axial exam 45° shear, 60° shear & 60°L**

Sketch or Photo:



Duke Energy

Supplemental Report

Report No.: UT-09-261

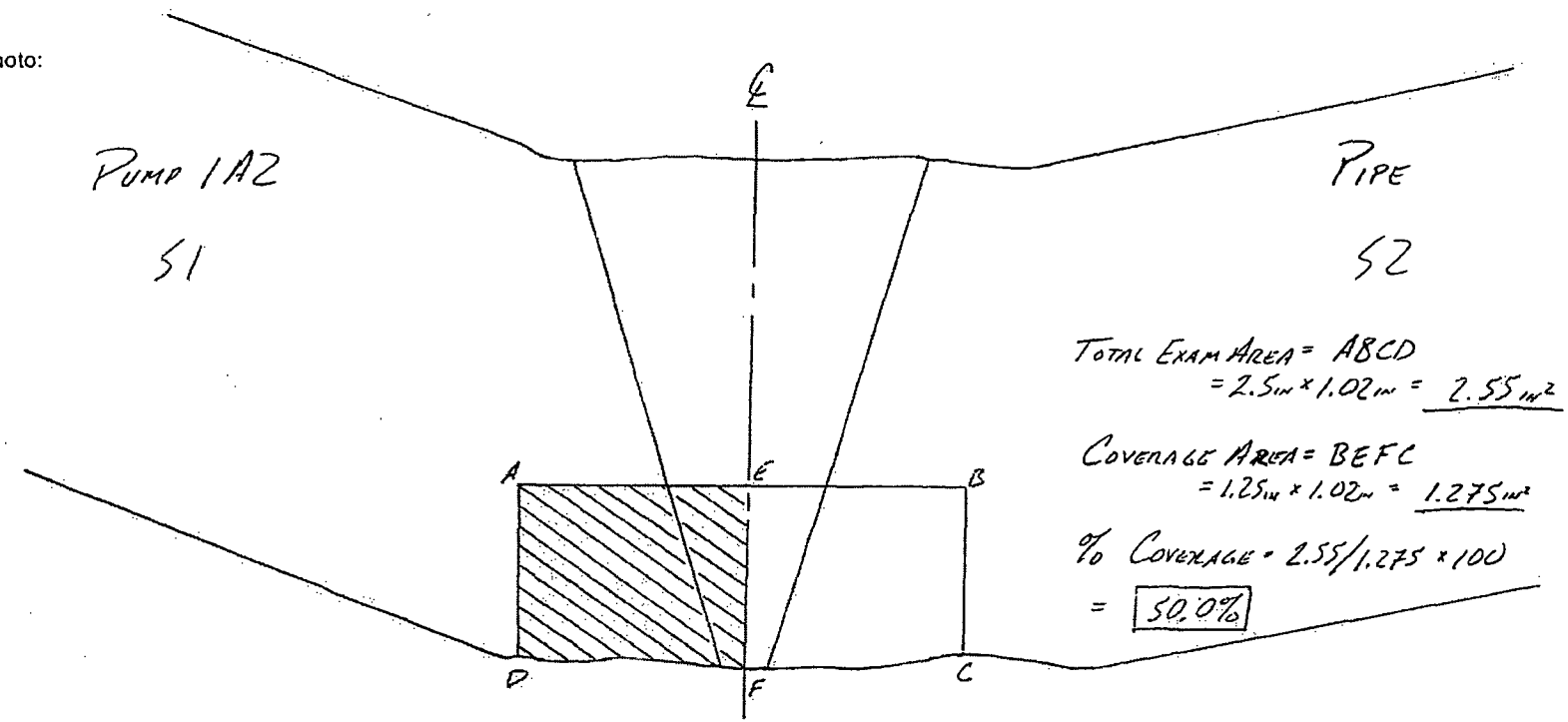
Page: 5 of 5

Summary No.: O1.B9.11.0050

Examiner:	Tucker, David K.	Level:	II-N	Reviewer:	Barry	Date: 10-28-09
Examiner:	Hollis, Jacob	Level:	II-N	Site Review:		Date:
Other:	N/A	Level:	N/A	ANII Review:		Date: 10/30/09

Comments: CW & CCW Circ 45° shear exam

Sketch or Photo:



TOTAL EXAM AREA = ABCD
= 2.5in × 1.02in = 2.55in²

COVERAGE AREA = BEFC
= 1.25in × 1.02in = 1.275in²

% COVERAGE = 2.55/1.275 × 100
= 50.0%

Duke Energy

UT Pipe Weld Examination

Site/Unit:	Oconee / 1	Procedure:	NDE-830	Outage No.:	O1-25
Summary No.:	O1.B9.11.0050	Procedure Rev.:	1	Report No.:	UT-09-260
Workscope:	ISI	Work Order No.:	01841933	Page:	1 of 3

Code: 1998/2000A Cat./Item: B-J /B9.11 Location:

Drawing No.: ISI-OCN1-008 Description: Safe end to RC Pump 1A2

System ID: 50

Component ID: 1-PIA2-9 Size/Length: N/A Thickness/Diameter: 330/36.5/SS cas

Limitations: Single side exam - see attached limitations sheet Start Time: 1001 Finish Time: 1028

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

Lo Location: N/A Wo Location: N/A Couplant: ULTRAGEL II Batch No.: 09125

Temp. Tool Mfg.: FISHER Serial No.: MCNDE32768 Surface Temp.: 67 °F

Cal. Report No.: CAL-09-325 & CAL-09-326

Angle Used	0	45	45T	60	70	
Scanning dB				72.0	73.0	

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

Comments:

Non-code exam

Results: Accept ☐ Reject ☐ Info ☑

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

Examiner Griebel, David M.	Level II-N	Signature	Date 10/18/2009	Reviewer	Signature Date 10-20-09
Examiner Leeper, Winfred C.	Level II-N	Signature	Date 10/18/2009	Site Review	Signature Date
Other N/A	Level N/A	Signature	Date	ANII Review	Signature Date 10/22/09

Duke Energy

Supplemental Report

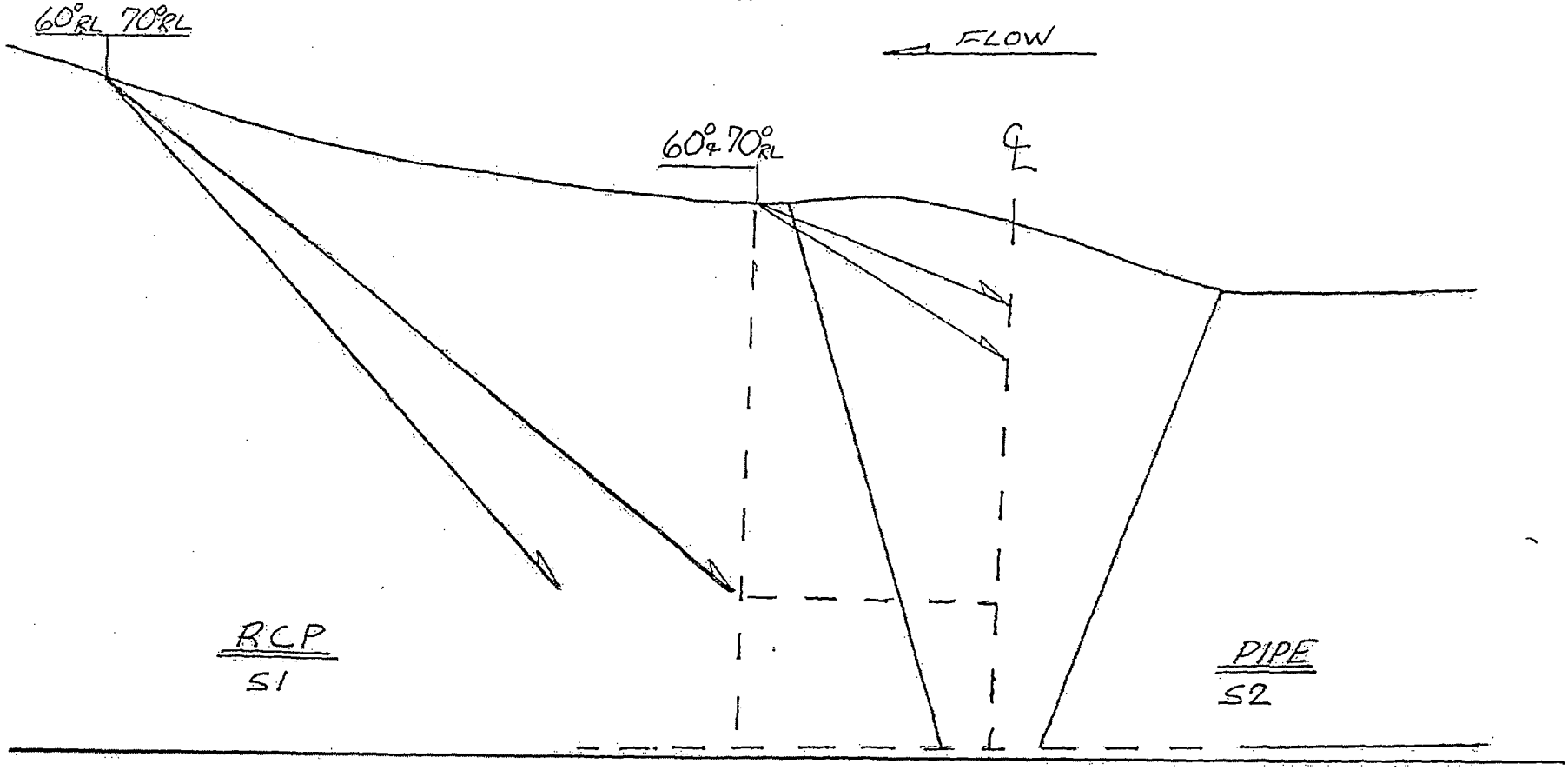
Report No.: UT-09-260

Page: 2 of 13 8m 11-5-09

Summary No.: O1.B9.11.0050

Examiner:	Griebel, David M.		Level:	II-N	Reviewer:	DE Howden	Date: 10·20·09
Examiner:	Leeper, Winfred C.		Level:	II-N	Site Review:		Date:
Other:	N/A		Level:	N/A	ANII Review:		Date: 10/22/09

Comments: Best effort exam using 60°RL & 70°RL per NDE 830 for upper 2/3 of area of interest.



DUKE POWER COMPANY

ISI LIMITATION REPORT

UT-09-2360
QR 11/6/09

Component/Weld ID: 1-PIA-2 **Item No:** O1.B9.11.0050 **remarks:**

☒ NO SCAN	SURFACE		BEAM DIRECTION						Procedure allows scanning
☐ LIMITED SCAN	☐ 1	☒ 2	☒ 1	☐ 2	☐ cw	☐ ccw	from cast side only
FROM L N/A to L N/A	INCHES FROM W0 CL to Beyond						
ANGLE: ☐ 0 ☐ 45 ☒ 60 other 70	FROM 0 DEG to 360 DEG						
☒ NO SCAN	SURFACE		BEAM DIRECTION						Procedure allows scanning
☐ LIMITED SCAN	☐ 1	☒ 2	☐ 1	☐ 2	☒ cw	☒ ccw	from cast side only
FROM L N/A to L N/A	INCHES FROM W0 CL to Beyond						
ANGLE: ☐ 0 ☐ 45 ☒ 60 other 70	FROM 0 DEG to 360 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 4	INCHES FROM W0 _____ to _____						Sketch(s) attached
ANGLE: ☐ 0 ☐ 5 ☐ 60 other _____	FROM _____ DEG to _____ DEG						☐ yes ☐ No

Prepared By: Gayle Houser DE Houser Level: II Date: 10/19/09 Sheet 3 of 3

Reviewed By: Daryl Mons Date: 10-19-09 Authorized Inspector: [signature] Date: 10/22/09

Duke Energy

UT Pipe Weld Examination

Site/Unit:	Oconee / 1	Procedure:	PDI-UT-2	Outage No.:	O1-25
Summary No.:	O1.B9.11.0062	Procedure Rev.:	C	Report No.:	UT-09-349
Workscope:	ISI	Work Order No.:	01841924	Page:	1 of 5

Code: 1998/2000A Cat./Item: B-J /B9.11 Location:

Drawing No.: ISI-OCN1-012 Description: RC Pump 1A2 to Safe end

System ID: 50

Component ID: 1-PDA2-1 Size/Length: N/A Thickness/Diameter: 2.33/33.5/SS

Limitations: Yes - See attached limitation report Start Time: 1100 Finish Time: 1230

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

Lo Location: 9.1.1.1 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 09125

Temp. Tool Mfg.: Fluke Serial No.: OCQUA33090 Surface Temp.: 72 °F

Cal. Report No.: CAL-09-443, 444 & 445

Angle Used	0	45	45T	60	60RL	
Scanning dB		42.2	42.2	60	64	

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

Comments:

N/A

Results: Accept ☐ Reject ☑ Info ☐

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

Examiner Koster, Rickey	Level II-N	Signature	Date 10/30/2009	Reviewer Barry	Signature	Date 11-3-09
Examiner Day, John, C.	Level II-N	Signature	Date 10/30/2009	Site Review	Signature	Date
Other N/A	Level N/A	Signature	Date	ANII Review	Signature	Date 11/4/09

DUKE POWER COMPANY

ISI LIMITATION REPORT

UT-09-349

Component/Weld ID: 1PDA2-1 **Item No:** O1.B9.11.0062

remarks:

Due to component
configuration

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

Sketch(s) attached
☒ yes ☐ No
11/6/09

Prepared By: John Day Level: II Date: 10/30/09
Sheet 2 of ~~4~~ 5
Reviewed By: Barry Date: 11-3-09
Authorized Inspector: Date: 11/4/09

Duke Energy

Supplemental Report

Report No.: UT-09-349

Page: 3 of 5

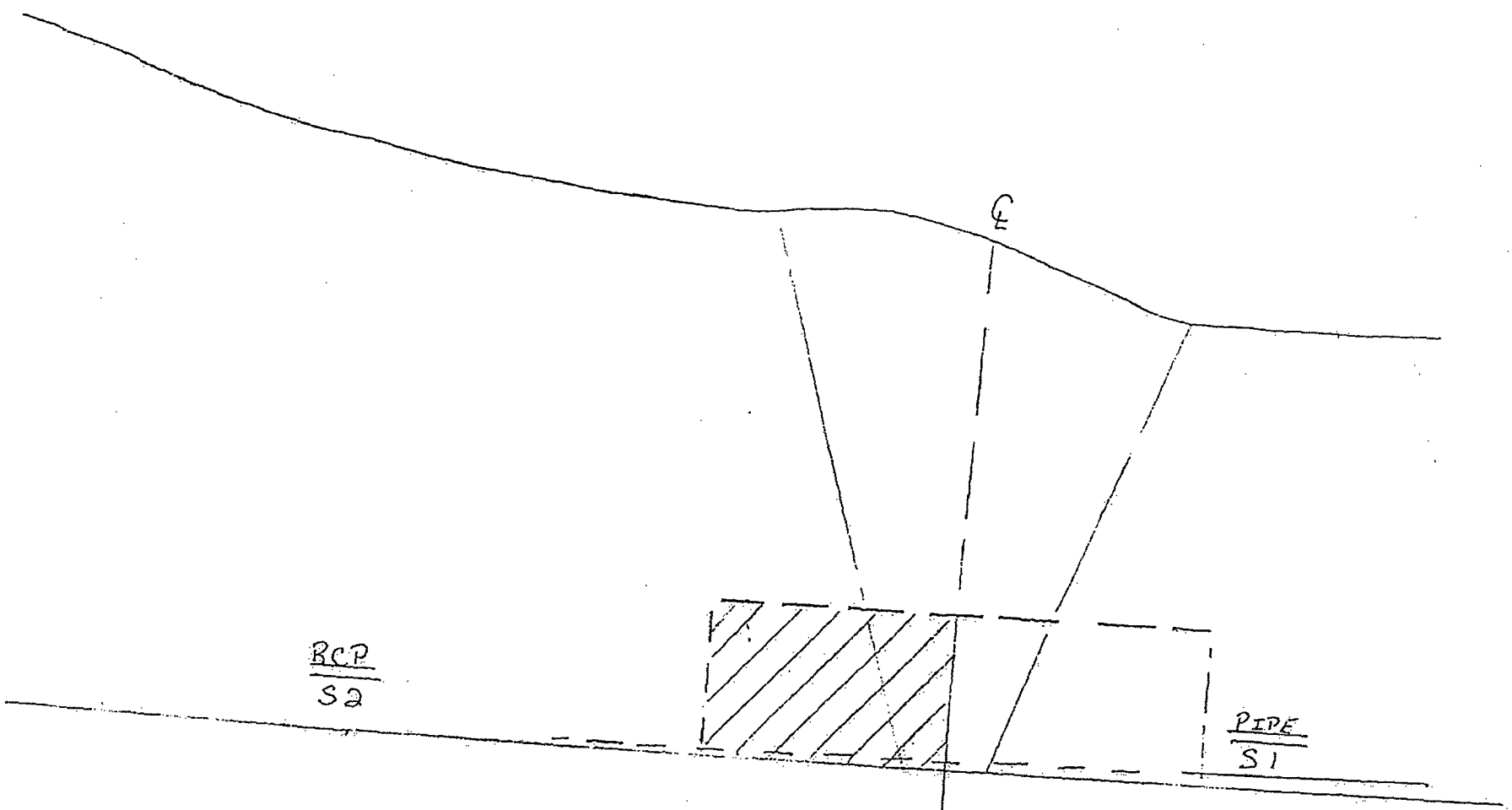
Summary No.: O1.B9.11.0062

Examiner: Koster, Rickey — Level: II-N — Reviewer: Barry Mehl — Date: 11-3-09

Examiner: Day, John, C. — Level: II-N — Site Review: — Date:

Other: N/A — Level: N/A — ANII Review: — Date: 11/4/09

Comments: CW & CCW circ. Exam limitation



Duke Energy

Supplemental Report

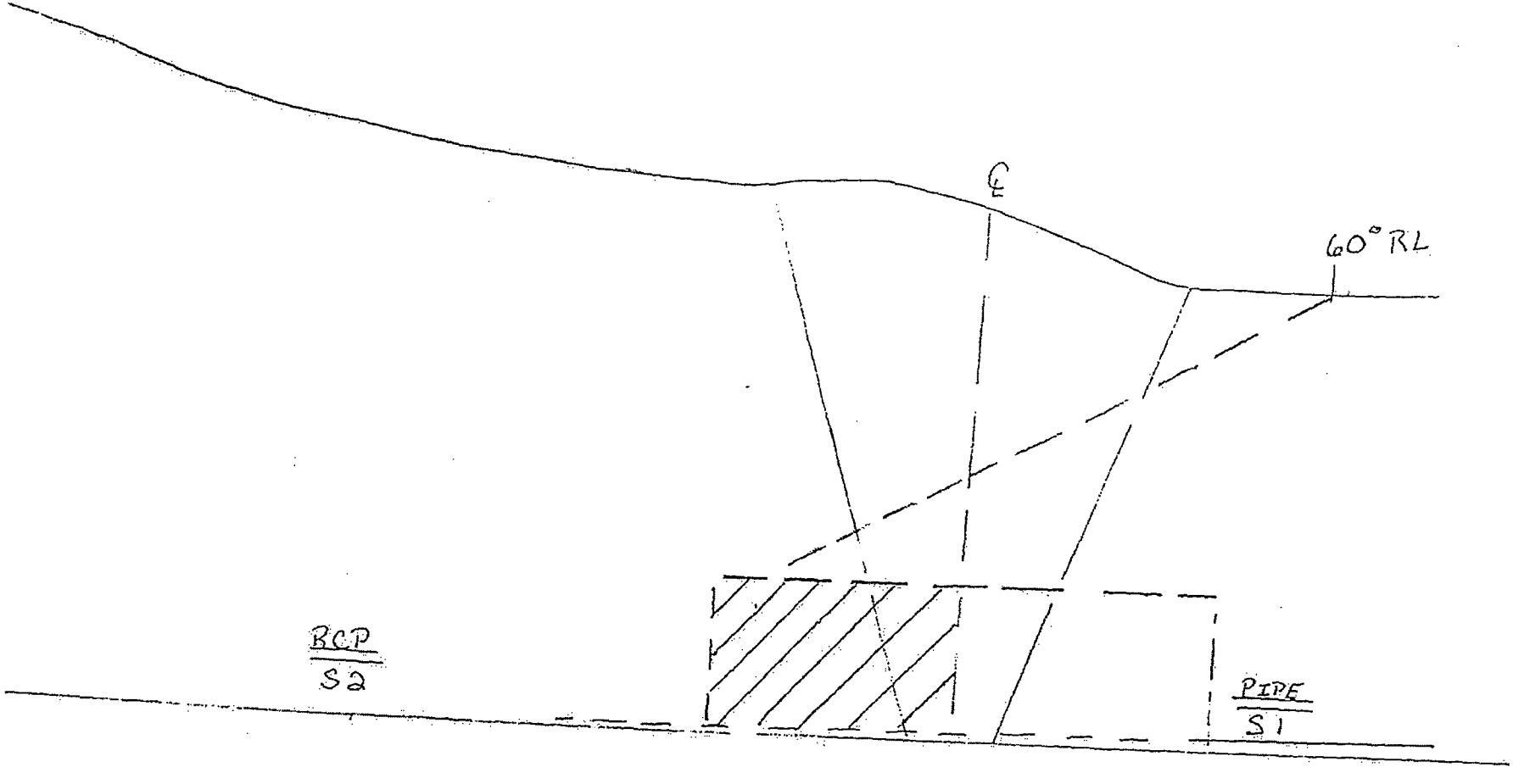
Report No.: UT-09-349

Page: 4 of 5

Summary No.: O1.B9.11.0062

Examiner:	Koster, Rickey		Level:	II-N	Reviewer:		Date: 11-3-09
Examiner:	Day, John, C.		Level:	II-N	Site Review:		Date:
Other:	N/A		Level:	N/A	ANII Review:		Date: 11/4/09

Comments: Axial exam limitation



ATTACHMENT A
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Duke Energy

Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit:	Oconee / 1	Procedure:	PDI-UT-2	Outage No.:	O1-25
Summary No.:	O1.B9.11.0062	Procedure Rev.:	C	Report No.:	UT-09-349
Workscope:	ISI	Work Order No.:	01841924	Page:	5 of 5

45 deg

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

Add totals and divide by # scans = 37.500 % 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;

37.500 % Total for complete exam

Site Field Supervisor: Rodney Sheffield Rodney Sheffield Date: 11-3-09

Duke Energy

UT Pipe Weld Examination

Site/Unit:	Oconee / 1	Procedure:	NDE-830	Outage No.:	O1-25
Summary No.:	O1.B9.11.0062	Procedure Rev.:	1	Report No.:	UT-09-337
Workscope:	ISI	Work Order No.:	01841924	Page:	1 of 3

Code: 1998/2000A Cat./Item: B-J /B9.11 Location:

Drawing No.: ISI-OCN1-012 Description: RC Pump 1A2 to Safe end

System ID: 50

Component ID: 1-PDA2-1 Size/Length: N/A Thickness/Diameter: 2.33/33.5/SS

Limitations: Single side exam - see attached limitations sheet Start Time: 0910 Finish Time: 0942

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

Lo Location: N/A Wo Location: N/A Couplant: ULTRAGEL II Batch No.: 09125

Temp. Tool Mfg.: FISHER Serial No.: MCNDE32768 Surface Temp.: 77 °F

Cal. Report No.: Ok 11/6/08 ~~CAL-09-325 & CAL-09-326~~ CAL-08-427 & 428

Angle Used	0	45	45T	60	70	
Scanning dB				72.0	73.0	

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

Comments:

Non-code exam

Results: Accept ☐ Reject ☐ Info ☑

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

Examiner Level II-N Leeper, Winfred C.	Signature Winfred C. Leeper	Date 10/31/2009	Reviewer	Signature Barry	Date 11-2-09
Examiner Level II-N Foss, Steven	Signature Steven T Foss	Date 10/31/2009	Site Review	Signature	Date
Other Level N/A N/A	Signature	Date	ANII Review	Signature	Date 11/3/09

ATTACHMENT A
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DUKE POWER COMPANY

ISI LIMITATION REPORT

UT-09-

Component/Weld ID: 1-PIA-2 **Item No:** O1.B9.11.0062

☒ 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 70 FROM 0 DEG to 360 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 ☐ 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

remarks:
Procedure allows scanning
from cast side only

Sketch(s) attached
☒ yes ☐ No

Prepared By: Winfred Leeper Winfred Leeper Level: II Date: 10/31/09 Sheet 2 of 3
Reviewed By: Barry Date: 11-2-09 Authorized Inspector: Date: 11/3/09

Duke Energy

Supplemental Report

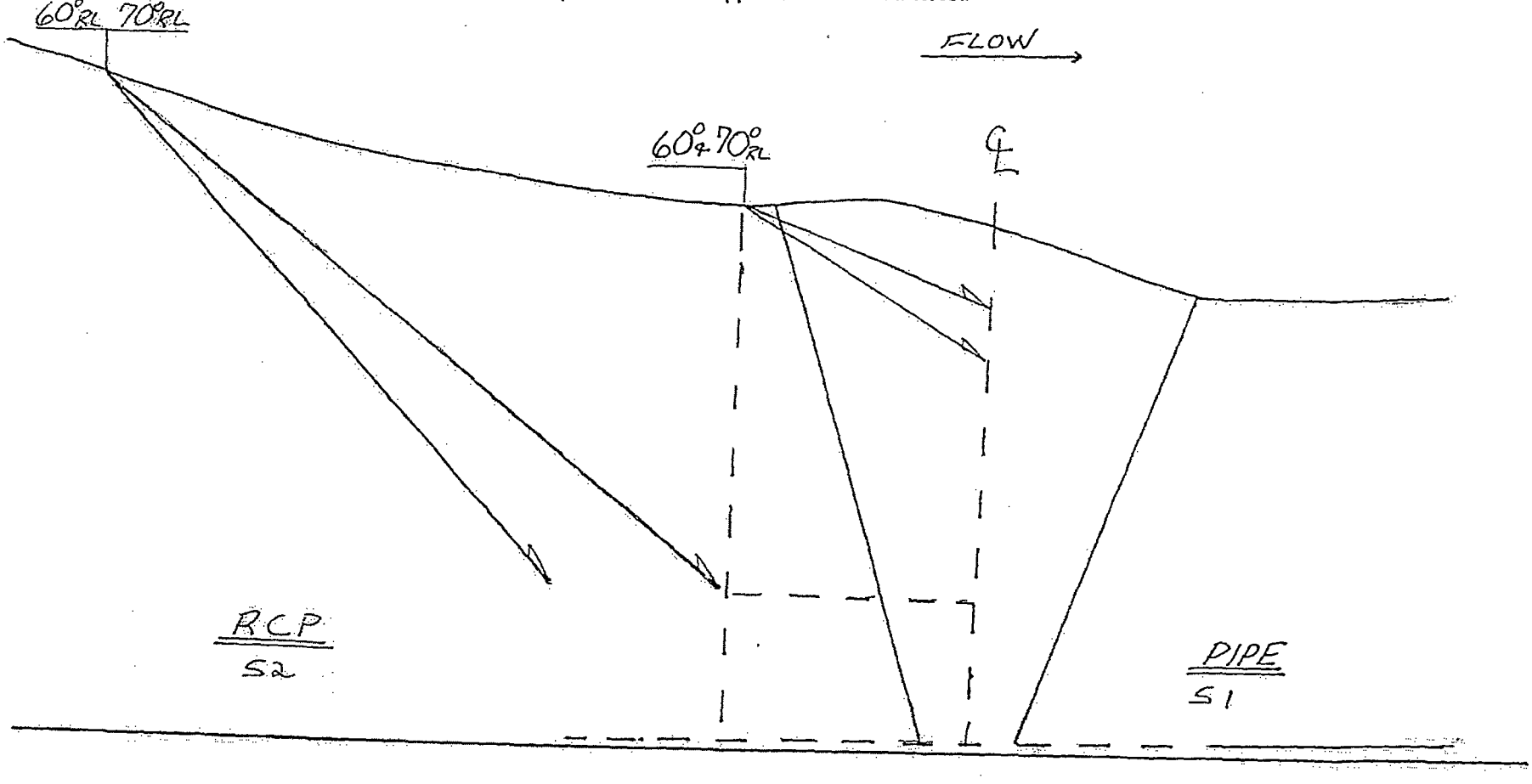
Report No.: UT-09-337

Page: 3 of 3

Summary No.: O1.B9.11.0062

Examiner:	Leeper, Winfred C.		Level:	II-N	Reviewer:		Date: 11-2-09
Examiner:	Foss, Steven		Level:	II-N	Site Review:		Date:
Other:	N/A		Level:	N/A	ANII Review:		Date: 11/3/09

Comments: Best effort exam using 60°RL & 70°RL per NDE 830 for upper 2/3 of area of interest.



Duke Energy

UT Pipe Weld Examination

Site/Unit:	Oconee / 1	Procedure:	PDI-UT-2	Outage No.:	O1-25
Summary No.:	O1.C5.11.0028	Procedure Rev.:	C	Report No.:	UT-09-267
Workscope:	ISI	Work Order No.:	01845470	Page:	1 of 5

Code: 1998/2000A Cat./Item: C-F-1/C5.11 Location:

Drawing No.: 1-53A-02(1) Description: Valve 1LP-47 (Cast SS) to Pipe

System ID: 53A

Component ID: 1-53A-02-65L Size/Length: N/A Thickness/Diameter: 1.125/10.0/SS

Limitations: Yes - Single sided exam, see coverage sheet Start Time: 1551 Finish Time: 1607

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

Lo Location: 9.1.1.1 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 09125

Temp. Tool Mfg.: FISHER Serial No.: MCNDE32770 Surface Temp.: 69 °F

Cal. Report No.: CAL-09-336 & CAL-09-337

Angle Used	0	45	45T	60		
Scanning dB		37.8	37.8	48.5		

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

Comments:

N/A

Results: Accept ☐ Reject ☑ Info ☐

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

Examiner	Level II-N	Signature	Date	Reviewer		Signature	Date
Hollis, Jacob		David R. Hollis	10/20/2009			Barry Mitchell	10-23-09
Examiner	Level II-N	Signature	Date	Site Review		Signature	Date
Griebel, David M.			10/20/2009				
Other	Level N/A	Signature	Date	ANII Review		Signature	Date
N/A							10/28/09

ATTACHMENT A
PAGE 78 OF 112

Duke Energy

Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit:	Oconee / 1	Procedure:	PDI-UT-2	Outage No.:	O1-25
Summary No.:	O1.C5.11.0028	Procedure Rev.:	C	Report No.:	UT-09-267
Workscope:	ISI	Work Order No.:	01845470	Page:	2 of 5

45 deg

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

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

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

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

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

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: Rodney Shifflett Barney Mitchell Date: 10-23-09 10-23-09

DUKE POWER COMPANY

ISI LIMITATION REPORT

UT-09-267

Component/Weld ID: 1-53A-02-65L **Item No:** O1.C5.11.0028

remarks:

☒ NO SCAN — SURFACE: ☒ 1 ☐ 2 — BEAM DIRECTION: ☐ 1 ☒ 2 ☒ cw ☒ ccw
☐ LIMITED SCAN

FROM L 0 to L 33.75 INCHES FROM W0 CL to Beyond
ANGLE: ☐ 0 ☒ 45 ☒ 60 other ____ FROM 0 DEG to 360 DEG

No scan due to valve configuration. No landing on value side and it's cast material.

☐ NO SCAN — SURFACE: ☐ 1 ☒ 2 — BEAM DIRECTION: ☒ 1 ☐ 2 ☐ cw ☐ ccw
☒ LIMITED SCAN

FROM L 0 to L 33.75 INCHES FROM W0 .45 to Beyond
ANGLE: ☐ 0 ☒ 45 ☐ 60 other ____ FROM 0 DEG to 360 DEG

Limited scan due to valve configuration

☐ NO SCAN — SURFACE: ☐ 1 ☐ 2 — BEAM DIRECTION: ☐ 1 ☐ 2 ☐ cw ☐ ccw
☐ LIMITED SCAN

FROM L ____ to L ____ INCHES FROM W0 ____ to ____
ANGLE: ☐ 0 ☐ 45 ☐ 60 other ____ FROM ____ DEG to ____ DEG

☐ NO SCAN — SURFACE: ☐ 1 ☐ 2 — BEAM DIRECTION: ☐ 1 ☐ 2 ☐ cw ☐ ccw
☐ LIMITED SCAN

FROM L ____ to L ____ INCHES FROM W0 ____ to ____
ANGLE: ☐ 0 ☐ 45 ☐ 60 other ____ FROM ____ DEG to ____ DEG

UT-09-266

Sketch(s) attached ☒ yes ☐ No

Prepared By: Jacob R. Hollis Jacob R. Hollis Level: II Date: 10/20/09

Sheet 3 of 5

Reviewed By: Barry Whelan Date: 10-27-09

Authorized Inspector: Date: 10/26/09

Energy

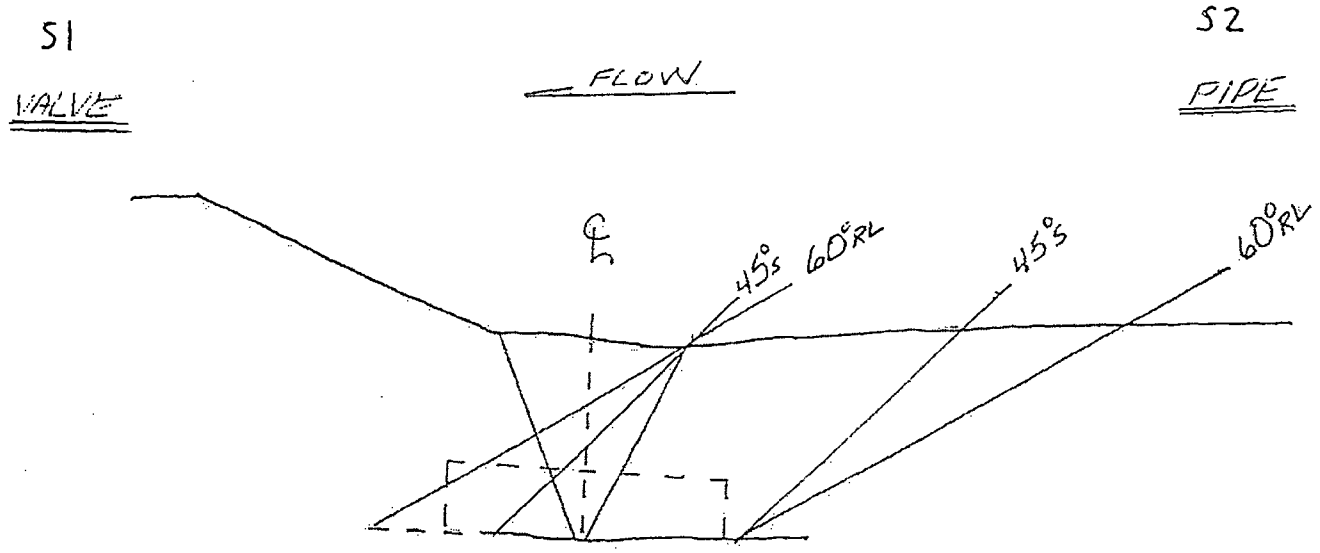
Supplemental Report

Report No.: UT-09-267
Page: 4 of 5

Summary No.: O1.C5.11.0028

Examiner:	Hollis, Jacob	Level:	II-N	Reviewer:		Date:	10-23-09
Examiner:	Griebel, David M.	Level:	II-N	Site Review:		Date:	
Other:	N/A	Level:	N/A	ANII Review:		Date:	10/23/09

Comments: Axial exam 45° shear & 60°RL



Duke Energy

Supplemental Report

Report No.: UT-09-267

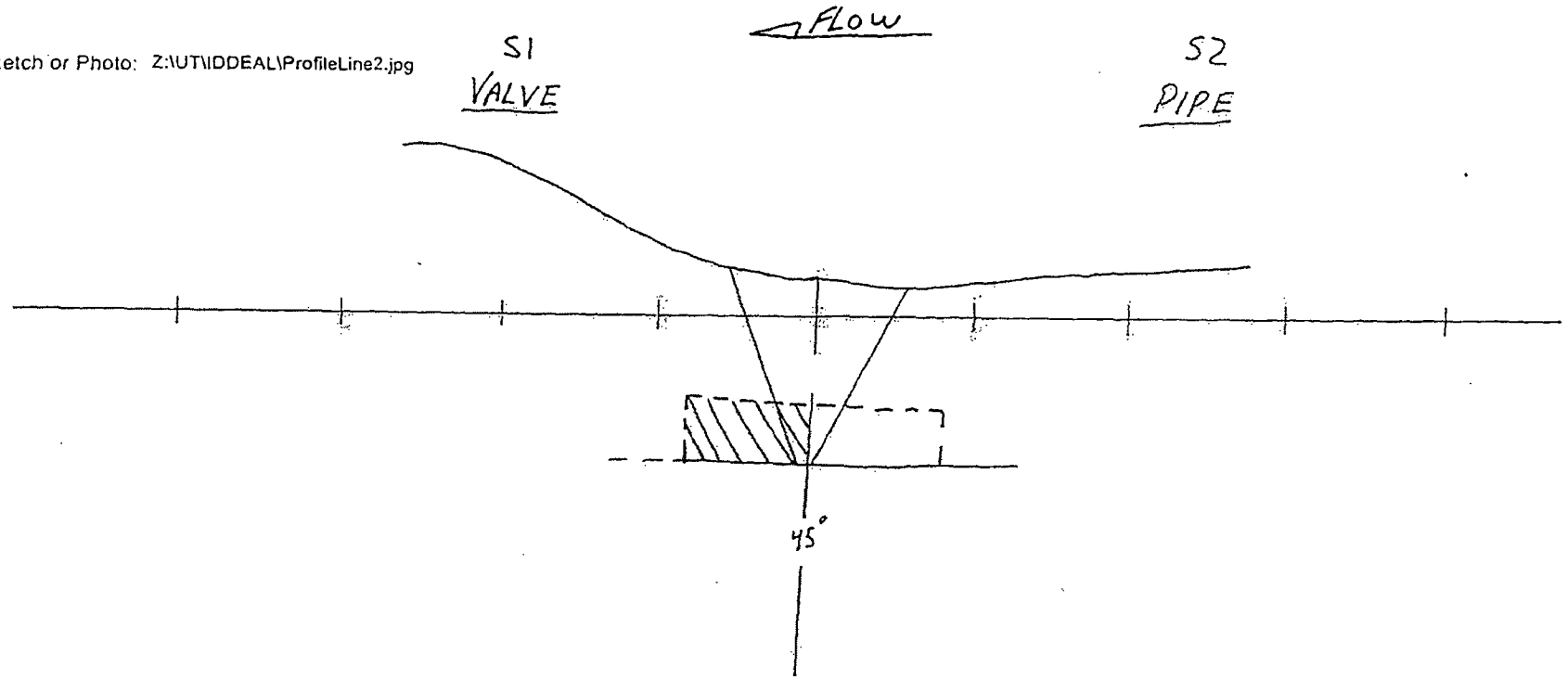
Page: 5 of 5

Summary No.: O1.C5.11.0028

Examiner:	Hollis, Jacob	Level:	II-N	Reviewer:		Date: 10-23-09
Examiner:	Griebel, David M.	Level:	II-N	Site Review:		Date:
Other:	N/A	Level:	N/A	ANII Review:		Date: 10/23/09

Comments: CW & CCW Circ. exam 45° shear; Scan 1 Ax.

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



Duke Energy

UT Pipe Weld Examination

Site/Unit:	Oconee / 1	Procedure:	PDI-UT-2	Outage No.:	O1-25
Summary No.:	O1.C5.21.0004	Procedure Rev.:	C	Report No.:	UT-09-296
Workscope:	ISI	Work Order No.:	01846023	Page:	1 of 7

Code: 1998/2000A Cat./Item: C-F-1/C5.21 Location:

Drawing No.: 1-51A-04 Description: Pipe to Valve 1HP-194 (Forged SS)

System ID: 51A

Component ID: 1-51A-04-1C Size/Length: N/A Thickness/Diameter: 0.674/4.0/SS

Limitations: Yes - See attached Limitation Report Start Time: 1208 Finish Time: 1240

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

Lo Location: 9.1.1.1 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 09125

Temp. Tool Mfg.: FISHER Serial No.: MCNDE32770 Surface Temp.: 69 °F

Cal. Report No.: CAL-09-355, 356, 357

Angle Used	0	45	45T	60	38	
Scanning dB		48.2	51.0	63.3	44	

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

Comments:

N/A

Results: Accept ☐ Reject ☑ Info ☐

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

Examiner Koster, Rickey	Level II-N	Signature	Date 10/26/2009	Reviewer	Barry Muhs	Signature	Date 10-29-09
Examiner Bowne, Lowell V.	Level II-N	Signature	Date 10/26/2009	Site Review		Signature	Date
Other N/A	Level N/A	Signature	Date	ANII Review		Signature	Date 10/30/09

Duke Energy

Ultrasonic Indication Report

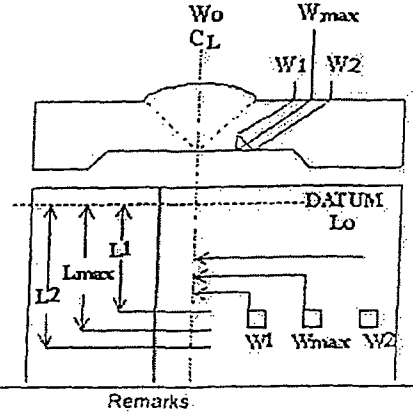
Site/Unit:	Oconee / 1	Procedure:	PDI-UT-2	Outage No.:	O1-25
Summary No.:	O1.C5.21.0004	Procedure Rev.:	C	Report No.:	UT-09-296
Workscope:	ISI	Work Order No.:	01846023	Page:	2 of 7

Search Unit Angle: 45°s & 60°RL °

Wo Location: Weld Centerline

Lo Location: 9.1.1.1

(•) Piping Welds
( ) Ferritic Vessels ≥ 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: N/A

Angle	Indication No.	% Of DAC	W Max W	W Max MP	Forward Of Max W1	Forward Of Max MP	Backward Of Max W2	Backward Of Max MP	L1 Of Max	L Max	L2 Of Max	RBR Amp.	Remarks
45°	1	125	.75	1.05	N/A	N/A	N/A	N/A	N/A	13"	N/A	N/A	Int ID Geometry - 360°
60°RL	2	125	1.2	1.50	N/A	N/A	N/A	N/A	N/A	1.50"	N/A	N/A	Int ID Geometry - 360°

Examiner Koster, Rickey	Level II-N	Signature	Date 10/26/2009	Reviewer	Signature Barry	Date 10-29-09
Examiner Bowne, Lowell V.	Level II-N	Signature L V Bowne	Date 10/26/2009	Site Review	Signature	Date
Other N/A	Level N/A	Signature	Date	ANII Review	Signature	Date 10/30/09

ATTACHMENT A
PAGE 84 OF 112

DUKE POWER COMPANY
ISI LIMITATION REPORT

UT-09-296

Component/Weld ID: 1-51A-04-1C **Item No:** O1.C5.21.0004

remarks:

☒ NO SCAN SURFACE BEAM DIRECTION
☐ LIMITED SCAN ☒ 1 ☐ 2 ☐ 1 ☒ 2 ☒ cw ☒ ccw

FROM L 0 to L 14.13 INCHES FROM W0 CL to Beyond

ANGLE: ☐ 0 ☒ 45 ☒ 60 other 38° FROM 0 DEG to 360 DEG

No scan due to valve 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 4 INCHES FROM W0 _____ to _____

ANGLE: ☐ 0 ☐ 5 ☐ 60 other _____ FROM _____ DEG to _____ DEG

Sketch(s) attached
☒ yes ☐ No

Prepared By: Rickey L. Koster Level: II Date: 10/26/09 Sheet 3 of 7

Reviewed By: [signature] Date: 10-29-09 Authorized Inspector: [signature] Date: 10/30/09

Lake Energy

Supplemental Report

Report No.: UT-09-296

Page: 4 of 7

Summary No.: O1.C5.21.0004

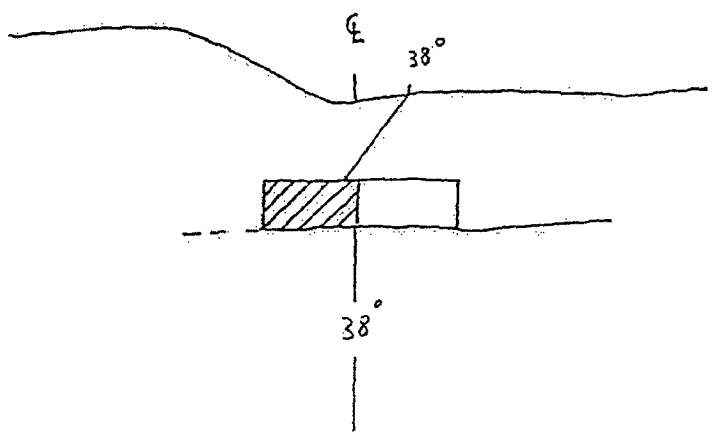
Examiner: Koster, Rickey — Level: II-N — Reviewer: [signature] — Date: 10-29-09

Examiner: Bowne, Lowell V. — Level: II-N — Site Review: — Date:

Other: N/A — Level: N/A — ANII Review: [signature] — Date: 10/30/09

Comments: CW & CCW Circ. Exam limitation

Sketch or Photo:



Duke Energy

Supplemental Report

Report No.: UT-09-296

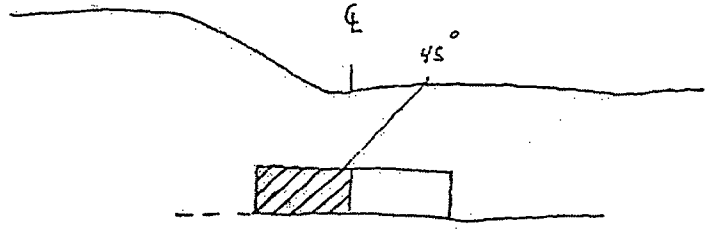
Page: 5 of 7

Summary No.: O1.C5.21.0004

Examiner:	Koster, Rickey	Level: II-N	Reviewer:		Date: 10-29-09
Examiner:	Bowne, Lowell V.	Level: II-N	Site Review:		Date:
Other:	N/A	Level: N/A	ANII Review:		Date: 10/30/09

Comments: Axial exam limitation

Sketch or Photo:



Duke Energy

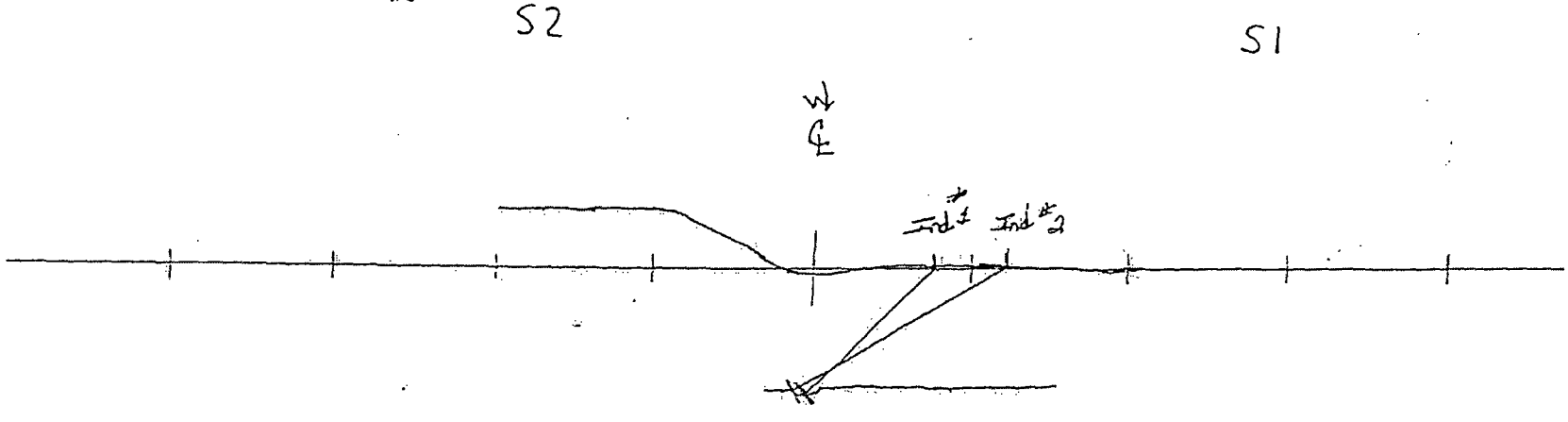
Supplemental Report

Summary No.: O1.C5.21.0004

Examiner:	Koster, Rickey	Level: II-N	Reviewer:		Date: 10-29-09
Examiner:	Bowne, Lowell V	Level: II-N	Site Review:		Date:
Other:	N/A	Level: N/A	ANII Review:		Date: 10/30/09

Comments: Ind. # 1 - 45° & Ind. # 2 60°RL are geometric reflectors from weld root configuration. These reflectors are intermittent 360°. This was verified by reviewing previous data.

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



ATTACHMENT A
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Duke Energy

Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit:	Oconee / 1	Procedure:	PDI-UT-2	Outage No.:	O1-25
Summary No.:	O1.C5.21.0004	Procedure Rev.:	C	Report No.:	UT-09-296
Workscope:	ISI	Work Order No.:	01846023	Page:	7 of 7

45 deg / 38 deg

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

Add totals and divide by # scans = 37.500 **% 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;

37.500 **% Total for complete exam**

Site Field Supervisor: Rod Hatfield Date: 10-28-09

Duke Energy

UT Pipe Weld Examination

Site/Unit:	Oconee / 1	Procedure:	NDE-600	Outage No.:	O1-25
Summary No.:	O1.C5.21.0027	Procedure Rev.:	17	Report No.:	UT-09-234
Workscope:	ISI	Work Order No.:	01850931	Page:	1 of 5

Code: 1998/2000A Cat./Item: C-F-1/C5.21 Location:

Drawing No.: 1HP-387 Description: Valve 1HP-118 (Forged SS) to Elbow

System ID: 51A

Component ID: 1HP-387-118A Size/Length: N/A Thickness/Diameter: 0.531 / 4.000

Limitations: Yes, see attached limitation Start Time: 1356 Finish Time: 1409

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

Lo Location: 9.1.1.2 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 07225

Temp. Tool Mfg.: Fluke Serial No.: OCQUA33090 Surface Temp.: 82 °F

Cal. Report No.: CAL-09-301, CAL-09-302, CAL-09-303

Angle Used	0	45	45T	60	60L	
Scanning dB			40	45	60	

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

Comments:

FC 08-03

Results: Accept ☑ Reject ☑ Info ☐

GAM 10-23-09

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

Examiner Leeper, Winfred C.	Level II-N	Signature	Date 7/28/2009	Reviewer	Gary J Moss	Signature	Date 10-25-09
Examiner N/A	Level N/A	Signature	Date	Site Review		Signature	Date
Other N/A	Level N/A	Signature	Date	ANII Review		Signature	Date 10/25/09

DUKE POWER COMPANY

ISI LIMITATION REPORT

UT-09-234

Component/Weld ID: 1-51A-01-118A **Item No:** O1.C5.21.0027

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

Due to valve configuration

☐ 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 0.9
ANGLE: ☐ 0 ☐ 45 ☒ 60 other ____ FROM 0 DEG to 360 DEG

Valve 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

Sketch(s) attached
☐ yes ☐ No

Prepared By: Winfred Leeper Level: II Date: 7/28/09 Sheet 2 of 5

Reviewed By: Gary Moss Date: 10-23-09 Authorized Inspector: Date: 10/23/09

Duke Energy

Supplemental Report

Report No.: UT-09-234

Page: 3 of 5

Summary No.: O1.C5.21.0027

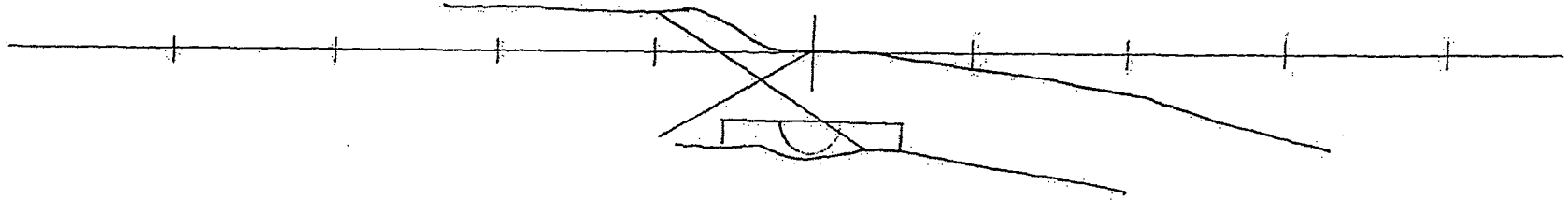
Examiner: Leeper, Winfred C. Level: II-N Reviewer: Daryl Moss Date: 10-23-09

Examiner: N/A Level: N/A Site Review: Date:

Other: N/A Level: N/A ANII Review: Date: 10/23/09

Comments:

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



Duke Energy

Supplemental Report

Report No.: UT-09-234

Page: 4 of 5

Summary No.: O1.C5.21.0027

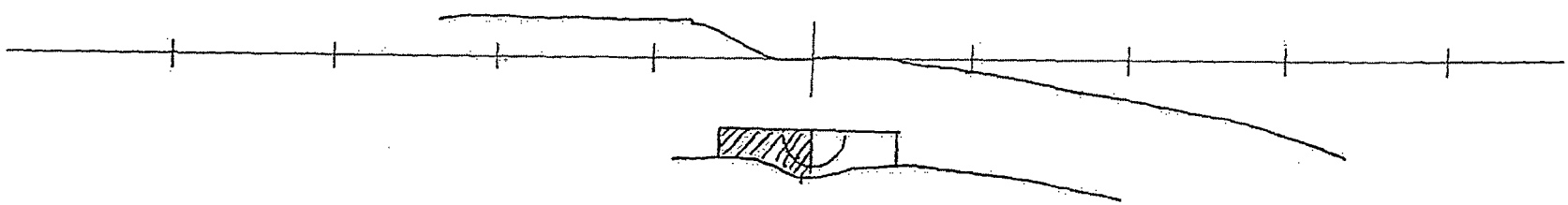
Examiner: Leeper, Winfred C. Level: II-N Reviewer: Gary J Mans Date: 10-23-09

Examiner: N/A Level: N/A Site Review: Date:

Other: N/A Level: N/A ANII Review: Date: 10/23/09

Comments: CW & CCW

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



ATTACHMENT A
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Duke Energy.

Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit:	Oconee / 1	Procedure:	NDE-600	Outage No.:	01-25
Summary No.:	01.C5.21.0027	Procedure Rev.:	17	Report No.:	UT-09-234
Workscope:	ISI	Work Order No.:	01850931	Page:	5 of 5

45 deg \ 60deg

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

Add totals and divide by # scans = 75.000 % total for 45 deg

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

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

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

Percent complete coverage

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

75.000 % Total for complete exam

Site Field Supervisor: Rodney [signature] Date: 10-23-09

Duke Energy

UT Pipe Weld Examination

Site/Unit:	Oconee / 1	Procedure:	NDE-600	Outage No.:	O1-25
Summary No.:	O1.C5.21.0040	Procedure Rev.:	17	Report No.:	UT-09-235
Workscope:	ISI	Work Order No.:		Page:	1 of 4

Code: 1998/2000A Cat./Item: C-F-1/C5.21 Location:

Drawing No.: 1HP-193 Description: Tee to Pipe

System ID: 51A

Component ID: 1HP-193-17 Size/Length: N/A Thickness/Diameter: 0.375 / 2.500

Limitations: Yes Start Time: 0916 Finish Time: 0927

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

Lo Location: 9.1.1.1 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 07225

Temp. Tool Mfg.: Fluke Serial No.: OCQUA33090 Surface Temp.: 90 °F

Cal. Report No.: CAL-09-304, CAL-09-305, CAL-09-306

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

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

Comments:

FC 08-03

Results: Accept ☐ Reject ☑ Info ☐

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

Examiner Leeper, Winfred C.	Level II-N	Signature	Date 7/22/2009	Reviewer		Signature	Date 9-23-09
Examiner N/A	Level N/A	Signature	Date	Site Review		Signature	Date
Other N/A	Level N/A	Signature	Date	ANII Review		Signature	Date 10/6/08

DUKE POWER COMPANY
ISI LIMITATION REPORT

UT-09-255

Component/Weld ID: 1HP-193-17 **Item No:** C-05-021.064 0040 9-23-09

remarks:

☒ NO SCAN — SURFACE — BEAM DIRECTION — Due to tee configuration
☐ LIMITED SCAN ☐ 1 ☒ 2 ☒ 1 ☐ 2 ☐ cw ☐ ccw
FROM L N/A to L N/A INCHES FROM **W0** .05" to Beyond
ANGLE: ☐ 0 ☐ 45 ☒ 60 other ____ FROM 0 DEG to 360 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 ☐ 45 ☐ 60 other ____ FROM ____ DEG to ____ DEG

☐ NO SCAN — SURFACE — BEAM DIRECTION
☐ LIMITED SCAN ☐ 1 ☐ 2 ☐ 1 ☐ 2 ☐ cw ☐ ccw
FROM L ____ to L 4 INCHES FROM **W0** ____ to ____
ANGLE: ☐ 0 ☐ 5 ☐ 60 other ____ FROM ____ DEG to ____ DEG

Sketch(s) attached ☒ yes ☐ No

Prepared By: Winfred Leeper Level: II Date: 07/22/2009 Sheet 2 of 4

Reviewed By: Date: 9.23.09

Authorized Inspector: Date: 9/24/09

Supplemental Report

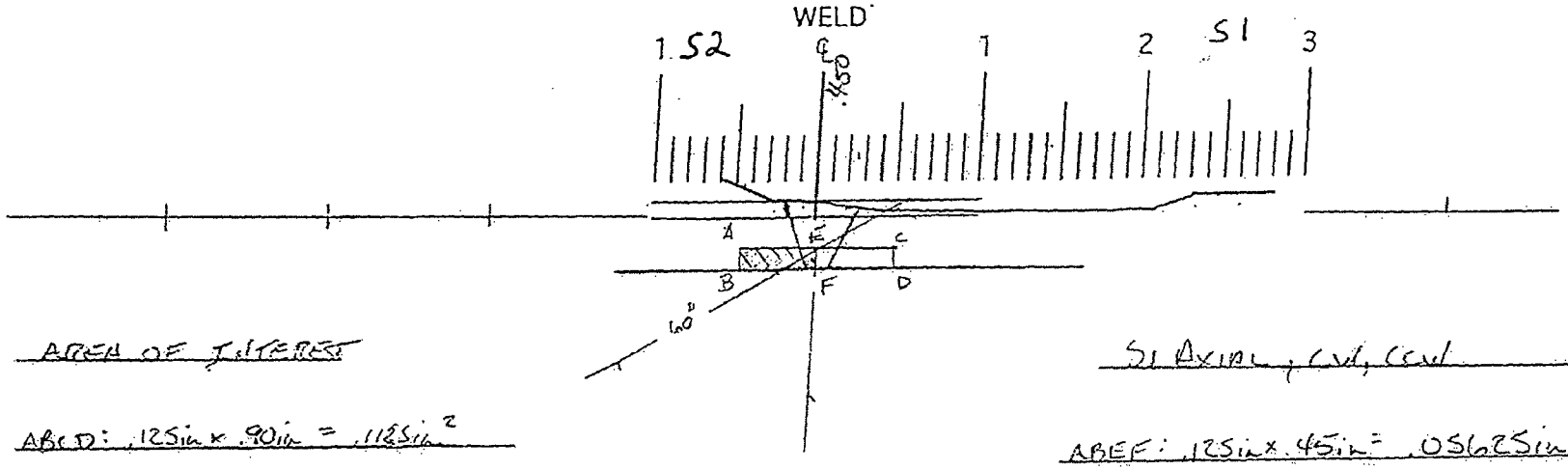
Report No.: U1-09-235
Page: 3 of 4

Summary No.: O1.C5.21.0040

Examiner:	Leeper, Winfred C.	Level:	II-N	Reviewer:	Gary Moss — Date: 9-23-09
Examiner:	N/A	Level:	N/A	Site Review:	Date:
Other:	N/A	Level:	N/A	ANII Review:	Date: 10/6/09

Comments:

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



AREA OF INTEREST

ABCD: .125in × .90in = .1125in²

S1 AXIAL, CW, CCW

ABEF: .125in × .45in = .05625in²

.05625in²/.1125in² (100) = 50%

ATTACHMENT A
PAGE 97 OF 117

Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit:	Oconee / 1	Procedure:	NDE-600	Outage No.:	O1-25
Summary No.:	O1.C5.21.0040	Procedure Rev.:	17	Report No.:	UT-09-235
Workscope:	ISI	Work Order No.:	01850941	Page:	4 of 4

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

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

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

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

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

Percent complete coverage

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

37.500 % Total for complete exam

Site Field Supervisor: James J. McCollum Date: 9-22-09

Duke Energy

UT Pipe Weld Examination

Site/Unit: Oconee / 1 | Procedure: PDI-UT-2 | Outage No.: O1-25
Summary No.: O1.C5.21.0051 | Procedure Rev.: C | Report No.: UT-09-322
Workscope: ISI | Work Order No.: 01848378 | Page: 1 of 5

Code: 1998/2000A | Cat./Item: C-F-1/C5.21 | Location:
Drawing No.: 1-51A-02 | Description: Pipe to Flange
System ID: 51A
Component ID: 1-51A-02-16BH | Size/Length: N/A | Thickness/Diameter: 0.531/4.0/SS
Limitations: Yes - See attached limitation report | Start Time: 0955 | Finish Time: 1028

Examination Surface: Inside ☐ Outside ☑ | Surface Condition: AS GROUND
Lo Location: 9.1.1.1 | Wo Location: Centerline of Weld | Couplant: ULTRAGEL II | Batch No.: 09125
Temp. Tool Mfg.: FISHER | Serial No.: MCNDE32770 | Surface Temp.: 72 °F
Cal. Report No.: CAL-09-400, 401 & 402

Angle Used	0	45	45T	60	70L	
Scanning dB		26.7	26.7	54.5	36.7	

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

Comments:
N/A

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

Examiner	Level II-N	Signature	Date	Reviewer		Signature	Date
Hendrickson, Matthew			10/29/2009				11-2-09
Examiner	Level II-N	Signature	Date	Site Review		Signature	Date
Day, John, C.			10/29/2009				
Other	Level N/A	Signature	Date	ANII Review		Signature	Date
N/A							11/3/09

DUKE POWER COMPANY
ISI LIMITATION REPORT

UT-09-322

Component/Weld ID: 1-51A-02-16BH **Item No:** O1.C5.21.0051 **remarks:**

☒ NO SCAN SURFACE BEAM DIRECTION — Due to flange
☐ LIMITED SCAN ☒ 1 ☐ 2 ☐ 1 ☒ 2 ☒ cw ☒ ccw — configuration
FROM L N/A to L N/A INCHES FROM W0 CL to Beyond
ANGLE: ☐ 0 ☒ 45 ☒ 60 other 70L FROM 0 DEG to 360 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 ☐ 45 ☐ 60 other _____ FROM _____ DEG to _____ DEG

☐ NO SCAN SURFACE BEAM DIRECTION
☐ LIMITED SCAN ☐ 1 ☐ 2 ☐ 1 ☐ 2 ☐ cw ☐ ccw
FROM L _____ to L 4 INCHES FROM W0 _____ to _____
ANGLE: ☐ 0 ☐ 5 ☐ 60 other _____ FROM _____ DEG to _____ DEG

Sketch(s) attached ☒ yes ☐ No

Prepared By: John Day Level: II Date: 10/29/09 Sheet 2 of 5
Reviewed By: Date: 11-2-09 Authorized Inspector: Date: 11/3/09

ATTACHMENT A
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Energy

Supplemental Report

Report No.: UT-09-322

Page: 3 of 5

Summary No.: O1.C5.21.0051

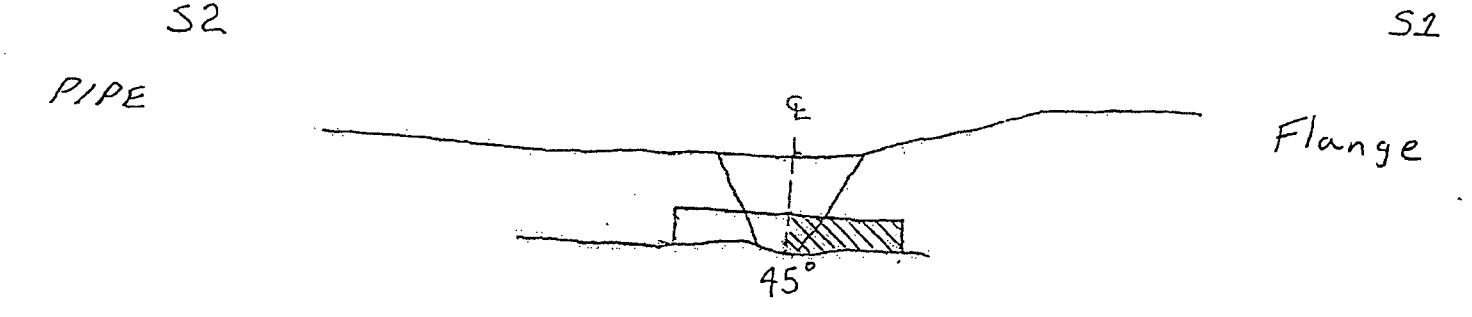
Examiner: Hendrickson, Matthew Level: II-N Reviewer: Barry Marbut Date: 11-2-09

Examiner: Day, John, C. Level: II-N Site Review: Date:

Other: N/A Level: N/A ANII Review: Date: 11/3/09

Comments: CW & CCW Circ. exam limitation

Sketch or Photo:



ATTACHMENT A
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Energy

Supplemental Report

Report No.: UT-09-322

Page: 4 of 5

Summary No.: O1.C5.21.0051

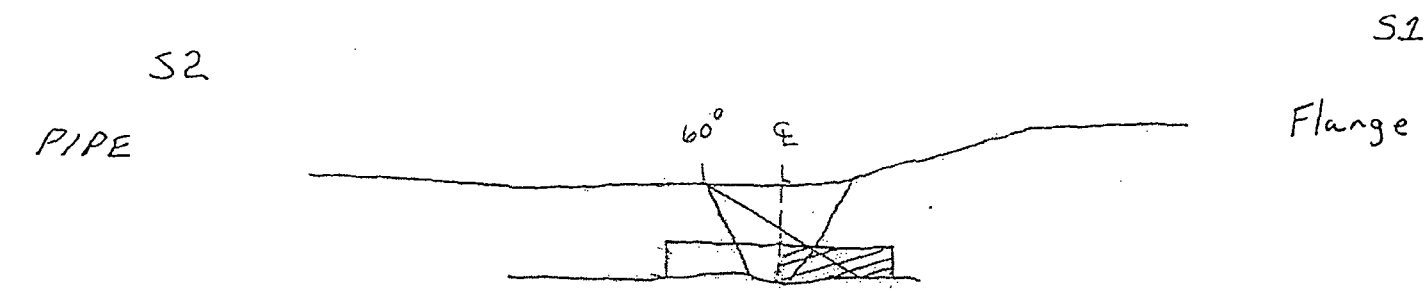
Examiner: Hendrickson, Matthew Level: II-N Reviewer: Barry Mitchell Date: 11-2-09

Examiner: Day, John, C. Level: II-N Site Review: Date:

Other: N/A Level: N/A ANII Review: Date: 11/3/09

Comments: Axial exam limitation

Sketch or Photo:



ATTACHMENT 4
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Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit:	Oconee / 1	Procedure:	PDI-UT-2	Outage No.:	O1-25
Summary No.:	O1.C5.21.0051	Procedure Rev.:	C	Report No.:	UT-09-322
Workscope:	ISI	Work Order No.:	01848378	Page:	5 of 5

45 deg

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

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

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

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

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

Percent complete coverage

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

37.500 **% Total for complete exam**

Site Field Supervisor: Rodney Stafford Date: 11-3-09

Duke Energy

UT Pipe Weld Examination

Site/Unit:	Oconee / 1	Procedure:	NDE-600	Outage No.:	N/A
Summary No.:	1-HP-0187-184	Procedure Rev.:	17	Report No.:	BOP-UT-09-082
Workscope:	BOP	Work Order No.:	01859555	Page:	1 of 5

Code: N/A Cat./Item: N/A Location: N/A

Drawing No.: N/A Description: N/A

System ID: N/A

Component ID: N/A Size/Length: N/A Thickness/Diameter: .531"/4.0"

Limitations: Yes Start Time: 1314 Finish Time: 1328

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

Lo Location: 9.1.1.1 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 09125

Temp. Tool Mfg.: FISHER Serial No.: MCNDE32770 Surface Temp.: 72 °F

Cal. Report No.: CAL-09-331, CAL-09-332, CAL-09-333

Angle Used	0	45	45T	60	60L	
Scanning dB			49	49	57	

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

Comments:

FC 08-03

Results: Accept ☑ Reject ☐ Info ☐ Initial PSI Exam

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

Examiner Leeper, Winfred C.	Level II-N	Signature Winfred C. Leeper	Date 10/19/2009	Reviewer	Signature Barry Mitchell	Date 10-22-09
Examiner N/A	Level N/A	Signature	Date	Site Review	Signature	Date
Other N/A	Level N/A	Signature	Date	ANII Review	Signature	Date 10/23/09

Determination of Percent Coverage for UT Examinations - Pipe

ATTACHMENT A PAGE 2 OF 112

Site/Unit:	Oconee / 1	Procedure:	NDE-600	Outage No.:	N/A
Summary No.:	1-HP-0187-184	Procedure Rev.:	17	Report No.:	BOP-UT-09-082
Workscope:	BOP	Work Order No.:	01859555	Page:	2 of 5

45 deg

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

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

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

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

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

Percent complete coverage

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

37.500 % Total for complete exam

Site Field Supervisor: Rod Hoffman Date: 10-28-09

ATTACHMENT A
PAGE 105 OF 112

DUKE POWER COMPANY

ISI LIMITATION REPORT

Component/Weld ID: 1HP-0187-184 Item No: N/A

remarks:

Due to valve configuration

☒ NO SCAN SURFACE BEAM DIRECTION

☐ LIMITED SCAN ~~☒~~ 1 DKZ 10/27/09 ☒ 2 ☐ 1 ☒ 2 ☒ cw ☒ ccw

FROM L N/A to L N/A INCHES FROM W0 .4" to Beyond

ANGLE: ☒ 0 ☒ 45 ☒ 60 other ____ FROM N/A DEG to N/A 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 ☐ 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

BOP-UT-09-082

Sketch(s) attached

☒ yes ☐ No

Prepared By: Winfred Leeper Winfred C. Leeper Level: II Date: 10/19/09

Sheet 3 of ~~4~~ 5 DKZ 10/27/09

Reviewed By: Barry Date: 10-22-09

Authorized Inspector: Date: 10/23/09

ATTACHMENT A
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Supplemental Report

Report No.: BOP-UT-09-082

Page: 4 of 5

Summary No.: 1-HP-0187-184

Examiner:	Leeper, Winfred C.	Level:	II-N	Reviewer:	Barry Mudd	Date: 10-22-09
Examiner:	N/A	Level:	N/A	Site Review:		Date:
Other:	N/A	Level:	N/A	ANII Review:		Date: 10/23/09

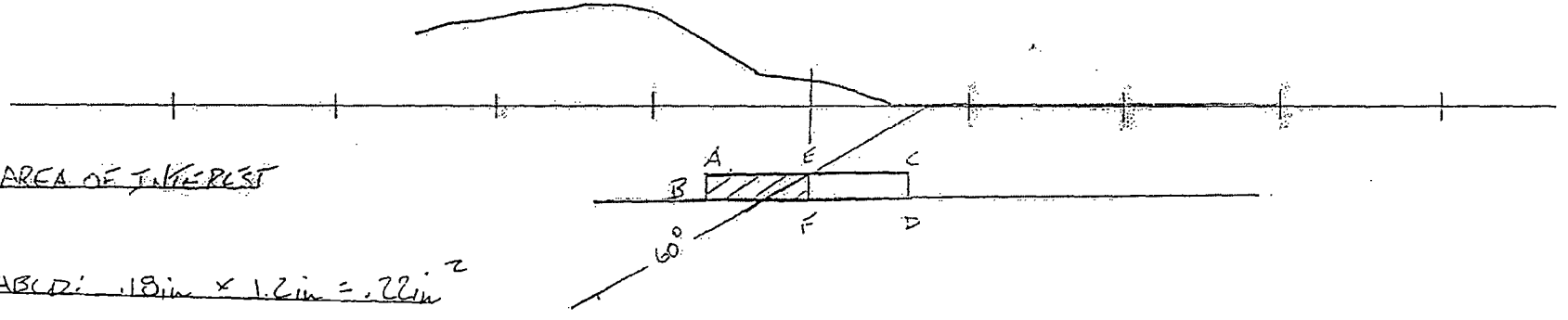
Comments: **Area of Interest and Axial Coverage**

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

AXIAL COVERAGE

COEF: .18in × .60in = .11in²

.11in²/.22in² (100) = 50%



AREA OF INTEREST

ABCD: .18in × 1.2in = .22in²

ATTACHMENT A
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Duke Energy

Supplem[illegible]al Report

Report No.: BOP-UT-09-082

Page: 5 of 5

Summary No.: 1-HP-0187-184

Examiner: Leeper, Winfred C. Level: II-N Reviewer: Date: 10-22-09

Examiner: N/A Level: N/A Site Review: Date:

Other: N/A Level: N/A ANII Review: Date: 10/23/09

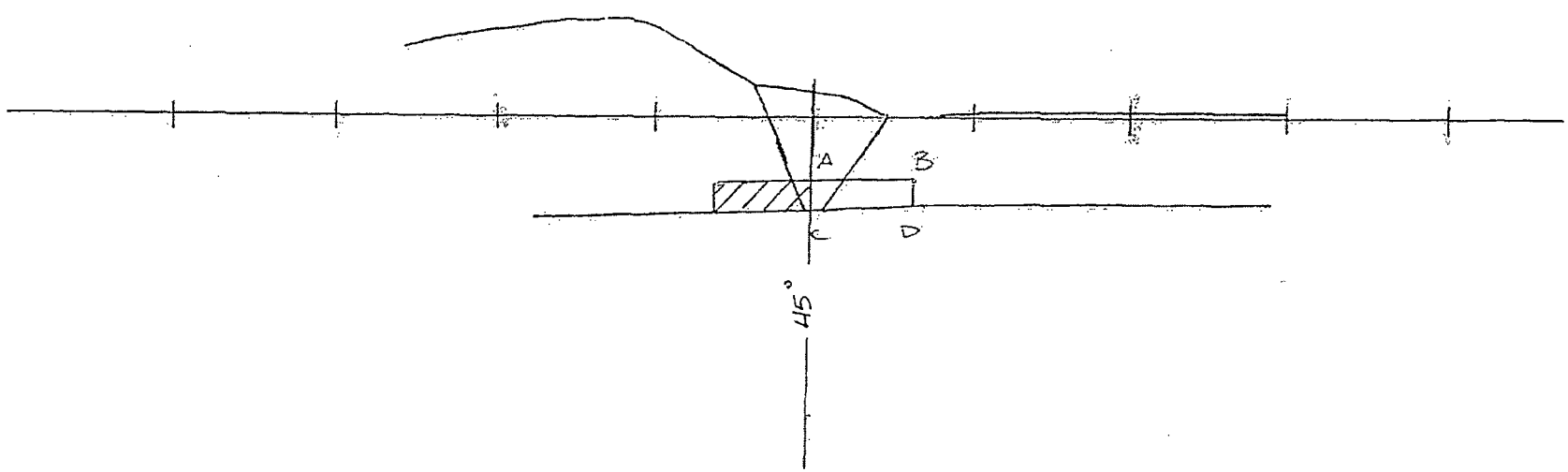
Comments: Circ. Coverage

CIRC COVERAGE

ABCD: .18in x .60in = .11in²

.11in²/.22in²(100) = 50%

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



ATTACHMENT A
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Duke Energy

UT Pipe Weld Examination

Site/Unit: Oconee / 1 | Procedure: NDE-600 | Outage No.: N/A

Summary No.: 1-HP-0187-185 | Procedure Rev.: 17 | Report No.: BOP-UT-09-089

Workscope: PSI | Work Order No.: 01635553 | Page: 1 of 5

Code: ~~ASME 3 NC~~ Section XI 10-29-09 | Cat./Item: N/A | Location: N/A

Drawing No.: N/A | Description: Pipe to valve

System ID: HP

Component ID: 1-HP-0187-185 | Size/Length: N/A | Thickness/Diameter: .531/4"/SS

Limitations: Yes | Start Time: 1351 | Finish Time: 1507

Examination Surface: Inside ☐ Outside ☑ | Surface Condition: AS GROUND

Lo Location: RT - 0 | Wo Location: Centerline of Weld | Couplant: ULTRAGEL II | Batch No.: 09125

Temp. Tool Mfg.: FISHER | Serial No.: MCNDE 27228 | Surface Temp.: 72 °F

Cal. Report No.: CAL-09-376, 377 & 378

Angle Used	0	45	45T	60	60L	
Scanning dB			42	42	52	

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

Comments:

FC 08-03

Results: Accept ☐ Reject ☑ Info ☐ | Initial PSI Exam

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

Examiner Jolly, B. Dale	Level II-N	Signature B. Dale Jolly	Date 10/27/2009	Reviewer M E Hewson	Signature	Date 10-29-09
Examiner N/A	Level N/A	Signature	Date	Site Review	Signature	Date
Other N/A	Level N/A	Signature	Date	ANII Review	Signature	Date 10/30/09

ATTACHMENT A
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Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit:	Oconee / 1	Procedure:	NDE-600	Outage No.:	N/A
Summary No.:	1-HP-0187-185	Procedure Rev.:	17	Report No.:	BOP-UT-09-089
Workscope:	PSI	Work Order No.:	01859555	Page:	2 of 5

45 deg

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

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

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

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

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

Percent complete coverage

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

37.500 **% Total for complete exam**

Site Field Supervisor: Rodney Sheffield Date: 10/29/2009

DUKE POWER COMPANY

ISI LIMITATION REPORT

Component/Weld ID: 1-HP-0187-185 **Item No:** N/A

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 N/A to N/A
ANGLE: ☐ 0 ☐ 45 ☒ 60 other ____ FROM 0 DEG to 360 DEG

Valve configuration

☒ 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

Valve 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 4 INCHES FROM W0 ____ to ____
ANGLE: ☐ 0 ☐ 5 ☐ 60 other ____ FROM ____ DEG to ____ DEG

Sketch(s) attached
☒ yes ☐ No

Prepared By: B. Dale Jolly B. Dale Jolly Level: II Date: 10/27/09 Sheet 3 of 5

Reviewed By: M E Hansen Date: 10-29-09 Authorized Inspector: [signature] Date: 10/30/09

Duke Energy

Supplemental Report

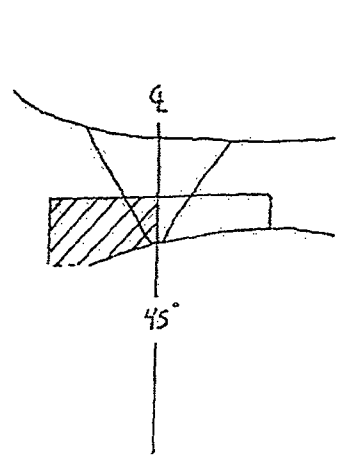
Report No.: BOP-UT-09-089
Page: 4 of 5

Summary No.: 1-HP-0187-185

Examiner:	Jolly, B. Dale B. Dale Jolly	Level:	II-N	Reviewer:	ME Howser Date: 10.29.09
Examiner:	N/A	Level:	N/A	Site Review:	Date:
Other:	N/A	Level:	N/A	ANII Review:	Date: 10/30/09

Comments: CW & CCW Circ. Exam limitation

Sketch or Photo:



First Energy

Supplemental Report

Report No.: BOP-UT-09-089

Page: 5 of 5

Summary No.: 1-HP-0187-185

Examiner:	Jolly, B. Date B. Dale Jolly	Level:	II-N	Reviewer:	M E Hansen Date: 10-29-09
Examiner:	N/A	Level:	N/A	Site Review:	Date:
Other:	N/A	Level:	N/A	ANII Review:	Date: 10/30/09

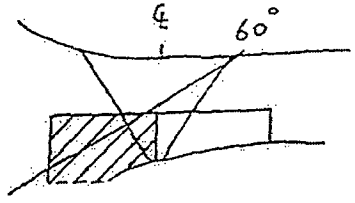
Comments: **Axial exam limtiation**

Sketch or Photo:

S1

S2

Valve



UT Vessel Examination

Site/Unit:	Oconee / 2	Procedure:	NDE-640	Outage No.:	O2-24
Summary No.:	O2.B3.110.0002	Procedure Rev.:	5	Report No.:	UT-10-444
Workscope:	ISI	Work Order No.:	01869776	Page:	1 of 1

Code: 1998/2000A Cat./Item: B-D /B3.110 Location:

Drawing No.: ISI-OCN2-002 Description: Nozzle to Head

System ID: 50

Component ID: 2-PZR-WP34 Size/Length: N/A Thickness/Diameter: 4.750/7.750/CS

Limitations: Yes - See Attached UT Report UT-10-452 Start Time: 1029 Finish Time: 1051

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

Lo Location: 9.2.3 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 09125

Temp. Tool Mfg.: Lutron Serial No.: MCNDE32804 Surface Temp.: 73 °F

Cal. Report No.: CAL-10-550

Angle Used	0	45	45T	60	60T	
Scanning dB	42.7					

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

Comments:

N/A

Results: Accept ☐ Reject ☑ Info ☐ Winston Bull Level II 5/3/10

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

Examiner Griebel, David M.	Level II-N	Signature	Date 5/3/2010	Reviewer		Signature	Date 5-15-10
Examiner Tucker, David K.	Level II-N	Signature	Date 5/3/2010	Site Review		Signature	Date
Other Mauldin, Larry E.	Level II-N	Signature	Date 5/3/2010	ANII Review		Signature	Date 5/17/10

UT Vessel Examination

Site/Unit:	Oconee / 2	Procedure:	NDE-820	Outage No.:	O2-24
Summary No.:	O2.B3.110.0002	Procedure Rev.:	5	Report No.:	UT-10-452
Workscope:	ISI	Work Order No.:	01869776	Page:	1 of 9

Code: 1998/2000A Cat./Item: B-D /B3.110 Location:

Drawing No.: ISI-OCN2-002 Description: Nozzle to Head

System ID: 50

Component ID: 2-PZR-WP34 Size/Length: N/A Thickness/Diameter: 4.750/7.750/CS

Limitations: Yes - See Attached Limitation Sheet Start Time: 1052 Finish Time: 1233

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

Lo Location: 9.2.3 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 09125

Temp. Tool Mfg.: Lutron Serial No.: MCNDE32804 Surface Temp.: 73 °F

Cal. Report No.: CAL-10-547, 548, 549

Angle Used	0	45	45T	60	60T	*
Scanning dB		63.0	63.0	70.0	70.0	71.7

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

Comments:

*60° near surface examination

Results: Accept ☐ Reject ☑ Info ☐ Winston Bull Level II 5/3/10

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

Examiner Level II-N Griebel, David M.	Signature	Date 5/3/2010	Reviewer	Signature	Date 5-15-10
Examiner Level II-N Tucker, David K.	Signature	Date 5/3/2010	Site Review	Signature	Date
Other Level II-N Mauldin, Larry E.	Signature	Date 5/3/2010	ANII Review	Signature	Date 5/19/10

DUKE POWER COMPANY

ISI LIMITATION REPORT

Component/Weld ID: 2-PRZ-WP34 **Item No:** O2.B3.110.0002

remarks:
Limitation due to nozzle configuration.

☒ NO SCAN SURFACE BEAM DIRECTION
☐ LIMITED SCAN ☐ 1 ☒ 2 ☒ 1 ☐ 2 ☒ cw ☒ ccw
FROM L N/A to L N/A INCHES FROM W0 1.75" to Beyond
ANGLE: ☒ 0 ☒ 45 ☒ 60 other ____ FROM 0 DEG to 360 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 ☐ 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

Sketch(s) attached
☒ yes ☐ No

Prepared By: David Griebel Level: II Date: 05/03/10 Sheet 2 of 9
Reviewed By: MEHouser Date: 5-15-10 Authorized Inspector: Date: 5/19/10

ATTACHMENT B
PAGE 4 OF 65

Supplemental Report

Report No.: UT-10-452

Page: 3 of 49

GEH 5-15-10

Summary No.: O2.B3.110.0002

Examiner: Griebel, David M. — Level: II-N — Reviewer: — Date: 5/13/10

Examiner: Tucker, David K. — Level: II-N — Site Review: — Date:

Other: Mauldin, Larry E. — Level: II-N — ANII Review: — Date: 5/19/10

Comments: **See attachments 1-5 for graphic plotting of coverage.**

Sketch or Photo:

ATTACHMENT B
PAGE 5 OF 9

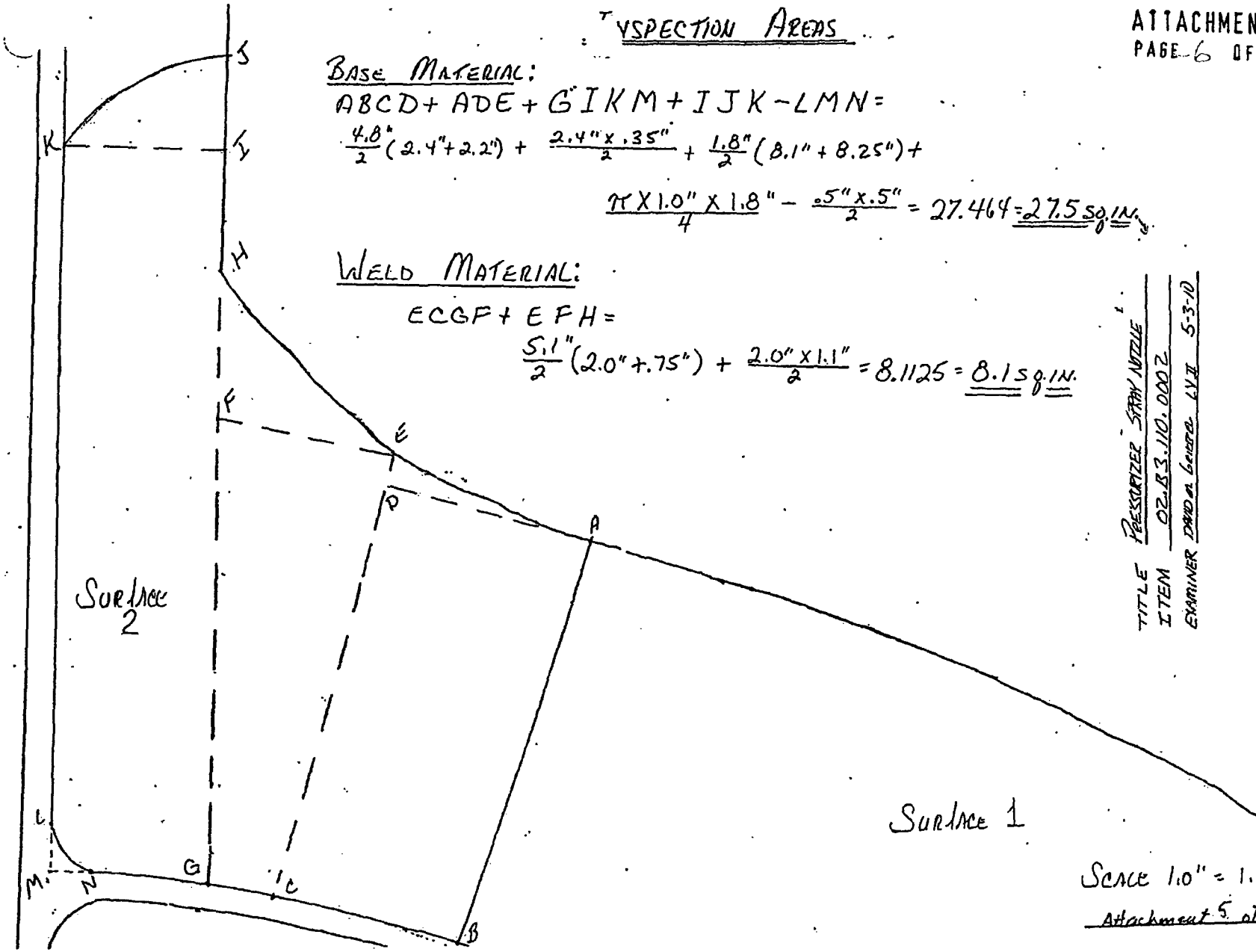
Pressurizer Spray Nozzle	
Item No. 02.B3.110.0002 / Weld No. 2-PZR-WP34	
Base Material Coverage	
Scan	Coverage
0°	74.9%
45° Axial	79.6%
60° Axial	82.5%
45° CW/CCW	74.2%
60° CW/CCW	74.2%
Aggregate @ 74.9 + 79.6 + 82.5 + 74.2 + 74.2% = 385.4/5 = 77.1%	
Weld Material Coverage	
Scan	Coverage
0°	98.7%
45° S1 Axial	95.1%
45° S2 Axial	0.0%
45° CW	96.3%
45° CCW	96.3%
60° S1 Axial	96.3%
60° S2 Axial	0.0%
60° CW	96.3%
60° CCW	96.3%
Aggregate @ 98.7+ 95.1+ 0.0 + 96.3+ 96.3+ 96.3+ 0.0 + 96.3 + 96.3 = 675.3/9 = 75.0%	
Total Aggregate @ 77.1 + 75.0 = 152.1/2 = 76.1%	

Level III David K. Bi III

Date 5/13/10

Geh
5-15-10

TYSPECTION AREAS



BASE MATERIAL:

$ABCD + ADE + GIKM + IJK - LMN =$

$\frac{4.8"}{2}(2.4" + 2.2") + \frac{2.4" \times .35"}{2} + \frac{1.8"}{2}(8.1" + 8.25") +$

$\frac{\pi \times 1.0" \times 1.8"}{4} - \frac{.5" \times .5"}{2} = 27.464 = \underline{27.5 \text{ sq. in.}}$

WELD MATERIAL:

$ECGF + EFH =$

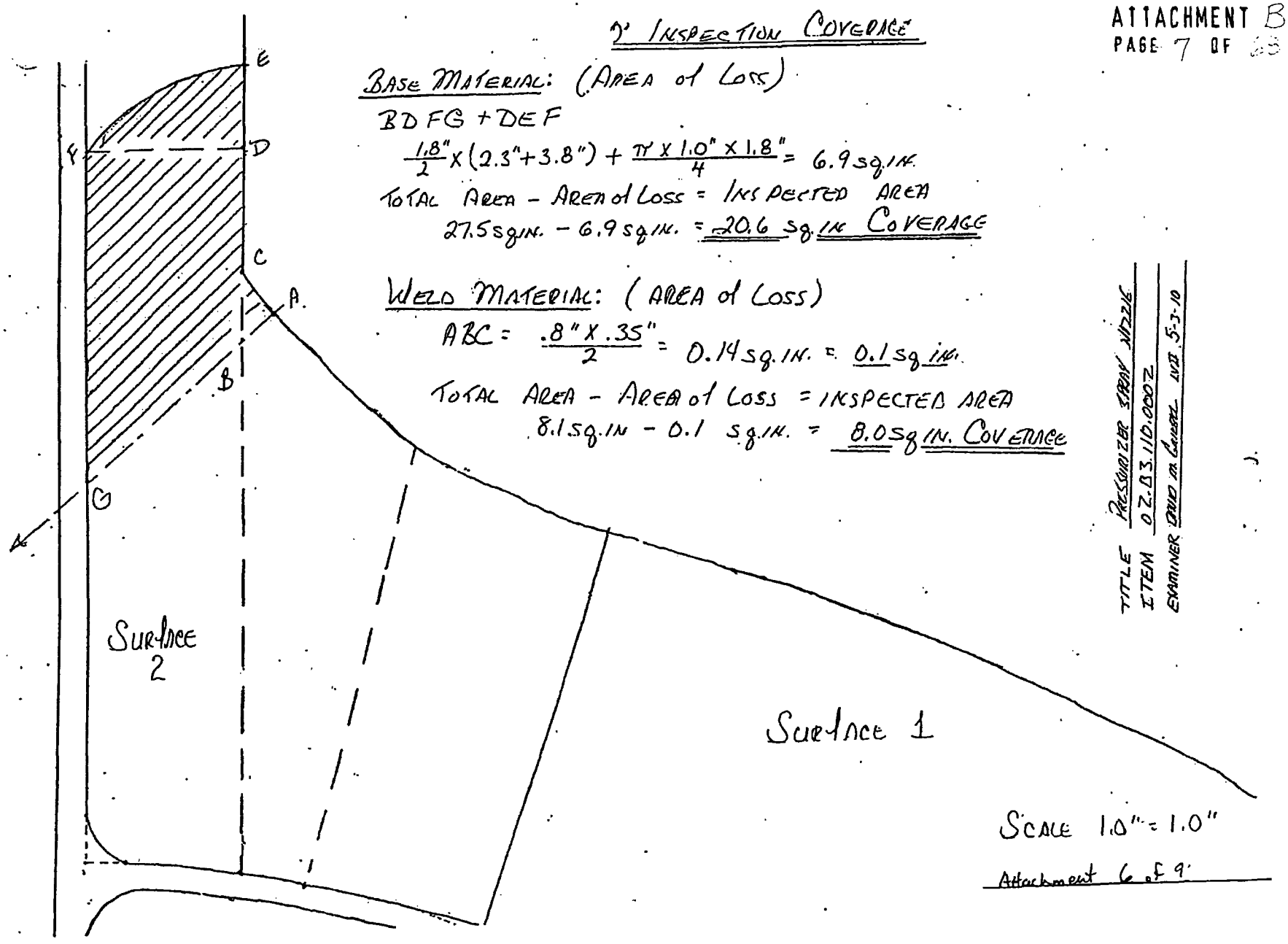
$\frac{5.1"}{2}(2.0" + .75") + \frac{2.0" \times 1.1"}{2} = 8.1125 = \underline{8.1 \text{ sq. in.}}$

TITLE PRESSURIZER SPRAY NOZZLE
ITEM 02.B3.110.0002
EXAMINER DAVID GEORGE LYLE 5-3-10

Scale 1.0" = 1.0"

Attachment 5 of 9

2" Inspection Coverage



Base Material: (Area of Loss)

BD FG + DEF

$\frac{1.8"}{2} \times (2.3" + 3.8") + \frac{\pi \times 1.0" \times 1.8"}{4} = 6.9$ sq.in.

Total Area − Area of Loss = Inspected Area

27.5 sq.in. − 6.9 sq.in. = 20.6 sq.in. Coverage

Weld Material: (Area of Loss)

$ABC = \frac{.8" \times .35"}{2} = 0.14$ sq.in. = 0.1 sq.in.

Total Area − Area of Loss = Inspected Area

8.1 sq.in − 0.1 sq.in. = 8.0 sq.in. Coverage

Title: Pressurizer Spray Nozzle
Item: 02.03.110.0002
Examiner: David A. Gavrel Date: 5-3-10

Scale 1.0" = 1.0"

Attachment 6 of 9

45° SPECTION

BASE MATERIAL: (AREA of LOSS)

BDFG + DEF

$1.8" \times 2.3" + \frac{\pi \times 1.0" \times 1.8"}{4} = 5.55 \text{ sq.in} = \underline{5.6 \text{ sq.in}}$

TOTAL AREA - AREA of LOSS = INSPECTED AREA

27.5 sq.in. − 5.6 sq.in = 21.9 sq.in COVERAGE

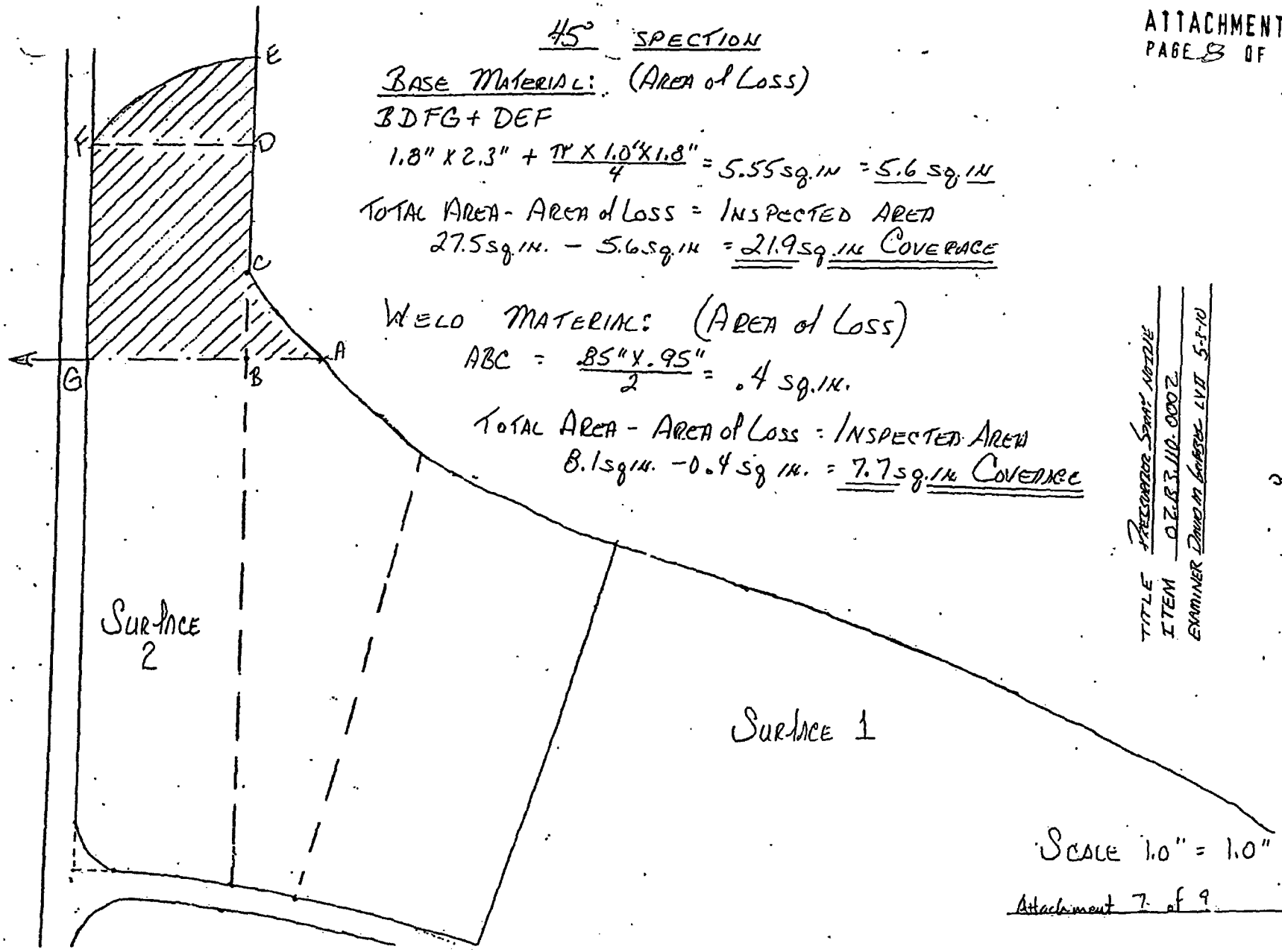
WELD MATERIAL: (AREA of LOSS)

$ABC = \frac{.85" \times .95"}{2} = .4 \text{ sq.in.}$

TOTAL AREA - AREA of LOSS = INSPECTED AREA

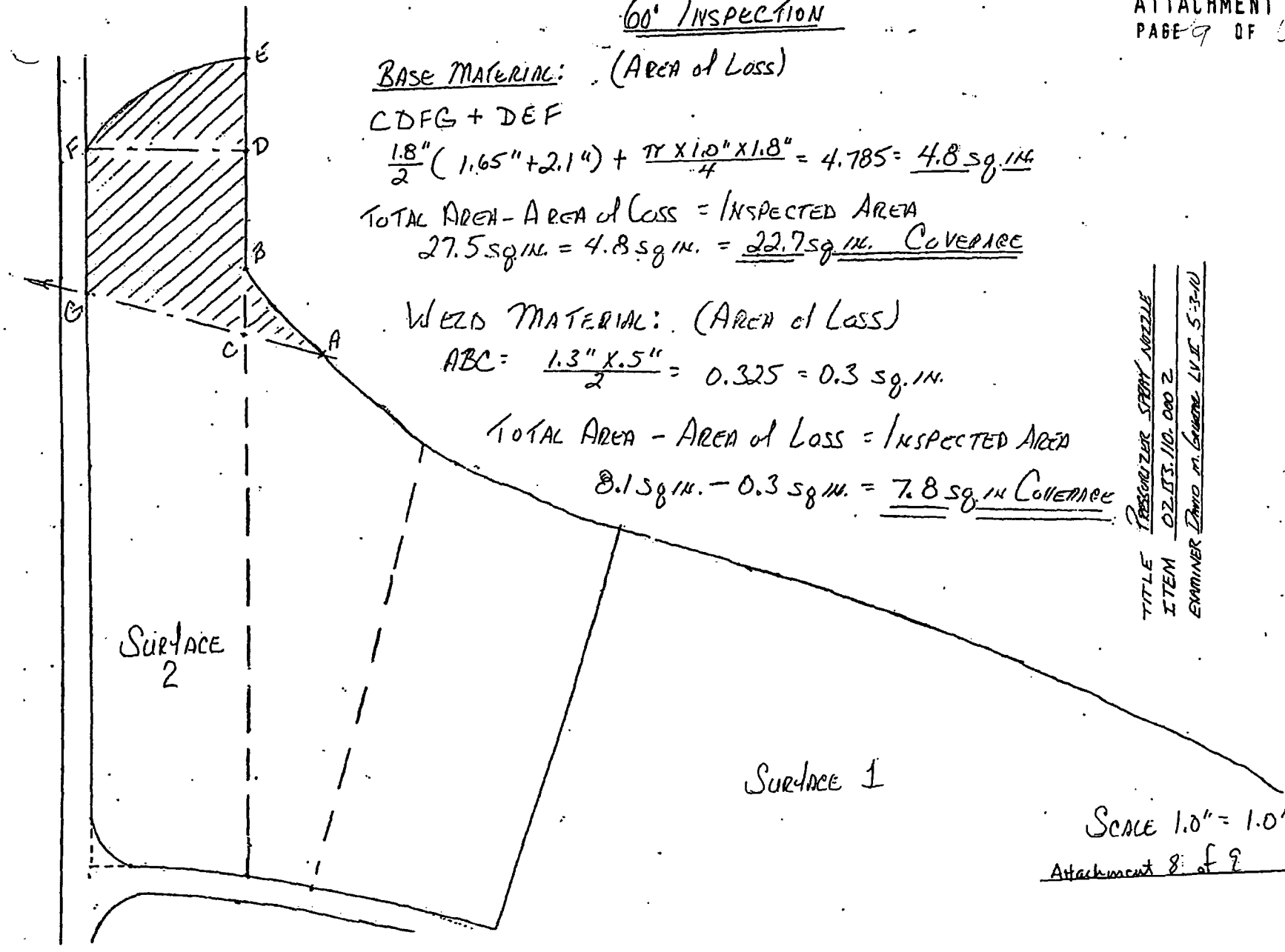
8.1 sq.in. − 0.4 sq.in. = 7.7 sq.in COVERAGE

TITLE RECIRC SPARE NOZZLE
ITEM 02.R3.110.0002
EXAMINER DUNCAN GARSIDE LVII 5-5-10



SCALE 1.0" = 1.0"

60° INSPECTION



BASE MATERIAL: (AREA of Loss)

CDFG + DEF

$\frac{1.8"}{2}(1.65" + 2.1") + \frac{\pi \times 1.0" \times 1.8"}{4} = 4.785 = \underline{4.8 \text{ sq. in.}}$

TOTAL AREA - AREA of Loss = INSPECTED AREA

$27.5 \text{ sq in.} - 4.8 \text{ sq in.} = \underline{22.7 \text{ sq in. COVERAGE}}$

WELD MATERIAL: (AREA of Loss)

$ABC = \frac{1.3" \times .5"}{2} = 0.325 = 0.3 \text{ sq. in.}$

TOTAL AREA - AREA of Loss = INSPECTED AREA

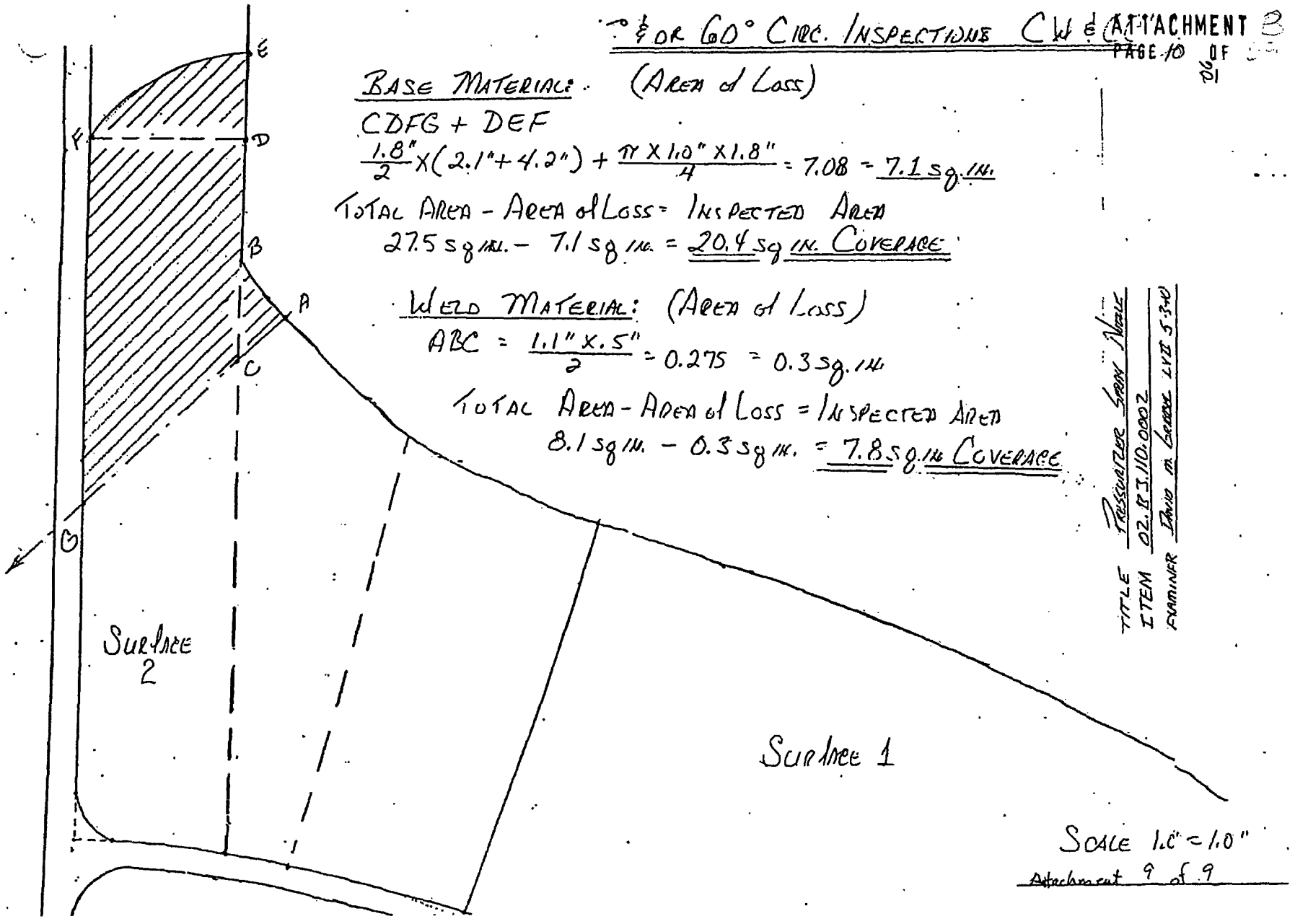
$8.1 \text{ sq in.} - 0.3 \text{ sq in.} = \underline{7.8 \text{ sq in COVERAGE}}$

TITLE PRESSURIZER SPRAY NOZZLE
ITEM 02.53.110.0002
EXAMINER DAVID M. GAMBLE LVL II 5-3-10

SCALE 1.0" = 1.0"

Attachment 8 of 9

45° & 60° CIRC. INSPECTIONS CW & CCW



BASE MATERIAL: (AREA of Loss)

CDFG + DEF

$\frac{1.8"}{2} \times (2.1" + 4.2") + \frac{\pi \times 1.0" \times 1.8"}{4} = 7.08 = \underline{7.1 \text{ sq. in.}}$

TOTAL AREA - AREA of Loss = INSPECTED AREA

27.5 sq in. − 7.1 sq in. = 20.4 sq in. COVERAGE

WELD MATERIAL: (AREA of Loss)

$ABC = \frac{1.1" \times .5"}{2} = 0.275 = 0.3 \text{ sq. in.}$

TOTAL AREA - AREA of Loss = INSPECTED AREA

8.1 sq in. − 0.3 sq in. = 7.8 sq in. COVERAGE

TITLE: Pressurizer Spray Nozzle
ITEM: 02.B3.110.0002
EXAMINER: David M. Lewis LVL 3 PSI

SCALE 1.0" = 1.0"

ATTACHMENT B
PAGE 11 OF 23

UT Vessel Examination

Site/Unit:	Oconee / 2	Procedure:	NDE-640	Outage No.:	O2-24
Summary No.:	O2.B3.110.0003	Procedure Rev.:	5	Report No.:	UT-10-446
Workscope:	ISI	Work Order No.:	01869776	Page:	1 of 1

Code: 1998/2000A Cat./Item: B-D /B3.110 Location:

Drawing No.: ISI-OCN2-002 Description: Nozzle to Head

System ID: 50

Component ID: 2-PZR-WP33-3 Size/Length: N/A Thickness/Diameter: 4.750/6.875/CS

Limitations: Yes - See Attached UT Report UT-10-447 Start Time: 1029 Finish Time: 1051

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

Lo Location: 9.2.3 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 09125

Temp. Tool Mfg.: Lutron Serial No.: MCNDE32804 Surface Temp.: 73 °F

Cal. Report No.: CAL-10-550

Angle Used	0	45	45T	60	60T	
Scanning dB	42.7					

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

Comments:

N/A

Results: Accept ☐ Reject ☑ Info ☐ Winston Bull Level II 5/3/10

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

Examiner Level II-N Griebel, David M.	Signature	Date 5/3/2010	Reviewer	Signature	Date 5-18-10
Examiner Level II-N Tucker, David K.	Signature	Date 5/3/2010	Site Review	Signature	Date
Other Level II-N Mauldin, Larry E.	Signature	Date 5/3/2010	ANII Review	Signature	Date 5/19/10

UT Vessel Examination

Site/Unit:	Oconee / 2	Procedure:	NDE-820	Outage No.:	O2-24
Summary No.:	O2.B3.110.0003	Procedure Rev.:	5	Report No.:	UT-10-447
Workscope:	ISI	Work Order No.:	01869776	Page:	1 of 9

Code: 1998/2000A Cat./Item: B-D /B3.110 Location:

Drawing No.: ISI-OCN2-002 Description: Nozzle to Head

System ID: 50

Component ID: 2-PZR-WP33-3 Size/Length: N/A Thickness/Diameter: 4.750/6.875/CS

Limitations: Yes - See Attached Limitation Sheet Start Time: 1052 Finish Time: 1233

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

Lo Location: 9.2.3 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 09125

Temp. Tool Mfg.: Lutron Serial No.: MCNDE32804 Surface Temp.: 73 °F

Cal. Report No.: CAL-10-547, 548, 549

Angle Used	0	45	45T	60	60T	*
Scanning dB		63.0	63.0	70.0	70.0	71.7

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

Comments:

*** 60° near surface examination.**

Results: Accept ☐ Reject ☑ Info ☐ Winston Bull Level II 5/3/10

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

Examiner Griebel, David M.	Level II-N	Signature	Date 5/3/2010	Reviewer		Signature	Date 5-15-10
Examiner Tucker, David K.	Level II-N	Signature	Date 5/3/2010	Site Review		Signature	Date
Other Mauldin, Larry E.	Level II-N	Signature	Date 5/3/2010	ANII Review		Signature	Date 5/15/10

DUKE POWER COMPANY

ISI LIMITATION REPORT

Component/Weld ID: 2PZR-WP-33-3 **Item No:** O2.B3.110.0003

remarks:

Due to nozzle configuration

☒ NO SCAN SURFACE BEAM DIRECTION
☐ LIMITED SCAN ☐ 1 ☒ 2 ☒ 1 ☐ 2 ☒ cw ☒ ccw
FROM L N/A to L N/A INCHES FROM W0 1.75" to Beyond
ANGLE: ☒ 0 ☒ 45 ☒ 60 other ____ FROM 0 DEG to 360 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 ☐ 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

Sketch(s) attached
☒ yes ☐ No

Prepared By: David Griebel Level: II Date: 05/03/10 Sheet 2 of 9

Reviewed By: Date: 5-15-10 Authorized Inspector: Date: 5/17/10

ATTACHMENT 3
PAGE 4 OF 13

Duke Energy

Supplemental Report

Report No.: UT-10-447

Page: 3 of 19

GEH 5-15-10

Summary No.: O2.B3.110.0003

Examiner: Griebel, David M. Level: II-N Reviewer: Date: 5/13/10

Examiner: Tucker, David K. Level: II-N Site Review: Date:

Other: Mauldin, Larry E. Level: II-N ANII Review: Date: 5/19/10

Comments: **See attachments 1-5 for graphic plotting of coverage.**

Sketch or Photo:

ATTACHMENT 1
PAGE 15 OF 15

Pressurizer Relief Nozzle	
Item No. 02.B3.110.0003 / Weld No. 2-PZR-WP33-3	
Base Material Coverage	
Scan	**Coverage**
0°	68.1%
45° Axial	74.0%
60° Axial	78.4%
45° CW/CCW	63.0%
60° CW/CCW	63.0%
Aggregate @ 68.1 + 74.0 + 78.4 + 63.0 + 63.0% = 346.5/5 = 69.3%	
Weld Material Coverage	
Scan	**Coverage**
0°	98.7%
45° S1 Axial	93.7%
45° S2 Axial	0.0%
45° CW	92.4%
45° CCW	92.4%
60° S1 Axial	96.2%
60° S2 Axial	0.0%
60° CW	92.4%
60° CCW	92.4%
Aggregate @ 98.7+ 93.7+ 0.0 + 92.4+ 92.4+ 96.2+ 0.0 + 92.4+ 92.4= 658.2/9 = 73.1%	
***Total Aggregate* @ 69.3 + 73.1 = 142.4/2 = 71.2%**	

Level III David K. Zimmerman III

Date 5/13/10

INSPECTION AREAS

BASE MATERIAL:

ABCD = $\frac{4.9"}{2} \times (2.5" + 2.7") = 12.74$ sq.in.

EFG + FGJO − GHI =

$(\frac{1.3" \times .5"}{2}) + \frac{4.3"}{2}(2.0" + 1.3") - (\frac{.5" \times .15"}{2}) = 7.3825$ sq.in.

JLM + JNOP + NPQ =

$(\frac{1.5" \times .3"}{2}) + (2.0" \times 2.7") + (\frac{\pi \times 1.0" \times 2.0"}{4}) = 7.195$ sq.in.

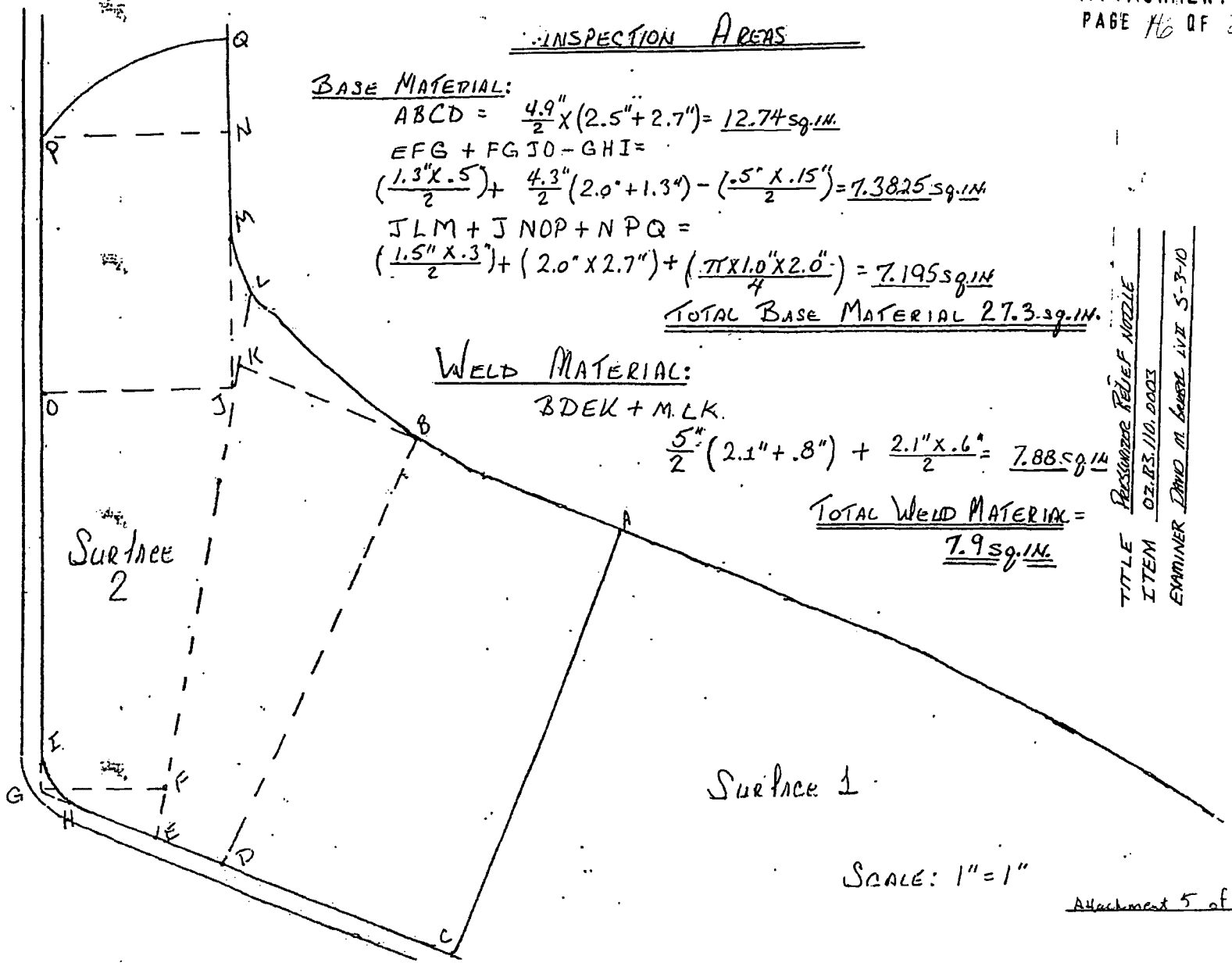
TOTAL BASE MATERIAL 27.3 sq.in.

WELD MATERIAL:

BDEK + MLK.

$\frac{.5"}{2}(2.1" + .8") + \frac{2.1" \times .6"}{2} = 7.88$ sq.in.

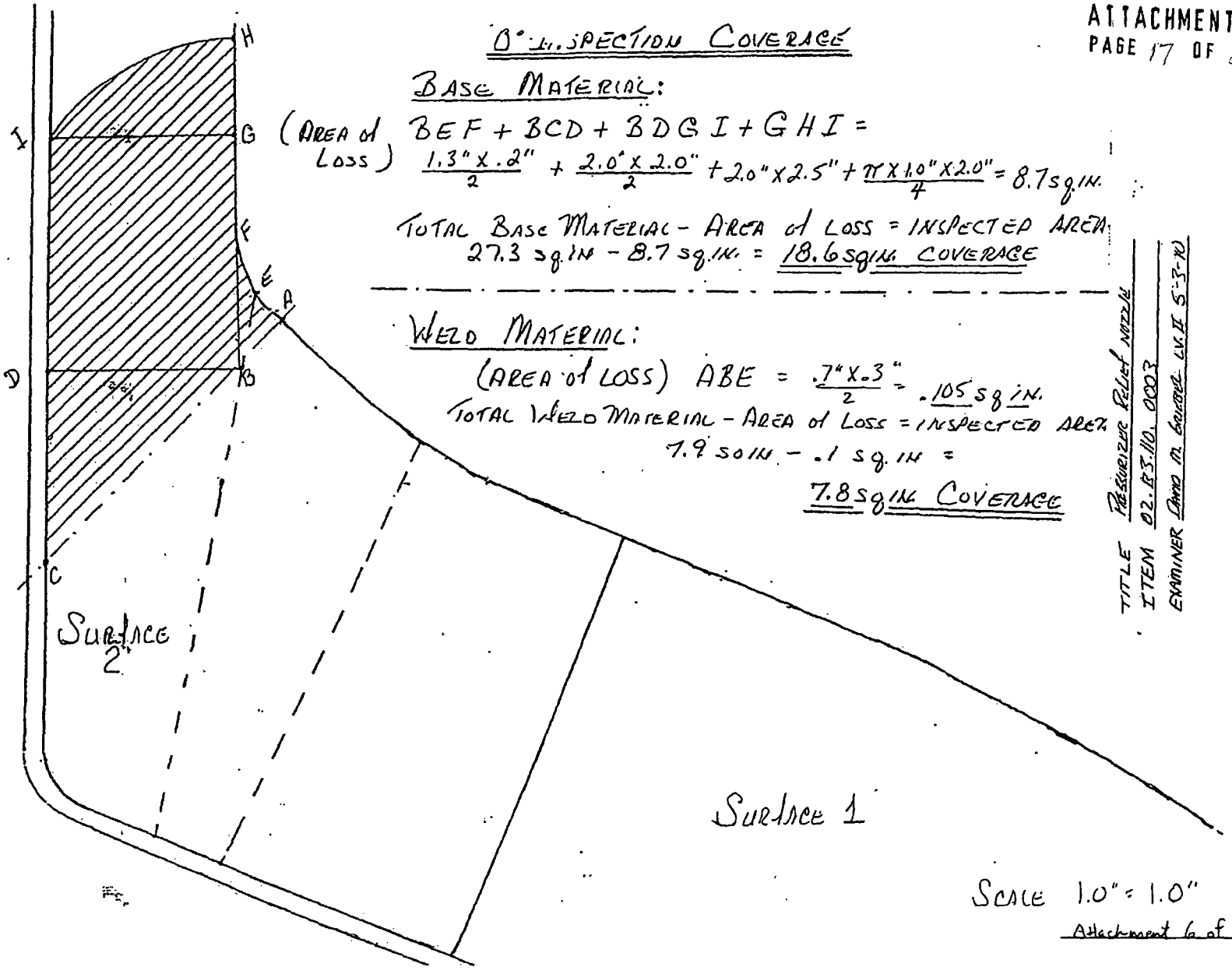
TOTAL WELD MATERIAL = 7.9 sq.in.



SCALE: 1" = 1"

TITLE Pressurizer Relief Nozzle
ITEM 02.R3.110.0003
EXAMINER David M. Bixel 5-3-10

0° INSPECTION COVERAGE



BASE MATERIAL:

(AREA of LOSS) $BEF + BCD + BDGI + GHI =$

$\frac{1.3" \times .2"}{2} + \frac{2.0" \times 2.0"}{2} + 2.0" \times 2.5" + \frac{\pi \times 1.0" \times 2.0"}{4} = 8.7 \text{ sq.in.}$

TOTAL BASE MATERIAL - AREA of LOSS = INSPECTED AREA

27.3 sq.in - 8.7 sq.in. = 18.6 sq.in. COVERAGE

WELD MATERIAL:

(AREA of LOSS) $ABE = \frac{.7" \times .3"}{2} = .105 \text{ sq.in.}$

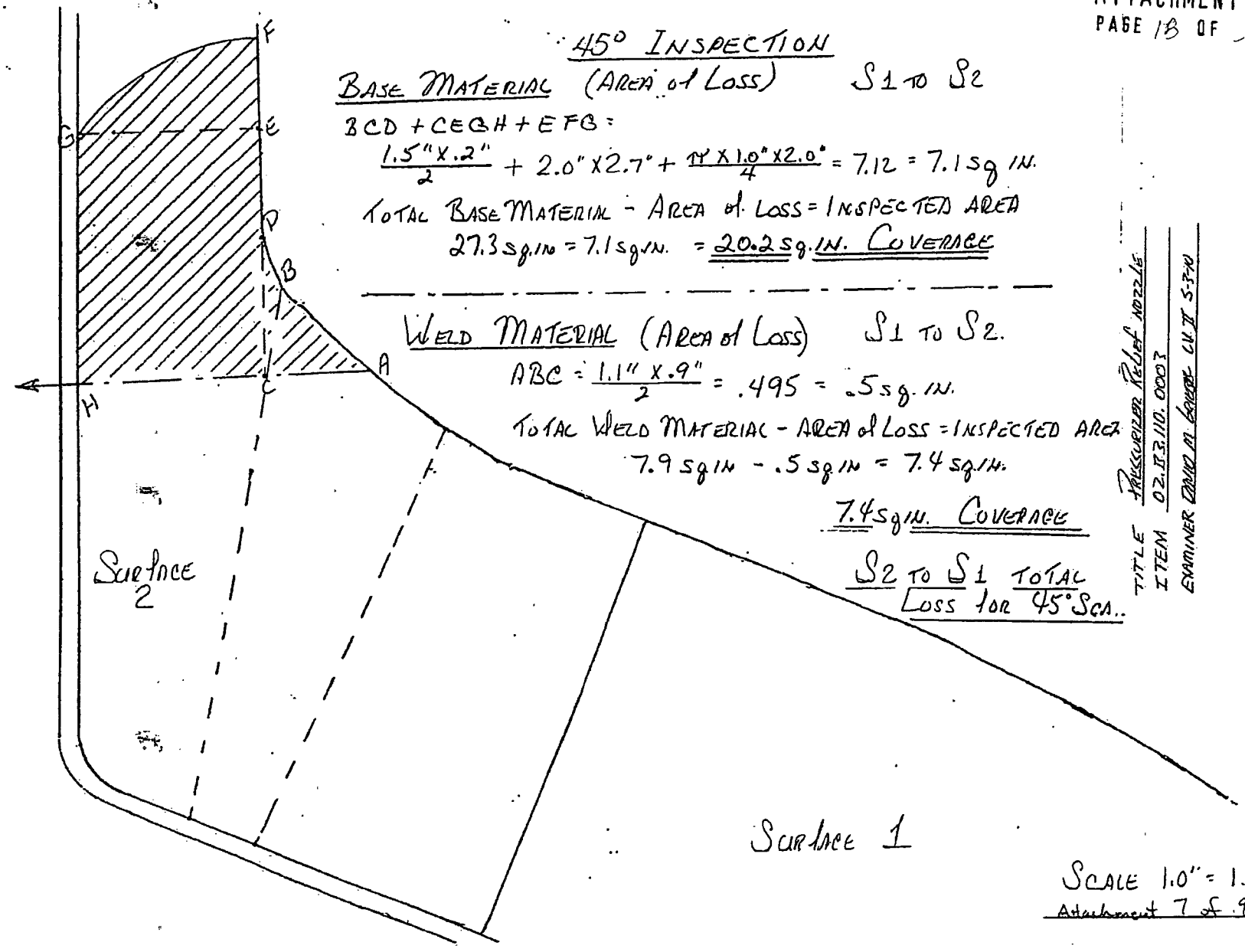
TOTAL WELD MATERIAL - AREA of LOSS = INSPECTED AREA

7.9 sq.in - .1 sq.in =

7.8 sq.in. COVERAGE

TITLE PRESSURIZER RELIEF NOZZLE
ITEM B2.E3.110.0003
EXAMINER LAND III CATEGORY LN.II 5-3-96

SCALE 1.0" = 1.0"



45° INSPECTION

BASE MATERIAL (AREA of LOSS) S1 to S2

BCD + CEGH + EFG =

$\frac{1.5" \times .2"}{2} + 2.0" \times 2.7" + \frac{\pi \times 1.0" \times 2.0"}{4} = 7.12 = 7.1$ sq IN.

TOTAL BASE MATERIAL - AREA of LOSS = INSPECTED AREA

27.3 sq.IN - 7.1 sq.IN. = 20.2 sq.IN. COVERAGE

WELD MATERIAL (AREA of LOSS) S1 to S2.

$ABC = \frac{1.1" \times .9"}{2} = .495 = .5$ sq. IN.

TOTAL WELD MATERIAL - AREA of LOSS = INSPECTED AREA

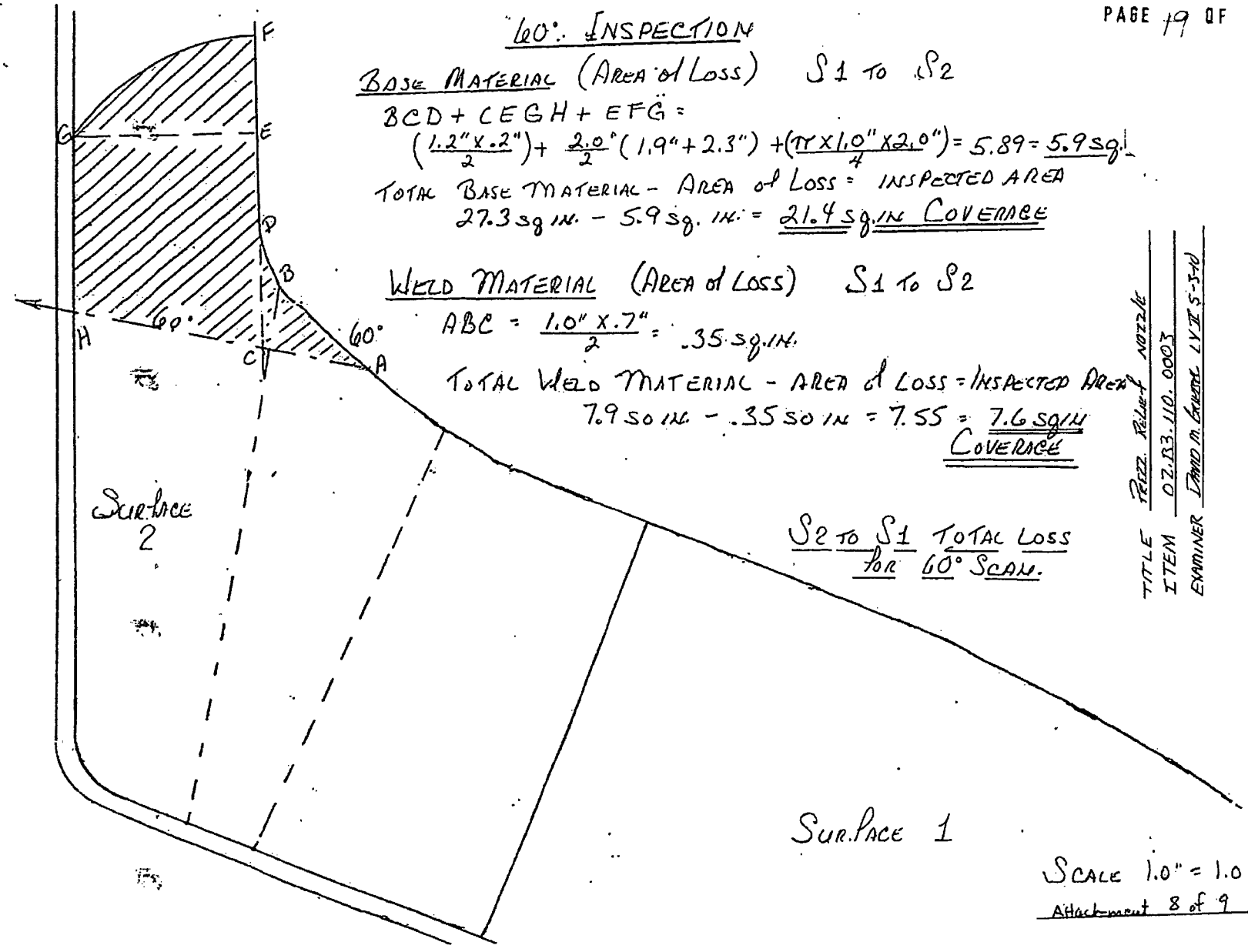
7.9 sq IN - .5 sq IN = 7.4 sq.IN.

7.4 sq.IN. COVERAGE

S2 TO S1 TOTAL Loss for 45° Scn..

TITLE PRESSURIZER RELIEF NOZZLE
ITEM 02.12.110.0003
EXAMINER LOWER HEAD CU IT 5-540

SCALE 1.0" = 1.0"



60°. INSPECTION

BASE MATERIAL (AREA of LOSS) S1 to S2

BCD + CEGH + EFG =

$\left(\frac{1.2" \times .2"}{2}\right) + \frac{2.0"}{2}(1.9" + 2.3") + \left(\frac{\pi \times 1.0" \times 2.0"}{4}\right) = 5.89 = 5.9$ sq. in.

TOTAL BASE MATERIAL - AREA of LOSS = INSPECTED AREA

27.3 sq in. - 5.9 sq. in. = 21.4 sq. in COVERAGE

WELD MATERIAL (AREA of LOSS) S1 to S2

ABC = $\frac{1.0" \times .7"}{2}$ = .35 sq. in.

TOTAL WELD MATERIAL - AREA of LOSS = INSPECTED AREA

7.950 in. - .35 so in = 7.55 = 7.6 sq in COVERAGE

S2 to S1 TOTAL LOSS for 60° SCAN.

TITLE Rezz. Relief Nozzle
ITEM 02.83.110.0003
EXAMINER David A. Gwinn LVI 5-5-11

SCALE 1.0" = 1.0"

45° & 0° Circ. Inspections CW & CCW

Base Material: (Area of Loss)

BCD + CEGH + EFG + CHI =

$$\frac{2.0'' \times 2''}{2} + 3.15\text{ in.} \times 2.0\text{ in.} + \frac{\pi \times 1.0'' \times 2.0''}{4} + \frac{2.0'' \times 2.0''}{2} = 10.07 = \underline{10.1\text{ sq in.}}$$

Total Base Material − Area of Loss = Inspected Area

27.3 sq in. − 10.1 sq in = 17.2 sq. in. Coverage

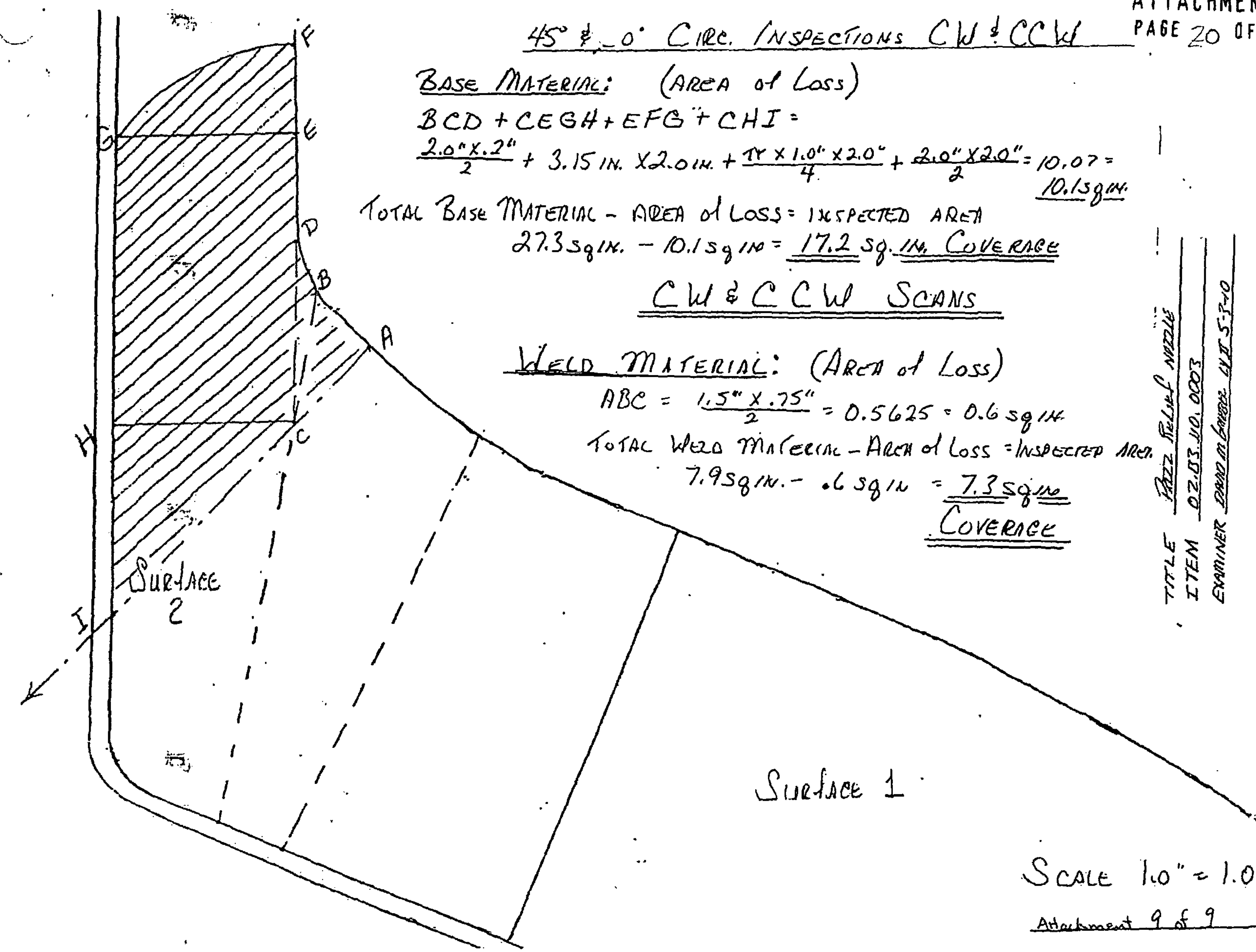
CW & CCW Scans

Weld Material: (Area of Loss)

$$ABC = \frac{1.5'' \times .75''}{2} = 0.5625 = 0.6\text{ sq in.}$$

Total Weld Material − Area of Loss = Inspected Area

7.9 sq in. − .6 sq in = 7.3 sq in. Coverage



Scale 1.0" = 1.0"

Attachment 9 of 9

TITLE Press Relief Nozzle
ITEM 02.B3.110.0003
EXAMINER David M Garber LVII 5-5-10

UT Vessel Examination

Site/Unit:	Oconee / 2	Procedure:	NDE-640	Outage No.:	O2-24
Summary No.:	O2.B3.110.0005	Procedure Rev.:	5	Report No.:	UT-10-450
Workscope:	ISI	Work Order No.:	01869776	Page:	1 of 1

Code: 1998/2000A Cat./Item: B-D /B3.110 Location:

Drawing No.: ISI-OCN2-002 Description: Nozzle to Head

System ID: 50

Component ID: 2-PZR-WP33-1 Size/Length: N/A Thickness/Diameter: 4.750/6.875/CS

Limitations: Yes - See Attached UT Report UT-10-451 Start Time: 1029 Finish Time: 1051

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

Lo Location: 9.2.3 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 09125

Temp. Tool Mfg.: Lutron Serial No.: MCNDE32804 Surface Temp.: 73 °F

Cal. Report No.: CAL-10-550

Angle Used	0	45	45T	60	60T	
Scanning dB	42.7					

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

Comments:
N/A

Results: Accept ☐ Reject ☑ Info ☐ Winston Bull Level II 5/3/10

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

Examiner Level II-N Griebel, David M.	Signature	Date 5/3/2010	Reviewer	Signature	Date 5-15-10
Examiner Level II-N Tucker, David K.	Signature	Date 5/3/2010	Site Review	Signature	Date
Other Level II-N Mauldin, Larry E.	Signature	Date 5/3/2010	ANII Review	Signature	Date 5/19/10

UT Vessel Examination

Site/Unit:	Oconee 2	Procedure:	NDE-820	Outage No.:	O2-24
Summary No.:	O2.B3.110.0005	Procedure Rev.:	5	Report No.:	UT-10-451
Workscope:	ISI	Work Order No.:	01869776	Page:	1 of 9

Code: 1998/2000A Cat./Item: B-D /B3.110 Location:

Drawing No.: ISI-OCN2-002 Description: Nozzle to Head

System ID: 50

Component ID: 2-PZR-WP33-1 Size/Length: N/A Thickness/Diameter: 4.750/6.875/CS

Limitations: Yes - See Attached Limitation Sheet Start Time: 1052 Finish Time: 1233

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

Lo Location: 9.2.3 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 09125

Temp. Tool Mfg.: Lutron Serial No.: MCNDE32804 Surface Temp.: 73 °F

Cal. Report No.: CAL-10-547, 548, 549

Angle Used	0	45	45T	60	60T	*
Scanning dB		63.0	63.0	70.0	70.0	71.7

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

Comments:

*** 60° near surface examination**

Results: Accept ☐ Reject ☑ Info ☐ Winston Bull Level II 5/3/10

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

Examiner	Level II-N	Signature	Date	Reviewer		Signature	Date
Griebel, David M.			5/3/2010				5-15-10
Examiner	Level II-N	Signature	Date	Site Review		Signature	Date
Tucker, David K.			5/3/2010				
Other	Level II-N	Signature	Date	ANII Review		Signature	Date
Mauldin, Larry E.			5/3/2010				5/19/10

ATTACHMENT B
PAGE 23 OF 68

DUKE POWER COMPANY

ISI LIMITATION REPORT

Component/Weld ID: 2PZR-WP-33-1 **Item No:** O2.B3.110.0005

☒ NO SCAN SURFACE BEAM DIRECTION
☐ LIMITED SCAN ☐ 1 ☒ 2 ☒ 1 ☐ 2 ☒ cw ☒ ccw
FROM L N/A to L N/A INCHES FROM W0 .5" to Beyond
ANGLE: ☒ 0 ☒ 45 ☒ 60 other ____ FROM 0 DEG to 360 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 ☐ 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

remarks:
Due to nozzle configuration

Sketch(s) attached
☒ yes ☐ No

Prepared By: David Griebel Level: II Date: 05/03/10 Sheet 2 of 9
Reviewed By: Date: 5-15-10 Authorized Inspector: Date: 5/19/10

Supplemental Report

Report No.: UT-10-451

Page: 3 of 19

GEH 5.15.10

Summary No.: O2.B3.110.0005

Examiner: Griebel, David M. Level: II-N Reviewer: Level: Date: 5/13/10

Examiner: Tucker, David K. Level: II-N Site Review: Date:

Other: Mauldin, Larry E. Level: II-N ANII Review: Date: 5/19/10

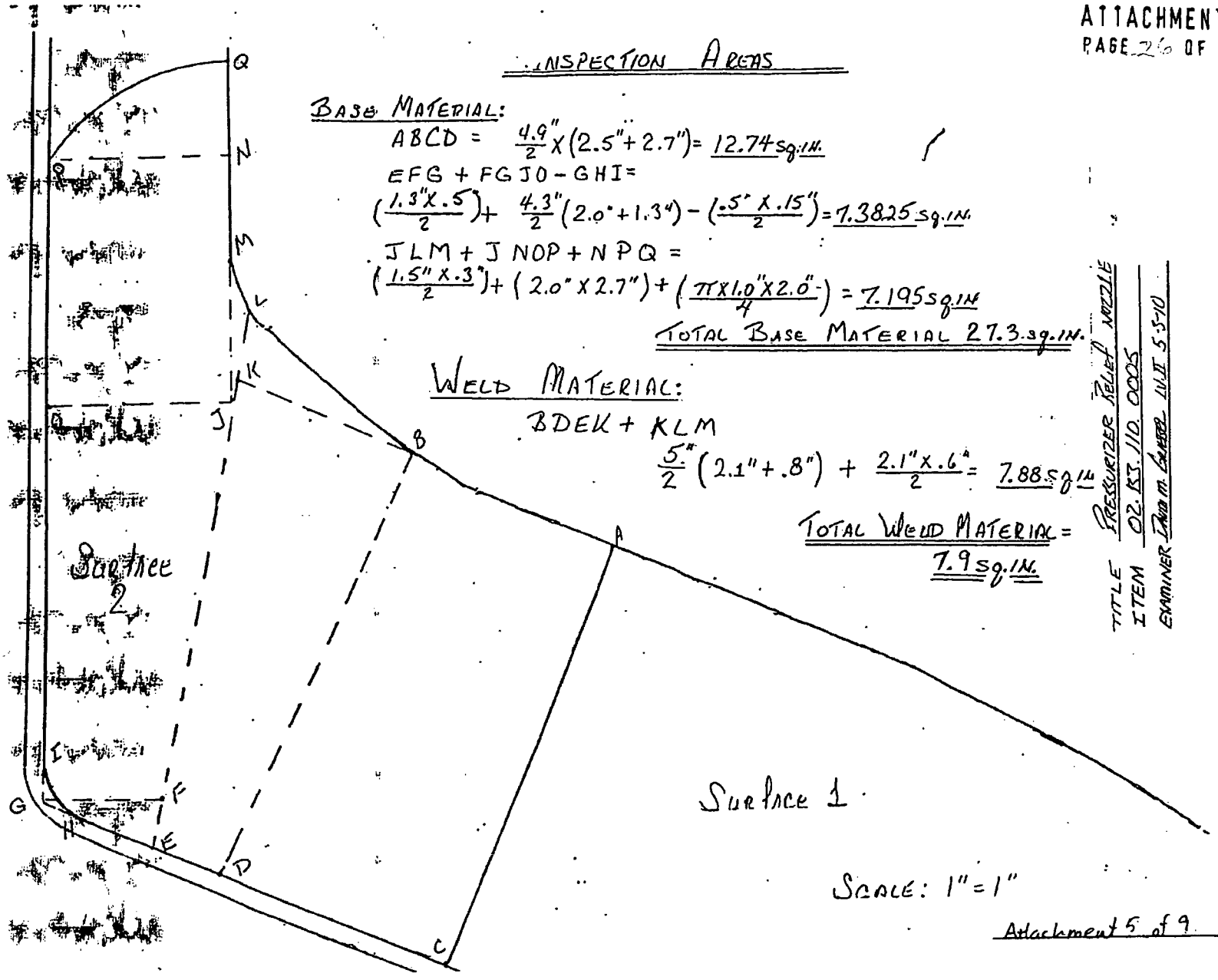
Comments: **See attachments 1-5 for graphic plotting of coverage.**

Sketch or Photo:

Pressurizer Relief Nozzle	
Item No. 02.B3.110.0005 / Weld No. 2-PZR-WP33-1	
Base Material Coverage	
Scan	Coverage
0°	68.1%
45° Axial	74.0%
60° Axial	78.4%
45° CW/CCW	63.0%
60° CW/CCW	63.0%
Aggregate @ 68.1 + 74.0 + 78.4 + 63.0 + 63.0% = 346.5/5 = 69.3%	
Weld Material Coverage	
Scan	Coverage
0°	98.7%
45° S1 Axial	93.7%
45° S2 Axial	0.0%
45° CW	92.4%
45° CCW	92.4%
60° S1 Axial	96.2%
60° S2 Axial	0.0%
60° CW	92.4%
60° CCW	92.4%
Aggregate @ 98.7+ 93.7+ 0.0 + 92.4+ 92.4+ 96.2+ 0.0 + 92.4+ 92.4= 658.2/9 = 73.1%	
Total Aggregate @ 69.3 + 73.1 = 142.4/2 = 71.2%	

Level III David K. [illegible] III

Date 5/13/10



INSPECTION AREAS

BASE MATERIAL:

ABCD = $\frac{4.9"}{2} \times (2.5" + 2.7") =$ 12.74 sq.in.

EFG + FGJO − GHI =

$\left(\frac{1.3" \times .5"}{2}\right) + \frac{4.3"}{2}(2.0" + 1.34") - \left(\frac{.5" \times .15"}{2}\right) =$ 7.3825 sq.in.

JLM + JNOP + NPQ =

$\left(\frac{1.5" \times .3"}{2}\right) + (2.0" \times 2.7") + \left(\frac{\pi \times 1.0" \times 2.0"}{4}\right) =$ 7.195 sq.in.

TOTAL BASE MATERIAL 27.3 sq.in.

WELD MATERIAL:

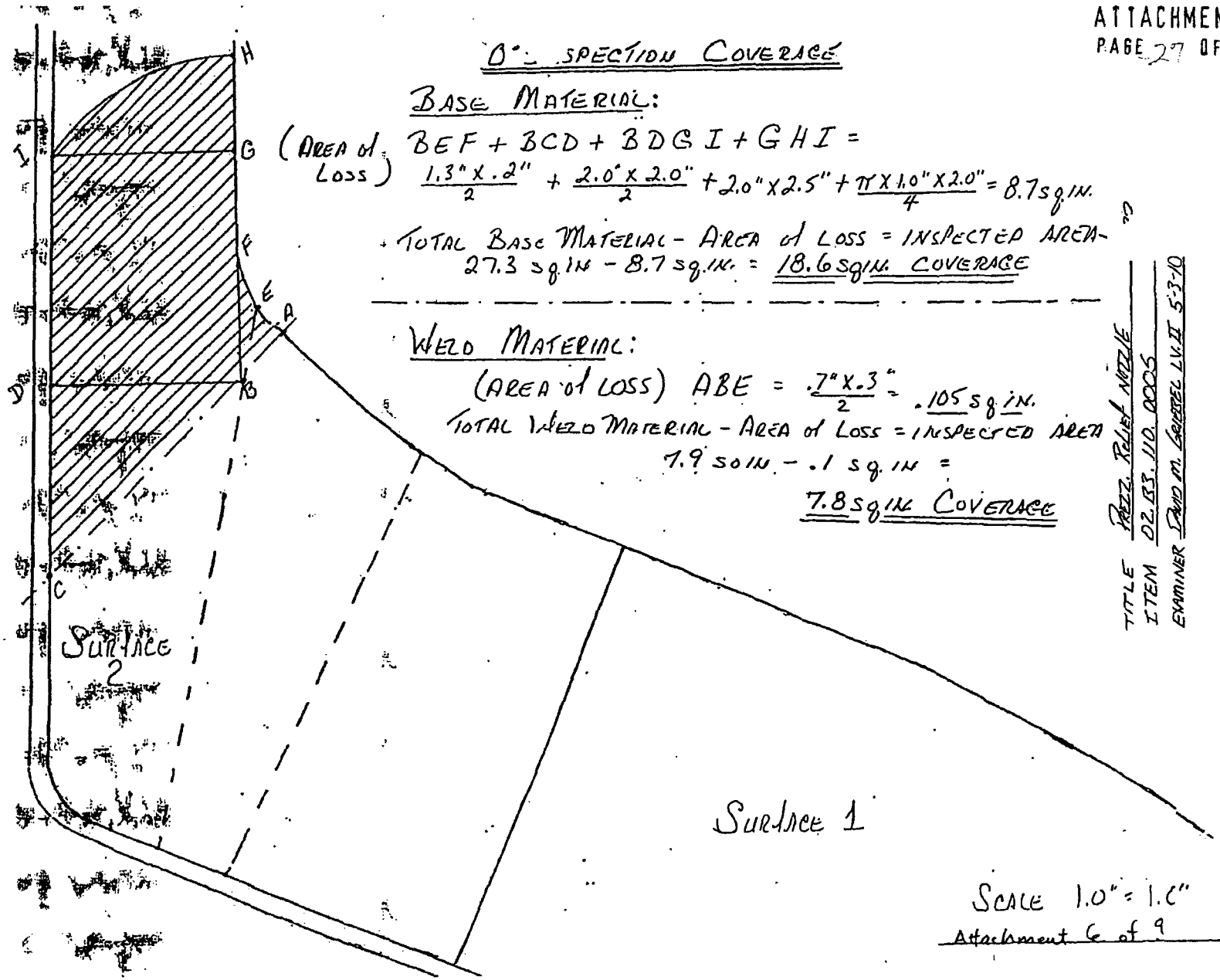
BDEK + KLM

$\frac{.5"}{2}(2.1" + .8") + \frac{2.1" \times .6"}{2} =$ 7.88 sq.in.

TOTAL WELD MATERIAL = 7.9 sq.in.

TITLE Pressurizer Relief Nozzle
ITEM 02.R3.110.0005
EXAMINER Jim Greer UNIT 5-510

SCALE: 1" = 1"



0° INSPECTION COVERAGE

BASE MATERIAL:

(AREA of LOSS) BEF + BCD + BDGI + GHI =

$\frac{1.3" \times .2"}{2} + \frac{2.0" \times 2.0"}{2} + 2.0" \times 2.5" + \frac{\pi \times 1.0" \times 2.0"}{4} = 8.7$ sq IN.

TOTAL BASE MATERIAL - AREA of LOSS = INSPECTED AREA

27.3 sq IN - 8.7 sq IN. = 18.6 sq IN. COVERAGE

WELD MATERIAL:

(AREA of LOSS) ABE = $\frac{.7" \times .3"}{2} = .105$ sq IN.

TOTAL WELD MATERIAL - AREA of LOSS = INSPECTED AREA

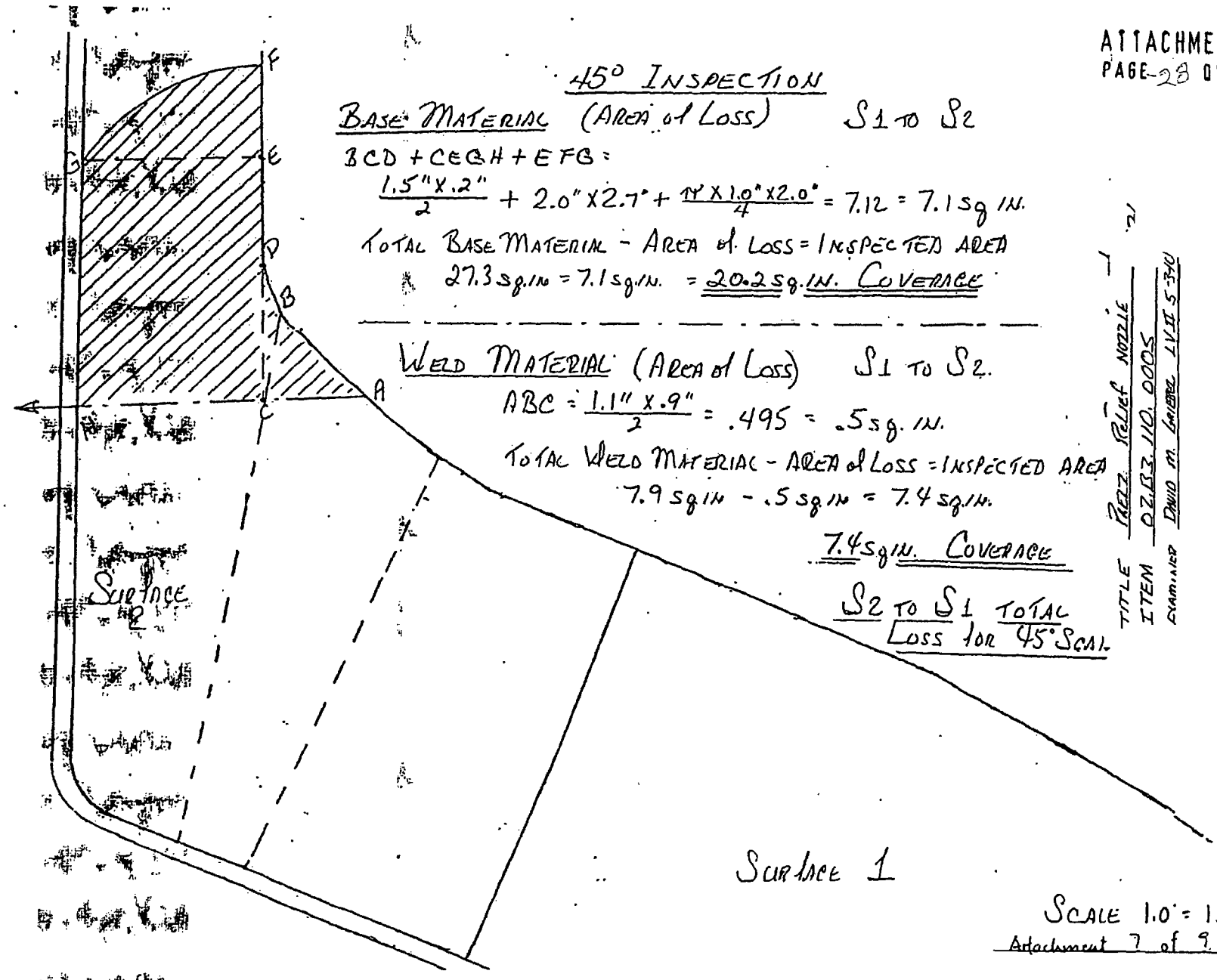
7.9 sq IN. - .1 sq. IN =

7.8 sq IN COVERAGE

TITLE PRESS. RELIEF NOZZLE
ITEM 02.83.110.0005
EXAMINER SAID M. GREGEL LVL II 5-3-10

SCALE 1.0" = 1.0"

Attachment 6 of 9



45° Inspection

Base Material (Area of Loss) S1 to S2

BCD + CEGH + EFG =

$\frac{1.5" \times .2"}{2} + 2.0" \times 2.7" + \frac{\pi \times 1.0" \times 2.0"}{4} = 7.12 = 7.1$ sq in.

Total Base Material - Area of Loss = Inspected Area

27.3 sq.in - 7.1 sq.in. = 20.2 sq.in. Coverage

Weld Material (Area of Loss) S1 to S2.

ABC = $\frac{1.1" \times .9"}{2} = .495 = .5$ sq. in.

Total Weld Material - Area of Loss = Inspected Area

7.9 sq in - .5 sq in = 7.4 sq.in.

7.4 sq in. Coverage

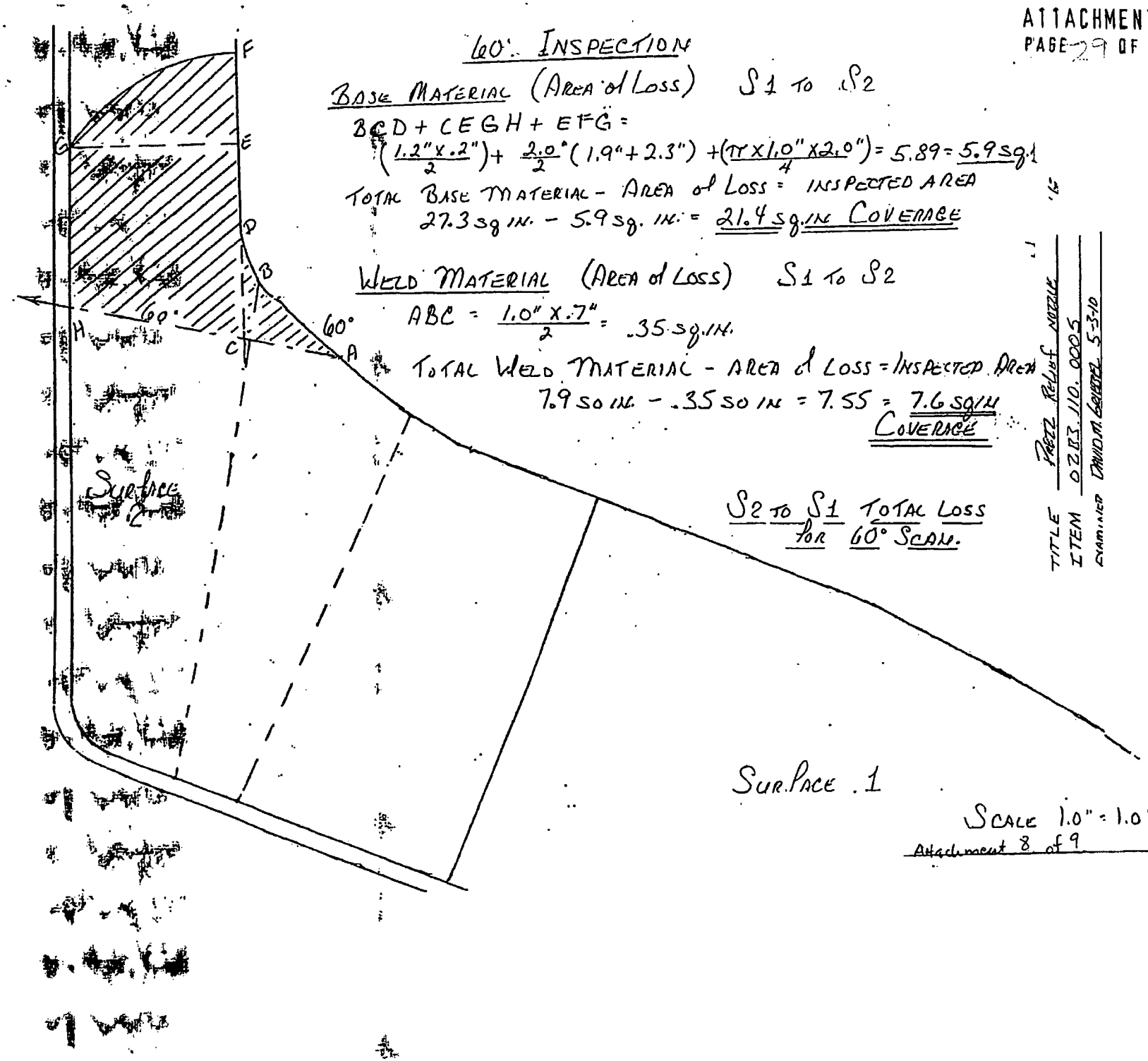
S2 to S1 Total Loss for 45° Scan

Title Tree Relief Nozzle
Item 02.53.110.0005
Examined David M. Gribble LVII 5340

Surface 1

Scale 1.0" = 1.0"

Attachment 7 of 9



60°. INSPECTION

BASE MATERIAL (AREA of LOSS) S1 to S2

BCD + CEGH + EFG =

$\left(\frac{1.2" \times .2"}{2}\right) + \frac{2.0"}{2}(1.9" + 2.3") + \left(\frac{\pi \times 1.0" \times 2.0"}{4}\right) = 5.89 = \underline{5.9 \text{ sq.in}}$

TOTAL BASE MATERIAL - AREA of LOSS = INSPECTED AREA

27.3 sq in. - 5.9 sq. in. = 21.4 sq.in COVERAGE

WELD MATERIAL (AREA of LOSS) S1 to S2

$ABC = \frac{1.0" \times .7"}{2} = .35 \text{ sq.in.}$

TOTAL WELD MATERIAL - AREA of LOSS = INSPECTED AREA

7.9 so in. - .35 so in = 7.55 = 7.6 sq in COVERAGE

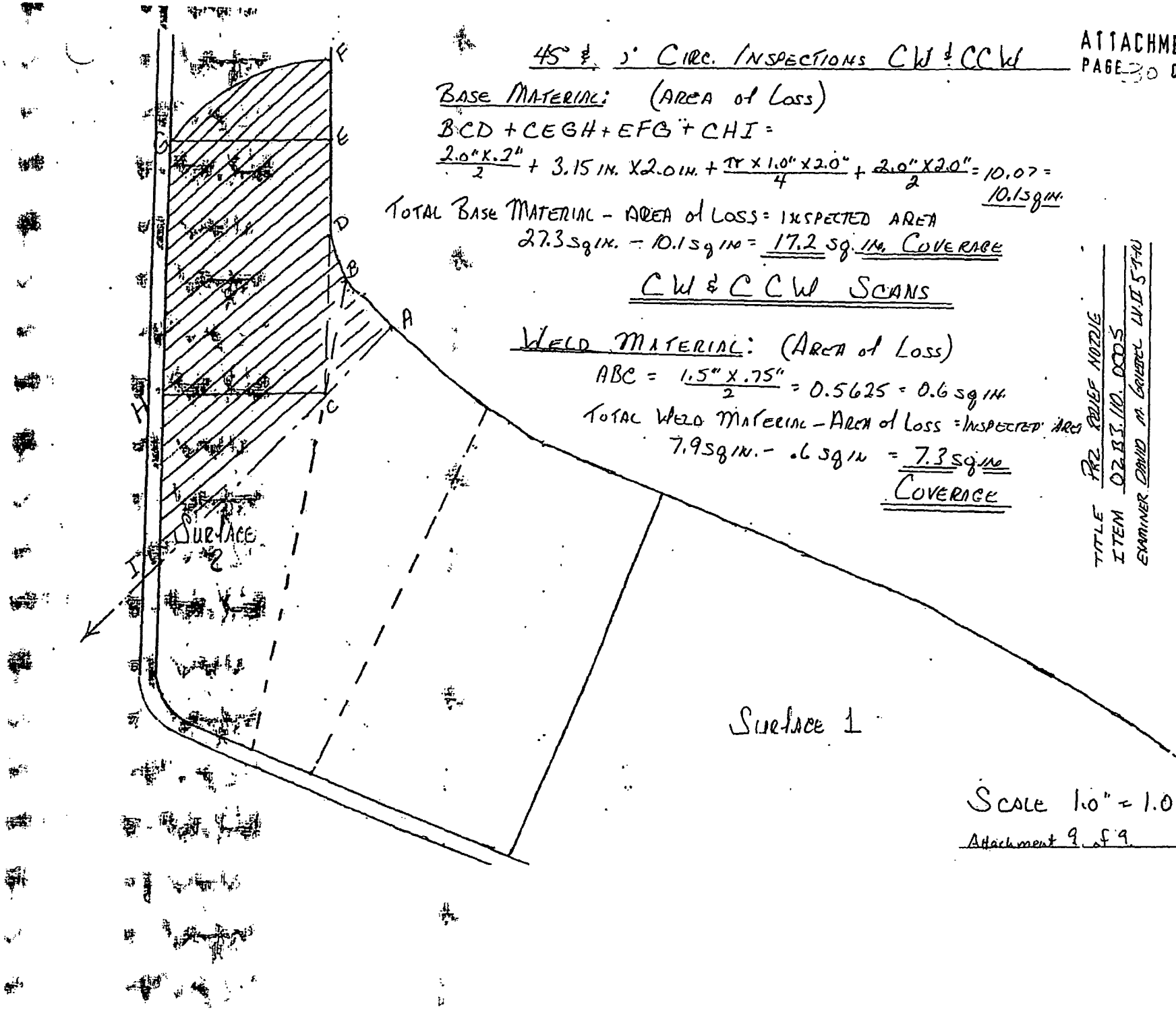
S2 to S1 TOTAL LOSS for 60° SCAN.

TITLE Paez Relief Nozzle
ITEM 0283.110.0005
EXAMINED DAVID M. GEORGE 5-3-10

SURFACE .1

SCALE 1.0" = 1.0"

Attachment 8 of 9



45° & 5° Circ. Inspections CW & CCW

Base Material: (Area of Loss)

BCD + CEGH + EFG + CHI =

$\frac{2.0" \times .2"}{2}$ + 3.15 in. × 2.0 in. + $\frac{\pi \times 1.0" \times 2.0"}{4}$ + $\frac{2.0" \times 2.0"}{2}$ = 10.07 = 10.1 sq in.

Total Base Material – Area of Loss = Inspected Area

27.3 sq in. – 10.1 sq in = 17.2 sq. in. Coverage

CW & CCW Scans

Weld Material: (Area of Loss)

ABC = $\frac{1.5" \times .75"}{2}$ = 0.5625 = 0.6 sq in.

Total Weld Material – Area of Loss = Inspected Area

7.9 sq in. – .6 sq in = 7.3 sq in Coverage

TITLE PZR RELIEF NOZZLE
ITEM 02.11.10. 0005
EXAMINER DAVID M. GAUDETTE III 5740

Surface 1

Scale 1.0" = 1.0"

Attachment 9 of 9

UT Pipe Weld Examination

Site/Unit:	Oconee / 2	Procedure:	PDI-UT-2	Outage No.:	O2-24
Summary No.:	O2.B9.11.0046	Procedure Rev.:	C	Report No.:	UT-10-499
Workscope:	ISI	Work Order No.:	01869982	Page:	1 of 4

Code: 1998 Cat./Item: B-J /B9.11 Location:

Drawing No.: ISI-OCN2-007 Description: Casing to Safe End

System ID: 50

Component ID: 2-PIA1-8 Size/Length: N/A Thickness/Diameter: 2.33/33.50/SS

Limitations: See limitation report Start Time: 1105 Finish Time: 1145

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

Lo Location: 9.1.1.2 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 09125

Temp. Tool Mfg.: Lutron Serial No.: MCNDE32804 Surface Temp.: 74 °F

Cal. Report No.: CAL-10-617, 618, 619

Angle Used	0	45	45T	60	60L	
Scanning dB		44.7	44.7	62.9	95.0	

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

Comments:

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

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
Tucker, David K.			5/16/2010				5-18-10
Examiner	Level II-N	Signature	Date	Site Review		Signature	Date
Hollis, Jacob			5/16/2010				
Other	Level N/A	Signature	Date	ANII Review		Signature	Date
N/A							5/18/10

ATTACHMENT B
PAGE 37 OF 68

DUKE POWER COMPANY

ISI LIMITATION REPORT

Component/Weld ID: 2PIA1-8 **Item No:** O2.B9.11.0046

remarks:
Single sided pipe to pump casing configuration.

☒ NO SCAN SURFACE BEAM DIRECTION
DCZ 5/18/10
☐ 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

☐ 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 ☐ 45 ☐ 60 other ____ FROM ____ DEG to ____ DEG

UT-10-481

Sketch(s) attached
☒ yes ☐ No

Prepared By: David Tucker Level: II Date: 05/18/10
Sheet 2 of 4
Reviewed By: David [illegible] III Date: 5/18/10
Authorized Inspector: Date: 5/18/10

Supplemental Report

Report No.: UT-10-499

Page: 3 of 4

Summary No.: O2.B9.11.0046

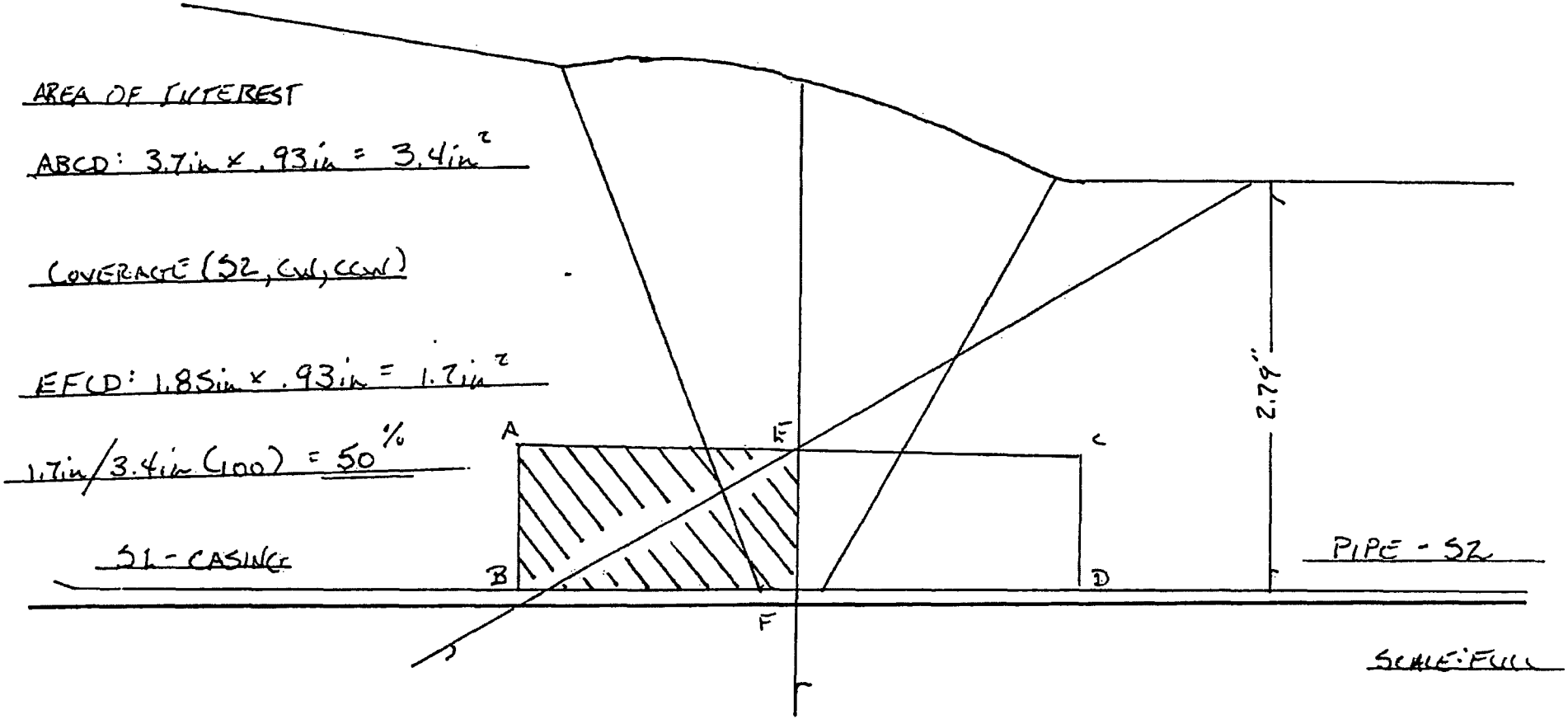
Examiner: Tucker, David K. Level: II-N Reviewer: Date: 5/18/10

Examiner: Hollis, Jacob Level: II-N Site Review: Date:

Other: N/A Level: N/A ANII Review: Date: 5/18/10

Comments:

Sketch or Photo:



ATTACHMENT 3 PAGE 4 OF 13

Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit:	Oconee / 2	Procedure:	PDI-UT-2	Outage No.:	O2-24
Summary No.:	O2.B9.11.0046	Procedure Rev.:	C	Report No.:	UT-10-499
Workscope:	ISI	Work Order No.:	01869982	Page:	4 of 4

45 deg

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

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

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

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

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

Percent complete coverage

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

37.500 % Total for complete exam

Site Field Supervisor: David K. Z III Date: 5/18/10

UT Pipe Weld Examination

Site/Unit:	Oconee / 2	Procedure:	NDE-830	Outage No.:	O2-24
Summary No.:	O2.B9.11.0046	Procedure Rev.:	1	Report No.:	UT-10-498
Workscope:	ISI	Work Order No.:	01869982	Page:	1 of 3

Code: 1998 Cat./Item: B-J /B9.11 Location:

Drawing No.: ISI-OCN2-007 Description: Casing to Safe End

System ID: 50

Component ID: 2-PIA1-8 Size/Length: N/A Thickness/Diameter: 2.33/33.50/SS

Limitations: Yes - Single sided exam. See limitation sheet. Start Time: 1310 Finish Time: 1335

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

Lo Location: 9.1.1.1 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 09125

Temp. Tool Mfg.: Lutron Serial No.: MCNDE32804 Surface Temp.: 66 °F

Cal. Report No.: CAL-10-615 & 616

Angle Used	0	45	45T	60	60T	70
Scanning dB				57.6	61.9	73.0

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

Comments:

Non- code exam 70°T=73.0 DB
Scanned at reference level due to signal noise ratio.

Results: Accept ☐ Reject ☐ Info ☑ Initial Section XI Exam

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

Examiner Level II-N Griebel, David M.	Signature	Date 5/15/2010	Reviewer	Signature James J. McArdle	Date 5-17-10
Examiner Level II-N Hendrickson, Matthew	Signature	Date 5/15/2010	Site Review	Signature	Date
Other Level N/A N/A	Signature	Date	ANII Review	Signature C. Bennett	Date 5/17/10

DUKE POWER COMPANY

ISI LIMITATION REPORT

Component/Weld ID: 2-PIA1-8 **Item No:** O2.B9.11.0046 **remarks:**

☒ NO SCAN SURFACE BEAM DIRECTION — Procedure allows scanning from
☐ LIMITED SCAN ☐ 1 ☒ 2 ☒ 1 ☐ 2 ☐ cw ☐ ccw — cast side only.
FROM L N/A to L N/A INCHES FROM W0 CL to Beyond
ANGLE: ☐ 0 ☐ 45 ☒ 60 other 70° FROM 0 DEG to 360 DEG

☒ NO SCAN SURFACE BEAM DIRECTION — Procedure allows scanning from
☐ LIMITED SCAN ☐ 1 ☒ 2 ☐ 1 ☐ 2 ☒ cw ☒ ccw — cast side only.
FROM L N/A to L N/A INCHES FROM W0 CL to Beyond
ANGLE: ☐ 0 ☐ 45 ☒ 60 other 70° FROM 0 DEG to 360 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 ☐ 45 ☐ 60 other _____ FROM _____ DEG to _____ DEG

Sketch(s) attached ☒ yes ☐ No

Prepared By: David Griebel Level: II Date: 05/15+/10 Sheet 2 of 3

Reviewed By: James J. McGrillen Date: 5-17-10 Authorized Inspector: [signature] Date: 5/17/10

ATTACHMENT 3
PAGE 37 OF 66

Supplemental Report

Report No.: UT-10-498

Page: 3 of 3

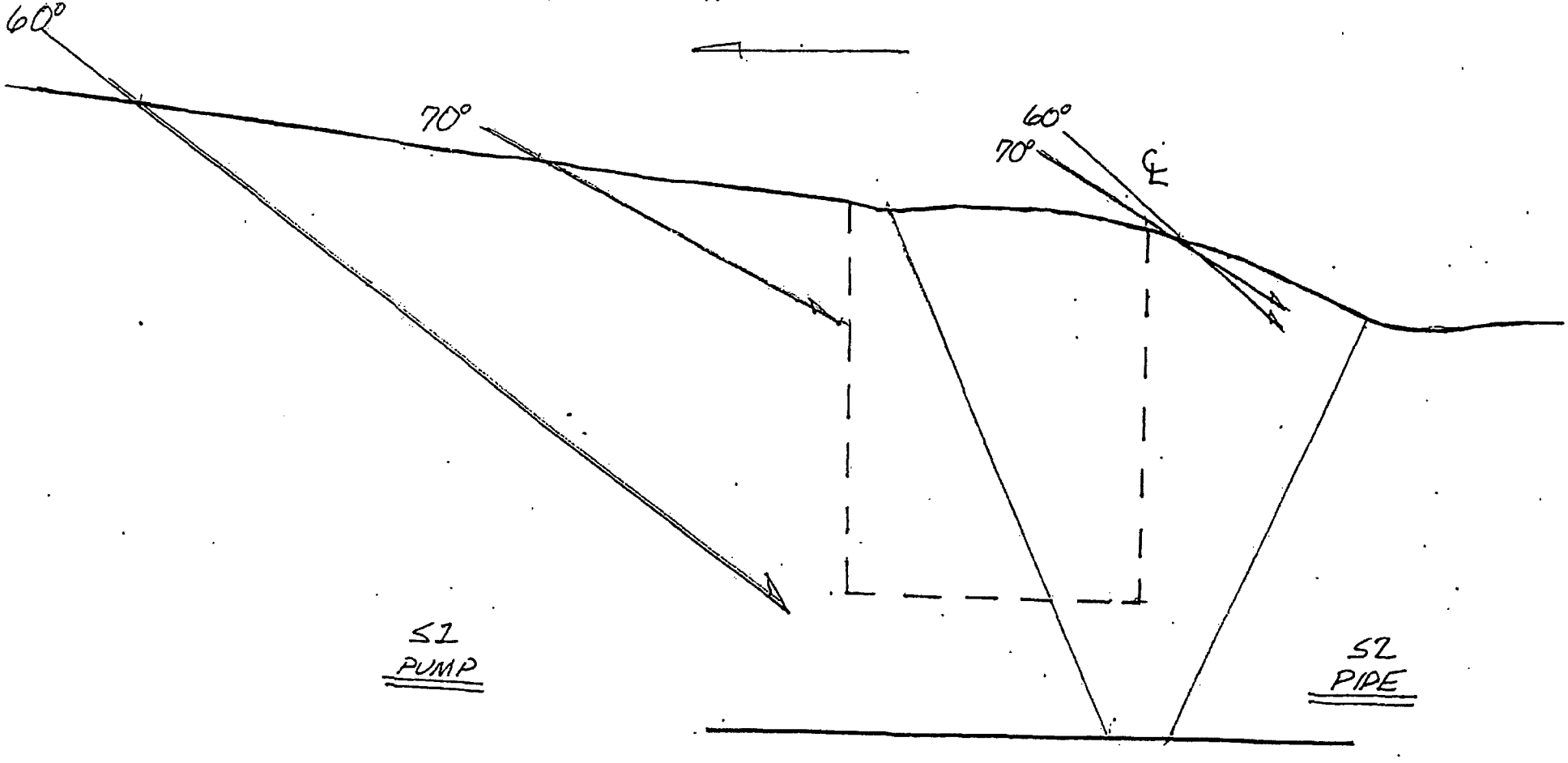
Summary No.: O2.B9.11.0046

Examiner: Griebel, David M. Level: II-N Reviewer: James J. McArdle Date: 5/7/10

Examiner: Hendrickson, Matthew Level: II-N Site Review: Date:

Other: N/A Level: N/A ANII Review: Date: 5/7/10

Comments: **Best effort exam using 60°RL & 70° RL per NDE 830 for upper 2/3 area of interest.**



UT Pipe Weld Examination

Site/Unit:	Oconee / 2	Procedure:	NDE-600	Outage No.:	O2-24
Summary No.:	O2.B9.11.0053	Procedure Rev.:	18	Report No.:	UT-10-480
Workscope:	ISI	Work Order No.:	01870445	Page:	1 of 4

Code: 1998 Cat./Item: B-J /B9.11 Location:

Drawing No.: ISI-OCN2-012 Description: Casing to Safe End

System ID: 50

Component ID: 2-PDA2-1 Size/Length: N/A Thickness/Diameter: 2.33/33.5/SS

Limitations: Yes - See attached report Start Time: 1247 Finish Time: 1308

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

Lo Location: 9.1.1.1 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 09125

Temp. Tool Mfg.: Lutron Serial No.: MCNDE32804 Surface Temp.: 66.2 °F

Cal. Report No.: CAL-10-606, 607 & 608

Angle Used	0	45	45T	60		
Scanning dB		60.7	72.2	67.8		

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

Comments:

N/A

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.		Larry E Mauldin	5/13/2010			Gary M. Moss	5/18/10
Examiner	Level II-N	Signature	Date	Site Review		Signature	Date
Hendrickson, Matthew			5/13/2010				
Other	Level N/A	Signature	Date	ANII Review		Signature	Date
N/A							5/18/10

DUKE POWER COMPANY

ISI LIMITATION REPORT

Component/Weld ID: 2-PDA2-1 **Item No:** O2.B9.11.0053 **remarks:**

☒ NO SCAN SURFACE BEAM DIRECTION — Limitation due to casing
☐ LIMITED SCAN ☐ 1 ☒ 2 ☒ 1 ☐ 2 ☒ cw ☒ ccw — configuration.

FROM L N/A to L N/A INCHES FROM W0 CL to Beyond

ANGLE: ☐ 0 ☒ 45 ☒ 60 other 60L FROM 0 DEG to 360 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 ☐ 45 ☐ 60 other _____ FROM _____ DEG to _____ DEG

☐ NO SCAN SURFACE BEAM DIRECTION
☐ LIMITED SCAN ☐ 1 ☐ 2 ☐ 1 ☐ 2 ☐ cw ☐ ccw — UT-10-480

FROM L _____ to L _____ INCHES FROM W0 _____ to _____

ANGLE: ☐ 0 ☐ 45 ☐ 60 other _____ FROM _____ DEG to _____ DEG

Sketch(s) attached ☒ yes ☐ No

Prepared By: Larry Mauldin Level: II Date: 05/13/10 Sheet 2 of 4

Reviewed By: Date: 5/18/10 Authorized Inspector: Date: 5/19/10

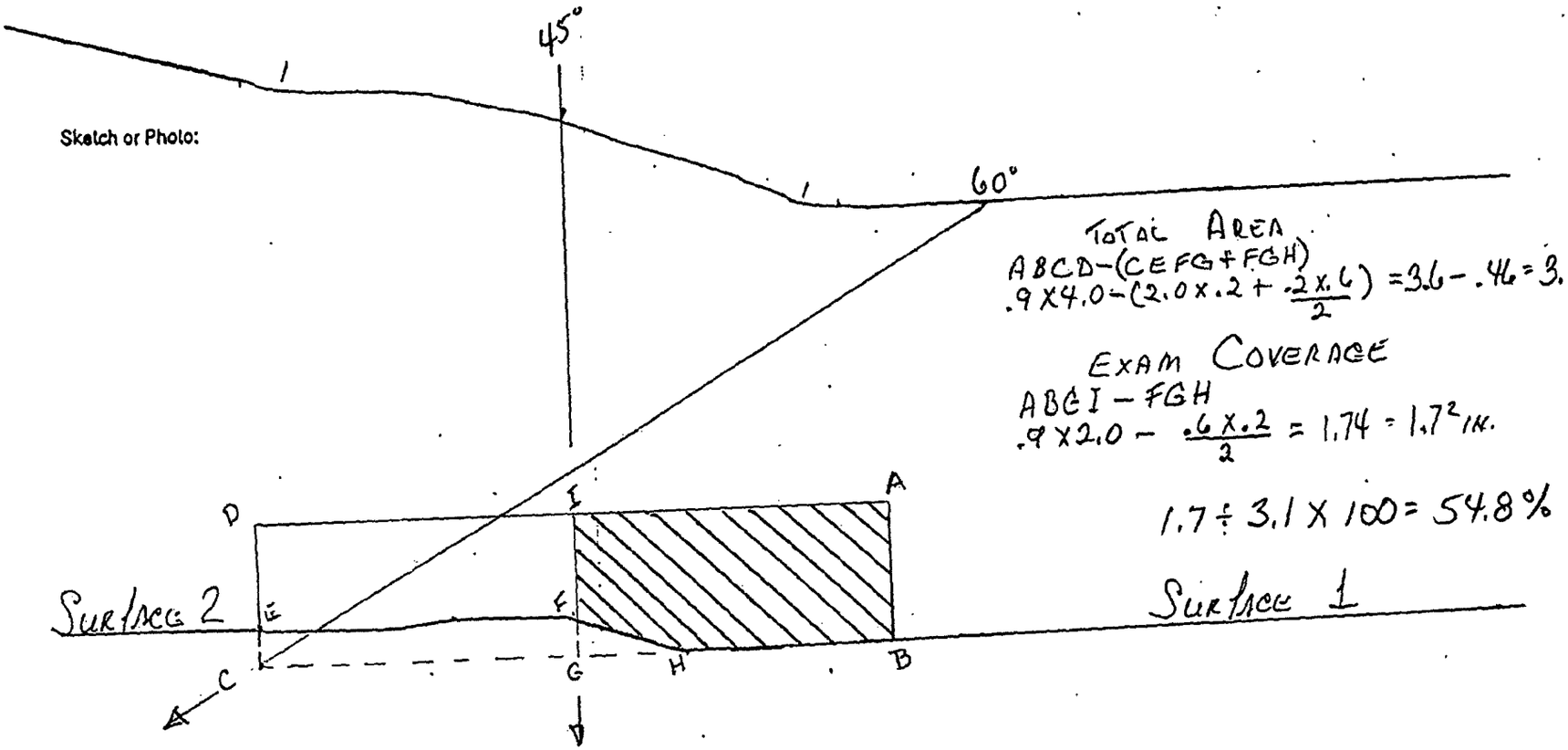
Supplemental Report

Report No.: UT-10-480
Page: 3 of 4

Summary No.: O2.B9.11.0053
Examiner: Mauldin, Larry E. Level: II-N
Examiner: Hendrickson, Matthew Level: II-N
Other: N/A Level: N/A
Reviewer: III Date: 5/14/10
Site Review: Date:
ANII Review: Date: 5/14/10

Comments:

Sketch or Photo:



TOTAL AREA
$ABCD-(CEFG+FGH)$
$.9 \times 4.0 - (2.0 \times .2 + \frac{.2 \times .6}{2}) = 3.6 - .46 = 3.14 = 3.1^2$

EXAM COVERAGE
$ABGI - FGH$
$.9 \times 2.0 - \frac{.6 \times .2}{2} = 1.74 = 1.7^2$ IN.

$1.7 \div 3.1 \times 100 = 54.8\%$

SCALE: FULL

ATTACHMENT 5 PAGE 41 OF 53

Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit:	Oconee / 2	Procedure:	NDE-600	Outage No.:	O2-24
Summary No.:	O2.B9.11.0053	Procedure Rev.:	18	Report No.:	UT-10-480
Workscope:	ISI	Work Order No.:	01870445	Page:	4 of 4

45 deg

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

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

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

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

Scan 1	100.000	% Length X	54.800	% volume of length / 100 =	54.800	% total for Scan 1
Scan 2	100.000	% Length X	0.000	% volume of length / 100 =	0.000	% total for Scan 2
Scan 3		% Length X		% volume of length / 100 =		% total for Scan 3
Scan 4		% Length X		% volume of length / 100 =		% total for Scan 4

Percent complete coverage

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

38.700 **% Total for complete exam**

Site Field Supervisor: David K. Z III Date: 5/14/10

Duke Energy

UT Pipe Weld Examination

Site/Unit:	Oconee / 2	Procedure:	NDE-830	Outage No.:	O2-24
Summary No.:	O2.B9.11.0053	Procedure Rev.:	1	Report No.:	UT-10-487
Workscope:	ISI	Work Order No.:	01870445	Page:	1 of 3

Code: 1998 Cat./Item: B-J /B9.11 Location:

Drawing No.: ISI-OCN2-012 Description: Casing to Safe End

System ID: 50

Component ID: 2-PDA2-1 Size/Length: N/A Thickness/Diameter: 2.33/33.5/SS

Limitations: Yes-Single sided exam. See limitation sheet. Start Time: 1241 Finish Time: 1315

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

Lo Location: 9.1.1.1 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 09125

Temp. Tool Mfg.: Lutron Serial No.: MCNDE32804 Surface Temp.: 66 °F

Cal. Report No.: CAL-10-603 & 604

Angle Used	0	45	45T	60	60T	70
Scanning dB				57.6	61.9	73.0

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

Comments:

Non- code exam 70°T=73.0 DB
Scanned at reference level due to signal noise ratio.

Results: Accept ☐ Reject ☑ Info ☐ Initial Section XI Exam

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

Examiner Griebel, David M.	Level II-N	Signature	Date 5/13/2010	Reviewer		Signature	Date 5-15-10
Examiner N/A	Level N/A	Signature	Date	Site Review		Signature	Date
Other N/A	Level N/A	Signature	Date	ANII Review		Signature	Date 5/17/10

DUKE POWER COMPANY

ISI LIMITATION REPORT

Component/Weld ID: 2-PDA2-1 **Item No:** O2.B9.11.0053 **remarks:**

☒ NO SCAN SURFACE BEAM DIRECTION — Procedure allows scanning from
☐ LIMITED SCAN ☒ 1 ☐ 2 ☐ 1 ☒ 2 ☐ cw ☐ ccw — cast side only.
FROM L N/A to L N/A INCHES FROM W0 CL to Beyond
ANGLE: ☐ 0 ☐ 45 ☒ 60 other 70° FROM 0 DEG to 360 DEG

☒ NO SCAN SURFACE BEAM DIRECTION — Procedure allows scanning from
☐ LIMITED SCAN ☒ 1 ☐ 2 ☐ 1 ☐ 2 ☒ cw ☒ ccw — cast side only.
FROM L N/A to L N/A INCHES FROM W0 CL to Beyond
ANGLE: ☐ 0 ☐ 45 ☒ 60 other 70° FROM 0 DEG to 360 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 ☐ 45 ☐ 60 other _____ FROM _____ DEG to _____ DEG

Sketch(s) attached ☒ yes ☐ No

Prepared By: David Griebel Level: II Date: 05/13/10 Sheet 2 of 3

Reviewed By: M E Jansen Date: 5-15-10 Authorized Inspector: [signature] Date: 5/17/10

Supplemental Report

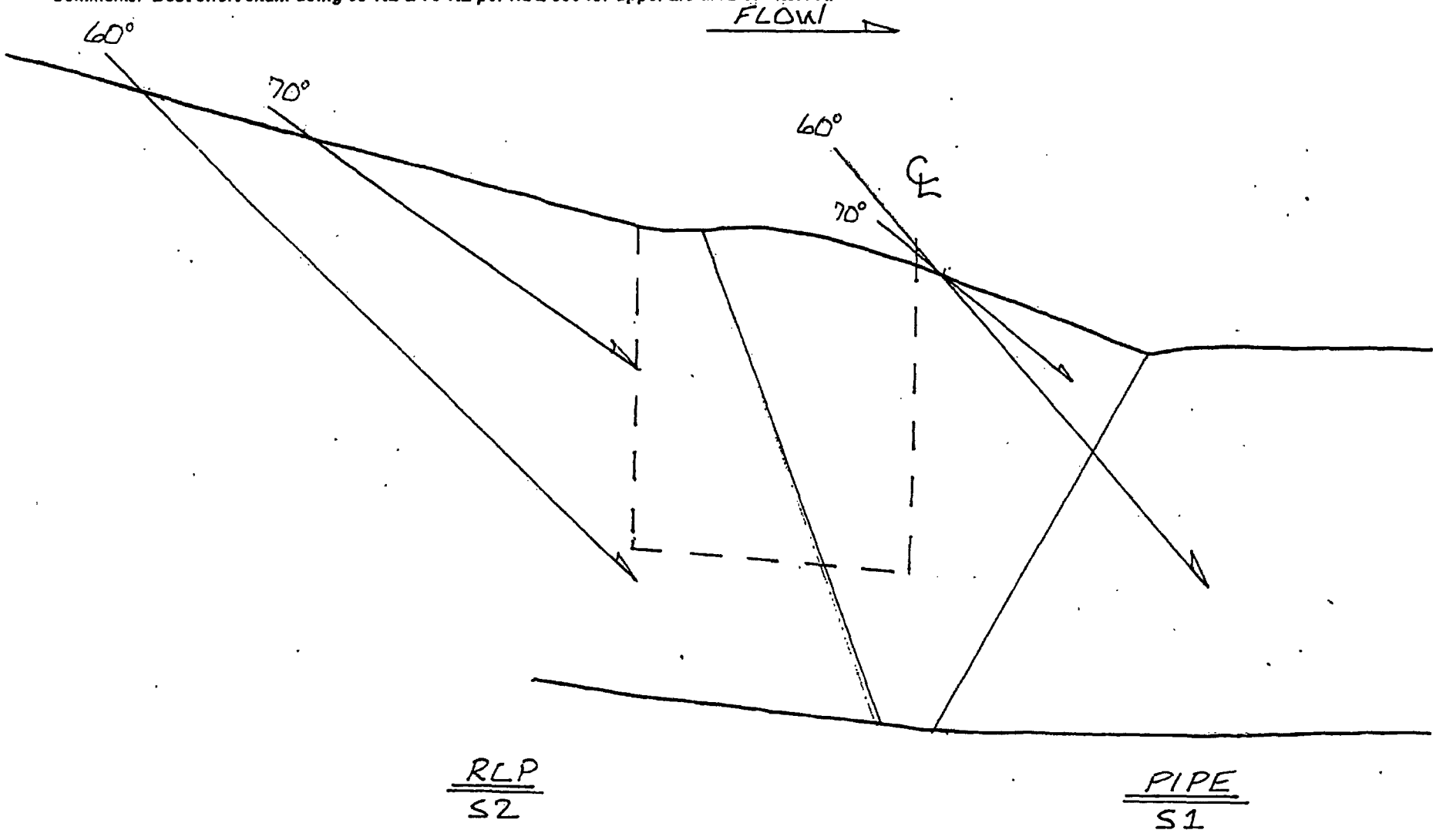
Report No.: U 487

Page: 3 of 3

Summary No.: O2.B9.11.0053

Examiner:	Griebel, David M.		Level:	II-N	Reviewer:	DE Hansen	Date: 5-15-10
Examiner:	N/A		Level:	N/A	Site Review:		Date:
Other:	N/A		Level:	N/A	ANII Review:		Date: 5/17/10

Comments: **Best effort exam using 60°RL & 70°RL per NDE 830 for upper 2/3 area of interest.**



UT Pipe Weld Examination

Site/Unit:	Oconee / 2	Procedure:	NDE-600	Outage No.:	O2-24
Summary No.:	O2.B9.11.0063	Procedure Rev.:	18	Report No.:	UT-10-481
Workscope:	ISI	Work Order No.:	01870552	Page:	1 of 4

Code: 1998 Cat./Item: B-J /B9.11 Location:

Drawing No.: ISI-OCN2-014 Description: Casing to Pipe Safe End

System ID: 50

Component ID: 2-PDB2-1 Size/Length: N/A Thickness/Diameter: 2.33/33.50/SS

Limitations: Yes - See attached sheet. Start Time: 1321 Finish Time: 1342

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

Lo Location: 9.1.1.1 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 09125

Temp. Tool Mfg.: Lutron Serial No.: MCNDE32804 Surface Temp.: 66.2 °F

Cal. Report No.: CAL-10-606, 607 & 608

Angle Used	0	45	45T	60	60L	
Scanning dB			60.7	72.2	67.8	

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

Comments:

N/A

Results: Accept ☐ Reject ☑ Info ☐ Initial Section XI Exam

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

Examiner Mauldin, Larry E.	Level II-N	Signature Larry E Mauldin	Date 5/13/2010	Reviewer	Signature Daryl Moss	Date 5/18/10
Examiner Hendrickson, Matthew	Level II-N	Signature	Date 5/13/2010	Site Review	Signature	Date
Other N/A	Level N/A	Signature	Date	ANII Review	Signature	Date 5/18/10

DUKE POWER COMPANY

ISI LIMITATION REPORT

Component/Weld ID: 2PDB2-1 **Item No:** O2.B9.11.0063

☒ 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 60L FROM 0 DEG to 360 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 ☐ 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

remarks:

Limitation due to casing configuration.

UT-10-481

Sketch(s) attached
☒ yes ☐ No

Prepared By: Larry Mauldin Larry Mauldin Level: II Date: 05/13/10 Sheet 2 of 4
Reviewed By: Date: 5/18/10 Authorized Inspector: Date: 5/18/10

Duke Energy

Supplemental Report

Report No.: UT-10-481

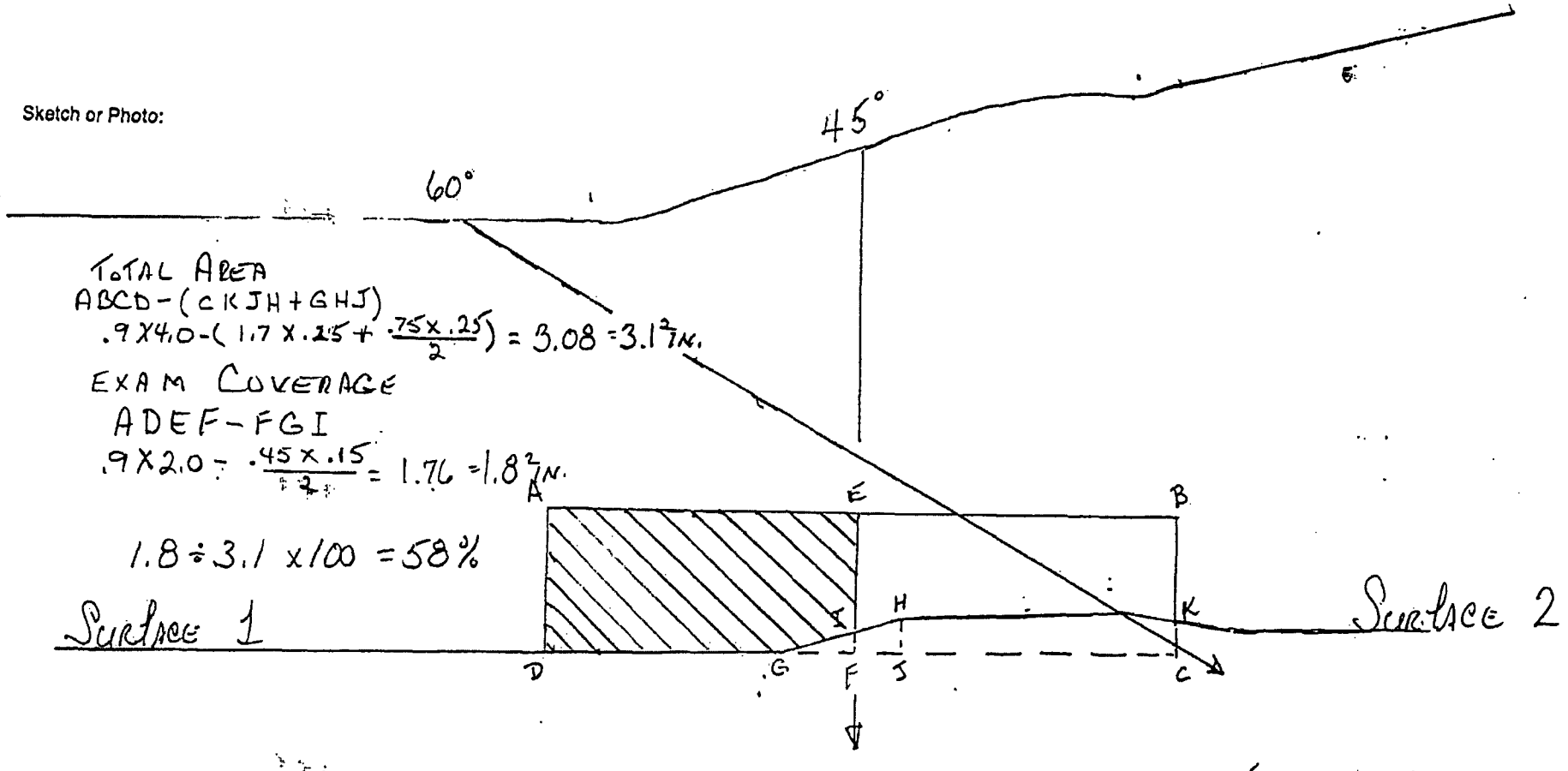
Page: 3 of 4

Summary No.: O2.B9.11.0063

Examiner:	Mauldin, Larry E.	Level:	II-N	Reviewer:		III	Date: 5/14/10
Examiner:	Hendrickson, Matthew	Level:	II-N	Site Review:			Date:
Other:	N/A	Level:	N/A	ANII Review:			Date: 5/19/10

Comments:

Sketch or Photo:



TOTAL AREA
ABCD - (CKJH + GHJ)
$.9 \times 4.0 - (1.7 \times .25 + \frac{.75 \times .25}{2}) = 3.08 = 3.1^2$ IN.

EXAM COVERAGE
ADEF - FGI
$.9 \times 2.0 - \frac{.45 \times .15}{2} = 1.76 = 1.8^2$ IN.

$1.8 \div 3.1 \times 100 = 58\%$

SCALE: FULL

ATTACHMENT 4 PAGE 4 OF 4

Duke Energy

Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit:	Oconee / 2	Procedure:	NDE-600	Outage No.:	O2-24
Summary No.:	O2.B9.11.0063	Procedure Rev.:	18	Report No.:	UT-10-481
Workscope:	ISI	Work Order No.:	01870552	Page:	4 of 4

45 deg

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

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

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

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

Scan 1	100.000	% Length X	58.000	% volume of length / 100 =	58.000	% total for Scan 1
Scan 2	100.000	% Length X	0.000	% volume of length / 100 =	0.000	% total for Scan 2
Scan 3		% Length X		% volume of length / 100 =		% total for Scan 3
Scan 4		% Length X		% volume of length / 100 =		% total for Scan 4

Percent complete coverage

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

39.500 **% Total for complete exam**

Site Field Supervisor: David K. Z III Date: 5/14/10

Duke Energy

UT Pipe Weld Examination

Site/Unit:	Oconee / 2	Procedure:	NDE-830	Outage No.:	O2-24
Summary No.:	O2.B9.11.0063	Procedure Rev.:	1	Report No.:	UT-10-486
Workscope:	ISI	Work Order No.:	01870552	Page:	1 of 3

Code: 1998 Cat./Item: B-J /B9.11 Location:

Drawing No.: ISI-OCN2-014 Description: Casing to Pipe Safe End

System ID: 50

Component ID: 2-PDB2-1 Size/Length: N/A Thickness/Diameter: 2.33/33.50/SS

Limitations: Yes-Single sided exam. See limitation sheet. Start Time: 1320 Finish Time: 1350

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

Lo Location: 9.1.1.1 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 09125

Temp. Tool Mfg.: Lutron Serial No.: MCNDE32804 Surface Temp.: 66 °F

Cal. Report No.: CAL-10-603 & 604

Angle Used	0	45	45T	60	60T	70
Scanning dB				57.6	61.9	73.0

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

Comments:

Non- code exam 70°T=73.0 dB
Scanned at reference level due to signal noise ratio.

Results: Accept ☐ Reject ☑ Info ☐ Initial Section XI Exam

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

Examiner Griebel, David M.	Level II-N	Signature	Date 5/13/2010	Reviewer		Signature	Date 5-15-10
Examiner N/A	Level N/A	Signature	Date	Site Review		Signature	Date
Other N/A	Level N/A	Signature	Date	ANII Review		Signature	Date 5/17/10

DUKE POWER COMPANY

ISI LIMITATION REPORT

Component/Weld ID: 2-PDB2-1 **Item No:** O2.B9.11.0063

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 70° FROM 0 DEG to 360 DEG

Procedure allows scanning from cast side only.

☒ 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 70° FROM 0 DEG to 360 DEG

Procedure allows scanning from cast side only.

☐ 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

Sketch(s) attached
☒ yes ☐ No

Prepared By: David Griebel Level: II Date: 05/13/10 Sheet 2 of 3

Reviewed By: M E Loven Date: 5-15-10 Authorized Inspector: Date: 5/17/10

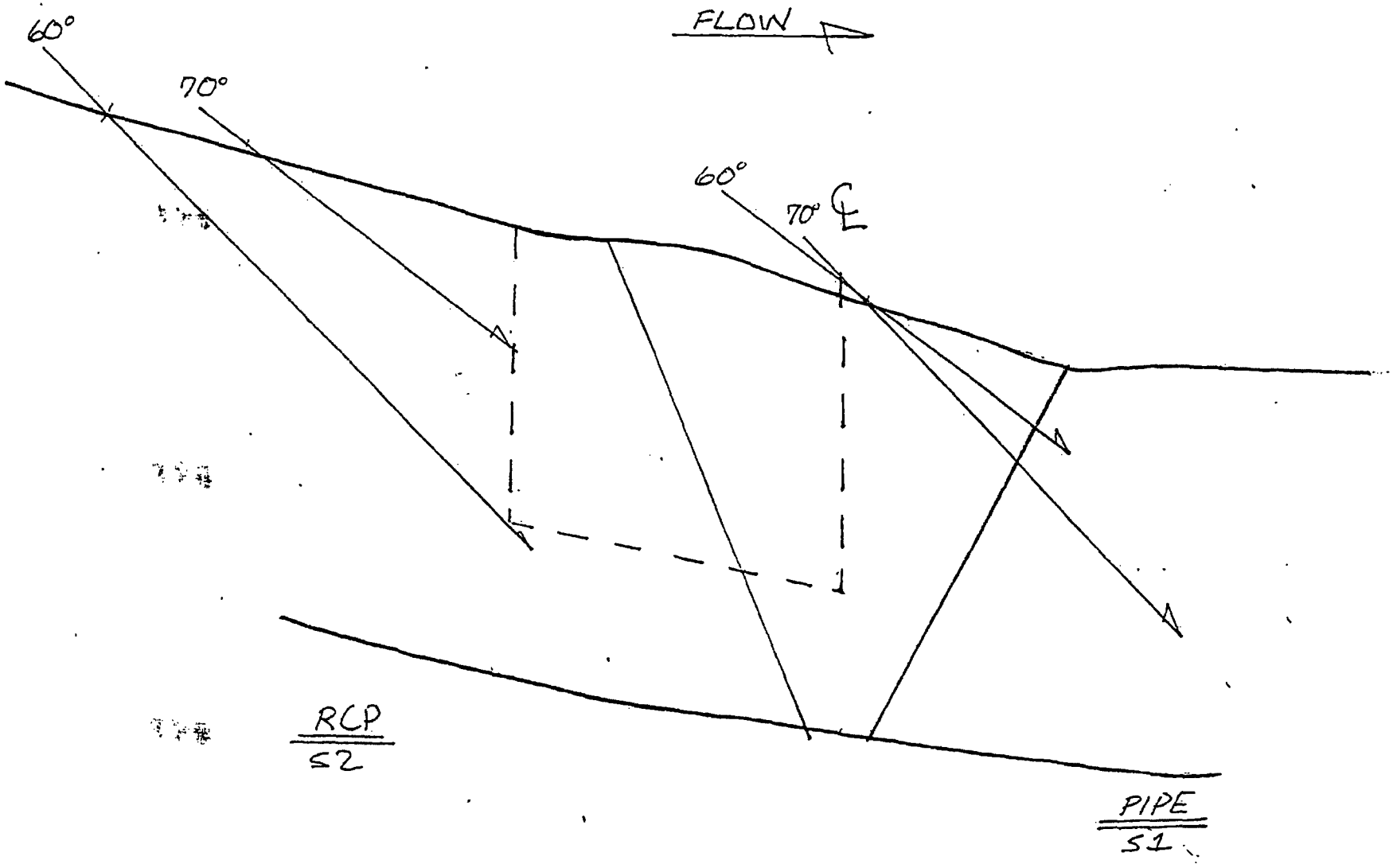
Supplemental Report

ATTACHMENT 1
Report No.: PAGE 51 of 86
Page: 3 of 3

Summary No.: O2.B9.11.0063

Examiner:	Griebel, David M.		Level:	II-N	Reviewer:	DE Howden	Date: 5-15-10
Examiner:	N/A		Level:	N/A	Site Review:		Date:
Other:	N/A		Level:	N/A	ANII Review:		Date: 5/12/10

Comments: **Best effort exam using 60°RL & 70°RL per NDE 830 for upper 2/3 area of interest.**



UT Pipe Weld Examination

Site/Unit: Oconee / 2 | Procedure: PDI-UT-2 | Outage No.: O2-24
Summary No.: O2.C5.11.0038 | Procedure Rev.: C | Report No.: UT-10-466
Workscope: ISI | Work Order No.: 01870261 | Page: 1 of 4

Code: 1998 | Cat./Item: C-F-1/C5.11 | Location:
Drawing No.: 2LP-215 | Description: Pipe to Valve 2LP-177
System ID: 53A
Component ID: 2LP-215-27 | Size/Length: N/A | Thickness/Diameter: 1.0/10.0/SS
Limitations: Yes - See attached limitation sheet | Start Time: 1030 | Finish Time: 1115

Examination Surface: Inside ☐ Outside ☑ | Surface Condition: AS GROUND
Lo Location: 9.1.1.1 | Wo Location: Centerline of Weld | Couplant: ULTRAGEL II | Batch No.: 09125
Temp. Tool Mfg.: Lutron | Serial No.: MCNDE32824 | Surface Temp.: 69 °F
Cal. Report No.: CAL-10-541, 563, 564 & 528

Angle Used	0	45	45T	60		
Scanning dB		22.5	22.5	33.9		

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

Comments:
N/A

Results: Accept ☐ Reject ☑ Info ☐ | FC 08-04, 09-02, 09-08, 10-09
Percent Of Coverage Obtained > 90%: No | Reviewed Previous Data: Yes

Examiner Hendrickson, Matthew	Level II-N	Signature	Date 5/9/2010	Reviewer	Signature		Date 5-15-10
Examiner Hollis, Jacob	Level II-N	Signature Jack R. Hollis	Date 5/9/2010	Site Review	Signature		Date
Other N/A	Level N/A	Signature	Date	ANII Review	Signature		Date 5/17/10

DUKE POWER COMPANY

ISI LIMITATION REPORT

Component/Weld ID: 2LP-0215-27 **Item No:** 02.C5.11.0038 **remarks:**

☐ NO SCAN SURFACE BEAM DIRECTION — Weld-o-let
☒ LIMITED SCAN ☐ 1 ☒ 2 ☒ 1 ☐ 2 ☐ cw ☐ ccw
FROM L 7.5 to L 10.0 INCHES FROM W0 1.7 to Beyond
ANGLE: ☐ 0 ☒ 45 ☐ 60 other ____ FROM N/A DEG to N/A DEG

☒ NO SCAN SURFACE BEAM DIRECTION — No scan due to pipe to valve
☐ LIMITED SCAN ☒ 1 ☐ 2 ☐ 1 ☐ 2 ☒ cw ☒ ccw — configuration
FROM L 0 to L 360 INCHES FROM W0 CL to Beyond
ANGLE: ☐ 0 ☒ 45 ☐ 60 other ____ FROM N/A DEG to N/A 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 ☐ 45 ☐ 60 other ____ FROM ____ DEG to ____ DEG

Sketch(s) attached
☒ yes ☐ No

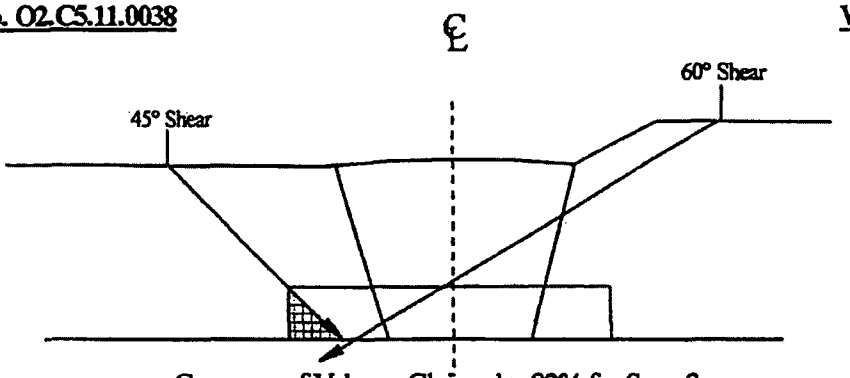
Prepared By: Matthew Hendrickson Level: II Date: 05/09/10 Sheet 2 of 3 4 DKC

Reviewed By: David L. Z III Date: 5/13/10 Authorized Inspector: [signature] Date: 5/17/10

ATTACHMENT B
PAGE 54 OF 65

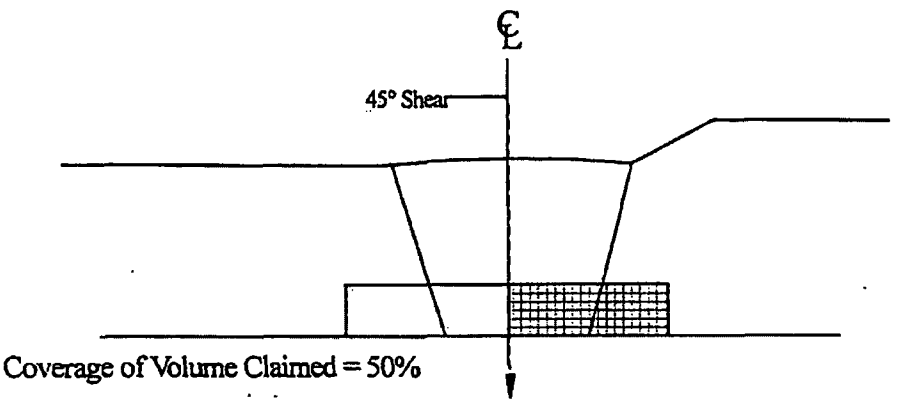
Axial Scan Coverage

Item No. O2.C5.11.0038 Weld No. 2LP-0215-27



Coverage of Volume Claimed = 92% for Scan 2.
(Limitation shown due to weld-o-let representing 2.5" of total weld length.)

Circ. Scan Coverage



Coverage of Volume Claimed = 50%

Scale : 1" = 1"

% Coverage Calculations				
Total Weld Length = (10.75in. dia.)π = 33.8in. Total Area of Examination = 1.95 in. x 0.33 in. = 0.64 in.(sq.) Total Volume of Examination = 33.8 in. x 0.64 in.(sq.) = 21.63 in.(cu.)				
Scan	**Length Scanned - in.**	**Area Obtained - in.(sq.)**	**Volume Obtained - in.(cu.)**	**Percent Obtained - Volume Obtained/Total Volume(100)**
S1 - Valve	33.8 in.	0.64 in.(sq.)	21.63 in.(cu.)	21.63/21.63(100) = 100%
S2 - Pipe	2.5 in.	0.59 in.(sq.)	1.48 in.(cu.)	1.48/ 21.63(100) = 6.8%
S2 - Pipe	31.3 in.	0.64 in.(sq.)	20.03 in.(cu.)	20.03/21.63(100) = 92.6%
S3 - CW	33.8 in.	0.32 in.(sq.)	10.82 in.(cu.)	10.82/21.63(100) = 50%
S4 - CCW	33.8 in.	0.32 in.(sq.)	10.82 in.(cu.)	10.82/21.63(100) = 50%
Total Aggregate = (S1 + S2 + S3 + S4) = 100% + 99.4%(6.8% + 92.6%) + 50% + 50% = 299.4%/4 = 74.9%				

Inspector/Date David K. 3 5/13/10

ATTACHMENT 2
PAGE 4 OF 4

Duke Energy

Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit:	Oconee / 2	Procedure:	PDI-UT-2	Outage No.:	O2-24
Summary No.:	O2.C5.11.0038	Procedure Rev.:	C	Report No.:	UT-10-466
Workscope:	ISI	Work Order No.:	01870261	Page:	4 of 4

45 deg

Scan 1		% Length X		% volume of length / 100 =		% total for Scan 1
Scan 2	99.400	% Length X	100.000	% volume of length / 100 =	99.400	% total for Scan 2
Scan 3	100.000	% Length X	50.000	% volume of length / 100 =	50.000	% total for Scan 3
Scan 4	100.000	% Length X	50.000	% volume of length / 100 =	50.000	% total for Scan 4

Add totals and divide by # scans = 66.467 **% 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	100.000	% Length X	100.000	% volume of length / 100 =	100.000	% total for Scan 1
Scan 2		% Length X		% volume of length / 100 =		% total for Scan 2
Scan 3		% Length X		% volume of length / 100 =		% total for Scan 3
Scan 4		% Length X		% volume of length / 100 =		% total for Scan 4

Percent complete coverage

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

74.850 **% Total for complete exam**

Site Field Supervisor: David K. Z Date: 5/13/10

Duke Energy

UT Pipe Weld Examination

Site/Unit:	Oconee / 2	Procedure:	PDI-UT-2	Outage No.:	O2-24
Summary No.:	O2.C5.21.0035	Procedure Rev.:	C	Report No.:	UT-09-362
Workscope:	ISI	Work Order No.:	01874477	Page:	1 of 3

Code: 1998 Cat./Item: C-F-1/C5.21 Location:

Drawing No.: 2HP-341 Description: Valve 2HP-120 to Pipe

System ID: 51A

Component ID: 2HP-341-V1 Size/Length: N/A Thickness/Diameter: 0.375/2.5/SS

Limitations: See attached limitation sheet Start Time: 1214 Finish Time: 1304

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

Lo Location: 9.1.1.5 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 08125

Temp. Tool Mfg.: Fluke Serial No.: OCQUA33090 Surface Temp.: 82 °F

Cal. Report No.: CAL-09-472, 473, 474

Angle Used	0	45	45T	60	70	
Scanning dB		34.0	34.0	52.5	59.3	

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

Comments:

N/A

Results: Accept ☐ Reject ☑ Info ☐ FC 08-01, 08-04, 09-02, 09-08

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

Examiner Ellis II, Kenneth R.	Level II-N	Signature Kenneth R. Ellis II	Date 2/2/2010	Reviewer		Signature Danny Moss	Date 2-3-10
Examiner Ransom, Greg J.	Level II-N	Signature Greg Ransom	Date 2/2/2010	Site Review		Signature	Date
Other N/A	Level N/A	Signature	Date	ANII Review		Signature	Date 2/4/10

DUKE POWER COMPANY
ISI LIMITATION REPORT

Component/Weld ID: 2HP-341-V1 **Item No:** 02.C5.21.0035

remarks:
Due to valve configuration

☒ 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

☐ 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 ☐ 45 ☐ 60 other ____ FROM ____ DEG to ____ DEG

Sketch(s) attached
☒ yes ☐ No

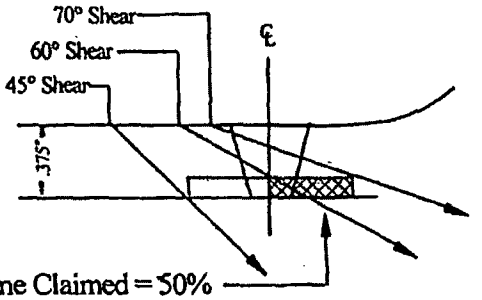
Prepared By: Kenneth Ellis Level: II Date: 02/02/2010 Sheet 2 of 3
Reviewed By: Gary Moo Date: 2-3-10 Authorized Inspector: Date: 3/4/10

ATTACHMENT 3
PAGE 58 OF 59

Axial Scan Coverage

Item No. O2.CS.21.0035 — Weld No. 2HP-341-V1

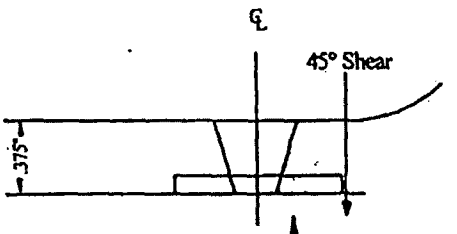
PIPE-S2 — Valve-S1 (Forged)



Coverage of Volume Claimed = 50%

Circ. Scan Coverage

PIPE-S2 — Valve-S1 (Forged)



Coverage of Volume Claimed = 100%

Scale : 1" = 1"

% Coverage Calculations

S1 = Pipe	=	0%	(0% of the length x 0% of the volume)
S2 = Valve	=	50%	(100% of the length x 50% of the volume)
S3 = CW	=	100%	(100% of the length x 50% of the volume)
S4 = CCW	=	100%	(100% of the length x 50% of the volume)

Total = 250 / 4 = 62.5 % Aggregate Coverage

Inspector / Date: Rod Sheffield / 2-3-10

UT Pipe Weld Examination

Site/Unit: Oconee / 2 | Procedure: PDI-UT-2 | Outage No.: N/A
Summary No.: 2-51A-0029-94 | Procedure Rev.: C | Report No.: BOP-UT-10-149
Workscope: PSI | Work Order No.: 01895070 | Page: 1 of 4

Code: N/A | Cat./Item: N/A | Location: N/A
Drawing No.: N/A | Description: Pipe to valve
System ID: HP
Component ID: 2-51A-0029-94 | Size/Length: N/A | Thickness/Diameter: .531/4.0/SS
Limitations: See limitation report | Start Time: 1038 | Finish Time: 1052

Examination Surface: Inside ☐ Outside ☑ | Surface Condition: AS GROUND
Lo Location: 9.1.1.1 | Wo Location: Centerline of Weld | Couplant: ULTRAGEL II | Batch No.: 09125
Temp. Tool Mfg.: Fluke | Serial No.: MCNDE40127 | Surface Temp.: 73 °F
Cal. Report No.: CAL-10-586, 587, 588

Angle Used	0	45	45T	60	60L	
Scanning dB		36.3	36.3	52.8	86.0	

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

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

Results: Accept ☐ Reject ☑ Info ☐ | PSI Exam
Percent Of Coverage Obtained > 90%: No | Reviewed Previous Data: No

Examiner Tucker, David K.	Level II-N	Signature David K Tucker	Date 5/11/2010	Reviewer JE Hansen		Signature	Date 5-15-10
Examiner Foss, Steven	Level II-N	Signature Steven T Foss	Date 5/11/2010	Site Review		Signature	Date
Other N/A	Level N/A	Signature	Date	ANII Review		Signature G Brandt	Date 5/17/10

DUKE POWER COMPANY

ISI LIMITATION REPORT

Component/Weld ID: 251A-0029-94 **Item No:** 01895070

☒ 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

☐ 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 ☐ 45 ☐ 60 other ____ FROM ____ DEG to ____ DEG

remarks:
Single sided pipe to valve
configuration.

Sketch(s) attached
☒ yes ☐ No

Prepared By: David Tucker Level: II Date: 05/11/10 Sheet 2 of 4
Reviewed By: III Date: 5/14/10 Authorized Inspector: Date: 5/17/10

Duke Energy

Supplemental Report

Report No.: BOP-UT-10-149

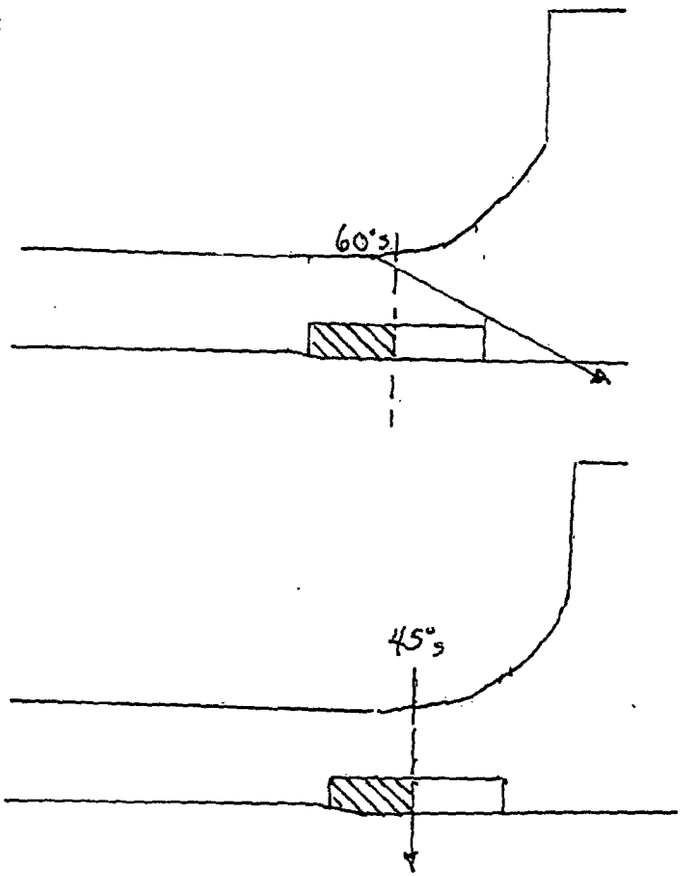
Page: 3 of 4

Summary No.: 2-51A-0029-94

Examiner:	Tucker, David K.	Level:	II-N	Reviewer:	David K. Tucker III	Date:	5/14/10
Examiner:	Foss, Steven	Level:	II-N	Site Review:		Date:	
Other:	N/A	Level:	N/A	ANII Review:		Date:	5/17/10

Comments:

Sketch or Photo:



TOTAL EXAM AREA
1.1 IN. X .2 IN. = .22 IN^2

AXIAL COVERAGE
.55 IN. X .2 IN. = .11 IN^2 ÷ .22 IN^2 X100 = 50%

CIRC. COVERAGE
.55 IN X .2 IN. = .11 IN^2 ÷ .22 IN^2 X100 = 50%

ATTACHMENT 1 PAGE 62 OF 69

Duke Energy

Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit:	Oconee / 2	Procedure:	PDI-UT-2	Outage No.:	N/A
Summary No.:	2-51A-0029-94	Procedure Rev.:	C	Report No.:	BOP-UT-10-149
Workscope:	PSI	Work Order No.:	01895070	Page:	4 of 4

45 deg

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

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

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

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

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

Percent complete coverage

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

37.500 % Total for complete exam

Site Field Supervisor: David K. Z TII Date: 5/14/10

UT Calibration Report

Site: Oconee | Procedure: PDI-UT-2 | Rev.: C | Cal. Report No.: CAL-10-586

Instrument:		Transducer:		Couplant:		Calibration Block:	
Manufacturer:	KRAUTKRAMER	Manufacturer:	GE	Type:	ULTRAGEL II	Serial No.:	PDI-UT-2A-O
Model:	USN-60	Serial No.:	SB0253	Batch No.:	09125	Thickness:	.25-1.25"
Serial No.:	011MBT	Size:	.25 Freq.: 2.25	Search Unit Cable:		Calibration Block Temp.:	73 °F
Linearity Report No.:	L-10-091	Model:	Comp - G Shape: Round	Cable Type:	RG-174	Reference/Simulator Block:	
Temp. Tool:		# of Elements:	Single Mode: Shear	Cable Length:	6'	Serial No.:	97-5590
Manufacturer:	Lutron	Wedge Index to Nose	.35	# of Connectors:	0	Type:	ROMPAS
Serial No.:	MCNDE32828	Nom. Angle:	45 ° Meas. Angle: 45 °				

Instrument Settings

S.U. Orientation	Axial/Circ		
Gain	30.3		
Range	2.0		
Delay/Offset	4.3725		
Velocity/Mat. Cal.	.1241		
Frequency	2.25 MHz		
Rep. Rate	Autohigh		
Pulser	High		
Filter	Fixed		
Damping	1K		
Display/Video/Rectif.	Full		
Reject	Off		
Voltage	Fixed		

1 Screen Divisions = .2 in. of **Sound Path**

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
.75 ID Notch	80	5.3	1.004

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
See Axial			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Screen/ Sweep Division	Sound Path	Reference/ Simulator Block
25.4	1" Radius	80	5.0	1.00	97-5590

	Date	Time	Initials
Int. Cal.	5/11/2010	0805	
Cal. Ver.	5/11/2010	1017	
Cal. Ver.			
Cal. Ver.	5/11/2010	1038	
Final Cal.	5/11/2010	1455	

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

Summary No.(s): 2-HP-0396-25, 2-51A-0029-94

Examiner	Level	Signature	Date	Reviewer	Signature	Date
Tucker, David K.	II-N		5/11/2010			
Examiner	Level	Signature	Date	Site Review	Signature	Date
Foss, Steven	II-N		5/11/2010			
Other	Level	Signature	Date	ANII Review	Signature	Date
N/A	N/A					

UT Calibration Report

Site: Oconee | Procedure: PDI-UT-2 | Rev.: C | Cal. Report No.: CAL-10-587

Instrument:		Transducer:		Couplant:		Calibration Block:	
Manufacturer:	KRAUTKRAMER	Manufacturer:	GE	Type:	ULTRAGEL II	Serial No.:	PDI-UT-2A-O
Model:	USN-60	Serial No.:	SB0482	Batch No.:	09125	Thickness:	.25 -1.25"
Serial No.:	011MBT	Size:	.25 Freq.: 2.25 MHz	Search Unit Cable:		Calibration Block Temp.:	73 °F
Linearity Report No.:	L-10-091	Model:	Comp-G Shape: Round	Cable Type:	RG-174	Reference/Simulator Block:	
Temp. Tool:		# of Elements:	Single Mode: Shear	Cable Length:	6'	Serial No.:	97-5590
Manufacturer:	Lutron	Wedge Index to Nose	.25	# of Connectors:	0	Type:	ROMPAS
Serial No.:	MCNDE32828	Nom. Angle:	60 ° Meas. Angle: 60 °				

Instrument Settings

S.U. Orientation	Axial		
Gain	46.8		
Range	2.5		
Delay/Offset	5.4994		
Velocity/Mat. Cal.	.1241		
Frequency	2.25 MHz		
Rep. Rate	Autohigh		
Pulser	High		
Filter	Fixed		
Damping	1K		
Display/Video/Rectif.	Full		
Reject	Off		
Voltage	Fixed		

1 Screen Divisions = .25 in. of **Sound Path**

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
.75 ID Tip	80	5.3	1.333

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Screen/ Sweep Division	Sound Path	Reference/ Simulator Block
26.8	1" Radius	80	4	.997	97-5590

	Date	Time	Initials
Int. Cal.	5/11/2010	0810	
Cal. Ver.	5/11/2010	1023	
Cal. Ver.			
Cal. Ver.	5/11/2010	1044	
Final Cal.	5/11/2010	1458	

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

Summary No.(s): 2-HP-0396-25, 2-51A-0029-94

Examiner	Level	Signature	Date	Reviewer	Signature	Date
Tucker, David K.	II-N		5/11/2010			
Examiner	Level	Signature	Date	Site Review	Signature	Date
Foss, Steven	II-N		5/11/2010			
Other	Level	Signature	Date	ANII Review	Signature	Date
N/A	N/A					

UT Pipe Weld Examination

Site/Unit: Oconee / 2 | Procedure: NDE-600 | Outage No.: N/A
Summary No.: 2-HP-0396-23 | Procedure Rev.: 18 | Report No.: BOP-UT-09-125
Workscope: PSI | Work Order No.: 01895070 | Page: 1 of 4

Code: N/A | Cat./Item: N/A | Location: N/A
Drawing No.: 2HP-0396 | Description: Pipe to Valve
System ID: HP
Component ID: 2-HP-0396-23 | Size/Length: N/A | Thickness/Diameter: .531/4"/SS
Limitations: See Limitation Report | Start Time: 0940 | Finish Time: 1025

Examination Surface: Inside ☐ Outside ☑ | Surface Condition: AS GROUND
Lo Location: 9.1.1.1 | Wo Location: Centerline of Weld | Couplant: ULTRAGEL II | Batch No.: 09125
Temp. Tool Mfg.: Lutron | Serial No.: MCNDE32828 | Surface Temp.: 76 °F
Cal. Report No.: CAL-10-485, 486 & 487

Angle Used	0	45	45T	60	60L	
Scanning dB			51.0	50.0	55.0	

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

Comments:
N/A

Results: Accept ☐ Reject ☑ Info ☐ | Initial PSI Exam
Percent Of Coverage Obtained > 90%: No | Reviewed Previous Data: N/A

Examiner Level II-N Leeper, Winfred C.	Signature	Date 4/28/2010		Reviewer	Signature	Date 5-13-10	
Examiner Level II-N Tucker, David K.	Signature	Date 4/28/2010		Site Review	Signature	Date	
Other Level N/A N/A	Signature	Date		ANII Review	Signature	Date 5/13/10	

DUKE POWER COMPANY

ISI LIMITATION REPORT

Component/Weld ID: 2-HP-0396-23 **Item No:** 01895070

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

Single sided pipe to valve configuration. No scan from surface 1 due to SA 351 (cast) material.

☐ 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 4 INCHES FROM W0 ____ to ____
ANGLE: ☐ 0 ☐ 5 ☐ 60 other ____ FROM ____ DEG to ____ DEG

Sketch(s) attached
☒ yes ☐ No

Prepared By: David Tucker Level: II Date: 04/28/10 Sheet 2 of 4

Reviewed By: David K. [illegible] III Date: 5/12/10 Authorized Inspector: [illegible] Date: 5/13/10

ATTACHMENT B
PAGE 67 OF 93

Supplemental Report

Report No.: BOP-UT-09-125

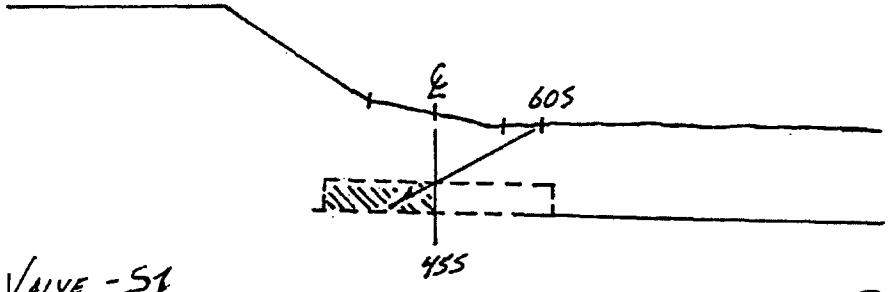
Page: 3 of 4

Summary No.: 2-HP-0396-23

Examiner:	Leeper, Winfred C.		Level: II-N	Reviewer:		Date:	5/12/10
Examiner:	Tucker, David K.		Level: II-N	Site Review:		Date:	
Other:	N/A		Level: N/A	ANII Review:		Date:	5/13/10

Comments:

Sketch or Photo:



VALVE - S1

PIPE - S2

TOTAL EXAM AREA:
$1.25_{IN} \times .17_{IN} = .2125_{IN^2}$

AXIAL COVERAGE:
VALVE SIDE = 0%
PIPE SIDE =
$\left(\frac{.625_{IN} \times .17_{IN}}{.2125_{IN}}\right) 100 = 50\%$

CIRCUMFERENTIAL COV'G:
$\left(\frac{.625_{IN} \times .17_{IN}}{.2125_{IN}}\right) 100 = 50\%$ EACH DIR.

TOTAL EXAM COV'G:
$\frac{0+50+50+50}{4} = 37.5\%$

ATTACHMENT 1 PAGE 68 OF 90

Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit:	Oconee / 2	Procedure:	NDE-600	Outage No.:	N/A
Summary No.:	2-HP-0396-23	Procedure Rev.:	18	Report No.:	BOP-UT-09-125
Workscope:	PSI	Work Order No.:	01895070	Page:	4 of 4

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

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

Other deg - _____ (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	0.000	% Length X	100.000	% volume of length / 100 =	0.000	% total for Scan 1
Scan 2	50.000	% Length X	100.000	% volume of length / 100 =	50.000	% total for Scan 2
Scan 3		% Length X		% volume of length / 100 =		% total for Scan 3
Scan 4		% Length X		% volume of length / 100 =		% total for Scan 4

Percent complete coverage

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

37.500 % Total for complete exam

Site Field Supervisor: David C. Z III Date: 5/12/10