Duke Energy®

T. PRESTON GILLESPIE, JR.
Vice President
Oconee Nuclear Station

Duke Energy
ON01VP / 7800 Rochester Hwy.
Seneca, SC 29672

864-873-4478
864-873-4208 fax
T.Gillespie@duke-energy.com

January 31, 2013

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

Subject: Duke Energy Carolinas, LLC
Oconee Nuclear Station Unit 1
Docket No. 50-269
Fourth Ten-Year Inservice Inspection Plan
Request for Relief No. 12-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 12-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 EOC26 refueling outage. The ultrasonic examination coverage of the subject Unit 1 welds did not meet the 90% examination requirements of Code Case N-460. The obtainable volume coverage for weld examination is indicated on Attachment A 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).

This submittal document contains no regulatory commitments.

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

Enclosure: Oconee Nuclear Station - Unit 1 Relief Request 12-ON-001

A047
NRR

Xc w/att: Victor Mcree
Region II Administrator
U. S. Nuclear Regulatory Commission
Marquis One Tower
245 Peachtree Center Ave., NE, Suite 1200
Atlanta, GA 30303-1257

John Boska
Project Manager
(by electronic mail only)
U. S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation
11555 Rockville Pike
Mail Stop O-8G9A
Rockville, MD 20852-2746

Xc w/o attachment

NRC Senior Resident Inspector
Oconee Nuclear Station

Susan Jenkins
Section Manager
Division of Waste Management
Bureau of Land and Waste Management
SC Dept. of Health & Environment Control
2600 Bull St.
Columbia, SC 29201

Enclosure

Oconee Nuclear Station - Unit 1
Relief Request 12-ON-001

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: January 01, 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	1EOC26	1-PZR-WP26-3	O1.B3.110.0011	See Attachment A Pages 1-10
3.0	1	1EOC26	1-PZR-WP26-7	O1.B3.110.0012	See Attachment A Pages 11-20
4.0	1	1EOC26	1-PIB1-9	O1.B9.11.0029	See Attachment A Pages 21-32
5.0	1	1EOC26	1-PDB1-1	O1.B9.11.0072	See Attachment A Pages 33-44
6.0	1	1EOC26	1LP-128-80	O1.C5.11.0029	See Attachment A Pages 45-51
7.0	1	1EOC26	1LP-209-17	O1.C5.11.0084	See Attachment A Pages 52-57
8.0	1	1EOC26	1LP-209-18	O1.C5.11.0085	See Attachment A Pages 58-63
9.0	1	1EOC26	1HP-192-15	O1.C5.21.0006	See Attachment A Pages 64-72
10.0	1	1EOC26	1-51A-01-91A	O1.C5.21.0024	See Attachment A Pages 73-78

11.0	1	1EOC26	1HP-324-118B	O1.C5.21.0041	See Attachment A Pages 79-84
12.0	1	1EOC26	1-51A-02-34B	O1.C5.21.0053	See Attachment A Pages 85-91
13.0	1	1EOC26	1HP-193-12	O1.C5.21.0057	See Attachment A Pages 92-98
14.0	1	1EOC26	1-51A-01-103A	O1.C5.21.0066	See Attachment A Pages 99-106
15.0	1	1EOC26	1LPS-563-14	O1.C5.51.0050	See Attachment A Pages 107-115
16.0	1	1EOC26	1LPS-702-50	O1.C5.51.0053	See Attachment A Pages 116-124
17.0	1	1EOC26	WJ-32	PSI	See Attachment A Pages 125-133
18.0	1	1EOC26	WJ-33	PSI	See Attachment A Pages 134-144
19.0	1	1EOC26	WJ-35	PSI	See Attachment A Pages 145-153
20.0	1	1EOC26	WJ-36	PSI	See Attachment A Pages 154-162

Duke Energy procedures require ASME Code, Section XI examinations that do not meet the requirements of Code Case N-460 to be marked "reject" for tracking purposes, regardless of whether indications were noted. Therefore, the limited exams in 12-ON-001 without indications were marked "reject".

2.0 Weld #1-PZR-WP26-3

2.1. ASME Code Component(s) Affected

Unit 1 Pressurizer Heater Belt Shell to Sampling Nozzle Weld #1-PZR-WP26-3, Summary Number O1.B3.110.0011 and ASME Code Class 1.

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

Component configuration:

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

This component was scanned manually with conventional methods. Scanning 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. These requirements describe and are specific to scanning components in two axial and two circumferential directions. This component was scanned to the extent possible to meet these requirements. The aggregate coverage that was obtained is described and calculated from the following:

- Weld coverage using 45°& 60° shear waves for axial scans (S1, S2), and 45° & 60° shear waves for circumferential scans (CW, CCW) obtained 15.4% coverage.
- Base material coverage using 45°& 60° shear wave for axial scans (S1) and 45°& 60° shear waves for circumferential scans (CW, CCW) obtained 54.8% coverage.
- 0° scan coverage obtained 33.8% coverage.
- The aggregate coverage was calculated to be (15.4% + 54.8% + 33.8%)/3 = 34.7%.

The impracticality was caused by the weld taper configuration of the sampling nozzle to the shell that does not allow meaningful interrogation from Surface 2, the sampling nozzle side. In order to scan all of the required volume for this weld, the shell to sampling nozzle weld would have to be redesigned or replaced to allow scanning from both sides of the weld, which is impractical.

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

This relief request is specific to examination volume coverage limitations only. All other Code requirements were satisfied.

No indications were recorded during this examination. The reject box on the UT Calibration/Examination sheet is marked for internal tracking of the coverage limitation only.

2.5. Proposed Alternative and Basis for Use

No substitution alternative for this weld is available which would provide better coverage. Radiography (RT) is not a desired option because RT is limited in the ability to detect service induced flaws. Use of other manual or automated UT techniques, whether conventional or phased array, were considered, but would not increase coverage due to the limitation created by the component configuration. The use of any other UT technique available would incur the same physical scanning limitations.

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.B3.110.0011 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 and other leakage detection systems provide additional assurance that, in the event that leakage did occur through this weld, it would be detected and proper action taken.

Duke Energy has examined the weld 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 Energy's position that the combination of examinations provides a reasonable assurance of quality and safety.

2.8. References

Duke Energy Relief Request 04-ON-005 was approved by the NRC during the last inspection interval. The previous approved SE is documented in Accession Number ML050340377, TAC No.MC4527 dated March 8, 2005.

3.0 Weld #1-PZR-WP26-7

3.1. ASME Code Component(s) Affected

Unit 1 Pressurizer Heater Belt Shell to Sampling Nozzle Weld #1-PZR-WP26-7, Summary Number O1.B3.110.0012, and ASME Code Class 1.

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

Component configuration:

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

This component was scanned manually with conventional methods. Scanning 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. These requirements describe and are specific to scanning components in two axial and two circumferential directions. This component was scanned to the extent possible to meet these requirements. The aggregate coverage that was obtained is described and calculated from the following:

- Weld coverage using 45°& 60° shear waves for axial scans (S1, S2), and 45° & 60° shear waves for circumferential scans (CW, CCW) obtained 15.4% coverage.
- Base material coverage using 45°& 60° shear wave for axial scans (S1) and 45°& 60° shear waves for circumferential scans (CW, CCW) obtained 54.8% coverage.
- 0° scan coverage obtained 33.8% coverage.
- The aggregate coverage was calculated to be (15.4% + 54.8% + 33.8%)/3 = 34.7%.

The impracticality was caused by the weld taper configuration of the sampling nozzle to the shell that does not allow meaningful interrogation from Surface 2, the sampling nozzle side. In order to scan all of the required volume for this weld, the shell to sampling nozzle weld would have to be redesigned or replaced to allow scanning from both sides of the weld, which is impractical.

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

This relief request is specific to examination volume coverage limitations only. All other Code requirements were satisfied.

No indications were recorded during this examination. The reject box on the UT Calibration/Examination sheet is marked for internal tracking of the coverage limitation only.

3.5. Proposed Alternative and Basis for Use

No substitution alternative for this weld is available which would provide better coverage. Radiography (RT) is not a desired option because RT is limited in the ability to detect service induced flaws. Use of other manual or automated UT techniques, whether conventional or phased array, were considered, but would not increase coverage due to the limitation created by the component configuration. The use of any other UT technique available would incur the same physical scanning limitations.

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.B3.110.00012 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 and other leakage detection systems provide additional assurance that, in the event that leakage did occur through this weld, it would be detected and proper action taken.

Duke Energy has examined the weld 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 Energy's position that the combination of examinations provides a reasonable assurance of quality and safety.

3.8. References

Duke Energy Relief Request 04-ON-005 was approved by the NRC during the last inspection interval. The previous approved SE is documented in Accession Number ML050340377, TAC No.MC4527 dated March 8, 2005.

4.0 Weld #1-PIB1-9

4.1. ASME Code Component(s) Affected

Unit 1 Reactor Coolant Pump 1B1 Casing Nozzle to Safe-End Piping Weld, Weld #1-PIB1-9, Summary Number O1.B9.11.0029 and ASME Code Class 1.

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

4.4. Impracticality of Compliance

Component configuration:

- Surface 1: Cast Stainless Steel Nozzle
- Surface 2: Forged Stainless Steel Safe End
- NPS: 36.5 in.
- Thickness: 2.330 in.

This component was scanned manually with conventional methods. Scanning requirements are described in 10 CFR 50.55a(b)(2)(xv)(A)(1). These requirements describe and are specific to scanning components in two axial and two circumferential directions. This component was scanned to the extent possible to meet these requirements. The aggregate coverage that was obtained is described and calculated from the following:

- 60° shear waves obtained 0% coverage in one axial direction (S1 – nozzle)
- 60° shear waves obtained 50% coverage in one axial direction (S2 – safe end)
- 45° shear waves obtained 50% coverage in one circumferential direction (CW).
- 45° shear waves obtained 50% coverage in one circumferential direction (CCW).
- The aggregate coverage was calculated to be (0% + 50% + 50% + 50%)/4 = 37.5%.

In addition, best effort supplemental scanning was performed using 60° and 70° refracted longitudinal waves from the S2 pump casing side for interrogation of the upper 2/3 area within the cast material.

Best effort supplemental scanning was also performed using 60° refracted longitudinal waves for interrogation of the lower 1/3 nozzle far side of the weld from the S1 safe-end side, but is not qualified to be calculated into the above claimed coverage. The supplemental refracted longitudinal scan was only used for interrogation in the axial direction per procedural direction. Supplemental scanning is not performed in the circumferential direction.

The impracticality was caused by the nozzle taper configuration and cast stainless steel material which cannot be effectively interrogated by ultrasound. There are currently no examination techniques that have been qualified for cast stainless steel through Appendix VIII for cast stainless steel. Therefore, coverage could not be obtained by scanning from the nozzle side. In order to scan all of the required volume for this weld, the nozzle would have to be redesigned and replaced, which is impractical.

The Oconee Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage. Therefore, the available coverage will not meet the acceptance criteria of this Code Case.

This relief request is specific to examination volume coverage limitations only. All other Code requirements were satisfied.

No indications were recorded during this examination. The reject box on each UT Calibration/Examination sheet is marked for internal tracking of the coverage limitation only.

4.5 Proposed Alternative and Basis for Use

This weld was examined using procedures, equipment and personnel qualified in accordance with ASME Section XI, Appendix VIII. Radiography (RT) is not a desired option because RT is limited in the ability to detect service induced flaws and has not been qualified through performance demonstration. Use of other manual or automated UT techniques, whether conventional or phased array, qualified under ASME Section XI, Appendix VIII would not increase coverage due to the limitation created by the cast stainless material. The use of any other UT technique available would incur the same physical scanning limitations.

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.B9.11.0029 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 and other leakage detection systems provide additional assurance that, in the event that leakage did occur through this weld, it would be detected and proper action taken.

Duke Energy has examined the weld 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 Energy's position that the combination of examinations provides a reasonable assurance of quality and safety.

4.8 References

None

5.0 Weld #1-PDB1-1

5.1. ASME Code Component(s) Affected

Unit 1 Reactor Coolant Pump 1B1 Casing Nozzle to Safe-End Weld, Weld #1-PDB1-1, Summary Number O1.B9.11.0072 and ASME Code Class 1.

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

5.4. Impracticality of Compliance

Component configuration:

- Surface 1: Forged Stainless Steel Safe End
- Surface 2: Cast Stainless Steel Nozzle
- NPS: 33.5 in.
- Thickness: 2.330 in.

This component was scanned manually with conventional methods. Scanning requirements are described in 10 CFR 50.55a(b)(2)(xv)(A)(1). These requirements describe and are specific to scanning components in two axial and two circumferential directions. This component was scanned to the extent possible to meet these requirements. The aggregate coverage that was obtained is described and calculated from the following:

- 60° shear waves obtained 50% coverage in one axial direction (S1 – safe end)
- 60° shear waves obtained 0% coverage in one axial direction (S2 – nozzle)
- 45° shear waves obtained 50% coverage in one circumferential direction (CW).
- 45° shear waves obtained 50% coverage in one circumferential direction (CCW).
- The aggregate coverage was calculated to be (50% + 0% + 50% + 50%)/4 = 37.5%.

In addition, best effort supplemental scanning was performed using 60° and 70° refracted longitudinal waves from the S2 pump casing side for interrogation of the upper 2/3 area within the cast material.

Best effort supplemental scanning was also performed using 60° refracted longitudinal waves for interrogation of the lower 1/3 nozzle on the far side of the weld from the S1 safe-end side, but is not qualified to be calculated into the above claimed coverage. The supplemental refracted longitudinal scan was only used for interrogation in the axial direction per procedural direction. Supplemental scanning is not performed in the circumferential direction.

The impracticality was caused by the nozzle taper configuration due to cast stainless steel material which cannot be effectively interrogated by ultrasound. There are currently no examination techniques that have been qualified through Appendix VIII for cast stainless steels. Therefore, coverage could not be obtained by scanning from the nozzle side. In order to scan all of the required volume for this weld, the nozzle would have to be redesigned and replaced, which is impractical.

The Oconee Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage. Therefore, the available coverage will not meet the acceptance criteria of this Code Case.

This relief request is specific to examination volume coverage limitations only. All other Code requirements were satisfied.

No indications were recorded during this examination. The reject box on each UT Calibration/Examination sheet is marked for internal tracking of the coverage limitation only.

5.5. Proposed Alternative and Basis for Use

This weld was examined using procedures, equipment and personnel qualified in accordance with ASME Section XI, Appendix VIII. Radiography (RT) is not a desired option because RT is limited in the ability to detect service induced flaws and has not been qualified through performance demonstration. Use of other manual or automated UT techniques, whether conventional or phased array, qualified under ASME Section XI, Appendix VIII would not increase coverage due to the limitation created by the cast stainless material. The use of any other UT technique available would incur the same physical scanning limitations.

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.B9.11.0072 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 and other leakage detection systems provide additional assurance that, in the event that leakage did occur through this weld, it would be detected and proper action taken.

Duke Energy has examined the weld 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 Energy's position that the combination of examinations provides a reasonable assurance of quality and safety.

5.8 References

None

6.0 Weld #1LP-128-80

6.1. ASME Code Component(s) Affected

Unit 1 Reducer to Valve 1LP-18 Weld, Weld #1LP-128-80, Summary Number O1.C5.11.0029 and ASME Code Class 2.

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

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.

6.4. Impracticality of Compliance

Component configuration:

- Surface 1: Forged Stainless Steel Reducer
- Surface 2: Cast Stainless Steel Valve
- Diameter: 12.0 in.
- Thickness: 1.168 in.

This component was scanned manually with conventional methods. Scanning requirements are described in 10 CFR 50.55a(b)(2)(xv)(A)(1). These requirements describe and are specific to scanning components in two axial and two circumferential directions. This component was scanned to the extent possible to meet these requirements. The aggregate coverage that was obtained is described and calculated from the following:

- 60° shear waves obtained 50% coverage in one axial direction (S1 - reducer)
- 60° shear waves obtained 0% coverage in one axial direction (S2 - valve)
- 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 aggregate coverage was calculated to be (50% + 0 + 50% + 50%)/4 = 37.5%.

Best effort supplemental scanning was also performed using 60° refracted longitudinal waves for interrogation of the lower 1/3 valve far side of the weld from the S1 reducer side, but is not qualified to be calculated into the above claimed coverage. The supplemental refracted longitudinal scan was only used for interrogation in the axial direction per procedural direction. Supplemental scanning is not performed in the circumferential direction.

The impracticality was caused by the cast stainless steel material which cannot be effectively interrogated by ultrasound. There are currently no examination techniques that have been qualified through Appendix VIII for cast stainless steels. Therefore, coverage could not be obtained by scanning from the valve side. In order to scan all of the required volume for this weld, the valve would have to be redesigned and replaced, which is impractical.

The Oconee Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage. Therefore, the available coverage will not meet the acceptance criteria of this Code Case.

This relief request is specific to examination volume coverage limitations only. All other Code requirements were satisfied.

No indications were recorded during this examination. The reject box on each UT Calibration/Examination sheet is marked for internal tracking of the coverage limitation only.

6.5. Proposed Alternative and Basis for Use

This weld was examined using procedures, equipment and personnel qualified in accordance with ASME Section XI, Appendix VIII. Radiography (RT) is not a desired option because RT is limited in the ability to detect service induced flaws and has not been qualified through performance demonstration. Use of other manual or automated UT techniques, whether conventional or phased array, qualified under ASME Section XI, Appendix VIII would not increase coverage due to the limitation created by the cast stainless material. The use of any other UT technique available would incur the same physical scanning limitations.

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.C5.11.0029 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), 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 Energy has examined the weld 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 continuing periodic leakage inspections, it is Duke Energy's position that the combination of examinations provides a reasonable assurance of quality and safety.

6.8 References

None

7.0 Weld #1LP-209-17

7.1. ASME Code Component(s) Affected

Unit 1 Pipe to Flow Restrictor Weld, Weld #1LP-209-17, Summary Number O1.C5.11.0084 and ASME Code Class 2.

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

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.

7.4. Impracticality of Compliance

Component configuration:

- Surface 1: Forged Stainless Pipe
- Surface 2: Cast Stainless Flow Restrictor
- Diameter: 10.0 in.
- Thickness: 1.0 in.

This component was scanned manually with conventional methods. Scanning requirements are described in 10 CFR 50.55a(b)(2)(xv)(A)(1). These requirements describe and are specific to scanning components in two axial and two circumferential directions. This component was scanned to the extent possible to meet these requirements. The aggregate coverage that was obtained is described and calculated from the following:

- 60° shear waves obtained 50% coverage in one axial direction (S1 - pipe)
- 60° shear waves obtained 0% coverage in one axial direction (S2 – flow restrictor)
- 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 aggregate coverage was calculated to be (50% + 0 + 50% + 50%)/4 = 37.5%.

Best effort supplemental scanning was also performed using 60° refracted longitudinal waves for interrogation of the lower 1/3 flow restrictor far side of the weld from the S1 pipe side, but is not qualified to be calculated into the above claimed coverage. The supplemental refracted longitudinal scan was only used for interrogation in the axial direction per procedural direction. Supplemental scanning is not performed in the circumferential direction.

The impracticality was caused by the cast stainless steel material which cannot be effectively interrogated by ultrasound. There are currently no examination techniques that have been qualified through Appendix VIII for cast stainless steel. Therefore, coverage could not be obtained by scanning from the flow restrictor side. In order to scan all of the required volume for this weld, the valve would have to be redesigned and replaced, which is impractical.

The Oconee Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage. Therefore, the available coverage will not meet the acceptance criteria of this Code Case.

This relief request is specific to examination volume coverage limitations only. All other Code requirements were satisfied.

No indications were recorded during this examination. The reject box on each UT Calibration/Examination sheet is marked for internal tracking of the coverage limitation only.

7.5. Proposed Alternative and Basis for Use

This weld was examined using procedures, equipment and personnel qualified in accordance with ASME Section XI, Appendix VIII. Radiography (RT) is not a desired option because RT is limited in the ability to detect service induced flaws and has not been qualified through performance demonstration. Use of other manual or automated UT techniques, whether conventional or phased array, qualified under ASME Section XI, Appendix VIII would not increase coverage due to the limitation created by the cast stainless material. The use of any other UT technique available would incur the same physical scanning limitations.

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.C5.11.0084 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 and other leakage detection systems provide additional assurance that, in the event that leakage did occur through this weld, it would be detected and proper action taken.

Duke Energy has examined the weld 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 Energy's position that the combination of examinations provides a reasonable assurance of quality and safety.

7.8 References

None

8.0 Weld #1LP-209-18

8.1. ASME Code Component(s) Affected

Unit 1 Pipe to Flow Restrictor Piping Weld, Weld #1LP-209-18, Summary Number O1.C5.11.0085 and ASME Code Class 2.

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

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.

8.4. Impracticality of Compliance

Component configuration:

- Surface 1: Cast Stainless Flow Restrictor
- Surface 2: Forged Stainless Pipe
- Diameter: 10.0 in.
- Thickness: 1.0 in.

This component was scanned manually with conventional methods. Scanning requirements are described in 10 CFR 50.55a(b)(2)(xv)(A)(1). These requirements describe and are specific to scanning components in two axial and two circumferential directions. This component was scanned to the extent possible to meet these requirements. The aggregate coverage that was obtained is described and calculated from the following:

- 60° shear waves obtained 0% coverage in one axial direction (S1 – flow restrictor)
- 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 aggregate coverage was calculated to be (0% + 50 + 50% + 50%)/4 = 37.5%.

Best effort supplemental scanning was also performed using 60° refracted longitudinal waves for interrogation of the lower 1/3 flow restrictor far side of the weld from the S1 pipe side, but is not qualified to be calculated into the above claimed coverage. The supplemental refracted longitudinal scan was only used for interrogation in the axial direction per procedural direction. Supplemental scanning is not performed in the circumferential direction.

The impracticality was caused by the cast stainless steel material which cannot be effectively interrogated by ultrasound. There are currently no examination techniques that have been qualified through Appendix VIII for cast stainless steel. Therefore, coverage could not be obtained by scanning from the flow restrictor side. In order to scan all of the required volume for this weld, the valve would have to be redesigned and replaced, which is impractical.

The Oconee Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage. Therefore, the available coverage will not meet the acceptance criteria of this Code Case.

This relief request is specific to examination volume coverage limitations only. All other Code requirements were satisfied.

No indications were recorded during this examination. The reject box on each UT Calibration/Examination sheet is marked for internal tracking of the coverage limitation only.

8.5. Proposed Alternative and Basis for Use

This weld was examined using procedures, equipment and personnel qualified in accordance with ASME Section XI, Appendix VIII. Radiography (RT) is not a desired option because RT is limited in the ability to detect service induced flaws and has not been qualified through performance demonstration. Use of other manual or automated UT techniques, whether conventional or phased array, qualified under ASME Section XI, Appendix VIII would not increase coverage due to the limitation created by the cast stainless material. The use of any other UT technique available would incur the same physical scanning limitations.

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.C5.11.0085 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 and other leakage detection systems provide additional assurance that, in the event that leakage did occur through this weld, it would be detected and proper action taken.

Duke Energy has examined the weld 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 Energy's position that the combination of examinations provides a reasonable assurance of quality and safety.

8.8 References

None

9.0 Weld #1HP-192-15

9.1. ASME Code Component(s) Affected

Unit 1 Flange Orifice to Pipe Weld, Weld #1HP-192-15, Summary Number O1.C5.21.0006 and ASME Code Class 2.

9.2. Applicable Code Edition and Addenda

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

9.3. Applicable Code Requirement

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

9.4. Impracticality of Compliance

Component configuration:

- Surface 1: Forged Stainless Steel Flange
- Surface 2: Forged Stainless Steel Pipe
- Diameter: 4.0 in.
- Thickness: 0.531 in.

This component was scanned manually with conventional methods. Scanning requirements are described in 10 CFR 50.55a(b)(2)(xv)(A)(1). These requirements describe and are specific to scanning components in two axial and two circumferential directions. This component was scanned to the extent possible to meet these requirements. The aggregate coverage that was obtained is described and calculated from the following:

- 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 aggregate coverage was calculated to be (0% + 50 + 50% + 50%)/4 = 37.5%.

Best effort supplemental scanning was also performed using 70° refracted longitudinal waves for interrogation of the lower 1/3 flange far side of the weld from the S1 pipe side, but is not qualified to be calculated into the above claimed coverage. The supplemental refracted longitudinal scan was only used for interrogation in the axial direction per procedural direction. Supplemental scanning is not performed in the circumferential direction.

The impracticality was caused by the tapered configuration of the flange, which did not allow access to the full volume of the weld. Therefore coverage could not be obtained by scanning from the flange side. In order to scan all of the required volume for this weld, the flange would have to be redesigned and replaced, which is impractical.

The Oconee Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage. Therefore, the available coverage will not meet the acceptance criteria of this Code Case.

This relief request is specific to examination volume coverage limitations only. All other Code requirements were satisfied.

The indication detected during the examination was the result of component geometry and was not associated with flaws in the component weld. The indication was acceptable without further evaluation. The indication was dispositioned using procedure guidance on probe skewing, use of higher angles and indication plotting. The reject box on each UT Calibration/Examination sheet is marked for internal tracking of the coverage limitation only.

9.5. Proposed Alternative and Basis for Use

This weld was examined using procedures, equipment and personnel qualified in accordance with ASME Section XI, Appendix VIII. Radiography (RT) is not a desired option because RT is limited in the ability to detect service induced flaws and has not been qualified through performance demonstration. Use of other manual or automated UT techniques, whether conventional or phased array, qualified under ASME Section XI, Appendix VIII would not increase coverage due to the limitation created by the component configuration. The use of any other UT technique available would incur the same physical scanning limitations.

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.C5.21.0006 was conducted using personnel, equipment, and procedures qualified in accordance with ASME Section XI, 1998 Edition with the 2000 Addenda.

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

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

Duke Energy has examined the weld 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 continuing periodic leakage inspections, it is Duke Energy's position that the combination of examinations provides a reasonable assurance of quality and safety.

9.8. References

Duke Energy Relief Requests 02-ON-005 and 02-ON-004 were approved by the NRC during the last inspection interval. The previous approved SE's are documented in Accession Number ML32721404, TAC No.MB5815 and MC5830 dated September 29, 2003.

10.0 Weld #1-51A-01-91A

10.1. ASME Code Component(s) Affected

Unit 1 Pipe to Valve 1HP-128 Weld, Weld #1-51A-01-91A, Summary Number O1.C5.21.0024 and ASME Code Class 2.

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

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.

10.4. Impracticality of Compliance

Component configuration:

- Surface 1: Forged Stainless Steel Pipe
- Surface 2: Forged Stainless Steel Valve
- Diameter: 4.0 in.
- Thickness: 0.531 in.

This component was scanned manually with conventional methods. Scanning requirements are described in 10 CFR 50.55a(b)(2)(xv)(A)(1). These requirements describe and are specific to scanning components in two axial and two circumferential directions. This component was scanned to the extent possible to meet these requirements. The aggregate coverage that was obtained is described and calculated from the following:

- 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 axial direction (S3 - CW)
- 45° shear waves obtained 50% coverage in one axial direction (S4 - CCW)
- The aggregate coverage was calculated to be (100% + 100 + 50% + 50%)/4 = 75.0%.

Best effort supplemental scanning was not applied since the requirements of the ASME Code, Section XI, Supplement 2 pertaining to refracted longitudinal wave or 70 degree shear wave methods are to be applied during single sided exams when axial scanning can only be performed from one side of the weld. 100% coverage was obtained in each axial scan direction.

The impracticality was caused by the tapered configuration of the valve, which did not allow access to the full volume of the weld in the circumferential direction. Therefore coverage could not be obtained by scanning from the valve side. In order to scan all of the required volume for this weld, the valve would have to be redesigned and replaced, which is impractical.

The Oconee Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage. Therefore, the available coverage will not meet the acceptance criteria of this Code Case.

This relief request is specific to examination volume coverage limitations only. All other Code requirements were satisfied.

No indications were recorded during this examination. The reject box on each UT Calibration/Examination sheet is marked for internal tracking of the coverage limitation only.

10.5. Proposed Alternative and Basis for Use

This weld was examined using procedures, equipment and personnel qualified in accordance with ASME Section XI, Appendix VIII. Radiography (RT) is not a desired option because RT is limited in the ability to detect service induced flaws and has not been qualified through performance demonstration. Use of other manual or automated UT techniques, whether conventional or phased array, qualified under ASME Section XI, Appendix VIII would not increase coverage due to the limitation created by the component configuration. The use of any other UT technique available would incur the same physical scanning limitations.

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.C5.21.0024 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), 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 Energy has examined the weld 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 continuing periodic leakage inspections, it is Duke Energy's position that the combination of examinations provides a reasonable assurance of quality and safety.

10.8. References

Duke Energy Relief Requests 02-ON-005 and 02-ON-004 were approved by the NRC during the last inspection interval. The previous approved SE's are documented in Accession Number ML32721404, TAC No.MB5815 and MC5830 dated September 29, 2003.

11.0 Weld #1HP-324-118B

11.1. ASME Code Component(s) Affected

Unit 1 Tee to Valve 1HP-119 Weld, Weld #1HP-324-118B, Summary Number O1.C5.21.0041 and ASME Code Class 2.

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

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.

11.4. Impracticality of Compliance

Component configuration:

- Surface 1: Forged Stainless Steel Valve
- Surface 2: Forged Stainless Steel Tee
- Diameter: 2.5 in.
- Thickness: 0.375 in.

This component was scanned manually with conventional methods. Scanning requirements are described in 10 CFR 50.55a(b)(2)(xv)(A)(1). These requirements describe and are specific to scanning components in two axial and two circumferential directions. This component was scanned to the extent possible to meet these requirements. The aggregate coverage that was obtained is described and calculated from the following:

- 60° shear waves obtained 77.850% coverage in one axial direction (S1 - valve)
- 60° shear waves obtained 88.925% coverage in one axial direction (S2 - tee)
- 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 aggregate coverage was calculated to be (77.850% + 88.925 + 50% + 50%)/4 = 66.694%.

Best effort supplemental scanning was performed using 70° shear waves for interrogation of the lower 1/3 valve far side of the weld from the S2 tee side, but is not qualified to be calculated into the above claimed coverage. The supplemental shear was only used for interrogation in the axial direction per procedural direction. Supplemental scanning is not performed in the circumferential direction. The 70° shear wave was selected to supplement the 60° shear waves as the component is less than 0.500" in thickness.

The impracticality was caused by the tapered configuration of the valve, which did not allow access to the full volume of the weld in the circumferential direction. Welded attachments prevented complete scanning from the valve side in the axial direction. Therefore coverage could not be obtained by scanning from the valve side. In order to scan all of the required volume for this weld, the valve would have to be redesigned and replaced, which is impractical.

The Oconee Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage. Therefore, the available coverage will not meet the acceptance criteria of this Code Case.

This relief request is specific to examination volume coverage limitations only. All other Code requirements were satisfied.

No indications were recorded during this examination. The reject box on each UT Calibration/Examination sheet is marked for internal tracking of the coverage limitation only.

11.5. Proposed Alternative and Basis for Use

This weld was examined using procedures, equipment and personnel qualified in accordance with ASME Section XI, Appendix VIII. Radiography (RT) is not a desired option because RT is limited in the ability to detect service induced flaws and has not been qualified through performance demonstration. Use of other manual or automated UT techniques, whether conventional or phased array, qualified under ASME Section XI, Appendix VIII would not increase coverage due to the limitation created by the component configuration. The use of any other UT technique available would incur the same physical scanning limitations.

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.C5.21.0041 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), 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 Energy has examined the weld 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 continuing periodic leakage inspections, it is Duke Energy's position that the combination of examinations provides a reasonable assurance of quality and safety.

11.8. References

Duke Energy Relief Requests 02-ON-005 and 02-ON-004 were approved by the NRC during the last inspection interval. The previous approved SE's are documented in Accession Number ML32721404, TAC No.MB5815 and MC5830 dated September 29, 2003.

12.0 Weld #1-51A-02-34B

12.1. ASME Code Component(s) Affected

Unit 1 Elbow to Valve 1HP-134, Weld #1-51A-02-34B, Summary Number O1.C5.21.0053 and ASME Code Class 2.

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

12.4. Impracticality of Compliance

Component configuration:

- Surface 1: Forged Stainless Steel Elbow
- Surface 2: Forged Stainless Steel Valve
- Diameter: 4.0 in.
- Thickness: 0.531 in.

This component was scanned manually with conventional methods. Scanning requirements are described in 10 CFR 50.55a(b)(2)(xv)(A)(1). These requirements describe and are specific to scanning components in two axial and two circumferential directions. This component was scanned to the extent possible to meet these requirements. The aggregate coverage that was obtained is described and calculated from the following:

- 60° shear waves obtained 100% coverage in one axial direction (S1 – elbow)
- 45° shear waves obtained 46.1% coverage in one axial direction (S2 - valve)
- 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 aggregate coverage was calculated to be (100% + 46.1 + 50% + 50%)/4 = 61.525%.

Best effort supplemental scanning was also performed using 60° refracted longitudinal waves for interrogation of the lower 1/3 valve far side of the weld from the S1 elbow side, but is not qualified to be calculated into the above claimed coverage. The supplemental refracted longitudinal scan was only used for interrogation in the axial direction per procedural direction. Supplemental scanning is not performed in the circumferential direction.

The impracticality was caused by the tapered configuration of the valve, which did not allow access to the full volume of the weld. Therefore coverage could not be obtained by scanning from the valve side. In order to scan all of the required volume for this weld, the valve would have to be redesigned and replaced, which is impractical.

The Oconee Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage. Therefore, the available coverage will not meet the acceptance criteria of this Code Case.

This relief request is specific to examination volume coverage limitations only. All other Code requirements were satisfied.

No indications were recorded during this examination. The reject box on each UT Calibration/Examination sheet is marked for internal tracking of the coverage limitation only.

12.5. Proposed Alternative and Basis for Use

This weld was examined using procedures, equipment and personnel qualified in accordance with ASME Section XI, Appendix VIII. Radiography (RT) is not a desired option because RT is limited in the ability to detect service induced flaws and has not been qualified through performance demonstration. Use of other manual or automated UT techniques, whether conventional or phased array, qualified under ASME Section XI, Appendix VIII would not increase coverage due to the limitation created by the component configuration. The use of any other UT technique available would incur the same physical scanning limitations.

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.C5.21.0053 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 Energy 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 Energy has examined the weld 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 continuing periodic leakage inspections, it is Duke Energy's position that the combination of examinations provides a reasonable assurance of quality and safety.

12.8. References

Duke Energy Relief Requests 02-ON-005 and 02-ON-004 were approved by the NRC during the last inspection interval. The previous approved SE's are documented in Accession Number ML32721404, TAC No.MB5815 and MC5830 dated September 29, 2003.

13.0 Weld #1HP-193-12

13.1. ASME Code Component(s) Affected

Unit 1 Tee to Valve 1HP-26 Weld, Weld #1HP-193-12, Summary Number O1.C5.21.0057 and ASME Code Class 2.

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 Figure IWC-2500-7(a), 100% Volume Coverage of Examination Volume C-D-E-F.

13.4. Impracticality of Compliance

Component configuration:

- Surface 1: Cast Stainless Steel Valve
- Surface 2: Forged Stainless Steel Tee
- Diameter: 4.0 in.
- Thickness: 0.531 in.

This component was scanned manually with conventional methods. Scanning requirements are described in 10 CFR 50.55a(b)(2)(xv)(A)(1). These requirements describe and are specific to scanning components in two axial and two circumferential directions. This component was scanned to the extent possible to meet these requirements. The aggregate coverage that was obtained is described and calculated from the following:

- 60° shear waves obtained 0% coverage in one axial direction (S1 - valve)
- 60° shear waves obtained 50% coverage in one axial direction (S2 - tee)
- 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 aggregate coverage was calculated to be (0% + 50% + 50% + 50%)/4 = 37.5%.

Best effort supplemental scanning was also performed using 70° refracted longitudinal waves for interrogation of the lower 1/3 valve far side of the weld from the S1 tee side, but is not qualified to be calculated into the above claimed coverage. The supplemental refracted longitudinal scan was only used for interrogation in the axial direction per procedural direction. Supplemental scanning is not performed in the circumferential direction.
The impracticality was caused by the cast stainless steel material which cannot be effectively interrogated by ultrasound. There are currently no examination

techniques that have been qualified through Appendix VIII for cast stainless steel. Therefore, coverage could not be obtained by scanning from the valve side. In order to scan all of the required volume for this weld, the valve would have to be redesigned and replaced, which is impractical.

The Oconee Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage. Therefore, the available coverage will not meet the acceptance criteria of this Code Case.

This relief request is specific to examination volume coverage limitations only. All other Code requirements were satisfied.

No indications were recorded during this examination. The reject box on each UT Calibration/Examination sheet is marked for internal tracking of the coverage limitation only.

13.5. Proposed Alternative and Basis for Use

This weld was examined using procedures, equipment and personnel qualified in accordance with ASME Section XI, Appendix VIII. Radiography (RT) is not a desired option because RT is limited in the ability to detect service induced flaws and has not been qualified through performance demonstration. Use of other manual or automated UT techniques, whether conventional or phased array, qualified under ASME Section XI, Appendix VIII would not increase coverage due to the limitation created by the cast stainless material. The use of any other UT technique available would incur the same physical scanning limitations.

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.C5.21.0057 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), 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 Energy has examined the weld 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 continuing periodic

leakage inspections, it is Duke Energy's position that the combination of examinations provides a reasonable assurance of quality and safety.

13.8. References

Duke Energy Relief Requests 02-ON-005 and 02-ON-004 were approved by the NRC during the last inspection interval. The previous approved SE's are documented in Accession Number ML32721404, TAC No.MB5815 and MC5830 dated September 29, 2003.

14.0 Weld #1-51A-01-103A

14.1. ASME Code Component(s) Affected

Unit 1 Pipe to Valve 1HP-109 Weld, Weld #1-51A-01-103A, Summary Number O1.C5.21.0066 and ASME Code Class 2.

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 Figure IWC-2500-7(a), 100% Volume Coverage of Examination Volume C-D-E-F.

14.4. Impracticality of Compliance

Component configuration:

- Surface 1: Forged Stainless Steel Valve
- Surface 2: Forged Stainless Steel Pipe
- Diameter: 3.0 in.
- Thickness: 0.438 in.

This component was scanned manually with conventional methods. Scanning requirements are described in 10 CFR.50.55a(b)(2)(xv)(A)(1). These requirements describe and are specific to scanning components in two axial and two circumferential directions. This component was scanned to the extent possible to meet these requirements. The aggregate coverage that was obtained is described and calculated from the following:

- 60° shear waves obtained 100% coverage in one axial direction (S1 - valve)
- 60° shear waves obtained 100% 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 aggregate coverage was calculated to be (100% + 100% + 50% + 50%)/4 = 75.0%.

Best effort supplemental scanning was not applied since the requirements of the ASME Code, Section XI, Supplement 2 pertaining to refracted longitudinal wave or 70 degree shear wave methods are to be applied during single sided exams when axial scanning can only be performed from one side of the weld. 100% coverage was obtained in each axial scan direction.

The impracticality was caused by the tapered configuration of the valve, which did not allow access to the full volume of the weld in the circumferential direction. Therefore coverage could not be obtained by scanning from the valve side. In order to scan all of the required volume for this weld, the valve would have to be redesigned and replaced, which is impractical.

The Oconee Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage. Therefore, the available coverage will not meet the acceptance criteria of this Code Case.

This relief request is specific to examination volume coverage limitations only. All other Code requirements were satisfied.

No indications were recorded during this examination. The reject box on each UT Calibration/Examination sheet is marked for internal tracking of the coverage limitation only.

14.5. Proposed Alternative and Basis for Use

This weld was examined using procedures, equipment and personnel qualified in accordance with ASME Section XI, Appendix VIII. Radiography (RT) is not a desired option because RT is limited in the ability to detect service induced flaws and has not been qualified through performance demonstration. Use of other manual or automated UT techniques, whether conventional or phased array, qualified under ASME Section XI, Appendix VIII would not increase coverage due to the limitation created by the component configuration. The use of any other UT technique available would incur the same physical scanning limitations.

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.C5.21.0066 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), 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 Energy has examined the weld 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 continuing periodic leakage inspections, it is Duke Energy's position that the combination of examinations provides a reasonable assurance of quality and safety.

14.8. References

Duke Energy Relief Requests 02-ON-005 and 02-ON-004 were approved by the NRC during the last inspection interval. The previous approved SE's are documented in Accession Number ML32721404, TAC No.MB5815 and MC5830 dated September 29, 2003.

15.0 Weld #1LPS-563-14

15.1. ASME Code Component(s) Affected

Unit 1 Valve 1LPS-022 to Pipe Weld, Weld #1LPS-563-14, Summary Number O1.C5.51.0050, Low Pressure Service Water System, and ASME Code Class 2.

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-2, Item Number C5.51 Figure IWC-2500-7(a), 100% Volume Coverage of Examination Volume C-D-E-F.

15.4. Impracticality of Compliance

Component configuration:

- Surface 1: Carbon Steel Pipe
- Surface 2: Cast Stainless Steel Valve
- Diameter: 8.0 in.
- Thickness: 0.50 in.

This component was scanned manually with conventional methods. Scanning requirements are described in 10CFR.50.55a(b)(2)(xv)(A)(1). These requirements describe and are specific to scanning components in two axial and two circumferential directions. This component was scanned to the extent possible to meet these requirements. The aggregate coverage that was obtained is described and calculated from the following:

- 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 axial direction (S3 - CW)
- 45° shear waves obtained 50% coverage in one axial direction (S4 - CCW)
- The aggregate coverage was calculated to be (50% + 0% + 50% + 50%)/4 = 37.5%.

The impracticality was caused by the cast stainless steel material which cannot be effectively interrogated by ultrasound. There are currently no examination techniques that have been qualified through Appendix VIII for cast stainless steel. Therefore, coverage could not be obtained by scanning from the valve side. In order to scan all of the required volume for this weld, the valve would have to be redesigned and replaced, which is impractical.

The Oconee Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage. Therefore, the available coverage will not meet the acceptance criteria of this Code Case.

This relief request is specific to examination volume coverage limitations only. All other Code requirements were satisfied.

No indications were recorded during this examination. The reject box on each UT Calibration/Examination sheet is marked for internal tracking of the coverage limitation only.

15.5. Proposed Alternative and Basis for Use

This weld was examined using procedures, equipment and personnel qualified in accordance with ASME Section XI, Appendix VIII. Radiography (RT) is not a desired option because RT is limited in the ability to detect service induced flaws and has not been qualified through performance demonstration. Use of other manual or automated UT techniques, whether conventional or phased array, qualified under ASME Section XI, Appendix VIII would not increase coverage due to the limitation created by the cast stainless material. The use of any other UT technique available would incur the same physical scanning limitations.

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.C5.51.0050 was conducted using personnel, equipment, and procedures qualified in accordance with ASME Section XI, 1998 Edition with the 2000 Addenda.

The system leakage test performed each 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), 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 Energy has examined the weld 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 continuing periodic leakage inspections, it is Duke Energy's position that the combination of examinations provides a reasonable assurance of quality and safety.

15.8 References

None

16.0 Weld #1LPS-702-50

16.1. ASME Code Component(s) Affected

Unit 1 Valve 1LPSW-016 to Pipe Weld, Weld #1LPS-702-50, Summary Number O1.C5.51.0053, Low Pressure Service Water System, and ASME Code Class 2.

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-2, Item Number C5.51 Figure IWC-2500-7(a), 100% Volume Coverage of Examination Volume C-D-E-F.

16.4. Impracticality of Compliance

Component configuration:

- Surface 1: Carbon Steel Pipe
- Surface 2: Cast Stainless Steel Valve
- Diameter: 8.0 in.
- Thickness: 0.50 in.

This component was scanned manually with conventional methods. Scanning requirements are described in 10CFR.50.55a(b)(2)(xv)(A)(1). These requirements describe and are specific to scanning components in two axial and two circumferential directions. This component was scanned to the extent possible to meet these requirements. The aggregate coverage that was obtained is described and calculated from the following:

- 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 axial direction (S3 - CW)
- 45° shear waves obtained 50% coverage in one axial direction (S4 - CCW)
- The aggregate coverage was calculated to be (50% + 0% + 50% + 50%)/4 = 37.5%.

The impracticality was caused by the cast stainless steel material which cannot be effectively interrogated by ultrasound. There are currently no examination techniques that have been qualified through Appendix VIII for cast stainless steel. Therefore, coverage could not be obtained by scanning from the valve side. In order to scan all of the required volume for this weld, the valve would have to be redesigned and replaced, which is impractical.

The Oconee Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage. Therefore, the available coverage will not meet the acceptance criteria of this Code Case.

This relief request is specific to examination volume coverage limitations only. All other Code requirements were satisfied.

No indications were recorded during this examination. The reject box on each UT Calibration/Examination sheet is marked for internal tracking of the coverage limitation only.

16.5. Proposed Alternative and Basis for Use

This weld was examined using procedures, equipment and personnel qualified in accordance with ASME Section XI, Appendix VIII. Radiography (RT) is not a desired option because RT is limited in the ability to detect service induced flaws and has not been qualified through performance demonstration. Use of other manual or automated UT techniques, whether conventional or phased array, qualified under ASME Section XI, Appendix VIII would not increase coverage due to the limitation created by the cast stainless material. The use of any other UT technique available would incur the same physical scanning limitations.

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.C5.51.0053 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 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), 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 Energy has examined the weld 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 continuing periodic leakage inspections, it is Duke Energy's position that the combination of examinations provides a reasonable assurance of quality and safety.

16.8 References

None

17.0 Weld WJ32 (Serial #N-32389-1)

17.1. ASME Code Component(s) Affected

Unit 1 Letdown Cooler SN# N-32389-1 Inlet Channel Body to Chemical Connector Weld # WJ32, Summary Number PSI and ASME Code Class 1.

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

IWB-2500, Table IWB-2500-1, Examination Category B-B, Item Number B2.51 Figure IWB-2500-1, 100% Volume Coverage of Examination Volume A-B-C-D.

17.4. Impracticality of Compliance

Component configuration:

- Surface 1: Stainless Steel Inlet Channel Body
- Surface 2: Stainless Steel Chemical Connector
- Diameter: 8.620 in.
- Thickness: 0.875 in.

This component was scanned manually using conventional methods. Scanning requirements are described in ASME Section XI, Appendix III, III-4420 and III-4430. These requirements describe and are specific to scanning components in two axial and two circumferential directions. This component was scanned to the extent possible to meet these requirements. The aggregate coverage that was obtained is described and calculated from the following.

- Axial scan coverage: 45° shear waves and 45°, 60° and 70° longitudinal waves in the S1 and S2 direction obtained an aggregate coverage of 97.2%
- Circumferential scan coverage: 45° shear waves obtained an aggregate coverage of 78.1%
- The total aggregate coverage was calculated to be (97.2% + 78.1%)/2 = 87.7%
- In addition, a best effort examination was performed using 60° and 70° longitudinal waves to the extent possible in the upper 2/3 area of interest.

The impracticality was caused by the taper configuration of the chemical connector and the proximity of a nozzle within the scan area from the inlet channel body. In order to scan all of the volume for this weld, the chemical connector and location of the adjacent nozzle would have to be redesigned and replaced, which is impractical.

The Oconee Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage. Therefore, the available coverage will not meet the acceptance criteria of this Code Case.

This relief request is specific to examination volume coverage limitations only. All other Code requirements were satisfied.

Four indications were detected during the examinations that were determined to be all from component geometry. The indications were not associated with flaws in the component weld. The indications were acceptable without further evaluation. The dispositions for the indications were by procedure guidance on the use of probe skewing, use of higher angles and indication plotting. The reject box on each UT Calibration/Examination sheet is marked for internal tracking of the coverage limitation only.

17.5. Proposed Alternative and Basis for Use

No substitution alternative for this weld is available which would provide better coverage. Radiography (RT) is not a desired option because RT is limited in the ability to detect service induced flaws. Use of other manual or automated UT techniques, whether conventional or phased array, were considered, but would not increase coverage due to the limitation created by the component configuration. The use of any other UT technique available would incur the same physical scanning limitations.

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

The system leakage test performed each 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 and other leakage detection systems provide additional assurance that, in the event that leakage did occur through this weld, it would be detected and proper action taken.

Duke Energy has examined the weld 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 Energy's position that the combination of examinations provides a reasonable assurance of quality and safety.

17.8 References

None

18.0 Weld WJ33 (Serial #N-32389-1)

18.1. ASME Code Component(s) Affected

Unit 1 Letdown Cooler SN# N-32389-1 Inlet Nozzle to Channel Body Weld WJ33, Summary Number PSI and ASME Code Class 1.

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

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.

18.4. Impracticality of Compliance

Component configuration:

- Surface 1: Stainless Steel Channel Body
- Surface 2: Stainless Steel Inlet Nozzle
- Diameter: 3.0 in.
- Thickness: 0.875 in.

This component was scanned manually using conventional methods. Scanning requirements are described in ASME Section XI, Appendix III, III-4420 and III-4430. These requirements describe and are specific to scanning components in two axial and two circumferential directions. This component was scanned to the extent possible to meet these requirements. The aggregate coverage that was obtained is described and calculated from the following.

- Base metal coverage using circumferential and axial scan coverage: 45° shear waves and 45°, 60° and 70° longitudinal waves in the S1 and S2 direction obtained an aggregate coverage of 60.1%
- Weld Material coverage using axial and circumferential scan coverage: 45° shear waves obtained an aggregate coverage of 49.1%
- The total aggregate coverage was calculated to be (60.1% + 49.1%)/2 = 54.6%
- In addition, a best effort examination was performed using 60° and 70° longitudinal waves to the extent possible in the upper 2/3 area of interest.

The impracticality was caused by the weld taper configuration of the inlet nozzle to channel body that does not allow meaningful interrogation from Surface 2 the inlet nozzle side. In order to scan the required volume for this weld, the channel body to inlet nozzle weld would have to be redesigned and replaced, which is impractical.

The Oconee Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage. Therefore, the available coverage will not meet the acceptance criteria of this Code Case.

This relief request is specific to examination volume coverage limitations only. All other Code requirements were satisfied.

No indications were detected during this examination. The reject box on each UT Calibration/Examination sheet is marked for internal tracking of the coverage limitation only.

18.5. Proposed Alternative and Basis for Use

No substitution alternative for this weld is available which would provide better coverage. Radiography (RT) is not a desired option because RT is limited in the ability to detect service induced flaws. Use of other manual or automated UT techniques, whether conventional or phased array, were considered, but would not increase coverage due to the limitation created by the component configuration. The use of any other UT technique available would incur the same physical scanning limitations.

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

The system leakage test performed each 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 and other leakage detection systems provide additional assurance that, in the event that leakage did occur through this weld, it would be detected and proper action taken.

Duke Energy has examined the weld 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 Energy's position that the combination of examinations provides a reasonable assurance of quality and safety.

18.8 References

None

19.0 Weld WJ35 (Serial #N-32389-1)

19.1. ASME Code Component(s) Affected

Unit 1 Letdown Cooler SN# N-32389-1 Outlet Channel Body to Chemical Connector Weld # WJ35, Summary Number PSI and ASME Code Class 1.

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-B, Item Number B2.51 Figure IWB-2500-1, 100% Volume Coverage of Examination Volume A-B-C-D.

19.4. Impracticality of Compliance

Component configuration:

- Surface 1: Stainless Steel Outlet Channel Body
- Surface 2: Stainless Steel Chemical Connector
- Diameter: 8.620 in.
- Thickness: 0.875 in.

This component was scanned manually using conventional methods. Scanning requirements are described in ASME Section XI, Appendix III, III-4420 and III-4430. These requirements describe and are specific to scanning components in two axial and two circumferential directions. This component was scanned to the extent possible to meet these requirements. The aggregate coverage that was obtained is described and calculated from the following.

- Axial scan coverage: 45° shear waves and 45°, 60° and 70° longitudinal waves in the S1 and S2 direction obtained an aggregate coverage of 97.2%
- Circumferential scan coverage: 45° shear waves obtained an aggregate coverage of 78.1%
- The total aggregate coverage was calculated to be (97.2% + 78.1%)/2 = 87.7%
- In addition, a best effort examination was performed using 60° and 70° longitudinal waves to the extent possible in the upper 2/3 area of interest.

The impracticality was caused by the taper configuration of the chemical connector and the proximity of a nozzle within the scan area from the outlet channel body. In order to scan all of the volume for this weld, the chemical connector and location of the adjacent nozzle would have to be redesigned and replaced, which is impractical.

The Oconee Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage. Therefore, the available coverage will not meet the acceptance criteria of this Code Case.

This relief request is specific to examination volume coverage limitations only. All other Code requirements were satisfied.

Three indications were detected during the examinations that were determined to be all from component geometry. The indications were not associated with flaws in the component weld. All were acceptable without further evaluation. The dispositions of all indications were by procedure guidance on the use of probe skewing, use of higher angles and indication plotting. The reject box on each UT Calibration/Examination sheet is marked for internal tracking of the coverage limitation only.

19.5. Proposed Alternative and Basis for Use

No substitution alternative for this weld is available which would provide better coverage. Radiography (RT) is not a desired option because RT is limited in the ability to detect service induced flaws. Use of other manual or automated UT techniques, whether conventional or phased array, were considered, but would not increase coverage due to the limitation created by the component configuration. The use of any other UT technique available would incur the same physical scanning limitations,

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

The system leakage test performed each 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 and other leakage detection systems provide additional assurance that, in the event that leakage did occur through this weld, it would be detected and proper action taken.

Duke Energy has examined the weld 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 Energy's position that the combination of examinations provides a reasonable assurance of quality and safety.

19.8 References

None

20.0 Weld WJ36 (Serial #N-32389-1)

20.1. ASME Code Component(s) Affected

Unit 1 Letdown Cooler SN# N-32389-1 Outlet Nozzle to Channel Body Weld #WJ36, Summary Number PSI and ASME Code Class 1.

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 B3.150 Figure 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 configuration:

- Surface 1: Stainless Steel Channel Body
- Surface 2: Stainless Steel Outlet Nozzle
- Diameter: 3.0 in.
- Thickness: 0.875 in.

This component was scanned manually using conventional methods. Scanning requirements are described in ASME Section XI, Appendix III, III-4420 and III-4430. These requirements describe and are specific to scanning components in two axial and two circumferential directions. This component was scanned to the extent possible to meet these requirements. The aggregate coverage that was obtained is described and calculated from the following.

- Base metal coverage using circumferential and axial scan coverage: 45° shear waves and 45°, 60° and 70° longitudinal waves in the S1 and S2 direction obtained an aggregate coverage of 60.1%
- Weld Material coverage using axial and circumferential scan coverage: 45° shear waves obtained an aggregate coverage of 49.1%
- The total aggregate coverage was calculated to be (49.1% + 60.1%)/2 = 54.6%
- In addition, a best effort examination was performed using 60° and 70° longitudinal waves to the extent possible in the upper 2/3 area of interest.

The impracticality was caused by the weld taper configuration of the outlet nozzle to channel body that does not allow meaningful interrogation from Surface 2, the outlet nozzle side. In order to scan the required volume for this weld, the channel body to outlet nozzle weld would have to be redesigned and replaced, which is impractical.

The Oconee Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage. Therefore, the available coverage will not meet the acceptance criteria of this Code Case.

This relief request is specific to examination volume coverage limitations only. All other Code requirements were satisfied.

No indications were detected during this examination. The reject box on each UT Calibration/Examination sheet is marked for internal tracking of the coverage limitation only.

20.5. Proposed Alternative and Basis for Use

No substitution alternative for this weld is available which would provide better coverage. Radiography (RT) is not a desired option because RT is limited in the ability to detect service induced flaws. Use of other manual or automated UT techniques, whether conventional or phased array, were considered, but would not increase coverage due to the limitation created by the component configuration. The use of any other UT technique available would incur the same physical scanning limitations.

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

The system leakage test performed each 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 and other leakage detection systems provide additional assurance that, in the event that leakage did occur through this weld, it would be detected and proper action taken.

Duke Energy has examined the weld 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 Energy's position that the combination of examinations provides a reasonable assurance of quality and safety.

20.8 References

None

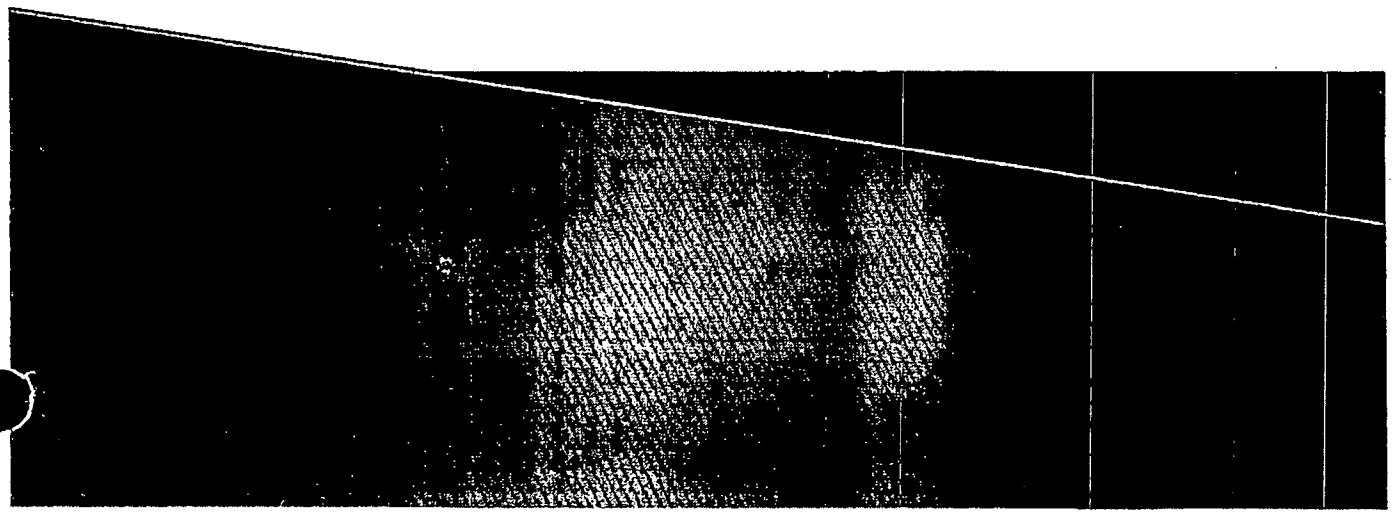
Attachment A

to Relief Request
12-ON-001

UT Detail Data sheets from

1EOC-26

Limited Exam Coverage



UT Calibration [illegible]nation

Site/Unit: Oconee / 1 | Procedure: NDE-640 | Outage No.: O1-26
Summary No.: O1.B3.110.0011 | Procedure Rev.: 8 | Report No.: UT-11-770
Workscope: ISI | Work Order No.: 01597577 | Page: 1 of 1

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-S | Size/Length: N/A | Thickness/Diameter: CS/6.187/5.75
Limitations: See attached sheets | Start Time: 1200 | Finish Time: 1207

Instrument Settings

Serial No.:	007JXT		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	1.0359	Range:	10.0
M'tl Cal/Vel:	.233	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2.25 MHz
Filter:	Fixed	Mode:	PE
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	31.3	Circ. Gain (dB):	N/A

1 Screen Div. = 1.0 In. of Sound Path
Linearity Report No.: L-11-136

Calibration Block

Cal. Block No. 40238
Thickness 6.187 Dia.: 5.750
Cal. Blk. Temp. 71 Temp. Tool: MCNDE40127
Comp. Temp. 78 Temp. Tool: MCNDE40128

Search Unit

Serial No.:	C120045P		
Manufacturer:	KBA		
Size:	1.0	Shape:	Round
Freq.:	2.25 MHz	Style:	Gamma
Exam Angle:	0	# of Elements:	Single
Mode:	Long.		
Measured Angle:	N/A		
Wedge Style:	Integral		

Search Unit Cable

Type: RG - 174
Length: 6' No. Conn.: 0

Scan Coverage

Upstream ☑ Downstream ☑ Scan dB: 37.3
CW ☐ CCW ☐ Scan dB: N/A
Exam Surface: OD
Surface Condition: As Ground

Cal. Checks	Time	Date
Initial Cal	1050	4/18/2011
Inter. Cal.	1200	4/18/2011
Inter. Cal.		
Inter. Cal.	1215	4/18/2011
Final Cal	1305	4/18/2011

Couplant

Cal. Batch: 09325
Type: ULTRAGEL II
Mfg.: SONOTECH
Exam Batch 09325
Type: ULTRAGEL II
Mfg.: SONOTECH

Reference Block

Serial No.: 98-6522
Type: ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
1/8	80	1.55	1.54
2/8	70	3.3	3.3
3/8	65	5.0	5.05

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
14.9	BW	80	1.0	1.0

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)
Results: Accept ☐ Reject ☑ Info ☐
Comments: N/A
Percent Of Coverage Obtained > 90%: No Reviewed Previous Data: Yes

Examiner: Mauldin, Larry E.	Level: II-N	Signature: Larry E Mauldin	Date: 4/18/2011	Reviewer: Dan Mos	Signature	Date: 4-20-11
Examiner: Muirhead, Barry A.	Level: II-N	Signature: Barry Muirhead	Date: 4/18/2011	Site Review: N/A	Signature	Date
Other: N/A	Level: N/A	Signature	Date	ANII Review: Nancy C Ritchie Slaughter	Signature	Date: 4/20/11

ATTACHMENT A
PAGE 1 OF

UT Calibration Examination

Site/Unit:	Oconee / 1	Procedure:	NDE-820	Outage No.:	O1-26
Summary No.:	O1.B3.110.0011	Procedure Rev.:	6	Report No.:	UT-11-771
Workscope:	ISI	Work Order No.:	01897577	Page:	1 of 9

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

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

System ID: 60

Component ID: 1-PZR-WP26-3 Size/Length: N/A Thickness/Diameter: CS/6.187/5.75

Limitations: Yes - See attached sheets Start Time: 1216 Finish Time: 1222

Instrument Settings

Serial No.:	60TJXT		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	11.31	Range:	15.0
M'tl Cal/Vel:	.1268	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Auto/High	Freq.:	2.25 MHz
Filter:	Fixed	Mode:	PE
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	46.1/52.1	Circ. Gain (dB):	N/A

1 Screen Div. = 1.5 In. of Sound Path

Linearity Report No.: L-11-135

Calibration Block

Cal. Block No.	40338		
Thickness	7	Dia.:	5.760
Cal. Blk. Temp.	71	Temp. Tool:	MCNDE40127
Comp. Temp.	76	Temp. Tool:	MCNDE40126

Search Unit

Serial No.:	G14818		
Manufacturer:	KBA		
Size:	.5x1.0	Shape:	Rect.
Freq.:	2.25 MHz	Style:	Gamma
Exam Angle:	45	# of Elements:	Single
Mode:	Shear		
Measured Angle:	45		
Wedge Style:	SWS		

Search Unit Cable

Type: RG - 174 Length: 6' No. Conn.: 0

Scan Coverage

Upstream ☑ Downstream ☑ Scan dB: 58.1

CW ☑ CCW ☑ Scan dB: 58.1

Exam Surface: OD

Surface Condition: As Ground

Cal. Checks	Time	Date
Initial Cal	1055	4/18/2011
Inter. Cal.	1216	4/18/2011
Inter. Cal.		
Inter. Cal.	1250	4/18/2011
Final Cal	1300	4/18/2011

Couplant

Cal. Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH
Exam Batch	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH

Reference Block

Serial No.: 99-6522

Type: ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
1/8	80	1.4	2.24
2/8	35	3.0	4.70
3/8	20/40	4.8	6.89
Notch	35	6.6	9.51
5/8	15	8.1	12.19

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
32.2	2" Radius	80	1.3	2.0

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Results: Accept ☐ Reject ☑ Info ☐

Comments.

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

Examiner	Level II-N	Signature	Date	Reviewer		Signature	Date
Mauldin, Larry E.		Larry E Mauldin	4/18/2011	Dan Moss			4-20-11
Examiner	Level II-N	Signature	Date	Site Review		Signature	Date
Muirhead, Barry A.		Barry Muirhead	4/18/2011	N/A			
Other	Level N/A	Signature	Date	ANII Review		Signature	Date
N/A				Nancy C. Ritchie Shuffstall			4/20/11

ATTACHMENT A
PAGE 2 OF 162

UT Calibration / Examination

Site/Unit:	Oconee / 1	Procedure:	NDE-820	Outage No.:	O1-26
Summary No.:	O1.B3.110.0011	Procedure Rev.:	6	Report No.:	UT-11-771
Workscope:	ISI	Work Order No.:	01697577	Page:	2 of 9

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-WP26-3	Size/Length:	N/A	Thickness/Diameter:	CS/6.187/5.75
Limitations:	Yes - See attached sheets	Start Time:	1120	Finish Time:	1132

Instrument Settings

Serial No.:	00TJXT		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	14.0744	Range:	5.0"
Mil Cal/Vel:	.1268	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2.25 MHz
Filter:	Fixed	Mode:	PE
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	44.1	Circ. Gain (dB):	58.1
1 Screen Div. =	.5	In. of	Sound Path
Linearity Report No.:	L-11-135		

Calibration Block

Cal. Block No.	40338		
Thickness	7	Dia.:	.. Flat
Cal. Blk. Temp.	71	Temp. Tool:	MCNDE40127
Comp. Temp.	78	Temp. Tool:	MCNDE40128

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Results: Accept ☐ Reject ☑ Info ☐

Percent Of Coverage Obtained > 90%: No

Search Unit

Serial No.:	G14819		
Manufacturer:	KBA		
Size:	.5x1.0	Shape:	Rect.
Freq.:	2.25 MHz	Style:	GAMMA
Exam Angle:	60	# of Elements:	Single
Mode:	Shear		
Measured Angle:	60		
Wedge Style:	SWS		

Search Unit Cable

Type:	RG - 174		
Length:	6'	No. Conn.:	0

Scan Coverage

Upstream ☑ Downstream ☑ Scan dB: 58.1

CW ☑ CCW ☑ Scan dB: 58.1

Exam Surface: O.D.

Surface Condition: As Ground

Cal. Checks	Time	Date
Initial Cal	1110	4/18/2011
Inter. Cal.	1120	4/18/2011
Inter. Cal.		
Inter. Cal.	1150	4/18/2011
Final Cal	1312	4/18/2011

Couplant

Cal. Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH
Exam Batch	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH

Reference Block

Serial No.:	98-6522
Type:	ROMPAS

Comments:

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
.5"	80	2.0	1.0
1.0"	70	4.0	2.0
1.5"	55	6.0	3.0
2.0"	4.0	8.0	4.0
1/4T	60	7.0	3.42

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
38.6	2" Radius	50	8.0	2.0

Examiner	Level	II-N	Signature	Date	Reviewer	Signature	Date
Mauldin, Larry E.			Larry E Mauldin	4/18/2011	Gary A Moss		4-20-11
Examiner	Level	II-N	Signature	Date	Site Review	Signature	Date
Muirhead, Barry A.			Barry Muirhead	4/18/2011	N/A		
Other	Level	N/A	Signature	Date	ANII Review	Signature	Date
N/A					Nancy C Ritchie Shaughton		4/20/11

ATTACHMENT A
PAGE 3 OF 162

UT Calibration [redacted]nation

Site/Unit: Oconee / 1 | Procedure: NDE-820 | Outage No.: O1-26
Summary No.: O1.B3.110.0011 | Procedure Rev.: 8 | Report No.: UT-11-771
Workscope: ISI | Work Order No.: 01897677 | Page: 3 of 9

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-WP26-3 | Size/Length: N/A | Thickness/Diameter: CS/6.187/5.75
Limitations: Yes - See attached sheets | Start Time: 1231 | Finish Time: 1238

Instrument Settings

Serial No.:	00TJXT		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	14.0744	Range:	25.0
M'ti Cal/Vel:	.1268	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2.25 MHz
Filter:	Fixed	Mode:	PE
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	56.6/62.6	Circ. Gain (dB):	76.6

1 Screen Div. = 2.5 In. of Sound Path
Linearity Report No.: L-11-138

Calibration Block

Cal. Block No. 40338
Thickness 7 Dia.: 5.75
Cal. Blk. Temp. 71 Temp. Tool: MCNDE40127
Comp. Temp. 78 Temp. Tool: MCNDE40128

Search Unit

Serial No.:	G14819		
Manufacturer:	KBA		
Size:	.5x1.0	Shape:	Rect.
Freq.:	2.25 MHz	Style:	GAMMA
Exam Angle:	60	# of Elements:	Single
Mode:	Shear		
Measured Angle:	60		
Wedge Style:	SWS		

Search Unit Cable

Type: RG - 174
Length: 6' No. Conn.: 0

Scan Coverage

Upstream ☑ Downstream ☑ Scan dB: 76.6
CW ☑ CCW ☑ Scan dB: 76.6
Exam Surface: O.D.
Surface Condition: As Ground

Cal. Checks	Time	Date
Initial Cal	1100	4/18/2011
Inter. Cal.	1231	4/18/2011
Inter. Cal.		
Inter. Cal.	1245	4/18/2011
Final Cal	1310	4/18/2011

Couplant

Cal. Batch: 09325
Type: ULTRAGEL II
Mfg.: SONOTECH
Exam Batch 09325
Type: ULTRAGEL II
Mfg.: SONOTECH

Reference Block

Serial No.: 98-6522
Type: ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
1/8	80	1.1	3.43
2/8	30	2.6	6.54
3/8	18/36	4.0	9.96
Notch	60	5.0	12.15
5/8	15	6.9	16.52

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
36.8	2" Radius	80	.7	2.0

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)
Results: Accept ☐ Reject ☑ Info ☐
Comments:
Percent Of Coverage Obtained > 80%: No Reviewed Previous Data: Yes

Examiner	Level II-N	Signature	Date	Reviewed		Signature	Date
Mauldin, Larry E.		Larry E Mauldin	4/18/2011	Gary A Moss			4-20-11
Examiner	Level II-N	Signature	Date	Site Review		Signature	Date
Muirhead, Barry A.		Barry Muirhead	4/18/2011	N/A			
Other	Level N/A	Signature	Date	ANII Review:		Signature	Date
N/A				Nancy C Ritchie Stanfield			4/20/11

ATTACHMENT A
PAGE 4 OF 162

DUKE POWER COMPANY

ISI LIMITATION REPORT

Component/Weld ID: 1-PZR-WP26-3 **Item No:** 01.B3.110.0011

remarks: Due to 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 1.0" 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

UT-11-771

Sketch(s) attached ☒ yes ☐ No

Prepared By: Larry Mauldin Level: II Date: 04/18/11 Sheet 4 of 9

Reviewed By: Date: 4-20-11 Authorized Inspector: Date:

ATTACHMENT A
PAGE 5 OF 162

Item No. : 01.B3.110.0011

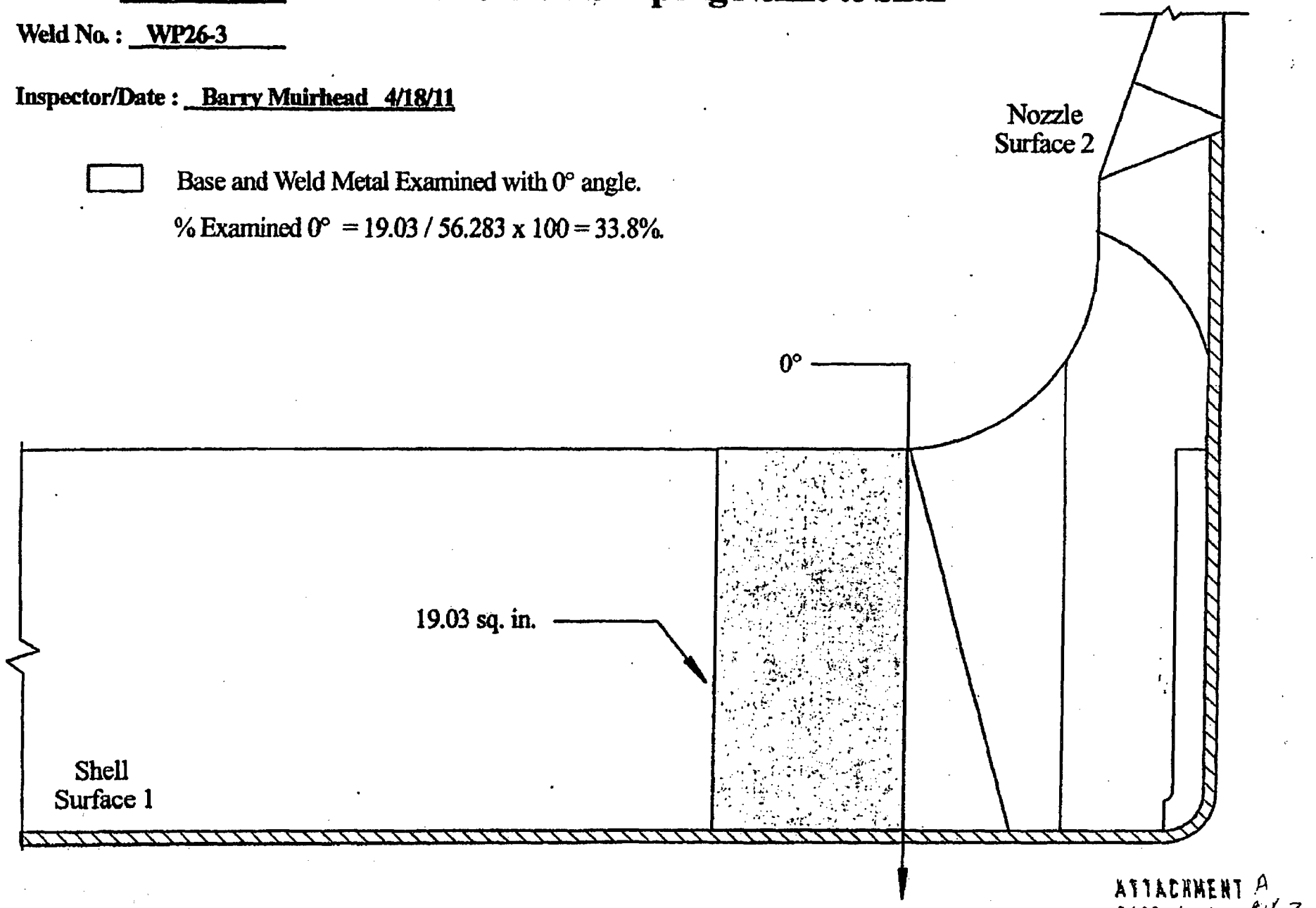
Weld No. : WP26-3

Inspector/Date : Barry Muirhead 4/18/11

Pressurizer Sampling Nozzle to Shell

Base and Weld Metal Examined with 0° angle.

% Examined 0° = 19.03 / 56.283 x 100 = 33.8%.



Pressurizer Sampling Nozzle to Shell

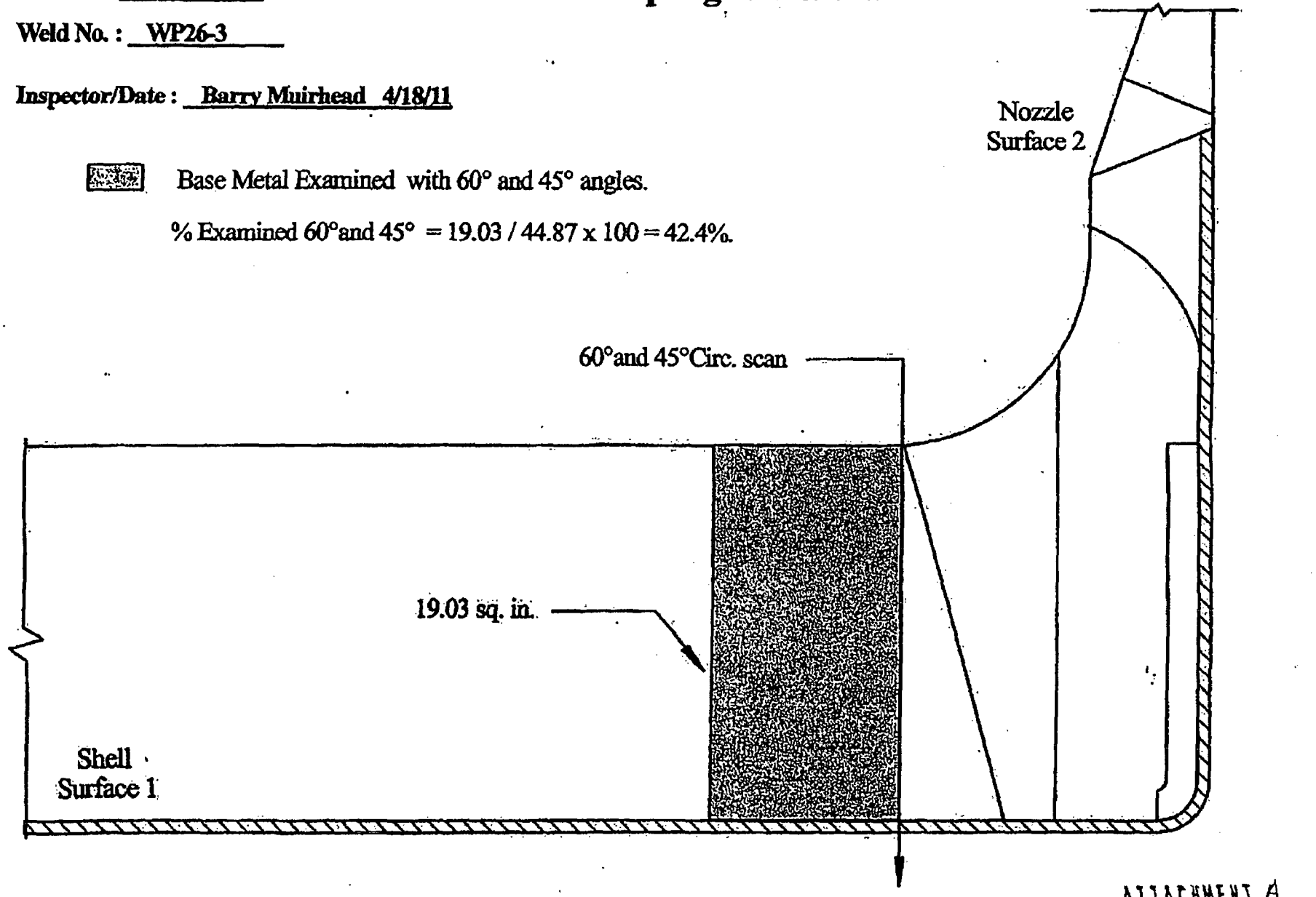
Item No. : 01,B3.110.0011

Weld No. : WP26-3

Inspector/Date : Barry Muirhead 4/18/11

Base Metal Examined with 60° and 45° angles.

% Examined 60°and 45° = 19.03 / 44.87 x 100 = 42.4%.



Pressurizer Sampling Nozzle to Shell

Item No. : 01.B3.110.0011

Weld No. : WP26-3

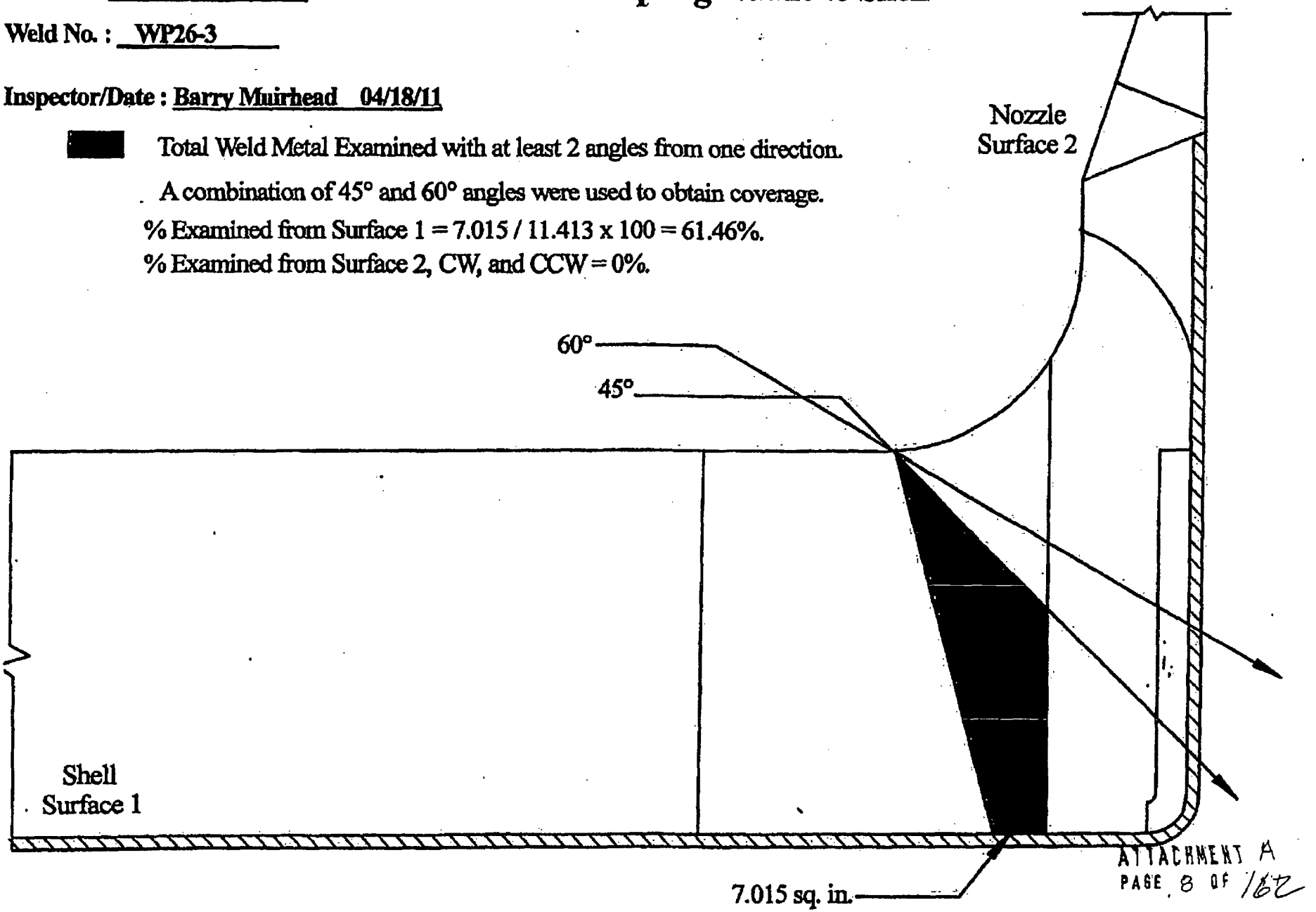
Inspector/Date : Barry Muirhead 04/18/11

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

A combination of 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%.



Item No. : 01.B3.110.0011

Pressurizer Sampling Nozzle to Shell

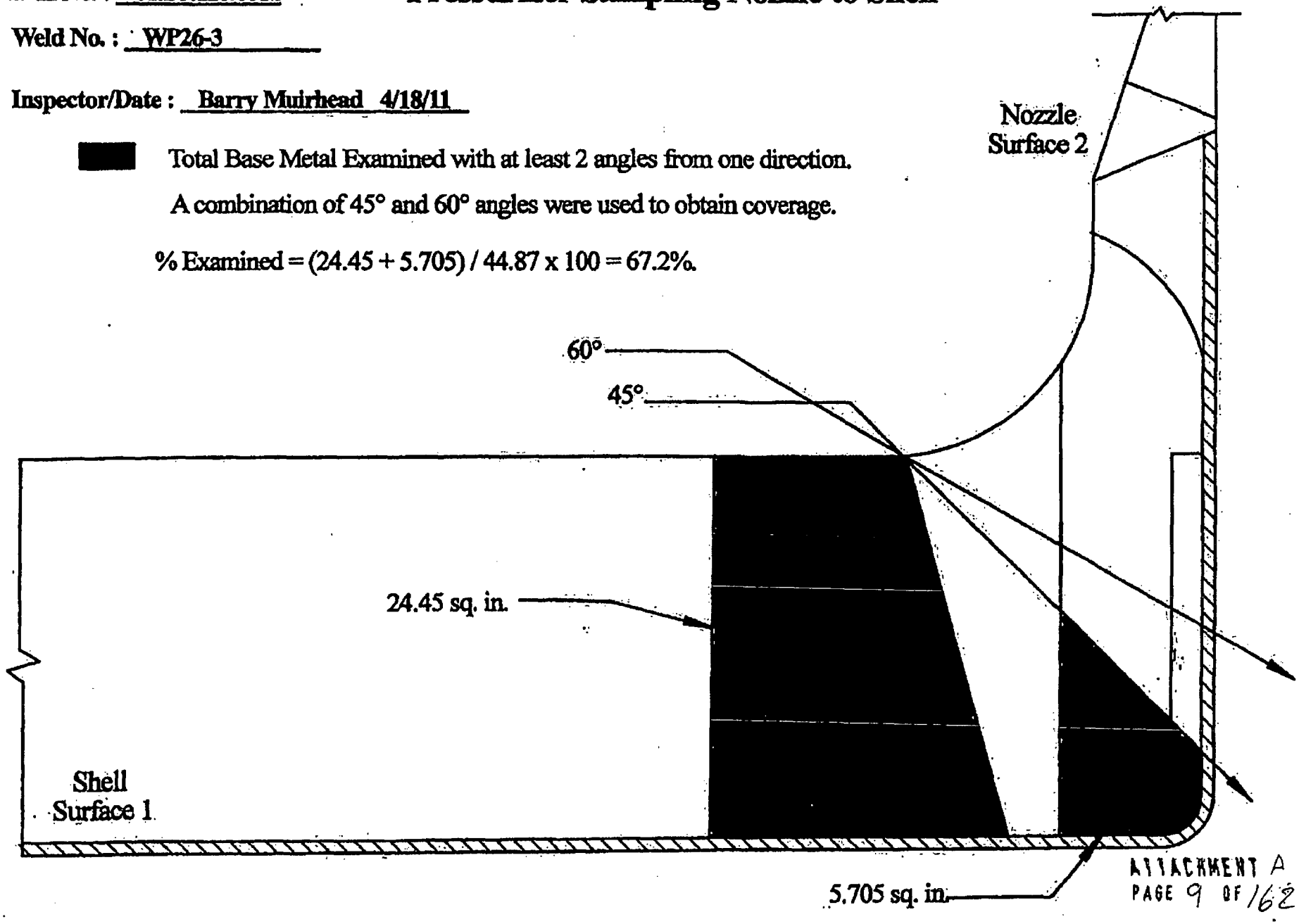
Weld No. : WP26-3

Inspector/Date : Barry Muirhead 4/18/11

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

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

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



ATTACHMENT A
PAGE 10 OF 162

PZR Sampling Nozzle to Shell % of Coverage

Item No. : 01.B3.110.0011 **Weld No. :** WP26-3

Weld Coverage

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

61.46 + 4 = **15.4** % Coverage

Base Material Coverage

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

109.6 + 2 = **54.8** % Coverage

0° Scan Coverage = **33.8** % Coverage

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

= **34.7** % Coverage

Inspector / Date : David K. Smith III / 4/20/11

UT Calibration / Examination

Site/Unit: Oconee / 1 | Procedure: NDE-640 | Outage No.: O1-26
Summary No.: O1.B3.110.0012 | Procedure Rev.: 5 | Report No.: UT-11-772
Workscope: ISI | Work Order No.: 01697577 | Page: 1 of 1

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-WP26-7 | Size/Length: N/A | Thickness/Diameter: CS/6.187/5.75
Limitations: See TD report | Start Time: 1208 | Finish Time: 1215

Instrument Settings

Serial No.:	00TJXT		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	1.0359	Range:	10.0
M'ti Cal/Vel:	.233	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2.25 MHz
Filter:	Fixed	Mode:	PE
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	31.3	Circ. Gain (dB):	N/A

1 Screen Div. = 1.0 In. of Sound Path
Linearity Report No.: L-11-136

Calibration Block

Cal. Block No. 40338
Thickness 6.187 Dia.: 5.750
Cal. Blk. Temp. 71 Temp. Tool: MCNDE40127
Comp. Temp. 79 Temp. Tool: MCNDE40128

Search Unit

Serial No.:	C12004SP		
Manufacturer:	KBA		
Size:	1.0	Shape:	Round
Freq.:	2.25 MHz	Style:	Gamma
Exam Angle:	0	# of Elements:	Single
Mode:	Long.		
Measured Angle:	N/A		
Wedge Style:	Integral		

Search Unit Cable

Type: RG - 174
Length: 6' No. Conn.: 0

Scan Coverage

Upstream ☑ Downstream ☑ Scan dB: 37.3
CW ☐ CCW ☐ Scan dB: N/A
Exam Surface: OD
Surface Condition: As Ground

Cal. Checks	Time	Date
Initial Cal	1059	4/18/2011
Inter. Cal.	1200	4/18/2011
Inter. Cal.		
Inter. Cal.	1215	4/18/2011
Final Cal	1305	4/18/2011

Couplant

Cal. Batch: 09325
Type: ULTRAGEL II
Mfg.: SONOTECH
Exam Batch 09325
Type: ULTRAGEL II
Mfg.: SONOTECH

Reference Block

Serial No.: 96-6522
Type: ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
1/8	80	1.65	1.64
2/8	70	3.3	3.3
3/8	65	5.0	5.05

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
14.9	BW	80	1.0	1.0

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)
Results: Accept ☐ Reject ☑ Info ☐
Comments: N/A
Percent Of Coverage Obtained > 90%: No Reviewed Previous Data: Yes

Examiner	Level II-N	Signature	Date	Reviewer		Signature	Date
Mauldin, Larry E.		Larry E Mauldin	4/18/2011		Dan Mon		4-20-11
Examiner	Level II-N	Signature	Date	Site Review	N/A	Signature	Date
Muthead, Barry A.		Barry Muthead	4/18/2011				
Other	Level N/A	Signature	Date	ANII Review	Nancy C Ritchie Shayfetz	Signature	Date
N/A							4/20/11

ATTACHMENT A
PAGE 11 OF 12

UT Calibration [illegible]amination

Site/Unit: Oconee / 1 | Procedure: NDE-820 | Outage No.: O1-26
Summary No.: O1.B3.110.0012 | Procedure Rev.: 6 | Report No.: UT-11-773
Workscope: ISI | Work Order No.: 01697577 | Page: 1 of 9

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-WP26-7 | Size/Length: N/A | Thickness/Diameter: CS/6.187/5.75
Limitations: Yes - See attached sheets | Start Time: 1223 | Finish Time: 1230

Instrument Settings

Serial No.:	00TJXT		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	11.31	Range:	15.0
M'll Cal/Vel:	.1268	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2.25 MHz
Filter:	Fixed	Mode:	PE
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	46.1/52.1	Circ. Gain (dB):	N/A

1 Screen Div. = 1.5 In. of Sound Path

Linearity Report No.: L-11-138

Calibration Block

Cal. Block No. 40338
Thickness 7 Dia.: .. 5.750
Cal. Blk. Temp. 71 Temp. Tool: MCNDE40127
Comp. Temp. 78 Temp. Tool: MCNDE40128

Search Unit

Serial No.: G14818
Manufacturer: KBA
Size: .5x1.0 Shape: Rect.
Freq.: 2.25 MHz Style: Gamma
Exam Angle: 45 # of Elements: Single
Mode: Shear
Measured Angle: 45
Wedge Style: SWS

Search Unit Cable

Type: RG - 174
Length: 6' No. Conn.: 0

Scan Coverage

Upstream ☑ Downstream ☑ Scan dB: 66.1
CW ☑ CCW ☑ Scan dB: 66.1
Exam Surface: OD
Surface Condition: As Ground

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Results: Accept ☐ Reject ☑ Info ☐

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

Cal. Checks	Time	Date
Initial Cal	1055	4/18/2011
Inter. Cal.	1216	4/18/2011
Inter. Cal.		
Inter. Cal.	1230	4/18/2011
Final Cal	1300	4/18/2011

Couplant

Cal. Batch: 09325
Type: ULTRAGEL II
Mfg.: SONOTECH
Exam Batch 09325
Type: ULTRAGEL II
Mfg.: SONOTECH

Reference Block

Serial No.: 96-6522
Type: ROMPAS

Comments:

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
1/8	80	1.4	2.24
2/8	35	3.0	4.70
3/8	20/40	4.8	6.99
Notch	35	5.6	9.81
5/8	15	8.1	12.19

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
32.2	2" Radius	80	1.3	2.0

Examiner	Level		Signature	Date
Mauldin, Larry E.	II-N		Larry E Mauldin	4/18/2011
Examiner	Level		Signature	Date
Muirhead, Barry A.	II-N		Barry Muirhead	4/18/2011
Other	Level		Signature	Date
N/A	N/A			

Reviewer	Signature	Date
	[illegible]	4-20-11
Site Review	Signature	Date
SJA		
ANII Review	Signature	Date
Nancy C Ritchie Shuffstall		4/29/11

ATTACHMENT A
PAGE 12 OF 162

UT Calibration — amination

Site/Unit: Oconee / 1 | Procedure: NDE-820 | Outage No.: O1-26
Summary No.: O1.B3.110.0012 | Procedure Rev.: 6 | Report No.: UT-11-773
Workscope: ISI | Work Order No.: 01897577 | Page: 2 of 9

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-WP28-7 | Size/Length: N/A | Thickness/Diameter: CS/6.157/5.75
Limitations: Yes - See attached sheets | Start Time: 1135 | Finish Time: 1150

Instrument Settings

Serial No.:	00TJXT		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	14.0744	Range:	5.0"
M'll Cal/Vel:	.1268	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2.25 MHz
Filter:	Fixed	Mode:	PE
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	44.1	Circ. Gain (dB):	58.1

1 Screen Div. = .5 In. of Sound Path
Linearity Report No.: L-11-138

Calibration Block

Cal. Block No. 40338
Thickness 7 Dia.: .. Flat
Cal. Blk. Temp. 71 Temp. Tool: MCNDE40127
Comp. Temp. 76 Temp. Tool: MCNDE40128

Search Unit

Serial No.: G14819
Manufacturer: KBA
Size: .5x1.0 Shape: Rect.
Freq.: 2.25 MHz Style: GAMMA
Exam Angle: 60 # of Elements: Single
Mode: Shear
Measured Angle: 60
Wedge Style: SWS

Search Unit Cable

Type: RG - 174
Length: 6' No. Conn.: 0

Scan Coverage

Upstream ☑ Downstream ☑ Scan dB: 58.1
CW ☑ CCW ☑ Scan dB: 58.1
Exam Surface: O.D.
Surface Condition: As Ground

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Results: Accept ☐ Reject ☑ Info ☐

Cal. Checks	Time	Date
Initial Cal	1110	4/18/2011
Inter. Cal.	1120	4/18/2011
Inter. Cal.		
Inter. Cal.	1150	4/18/2011
Final Cal	1312	4/18/2011

Couplant

Cal. Batch: 09325
Type: ULTRAGEL II
Mfg.: SONOTECH
Exam Batch 09325
Type: ULTRAGEL II
Mfg.: SONOTECH

Reference Block

Serial No.: 98-0522
Type: ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
.5"	80	2.0	1.0
1.0"	70	4.0	2.0
1.5"	58	6.0	3.0
2.0"	4.0	8.0	4.0
1/4T	60	7.0	3.42

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
38.6	2" Radius	80	8.0	2.0

Comments:

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

Examiner: Mauldin, Larry E.	Level: II-N	Signature: Larry E. Mauldin	Date: 4/18/2011	Reviewer: Larry Mauldin	Signature:	Date: 4-20-11
Examiner: Muirhead, Barry A.	Level: II-N	Signature: Barry Muirhead	Date: 4/18/2011	Site Review: N/A	Signature:	Date:
Other: N/A	Level: N/A	Signature:	Date:	ANII Review: Ronny C Ritchie Shipston	Signature:	Date: 4/20/11

ATTACHMENT A
PAGE 13 OF 162

UT Calibration [redacted]amination

Site/Unit:	Oconee / 1	Procedure:	NDE-820	Outage No.:	O1-25
Summary No.:	O1.B3.110.0012	Procedure Rev.:	6	Report No.:	UT-11-773
Workscope:	ISI	Work Order No.:	01897577	Page:	3 of 9

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-WP26-7	Size/Length:	N/A	Thickness/Diameter:	CS/6.187/5.75
Limitations:	Yes - See attached sheets	Start Time:	1239	Finish Time:	1245

Instrument Settings

Serial No.:	00TJXT		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	14.0744	Range:	25.0
M'll Cal/Vel:	.1268	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2.25 MHz
Filter:	Fixed	Mode:	PE
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	56.6/62.6	Circ. Gain (dB):	76.6

1 Screen Div. = 2.5 In. of Sound Path

Linearity Report No.: L-11-138

Calibration Block

Cal. Block No.	40338		
Thickness	7	Dia.:	5.75
Cal. Blk. Temp.	71	Temp. Tool:	MCNDE40127
Comp. Temp.	78	Temp. Tool:	MCNDE40128

Search Unit

Serial No.:	G14819		
Manufacturer:	KBA		
Size:	.5x1.0	Shape:	Rect.
Freq.:	2.25 MHz	Style:	GAMMA
Exam Angle:	60	# of Elements:	Single
Mode:	Shear		
Measured Angle:	60		
Wedge Style:	SWS		

Search Unit Cable

Type:	RG - 174		
Length:	6'	No. Conn.:	0

Scan Coverage

Upstream ☑ Downstream ☑ Scan dB: 76.6

CW ☑ CCW ☑ Scan dB: 76.6

Exam Surface: O.D.

Surface Condition: As Ground

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Cal. Checks	Time	Date
Initial Cal	1100	4/18/2011
Inter. Cal.	1231	4/18/2011
Inter. Cal.		
Inter. Cal.	1245	4/18/2011
Final Cal	1310	4/18/2011

Couplant

Cal. Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH
Exam Batch	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH

Reference Block

Serial No.:	98-6522
Type:	ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
1/8	80	1.1	3.43
2/8	30	2.6	6.54
3/8	18/36	4.0	9.96
Notch	60	5.0	12.15
5/8	15	6.9	16.82

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
38.8	2" Radius	80	.7	2.0

Results: Accept ☐ Reject ☑ Info ☐

Comments:

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

Examiner	Level II-N	Signature	Date	Reviewer		Signature	Date
Mauldin, Larry E.		Larry E. Mauldin	4/18/2011	Gary A. Moss			4-20-11
Examiner	Level II-N	Signature	Date	Site Review		Signature	Date
Muirhead, Barry A.		Barry Muirhead	4/18/2011	N/A			
Other	Level N/A	Signature	Date	ANII Review		Signature	Date
N/A				Nancy C. Ritchie Shoffner			4/20/11

ATTACHMENT A
PAGE 14 OF 162

DUKE POWER COMPANY
ISI LIMITATION REPORT

Component/Weld ID: 1-PZR-WP26-7 **Item No:** 01.B3.110.0012

remarks: Due to nozzle configuration.

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

FROM L N/A to L N/A INCHES FROM W0 1.0" to Beyond

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

	SURFACE	BEAM DIRECTION
☐ NO SCAN		
☐ 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

	SURFACE	BEAM DIRECTION
☐ NO SCAN		
☐ 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

	SURFACE	BEAM DIRECTION
☐ NO SCAN		
☐ 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

UT-11-773

Sketch(s) attached ☒ yes ☐ No

Prepared By: Larry Mauldin Level: II Date: 04/18/11 Sheet 4 of 9

Reviewed By: Date:

Authorized Inspector: Date: 4/20/11

ATTACHMENT A
PAGE 15 OF 162

Item No. : 01.B3.110.0012

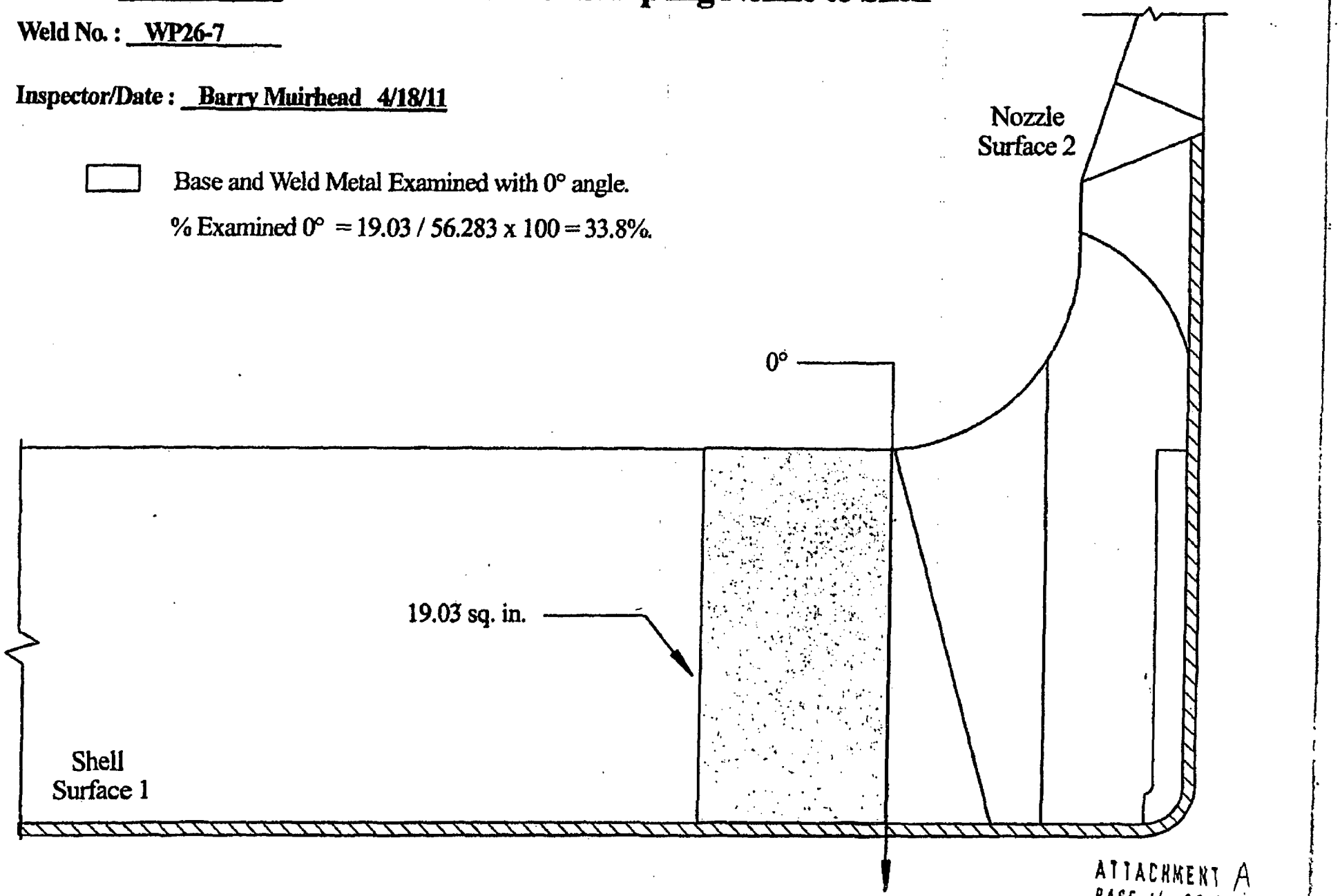
Weld No. : WP26-7

Inspector/Date : Barry Muirhead 4/18/11

Pressurizer Sampling Nozzle to Shell

Base and Weld Metal Examined with 0° angle.

% Examined 0° = 19.03 / 56.283 x 100 = 33.8%.



Item No. : 01.B3.110.0012

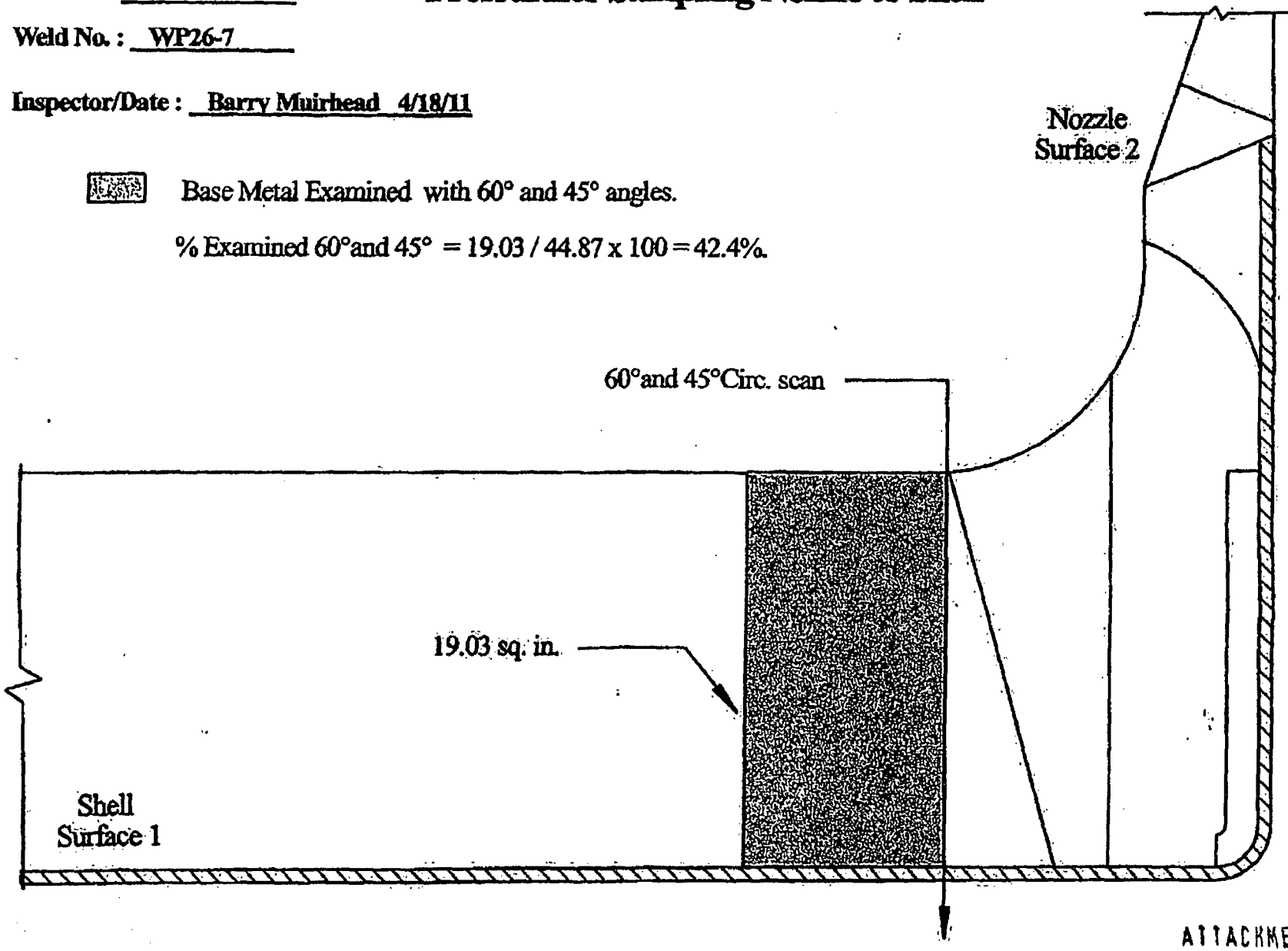
Weld No. : WP26-7

Inspector/Date : Barry Muirhead 4/18/11

Pressurizer Sampling Nozzle to Shell

Base Metal Examined with 60° and 45° angles.

% Examined 60°and 45° = 19.03 / 44.87 x 100 = 42.4%.



Item No. : 01.B3.110.0012

Pressurizer Sampling Nozzle to Shell

Weld No. : WP26-7

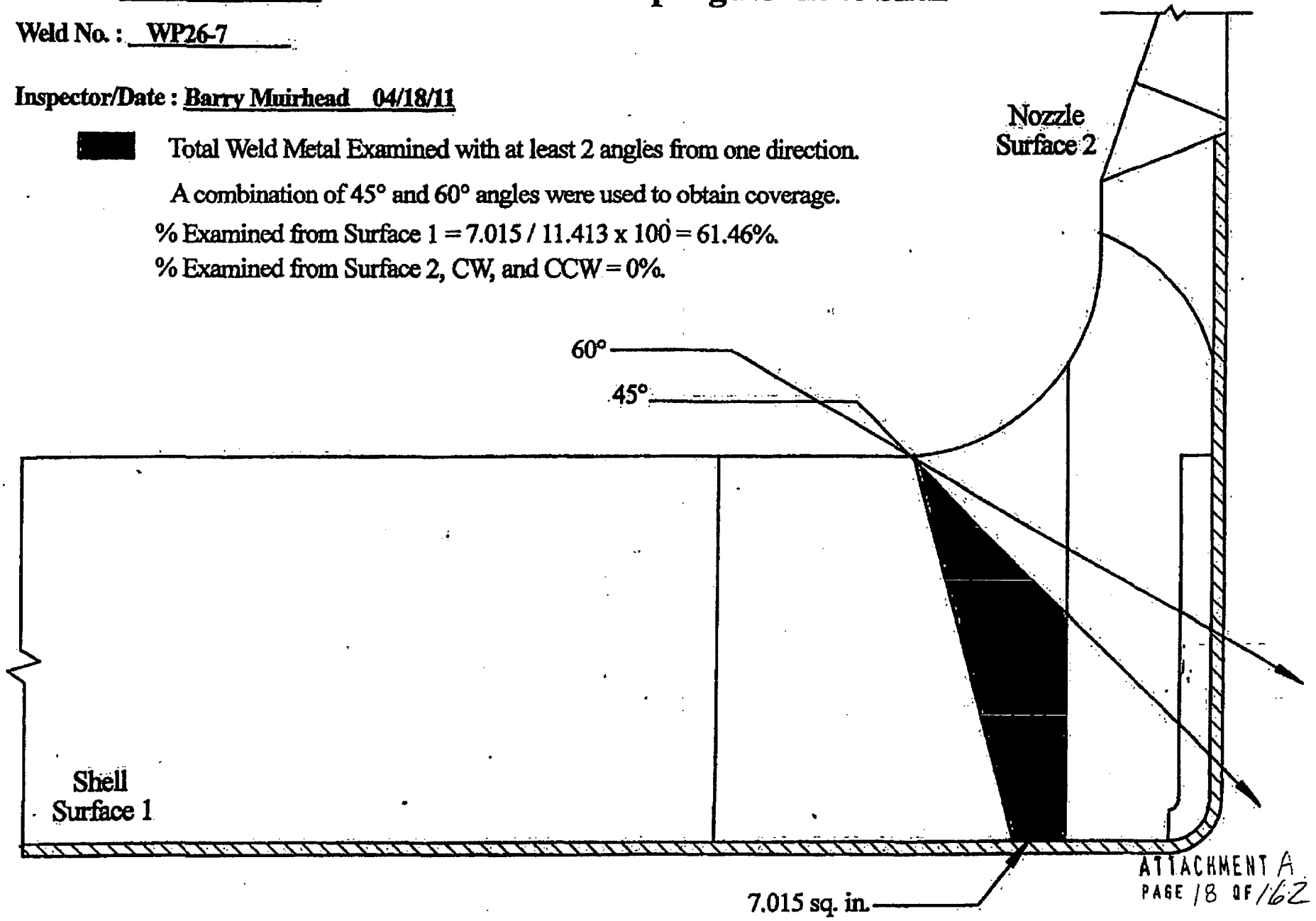
Inspector/Date : Barry Muirhead 04/18/11

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

A combination of 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%.



Item No. : 01.B3.110.0012

Pressurizer Sampling Nozzle to Shell

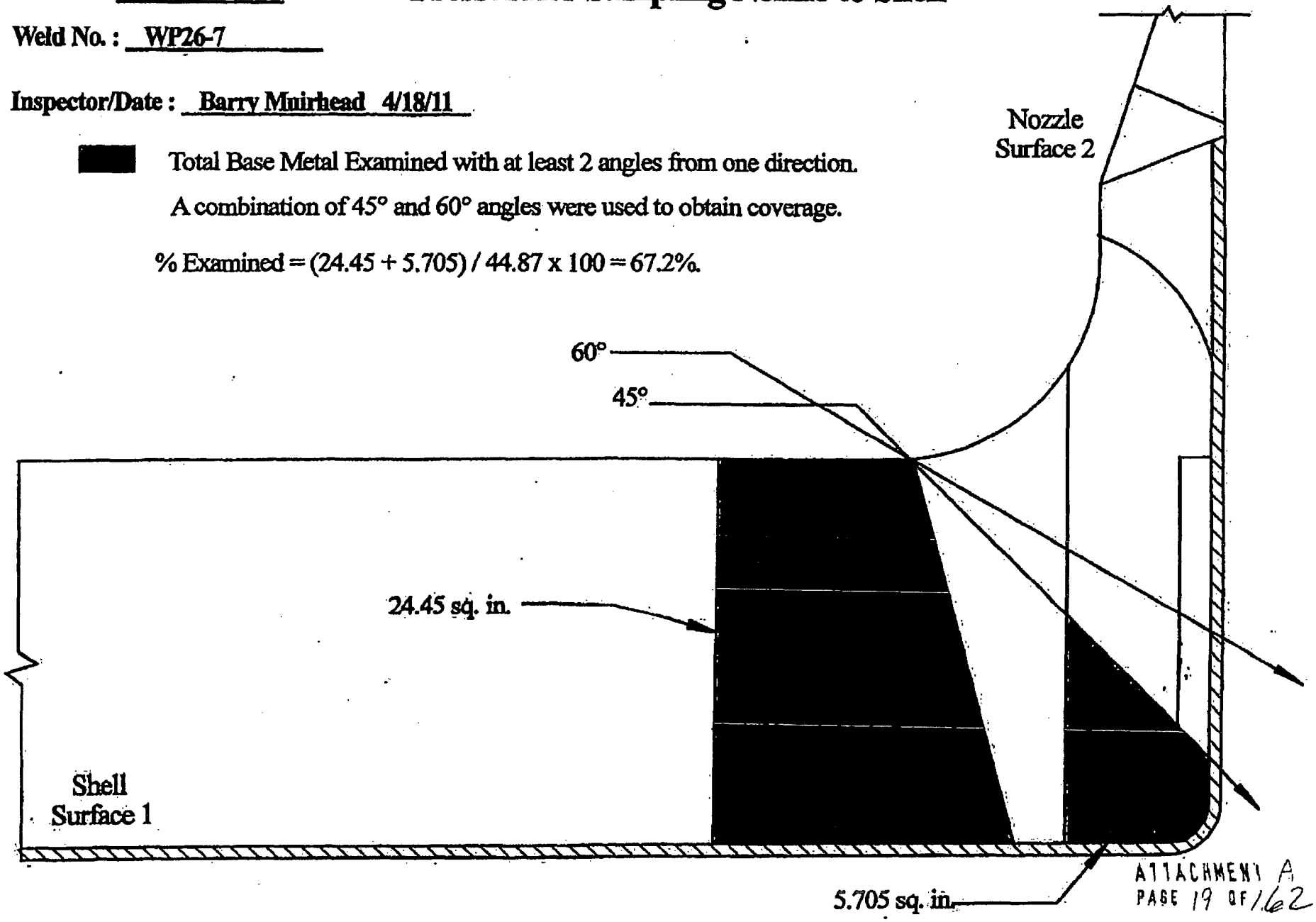
Weld No. : WP26-7

Inspector/Date : Barry Muirhead 4/18/11

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

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

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



ATTACHMENT F
PAGE 20 OF 162

PZR Sampling Nozzle to Shell % of Coverage

Item No. : 01.B3.110.0012 **Weld No. :** WP26-7

Weld Coverage

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

61.46 ÷ 4 = **15.4** % Coverage

Base Material Coverage

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

109.6 ÷ 2 = **54.8** % Coverage

0° Scan Coverage = **33.8** % Coverage

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

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

Inspector / Date : David E. Ellis 4/6/05

UT Calibration/Examination

Site/Unit: Oconee / 1 | Procedure: PDI-UT-2 | Outage No.: O1-26
Summary No.: O1.B9.11.0029 | Procedure Rev.: E | Report No.: UT-11-757
Workscope: ISI | Work Order No.: 01897774 | Page: 1 of 6

Code: 1998/2000A | Cat./Item: B-J /B9.11 | Location:
Drawing No.: ISI-OCN1-009 | Description: Nozzle to Safe End
System ID: 50
Component ID: 1-PIB1-9 | Size/Length: N/A | Thickness/Diameter: SS/2.33/36.5
Limitations: Yes - See attached sheets | Start Time: 1400 | Finish Time: 1415

Instrument Settings

Serial No.:	014738		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60 SW		
Delay:	5.8947	Range:	8
M'U Cal/Vel:	.1211	Pulser:	Square
Damping:	500	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2.25 MHz
Filter:	Fixed	Mode:	PE
Voltage:	450	Other:	Fullwave
Ax. Gain (dB):	27.7	Circ. Gain (dB):	27.7

1 Screen Div. = .8 In. of Sound Path
Linearity Report No.: L-11-142

Calibration Block

Cal. Block No. 40397
Thickness 3.000 Dia.: Flat
Cal. Blk. Temp. 76 Temp. Tool: MCNDE40136
Comp. Temp. 76 Temp. Tool: MCNDE40136

Search Unit

Serial No.:	01F10K		
Manufacturer:	KBA		
Size:	.5	Shape:	Round
Freq.:	2.25 MHz	Style:	Comp - G
Exam Angle:	45	# of Elements:	Single
Mode:	Shear		
Measured Angle:	42		
Wedge Style:	MSWQC		

Search Unit Cable

Type: RG - 174
Length: 6' No. Conn.: 0

Scan Coverage

Upstream ☑ Downstream ☐ Scan dB: 40
CW ☑ CCW ☑ Scan dB: 40
Exam Surface: O.D.
Surface Condition: As Ground

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Results: Accept ☐ Reject ☑ Info ☐

Cal. Checks	Time	Date
Initial Cal	1340	4/17/2011
Inter. Cal.		
Inter. Cal.	1359	4/17/2011
Inter. Cal.		
Final Cal	1550	4/17/2011

Couplant

Cal. Batch: 09325
Type: ULTRAGEL II
Mfg.: SONOTECH
Exam Batch 09325
Type: ULTRAGEL II
Mfg.: SONOTECH

Reference Block

Serial No.: 04-6737
Type: ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
ID Notch	80	6	4.03

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
See Axial			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
13.7	1" Radius	80	1.3	1"

Comments: N/A

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

Examiner: Hollis, Jacob	Level: II-N	Signature: Jacob R. Hollis	Date: 4/17/2011	Reviewer: Gary J. Mans	Signature:	Date: 4-21-11
Examiner: Day, John, C.	Level: II-N	Signature: John C. Day	Date: 4/17/2011	Site Review: N/A	Signature:	Date:
Other: N/A	Level: N/A	Signature:	Date:	ANII/Review: Nancy C. Ritchie Slaughter	Signature:	Date: 4/21/11

UT Calibration/Examination

[redacted]

Site/Unit: Oconee / 1 | Procedure: PDI-UT-2 | Outage No.: 01-26
Summary No.: 01.B9.11.0029 | Procedure Rev.: E | Report No.: UT-11-757
Workscope: ISI | Work Order No.: 01897774 | Page: 2 of 8

Code: 1998/2000A | Cat./Item: B-J /B9.11 | Location:
Drawing No.: ISI-OCN1-009 | Description: Nozzle to Safe End
System ID: 50
Component ID: 1-PIB1-8 | Size/Length: N/A | Thickness/Diameter: SS/2.33/36.5
Limitations: Yes - See attached sheets | Start Time: 1417 | Finish Time: 1425

Instrument Settings

Serial No.:	014738		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60 SW		
Delay:	6.2934	Range:	10
M'U Cal/Vel:	.1225	Pulser:	Square
Damping:	500	Reject:	0%
Rep. Rate:	AutoHigh	Freq.:	2.25 MHz
Filter:	Fixed	Mode:	PE
Voltage:	450	Other:	Fullwave
Ax. Gain (dB):	45.3	Circ. Gain (dB):	N/A

1 Screen Div. = 1.0 in. of Sound Path
Linearity Report No.: L-11-142

Calibration Block

Cal. Block No. 40397
Thickness 3.000 Dia.: Flat
Cal. Blk. Temp. 76 Temp. Tool: MCNDE40136
Comp. Temp. 76 Temp. Tool: MCNDE40136

Search Unit

Serial No.:	SE0708		
Manufacturer:	KBA		
Size:	.5	Shape:	Round
Freq.:	2.25 MHz	Style:	Comp - G
Exam Angle:	60	# of Elements:	Single
Mode:	Shear		
Measured Angle:	57		
Wedge Style:	MSWQC		

Search Unit Cable

Type: RG - 174
Length: 6' No. Conn.: 0

Scan Coverage

Upstream ☑ Downstream ☐ Scan dB: 51.3
CW ☐ CCW ☐ Scan dB: N/A
Exam Surface: O.D.
Surface Condition: As Ground

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Results: Accept ☐ Reject ☑ Info ☐

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

Cal. Checks	Time	Date
Initial Cal	1345	4/17/2011
Inter. Cal.		
Inter. Cal.	1416	4/17/2011
Inter. Cal.		
Final Cal	1565	4/17/2011

Couplant

Cal. Batch: 09325
Type: ULTRAGEL II
Mfg.: SONOTECH
Exam Batch 09325
Type: ULTRAGEL II
Mfg.: SONOTECH

Reference Block

Serial No.: 04-8737
Type: ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
3/4 SDH	80	3.9	3.85

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
15.0	1" Radius	80	1	1"

Comments: N/A

Examiner	Level II-N	Signature	Date	Reviewer		Signature	Date
Hollis, Jacob		Jacob R Hollis	4/17/2011			Gary J Moss	4-21-11
Examiner	Level II-N	Signature	Date	Site Review		Signature	Date
Day, John, C.		John C Day	4/17/2011		N/A		
Other	Level N/A	Signature	Date	ANII Review		Signature	Date
N/A						Nancy C Ritchie Stoughton	4/21/11

ATTACHMENT 1
PAGE 22 OF 162

UT Calibration/Examination

Site/Unit:	Oconee / 1	Procedure:	PDI-UT-2	Outage No.:	O1-26
Summary No.:	O1.B9.11.0029	Procedure Rev.:	E	Report No.:	UT-11-757
Workscope:	ISI	Work Order No.:	01897774	Page:	3 of 8

Code:	1998/2000A	Cat./Item:	B-J /B9.11	Location:	
Drawing No.:	ISI-OCN1-009	Description:	Nozzle to Safe End		
System ID:	50				
Component ID:	1-PIB1-9	Size/Length:	N/A	Thickness/Diameter:	SS/2.33/36.5
Limitations:	Yes - See attached sheets	Start Time:	1427	Finish Time:	1435

Instrument Settings

Serial No.:	014735		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60 SW		
Delay:	9.6613	Range:	15
M'll Cal/Vel:	.1226	Pulser:	Square
Damping:	500	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2.25 MHz
Filter:	Fixed	Mode:	PE
Voltage:	450	Other:	Fullwave
Ax. Gain (dB):	56	Circ. Gain (dB):	N/A

1 Screen Div. = 1.5 In. of Sound Path

Linearity Report No.: L-11-142

Calibration Block

Cal. Block No.	40397		
Thickness	3.000	Dia.:	Flat
Cal. Blk. Temp.	76	Temp. Tool:	MCNDE40136
Comp. Temp.	76	Temp. Tool:	MCNDE40136

Search Unit

Serial No.:	SE0355		
Manufacturer:	GE		
Size:	.5	Shape:	Round
Freq.:	2.25 MHz	Style:	Comp - G
Exam Angle:	70	# of Elements:	Single
Mode:	Shear		
Measured Angle:	70		
Wedge Style:	MSWQC		

Search Unit Cable

Type: RG - 174 Length: 6' No. Conn.: 0

Scan Coverage

Upstream ☑ Downstream ☐ Scan dB: 56

CW ☐ CCW ☐ Scan dB: N/A

Exam Surface: O.D.

Surface Condition: As Ground

Cal. Checks	Time	Date
Initial Cal	1350	4/17/2011
Inter. Cal.		
Inter. Cal.	1426	4/17/2011
Inter. Cal.		
Final Cal	1558	4/17/2011

Couplant

Cal. Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH
Exam Batch	09326
Type:	ULTRAGEL II
Mfg.:	SONOTECH

Reference Block

Serial No.: 04-8737

Type: ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
3/4 SDH	80	4	5.9

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
17.3	1" Radius	80	7	1"
			1	

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Results: Accept ☐ Reject ☑ Info ☐

Comments: N/A

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

Examiner	Level II-N	Signature	Date	Reviewer		Signature	Date
Hollis, Jacob		Jacob R Hollis	4/17/2011		Gary J Moss		4-20-11
Examiner	Level II-N	Signature	Date	Site Review		Signature	Date
Day, John, C.		John Day	4/17/2011		N/A		
Other	Level N/A	Signature	Date	ANII Review		Signature	Date
N/A					Nancy C Ritchie Sloyter		4/21/11

ATTACHMENT A
PAGE 23 OF 162

UT Calibration/Examination

Site/Unit:	Oconee / 1	Procedure:	PDI-UT-2	Outage No.:	O1-26
Summary No.:	O1.B9.11.0029	Procedure Rev.:	E	Report No.:	UT-11-757
Workscope:	ISI	Work Order No.:	01697774	Page:	4 of 6

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

Drawing No.: ISI-OCN1-009 Description: Nozzle to Safe End

System ID: 50

Component ID: 1-PIB1-9 Size/Length: N/A Thickness/Diameter: SS/2.33/36.5

Limitations: Yes - See attached sheets Start Time: 1437 Finish Time: 1443

Instrument Settings

Serial No.:	014738		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60 SW		
Delay:	16.6316	Range:	10
M'tl Cal/Vel:	.234	Pulser:	Square
Damping:	500	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2 MHz
Filter:	Fixed	Mode:	PE
Voltage:	450	Other:	Fullwave
Ax. Gain (dB):	62.4	Circ. Gain (dB):	N/A

1 Screen Div. = .1 In. of Sound Path

Linearity Report No.: L-11-142

Calibration Block

Cal. Block No.	40297		
Thickness	3.000	Dia.:	Flat
Cal. Blk. Temp.	76	Temp. Tool:	MCNDE40136
Comp. Temp.	76	Temp. Tool:	MCNDE40136

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Results: Accept ☐ Reject ☑ Info ☐

Search Unit

Serial No.:	98-298		
Manufacturer:	RTD		
Size:	2(24x42)	Shape:	Rect.
Freq.:	2.0 MHz	Style:	TRL2
Exam Angle:	60	# of Elements:	Dual
Mode:	Long.		
Measured Angle:	57		
Wedge Style:	Integral		

Search Unit Cable

Type:	RG - 174		
Length:	6'	No. Conn.:	0

Scan Coverage

Upstream ☑ Downstream ☐ Scan dB: 62.4

CW ☐ CCW ☐ Scan dB: N/A

Exam Surface: O.D.

Surface Condition: As Ground

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

Cal. Checks	Time	Date
Initial Cal	1355	4/17/2011
Inter. Cal.		
Inter. Cal.	1436	4/17/2011
Inter. Cal.		
Final Cal	1602	4/17/2011

Couplant

Cal. Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH
Exam Batch	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH

Reference Block

Serial No.:	04-8737
Type:	ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
3/4 SDH	80	3.9	3.88

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
64.7	2" Radius	80	2	2"

Comments: N/A

Examiner	Level II-N	Signature	Date	Reviewer		Signature	Date
Hollis, Jacob		Jacob R. Hollis	4/17/2011		Gary A Moss		4-21-11
Examiner	Level II-N	Signature	Date	Site Review		Signature	Date
Day, John, C.		John Day	4/17/2011		PDA		
Other	Level N/A	Signature	Date	ANII Review		Signature	Date
N/A					Nancy C Ritchie Sloughter		4/21/11

ATTACHMENT A
PAGE 24 OF 162

DUKE POWER COMPANY
ISI LIMITATION REPORT

Component/Weld ID: 1-PIB1-9 **Item No:** 01.B9.11.0029

remarks: Due to cast material on pump side.

	SURFACE	BEAM DIRECTION	FROM L	to L	INCHES FROM W0	to	ANGLE	FROM	DEG to	DEG
☒ NO SCAN ☐ LIMITED SCAN	☒ 1 ☐ 2	☐ 1 ☒ 2 ☒ cw ☒ ccw	N/A	N/A	CL	Beyond	☐ 0 ☒ 45 ☒ 60 other ____	0	360	
☐ NO SCAN ☐ LIMITED SCAN	☐ 1 ☐ 2	☐ 1 ☐ 2 ☐ cw ☐ ccw					☐ 0 ☐ 45 ☐ 60 other ____			
☐ NO SCAN ☐ LIMITED SCAN	☐ 1 ☐ 2	☐ 1 ☐ 2 ☐ cw ☐ ccw					☐ 0 ☐ 45 ☐ 60 other ____			
☐ NO SCAN ☐ LIMITED SCAN	☐ 1 ☐ 2	☐ 1 ☐ 2 ☐ cw ☐ ccw	N/A	N/A	2.2"	Beyond	☐ 0 ☐ 4/5 ☐ 60 other 60RL	0	360	

UT-11-757

Sketch(s) attached ☒ yes ☐ No

Prepared By: Jacob R. Hollis Level: II Date: 04/17/11 Sheet 5 of 8

Reviewed By: Date: 4-21-11 Authorized Inspector: Date: 4/21/11

ATTACHMENT A
PAGE 25 OF 162

[redacted]

Supplemental Report

Report No.: UT-11-757

Page: 6 of 8

Summary No.: 01.B9.11.0029

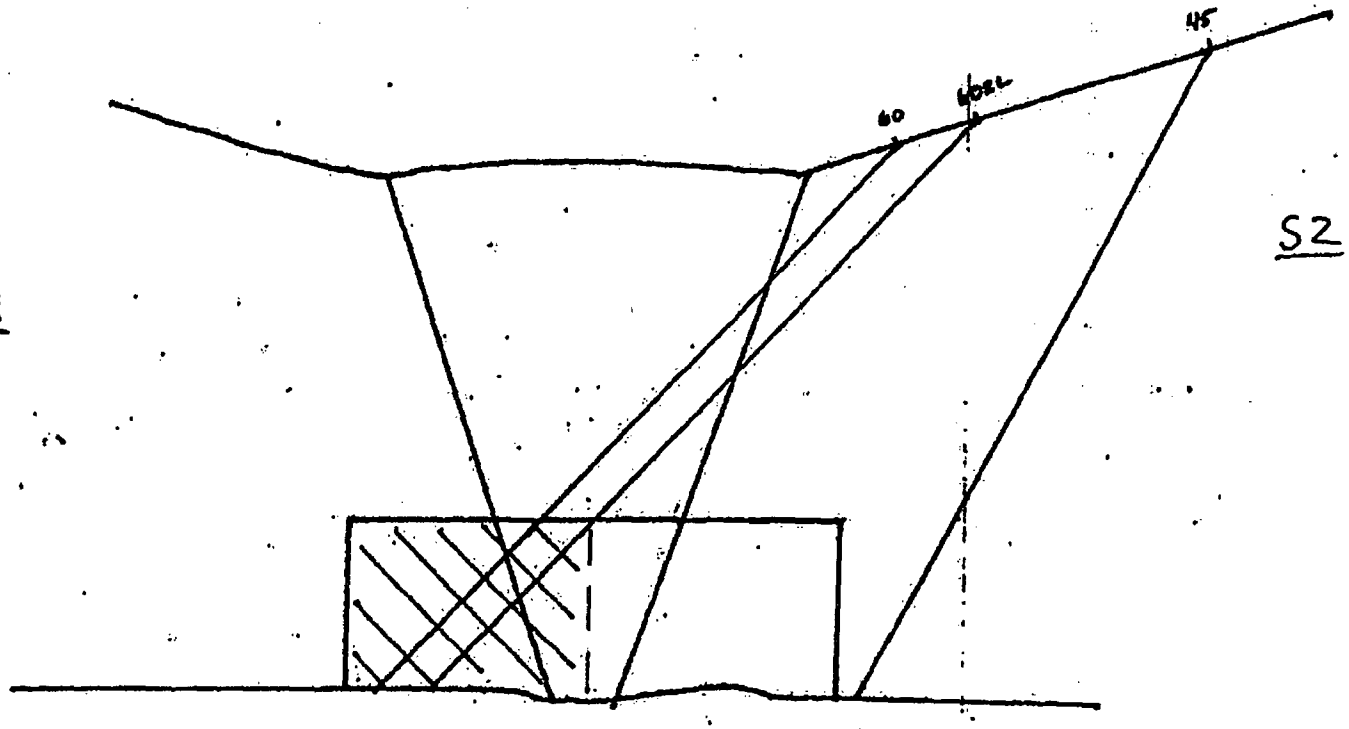
Examiner: Hollis, Jacob — Level: II-N — Reviewer: Gary J. Mors — Date: 4.21.11

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

Other: N/A — Level: N/A — ANII Review: Nancy C. Ritchie/Stoughton — Date: 4/21/11

Comments:

Sketch or Photo:



ATTACHMENT A
PAGE 26 OF 162

[redacted]

Supplemental Report

Report No.: UT-11-757

Page: 7 of 8

Summary No.: 01.B9.11.0029

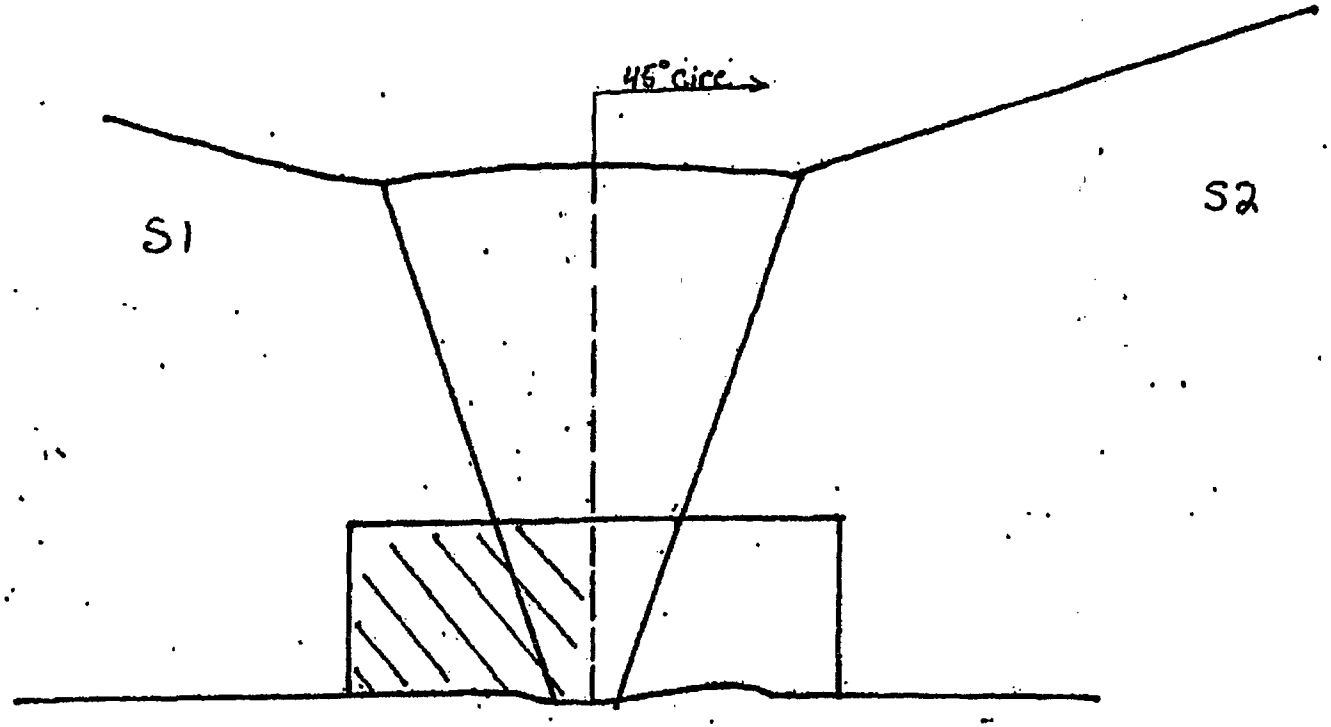
Examiner: Hollis, Jacob — Level: II-N — Reviewer: [signature] — Date: 4-21-11

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

Other: N/A — Level: N/A — ANII Review: [signature] — Date: 4/21/11

Comments:

Sketch or Photo:



ATTACHMENT A
PAGE 27 OF 162

Determination of Percent Coverage for UT Examinations - Pipe

Attachment 1
Page 28 of 162

Site/Unit:	Oconee / 1	Procedure:	PDI-UT-2	Outage No.:	O1-26
Summary No.:	O1.B9.11.0029	Procedure Rev.:	E	Report No.:	UT-11-757
Workscope:	ISI	Work Order No.:	01897774	Page:	8 of 8

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. Bj III Date: 4/21/11

UT Calibration... amination

Site/Unit: Oconee / 1 | Procedure: NDE-830 | Outage No.: O1-28
Summary No.: O1.B9.11.0029 | Procedure Rev.: 1 | Report No.: UT-11-783
Workscope: ISI | Work Order No.: 01897774 | Page: 1 of 4

Code: 1998/2000A | Cat./Item: B-J /B9.11 | Location:
Drawing No.: ISI-OCN1-009 | Description: Nozzle to Safe End
System ID: 50
Component ID: 1-PIB1-9 | Size/Length: N/A | Thickness/Diameter: SS/2.33/36.5
Limitations: Yes - See attached sheets | Start Time: 1031 | Finish Time: 1044

Instrument Settings

Serial No.:	011LW6		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	10.9419	Range:	5.0"
M'tl Cal/Vel:	.2402	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2 MHz
Filter:	Fixed	Mode:	Dual
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	74	Circ. Gain (dB):	74

1 Screen Div. = .5 In. of Sound Path
Linearity Report No.: L-11-143

Calibration Block

Cal. Block No. 50214
Thickness 2.464 Dia.: Flat
Cal. Blk. Temp. 69 Temp. Tool: MCNDE40130
Comp. Temp. 67 Temp. Tool: MCNDE40130

Search Unit

Serial No.:	09-1252		
Manufacturer:	RTD		
Size:	2(10x16)	Shape:	Square
Freq.:	2.0 MHZ	Style:	TRLA
Exam Angle:	70°	# of Elements:	Dual
Mode:	L-WAVE		
Measured Angle:	70		
Wedge Style:	Integral		

Search Unit Cable

Type: RG - 174
Length: 6' No. Conn.: 0

Scan Coverage

Upstream ☐ Downstream ☑ Scan dB: 74
CW ☑ CCW ☑ Scan dB: 74
Exam Surface: O.D.
Surface Condition: As Ground

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Results: Accept ☐ Reject ☑ Info ☐

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

Cal. Checks	Time	Date
Initial Cal	1010	4/18/2011
Inter. Cal.		
Inter. Cal.	1039	4/18/2011
Inter. Cal.		
Final Cal	1225	4/18/2011

Couplant

Cal. Batch: 09325
Type: ULTRAGEL II
Mfg.: SONOTECH
Exam Batch 09325
Type: ULTRAGEL II
Mfg.: SONOTECH

Reference Block

Serial No.: A09322
Type: ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
1/4T Hole	80	3.7	1.84

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
See Axial			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
40.8	2" Radius	80	4	1.98

Comments: N/A

Examiner	Level II-N	Signature	Date	Reviewer		Signature	Date
Hollis, Jacob		Jacob E Hollis	4/18/2011	Gary J Moss			4-21-11
Examiner	Level II-N	Signature	Date	Site Review		Signature	Date
Day, John, C.		JCD	4/18/2011	N/A			
Other	Level N/A	Signature	Date	ANII Review		Signature	Date
N/A				N/A			

ATTACHMENT A
PAGE 29 OF 162

UT Calibration / Examination

Site/Unit:	Oconee / 1	Procedure:	NDE-830	Outage No.:	O1-26
Summary No.:	O1.B9.11.0029	Procedure Rev.:	1	Report No.:	UT-11-783
Workscope:	ISI	Work Order No.:	01897774	Page:	2 of 4

Code:	1998/2000A	Cat./Item:	B-J /B9.11	Location:	
Drawing No.:	ISI-OCN1-009	Description:	Nozzle to Safe End		
System ID:	50				
Component ID:	1-PIB1-9			Size/Length: N/A	Thickness/Diameter: SS/2.33/36.5
Limitations:	Yes - See attached sheets			Start Time: 1045	Finish Time: 1102

Instrument Settings

Serial No.:	011LW6		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	14.8084	Range:	7.0
M'tl Cal/Vel:	.2438	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	1 MHz
Filter:	Fixed	Mode:	Dual
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	75.1	Circ. Gain (dB):	63.6

1 Screen Div. = .7 In. of Sound Path

Linearity Report No.: L-11-143

Calibration Block

Cal. Block No.	50214		
Thickness	2.464	Dia.:	Flat
Cal. Blk. Temp.	67	Temp. Tool:	MCNDE40130
Comp. Temp.	67	Temp. Tool:	MCNDE40130

Search Unit

Serial No.:	03-788		
Manufacturer:	RTD		
Size:	2(20x24)	Shape:	Square
Freq.:	1.0 MHz	Style:	TRL1
Exam Angle:	60	# of Elements:	Dual
Mode:	Long.		
Measured Angle:	60		
Wedge Style:	Integral		

Search Unit Cable

Type:	RG - 174		
Length:	6'	No. Conn.:	0

Scan Coverage

Upstream ☐ Downstream ☑ Scan dB: 75.1

CW ☑ CCW ☑ Scan dB: 75.1

Exam Surface: O.D.

Surface Condition: As Ground

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Cal. Checks	Time	Date
Initial Cal	1013	4/18/2011
Inter. Cal.		
Inter. Cal.	1044	4/18/2011
Inter. Cal.		
Final Cal	1230	4/18/2011

Couplant

Cal. Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH
Exam Batch	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH

Reference Block

Serial No.:	A09322
Type:	ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
3/4T Hole	80	4.8	3.216

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
3/4T Hole	80	5.0	3.489

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
46.8	2" Radius	80	3	2"

Results: Accept ☐ Reject ☑ Info ☐

Comments: N/A

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

Examiner	Level II-N	Signature	Date	Reviewer		Signature	Date
Hollis, Jacob		Jacob R. Hollis	4/18/2011		Gary J. Moss		4-21-11
Examiner	Level II-N	Signature	Date	Site Review		Signature	Date
Day, John, C.		John Day	4/18/2011		N/A		
Other	Level N/A	Signature	Date	ANII Review		Signature	Date
N/A					N/A		

ATTACHMENT 1
PAGE 30 OF 162

DUKE POWER COMPANY

ISI LIMITATION REPORT

Component/Weld ID: 1-PIB1-9 Item No: 01.B9.11.0029

remarks:

☐ NO SCAN SURFACE BEAM DIRECTION

☒ LIMITED SCAN ☒ 1 ☐ 2 ☒ 1 ☐ 2 ☐ cw ☐ ccw

FROM L N/A to L N/A INCHES FROM WO -2 to CL

ANGLE: ☐ 0 ☐ 45 ☐ 60 other 60RL 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 WO -1.60 to CL

ANGLE: ☐ 0 ☐ 45 ☐ 60 other 70RL 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 WO CL to Beyond

ANGLE: ☐ 0 ☐ 45 ☐ 60 other 60RL FROM N/A DEG to N/A DEG

☒ NO SCAN SURFACE BEAM DIRECTION

☐ LIMITED SCAN ☐ 1 ☒ 2 ☒ 1 ☐ 2 ☒ cw ☒ ccw

FROM L N/A to L N/A INCHES FROM WO CL to Beyond

ANGLE: ☐ 0 ☐ 4 5 ☐ 60 other 70RL FROM ____ DEG to ____ DEG

UT-11-783

Sketch(s) attached ☒ yes ☐ No

Prepared By: Jacob R. Hollis Level: II Date: 04/18/11 Sheet 3 of 4

Reviewed By: Date: 4-21-11 Authorized Inspector: N/A Date:

ATTACHMENT A
PAGE 31 OF 162

[redacted]

Supplemental Report

Report No.: UT-11-783

Page: 4 of 4

Summary No.: O1.B9.11.0029

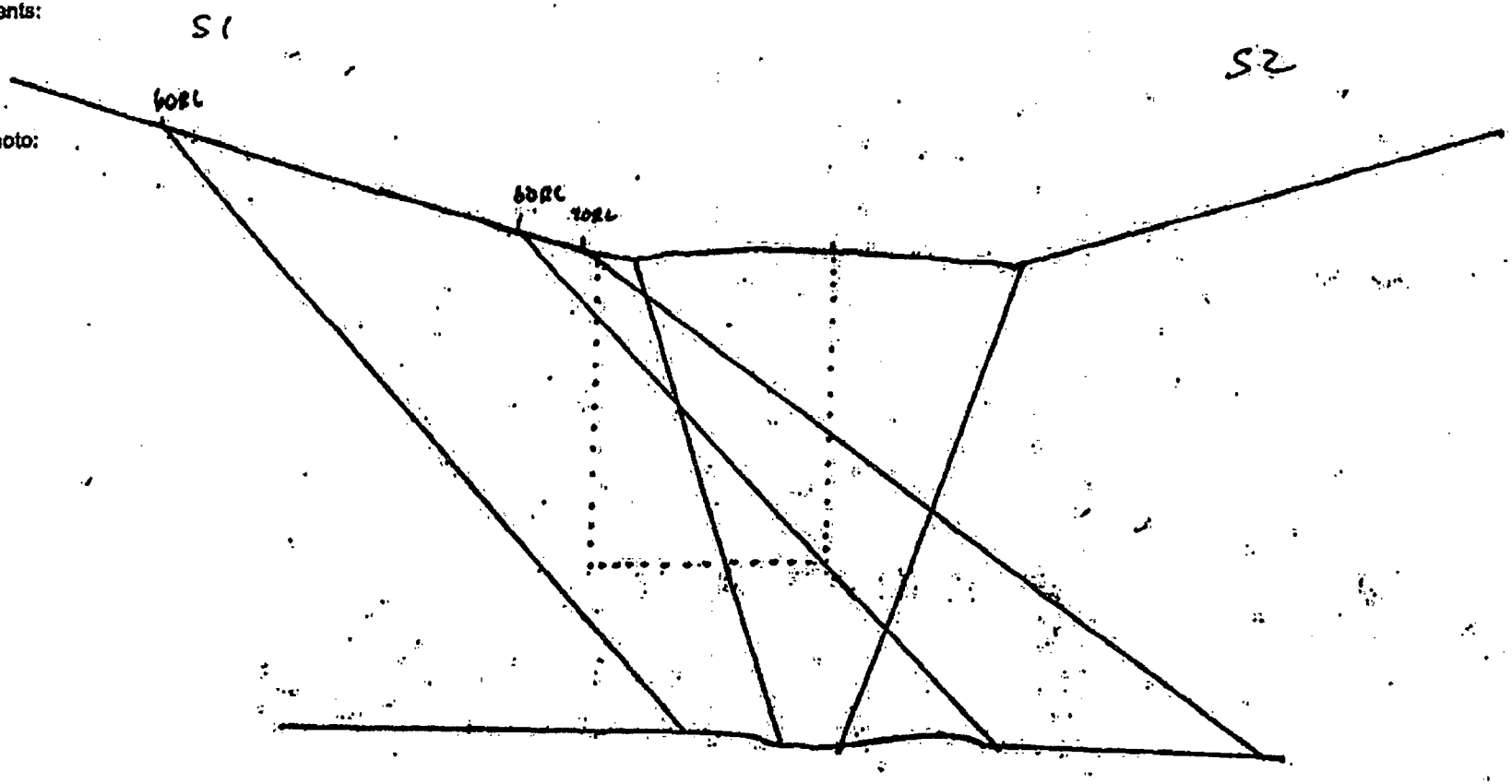
Examiner: Hollis, Jacob — Level: II-N — Reviewer: [signature] — Date: 4-21-11

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

Other: N/A — Level: N/A — ANII Review: N/A — Date:

Comments:

Sketch or Photo:



ATTACHMENT A
PAGE 32 OF 162

UT Calibration...amination

Site/Unit: Oconee / 1 | Procedure: PDI-UT-2 | Outage No.: O1-26
Summary No.: O1.B9.11.0072 | Procedure Rev.: E | Report No.: UT-11-765
Workscope: ISI | Work Order No.: 01997425 | Page: 1 of 6

Code: 1998/2000A | Cat./Item: B-J /B9.11 | Location:
Drawing No.: ISI-OCN1-013 | Description: RC Pump 1B1 to Safe end
System ID: 50
Component ID: 1-PDB1-1 | Size/Length: N/A | Thickness/Diameter: SS/2.33/33.5
Limitations: Yes - See attached sheets | Start Time: 1302 | Finish Time: 1312

Instrument Settings

Serial No.:	011MBT		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	7.5947	Range:	8.00
M'd Cal/Vel:	.1268	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2.25 MHz
Filter:	Fixed	Mode:	PE
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	58.8	Circ. Gain (dB):	58.8

1 Screen Div. = .8 In. of Sound Path
Linearity Report No.: L-11-139

Calibration Block

Cal. Block No.: 40397
Thickness: 3.000 | Dia.: Flat
Cal. Blk. Temp.: 67 | Temp. Tool: MCNDE40130
Comp. Temp.: 70.5 | Temp. Tool: MCNDE40130

Search Unit

Serial No.:	0105LJ		
Manufacturer:	KBA		
Size:	0.5	Shape:	Round
Freq.:	2.25 MHz	Style:	Comp - G
Exam Angle:	45	# of Elements:	Single
Mode:	Shear		
Measured Angle:	45		
Wedge Style:	MSWQC		

Search Unit Cable

Type: RG - 174
Length: 5' | No. Conn.: 0

Scan Coverage

Upstream ☐ Downstream ☑ Scan dB: 58.8
CW ☑ CCW ☑ Scan dB: 58.8
Exam Surface: O.D.
Surface Condition: As Ground

Cal. Checks	Time	Date
Initial Cal	1000	4/17/2011
Inter. Cal.		
Inter. Cal.	1302	4/17/2011
Inter. Cal.		
Final Cal	1646	4/17/2011

Couplant

Cal. Batch: 09325
Type: ULTRAGEL II
Mfg.: SONOTECH
Exam Batch: 09325
Type: ULTRAGEL II
Mfg.: SONOTECH

Reference Block

Serial No.: 04-8740
Type: ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
ID Notch	80	5.2	4.088

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
See Axial			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
19.8	2" Radius	80	2.4	2.00

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)
Results: Accept ☐ Reject ☑ Info ☐
Comments: Initial Section XI Exam
Percent Of Coverage Obtained > 90%: No | Reviewed Previous Data: No

Examiner: Stauffer, Lester, E.	Level: III-N	Signature:	Date: 4/17/2011	Reviewer:	Signature:	Date: 4-21-11
Examiner: Hassel, Matthew, S.	Level: II-N	Signature:	Date: 4/17/2011	Site Review: N/A	Signature:	Date:
Other: N/A	Level: N/A	Signature:	Date:	ANII Review:	Signature:	Date: 4/22/11

ATTACHMENT A
PAGE 33 OF 162

UT Calibration. .amination

[redacted]

Site/Unit: Oconee / 1 | Procedure: PDI-UT-2 | Outage No.: O1-26
Summary No.: O1.B9.11.0072 | Procedure Rev.: E | Report No.: UT-11-765
Workscope: ISI | Work Order No.: 01897425 | Page: 2 of 8

Code: 1998/2000A | Cat./Item: B-J /B9.11 | Location:
Drawing No.: ISI-OCN1-013 | Description: RC Pump 1B1 to Safe end
System ID: 50
Component ID: 1-PDB1-1 | Size/Length: N/A | Thickness/Diameter: SS/2.33/33.5
Limitations: Yes - See attached sheets | Start Time: 1326 | Finish Time: 1335

Instrument Settings

Serial No.:	011MBT		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	11.2203	Range:	10.00
M'tl Cal/Vel:	.2121	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2.0 MHz
Filter:	Fixed	Mode:	Dual
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	50.3	Circ. Gain (dB):	N/A

1 Screen Div. = 1.0 In. of Sound Path

Linearity Report No.: L-11-139

Calibration Block

Cal. Block No. 40397
Thickness 3.000 | Dia.: Flat
Cal. Blk. Temp. 67 | Temp. Tool: MCNDE40130
Comp. Temp. 70.5 | Temp. Tool: MCNDE40130

Search Unit

Serial No.:	10-1204		
Manufacturer:	RTD		
Size:	2(24x42)1/4L	Shape:	Rect.
Freq.:	2.0 MHz	Style:	TRL 2
Exam Angle:	60	# of Elements:	Dual
Mode:	Long.		
Measured Angle:	60		
Wedge Style:	Integral		

Search Unit Cable

Type: RG - 174
Length: 6' | No. Conn.: 0

Scan Coverage

Upstream ☐ Downstream ☑ Scan dB: 71.3
CW ☐ CCW ☐ Scan dB: N/A
Exam Surface: O.D.
Surface Condition: As Ground

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Cal. Checks	Time	Date
Initial Cal	1012	4/17/2011
Inter. Cal.		
Inter. Cal.	1325	4/17/2011
Inter. Cal.		
Final Cal	1559	4/17/2011

Couplant

Cal. Batch: 09325
Type: ULTRAGEL II
Mfg.: SONOTECH
Exam Batch 09325
Type: ULTRAGEL II
Mfg.: SONOTECH

Reference Block

Serial No.: 04-8740
Type: ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
3/4T SDH	80	4.4	4.350

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
51.5	2" Radius	80	2.0	2.00

Results: Accept ☐ Reject ☑ Info ☐

Comments: Initial Section XI Exam

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

Examiner: Stauffer, Lester, E.	Level: III-N	Signature: [signature]	Date: 4/17/2011	Reviewer: [signature]		Signature	Date: 4-21-11
Examiner: Hassel, Matthew, B.	Level: II-N	Signature: [signature]	Date: 4/17/2011	Site Review: N/A		Signature	Date
Other: N/A	Level: N/A	Signature	Date	ANII Review: [signature]		Signature	Date: 4/22/11

ATTACHMENT A
PAGE 39 OF 162

UT Calibration. ..amination

Site/Unit: Oconee / 1 | Procedure: PDI-UT-2 | Outage No.: 01-26
Summary No.: 01.B9.11.0072 | Procedure Rev.: E | Report No.: UT-11-765
Workscope: ISI | Work Order No.: 01897425 | Page: 3 of 8

Code: 1998/2000A | Cat./Item: B-J /B9.11 | Location:
Drawing No.: ISI-OCN1-013 | Description: RC Pump 1B1 to Safe end
System ID: 50
Component ID: 1-PQB1-1 | Size/Length: N/A | Thickness/Diameter: SS/2.33/33.5
Limitations: Yes See attached sheets | Start Time: 1314 | Finish Time: 1324

Instrument Settings

Serial No.:	011MBT		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	9.5100	Range:	12.50
M'tl Cal/Vel:	.1232	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2.25 MHz
Filter:	Fixed	Mode:	PE
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	62.3	Circ. Gain (dB):	N/A

1 Screen Div. = 1.25 In. of Sound Path
Linearity Report No.: L-11-139

Calibration Block

Cal. Block No. 40397
Thickness 3.000 Dia.: Flat
Cal. Blk. Temp. 67 Temp. Tool: MCNDE40139
Comp. Temp. 70.5 Temp. Tool: MCNDE40139

Search Unit

Serial No.:	SE0773		
Manufacturer:	GE		
Size:	.5	Shape:	Round
Freq.:	2.25 MHz	Style:	Comp - G
Exam Angle:	70	# of Elements:	Single
Mode:	Shear		
Measured Angle:	70		
Wedge Style:	MSWQC		

Search Unit Cable

Type: RG - 174
Length: 6' No. Conn.: 0

Scan Coverage

Upstream ☐ Downstream ☑ Scan dB: 62.3
CW ☐ CCW ☐ Scan dB: N/A
Exam Surface: O.D.
Surface Condition: As Ground

Cal. Checks	Time	Date
Initial Cal	1007	4/17/2011
Inter. Cal.		
Inter. Cal.	1313	4/17/2011
Inter. Cal.		
Final Cal	1548	4/17/2011

Couplant

Cal. Batch: 09328
Type: ULTRAGEL II
Mfg.: SONOTECH
Exam Batch 09328
Type: ULTRAGEL II
Mfg.: SONOTECH

Reference Block

Serial No.: 94-8740
Type: ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
3/4T SDH	80	6.3	7.915

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
51.9	2" Radius	80	1.6	1.890

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)
Results: Accept ☐ Reject ☑ Info ☐
Comments: Initial Section XI Exam
Percent Of Coverage Obtained > 90%: No Reviewed Previous Data: No

Examiner: Stauffer, Lester, E.	Level: III-N	Signature	Date: 4/17/2011	Reviewer		Signature	Date: 4-21-11
Examiner: Hassel, Matthew, S.	Level: II-N	Signature	Date: 4/17/2011	Site Review: N/A		Signature	Date
Other: N/A	Level: N/A	Signature	Date	ANII Review		Signature	Date: 4/22/11

ATTACHMENT A
PAGE 35 OF 162

UT Calibrati...Examination

Site/Unit:	Oconee / 1	Procedure:	NDE-640	Outage No.:	O1-26
Summary No.:	O1.B9.11.0072	Procedure Rev.:	5	Report No.:	UT-11-765
Workscope:	ISI	Work Order No.:	01897425	Page:	4 of 5

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

Drawing No.: ISI-OCN1-013 Description: RC Pump 1B1 to Safe end

System ID: 50

Component ID: 1-PDB1-1 Size/Length: N/A Thickness/Diameter: SS/2.33/33.5

Limitations: None Start Time: 1250 Finish Time: 1300

Instrument Settings

Serial No.:	011MBT		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	0.6487	Range:	5.0
M'll Cal/Vel:	.2250	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2.25 MHz
Filter:	Fixed	Mode:	PE
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	31.2	Circ. Gain (dB):	N/A

1 Screen Div. = .5 In. of Sound Path

Linearity Report No.: L-11-139

Calibration Block

Cal. Block No.	Component		
Thickness	2.330	Dia.:	33.500
Cal. Blk. Temp.	70.5	Temp. Tool:	MCNDE40130
Comp. Temp.	70.5	Temp. Tool:	MCNDE40130

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Results: Accept ☑ Reject ☐ Info ☐

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

Search Unit

Serial No.:	656818		
Manufacturer:	Panametrics		
Size:	1.0	Shape:	Round
Freq.:	2.25 MHz	Style:	GAMMA
Exam Angle:	0	# of Elements:	Single
Mode:	Long.		
Measured Angle:	0		
Wedge Style:	Integral		

Search Unit Cable

Type: RG - 174

Length: 6' No. Conn.: 0

Scan Coverage

Upstream ☑ Downstream ☑ Scan dB: 33

CW ☑ CCW ☑ Scan dB: 33

Exam Surface: OD

Surface Condition: As Ground

Cal. Checks	Time	Date
Initial Cal	1250	4/17/2011
Inter. Cal.		
Inter. Cal.		
Inter. Cal.		
Final Cal	1300	4/17/2011

Couplant

Cal. Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH
Exam Batch	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH

Reference Block

Serial No.:	04-8740
Type:	ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
Component BW	80	5.5	2.700

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
27.4	BW	126	2.0	1.00

Comments: Initial Section XI Exam

Examiner	Level III-N	Signature	Date	Reviewer		Signature	Date
Stauffer, Lester, E.			4/17/2011				4-20-11
Examiner	Level II-N	Signature	Date	Site Review		Signature	Date
Hassel, Matthew, S.			4/17/2011	P/A			
Other	Level N/A	Signature	Date	ANII Review		Signature	Date
N/A							4/27/11

ATTACHMENT A
PAGE 36 OF 162

DUKE POWER COMPANY

ISI LIMITATION REPORT

Component/Weld ID: 1-PDB1-1 **Item No:** 01.B9.11.0072

remarks: Due to 1B1 RCP 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 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 4 — INCHES FROM W0 _____ to _____

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

Sketch(s) attached ☒ yes ☐ No

Prepared By: Matthew Hassell Level: II Date: 04/17/11 Sheet 5 of 8

Reviewed By: [signature] Date: 4.20.11 Authorized Inspector: [signature] Date: 4/20/11

ATTACHMENT A
PAGE 39 OF 162

[redacted]

Supplemental Report

Report No.: UT-11-765

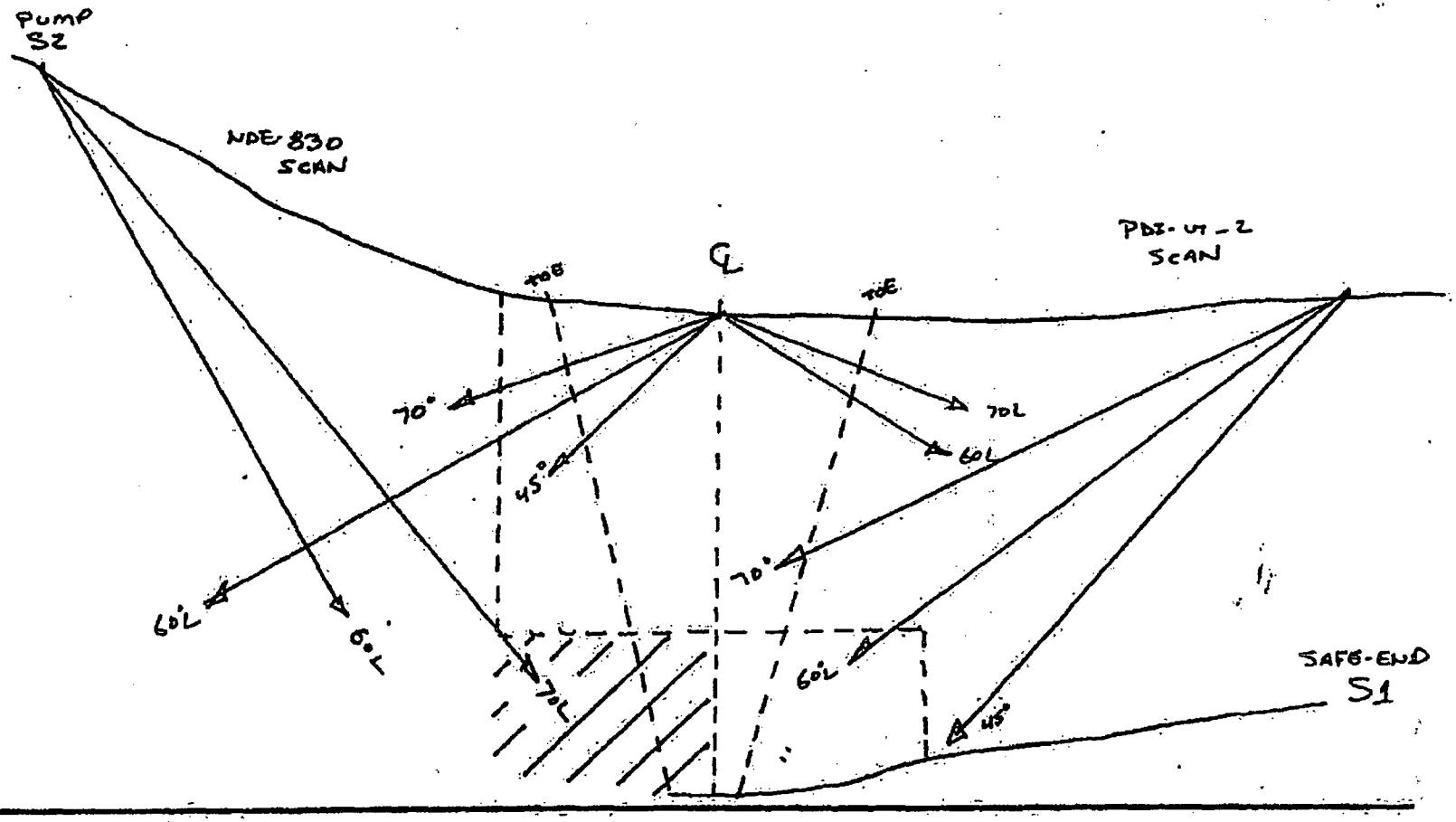
Page: 6 of 8

Summary No.: O1.B9.11.0072

Examiner:	Stauffer, Lester, E.	Level:	III-N	Reviewer:	DE Howser	Date: 4-20-11
Examiner:	Hassel, Matthew, B.	Level:	II-N	Site Review:	N/A	Date:
Other:	N/A	Level:	N/A	ANII Review:		Date: 4/27/11

Comments:

Sketch or Photo:



ATTACHMENT A
PAGE 38 OF 162

[redacted]

Supplemental Report

Report No.: UT-11-765

Page: 7 of 8

Summary No.: O1.B9.11.0072

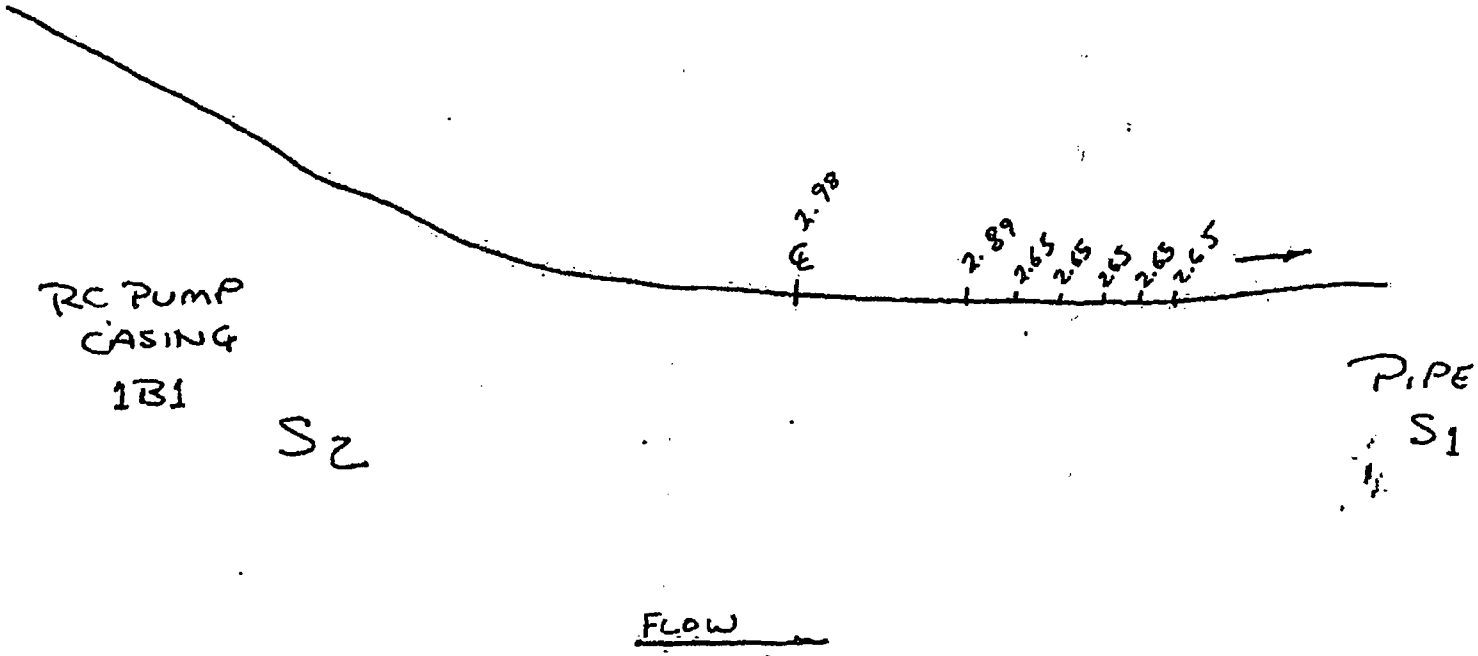
Examiner: Stauffer, Lester, E. — Level: III-N — Reviewer: DE Hoffman — Date: 4.20.11

Examiner: Hassel, Matthew, S. — Level: II-N — Site Review: N/A — Date:

Other: N/A — Level: N/A — ANII Review: [signature] — Date: 4/20/11

Comments:

Sketch or Photo:



[redacted]

Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit:	Oconee / 1	Procedure:	PDI-UT-2	Outage No.:	O1-28
Summary No.:	O1.B9.11.0072	Procedure Rev.:	E	Report No.:	UT-11-765
Workscope:	ISI	Work Order No.:	01897425	Page:	8 of 8

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 - 70 (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	0.000	% 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: David K. Z III Date: 4/21/11

UT Calibration .amination

Site/Unit: Oconee / 1 | Procedure: NDE-830 | Outage No.: O1-26
Summary No.: O1.B9.11.0072 | Procedure Rev.: 1 | Report No.: UT-11-774
Workscope: ISI | Work Order No.: 01897425 | Page: 1 of 4

Code: 1998/2000A | Cat./Item: B-J /B9.11 | Location:
Drawing No.: ISI-OCN1-013 | Description: RC Pump 1B1 to Safe end
System ID: 50
Component ID: 1-PDB1-1 | Size/Length: N/A | Thickness/Diameter: SS/2.330/33.5
Limitations: Yes - See attached sheets | Start Time: 1041 | Finish Time: 1058

Instrument Settings

Serial No.:	00WHDK		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	16.7506	Range:	7.0
M'tl Cal/Vel:	.2600	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	1 MHz
Filter:	Fixed	Mode:	Dual
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	70.2	Circ. Gain (dB):	71.6

1 Screen Div. = .70 in. of Sound Path
Linearity Report No.: L-11-139

Calibration Block

Cal. Block No. 50214
Thickness 2.464 Dia.: Flat
Cal. Blk. Temp. 67 Temp. Tool: MCNDE40130
Comp. Temp. 67 Temp. Tool: MCNDE40130

Search Unit

Serial No.:	03-789		
Manufacturer:	RTD		
Size:	2(20x34)	Shape:	Rect.
Freq.:	1.0 MHz	Style:	TRL1
Exam Angle:	60L	# of Elements:	Dual
Mode:	Long.		
Measured Angle:	60		
Wedge Style:	Integral		

Search Unit Cable

Type: RG - 174
Length: 6' No. Conn.: 0

Scan Coverage

Upstream ☑ Downstream ☐ Scan dB: 73
CW ☑ CCW ☑ Scan dB: 73
Exam Surface: O.D.
Surface Condition: As Ground

Cal. Checks	Time	Date
Initial Cal	1010	4/18/2011
Inter. Cal.		
Inter. Cal.	1040	4/18/2011
Inter. Cal.		
Final Cal	1300	4/18/2011

Couplant

Cal. Batch: 09325
Type: ULTRAGEL II
Mfg.: SONOTECH
Exam Batch 09325
Type: ULTRAGEL II
Mfg.: SONOTECH

Reference Block

Serial No.: 04-8740
Type: ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
3/4T SDH	80	4.8	3.29

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
3/4T SDH	80	5.2	3.60

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
48.6	2" Radius	80	2.8	2.00

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)
Results: Accept ☐ Reject ☑ Info ☐
Comments: N/A
Percent Of Coverage Obtained > 90%: No Reviewed Previous Data: No

	Level		Signature	Date
Examiner: Hassel, Matthew, S.	II-N			4/18/2011
Examiner: Stauffer, Lester, E.	III-N			4/18/2011
Other: N/A	Level N/A			

Reviewer	Signature	Barry Marked	Date 4-20-11
Site Review	Signature	N/A	Date
ANII Review	Signature	N/A	Date

ATTACHMENT A
PAGE 42 OF 162

UT Calibration. .amination

Site/Unit:	Oconee / 1	Procedure:	NDE-630	Outage No.:	O1-26
Summary No.:	O1.B9.11.0072	Procedure Rev.:	1	Report No.:	UT-11-774
Workscope:	ISI	Work Order No.:	01897425	Page:	2 of 4

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

Drawing No.: ISI-OCN1-013 Description: RC Pump 1B1 to Safe end

System ID: 50

Component ID: 1-PDB1-1 Size/Length: N/A Thickness/Diameter: SS/2.330/33.5

Limitations: Yes - See attached sheets Start Time: 1041 Finish Time: 1058

Instrument Settings

Serial No.:	00WHDK		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	10.6853	Range:	5.00
M'tl Cal/Vel:	.2392	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2.0 MHz
Filter:	Fixed	Mode:	Dual
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	60.1	Circ. Gain (dB):	60.6

1 Screen Div. = .5 In. of Sound Path

Linearity Report No.: L-11-136

Calibration Block

Cal. Block No.	50214		
Thickness	2.464	Dia.:	Flat
Cal. Blk. Temp.	67	Temp. Tool:	MCNDE40130
Comp. Temp.	67	Temp. Tool:	MCNDE40130

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Results: Accept ☐ Reject ☑ Info ☐

Search Unit

Serial No.:	90-371		
Manufacturer:	RTD		
Size:	2(10x10)	Shape:	Rect.
Freq.:	2.0 MHz	Style:	TRLA
Exam Angle:	70L	# of Elements:	Dual
Mode:	Long.		
Measured Angle:	70		
Wedge Style:	Integral		

Search Unit Cable

Type: RG - 174 Length: 6' No. Conn.: 0

Scan Coverage

Upstream ☑ Downstream ☐ Scan dB: 81

CW ☑ CCW ☑ Scan dB: 81

Exam Surface: O.D.

Surface Condition: As Ground

Cal. Checks	Time	Date
Initial Cal	1013	4/18/2011
Inter. Cal.		
Inter. Cal.	1048	4/18/2011
Inter. Cal.		
Final Cal	1308	4/18/2011

Couplant

Cal. Batch: 09325

Type: ULTRAGEL II

Mfg.: SONOTECH

Exam Batch 09325

Type: ULTRAGEL II

Mfg.: SONOTECH

Reference Block

Serial No.: 04-8740

Type: ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
1/4T SDH	80	3.8	1.90

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
1/4T SDH	80	3.9	1.95

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
44.7	2" Radius	80	4.09	2.066

Comments: N/A

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

Examiner	Level II-N	Signature	Date	Reviewer		Signature	Date
Hassel, Matthew, S.			4/18/2011		Barry Markert		4-20-11
Examiner	Level III-N	Signature	Date	Site Review		Signature	Date
Stauffer, Lester, E.			4/18/2011	N/A			
Other	Level N/A	Signature	Date	ANII Review		Signature	Date
N/A				N/A			

ATTACHMENT A
PAGE 42 OF 162

DUKE POWER COMPANY

ISI LIMITATION REPORT

Component/Weld ID: 1-PDB1-1 **Item No:** 01.B9.11.0072

☒ 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 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 ______ INCHES FROM W0 ______ to ______
ANGLE: ☐ 0 ☐ 45 ☐ 60 other ______ FROM ______ DEG to ______ DEG

remarks:
Procedure allows scanning from cast side only.

UT-11-774

Sketch(s) attached
☒ yes ☐ No

Prepared By: Lester Stauffer **Level:** III **Date:** 04/18/11 Sheet 3 of 4
Reviewed By: Barry Michael **Date:** 4-20-11 **Authorized Inspector:** N/A **Date:**

ATTACHMENT A
PAGE 43 OF 162

[redacted]

Supplemental Report

Report No.: UT-11-774

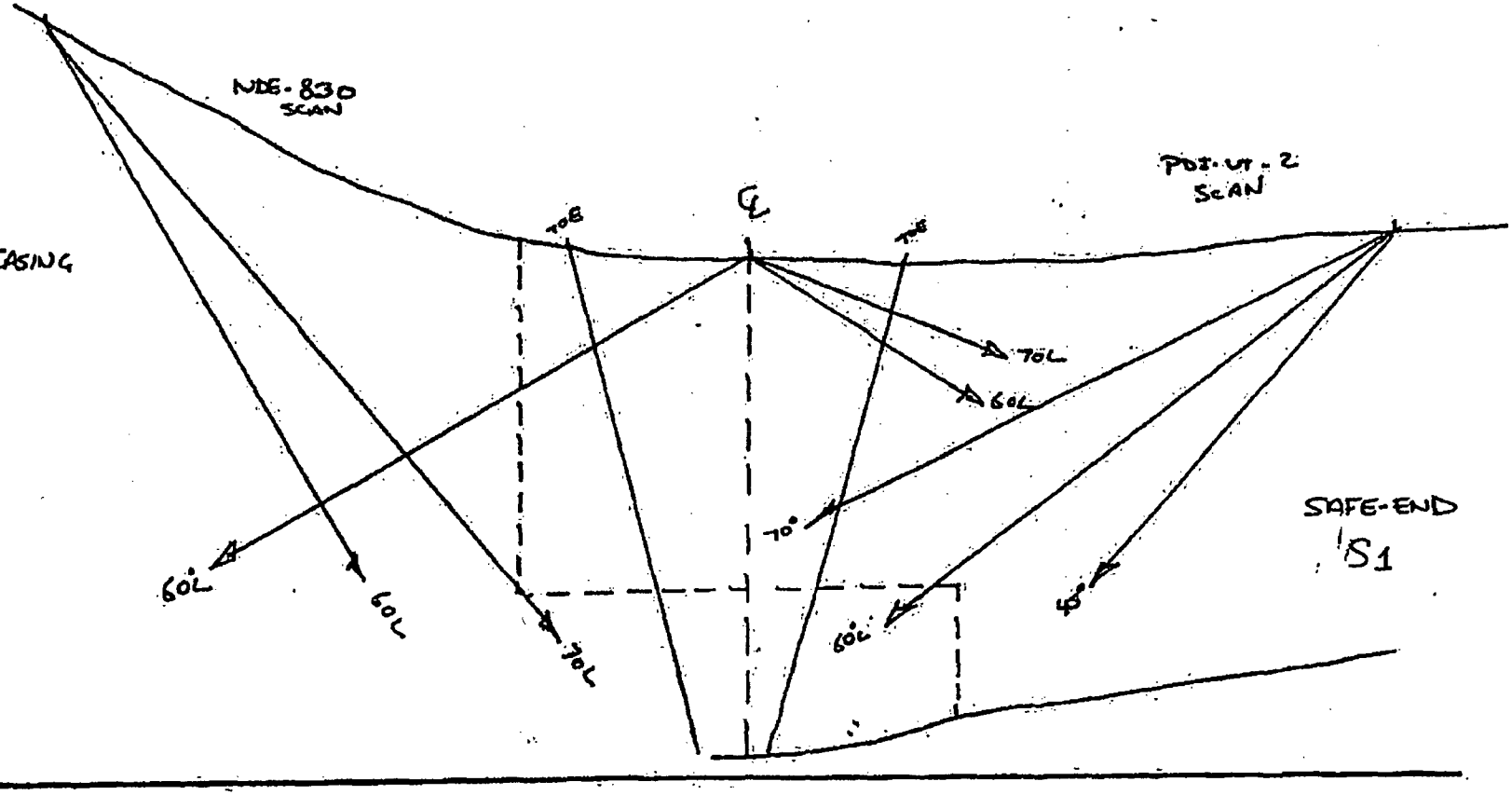
Page: 4 of 4

Summary No.: 01.B9.11.0072

Examiner:	Hassel, Matthew, S.	Level: II-N	Reviewer:	Barry Mc[illegible]	Date: 4-20-11
Examiner:	Stauffer, Lester, E.	Level: III-N	Site Review:	N/A	Date:
Other:	N/A	Level: N/A	ANII Review:	N/A	Date:

Comments:

Sketch or Photo:



ATTACHMENT A
PAGE 49 OF 162

UT Calibration Examination

Site/Unit: Oconee / 1 | Procedure: PDI-UT-2 | Outage No.: O1-28
Summary No.: O1.C5.11.0029 | Procedure Rev.: E | Report No.: UT-11-675
Workscope: ISI | Work Order No.: 01909569 | Page: 1 of 7

Code: 1998/2000A | Cat./Item: C-F-1/C5.11 | Location:
Drawing No.: 1LP-126 | Description: Reducer to Valve 1LP-16 (Cast)
System ID: 53A
Component ID: 1LP-126-50 | Size/Length: N/A | Thickness/Diameter: 1.168 / 12.000
Limitations: Yes - See attached sheet | Start Time: 1517 | Finish Time: 1543

Instrument Settings

Serial No.:	00X14L		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	5.4644	Range:	3
M'tl Cal/Vel:	.1199	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2.25 MHz
Filter:	Fixed	Mode:	PE
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	27.3	Circ. Gain (dB):	27.3

1 Screen Div. = .3 in. of Sound Path
Linearity Report No.: L-11-131

Calibration Block

Cal. Block No.: 40413
Thickness: 1.125 | Dia.: 12
Cal. Blk. Temp.: 72 | Temp. Tool: MCNDE40129
Comp. Temp.: 81 | Temp. Tool: MCNDE40129

Search Unit

Serial No.:	SE0708		
Manufacturer:	KBA		
Size:	.5	Shape:	Round
Freq.:	2.25 MHz	Style:	Comp - G
Exam Angle:	45	# of Elements:	Single
Mode:	Shear		
Measured Angle:	45		
Wedge Style:	MSWQC		

Search Unit Cable

Type: RG - 174
Length: 6' | No. Conn.: 0

Scan Coverage

Upstream ☐ Downstream ☑ Scan dB: 49
CW ☑ CCW ☑ Scan dB: 49
Exam Surface: O.D.
Surface Condition: As Ground

Cal. Checks	Time	Date
Initial Cal	1500	2/1/2011
Inter. Cal.		
Inter. Cal.	1516	2/1/2011
Inter. Cal.		
Final Cal	1845	2/1/2011

Couplant

Cal. Batch: 09326
Type: ULTRAGEL II
Mfg.: SONOTECH
Exam Batch: 09326
Type: ULTRAGEL II
Mfg.: SONOTECH

Reference Block

Serial No.: A09326
Type: Rompas

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
ID Notch	80	5.2	1.548

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
ID Notch	80	5.3	1.59

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
25.1	1" Radius	80	3.4	1"

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)
Results: Accept ☐ Reject ☑ Info ☐
Comments: N/A
Percent Of Coverage Obtained > 90%: No | Reviewed Previous Data: Yes

	Level		Signature	Date
Examiner: Ransom, Greg J.	II-N			2/1/2011
Examiner: Day, John, C.	II-N			2/1/2011
Other: N/A	N/A			

Reviewer		Signature	Date 4/1/2011
Site Review	N/A.	Signature	Date
ANII Review		Signature Nancy C. Ritchie Sloyter	Date 4/4/11

ATTACHMENT A
PAGE 45 OF 162

UT Calibration Examination

Site/Unit:	Oconee / 1	Procedure:	PDI-UT-2	Outage No.:	O1-26
Summary No.:	O1.C5.11.0029	Procedure Rev.:	E	Report No.:	UT-11-675
Workscope:	ISI	Work Order No.:	01909569	Page:	2 of 7

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

Drawing No.: 1LP-128 Description: Reducer to Valve 1LP-18 (Cast)

System ID: 53A

Component ID: 1LP-128-60 Size/Length: N/A Thickness/Diameter: 1.188 / 12.000

Limitations: Yes - See Attached Sheets Start Time: 1546 Finish Time: 1610

Instrument Settings

Serial No.:	00X14L		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	10.0522	Range:	5
M'tl Cal/Vel:	.1294	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2.25 MHz
Filter:	Fixed	Mode:	PE
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	45.5	Circ. Gain (dB):	45.5

1 Screen Div. = .5 in. of Sound Path

Linearity Report No.: L-11-131

Calibration Block

Cal. Block No.	40413		
Thickness	1.125	Dia.:	12
Cal. Blk. Temp.	72	Temp. Tool:	MCNDE40129
Comp. Temp.	81	Temp. Tool:	MCNDE40129

Search Unit

Serial No.:	007Y13		
Manufacturer:	KBA		
Size:	0.5	Shape:	Round
Freq.:	2.25 MHz	Style:	Comp - G
Exam Angle:	60	# of Elements:	Single
Mode:	Shear		
Measured Angle:	60		
Wedge Style:	MSWQC		

Search Unit Cable

Type: RG - 174 Length: 6' No. Conn.: 0

Scan Coverage

Upstream ☐ Downstream ☑ Scan dB: 53.8

CW ☐ CCW ☐ Scan dB: N/A

Exam Surface: O.D.

Surface Condition: As Ground

Cal. Checks	Time	Date
Initial Cal	1503	2/1/2011
Inter. Cal.		
Inter. Cal.	1545	2/1/2011
Inter. Cal.		
Final Cal	1647	2/1/2011

Couplant

Cal. Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH
Exam Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH

Reference Block

Serial No.: A09325

Type: Rompas

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep DIVision	Sound Path
ID Notch	80	4.3	2.32

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep DIVision	Sound Path
N/A			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
28.1	1" Radius	80	2	1"

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Results: Accept ☐ Reject ☑ Info ☐

Comments: Used ID notch due to 5 to 1 ratio.

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

Examiner	Level	Signature	Date	Reviewer		Signature	Date
Ransom, Greg J.	II-N	Greg Ransom	2/1/2011				2/1/2011
Examiner	Level	Signature	Date	Site Review		Signature	Date
Day, John, C.	II-N		2/1/2011	N/A			
Other	Level	Signature	Date	ANII Review		Signature	Date
N/A	N/A					Nancy C Ritchie Stoughton	4/4/11

ATTACHMENT A
PAGE 46 OF 162

UT Calibration Examination

Site/Unit:	Oconee / 1	Procedure:	PDI-UT-2	Outage No.:	O1-26
Summary No.:	O1.C5.11.0029	Procedure Rev.:	8	Report No.:	UT-11-875
Workscope:	ISI	Work Order No.:	01909569	Page:	3 of 7

Code:	1998/2000A	Cat./Item:	C-F-1/C5.11	Location:	
Drawing No.:	1LP-128	Description:	Reducer to Valve 1LP-18 (Cast)		
System ID:	63A				
Component ID:	1LP-128-80			Size/Length:	N/A
Thickness/Diameter:	1.169 / 12.000				
Limitations:	Yes - See Attached Sheets			Start Time:	1613
Finish Time:	1631				

Instrument Settings

Serial No.:	00X14L		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	9.6803	Range:	5"
M'll Cal/Vel:	.2302	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2 MHz
Filter:	Fixed	Mode:	Dual
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	76.5	Circ. Gain (dB):	76.5
1 Screen Div. =	.5	In. of	Sound Path
Linearity Report No.:	L-11-131		

Calibration Block

Cal. Block No.	40413		
Thickness	1.125	Dia.:	12
Cal. Blk. Temp.	72	Temp. Tool:	MCNDE40129
Comp. Temp.	81	Temp. Tool:	MCNDE40129

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Results: Accept ☐ Reject ☑ Info ☐

Search Unit

Serial No.:	93-644		
Manufacturer:	RTD		
Size:	2 (10x18)	Shape:	Rectangle
Freq.:	2.0 MHz	Style:	TRL2
Exam Angle:	60	# of Elements:	Dual
Mode:	Long.		
Measured Angle:	60		
Wedge Style:	Integral		

Search Unit Cable

Type:	RG - 174		
Length:	6'	No. Conn.:	0

Scan Coverage

Upstream ☐	Downstream ☑	Scan dB:	76.5
CW ☐	CCW ☐	Scan dB:	N/A
Exam Surface:	O.D.		
Surface Condition:	As Ground		

Cal. Checks	Time	Date
Initial Cal	1504	2/1/2011
Inter. Cal.		
Inter. Cal.	1612	2/1/2011
Inter. Cal.		
Final Cal	1648	2/1/2011

Couplant

Cal. Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH
Exam Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH

Reference Block

Serial No.:	A09325
Type:	Rompas

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
3/4 SDH	80	6.5	2.173

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
53.1	1" Radius	80	2	1"

Comments: Used ID notch due to 5 to 1 ratio.

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

Examiner	Level II-N	Signature	Date	Reviewer		Signature	Date
Ransom, Greg J.		Greg Ransom	2/1/2011			Kenneth W. Ellis II	2/1/2011
Examiner	Level II-N	Signature	Date	Site Review		Signature	Date
Day, John, C.		[signature]	2/1/2011	N/A			
Other	Level N/A	Signature	Date	ANII Review		Signature	Date
N/A						Donny C. Retherford Slaughter	4/4/11

ATTACHMENT A
PAGE 49 OF 162

DUKE POWER COMPANY

ISI LIMITATION REPORT

Component/Weld ID: 1LP-128-80 **Item No:** O1.C5.11.0029

☒ 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:
Due to valve configuration
(Cast material)
1-LP-18 Valve

UT-11-675

Sketch(s) attached
☒ yes ☐ No

Prepared By: Gregory Ransom Level: II Date: 02/01/11 Sheet 4 of 7
Reviewed By: Date: 2/1/2011 Authorized Inspector: Date: 4/4/11

attachment A
page 48 of 162

Supplemer Report

Report No.: UT-...075

Page: 5 of 7

Summary No.: O1.C5.11.0029

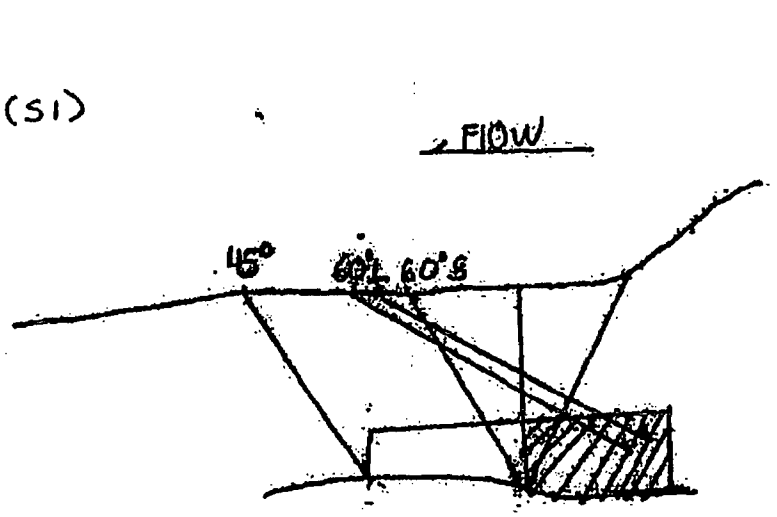
Examiner: Ransom, Greg J. — Level: II-N — Reviewer: — Date: 2/1/00

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

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

Comments: 1 LP-128-80
Scale 1 to 1

Sketch or Photo:



ATTACHMENT A
PAGE 49 OF 162

Supplement... Report

Report No.: UT-11-675

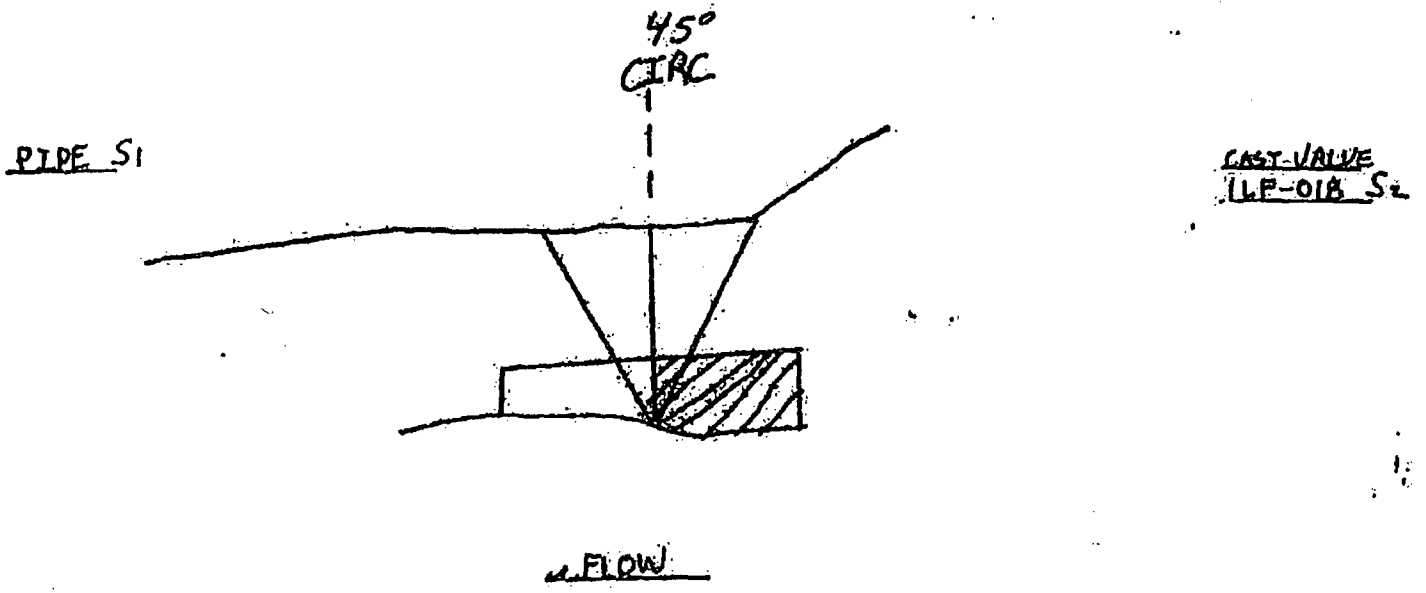
Page: 6 of 7

Summary No.: 01.C5.11.0029

Examiner:	Ransom, Greg J.	Level: II-N	Reviewer:		Date: 3/15/2011
Examiner:	Day, John, C.	Level: II-N	Site Review:	N/A	Date:
Other:	N/A	Level: N/A	ANII Review:	Nancy Chetta & Slaughter	Date: 4/4/11

Comments: 1LP-128-80

Sketch or Photo:



ATTACHMENT A
PAGE OF
50 of 162

ATTACHMENT A
PAGE 51 OF 162

Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit:	Oconee / 1	Procedure:	PDI-UT-2	Outage No.:	O1-26
Summary No.:	O1.C5.11.0029	Procedure Rev.:	E	Report No.:	UT-11-675
Workscope:	ISI	Work Order No.:	01909569	Page:	7 of 7

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: David L. Bi CL Date: 7/28/2011

UT Calibration/Examination

[redacted]

Site/Unit: Oconee / 1 | Procedure: PDI-UT-2 | Outage No.: O1-26
Summary No.: O1.C5.11.0054 | Procedure Rev.: E | Report No.: UT-11-760
Workscope: ISI | Work Order No.: 01897784 | Page: 1 of 6

Code: 1998/2000A | Cat./Item: C-F-1/C5.11 | Location:
Drawing No.: 1LP-209 | Description: Flow Restrictor to Pipe
System ID: 53A
Component ID: 1LP-209-17 | Size/Length: N/A | Thickness/Diameter: SS/1.0/10.0
Limitations: Yes - See attached sheets | Start Time: 1232 | Finish Time: 1401

Instrument Settings

Serial No.:	00X14L		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	4.965	Range:	2.5"
M'U Cal/Vel:	.121	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2.25 MHz
Filter:	Fixed	Mode:	PE
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	N/A	Circ. Gain (dB):	27.7

1 Screen Div. = .25 In. of Sound Path
Linearity Report No.: L-11-137

Calibration Block

Cal. Block No.: PDI-UT-2-O
Thickness: .50 - 2.0 | Dia.: Flat
Cal. Blk. Temp.: 73 | Temp. Tool: MCNDE40130
Comp. Temp.: 76 | Temp. Tool: MCNDE40130

Search Unit

Serial No.:	01P7J2		
Manufacturer:	KBA		
Size:	.5	Shape:	Round
Freq.:	2.25 MHz	Style:	Comp - G
Exam Angle:	45	# of Elements:	Single
Mode:	Shear		
Measured Angle:	45		
Wedge Style:	MSWQC		

Search Unit Cable

Type: RG - 174
Length: 6' | No. Conn.: 0

Scan Coverage

Upstream ☐ Downstream ☐ Scan dB: N/A
CW ☑ CCW ☑ Scan dB: 34.8
Exam Surface: O.D.
Surface Condition: As Ground

Cal. Checks	Time	Date
Initial Cal	0905	4/16/2011
Inter. Cal.		
Inter. Cal.	1230	4/16/2011
Inter. Cal.		
Final Cal	1630	4/16/2011

Couplant

Cal. Batch: 09325
Type: ULTRAGEL II
Mfg.: SONOTECH
Exam Batch: 09325
Type: ULTRAGEL II
Mfg.: SONOTECH

Reference Block

Serial No.: 04-6741
Type: ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
1" Notch	80	5.9	1.475

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
25.7	1" Radius	80	4	1.000

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)
Results: Accept ☐ Reject ☑ Info ☐
Comments: N/A
Percent Of Coverage Obtained > 90%: No | Reviewed Previous Data: Yes

Examiner: Bull, W. Keith	Level: II-N	Signature	Date: 4/16/2011	Reviewer:		Signature	Date: 4-22-11
Examiner: Hassel, Matthew, S.	Level: II-N	Signature	Date: 4/16/2011	Site Review: N/A		Signature	Date
Other: N/A	Level: N/A	Signature	Date	ANI Review:		Signature	Date: 4/22/11

ATTACHMENT A
PAGE 52 OF 162

UT Calibration Examination

Site/Unit:	Oconee / 1	Procedure:	PDI-UT-2	Outage No.:	O1-26
Summary No.:	O1.C5.11.0084	Procedure Rev.:	E	Report No.:	UT-11-780
Workscope:	ISI	Work Order No.:	01897784	Page:	2 of 6

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

Drawing No.: 1LP-209 Description: Flow Restrictor to Pipe

System ID: 53A

Component ID: 1LP-209-17 Size/Length: N/A Thickness/Diameter: SS/1.0/10.0

Limitations: Yes - See attached sheets Start Time: 1232 Finish Time: 1401

Instrument Settings

Serial No.:	00X14L		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	6.4169	Range:	3"
Mfl Cal/Vel:	.1224	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2.25 MHz
Filter:	Fixed	Mode:	PE
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	41.9	Circ. Gain (dB):	N/A

1 Screen Div. = .3 In. of Sound Path

Linearity Report No.: L-11-137

Calibration Block

Cal. Block No.	PDI-UT-2-O		
Thickness	.50 - 2.0	Dia.:	Flat
Cal. Blk. Temp.	73	Temp. Tool:	MCNDE40130
Comp. Temp.	76	Temp. Tool:	MCNDE40130

Search Unit

Serial No.:	01F7J0		
Manufacturer:	KBA		
Size:	.5	Shape:	Round
Freq.:	2.25 MHz	Style:	Comp - G
Exam Angle:	60	# of Elements:	Single
Mode:	Shear		
Measured Angle:	58		
Wedge Style:	MSWQC		

Search Unit Cable

Type: RG - 174 Length: 6' No. Conn.: 0

Scan Coverage

Upstream ☐ Downstream ☑ Scan dB: 51.1

CW ☐ CCW ☐ Scan dB: N/A

Exam Surface: O.D.

Surface Condition: As Ground

Cal. Checks	Time	Date
Initial Cal	0913	4/16/2011
Inter. Cal.		
Inter. Cal.	1311	4/16/2011
Inter. Cal.		
Final Cal	1632	4/16/2011

Couplant

Cal. Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH
Exam Batch	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH

Reference Block

Serial No.: 04-8741

Type: ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
1" Notch	80	6	1.800

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
28.8	1" Radius	80	3.4	1"

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Results: Accept ☐ Reject ☑ Info ☐

Comments: N/A

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

Examiner: Bull, W. Keith	Level: II-N	Signature	Date: 4/16/2011	Reviewer		Signature	Date: 4-22-11
Examiner: Hassel, Matthew, S.	Level: II-N	Signature	Date: 4/16/2011	Site Review: N/A		Signature	Date
Other: N/A	Level: N/A	Signature	Date	ANI Review		Signature	Date: 4/22/11

ATTACHMENT A
PAGE 53 OF 162

UT Calibration Examination

Site/Unit: Oconee / 1 | Procedure: PDI-UT-2 | Outage No.: O1-26
Summary No.: O1.C5.11,0084 | Procedure Rev.: E | Report No.: UT-11-780
Workscope: ISI | Work Order No.: 01897784 | Page: 3 of 6

Code: 1998/2000A | Cat./Item: C-F-1/C5.11 | Location:
Drawing No.: 1LP-209 | Description: Flow Restrictor to Pipe
System ID: 53A
Component ID: 1LP-209-17 | Size/Length: N/A | Thickness/Diameter: SS/1.0/10.0
Limitations: Yes - See attached sheets | Start Time: 1232 | Finish Time: 1401

Instrument Settings

Serial No.:	00X14L		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	9.439	Range:	3
M'tl Cal/Vel:	.226	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2 MHz
Filter:	Fixed	Mode:	Dual
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	66.6	Circ. Gain (dB):	N/A

1 Screen Div. = .3 In. of Sound Path

Linearity Report No.: L-11-137

Calibration Block

Cal. Block No. PDI-UT-2-O
Thickness .50 - 2.0 Dia.: Flat
Cal. Blk. Temp. 73 Temp. Tool: MCNDE40130
Comp. Temp. 76 Temp. Tool: MCNDE40130

Search Unit

Serial No.:	03-762		
Manufacturer:	RTD		
Size:	2(10x16)	Shape:	Rect.
Freq.:	2.0 MHZ	Style:	TRL2
Exam Angle:	60	# of Elements:	Dual
Mode:	Long.		
Measured Angle:	61		
Wedge Style:	Integral		

Search Unit Cable

Type: RG - 174
Length: 6' No. Conn.: 0

Scan Coverage

Upstream ☐ Downstream ☑ Scan dB: 72.5
CW ☐ CCW ☐ Scan dB: N/A
Exam Surface: O.D.
Surface Condition: As Ground

Cal. Checks	Time	Date
Initial Cal	1009	4/16/2011
Inter. Cal.		
Inter. Cal.	1341	4/16/2011
Inter. Cal.		
Final Cal	1634	4/16/2011

Couplant

Cal. Batch: 09325
Type: ULTRAGEL II
Mfg.: SONOTECH
Exam Batch 09325
Type: ULTRAGEL II
Mfg.: SONOTECH

Reference Block

Serial No.: 04-6741
Type: ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
1" Notch	80	7.1	2.052

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
44.3	1" Radius	80	3.9	1.001

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Results: Accept ☐ Reject ☑ Info ☐

Comments: N/A

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

Examiner: Hassel, Matthew, S.	Level: II-N	Signature	Date: 4/16/2011	Reviewer		Signature	Date: 4-22-11
Examiner: Butt, W. Keith	Level: II-N	Signature	Date: 4/16/2011	Site Review: N/A		Signature	Date
Other: N/A	Level: N/A	Signature	Date	ANII Review		Signature	Date: 4/27/11

ATTACHMENT A
PAGE 54 OF 162

DUKE POWER COMPANY
ISI LIMITATION REPORT

Component/Weld ID: 1LP-209-17 Item No: 01.C5.11.0084

remarks:

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

Due to valve configuration
cast material / Flow Restrictor
4-22-11 DTM

FROM L N/A to L N/A INCHES FROM WO 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 WO ____ 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 WO ____ 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 WO ____ to ____
ANGLE: ☐ 0 ☐ 5 ☐ 60 other ____ FROM ____ DEG to ____ DEG

UT-11-760

Sketch(s) attached
☒ yes ☐ No

Prepared By: Matthew Hassell Level: II Date: 04/18/11 Sheet 4 of 7
Reviewed By: Gary A Moss Date: 4-22-11 Authorized Inspector: [signature] Date: 4/22/11

ATTACHMENT A
PAGE 55 OF 162

[redacted]

Supplemental Report

Report No.: UT-11-780

Page: 5 of 6

Summary No.: O1.C5.11.0084

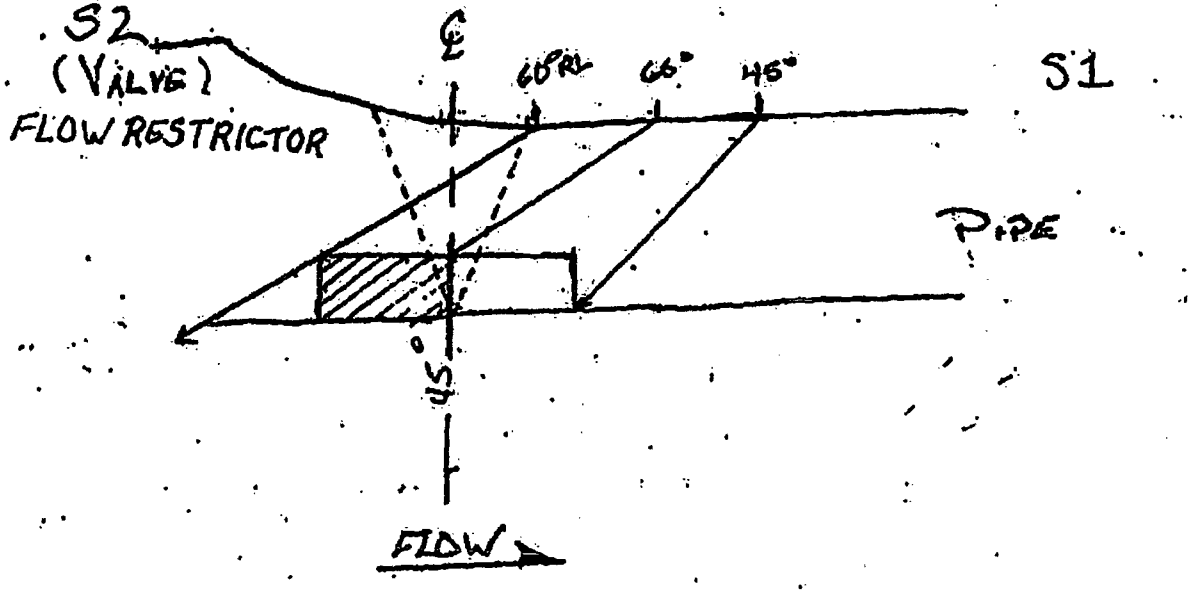
Examiner: Bull, W. Keith Level: II-N Reviewer: [signature] Date: 4-22-11

Examiner: Hassel, Matthew, S. Level: II-N Site Review: N/A Date:

Other: N/A Level: N/A ANII Review: [signature] Date: 4/27/11

Comments:

Sketch or Photo:



ATTACHMENT A
PAGE 5 OF 16

ATTACHMENT A
Page 5 of 162

Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit:	Oconee / 1	Procedure:	PDI-UT-2	Outage No.:	O1-26
Summary No.:	O1.C5.11.0084	Procedure Rev.:	E	Report No.:	UT-11-780
Workscope:	ISI	Work Order No.:	01897784	Page:	6 of 6

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: David K. Z III Date: 4/22/11

UT Calibration/Examination

Duke Energy

Site/Unit: Oconee 1 | Procedure: PDI-UT-2 | Outage No.: 01-26
Summary No.: 01.CS.11.0035 | Procedure Rev.: 8 | Report No.: UT-11-781
Workscope: ISI | Work Order No.: 01197784 | Page: 3 of 6

Code: 1998/2000A | Cal Item: C-F-1/CS11 | Location:
Drawing No.: LP-209 | Description: Pipe to Flow Restrictor
System ID: HSA
Component ID: LP-209-10 | Scan Length: N/A | Thickness/Diameter: .53/1.0/19.0
Limitations: Yes - See attached sheets | Start Time: 1232 | Finish Time: 1401

Instrument Settings

Serial No.: 00X1411
Manufacturer: KRAUTKRAMER
Model: USN-60
Delay: 4.966 | Range: 2.5"
MU Cal/Vel: 1121 | Pulser: High
Damping: 1K | Reject: 0%
Rep. Rate: Autohigh | Freq: 2.25 MHz
Filter: Fixed | Mode: PE
Voltage: Fixed | Other: Fullwave
Ax. Gain (dB): 27.7 | Circ. Gain (dB): 27.7
Screen Div.: 25 | # of: Sound Path
Linearity Report No.: L-11-137

Search Unit

Serial No.: 01F7J2
Manufacturing: KBA
Size: .5 | Shape: Round
Freq.: 2.25 MHz | Style: Comp - G
Exam Angle: 45 | # of Elements: Single
Mode: Shear
Measured Angle: 45
Wedge Style: MSWGC

Search Unit Cable

Type: RG - 174
Length: 6' | No. Conn.: 0

Calibration Block

Cal. Block No.: PDI-UT-2-O
Thickness: .53 - 2.0 | Dia.: Flat
Cal. Blk. Temp.: 73 | Temp. Tool: MCNDE40130
Comp. Temp.: 76 | Temp. Tool: MCNDE40130

Scan Coverage

Upstream ☑ Downstream ☑ Scan dB: 34.8
CW ☑ CCW ☑ Scan dB: 34.8
Exam Surface: O.D.
Surface Condition: As Ground

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)
Results: Accept ☑ Reject ☐ Info ☐
Percent Of Coverage Obtained > 90%: No | Reviewed Previous Data: Yes

Cal. Checks	Time	Date
Initial Cal	0905	4/16/2011
Inter. Cal.		
Inter. Cal.	1230	4/16/2011
Inter. Cal.		
Final Cal	1535	4/16/2011

Couplant
Cal. Batch: 09325
Type: ULTRAGEL II
Mfg.: SONOTECH
Exam Batch: 09325
Type: ULTRAGEL II
Mfg.: SONOTECH

Reference Block
Serial No.: 04-5741
Type: ROMPAS

Axial Oriented Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
1" Notch	80	5.2	1.476

Circumferential Oriented Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
See Axial			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
28.7	1" Radius	80	4	1.000

Comments: N/A

Examiner: Bull, W. Kelly	Level: III	Signature:	Date: 4/16/2011	Reviewer:		Signature:	Date: 4-22-11
Examiner: Hassel, Matthew R.	Level: III	Signature:	Date: 4/16/2011	Site Review: N/A		Signature:	Date:
Other: N/A	Level: N/A	Signature:	Date:	ANII Review:		Signature:	Date: 5/16/11

ATTACHMENT A.
Page 58 of 162

UT Calibration/Examination

Duke Energy

Site/Unit: Oconee / 1 | Procedure: PDI-UT-31 | Outage No.: 01R26
Summary No.: 01-C5.11-0035 | Procedure Rev.: 8 | Report No.: UT-11-781
Workscope: ISI | Work Order No.: 01807784 | Page: 2 of 6

Code: 1998/2000A | Cat/Item: C-F-1/C5.11 | Location:
Drawing No.: LP-209 | Description: Pipe to Flow Restrictor
System ID: 53A
Component ID: 1LP-209-18 | Size/Length: N/A | Thickness/Diameter: SS/1.D/10.0"
Limitations: Yes - See attached sheets | Start Time: 1232 | Finish Time: 1401

Instrument Settings

Serial No.:	00X14L		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Cal(y):	824169	Range:	3"
Mtl Cal/Vel:	1224	Pulser:	High
Damping:	2.5K	Reject:	0%
Rep. Rate:	Autohigh	Freq:	2.25 MHz
Filter:	Fixed	Model:	PE
Voltage:	Fixed	Other:	Fullwave
Ac. Gain (dB):	41.9	Circ. Gain (dB):	N/A
1 Screen Div. =	3	In of	Sound Path

Linearity Report No.: L-11-137

Calibration Blocks

Cal. Block No.: PDI-UT-2.0
Thickness: .50 - 2.0 | Dia.: Flat
Cal. Blk. Temp.: 73 | Temp. Tool: MCHRE40130
Comp. Temp.: 76 | Temp. Tool: MCHRE40130
Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)
Results: Accept ☐ Reject ☑ Info ☐
Percent Of Coverage Obtained > 90%: No | Reviewed Previous Data: Yes

Search Unit

Serial No.: 01F7J0
Manufacturer: KBA
Size: .5 | Shape: Round
Freq.: 2.25 MHz | Style: Comp - G
Exam Angle: 60 | # of Elements: Single
Mode: Shear
Measured Angle: 58
Wedge Style: MSWGC

Search Unit Cable

Type: RG - 174
Length: 6' | No. Conn.: 2

Scan Coverage

Upstream ☑ Downstream ☐ Scan dB: 51.1
CW ☐ CCW ☐ Scan dB: N/A
Exam Surface: O.D.
Surface Conditions: As Ground

Cal. Checks	Time	Date
Initial Cal	0919	4/16/2011
Inter. Cal.		
Inter. Cal.	1315	4/16/2011
Inter. Cal.		
Final Cal	1632	4/16/2011

Couplant
Cal. Batch: 09326
Type: ULTRAGEL II
Mfg.: SONOTECH
Exam Batch: 09325
Type: ULTRAGEL II
Mfg.: SONOTECH

Reference Block
Serial No.: 04-8741
Type: ROMPAS

Comments: N/A

Axial Oriented Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
1" Notch	80	3	1.900

Circumferential Oriented Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
29.8	1" Radius	80	3.4	1"

Examiner: Bull, W. Keith	Level: II-N	Signature:	Date: 4/16/2011	Reviewer:		Signature:	Date: 4/22/11
Examiner: Hassel, Matthew, S.	Level: II-N	Signature:	Date: 4/16/2011	Site Review: N/A		Signature:	Date:
Other: N/A	Level: N/A	Signature:	Date:	ANII Review:		Signature:	Date: 5/6/11

ATTACHMENT A
Page 59 of 162

UT Calibration/Examination

Site/Unit: Oconee 1 1 | Procedure: PDI-UT-3 | Gauge No: 01-38
Summary No: 01.CS.11.0015 | Procedure Rev: 6 | Report No: UT-11-701
Workscope: ISI | Work Order No: 51897784 | Page: 3 of 81

Code: 1998/2000A | Cal/Item: C-F-UCS.11 | Location:
Drawing No: ILP-209 | Description: Pipe to Flow Restrictor
System ID: 53A
Component ID: ILP-209-181 | Size/Length: N/A | Thickness/Diameter: 6S/1.0/10.0
Limitations: Yes - See attached sheets | Start Time: 1232 | Finish Time: 1401

Instrument Settings

Serial No.:	00X141		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Cable:	0438	Range:	3
MT Cal/Vel:	3235	Pulse:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2 MHz
Filter:	Fixed	Mode:	Dual
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	66.5	Circ. Gain (dB):	N/A
1 Screen Div. =	3	In of:	Sound Path
Linearity Report No.:	L-11-137		

Search Unit

Serial No.:	03-762		
Manufacturer:	RTD		
Size:	2(10x10)	Shape:	Rect.
Freq.:	2.0 MHZ	Style:	TRL2
Exam Angle:	60	# of Elements:	Dual
Mode:	Long.		
Measured Angle:	61		
Wedge Style:	Integral		

Search Unit Cable

Type:	RG-174		
Length:	61	No. Conn.:	0

Calibration Block

Cal. Block No.:	PDI-UT-3-O		
Thickness:	SD - 2.0	Dia.:	Flat
Cal Blk. Temp.:	73	Temp. Tool:	MCNDE40130
Comp. Temp.:	76	Temp. Tool:	MCNDE40130

Scan Coverage

Upstream ☑ Downstream ☐ Scan dB: 72.5
CW ☐ CCW ☑ Scan dB: N/A
Exam Surface: O.D.
Surface Condition: As Ground

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report)

Results: Accept ☐ Reject ☑ Info ☐

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

Cal. Checks	Time	Date
Initial Cal	1000	4/15/2011
Inter. Cal.		
Inter. Cal.	1341	4/15/2011
Inter. Cal.		
Final Cal	1534	4/15/2011

Couplant

Cal. Batch: 09325
Type: ULTRAGEL II
Mfg.: SONOTECH
Exam Batch: 09325
Type: ULTRAGEL II
Mfg.: SONOTECH

Reference Block

Serial No.: 04-761
Type: ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
1" Notch	80	7.1	7.042

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
44.3	1" Radius	80	3.3	1.001

Comments: N/A

Examiner: Hassel, Matthew, S.	Level: U-N	Signature:	Date: 4/16/2011	Reviewer:		Signature:	Date: 4-22-11
Examiner: Bull, W. Keith	Level: U-N	Signature:	Date: 4/16/2011	Site Review: A		Signature:	Date:
Other: N/A	Level: N/A	Signature:	Date:	ANII Review:		Signature:	Date: 5/6/11

ATTACHMENT A
PAGE 60 of 162

DUKE POWER COMPANY

ISI LIMITATION REPORT

Component/Weld ID: 1LP-200-18 Item No: 01.C5.11.0085

☒ 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:

Due to valve configuration / FLOW RESTRICTOR

& cast configuration. DTM 4-22-11

side.

UT-11-781

Sketch(s) attached

☒ yes ☐ No

Prepared By: Matthew Hassell Level: II Date: 04/18/11 Sheet 4 of 8

Reviewed By: Date: 4-22-11 Authorized Inspector: Date: 5/6/11

ATTACHMENT A

PAGE 61 OF 162

[redacted]

Supplemental Report

Report No.: UT-11-781

Summary No.: 01:CS:11:0085

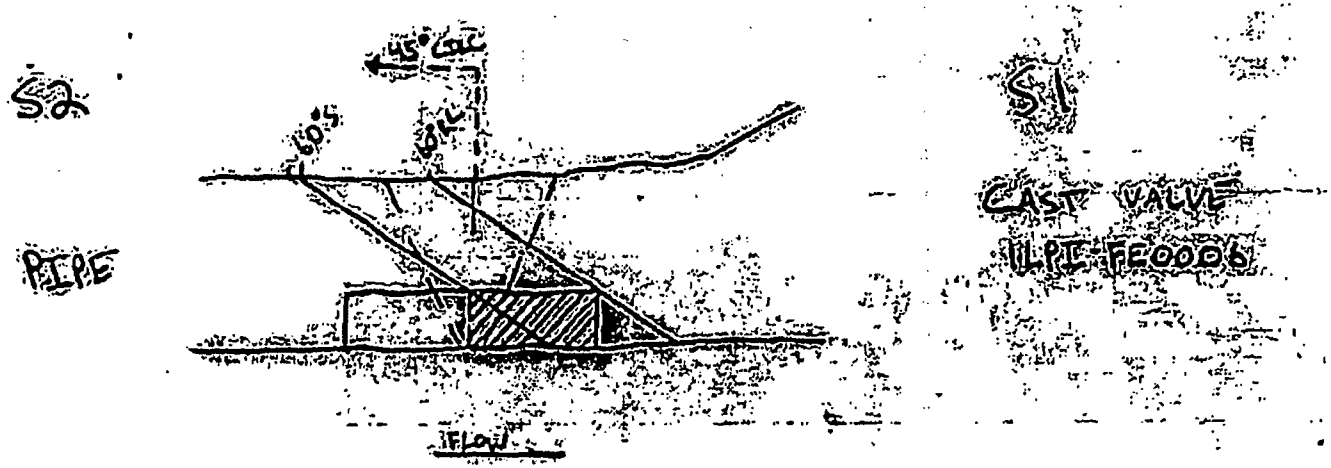
Examiner: Bull, W. Keith — Level: II-N — Reviewer: [redacted] — Date: 9-22-11

Examiner: Hassel, Matthew, E — Level: II-N — Site Review: N/A — Date:

Other: N/A — Level: N/A — Add'l Review: [redacted] — Date: 9-26-11

Comments:

Sketch or Photo:



ATTACHMENT A
Page 62 of 162

ATTACHMENT A
Page 63 of 162

Determination of Percent Coverage for UT Examinations - Pipe

Duke Energy

Site/Unit: Oconee / [redacted] 1 | Procedure: PDI UT-2 | Outage No: O1-26

Summary No: [redacted] O1-CS-11-0015 | Procedure Rev: [redacted] E | Report No: UT-11-781

Worscope: [redacted] SI | Work Order No: [redacted] 70169778[redacted] | Page: 6 of 6

45 deg

Scan 1 [redacted] % Length X [redacted] % volume of length / 100 = [redacted] % total for Scan 1

Scan 2 [redacted] % Length X [redacted] % volume of length / 100 = [redacted] % 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/dep [redacted] (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 [redacted] % Length X [redacted] % volume of length / 100 = [redacted] % total for Scan 3

Scan 4 [redacted] % Length X [redacted] % volume of length / 100 = [redacted] % total for Scan 4

Circumferential coverage:

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

97.500 % Total for complete exam

Site Field Supervisor: [redacted] Date: [redacted]

UT Calibration / Examination

Site/Unit:	Oconee / 1	Procedure:	PDI-UT-2	Outage No.:	O1-26
Summary No.:	O1.C5.21.0006	Procedure Rev.:	E	Report No.:	UT-11-674
Workscope:	ISI	Work Order No.:	01909573	Page:	1 of 9

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

Drawing No.: 1HP-192 Description: Pipe to Flange Orifice

System ID: 51A

Component ID: 1HP-192-15 Size/Length: N/A Thickness/Diameter: 0.531 / 4.0/ SS

Limitations: Yes - See attached sheet Start Time: 1216 Finish Time: 1233

Instrument Settings

Serial No.:	00X14L		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	4.1781	Range:	1.6"
M'tl Cal/Vel:	.1229	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2.25 MHz
Filter:	Fixed	Mode:	PE
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	33.9	Circ. Gain (dB):	44.5

1 Screen Div. = .15 In. of Sound Path

Linearity Report No.: L-11-131

Calibration Block

Cal. Block No.	40406		
Thickness	.531	Dia.:	4
Cal. Blk. Temp.	72	Temp. Tool:	MCNDE40129
Comp. Temp.	76	Temp. Tool:	MCNDE40129

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Results: Accept ☐ Reject ☑ Info ☐

Search Unit

Serial No.:	SB0253		
Manufacturer:	GE		
Size:	.25	Shape:	Round
Freq.:	2.25 MHz	Style:	Comp - G
Exam Angle:	45	# of Elements:	Single
Mode:	Shear		
Measured Angle:	45		
Wedge Style:	MSWQC		

Search Unit Cable

Type:	RG - 174		
Length:	6'	No. Conn.:	0

Scan Coverage

Upstream ☑ Downstream ☐ Scan dB: 49.9

CW ☑ CCW ☑ Scan dB: 49.9

Exam Surface: O.D.

Surface Condition: As Ground

Cal. Checks	Time	Date
Initial Cal	0920	2/1/2011
Inter. Cal.		
Inter. Cal.	1214	2/1/2011
Inter. Cal.		
Final Cal	1430	2/1/2011

Couplant

Cal. Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH
Exam Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH

Reference Block

Serial No.:	A09325
Type:	Rompas

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
ID Notch	80	4.5	.674

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
ID Notch	80	4.3	.854

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
27.6	1" Radius	80	6.65	1"

Comments: N/A

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

Examiner	Level	II-N	Signature	Date	Reviewer	Signature	Date
Ransom, Greg J.				2/1/2011			2/1/2011
Examiner	Level	II-N	Signature	Date	Site Review	Signature	Date
Day, John, C.				2/1/2011	N/A		
Other	Level	N/A	Signature	Date	ANII Review	Signature	Date
N/A							4/4/11

ATTACHMENT A
PAGE 64 OF 162

UT Calibration / Examination

Site/Unit:	Oconee / 1	Procedure:	PDI-UT-2	Outage No.:	O1-26
Summary No.:	O1.C5.21.0006	Procedure Rev.:	E	Report No.:	UT-11-674
Workscope:	ISI	Work Order No.:	01909573	Page:	2 of 9

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

Drawing No.: 1HP-192 Description: Pipe to Flange Orifice

System ID: 51A

Component ID: 1HP-192-15 Size/Length: N/A Thickness/Diameter: 0.531 / 4.0/ SS

Limitations: Yes - See Attached Sheets Start Time: 1305 Finish Time: 1344

Instrument Settings

Serial No.:	00X14L		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	7.4500	Range:	2"
M'U Cal/Vel:	.1229	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2.25 MHz
Filter:	Fixed	Mode:	PE
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	58.4	Circ. Gain (dB):	N/A

1 Screen Div. = .2 In. of Sound Path

Linearity Report No.: L-11-131

Calibration Block

Cal. Block No.	40406		
Thickness	.631	Dia.:	4
Cal. Blk. Temp.	72	Temp. Tool:	MCNDE40129
Comp. Temp.	76	Temp. Tool:	MCNDE40129

Search Unit

Serial No.:	SB0453		
Manufacturer:	GE		
Size:	.26	Shape:	Round
Freq.:	2.25 MHz	Style:	Comp - G
Exam Angle:	60	# of Elements:	Single
Mode:	Shear		
Measured Angle:	60		
Wedge Style:	MSWQC		

Search Unit Cable

Type: RG - 174 Length: 6' No. Conn.: 0

Scan Coverage

Upstream ☑ Downstream ☐ Scan dB: 58.4

CW ☐ CCW ☐ Scan dB: N/A

Exam Surface: O.D.

Surface Condition: As Ground

Cal. Checks	Time	Date
Initial Cal	0933	2/1/2011
Inter. Cal.		
Inter. Cal.	1304	2/1/2011
Inter. Cal.		
Final Cal	1437	2/1/2011

Couplant

Cal. Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH
Exam Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH

Reference Block

Serial No.: A09325

Type: Rompas

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
Notch Tip	80	4	.855

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
44.3	1" Radius	80	5	1"

Recordable Indication(s): Yes ☑ No ☐ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Results: Accept ☐ Reject ☑ Info ☐

Comments: N/A

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

Examiner	Level	Signature	Date	Reviewer		Signature	Date
Ransom, Greg J.	II-N		2/1/2011				2/1/2011
Examiner	Level	Signature	Date	Site Review	N/A	Signature	Date
Day, John, C.	II-N		2/1/2011				
Other	Level	Signature	Date	ANII Review		Signature	Date
N/A	N/A					Money C Ritchie Stoughton	4/4/11

ATTACHMENT A
PAGE 65 OF 162

UT Calibration Examination

Duke Energy.

Site/Unit:	Oconee / 1	Procedure:	PDI-UT-2	Outage No.:	O1-26
Summary No.:	O1.C5.21.0006	Procedure Rev.:	E	Report No.:	UT-11-674
Worksscope:	ISI	Work Order No.:	01909573	Page:	3 of 9

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

Drawing No.: 1HP-192 Description: Pipe to Flange Orifice

System ID: 51A

Component ID: 1HP-192-15 Size/Length: N/A Thickness/Diameter: 0.531 / 4.0/ SS

Limitations: Yes - See Attached Sheets Start Time: 1236 Finish Time: 1302

Instrument Settings

Serial No.:	00X14L		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	6.4831	Range:	3
M'U Cal/Vel:	.2302	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2 mHz
Filter:	Fixed	Mode:	Dual
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	59.6	Circ. Gain (dB):	N/A

1 Screen Div. = .3 In. of Bound Path

Linearity Report No.: L-11-131

Calibration Block

Cal. Block No.: 40406

Thickness: .531 Dia.: 4

Cal. Blk. Temp.: 72 Temp. Tool: MCNDE40129

Comp. Temp.: 76 Temp. Tool: MCNDE40129

Search Unit

Serial No.:	10-1208		
Manufacturer:	RTD		
Size:	2(7X10)1/4L	Shape:	Rect.
Freq.:	2.0 MHz	Style:	TRL 2
Exam Angle:	70	# of Elements:	Dual
Mode:	Long.		
Measured Angle:	70		
Wedge Style:	Integral		

Search Unit Cable

Type: RG - 174

Length: 6' No. Conn.: 0

Scan Coverage

Upstream ☑ Downstream ☐ Scan dB: 59.6

CW ☐ CCW ☐ Scan dB: N/A

Exam Surface: O.D.

Surface Condition: As Ground

Cal. Checks	Time	Date
Initial Cal	1014	2/1/2011
Inter. Cal.		
Inter. Cal.	1234	2/1/2011
Inter. Cal.		
Final Cal	1435	2/1/2011

Couplant

Cal. Batch: 09325

Type: ULTRAGEL II

Mfg.: SONOTECH

Exam Batch: 09325

Type: ULTRAGEL II

Mfg.: SONOTECH

Reference Block

Serial No.: A09325

Type: Rompas

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
3/4 SDH	80	3.9	1.174

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
46.6	1" Radius	80	3.4	1"

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Results: Accept ☐ Reject ☑ Info ☐

Comments: N/A

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

Examiner	Level II-N	Signature	Date	Reviewer		Signature	Date
Ransom, Greg J.			2/1/2011				2/1/2011
Examiner	Level II-N	Signature	Date	Site Review	N/A	Signature	Date
Day, John, C.			2/1/2011				
Other	Level N/A	Signature	Date	ANII Review		Signature	Date
N/A						Nancy C Ritchie Stay Ltr	4/4/11

ATTACHMENT A
PAGE 68 OF 162

DUKE POWER COMPANY

ISI LIMITATION REPORT

Component/Weld ID: 1HP-192-15 **Item No:** 01.C5.21.0006

☒ 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:

Pipe to flange orifice configuration.

UT-10-674

Sketch(s) attached
☒ yes ☐ No

Prepared By: Gregory Ransom Level: II Date: 02/01/11 Sheet 4 of 9
Reviewed By: Date: 2/1/2011 Authorized Inspector: Date: 4/4/11

ATTACHMENT 4
PAGE 67 OF 162

Summary No.: O1.C5.21.0006

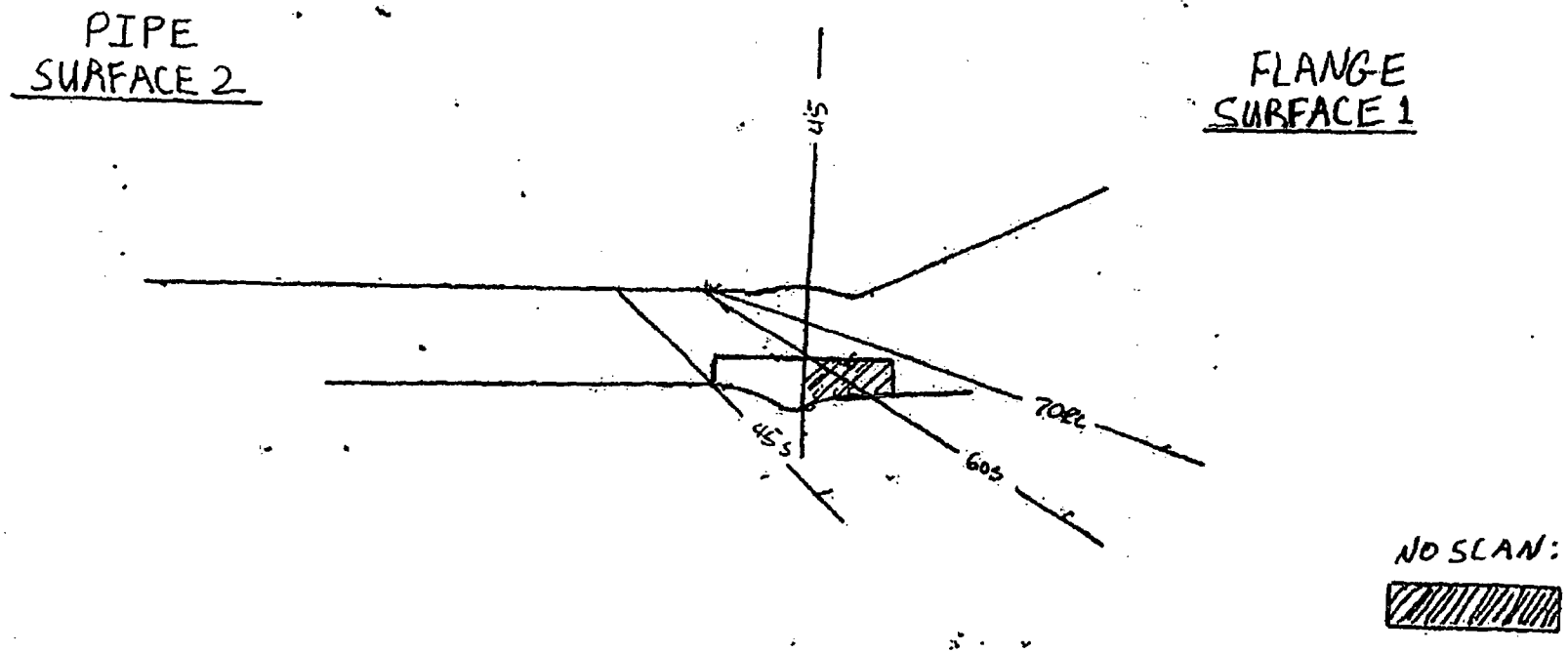
Examiner: Ransom, Greg J. Level: II-N Reviewer: Date: 3/1/2004

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

Other: N/A Level: N/A ANII Review: Date: 4/14/11

Comments: (Scale 1 to 1) Weld 1HP-192-15

Sketch or Photo:



Supplemental Report

Report No.: UT-11-674

Page: 6 of 9

Summary No.: O1.C5.21.0006

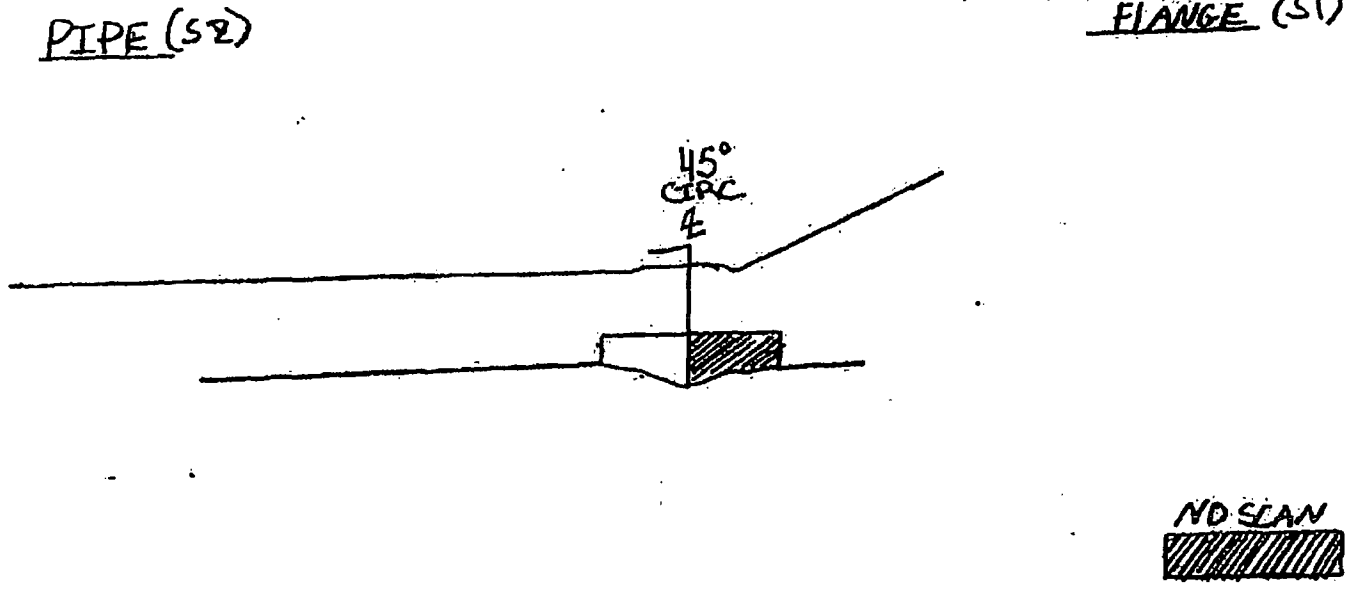
Examiner: Ransom, Greg J. — Level: II-N — Reviewer: — Date: 2/16/11

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

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

Comments:

Sketch or Photo:



Supplemental Report

Report No.: UT-11-674
Page: 7 of 9

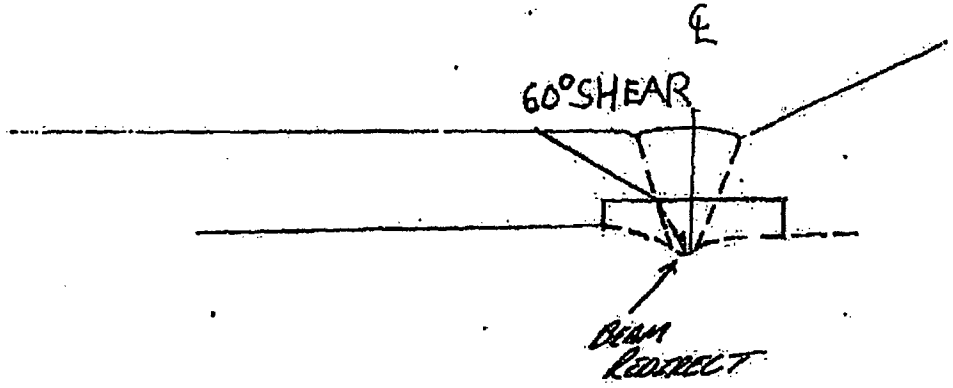
Summary No.: O1.C5.21.0006

Examiner: Ransom, Greg J. Level: II-N Reviewer: Date: 2/15/11
Examiner: Day, John, C. Level: II-N Site Review: N/A Date:
Other: N/A Level: N/A ANII Review: Date: 4/4/11

Comments: Weld 1 HP-182-15
Indication #1 was determined to be a geometric reflector due to I.D. weld root geometry. This was determined using higher angles and ploting.

PIPE (S2) FLANGE(S1)

Sketch or Photo:



Additional - Supplemental Reports <Edit From Setup>

ATTACHMENT A
PAGE 60 OF 162

ATTACHMENT A
PAGE 71 OF 162

Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit:	Oconee / 1	Procedure:	PDI-UT-2	Outage No.:	O1-28
Summary No.:	O1.C5.21.0006	Procedure Rev.:	E	Report No.:	UT-11-674
Workscope:	ISI	Work Order No.:	01909573	Page:	8 of 9

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: [signature] III Date: 03/02/11

Ultrasonic Indication Report

Duke Energy

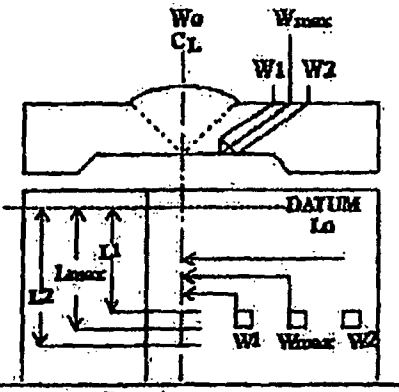
Site/Unit:	Oconee / 1	Procedure:	PDI-UT-2	Outage No.:	O1-26
Summary No.:	O1.C5.21.0006	Procedure Rev.:	E	Report No.:	UT-11-674
Workscope:	ISI	Work Order No.:	01909573	Page:	9 of 9

Search Unit Angle: 60 °

Wo Location: CL

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
1	1	100	.9	1.092	N/A	N/A	N/A	N/A	N/A	360°	N/A	N/A	Geometry

Examiner Ransom, Greg J.	Level II-N	Signature	Date 2/1/2011	Reviewer	Signature / Date
Examiner Day, John, C.	Level II-N	Signature	Date 2/1/2011	Site Review N/A	Signature / Date
Other N/A	Level N/A	Signature	Date	ANII Review	Signature 4/4/11 / Date

ATTACHMENT A
PAGE 72 OF 162

UT Calibration/Examination

Duke Energy

Site/Unit:	Oconee / 1	Procedure:	PDI-UT-2	Outage No.:	O1-26
Summary No.:	O1.C5.21.0024	Procedure Rev.:	E	Report No.:	UT-11-678
Workscope:	ISI	Work Order No.:	01909579	Page:	1 of 6

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

Drawing No.: 1-51A-01(3) Description: Pipe to Valve 1HP-128

System ID: 51A

Component ID: 1-51A-01-01A Size/Length: N/A Thickness/Diameter: 0.531 / 4.0 / SS

Limitations: Yes - See attached sheet Start Time: 1001 Finish Time: 1021

Instrument Settings

Serial No.:	00X14L		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	4.0688	Range:	2
M'U Cal/Vel:	.1224	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2.25 MHz
Filter:	Fixed	Mode:	PE
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	34.5	Circ. Gain (dB):	45.7

1 Screen Div. = .2 in. of Sound Path

Linearity Report No.: L-11-131

Calibration Block

Cal. Block No.: 40406

Thickness: .531 Dia.: 4

Cal. Blk. Temp.: 72 Temp. Tool: MCNDE40129

Comp. Temp.: 78 Temp. Tool: MCNDE40129

Search Unit

Serial No.:	6B0283		
Manufacturer:	KBA		
Size:	.25	Shape:	Round
Freq.:	2.25 MHz	Style:	Comp - G
Exam Angle:	45	# of Elements:	Single
Mode:	Shear		
Measured Angle:	46		
Wedge Style:	MSWQC		

Search Unit Cable

Type: RG - 174

Length: 6' No. Conn.: 0

Scan Coverage

Upstream ☑ Downstream ☑ Scan dB: 40.6

CW ☑ CCW ☑ Scan dB: 51.7

Exam Surface: O.D.

Surface Condition: As Ground

Cal. Checks	Time	Date
Initial Cal	0800	2/8/2011
Inter. Cal.		
Inter. Cal.	1000	2/8/2011
Inter. Cal.		
Final Cal	1200	2/8/2011

Couplant

Cal. Batch: 09326

Type: ULTRAGEL II

Mfg.: SONOTECH

Exam Batch: 09325

Type: ULTRAGEL II

Mfg.: SONOTECH

Reference Block

Serial No.: 97-5590

Type: ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
ID Notch	80	3.4	.676

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
ID Notch	80	4.3	.854

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
27.1	1" Radius	80	5	1"

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Results: Accept ☐ Reject ☑ Info ☐

Comments: N/A

Percent Of Coverage Obtained > 80%: No Reviewed Previous Data: Yes

Examiner: Day, John, C.	Level: II-N	Signature: JC Day	Date: 2/8/2011	Reviewer: VE Hansen		Signature:	Date: 4-8-11
Examiner: Ransom, Greg J.	Level: II-N	Signature: Greg Ransom	Date: 2/8/2011	Site Review: N/A		Signature:	Date:
Other: N/A	Level: N/A	Signature:	Date:	ANII Review: Nancy C Rettler-Slaughter		Signature:	Date: 4/19/11

ATTACHMENT A
PAGE 73 OF 162

UT Calibration/Examination

Duke Energy

Site/Unit:	Oconee / 1	Procedure:	PDI-UT-2	Outage No.:	O1-26
Summary No.:	O1.C6.21.0024	Procedure Rev.:	E	Report No.:	UT-11-676
Workscope:	ISI	Work Order No.:	01909578	Page:	2 of 6

Code:	1998/2000A	Cal./Item:	C-F-1/C5.21	Location:	
Drawing No.:	1-51A-01(3)	Description:	Pipe to Valve 1HP-128		
System ID:	51A				
Component ID:	1-51A-01-91A	Size/Length:	N/A	Thickness/Diameter:	0.531 / 4.0 / SS
Limitations:	Yes - See Attached Sheets	Start Time:	1023	Finish Time:	1043

Instrument Settings

Serial No.:	00X14L		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	5.4262	Range:	2
M'll Cal/Vel:	.1229	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2.25 MHz
Filter:	Fixed	Mode:	PE
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	47.8	Circ. Gain (dB):	N/A

1 Screen Div. = .2 in. of Sound Path

Linearity Report No.: L-11-131

Calibration Block

Cal. Blk. No.	40406		
Thickness	.531	Dia.:	4
Cal. Blk. Temp.	72	Temp. Tool:	MCNDE40129
Comp. Temp.	78	Temp. Tool:	MCNDE40129

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Results: Accept ☐ Reject ☑ Info ☐

Search Unit

Serial No.:	SB0453		
Manufacturer:	GE		
Size:	.25	Shape:	Round
Freq.:	2.25 MHz	Style:	Comp - G
Exam Angle:	60	# of Elements:	Single
Mode:	Shear		
Measured Angle:	60		
Wedge Style:	MSWQC		

Search Unit Cable

Type:	RG - 174		
Length:	6'	No. Conn.:	0

Scan Coverage

Upstream ☑ Downstream ☑ Scan dB: 47.8

CW ☐ CCW ☐ Scan dB: N/A

Exam Surface:	O.D.
Surface Condition:	As Ground

Cal. Checks	Time	Date
Initial Cal	.0805	2/9/2011
Inter. Cal.		
Inter. Cal.	1022	2/9/2011
Inter. Cal.		
Final Cal	1205	2/9/2011

Couplant

Cal. Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH
Exam Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH

Reference Block

Serial No.:	97-5590
Type:	ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
3/4 SDH	80	3.7	.735

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
29.3	1" Radius	80	6	1"

Comments: N/A

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

Examiner: Day, John, C.	Level: II-N	Signature: JC Day	Date: 2/9/2011	Reviewer: DE Howard	Signature:	Date: 4-8-11
Examiner: Ransom, Greg J.	Level: II-N	Signature: Greg Ransom	Date: 2/9/2011	Site Review: N/A	Signature:	Date:
Other: N/A	Level: N/A	Signature:	Date:	ANII Review: Nancy C. Ritchie-Slaughter	Signature:	Date: 4/19/11

ATTACHMENT A
PAGE 74 OF 162

DUKE POWER COMPANY
ISI LIMITATION REPORT

Component/Weld ID: 1-51A-01-91A **Item No:** 01C5.21.0024

remarks: Due to component configuration.

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

☐ LIMITED SCAN

FROM L N/A to L N/A — INCHES FROM WO CL 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 WO ____ 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 WO ____ 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 WO ____ to ____

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

UT-11-676

Sketch(s) attached ☒ yes ☐ No

Prepared By: John Day Level: II Date: 02/09/11 Sheet 3 of 6

Reviewed By: [signature] Date: 4-8-11

Authorized Inspector: [signature] Date: 4/19/11

ATTACHMENT A
PAGE 75 OF 162

Duke Energy

Supplemental Report

Report No.: UT-11-676

Summary No.: O1.C5.21.0024

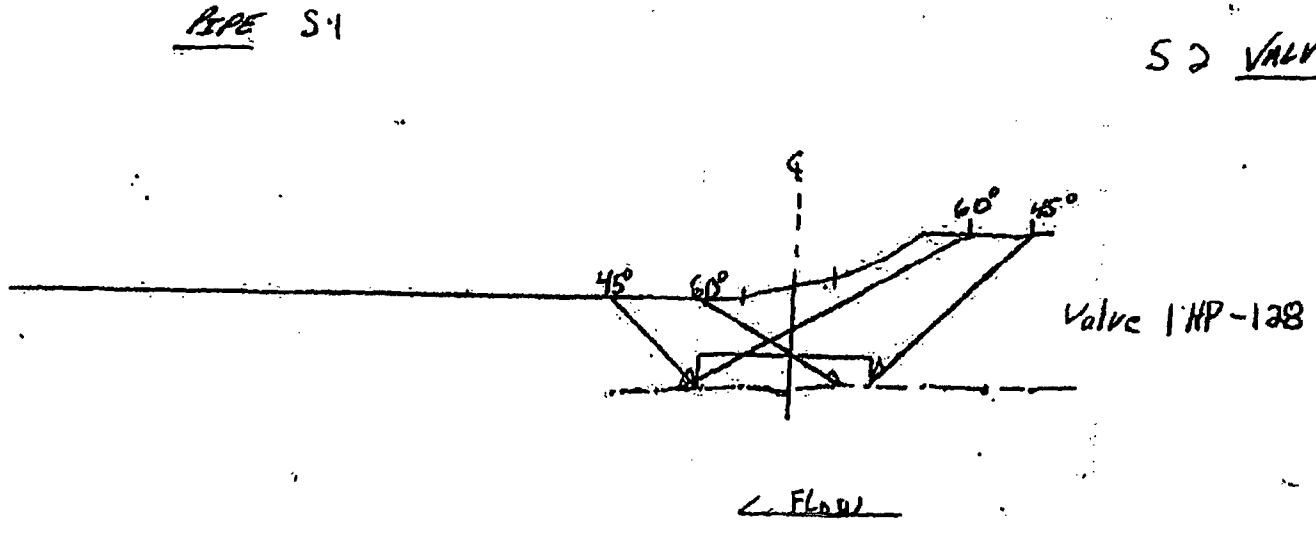
Examiner: Day, John, C. Level: II-N Reviewer: [signature] Date: 4.8.11

Examiner: Ransom, Greg J. Level: II-N Site Review: N/A Date:

Other: N/A Level: N/A ANII Review: [signature] Date: 4/9/11

Comments: Scale 1 to 1: Component ID - 1-S1A-01-81A

Sketch or Photo:



Supplemental Report

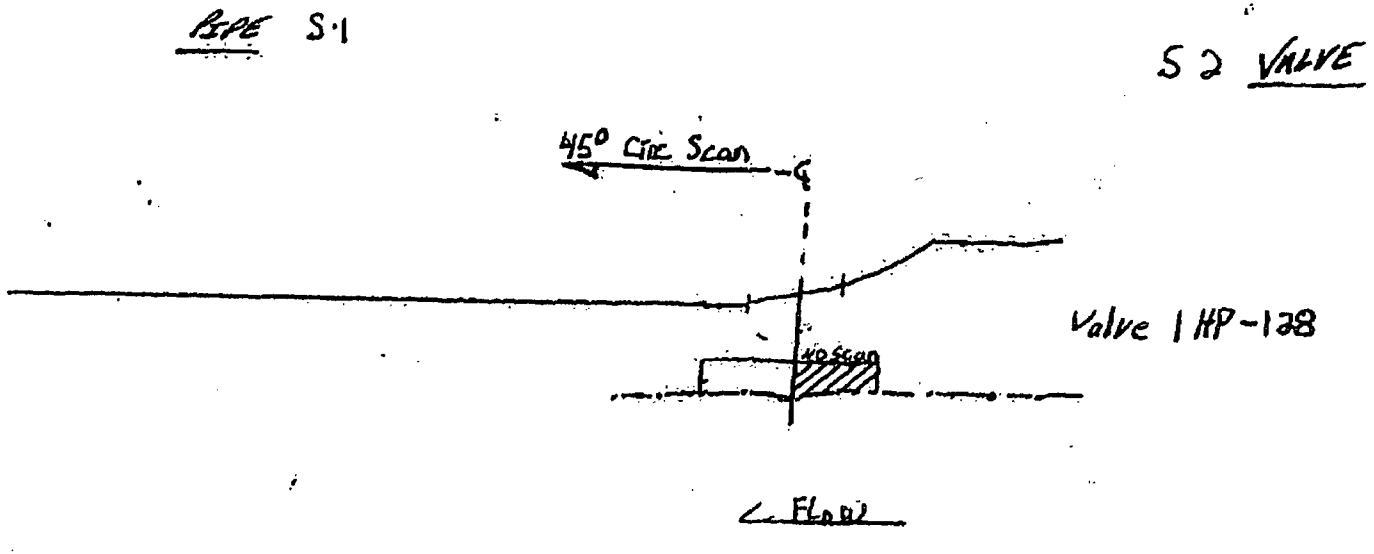
Report No.: UT-11-676
Page: 5 of 6

Summary No.: 01.CS.21.0024

Examiner:	Day, John, C.	Level: II-N	Reviewer:		Date: 4.8.11
Examiner:	Ransom, Greg J.	Level: II-N	Site Review:	N/A	Date:
Other:	N/A	Level: N/A	ANII Review:	Norma C Ritchie-Slaughter	Date: 4/9/11

Comments: Scale 1 to 1: Component ID - 1-S1A-01-91A

Sketch or Photo:



Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit:	Oconee / 1	Procedure:	PDI-UT-2	Outage No.:	O1-26
Summary No.:	O1.C5.21.0024	Procedure Rev.:	E	Report No.:	UT-11-678
Workscope:	ISI	Work Order No.:	01909579	Page:	6 of 6

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	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		% 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: Rod Hatfield Date: 4-7-2011

UT Calibration [illegible]amination

Site/Unit: Oconee / 1 | Procedure: PDI-UT-2 | Outage No.: O1-26
Summary No.: O1.C5.21.0041 | Procedure Rev.: 5 | Report No.: UT-11-707
Workscope: ISI | Work Order No.: 01909630 | Page: 1 of 6

Code: 1998/2000A | Cat./Item: C-F-1/C5.21 | Location:
Drawing No.: 1HP-324 | Description: Tee to Valve 1HP-119
System ID: 51A
Component ID: 1HP-324-118B | Size/Length: N/A | Thickness/Diameter: SS/0.375/2.5
Limitations: Yes- See attached sheets | Start Time: 1340 | Finish Time: 1405

Instrument Settings

Serial No.:	00WHDK		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	3.7058	Range:	1.0"
M'U Cal/Vel:	.1226	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	5 MHz
Filter:	Fixed	Mode:	PE
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	36.7	Circ. Gain (dB):	47.4
1 Screen Div. =	.1	In. of	Sound Path
Linearity Report No.:	L-11-136		

Calibration Block

Cal. Block No.	40378		
Thickness	0.375	Dia.:	2.5
Cal. Blk. Temp.	74	Temp. Tool:	MCNDE40128
Comp. Temp.	84	Temp. Tool:	MCNDE40128

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)
Results: Accept ☐ Reject ☑ Info ☐

Search Unit

Serial No.:	00DBVW		
Manufacturer:	KBA		
Size:	0.25	Shape:	Round
Freq.:	5 MHz	Style:	Comp - G
Exam Angle:	45	# of Elements:	Single
Mode:	SHEAR		
Measured Angle:	43		
Wedge Style:	MSWQC		

Search Unit Cable

Type:	RG - 174		
Length:	6'	No. Conn.:	0

Scan Coverage

Upstream ☑ Downstream ☑ Scan dB: 45.7
CW ☑ CCW ☑ Scan dB: 47.4
Exam Surface: O.D.
Surface Condition: As Ground

Cal. Checks	Time	Date
Initial Cal	0920	3/30/2011
Inter. Cal.		
Inter. Cal.	1345	3/30/2011
Inter. Cal.		
Final Cal	1625	3/30/2011

Couplant

Cal. Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH
Exam Batch	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH

Reference Block

Serial No.:	04-8737
Type:	ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
ID Notch	80	5.1	.503

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
ID Notch	80	6.0	.586

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
36.7	SDH	20	9.9	.980

Comments: PRF = 2550 Hz

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

Examiner	Level	Signature	Date	Reviewer	Signature	Date
Foss, Steven	II-N	Steven T. Foss	3/30/2011	[illegible]		4-21-11
Examiner	Level	Signature	Date	Site Review	Signature	Date
Tucker, Stephen B.	III	[illegible]	3/30/2011	N/A		
Other	Level	Signature	Date	ANII Review	Signature	Date
N/A	N/A			[illegible]		4/22/11

ATTACHMENT A
PAGE 79 OF 162

UT Calibration Examination

Site/Unit:	Oconee / 1	Procedure:	PDI-UT-2	Outage No.:	O1-26
Summary No.:	O1.C5.21.0041	Procedure Rev.:	E	Report No.:	UT-11-707
Workscope:	ISI	Work Order No.:	01909630	Page:	2 of 6

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

Drawing No.: 1HP-324 | Description: Tee to Valve 1HP-119

System ID: 51A

Component ID: 1HP-324-118B | Size/Length: N/A | Thickness/Diameter: SS/0.375/2.5

Limitations: Yes | Start Time: 1346 | Finish Time: 1405

Instrument Settings

Serial No.:	00WHDK		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	4.895	Range:	1.5
M'd Cal/Vel:	.1250	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	5 MHz
Filter:	Fixed	Mode:	PE
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	48.6	Circ. Gain (dB):	N/A
1 Screen Div. =	.15	In. of	Sound Path
Linearity Report No.:	L-11-136		

Calibration Block

Cal. Block No.	40378		
Thickness	0.375	Dia.:	2.5
Cal. Blk. Temp.	74	Temp. Tool:	MCNDE40128
Comp. Temp.	84	Temp. Tool:	MCNDE40128

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Results: Accept ☑ Reject ☐ Info ☐

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

Search Unit

Serial No.:	01JPCD		
Manufacturer:	KBA		
Size:	.25"	Shape:	Round
Freq.:	5 MHz	Style:	Comp-G
Exam Angle:	60	# of Elements:	Single
Mode:	Shear		
Measured Angle:	60		
Wedge Style:	MSWQC		

Search Unit Cable

Type:	RG - 174		
Length:	6'	No. Conn.:	0

Scan Coverage

Upstream ☑ Downstream ☑ Scan dB: 54.5

CW ☐ CCW ☐ Scan dB: N/A

Exam Surface:	O.D.
Surface Condition:	As Ground

Cal. Checks	Time	Date
Initial Cal	1000	3/30/2011
Inter. Cal.		
Inter. Cal.	1409	3/30/2011
Inter. Cal.		
Final Cal	1622	3/30/2011

Couplant

Cal. Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH
Exam Batch	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH

Reference Block

Serial No.:	04-6737
Type:	ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
ID Notch	80	4.1	.600

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
48.6	SDH	85	4.1	.597

Comments: PRF = 2532 Hz

Examiner	Level II-N	Signature	Date	Reviewer		Signature	Date
Foss, Steven			3/30/2011				4-26-11
Examiner	Level IIL	Signature	Date	Site Review		Signature	Date
Tucker, Stephen B.			3/30/2011				
Other	Level N/A	Signature	Date	ANII Review		Signature	Date
N/A							4/27/11

ATTACHMENT A
PAGE 80 OF 162

UT Calibration / Examination

Site/Unit:	Oconee / 1	Procedure:	PDI-UT-2	Outage No.:	O1-26
Summary No.:	O1.C5.21.0041	Procedure Rev.:	E	Report No.:	UT-11-707
Workscope:	ISI	Work Order No.:	01909630	Page:	3 of 6

Code:	1998/2000A	Cat./Item:	C-F-1/C5.21	Location:	
Drawing No.:	1HP-324	Description:	Tee to Valve 1HP-119		
System ID:	51A				
Component ID:	1HP-324-118B			Size/Length:	N/A
Thickness/Diameter:	SS/0.375/2.5				
Limitations:	Yes - See attached sheets			Start Time:	1428
Finish Time:	1440				

Instrument Settings

Serial No.:	00WHDK		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	6.6459	Range:	2.0
M'tl Cal/Vel:	1226	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2.25 MHz
Filter:	Fixed	Mode:	PE
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	57.9	Circ. Gain (dB):	N/A

1 Screen Div. = .2 in. of Sound Path

Linearity Report No.: L-11-136

Calibration Block

Cal. Block No.	40378		
Thickness	0.375	Dia.:	2.5
Cal. Blk. Temp.	74	Temp. Tool:	MCNDE40128
Comp. Temp.	84	Temp. Tool:	MCNDE40128

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Results: Accept ☐ Reject ☑ Info ☐

Search Unit

Serial No.:	SB0253		
Manufacturer:	KBA		
Size:	.25	Shape:	Round
Freq.:	2.25 MHz	Style:	Comp - G
Exam Angle:	70	# of Elements:	Single
Mode:	Shear		
Measured Angle:	68		
Wedge Style:	MSWQC		

Search Unit Cable

Type:	RG - 174		
Length:	6'	No. Conn.:	0

Scan Coverage

Upstream ☑ Downstream ☑ Scan dB: 57.9

CW ☐ CCW ☐ Scan dB: N/A

Exam Surface: O.D.

Surface Condition: As Ground

Cal. Checks	Time	Date
Initial Cal	1150	3/30/2011
Inter. Cal.		
Inter. Cal.	1427	3/30/2011
Inter. Cal.		
Final Cal	1619	3/30/2011

Couplant

Cal. Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH
Exam Batch	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH

Reference Block

Serial No.:	04-8737
Type:	ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
ID Notch	80	3.9	.771

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
52.7	SDH	80	3.7	.721

Comments: PRF = 1080 Hz

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

Examiner	Level II-N	Signature	Date	Reviewer		Signature	Date
Foss, Steven		Steven T Foss	3/30/2011				4.21.11
Examiner	Level IIL	Signature	Date	Site Review		Signature	Date
Tucker, Stephen B.			3/30/2011	N/A			
Other	Level N/A	Signature	Date	ANII Review		Signature	Date
N/A							4/27/11

DUKE POWER COMPANY
ISI LIMITATION REPORT

Component/Weld ID: 1HP-324-118B **Item No:** O1.C5.21.0041 **remarks:**

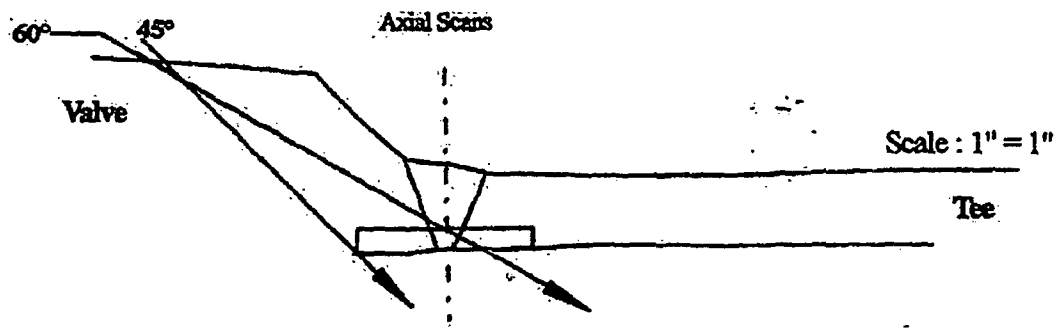
☐ NO SCAN	SURFACE		BEAM DIRECTION							Limited due to welded
☒ LIMITED SCAN	☒ 1	☐ 2	☐ 1	☒ 2	☐ cw	☐ ccw				attachments.
FROM L 1.75" to L 2.75"	INCHES FROM W0 CL to Beyond									
ANGLE: ☐ 0 ☒ 45 ☒ 60 other 70	FROM N/A DEG to N/A DEG									
☐ NO SCAN	SURFACE		BEAM DIRECTION							Limited due to welded
☒ LIMITED SCAN	☒ 1	☐ 2	☐ 1	☒ 2	☐ cw	☐ ccw				attachments.
FROM L 6.25 to L 7.25	INCHES FROM W0 CL to Beyond									
ANGLE: ☐ 0 ☒ 45 ☒ 60 other 70	FROM N/A DEG to N/A DEG									
☒ NO SCAN	SURFACE		BEAM DIRECTION							No scan due to valve
☐ 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	FROM 0 DEG to 360 DEG									
☐ NO SCAN	SURFACE		BEAM DIRECTION							
☐ LIMITED SCAN	☐ 1	☐ 2	☐ 1	☐ 2	☐ cw	☐ ccw				UT-11-707
FROM L to L	INCHES FROM W0 to									Sketch(s) attached
ANGLE: ☐ 0 ☐ 45 ☐ 60 other	FROM DEG to DEG									☒ yes ☐ No

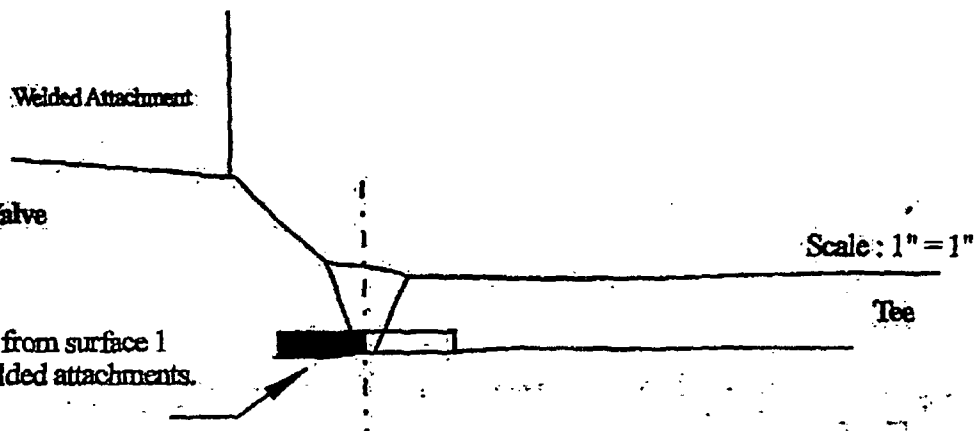
Prepared By: Steve Foss Level: II Date: 03/30/11 Sheet 4 of 8

Reviewed By: DE Jones Date: 4-21-11 Authorized Inspector: Date: 4/22/11

ATTACHMENT A
PAGE 82 OF 162

Summary No. 01.C5.21.0041 Weld No. 1-HP-324-118B





0% coverage claimed from surface 1 for (2) 1" areas due to welded attachments.

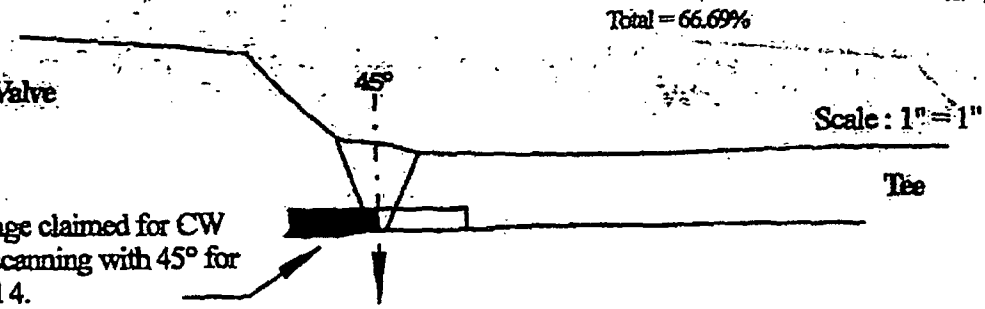
Surface 1
9.0275" circumference
-2.0" of missed coverage
= 7.0275" of coverage

7.0275/ 9.0275 x 100= 77.85%

Suface 2
100% coverage for 77.85% of length
50% coverage for 22.15% of length
= 88.925% coverage

Scan 1= 77.85%
Scan 2= 88.925%
Scan 3= 50%
Scan 4= 50%

Total = 66.69%



50% coverage claimed for CW and CCW scanning with 45° for scans 3 and 4.

ATTACHMENT A
PAGE 84 OF 162

Determination of Percent Coverage for UT Examinations - Vessels

Site/Unit:	Oconee / 1	Procedure:	PDI-UT-2	Outage No.:	O1-26
Summary No.:	O1.C5.21.0041	Procedure Rev.:	E	Report No.:	UT-11-707
Workscope:	ISI	Work Order No.:	01909630	Page:	6 of 6

0 deg Planar

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

45 deg

Scan 1 77.850 % Length X 100.000 % volume of length / 100 = 77.850 % total for Scan 1

Scan 2 88.925 % Length X 100.000 % volume of length / 100 = 88.925 % 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 = 66.694 % total for 45 deg

Other deg _____

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

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

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

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

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

Percent complete coverage

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

66.694 % Total for complete exam

Note:

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

Site Field Supervisor: [signature] Date: 4/21/11

UT Calibration Examination

Site/Unit:	Oconee / 1	Procedure:	PDI-UT-2	Outage No.:	O1-26
Summary No.:	O1.C5.21.0053	Procedure Rev.:	5	Report No.:	UT-11-785
Workscope:	ISI	Work Order No.:	01903807	Page:	1 of 7

Code:	1998/2000A	Cat./Item:	C-F-1/C5.21	Location:	
Drawing No.:	1-51A-02	Description:	Elbow to Valve 1HP-134		
System ID:	51A				
Component ID:	1-51A-02-34B	Size/Length:	N/A	Thickness/Diameter:	SS/.531/4.0
Limitations:	Valve configuration	Start Time:	1350	Finish Time:	1403

Instrument Settings

Serial No.:	014BLC		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60 SW		
Delay:	7.0016	Range:	1.50
Mtl Cal/Vel:	.1230.	Pulser:	Square
Damping:	500	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2.25 MHz
Filter:	Fixed	Mode:	PE
Voltage:	450	Other:	Fullwave
Ax. Gain (dB):	31.0	Circ. Gain (dB):	36.2
1 Screen Div. =	.15	In. of	Sound Path
Linearity Report No.:	L-11-140		

Calibration Block

Cal. Block No.	50275		
Thickness:	0.531	Dia.:	4.5
Cal. Blk. Temp.	74	Temp. Tool:	MCNDE40128
Comp. Temp.	68	Temp. Tool:	MCNDE40128

Search Unit

Serial No.:	00DNL3		
Manufacturer:	KBA		
Size:	0.25	Shape:	Round
Freq.:	2.25 MHz	Style:	Comp-G
Exam Angle:	45	# of Elements:	Single
Mode:	SHEAR		
Measured Angle:	44		
Wedge Style:	MSWQC		

Search Unit Cable

Type:	RG - 174		
Length:	6'	No. Conn.:	0

Scan Coverage

Upstream	☑	Downstream ☐	Scan dB: 43
CW	☑	CCW ☑	Scan dB: 49
Exam Surface:	O.D.		
Surface Condition:	As Ground		

Cal. Checks	Time	Date
Initial Cal	1033	4/17/2011
Inter. Cal.		
Inter. Cal.	1349	4/17/2011
Inter. Cal.		
Final Cal	1635	4/17/2011

Couplant

Cal. Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH
Exam Batch	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH

Reference Block

Serial No.:	A09322
Type:	ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
ID Notch	80	4.9	.729

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
ID Notch	80	3.5	.513

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
30.0	SDH	20	7.0	1.046

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Results: Accept ☐ Reject ☑ Info ☐

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

Comments: Pulse Width = 220 NS

Examiner	Level	Signature	Date
Lester, Robert M.	II-N	Robert M. Lester	4/17/2011
Foss, Steven	II-N	Steven Foss	4/17/2011
N/A	N/A		

Reviewer	Signature	Date
	Gary Moss	4-22-11
Site Review N/A	Signature	Date
ANII Review	Signature	Date
	Nancy C. Ritchie Slaughter	4/26/11

ATTACHMENT A
PAGE 85 OF 162

UT Calibration Examination

Site/Unit:	Oconee / 1	Procedure:	PDI-UT-2	Outage No.:	01-26
Summary No.:	01.C5.21.0053	Procedure Rev.:	E	Report No.:	UT-11-785
Workscope:	ISI	Work Order No.:	01903607	Page:	2 of 7

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

Drawing No.: 1-51A-02 Description: Elbow to Valve 1HP-134

System ID: 51A

Component ID: 1-51A-02-34B Size/Length: N/A Thickness/Diameter: SS/.531/4.0

Limitations: Valve configuration Start Time: 1405 Finish Time: 1417

Instrument Settings

Serial No.:	014BLC		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60 SW		
Delay:	5.4803	Range:	2.00
M'tl Cal/Vel:	.1230	Pulser:	Square
Damping:	500	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2.25 MHz
Filter:	Fixed	Mode:	PE
Voltage:	450	Other:	Fullwave
Ax. Gain (dB):	35.7	Circ. Gain (dB):	N/A

1 Screen Div. = .2 In. of Sound Path

Linearity Report No.: L-11-140

Calibration Block

Cal. Block No.:	50275		
Thickness:	0.531	Dia.:	4.5
Cal. Blk. Temp.:	74	Temp. Tool:	MCNDE40128
Comp. Temp.:	68	Temp. Tool:	MCNDE40128

Search Unit

Serial No.:	00DCC8		
Manufacturer:	KBA		
Size:	0.25	Shape:	Round
Freq.:	2.25 MHz	Style:	Comp - G
Exam Angle:	60	# of Elements:	Single
Mode:	SHEAR		
Measured Angle:	60		
Wedge Style:	MSWQC		

Search Unit Cable

Type: RG - 174 Length: 6' No. Conn.: 0

Scan Coverage

Upstream ☐ Downstream ☑ Scan dB: 41.7

CW ☐ CCW ☐ Scan dB: N/A

Exam Surface: O.D.

Surface Condition: As Ground

Cal. Checks	Time	Date
Initial Cal	1153	4/17/2011
Inter. Cal.		
Inter. Cal.	1404	4/17/2011
Inter. Cal.		
Final Cal	1640	4/17/2011

Couplant

Cal. Batch: 09325

Type: ULTRAGEL II

Mfg.: SONOTECH

Exam Batch 09325

Type: ULTRAGEL II

Mfg.: SONOTECH

Reference Block

Serial No.: A09322

Type: ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
3/4" SDH	80	3.7	.728

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
39.1	FSDH	48	7.4	1.474

Recordable Indication(s): ~~Yes~~ ☑ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Results: Accept ☐ Reject ☑ Info ☐

Comments: Pulse Width = 220 NS

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

	Level	Signature	Date
Examiner: Lester, Robert M.	II-N	Robert M Lester	4/17/2011
Examiner: Foss, Steven	II-N	Steven Foss	4/17/2011
Other: N/A	N/A		

	Signature	Date
Reviewer	Gary Moss	4-22-11
Site Review	N/A	
ANII Review	Nancy C Ritchie Stoughton	4/26/11

UT Calibration Examination

Site/Unit: Oconee / 1 | Procedure: PDI-UT-2 | Outage No.: O1-28
Summary No.: O1.C5.21.0053 | Procedure Rev.: E | Report No.: UT-11-785
Workscope: ISI | Work Order No.: 01903607 | Page: 3 of 7

Code: 1998/2000A | Cal./Item: C-F-1/C5.21 | Location:
Drawing No.: 1-51A-02 | Description: Elbow to Valve 1HP-134
System ID: 51A
Component ID: 1-51A-02-34B | Size/Length: N/A | Thickness/Diameter: SS/.531/4.0
Limitations: Valve configuration | Start Time: 1419 | Finish Time: 1430

Instrument Settings

Serial No.:	014BLC		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60 SW		
Delay:	6.7625	Range:	2.00
M'tl Cal/Vel:	.2273	Pulser:	Square
Damping:	500	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2 MHz
Filter:	Fixed	Mode:	Dual
Voltage:	450	Other:	Fullwave
Ax. Gain (dB):	43.0	Circ. Gain (dB):	N/A
1 Screen Div. =	.2	In. of	Sound Path
Linearity Report No.:	L-11-140		

Calibration Block

Cal. Block No.	50275		
Thickness	0.531	Dia.:	4.5
Cal. Blk. Temp.	74	Temp. Tool:	MCNDE40128
Comp. Temp.	68	Temp. Tool:	MCNDE40128

Search Unit

Serial No.:	10-1205		
Manufacturer:	RTD		
Size:	2(7X10)	Shape:	Rect.
Freq.:	2.0 MHz	Style:	TRL 2
Exam Angle:	60	# of Elements:	Dual
Mode:	Long.		
Measured Angle:	60		
Wedge Style:	Integral		

Search Unit Cable

Type:	RG - 174		
Length:	6'	No. Conn.:	0

Scan Coverage

Upstream ☐ Downstream ☑ Scan dB: 46.0
CW ☐ CCW ☐ Scan dB: N/A
Exam Surface: O.D.
Surface Condition: As Ground

Cal. Checks	Time	Date
Initial Cal	1210	4/17/2011
Inter. Cal.		
Inter. Cal.	1418	4/17/2011
Inter. Cal.		
Final Cal	1645	4/17/2011

Couplant

Cal. Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH
Exam Batch	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH

Reference Block

Serial No.:	A09322
Type:	ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
3/4" SDH	80	3.9	.768

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
30.0	1"Radius	83	5.0	1.007

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)
Results: Accept ☐ Reject ☑ Info ☐
Comments: Width = 250 NS
Percent Of Coverage Obtained > 90%: No | Reviewed Previous Data: Yes

Examiner	Level II-N	Signature	Date	Reviewer		Signature	Date
Lester, Robert M.		Robert M. Lester	4/17/2011		Gary L. Moss		4-22-11
Examiner	Level II-N	Signature	Date	Site Review		Signature	Date
Fosa, Steven		Steven A. Fosa	4/17/2011		N/A		
Other	Level N/A	Signature	Date	ANII Review		Signature	Date
N/A					Nancy C. Ritchie Stoughton		4/26/11

ATTACHMENT A
PAGE 67 OF 162

DUKE POWER COMPANY

ISI LIMITATION REPORT

Component/Weld ID: 1-51A-02-34B **Item No:** 01.C5.21.0053 | **remarks:**

☐ NO SCAN SURFACE BEAM DIRECTION | Upstream scan limited due to
☒ LIMITED SCAN ☐ 1 ☒ 2 ☒ 1 ☐ 2 ☒ cw ☒ ccw | valve configuration
FROM L 0.0" to L 14.13 INCHES FROM W0 CL to .85" |
ANGLE: ☐ 0 ☒ 45 ☐ 60 other ____ FROM N/A DEG to N/A DEG |

☒ NO SCAN SURFACE BEAM DIRECTION | Upstream scan limited due to
☐ LIMITED SCAN ☐ 1 ☒ 2 ☒ 1 ☐ 2 ☐ cw ☐ ccw | valve configuration
FROM L 0.0" to L 14.13" INCHES FROM W0 1.15" to Beyond |
ANGLE: ☐ 0 ☒ 45 ~~☒~~ 60 RL 4-22-11 other ____ FROM N/A DEG to N/A DEG |

☒ NO SCAN SURFACE BEAM DIRECTION | Upstream scan limited due to
☐ LIMITED SCAN ☐ 1 ☒ 2 ☒ 1 ☐ 2 ☒ cw ☒ ccw | valve configuration
FROM L 0.0" to L 14.13" 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 | UT-11-785
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: Robert Lester Level: II Date: 04/17/11 Sheet 4 of 7

Reviewed By: Gary Moss Date: 4-22-11 Authorized Inspector: Nancy Christine Stoughton Date: 4/26/11

attachment A
page 88 of 162

Summary No.: O1.C5.21.0053
Examiner: Lester, Robert M. Robert M Lester Level: II-N Reviewer: Dan J Moore Date: 4-22-11
Examiner: Foss, Steven Steven T Foss Level: II-N Site Review: N/A Date:
Other: N/A Level: N/A ANII Review: Nancy C Ritchie Creighton Date: 4/27/11

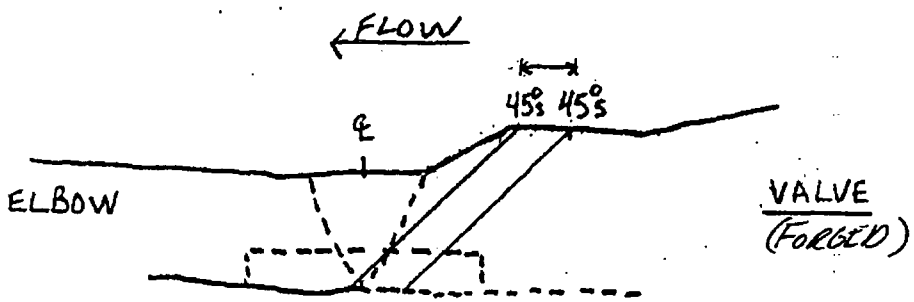
Comments: **See pages 4 & 7 for limitations and coverage calculations.**

Sketch or Photo:

O1.C5.21.0053

1-51A-02-34B

MAXIMUM SCAN AREA ON VALVE SIDE



Supplemental Report

Report No.: UT-...-785

Page: 6 of 7

Summary No.: O1.C5.21.0053

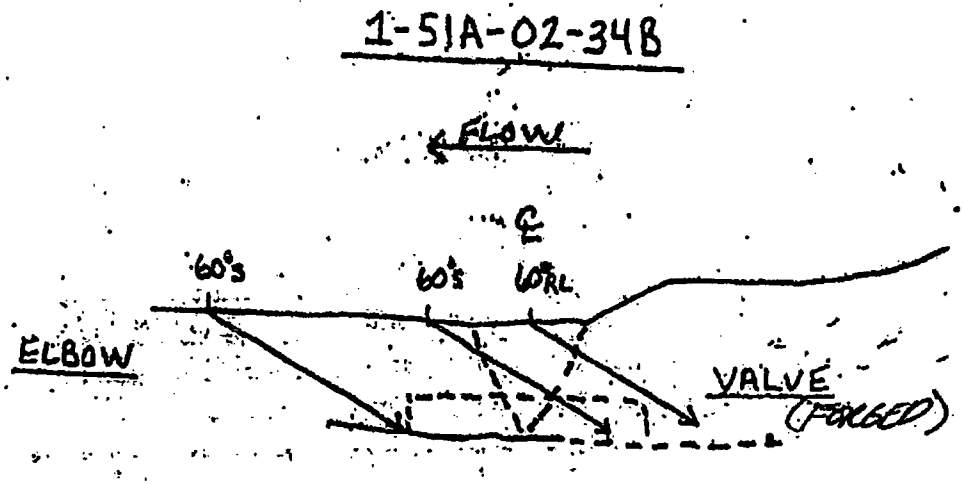
Examiner: Lester, Robert M. — Level: II-N — Reviewer: Gary Mor — Date: 4-22-11

Examiner: Foss, Steven — Level: II-N — Site Review: N/A — Date:

Other: N/A — Level: N/A — ANII Review: Money Chitwood Stoughton — Date: 4/27/11

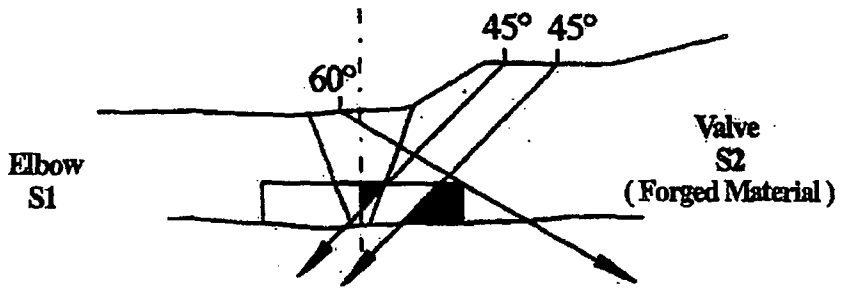
Comments:

Sketch or Photo:

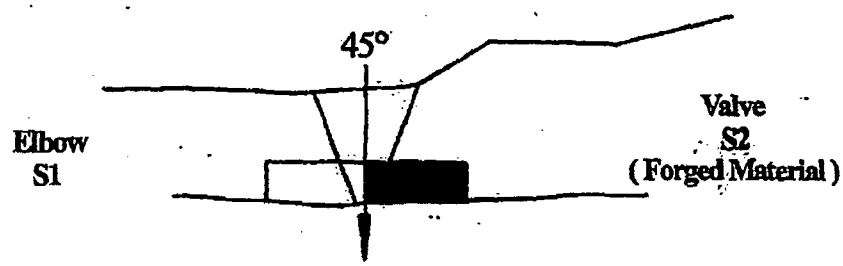


Summary No.: 01.C5.21.0053 Weld No. : 1-51A-02-34B

Axial Scans



Circ Scans



Scale: 1" = 1"

% Coverage Calculations

S1 = Elbow	=	100%	(100% of the length x 100% of the volume)
S2 = Valve	=	46.1%	(100% of the length x 46.1% 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	=	**246.1 / 4**	**= 61.525 % Aggregate Coverage**

Inspector / Date: David L. Bell / 4/20/11 Page 7 of 7

UT Calibration / Examination

Site/Unit:	Oconee / 1	Procedure:	PDI-UT-2	Outage No.:	O1-26
Summary No.:	O1.C5.21.0057	Procedure Rev.:	E	Report No.:	UT-11-677
Workscope:	ISI	Work Order No.:	01909633	Page:	1 of 7

Code:	1998/2000A	Cat./Item:	C-F-1/C5.21	Location:	
Drawing No.:	1HP-193	Description:	Tee to Valve 1HP-26		
System ID:	51A				
Component ID:	1HP-193-12	Size/Length:	N/A	Thickness/Diameter:	SS/.531/ 4.0
Limitations:	Yes - See attached sheets	Start Time:	1335	Finish Time:	1345

Instrument Settings

Serial No.:	014BLC		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60 SW		
Delay:	4.7000	Range:	1.500
Mil Cal/Vel:	.1230	Pulser:	Square
Damping:	500	Reject:	0
Rep. Rate:	Autohigh	Freq.:	2.25 MHz
Filter:	Fixed	Mode:	PE
Voltage:	450	Other:	Fullwave
Ax. Gain (dB):	27.1	Circ. Gain (dB):	27.1
1 Screen Div. =	.15	In. of:	Sound Path
Linearity Report No.:	L-11-140		

Calibration Block

Cal. Block No.:	50275		
Thickness:	.526	Dia.:	4.0"
Cal. Blk. Temp.:	73	Temp. Tool:	MCNDE40135
Comp. Temp.:	87	Temp. Tool:	MCNDE40135

Search Unit

Serial No.:	00DD72		
Manufacturer:	KBA		
Size:	0.25	Shape:	Round
Freq.:	2.25 MHz	Style:	Comp - G
Exam Angle:	45	# of Elements:	Single
Mode:	SHEAR		
Measured Angle:	46		
Wedge Style:	MSWQC		

Search Unit Cable

Type:	RG - 174		
Length:	6'	No. Conn.:	0

Scan Coverage

Upstream ☑	Downstream ☐	Scan dB:	33.1
CW ☑	CCW ☑	Scan dB:	33.1
Exam Surface:	O.D.		
Surface Condition:	As Ground		

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Results: Accept ☐ Reject ☑ Info ☐

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

Cal. Checks	Time	Date
Initial Cal	0900	3/30/2011
Inter. Cal.		
Inter. Cal.	1330	3/30/2011
Inter. Cal.		
Final Cal	1530	3/30/2011

Couplant

Cal. Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH
Exam Batch	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH

Reference Block

Serial No.:	04-8741
Type:	ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
ID Notch	80	6.0	.744

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
See Axial			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
26.2	1" Radius	80	6.7	.707

Comments: N/A

Examiner	Level II-N	Signature	Date	Reviewer		Signature	Date
Bull, W. Keith			3/30/2011				4-9-11
Examiner	Level II-N	Signature	Date	Site Review		Signature	Date
Hassel, Matthew, S.			3/30/2011	N/A			
Other	Level N/A	Signature	Date	ANII Review		Signature	Date
N/A				Nancy C. Ritchie Slaughter			4/21/11

ATTACHMENT A
PAGE 92 OF 162

UT Calibration [redacted]ination

Site/Unit:	Oconee / 1	Procedure:	PDI-UT-2	Outage No.:	O1-28
Summary No.:	O1.C5.21.0057	Procedure Rev.:	E	Report No.:	UT-11-677
Workscope:	ISI	Work Order No.:	01909833	Page:	2 of 7

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

Drawing No.: 1HP-193 Description: Tee to Valve 1HP-26

System ID: 51A

Component ID: 1HP-193-12 Size/Length: N/A Thickness/Diameter: SS/.531/ 4.0

Limitations: Yes - See Attached Sheets Start Time: 0824 Finish Time: 1057

Instrument Settings

Serial No.:	014BLC		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60 SW		
Delay:	4.6378	Range:	1.5
M'tl Cal/Vel:	.123	Pulser:	Square
Damping:	500	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2.25 MHz
Filter:	Fixed	Mode:	PE
Voltage:	450	Other:	Fullwave
Ax. Gain (dB):	41.3	Circ. Gain (dB):	N/A

1 Screen Div. = .15 In. of Sound Path

Linearity Report No.: L-11-140

Calibration Block

Cal. Block No.	50275		
Thickness	.526	Dia.:	4.0"
Cal. Blk. Temp:	73	Temp. Tool:	MCNDE40135
Comp. Temp.	87	Temp. Tool:	MCNDE40135

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Results: Accept ☐ Reject ☑ Info ☐

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

Search Unit

Serial No.:	01F3J5		
Manufacturer:	KBA		
Size:	.25	Shape:	Round
Freq.:	2.25 MHz	Style:	Comp - G
Exam Angle:	60	# of Elements:	Single
Mode:	Shear		
Measured Angle:	60		
Wedge Style:	MSWQC		

Search Unit Cable

Type:	RG - 174		
Length:	6'	No. Conn.:	0

Scan Coverage

Upstream ☑ Downstream ☐ Scan dB: 47.3

CW ☐ CCW ☐ Scan dB: N/A

Exam Surface: O.D.

Surface Condition: As Ground

Cal. Checks	Time	Date
Initial Cal	0824	4/9/2011
Inter. Cal.		
Inter. Cal.	1001	4/9/2011
Inter. Cal.		
Final Cal	1157	4/9/2011

Couplant

Cal. Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH
Exam Batch	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH

Reference Block

Serial No.:	04-8741
Type:	ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
3/4 Hole	80	6.4	.505

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
41.3	NSH	45	4.6	.668

Comments: N/A

Examiner	Level	Signature	Date
Bull, W. Keith	II-N	[signature]	4/9/2011
Muirhead, Barry A.	II-N	[signature]	4/9/2011
N/A	N/A		

Reviewer	[signature]		4-9-11
Site Review	[signature]		
ANII Review	Nancy C. Rutter Stoughton		4/21/11

ATTACHMENT A
PAGE 93 OF 162

UT Calibration Examination

Site/Unit: Oconee / 1 | Procedure: PDI-UT-2 | Outage No.: O1-28
Summary No.: O1.C5.21.0057 | Procedure Rev.: E | Report No.: UT-11-677
Workscope: ISI | Work Order No.: 01909633 | Page: 3 of 7

Code: 1998/2000A | Cat./Item: C-F-1/C5.21 | Location:
Drawing No.: 1HP-193 | Description: Tee to Valve 1HP-28
System ID: 61A
Component ID: 1HP-193-12 | Size/Length: N/A | Thickness/Diameter: 98/.531/ 4.0
Limitations: Yes - See attached sheets | Start Time: 0812 | Finish Time: 1059

Instrument Settings

Serial No.:	014BLC		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60 SW		
Delay:	9.6559	Range:	3"
M'll Cal/Vel:	.230	Pulser:	Square
Damping:	500	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2.0 MHz
Filter:	Fixed	Mode:	Dual
Voltage:	450	Other:	Fullwave
Ax. Gain (dB):	40.6	Circ. Gain (dB):	N/A

1 Screen Div. = .3 In. of Sound Path
Linearity Report No.: L-11-140

Calibration Block

Cal. Block No.	50275		
Thickness	.528	Dia.:	4.0"
Cal. Blk. Temp.	73	Temp. Tool:	MCNDE40135
Comp. Temp.	87	Temp. Tool:	MCNDE40135

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)
Results: Accept ☐ Reject ☑ Info ☐
Percent Of Coverage Obtained > 90%: No

Search Unit

Serial No.:	11-87		
Manufacturer:	RTD		
Size:	2(8x14)1/4	Shape:	Rect.
Freq.:	2.0 MHz	Style:	TRL 2
Exam Angle:	70	# of Elements:	Dual
Mode:	Long.		
Measured Angle:	68		
Wedge Style:	Integral		

Search Unit Cable

Type:	RG - 174		
Length:	6'	No. Conn.:	0

Scan Coverage

Upstream ☑ Downstream ☐ Scan dB: 46.6
CW ☐ CCW ☐ Scan dB: N/A
Exam Surface: O.D.
Surface Condition: As Ground

Cal. Checks	Time	Date
Initial Cal	0812	4/9/2011
Inter. Cal.		
Inter. Cal.	0944	4/9/2011
Inter. Cal.		
Final Cal	1059	4/9/2011

Couplant

Cal. Batch:	09326
Type:	ULTRAGEL II
Mfg.:	SONOTECH
Exam Batch	09326
Type:	ULTRAGEL II
Mfg.:	SONOTECH

Reference Block

Serial No.: 6279-0409
Type: IIW Alt

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
3/4 Hole	80	3.8	1.149

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
30.1	2"	82	6.6	1.977

Comments: N/A

Examiner	Level		Signature	Date	Reviewed	Signature	Date
Bull, W. Keith	II-N			4/9/2011			4-20-11
Examiner	Level		Signature	Date	Site Review	Signature	Date
Muirhead, Barry A.	II-N			4/9/2011	SA		
Other	Level		Signature	Date	ANII Review	Signature	Date
N/A	N/A				Nancy C. Ritchie-Slaughter		4/21/11

ATTACHMENT A
PAGE 94 OF 162

DUKE POWER COMPANY

ISI LIMITATION REPORT

Component/Weld ID: 1HP-193-12 **Item No:** O1.C5.21.0057

☒ NO SCAN SURFACE BEAM DIRECTION
☐ LIMITED SCAN ☒ 1 ☐ 2 ☐ 1 ☒ 2 ☒ cw ☒ ccw
FROM L 0 to L 360 INCHES FROM W0 CL to Beyond
ANGLE: ☐ 0 ☒ 45 ☒ 60 other 70RL FROM 0 360 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 cast stainless valve configuration.

UT-11-677

Sketch(s) attached
☒ yes ☐ No

Prepared By: Matthew Hassel Level: II Date: 03/30/11 Sheet 4 of 7
Reviewed By: Gary N Moss Date: 4-20-11 Authorized Inspector: Nancy C Ritchie Slaughter Date: 4/21/11

Supplemental Report

Report No.: UT-11-677

Page: 5 of 7

Summary No.: O1.C5.21.0057

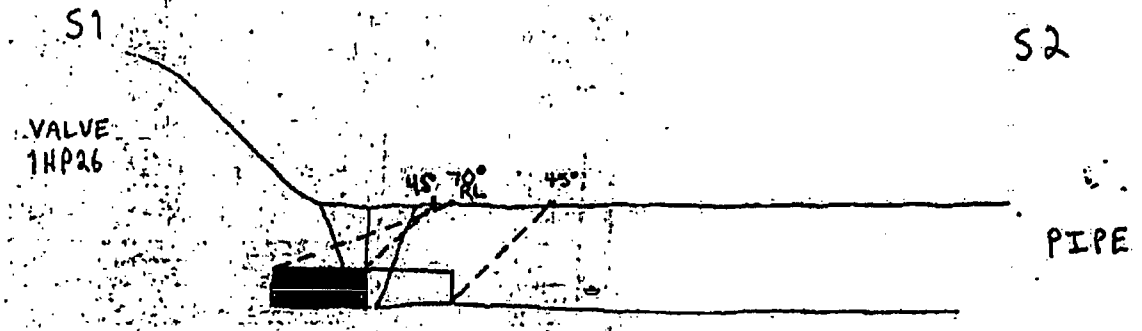
Examiner: Bull, W. Keith Level: II-N Reviewer: M E Howser Date: 4-9-11

Examiner: Hassel, Matthew, S. Level: II-N Site Review: N/A Date:

Other: N/A Level: N/A ANII Review: Nancy C Ritchie Stoughton Date: 4/21/11

Comments: Weld 1 HP-193-12 Coverage

Sketch or Photo:



ATTACHMENT A
PAGE 96 OF 162

Supplemental Report

Report No.: UT-11-677

Page: 6 of 7

Summary No.: O1.C5.21.0057

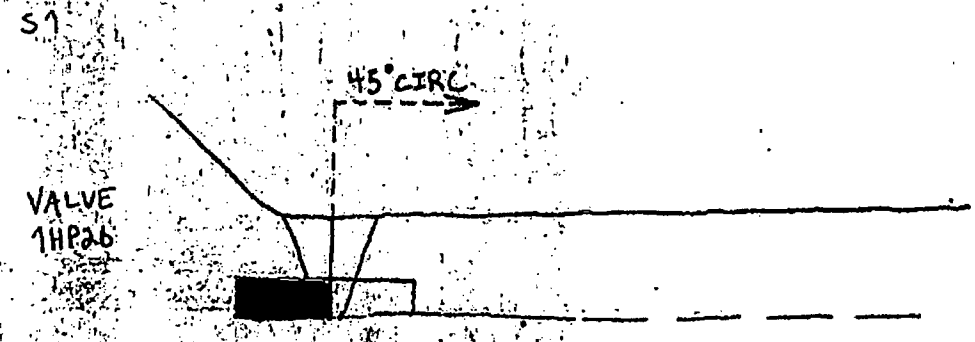
Examiner: Bull, W. Keith — Level: II-N — Reviewer: M E Hansen — Date: 4.9.11

Examiner: Hassel, Matthew, S. — Level: II-N — Site Review: N/A — Date:

Other: N/A — Level: N/A — ANII Review: Nancy C Retzlaff Stoughton — Date: 4/21/14

Comments: Weld 1HP-193-12 Coverage

Sketch or Photo:



ATTACHMENT A
PAGE 97 OF 162

ATTACHMENT A
PAGE 98 OF 162

Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit:	Oconee / 1	Procedure:	PDI-UT-2	Outage No.:	O1-26
Summary No.:	O1.C5.21.0057	Procedure Rev.:	E	Report No.:	UT-11-677
Workscope:	ISI	Work Order No.:	01909633	Page:	7 of 7

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: _____ (to be used for supplemental scans)

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

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

Percent complete coverage

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

37.500 % Total for complete exam

Site Field Supervisor: David K. Zimmerman Date: 4/12/2011

UT Calibration / Examination

Duke Energy

Site/Unit: Oconee / 1	Procedure: PDI-UT-2	Outage No.: O1-26
Summary No.: O1.C5.21.0066	Procedure Rev.: E	Report No.: UT-11-670
Workscope: ISI	Work Order No.: 01909587	Page: 1 of 8

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

Drawing No.: 1-51A-01(4) Description: Valve 1HP-108 to Pipe

System ID: 51A

Component ID: 1-51A-01-103A Size/Length: N/A Thickness/Diameter: 0.438 / 3.0/ SS

Limitations: Yes. See attached sheet Start Time: 1421 Finish Time: 1440

Instrument Settings

Serial No.:	011MBT		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	3.9322	Range:	1.0
M'U Cal/Vel:	.1231	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	5 MHz
Filter:	Fixed	Mode:	PE
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	31.3	Circ. Gain (dB):	32.7
1 Screen Div. =	1 in. of	Sound Path	
Linearity Report No.:	L-11-133		

Calibration Block

Cal. Block No.:	50225		
Thickness:	0.438	Dia.:	3.5
Cal. Blk. Temp.:	76	Temp. Tool:	MCNDE40129
Comp. Temp.:	77	Temp. Tool:	MCNDE40129

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Results: Accept ☐ Reject ☑ Info ☐

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

Search Unit

Serial No.:	01FBW4		
Manufacturer:	KBA		
Size:	.25	Shape:	Round
Freq.:	5 MHz	Style:	Comp - G
Exam Angle:	45	# of Elements:	Single
Mode:	Shear		
Measured Angle:	45		
Wedge Style:	MSWQC		

Search Unit Cable

Type:	RG - 174		
Length:	6'	No. Conn.:	0

Scan Coverage

Upstream ☐ Downstream ☑ Scan dB: 36.3

CW ☑ CCW ☑ Scan dB: 36.3

Exam Surface: O.D.

Surface Condition: As Ground

Cal. Checks	Time	Date
Initial Cal	1319	2/2/2011
Inter. Cal.		
Inter. Cal.	1400	2/2/2011
Inter. Cal.		
Final Cal	1600	2/2/2011

Couplant

Cal. Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH
Exam Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH

Reference Block

Serial No.:	04-8741
Type:	ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
ID Notch	80	6.0	.6

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
See Axial			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
29.7	1" Radius	80	10	1.0

Comments: N/A

Examiner	Level		Signature	Date	Reviewer	Signature	Date
Day, John, C.	II-N			2/2/2011			2/2/2011
Examiner	Level		Signature	Date	Site Review	Signature	Date
Leeper, Winfred C.	II-N			2/2/2011	N/A		
Other	Level		Signature	Date	ANII Review	Signature	Date
N/A	N/A						4/4/11

ATTACHMENT A
PAGE 99 OF 162

UT Calibration Examination

Site/Unit: Oconee / 1 | Procedure: PDI-UT-2 | Outage No.: O1-26
Summary No.: O1.C5.21.0068 | Procedure Rev.: E | Report No.: UT-11-670
Workscope: ISI | Work Order No.: 01909587 | Page: 2 of 8

Code: 1998/2000A | Cat./Item: C-F-1/C5.21 | Location:
Drawing No.: 1-51A-01(4) | Description: Valve 1HP-109 to Pipe
System ID: 51A
Component ID: 1-51A-01-103A | Size/Length: N/A | Thickness/Diameter: 0.438 / 3.0/ SS
Limitations: Yes - See Attached Sheets | Start Time: 1442 | Finish Time: 1500

Instrument Settings

Serial No:	011MBT		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	4.9662	Range:	2.0
M'd Cal/Vel:	.1234	Pulser:	High
Damping:	1K	Reject:	0%
Rep Rate:	Autohigh	Freq.:	5 MHz
Filter:	Fixed	Mode:	PE
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	47.2	Circ. Gain (dB):	N/A
1 Screen Div. =	.2	in. of	Sound Path
Linearity Report No:	L-11-133		

Calibration Block

Cal. Block No:	50225		
Thickness S:	0.438	Dia.:	3.5
Cal Blk. Temp:	76	Temp. Tool:	MCNDE40129
Comp. Temp:	77	Temp. Tool:	MCNDE40129

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)
Results: Accept ☐ Reject ☑ Info ☐
Percent Of Coverage Obtained > 90%: No

Search Unit

Serial No.:	0103CM		
Manufacturer:	KBA		
Size:	0.25	Shape:	Round
Freq.:	5.0 MHz	Style:	Comp - G
Exam Angle:	60	# of Elements:	Single
Mode:	Shear		
Measured Angle:	60		
Wedge Style:	MSWQC		

Search Unit Cable

Type: RG - 174 | Length: 6' | No. Conn.: 0

Scan Coverage

Upstream ☐ Downstream ☑ Scan dB: 48.1
CW ☐ CCW ☐ Scan dB: N/A
Exam Surface: O.D.
Surface Condition: As Ground

Cal. Checks	Time	Date
Initial Cal	1325	2/2/2011
Inter. Cal.		
Inter. Cal.	1441	2/2/2011
Inter. Cal.		
Final Cal	1605	2/2/2011

Couplant

Cal. Batch: 09325
Type: ULTRAGEL II
Mfg.: SONOTECH
Exam Batch: 09325
Type: ULTRAGEL II
Mfg.: SONOTECH

Reference Block

Serial No.: 04-8741
Type: ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
ID Notch	80	4.9	.876

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
31.8	1" Radius	80	6	1

Comments: N/A

Examiner: Day, John, C	Level: II-N	Signature: John W	Date: 2/2/2011	Reviewer	Signature		Date: 2/3/2011
Examiner: Leeper, Winfred C	Level: II-N	Signature: Winfred C Leeper	Date: 2/2/2011	Site Review	N/A	Signature	Date
Other: N/A	Level: N/A	Signature	Date	ANII Review	Signature: Donny C Stretch Stoughton		Date: 4/4/11

ATTACHMENT A
PAGE 100 OF 162

UT Calibration [illegible]mination

Site/Unit: Oconee / 1 | Procedure: PDI-UT-2 | Outage No.: O1-26
Summary No.: O1.C5.21.0066 | Procedure Rev.: E | Report No.: UT-11-670
Workscope: ISI | Work Order No.: 01909567 | Page: 3 of 8

Code: ASME 1998/2000A | Cat./Item: C-F-1/C5.21 | Location:
Drawing No: 1-51A-01(4) | Description: Valve 1HP-109 to Pipe
System ID: 51A
Component ID: 1-51A-01-103A | Size/Length: N/A | Thickness/Diameter: 0.438 / 3.0/ SS
Limitations: Yes - See attached sheet | Start Time: 1130 | Finish Time: 1200

Instrument Settings

Serial No:	00X14L		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	14.0666	Range:	2.5
MTI Cal/Vel:	1224	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2.25 MHz
Filter:	Fixed	Mode:	PE
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	33.6	Circ. Gain (dB):	33.6
1 Screen Div. =	.25	In. of	Sound Path
Linearity Report No.:	L-11-131		

Calibration Block

Cal. Block No.:	PDI-UT-2A-O		
Thickness:	.375-1.25	Dia.:	Flat
Cal. Blk. Temp.:	72	Temp. Tool:	MCNDE40128
Comp. Temp.:	77	Temp. Tool:	MCNDE40128

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report)

Results: Accept ☐ Reject ☑ Info ☐

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

Search Unit

Serial No.:	SB0253		
Manufacturer:	GE		
Size:	.25	Shape:	Round
Freq.:	2.25 MHz	Style:	Comp - G
Exam Angle:	45	# of Elements:	Single
Mode:	Shear		
Measured Angle:	43		
Wedge Style:	MSWQC		

Search Unit Cable

Type:	RG - 174		
Length:	6'	No. Conn.:	0

Scan Coverage

Upstream ☑ Downstream ☑ Scan dB: 40.6
CW ☑ CCW ☑ Scan dB: 40.6
Exam Surface: O.D.
Surface Condition: As Ground

Cal. Checks	Time	Date
Initial Cal	0825	2/8/2011
Inter. Cal.		
Inter. Cal.	1000	2/8/2011
Inter. Cal.		
Final Cal	1530	2/8/2011

Couplant

Cal. Batch:	09326
Type:	ULTRAGEL II
Mfg.:	SONOTECH
Exam Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH

Reference Block

Serial No.:	04-8740
Type:	ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
.375 Notch	80	2.1	.526
.750 Notch	80	4.1	1.03
1.250 Notch	80	6.8	1.701

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
See Axial			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
27.0	1" Radius	80	4.0	1.0

Comments: N/A

Examiner: Day, John, C.	Level: II-N	Signature:	Date: 2/8/2011	Reviewer:		Signature:	Date: 2/8/2011
Examiner: Ransom, Greg J.	Level: II-N	Signature:	Date: 2/8/2011	Site Review:	N/A	Signature:	Date:
Other: N/A	Level: N/A	Signature:	Date:	ANII Review:	Nancy C. Ritchie Stoughton	Signature:	Date: 4/4/11

ATTACHMENT A
PAGE 104 OF 162

UT Calibration Examination

Site/Unit: Oconee / 1 | Procedure: PDI-UT-2 | Outage No.: O1-28
Summary No.: O1.C5.21.0066 | Procedure Rev.: E | Report No.: UT-11-670
Workscope: ISI | Work Order No.: 01909587 | Page: 4 of 6

Code: 1998/2000A | Cat./Item: C-F-1/C5.21 | Location:
Drawing No.: 1-51A-01(4) | Description: Valve 1HP-109 to Pipe
System ID: 51A
Component ID: 1-51A-01-103A | Size/Length: N/A | Thickness/Diameter: 0.438 / 3.0/ SS
Limitations: Yes - See Attached Sheets | Start Time: 1208 | Finish Time: 1221

Instrument Settings

Serial No.	00X14L		
Manufacturer	KRAUTKRAMER		
Model	USN-60		
Delay	5.4262	Range	5.0"
M'U Cal/Vel	.1229	Pulser	High
Damping	1K	Reject	0%
Rep. Rate	Autohigh	Freq.	2.25 MHz
Filter	Fixed	Mode	PE
Voltage	Fixed	Other	Fullwave
Ax. Gain (dB)	41.8	Circ. Gain (dB)	41.8
1 Screen Div. =	.5	In. of	Sound Path
Linearity Report No.	L-11-131		

Calibration Block

Cal. Block No.	PDI-UT-2A-O		
Thickness	3.75-1.25	Dia.	Flat
Cal. Blk. Temp.	72	Temp. Tool	MCNDE40129
Comp. Temp.	77	Temp. Tool	MCNDE40129

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)
Results: Accept ☐ Reject ☑ % T Info ☐
Percent Of Coverage Obtained > 90%: No | Reviewed Previous Data: Yes

Search Unit

Serial No.	SB0453		
Manufacturer	GE		
Size	.26	Shape	Round
Freq.	2.25 MHz	Style	Comp - G
Exam Angle	60	# of Elements	Single
Mode	Shear		
Measured Angle	60		
Wedge Style	MSWQC		

Search Unit Cable

Type	RG - 174		
Length	6'	No. Conn.	0

Scan Coverage

Upstream ☑ Downstream ☑ Scan dB: 47.8
CW ☐ CCW ☐ Scan dB: N/A
Exam Surface: O.D.
Surface Condition: As Ground

Cal. Checks	Time	Date
Initial Cal	0845	2/8/2011
Inter. Cal.		
Inter. Cal.	1205	2/8/2011
Inter. Cal.		
Final Cal	1535	2/8/2011

Couplant

Cal. Batch	09325
Type	ULTRAGEL II
Mfg.	SONOTECH
Exam Batch	09325
Type	ULTRAGEL II
Mfg.	SONOTECH

Reference Block

Serial No.	04-8740
Type	ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
.375" Notch Tip	80	1.4	.671
.750 Notch Tip	80	2.7	1.351
1.25 Notch	80	5.0	2.506

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
29.6	1" Radius	80	2.0	1.0"

Comments: N/A

Examiner	Level II-N	Signature	Date	Reviewer		Signature	Date
Day, John C.			2/8/2011				
Examiner	Level II-N	Signature	Date	Site Review		Signature	Date
Ransom, Greg J.			2/8/2011	N/A			
Other	Level N/A	Signature	Date	ANII Review		Signature	Date
N/A							4/4/11

ATTACHMENT A
PAGE 102 OF 162

DUKE POWER COMPANY
ISI LIMITATION REPORT

Component/Weld ID: 1-51A-01-103A Item No: O1.C5.21.0066

remarks:

Due to forged valve configuration.

UT-11-670

Sketch(s) attached ☒ yes ☐ No

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

☐ LIMITED SCAN

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: ☐ 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 ____ INCHES FROM W0 ____ to ____

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

Prepared By: John Day Level: II Date: 02/03/11 Sheet 5 of 8

Reviewed By: Date: Authorized Inspector: Date: 9/14/11

ATTACHMENT A
PAGE 103 OF 162

Supplemental Report

Report No.: UT-11-870

Page: 6 of 8

Summary No.: 01.CS.21.0066

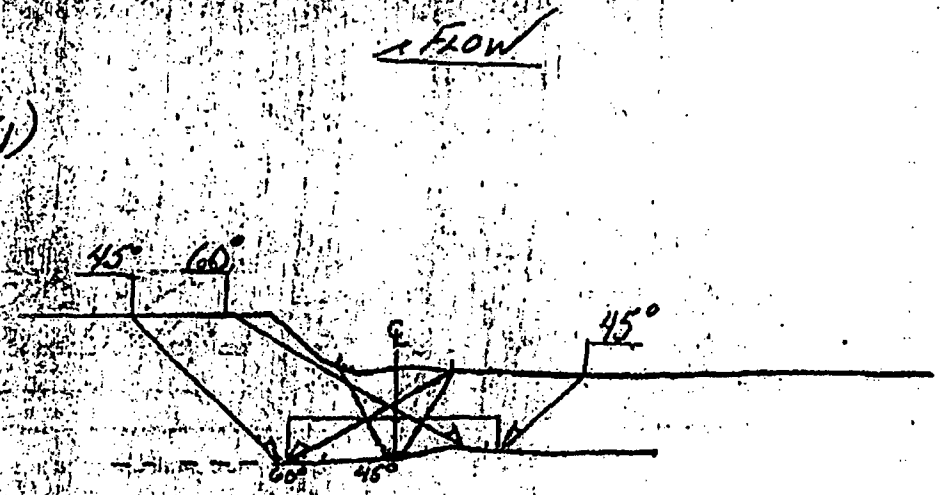
Examiner: Day, John, C. Level: II-N Reviewer: Date: 2/4/11

Examiner: Leeper, Winfred C. Level: II-N Site Review: N/A Date:

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

Comments: Weld # 1-S1A-01-103A See attached limitation report.

Sketch or Photo:



ATTACHMENT A
PAGE 104 OF 162

Supplemental Report

Report No.: UT-11-670

Page: 7 of 8

Summary No.: O1.C5.21.0066

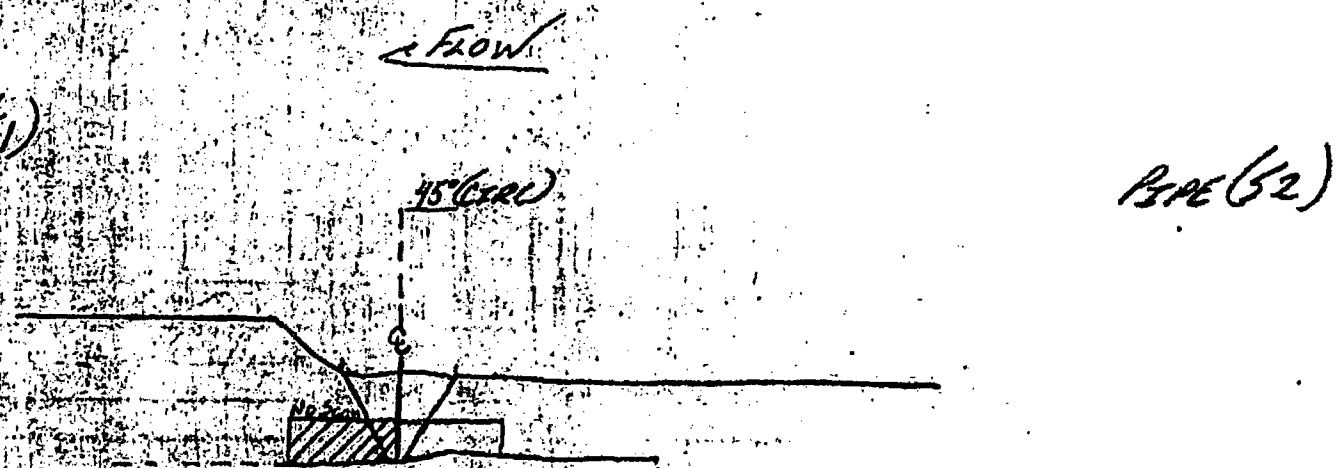
Examiner: Day, John, C. Level: II-N Reviewer: Date: 4/4/11

Examiner: Leeper, Winfred C. Level: II-N Site Review: N/A Date:

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

Comments:

Sketch or Photo:



ATTACHMENT A
PAGE 106 OF 167

Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit:	Oconee / 1	Procedure:	PDI-UT-2	Outage No.:	O1-26
Summary No.:	O1.C5.21.0066	Procedure Rev.:	E	Report No.:	UT-11-670
Workscope:	ISI	Work Order No.:	01909587	Page:	8 of 8

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	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		% 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: David L. Ziegler III Date: 03/07/11

UT Calibration / amination

[redacted]

Site/Unit:	Oconee 1	Procedure:	PDI-UT-10	Outage No.:	O1-26
Summary No.:	O1.C5.51.0050	Procedure Rev.:	E	Report No.:	UT-11-678
Worksoope:	ISI	Work Order No.:	01913780	Page:	1 of 9
Code:	1998/2000A	Cat./Item:	C-F-2/C5.51	Location:	
Drawing No.:	1LPS-563	Description:	Pipe to Valve 1LPS-022		
System ID:	14B				
Component ID:	1LPS-563-14			Size/Length: N/A	Thickness/Diameter: CS-SS/0.5/8.0
Limitations:	Yes - See attached sheet			Start Time: 0910	Finish Time: 0948

Instrument Settings

Serial No.:	011MBT	Damping:	1K
Manufacturer:	KRAUTKRAMER	Rep. Rate:	Autohigh
Model:	USN-60	Filter:	Fixed
Delay:	5.7450	Voltage:	Fixed
Vel/Cal Vel:	.1285	Ax. Gain (dB):	39.0
Range:	1.5	Circ. Gain (dB):	39.0
Pulser:	High	1 Screen Div. =	.15 In. of Sound Path
Reject:	0%	Linearity Report No.:	L-11-139
Freq.:	2.0 MHz		
Mode:	PE		
Other:	Fullwave		

Search Unit

Serial No.:	011CXD	Exam Angle:	45
Manufacturer:	KBA	Mode:	Shear
Size:	0.375	Measured Angle:	45
Shape:	Round	Wedge Style:	MSWQC
Freq.:	1.5 MHz	# of Elements:	Single
Style:	Comp - G		

Search Unit Cable

Type:	RG - 174	Length:	6'
No. Conn.:	0		

Scan Coverage

Upstream ☐ Downstream ☑ Scan dB: 40
CW ☑ CCW ☑ Scan dB: 40
Exam Surface: O.D.
Surface Condition: As Ground

Calibration Block

Cal. Block No.:	69-4287	Cal. Blk. Temp.:	74.6
Thickness:	4"	Temp. Tool:	MCNDE40135
Dia.:	Flat	Comp. Temp.:	68
		Temp. Tool:	MCNDE40135

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Results: Accept ☐ Reject ☑ Info ☐

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

Cal. Checks	Time	Date
Initial Cal	0735	3/31/2011
Inter. Cal.		
Inter. Cal.	0911	3/31/2011
Inter. Cal.		
Final Cal	1140	3/31/2011

Couplant

Cal. Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH
Exam Batch	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH

Reference Block

Serial No.:	66-3289
Type:	ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
SDH	80	5.2	.788

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
See Axial			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
21.7	1" Radius	80	6.6	1.0

Comments: Initial Section XI Exam

Examiner: Mulhead, Barry A.	Level: II-N	Signature: Barry Mulhead	Date: 3/31/2011	Reviewed: [illegible]	Signature:	Date: 4.12.11
Examiner: Dean, Steven	Level: II-N	Signature: Steven Dean	Date: 3/31/2011	Site Review: N/A	Signature:	Date:
Other: N/A	Level: N/A	Signature:	Date:	ANII Review: Nancy C. Retchel-Slaughter	Signature:	Date: 4/20/11

ATTACHMENT A
PAGE 107 OF 162

UT Calibration / Examination

Site/Unit: Oconee 1 | Procedure: PDI-UT-10 | Outage No.: O1-26
Summary No.: O1.C5.51.0050 | Procedure Rev.: E | Report No.: UT-11-676
Workscope: ISI | Work Order No.: 01913780 | Page: 2 of 9

Code: 1998/2000A | Cat./Item: C-F-2/C5.51 | Location:
Drawing No.: 1LPS-563 | Description: Pipe to Valve 1LPS-022
System ID: 14B
Component ID: 1LPS-563-14 | Size/Length: N/A | Thickness/Diameter: CS-SS/0.5/8.0
Limitations: Yes - See Attached Sheets | Start Time: 0910 | Finish Time: 0948

Instrument Settings

Serial No.:	011MBT		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	7.5056	Range:	2.0
MU Cal/Ver:	.1206	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2.0 MHz
Filter:	Fixed	Mode:	PE
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	42.4	Circ. Gain (dB):	N/A
1 Screen Div. =	2	In. of	Sound Path
Linearity Report No.:	L-11-139		

Calibration Block

Cal. Block No.:	86-3259		
Thickness:	N/A	Dia.:	Flat
Cal. Blk. Temp.:	74.6	Temp. Tool:	MCNDE40135
Comp. Temp.:	88	Temp. Tool:	MCNDE40135

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)
Results: Accept ☐ Reject ☑ Info ☐
Percent Of Coverage Obtained > 90%: No | Reviewed Previous Data: No

Search Unit

Serial No.:	01MHV4		
Manufacturer:	KBA		
Size:	.375	Shape:	Round
Freq.:	1.5 MHz	Style:	Comp - G
Exam Angle:	60	# of Elements:	Single
Mode:	Shear		
Measured Angle:	60		
Wedge Style:	MSWQC		

Search Unit Cable

Type:	RG - 174		
Length:	6'	No. Conn.:	0

Scan Coverage

Upstream ☐ Downstream ☑ Scan dB: 43
CW ☐ CCW ☐ Scan dB: N/A
Exam Surface: O.D.
Surface Condition: As Ground

Cal. Checks	Time	Date
Initial Cal	0740	3/31/2011
Inter. Cal.		
Inter. Cal.	0920	3/31/2011
Inter. Cal.		
Final Cal	1143	3/31/2011

Couplant

Cal. Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH
Exam Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH

Reference Block

Serial No.:	86-3259
Type:	ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
Near SDH	80	3.4	.684

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
28.4	1" Radius	80	5	1.0

Comments: Initial Section XI Exam

Examiner: Muirhead, Barry A.	Level: II-N	Signature: Barry Muirhead	Date: 3/31/2011	Reviewer: D E Hogan		Signature	Date: 4.12.11
Examiner: Dean, Steven	Level: II-N	Signature: Steven Dean	Date: 3/31/2011	Site Review: N/A		Signature	Date
Other: N/A	Level: N/A	Signature	Date	ANII Review: Nancy C. Rebstock Slaughter		Signature	Date: 4/20/11

ATTACHMENT A
PAGE 108 OF 162

UT Calibration ... amination

[redacted]

Site/Unit: Oconee 1 | Procedure: PDI-UT-10 | Outage No.: 01-26
Summary No.: O1.C5.51.0050 | Procedure Rev.: E | Report No.: UT-11-678
Workscope: (SI) | Work Order No.: 01913780 | Page: 3 of 9

Code: 1998/2000A | Cat./Item: C-F-2/C5.51 | Location:
Drawing No.: 1LPS-563 | Description: Pipe to Valve 1LPS-022
System ID: 14B
Component ID: 1LPS-563-14 | Size/Length: N/A | Thickness/Diameter: CS-SS/0.5/8.0
Limitations: Yes - See attached sheet | Start Time: 0910 | Finish Time: 0948

Instrument Settings

Serial No.:	011MBT		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	6.7076	Range:	1.5
M'U Cal/Vel:	.2350	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2.0 MHz
Filter:	Fixed	Mode:	Dual
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	40	Circ. Gain (dB):	40
Vel. Screen Div. =	15	In of:	Sound Path
Linearity Report No.:	L-11-139		

Calibration Block

Cal. Block No.:	89-4287		
Thickness:	4"	Dia.:	Flat
Cal. Blk. Temp.:	74.5	Temp. Tool:	MCNDE40135
Comp. Temp.:	68	Temp. Tool:	MCNDE40135

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)
Results: Accept ☐ Reject ☑ Info ☐
Percent Of Coverage Obtained > 90%: No | Reviewed Previous Data: No

Search Unit

Serial No.:	03-764		
Manufacturer:	RTD		
Size:	2(7x10)	Shape:	Rect.
Freq.:	2.0 MHz	Style:	TRLA
Exam Angle:	45	# of Elements:	Dual
Mode:	Long.		
Measured Angle:	45		
Wedge Style:	Integral		

Search Unit Cable

Type:	RG-174		
Length:	6'	No. Conn.:	0

Scan Coverage

Upstream ☐ Downstream ☑ Scan dB: 40
CW ☑ CCW ☑ Scan dB: 40
Exam Surface: O.D.
Surface Condition: As Ground

Cal. Checks	Time	Date
Initial Cal	0745	3/31/2011
Inter. Cal.		
Inter. Cal.	0928	3/31/2011
Inter. Cal.		
Final Cal	1148	3/31/2011

Couplant

Cal. Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH
Exam Batch	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH

Reference Block

Serial No.:	86-3259
Type:	ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
SDH	80	5.6	.848

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
See Axial			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
23.4	1" Radius	80	6.6	1.0

Comments: Initial Section XI Exam

Examiner: Mukhead, Barry A.	Level: II-N	Signature: Barry A. Mukhead	Date: 3/31/2011	Reviewer: M E Lowen		Signature	Date: 4-12-11
Examiner: Dean, Steven	Level: II-N	Signature: Steven Dean	Date: 3/31/2011	Site Review: N/A		Signature	Date
Other: N/A	Level: N/A	Signature	Date	ANII Review: Nancy C Retherford Slaughter		Signature	Date: 4/20/11

ATTACHMENT A
PAGE 109 OF 162

UT Calibration .amination

Site/Unit:	Oconee / 1	Procedure:	PDI-UT-10	Outage No.:	O1-26
Summary No.:	O1C5.51.0050	Procedure Rev.:	E	Report No.:	UT-11-678
Workscope:	HT ISI	Work Order No.:	01913780	Page:	4 of 9

Code:	1998/2000A	Cal./Item:	C-F-2/C5.51
Drawing No.:	1LPS-563	Description:	Pipe to Valve 1LPS-022
System ID:	1LPS		
Component ID:	1LPS-563-14		
Limitations:	Yes - See Attached Sheets		

Location:

Size/Length: N/A Thickness/Diameter: CS-SS/0.5/8.0

Start Time: 0910 Finish Time: 0948

Instrument Settings

Serial No.:	011MBT				
Manufacturer:	KRAUTKRAMER				
Model:	USN-60				
Delay:	6.7512	Range:	2.0		
M'd Cal/Ver V:	.2377	Pulser:	High		
Damping:	1K	Reject:	0%		
Rep Rate:	Autohigh	Freq.:	2.0 MHz		
Filter:	Fixed	Mode:	Dual		
Voltage:	Fixed	Other:	Fullwave		
Ax. Gain (dB):	53.5	Circ. Gain (dB):	N/A		
1 Screen Div. =	.2	In. of:	Sound Path		
Linearity Report No.:	L-11-139				

Calibration Block

Cal. Block No.:	86-3259		
Thickness:	1"	Dia.:	Flat
Cal. Blk. Temp.:	74.6	Temp. Tool:	MCNDE40135
Comp. Temp.:	68.2	Temp. Tool:	MCNDE40135

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Results: Accept ☐ Reject ☑ Info ☐

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

Search Unit

Serial No.:	03-767		
Manufacturer:	RTD		
Size:	2(7x10)	Shape:	Rect.
Freq.:	2.0 MHZ	Style:	TRL2
Exam Angle:	60	# of Elements:	Dual
Mode:		Long:	
Measured Angle:	60		
Wedge Style:	Integral		

Search Unit Cable

Type:	RG - 174		
Length:	6'	No. Conn.:	0

Scan Coverage

Upstream ☐ Downstream ☑ Scan dB: 45

CW ☐ CCW ☐ Scan dB: N/A

Exam Surface: O.D.

Surface Condition: As Ground

Cal. Checks	Time	Date
Initial Cal	0750	3/31/2011
Inter. Cal.		
Inter. Cal.	0940	3/31/2011
Inter. Cal.		
Final Cal	1152	3/31/2011

Couplant

Cal. Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH
Exam Batch	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH

Reference Block

Serial No.:	86-3259
Type:	ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
Near SDH	80	3.5	.700

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
29.0	1" Radius	80	5	1.0

Comments: Initial Section XI Exam

Examiner: Muirhead, Barry A.	Level: II-N	Signature: Barry Muirhead	Date: 3/31/2011	Reviewer: [illegible]		Signature:	Date: 4-12-11
Examiner: Dean, Steven	Level: II-N	Signature: [illegible]	Date: 3/31/2011	Site Review: N/A		Signature:	Date:
Other: N/A	Level: N/A	Signature:	Date:	ANII Review: Nancy C Ritchie-Slaughter		Signature:	Date: 4/20/11

ATTACHMENT A
PAGE 110 OF 162

UT Calibration [redacted]amination

Site/Unit: Oconee 1 | Procedure: NDE-640 | Outage No.: O1-26
Summary No.: O1.C5.51.0050 | Procedure Rev.: 5 | Report No.: UT-11-678
Workscope: ISI | Work Order No.: 01913780 | Page: 5 of 9

Code: 1998/2000A | Cat./Item: C-F-2/C5.51 | Location:
Drawing No.: 1LPS-563 | Description: Pipe to Valve 1LPS-022
System ID: 14B
Component ID: 1LPS-563-14 | Size/Length: N/A | Thickness/Diameter: CS-SS/0.5/8.0
Limitations: None | Start Time: 0905 | Finish Time: 0910

Instrument Settings

Serial No.:	011MBT		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	9.1350	Range:	1.0
M'd Cal/Vel:	.2371	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	4.0 MHz
Filter:	Fixed	Mode:	Dual
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	38.0	Circ. Gain (dB):	38.0
.1 Screen Div. =	.1	In. of	Sound Path
Linearity Report No.:	L-11-139		

Calibration Block

Cal. Block No.	Component		
Thickness	.500	Dia.:	8"
Cal. Blk. Temp.	74.5	Temp. Tool:	MCNDE40135
Comp. Temp.	68	Temp. Tool:	MCNDE40135

Search Unit

Serial No.:	57462-08724		
Manufacturer:	KBA		
Size:	3.5X10mm	Shape:	Round
Freq.:	4.0 MHz	Style:	MSEB
Exam Angle:	0	# of Elements:	Dual
Mode:	Long.		
Measured Angle:	0		
Wedge Style:	Integral		

Search Unit Cable

Type:	RG - 174		
Length:	6'	No. Conn.:	0

Scan Coverage

Upstream ☐ Downstream ☑ Scan dB: 38
CW ☑ CCW ☑ Scan dB: 38
Exam Surface: OD
Surface Condition: As Ground

Cal. Checks	Time	Date
Initial Cal.	0730	3/31/2011
Inter. Cal.		
Inter. Cal.	0905	3/31/2011
Inter. Cal.		
Final Cal	1135	3/31/2011

Couplant

Cal. Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH
Exam Batch	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH

Reference Block

Serial No.:	04-7837
Type:	STEP WEDGE

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
BW	80	5	.5

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
36.7	.5" Step	80	5.0	.5

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)
Results: Accept ☑ Reject ☐ Info ☐
Percent Of Coverage Obtained > 90%: Yes. Reviewed Previous Data: No

Comments: Initial Section XI Exam

Examiner	Level	Signature	Date
Muthead, Barry A.	II-N	Barry Muthead	3/31/2011
Dean, Steven	II-N	Steven Dean	3/31/2011
Other: N/A	Level: N/A	Signature	Date

Reviewer	M E Jonsen	Signature	Date 4.12.11
Site Review	N/A	Signature	Date
ANII Review	Nancy C Ritchie-Slaughter	Signature	Date 4/20/11

ATTACHMENT A
PAGE 111 OF 162

DUKE POWER COMPANY
ISI LIMITATION REPORT

Component/Weld ID: 1LPS-563-14 Item No: O1.C5.51.0050

remarks:

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

Single side access due to cast SS valve.

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

UT-11-678

Sketch(s) attached
☒ yes ☐ No

Prepared By: Barry Muirhead Level II Date: 03/31/11 Sheet 6 of 9

Reviewed By: [signature] Date: 4-12-11 Authorized Inspector: [signature] Date: 4/20/11

Supplemental Report

Report No.: UT-11-678

Page: 7 of 9

Summary No.: O1:C5.51.0050

Examiner: Mulmead, Barry A. Level: II-N Reviewer: D E Howen Date: 4.12.11

Examiner: Dean, Steven Level: II-N Site Review: N/A Date:

Other: N/A Level: N/A ANII Review: Nancy C Retter Laughter Date: 4/20/11

Comments: Profile of Weld 1LPS-563-14

Sketch or Photo:

ATTACHMENT A
PAGE 113 OF 162

[redacted]

Supplemental Report

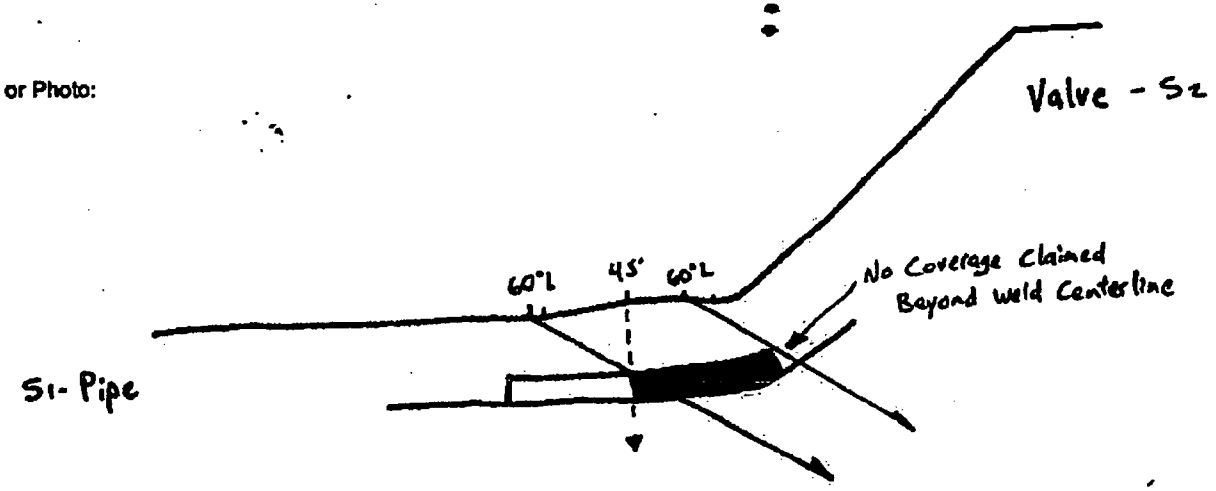
Report No.: UT-11-678

Summary No.: O1.C5.51.0050

Examiner:	Mulrhead, Barry A.	Level:	II-N	Reviewer:		Date: 4-12-11
Examiner:	Dean, Steven	Level:	II-N	Site Review:	N/A	Date:
Other:	N/A	Level:	N/A	ANII Review:	Nancy C. Ritchie-Laughter	Date: 4/20/11

Comments: Weld 1LPS-563-14 Coverage

Sketch or Photo:



ATTACHMENT A
Page 114 of 162

Duke Energy.

Determination of Percent Coverage for UT Examinations - Pipe

Attachment 4 to 1151162

Site/Unit:	Oconee / 1	Procedure:	PDI-UT-10	Outage No.:	O1-26
Summary No.:	O1.C5.51.0050	Procedure Rev.:	E	Report No.:	UT-11-678
Workscope:	ISI	Work Order No.:	01913780	Page:	9 of 9

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: David K. Bruce III Date: 4/12/2011

UT Calibration, .amination

Site/Unit: Oconee / 1 | Procedure: PDI-UT-10 | Outage No.: O1-26
Summary No.: O1.C5.51.0053 | Procedure Rev.: E | Report No.: UT-11-679
Workscope: ISI | Work Order No.: 01913758 | Page: 1 of 9

Code: 1998/2000A | Cat./Item: C-F-2/C5.51 | Location:
Drawing No.: 1LPS-702 | Description: Pipe to Valve 1LPSW-16 (Cast SS)
System ID: 14B
Component ID: 1LP8-702-50 | Size/Length: N/A | Thickness/Diameter: SS-CS/0.5/8.0
Limitations: Yes - See attached sheet | Start Time: 0957 | Finish Time: 1035

Instrument Settings

Serial No.:	011MBT		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	5.7450	Range:	1.5
Mtl Cal/Vel:	.1288	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2.0 MHz
Filter:	Fixed	Mode:	PE
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	39.0	Circ. Gain (dB):	39.0

1 Screen Div. = .15 In. of Sound Path

Linearity Report No.: L-11-139

Calibration Block

Cal. Block No. 89-4287
Thickness 4" Dia.: Flat
Cal. Blk. Temp. 74.5 Temp. Tool: MCNDE40135
Comp. Temp. 68 Temp. Tool: MCNDE40135

Search Unit

Serial No.:	011CXD		
Manufacturer:	KBA		
Size:	0.375	Shape:	Round
Freq.:	1.8 MHz	Style:	Comp - G
Exam Angle:	45	# of Elements:	Single
Mode:	Shear		
Measured Angle:	45		
Wedge Style:	MSWQC		

Search Unit Cable

Type: RG - 174
Length: 6' No. Conn.: 0

Scan Coverage

Upstream ☐ Downstream ☑ Scan dB: 40
CW ☑ CCW ☑ Scan dB: 40
Exam Surface: O.D.
Surface Condition: As Ground

Cal. Checks	Time	Date
Initial Cal	0735	3/31/2011
Inter. Cal.		
Inter. Cal.	0957	3/31/2011
Inter. Cal.		
Final Cal	1140	3/31/2011

Couplant

Cal. Batch: 09325
Type: ULTRAGEL II
Mfg.: SONOTECH
Exam Batch 09325
Type: ULTRAGEL II
Mfg.: SONOTECH

Reference Block

Serial No.: 86-3259
Type: ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
SDH	80	5.2	.788

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
See Axial			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
21.7	1" Radius	80	6.6	1.0

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Results: Accept ☐ Reject ☑ Info ☐

Comments: Initial Section XI Exam

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

	Level		Signature	Date
Examiner: Muirhead, Barry A.	II-N		Barry Muirhead	3/31/2011
Examiner: Dean, Steven	II-N		Steven Dean	3/31/2011
Other: N/A	N/A			

		Signature	Date
Reviewer		K E Howard	4.12.11
Site Review	N/A		
ANII Review		Nancy C Ratchel Slaughter	4/20/11

ATTACHMENT A
PAGE 116 OF 162

UT Calibration Examination

Site/Unit: Oconee 1 | Procedure: PDI-UT-10 | Outage No.: O1-28
Summary No.: O1.C5.51.0053 | Procedure Rev.: E | Report No.: UT-11-679
Workscope: ISI | Work Order No.: 01913756 | Page: 2 of 9

Code: 1998/2000A | Cat./Item: C-F-2/C5.51 | Location:
Drawing No.: 1LPS-702 | Description: Pipe to Valve 1LPSW-16 (Cast SS)
System ID: 14B
Component ID: 1LPS-702-50 | Size/Length: N/A | Thickness/Diameter: SS-CS/0.5/8.0
Limitations: Yes - See Attached Sheets | Start Time: 0957 | Finish Time: 1035

Instrument Settings

Serial No.:	011MBT		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	7.5056	Range:	2.0
M'U Cal/Vel:	.1296	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2.0 MHz
Filter:	Fixed	Mode:	PE
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	42.4	Circ. Gain (dB):	N/A
1 Screen Div. =	.2	In. of	Sound Path
Linearity Report No.:	L-11-139		

Calibration Block

Cal. Block No.	86-3259		
Thickness	N/A	Dia.:	Flat
Cal. Blk. Temp.	74.5	Temp. Tool:	MCNDE40135
Comp. Temp.	68	Temp. Tool:	MCNDE40135

Search Unit

Serial No.:	01MHV4		
Manufacturer:	KBA		
Size:	.375	Shape:	Round
Freq.:	1.5 MHz	Style:	Comp - G
Exam Angle:	60	# of Elements:	Single
Mode:	Shear		
Measured Angle:	60		
Wedge Style:	MSWQC		

Search Unit Cable

Type:	RG - 174		
Length:	6'	No. Conn.:	0

Scan Coverage

Upstream ☐ Downstream ☑ Scan dB: 43
CW ☐ CCW ☐ Scan dB: N/A
Exam Surface: O.D.
Surface Condition: As Ground

Cal. Checks	Time	Date
Initial Cal	0740	3/31/2011
Inter. Cal.		
Inter. Cal.	1005	3/31/2011
Inter. Cal.		
Final Cal	1143	3/31/2011

Couplant

Cal. Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH
Exam Batch	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH

Reference Block

Serial No.:	86-3259
Type:	ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
Near SDH	80	3.4	.684

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
26.4	1" Radius	80	5	1.0

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)
Results: Accept ☐ Reject ☑ Info ☐
Percent Of Coverage Obtained > 90%: No | Reviewed Previous Data: No
Comments: Initial Section XI Exam

Examiner	Level II-N	Signature	Date	Reviewer		Signature	Date
Muirhead, Barry A.			3/31/2011				4.12.11
Examiner	Level II-N	Signature	Date	Site Review		Signature	Date
Dean, Steven			3/31/2011	N/A			
Other	Level N/A	Signature	Date	ANII Review		Signature	Date
N/A						Nancy C. Ritchie Stouffer	4/20/11

ATTACHMENT A
PAGE 117 OF 162

UT Calibration ...amination

Site/Unit: Oconee 1 | Procedure: PDI-UT-10 | Outage No.: O1-26
Summary No.: O1.C5.51.0053 | Procedure Rev.: E | Report No.: UT-11-679
Workscope: ISI | Work Order No.: 01913756 | Page: 3 of 9

Code: 1998/2000A | Cat./Item: C-F-2/C5.51 | Location:
Drawing No.: 1LPS-702 | Description: Pipe to Valve 1LPSW-16 (Cast SS)
System ID: 14B
Component ID: 1LPS-702-50 | Size/Length: N/A | Thickness/Diameter: SS-CS/0.5/6.0
Limitations: Yes - See attached sheet | Start Time: 0957 | Finish Time: 1035

Instrument Settings

Serial No.:	011MBT		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	6.7078	Range:	1.5
M'tl Cal Vel:	.2350	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2.0 MHz
Filter:	Fixed	Mode:	Dual
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	40	Circ. Gain (dB):	40
1 Screen Div. =	.15	In. of	Sound Path
Linearity Report No.:	L-11-139		

Calibration Block

Cal. Block No.:	69-4287		
Thickness:	4"	Dia.:	Flat
Cal. Blk. Temp.:	74.5	Temp. Tool:	MCNDE40135
Comp. Temp.:	68	Temp. Tool:	MCNDE40135

Search Unit

Serial No.:	03-764		
Manufacturer:	RTD		
Size:	2(7x10)	Shape:	Rect.
Freq.:	2.0 MHz	Style:	TRLA
Exam Angle:	45	# of Elements:	Dual
Mode:	Long.		
Measured Angle:	45		
Wedge Style:	Integral		

Search Unit Cable

Type:	RG - 174		
Length:	6'	No. Conn.:	0

Scan Coverage

Upstream ☐ Downstream ☑ Scan dB: 40
CW ☑ CCW ☑ Scan dB: 40
Exam Surface: O.D.
Surface Condition: As Ground

Cal. Checks	Time	Date
Initial Cal	0745	3/31/2011
Inter. Cal.		
Inter. Cal.	1015	3/31/2011
Inter. Cal.		
Final Cal	1148	3/31/2011

Couplant

Cal. Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH
Exam Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH

Reference Block

Serial No.:	86-3259
Type:	ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
SDH	80	6.6	.648

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
See Axial			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
23.4	1" Radius	80	6.6	1.0

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)
Results: Accept ☐ Reject ☑ Info ☐
Comments: Initial Section XI Exam
Percent Of Coverage Obtained > 90%: No | Reviewed Previous Data: No

Examiner	Level	II-N	Signature	Date
Muirhead, Barry A.				3/31/2011
Dean, Steven				3/31/2011
Other: N/A		N/A		

Reviewer: Signature Date 4-12-11
Site Review: PDA Signature Date
ANII Review: Nancy C Retzlaff-Slaughter 4/20/11 Signature Date

ATTACHMENT A
PAGE 118 OF 162

UT Calibration Examination

Site/Unit:	Oconee 1	Procedure:	PDI-UT-10	Outage No.:	O1-26
Summary No.:	O1.C5.51.0053	Procedure Rev.:	E	Report No.:	UT-11-679
Workscope:	ISI	Work Order No.:	01913756	Page:	4 of 9

Code: 1998/2000A | Cat./Item: C-F-2/C5.51 | Location:

Drawing No.: 1LPS-702 | Description: Pipe to Valve 1LPSW-16 (Cast SS)

System ID: 14B

Component ID: 1LPS-702-80 | Size/Length: N/A | Thickness/Diameter: SS-CS/0.5/8.0

Limitations: Yes - See Attached Sheets | Start Time: 0957 | Finish Time: 1035

Instrument Settings

Serial No.:	011MBT		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	6.7612	Range:	2.0
M'd Cal/Vel:	1.2377	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	2.0 MHz
Filter:	Fixed	Mode:	Dual
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	53.5	Circ. Gain (dB):	N/A
1 Screen Div. =	.2	In. of	Sound Path
Linearity Report No.:	L-11-139		

Calibration Block

Cal Block No.:	86-3259		
Thickness:	1"	Dia.:	Flat
Cal Blk. Temp.:	74.5	Temp. Tool:	MCNDE40135
Comp. Temp.:	85	Temp. Tool:	MCNDE40135

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Results: Accept ☐ Reject ☑ Info ☐

Percent Of Coverage Obtained > 90%: No

Search Unit

Serial No.:	03-767		
Manufacturer:	RTD		
Size:	2(Tx10)	Shape:	Rect.
Freq.:	2.0 MHz	Style:	TRL2
Exam Angle:	60	# of Elements:	Dual
Mode:	Long.		
Measured Angle:	60		
Wedge Style:	Integral		

Search Unit Cable

Type:	RG - 174		
Length:	6'	No. Conn.:	0

Scan Coverage

Upstream ☐ Downstream ☑ Scan dB: 45

CW ☐ CCW ☐ Scan dB: N/A

Exam Surface: O.D.

Surface Condition: As Ground

Cal. Checks	Time	Date
Initial Cal	0760	3/31/2011
Inter. Cal.		
Inter. Cal.	1025	3/31/2011
Inter. Cal.		
Final Cal	1152	3/31/2011

Couplant

Cal. Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH
Exam Batch	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH

Reference Block

Serial No.:	86-3259
Type:	ROMPAS

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
Near SDH	60	3.5	.700

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
29.0	1" Radius	80	5	1:0

Comments: Initial Section XI Exam

Examiner: Muirhead, Barry A.	Level: II-N	Signature:	Date: 3/31/2011	Reviewer:	Signature:	Date: 4-12-11
Examiner: Dean, Steven	Level: II-N	Signature:	Date: 3/31/2011	Site Review:	Signature:	Date:
Other: N/A	Level: N/A	Signature:	Date:	ANII Review:	Signature: Nancy C. Ritchel-Slaughter	Date: 4/20/11

ATTACHMENT A
PAGE 119 OF 162

UT Calibration / Examination

Site/Unit:	Oconee 1	Procedure:	NDE-640	Outage No.:	O1-26
Summary No.:	O1C5.51.0053	Procedure Rev.:	5	Report No.:	UT-11-679
Workscope:	ISI	Work Order No.:	01913758	Page:	5 of 9

Code: 1998/2000A Cat./Item: C-F-2/C5.51 Location:

Drawing No.: 1LPS-702 Description: Pipe to Valve 1LPSW-16 (Cast SS)

System ID: 14B

Component ID: 1LPS-702-60 Size/Length: N/A Thickness/Diameter: SS-CS/0.5/8.0

Limitations: None Start Time: 0950 Finish Time: 0957

Instrument Settings

Serial No.:	011MBT		
Manufacturer:	KRAUTKRAMER		
Model:	USN-60		
Delay:	0.1350	Range:	1.0
Pl Cal/Vel:	.2371	Pulser:	High
Damping:	1K	Reject:	0%
Rep. Rate:	Autohigh	Freq.:	4.0 MHz
Filter:	Fixed	Mode:	Dual
Voltage:	Fixed	Other:	Fullwave
Ax. Gain (dB):	38.0	Circ. Gain (dB):	38.0
1 Screen Div. =	1	In. of	Sound Path
Linearity Report No.:	L-11-139		

Calibration Block

Cal. Block No:	Component		
Thickness:	.500	Dia.:	6"
Cal Blk. Temp.:	74.5	Temp. Tool:	MCNDE40135
Comp. Temp.:	68	Temp. Tool:	MCNDE40135

Search Unit

Serial No.:	57462-08724		
Manufacturer:	KBA		
Size:	3.5X10mm	Shape:	Round
Freq.:	4.0 MHz	Style:	MSEB
Exam Angle:	0	# of Elements:	Dual
Mode:	Long.		
Measured Angle:	0		
Wedge Style:	Integral		

Search Unit Cable

Type:	RG - 174		
Length:	6'	No. Conn.:	0

Scan Coverage

Upstream ☐ Downstream ☑ Scan dB: 38

CW ☑ CCW ☑ Scan dB: 38

Exam Surface: OD

Surface Condition: As Ground

Recordable Indication(s): Yes ☐ No ☑ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Results: Accept ☑ Reject ☐ Info ☐

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

Cal. Checks	Time	Date
Initial Cal	0730	3/31/2011
Inter. Cal.		
Inter. Cal.	1025	3/31/2011
Inter. Cal.		
Final Cal	1135	3/31/2011

Couplant

Cal. Batch:	09325
Type:	ULTRAGEL II
Mfg.:	SONOTECH
Exam Batch	09325
Type:	ULTRAGEL-II
Mfg.:	SONOTECH

Reference Block

Serial No.:	04-7837
Type:	STEP WEDGE

Axial Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
BW.	80	5	.5

Circumferential Orientated Search Unit

Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
38.7	.5" Step	80	5.0	.5

Comments: Initial Section XI Exam

Examiner: Mulhead, Barry A.	Level: II-N	Signature: Barry Mulhead	Date: 3/31/2011	Reviewer: M E Lawson		Signature	Date: 4.12.11
Examiner: Dean, Steven	Level: II-N	Signature: Steven Dean	Date: 3/31/2011	Site Review: N/A		Signature	Date
Other: N/A	Level: N/A	Signature	Date	ANII Review: Nancy C Ritchie Slaughter		Signature	Date: 4/20/11

ATTACHMENT A
PAGE 120 OF 162

DUKE POWER COMPANY
ISI LIMITATION REPORT

Component/Weld ID: 1LPS-702-50 Item No: O1.C5.51.0053

remarks: Single side access due to cast SS valve.

☒ NO SCAN	SURFACE	BEAM DIRECTION			
☐ LIMITED SCAN	☐ 1 ☒ 2	☒ 1 ☐ 2	☐ cw	☐ ccw	
FROM L 0	to L 360	INCHES FROM WO 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 0	to L 360	INCHES FROM WO 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 WO	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 WO	to		
ANGLE: ☐ 0 ☐ 45 ☐ 60	other	FROM	DEG to	DEG	

UT-11-679

Sketch(s) attached ☒ yes ☐ No

Prepared By: Barry Muirhead Level: II Date: 03/31/11 Sheet 6 of 9

Reviewed By: [signature] Date: 4/12/11 Authorized Inspector: [signature] Date: 4/20/11

ATTACHMENT A
PAGE 121 OF 162

[redacted]

Supplemental Report

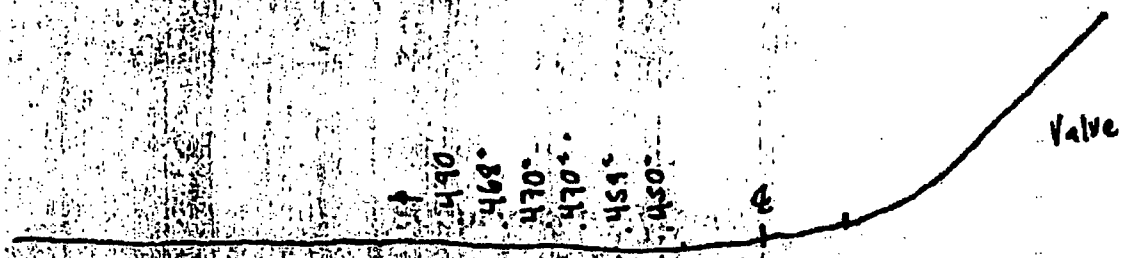
Report No.: UT-11-679

Summary No.: O1.C5.51.0053

Examiner:	Mulrhead, Barry A.	Level:	II-N	Reviewer:	M E Hansen	Date: 4.12.11
Examiner:	Dean, Steven	Level:	II-N	Site Review:	N/A	Date:
Other:	N/A	Level:	N/A	ANII Review:	Nancy C Rathie-Slaughter	Date: 4/20/11

Comments: Profile of Weld 1LPS-702-601

Sketch or Photo:



Supplemental Report

Report No.: UT-11-679

Page: 8 of 9

Summary No.: O1.C5.51.0053

Examiner: Mulrhead, Barry A. Level: II-N

Examiner: Dean, Steven Level: II-N

Other: N/A Level: N/A

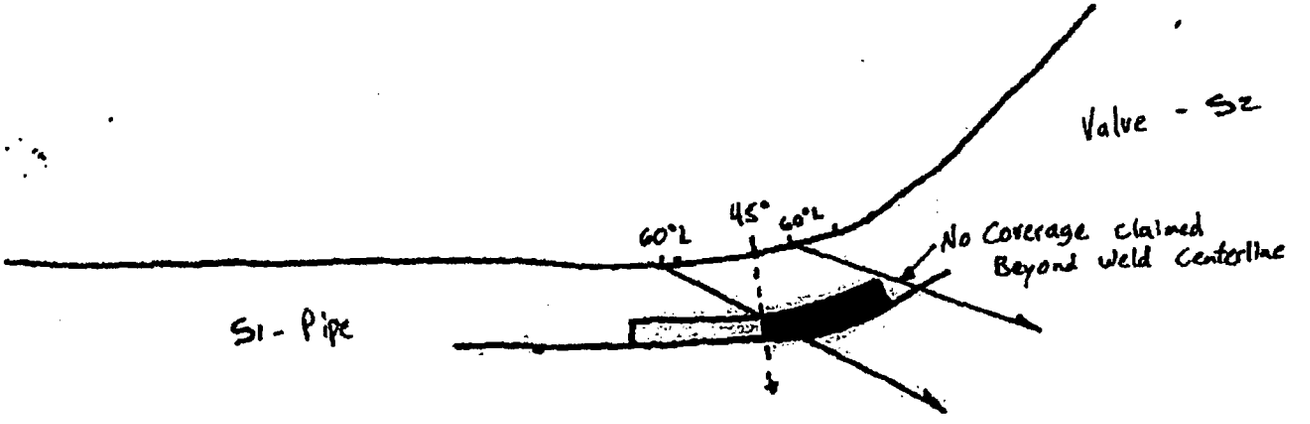
Reviewer: M E Hansen Date: 4/12/11

Site Review: N/A Date:

ANII Review: Nancy C. Ritter Slaughter Date: 4/20/11

Comments: Weld 1LPS-702-50 Coverage

Sketch or Photo:



ATTACHMENT A
PAGE 123 of 162

ATTACHMENT A
PAGE 124 OF 162

Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit:	Oconee / 1	Procedure:	PDI-UT-10	Outage No.:	O1-26
Summary No.:	O1.C5.51.0053	Procedure Rev.:	E	Report No.:	UT-11-679
Workscope:	ISI	Work Order No.:	01913756	Page:	9 of 9

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: David B. Hill III Date: 4/12/2011

UT Vessel Examination

Site/Unit: Oconee / 0 | Procedure: NDE-3630 | Outage No.: N/A

Summary No.: WJ-32 | Procedure Rev.: 1 | Report No.: BOP-UT-09-112

Worksoope: PSI | Work Order No.: 01689357 | Page: 1 of 4

Code: 1998/2000A | Cat./Item: B-B/B2.51 | Location: N/A

Drawing No.: NU-D-1149-1 | Description: Chemical connector to channel body

System ID: N/A

Component ID: WJ-32 | Size/Length: N/A | Thickness/Diameter: .875/8.0/SS

Limitations: Yes - See supplemental sheet | Start Time: 1035 | Finish Time: 1105

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.: 70 °F

Cal. Report No.: SHD 11-14-09 | CAL-09-458, 459, 460, 461 & 462

Angle Used	0	45	45T	60	60T	70L
Scanning dB		43.0	61.7	50.2	55.0	49.0

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 ☐ | PSI examination S/N N-32389-1 FC 09-01, 09-05

Percent Of Coverage Obtained > 90%: No 87.7% | Reviewed Previous Data: No

Examiner: Dean, Steven	Level: II-N	Signature:	Date: 11/4/2009	Reviewer	Signature:	Date: 7/19/11
Examiner: N/A	Level: N/A	Signature:	Date:	Site Review	Signature:	Date:
Other: N/A	Level: N/A	Signature:	Date:	ANII Review	Signature: Donny C Ritchie Stoughton	Date: 7/20/11

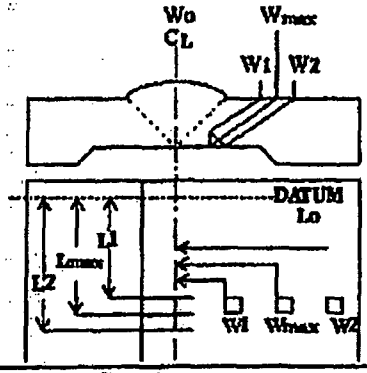
ATTACHMENT A
PAGE 125 OF 162

Ultrasonic Indication Report

Site/Unit: Oconee / 0 | Procedure: NDE-3630 | Outage No.: N/A
Summary No.: WJ-32 | Procedure Rev.: 1 | Report No.: BOP-UT-09-112
Workscope: PSI | Work Order No.: 01889357 | Page: 2 of 4

Search Unit Angle: 45 & 70 °
Wo Location: Centerline of Weld
Lo Location: 9.1.1.1

○ Piping Welds
○ Ferritic Vessels ≥ 2"T
◉ Other Vessels < 2" T



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: Weld WJ-32 S/N N-32389-1

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
S1	1-45°	90	1.5	2.14	N/A	N/A	N/A	N/A	360°	0-1"	INT	N/A	Root Geometry
S2	2-45°	70	0.9	1.20	N/A	N/A	N/A	N/A	360°	0+1"	INT	N/A	Root Geometry
S2	3-70°	50	0.8	2.30	N/A	N/A	N/A	N/A	360°	0+6"	INT	N/A	I.D Geometry
S2	4-45°L	60	0.9	1.20	N/A	N/A	N/A	N/A	360°	0+1"	INT	N/A	Root Geometry

Examiner Dean, Steven	Level II-N	Signature	Date 11/4/2009	Reviewer Gary Moss	Signature / Date 12-8-09
Examiner Griebel, David M.	Level II-N	Signature	Date 11/4/2009	Site Review	Signature / Date
Other N/A	Level N/A	Signature	Date	ANII Review Nancy C Ritchie Stouffer	Signature / Date 4/27/11

ATTACHMENT A
PAGE 176 OF 162

DUKE POWER COMPANY

ISI LIMITATION REPORT

Component/Weld ID: WJ-32 **Item No:** BOP-UT-09-112 **remarks:**

☒ NO SCAN SURFACE BEAM DIRECTION — Due to nozzle.
☐ LIMITED SCAN ☒ 1 ☐ 2 ☒ 1 ☒ 2 ☒ cw ☒ ccw
FROM L 0+3" to L 0-3" INCHES FROM W0 CL+1.1 to Beyond
ANGLE: ☐ 0 ☒ 45 ☒ 60 other 70 FROM 0 DEG to 360 DEG

☐ NO SCAN SURFACE BEAM DIRECTION — Taper on chemical connector
☒ LIMITED SCAN ☐ 1 ☒ 2 ☒ 1 ☒ 2 ☒ cw ☒ ccw
FROM L N/A to L N/A INCHES FROM W0 +0.6 to +1.5
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 _____
ANGLE: ☐ 0 ☐ 5 ☐ 60 other _____ FROM _____ DEG to _____ DEG

Sketch(s) attached ☒ yes ☐ No

Prepared By: Steve Dean Level: II Date: 11/04/09 Sheet 3 of 4

Reviewed By: Dan Moss Date: 12-8-09 Authorized Inspector: Dorsey C Ritchie-Slaughter Date: 4/27/11

ATTACHMENT A
PAGE 127 OF 162

Duke Energy

Supplemental Report

Report No.: BOP-UT-09-112

Page: 4 of 4

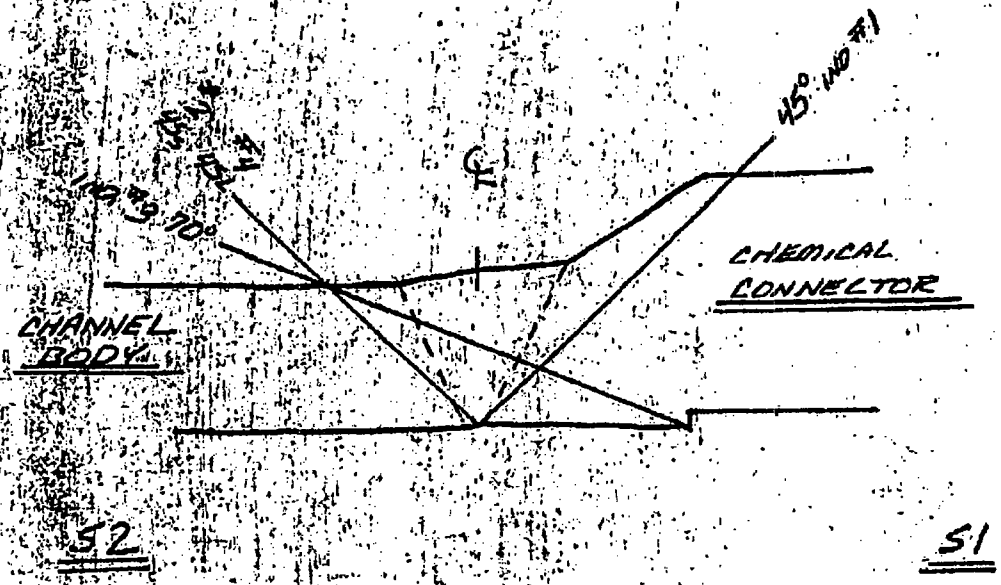
Summary No.: WJ-32

Examiner: Dean, Steven — Level: II-N — Reviewer: Gary Moss — Date: 12-8-09

Examiner: Griebel, David M. — Level: II-N — Site Review: — Date:

Other: N/A — Level: N/A — ANII Review: Nancy C Ritchie Stoughton — Date: 4/27/11

Comments: Weld WJ-32
Ind. # 1, 2 & 4 are root geometry. Ind. # 3 is a geometric reflector from offset on the I. D. surface.



ATTACHMENT A
PAGE 28 OF 162

ATTACHMENT A
PAGE 139 OF 162

Let Down Cooler - Chemical Connector to Channel Body

% Coverage Calculations

Weld No. : WJ-32

Ø = 8.625"

"t" = 0.875"

Weld Length = 27.1"

Total Inspection Area = 2.28 sq. in.

% Length Limited due to nozzle = 6" / 27.1" x 100 = 22.1%

Aggregate Coverage Calculation

Axial Scans

22.1% of length x 96.5% of the volume of length / 100 = 21.3%

77.9% of length x 97.4% of the volume of length / 100 = 75.9%

Aggregate coverage Axial scans = 21.1 + 75.9 = 97.2%

Circ. Scans

100% of length x 78.1% of the volume of length / 100 = 78.1%

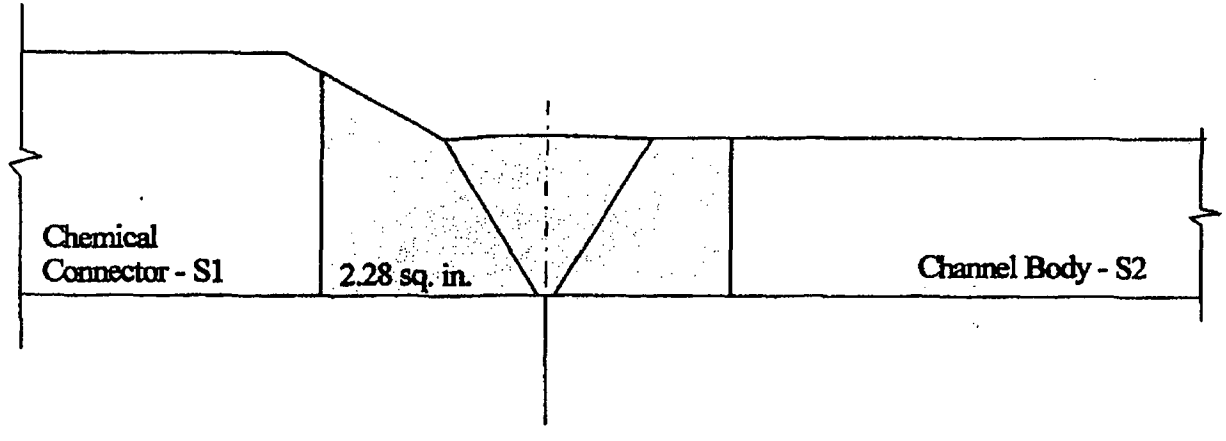
Total = (97.2 + 78.1) / 2 = 87.7% Aggregate Coverage

Inspector / Date: Rod Stoffel 11-4-09

Letdown Cooler Chemical Connector to Channel Body
Total Exam Area

Weld No. : WJ-32

Item No. : N/A



Scale: 1" = 1"

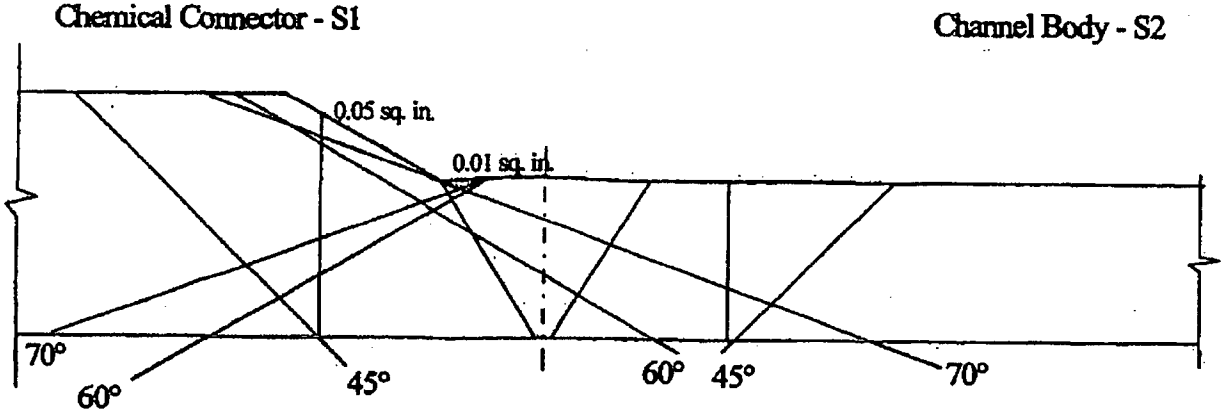
ATTACHMENT A
Page 130 of 162
2 of 5

Letdown Cooler Chemical Connector to Channel Body
Area Examined - Axial Scans

Weld No. : WJ-32 Item No. : N/A

= Area Not Examined = 0.05 + 0.01 = 0.06 sq. in.

= Area Examined = 2.28 - 0.06 / 2.28 x 100 = 97.4%



Scale: 1" = 1"

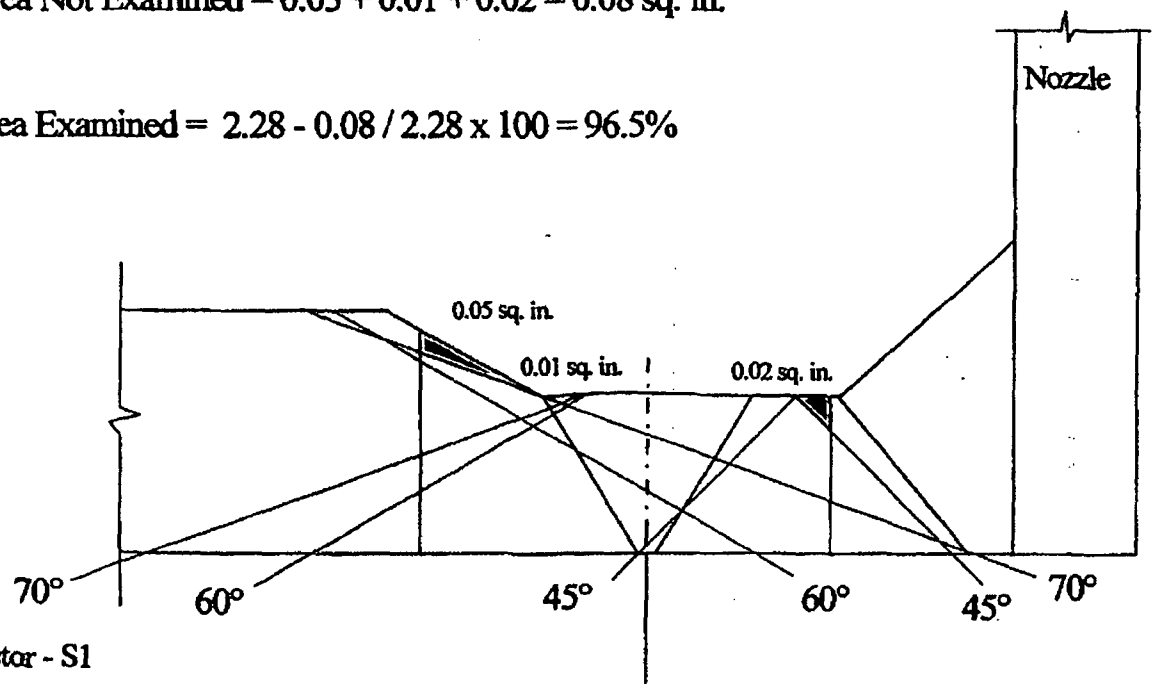
ATTACHMENT A
Page 131 of 162
3 of 5

Letdown Cooler Chemical Connector to Channel Body
Area Examined @ Nozzle - Axial Scans

Weld No. : WJ-32 Item No. : N/A

= Area Not Examined = 0.05 + 0.01 + 0.02 = 0.08 sq. in.

= Area Examined = 2.28 - 0.08 / 2.28 x 100 = 96.5%



Chemical Connector - S1

Channel Body - S2

Scale: 1" = 1"

ATTACHMENT A
PAGE 132 of 162
4 of 5

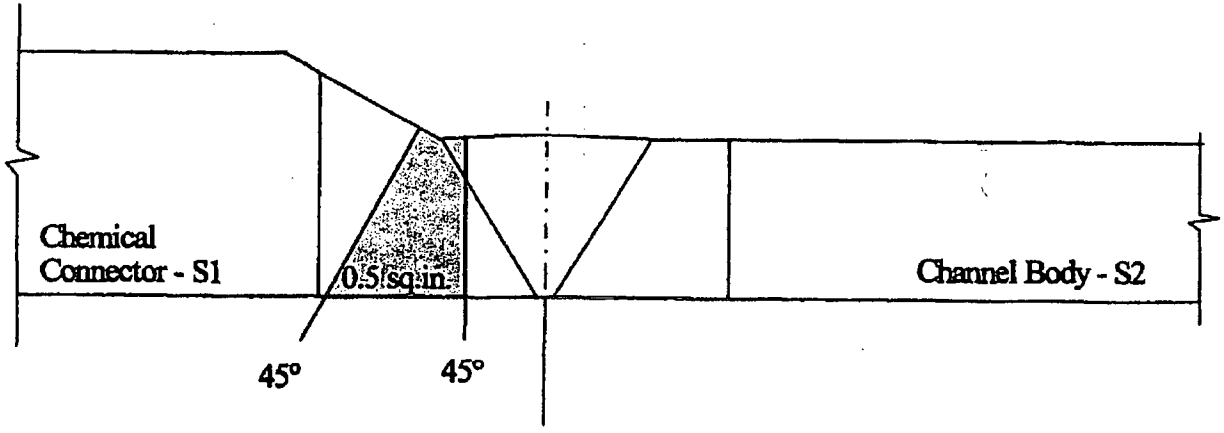
Letdown Cooler Chemical Connector to Channel Body
Area Examined - Circ. Scan

Weld No. : WJ-32

Item No. : N/A

= Area Not Examined = 0.5 sq. in.

= Area Examined = 2.28 - 0.5 / 2.28 x 100 = 78.1%



Scale: 1" = 1"

ATTACHMENT A
page 133 of 162
5 of 5

UT Base Metal Lamination

Site/Unit: Oconee / 0 | Procedure: NDE-640 | Outage No.: N/A
Summary No.: WJ-33 | Procedure Rev.: 5 | Report No.: BOP-UT-09-113
Workscope: PSI | Work Order No.: 01889357 | Page: 1 of 2

Code: N/A | Cat./Item: N/A | Location: N/A
Drawing No.: N/A | Description: N/A
System ID: N/A
Component ID: WJ-33 | Size/Length: N/A | Thickness/Diameter: .875/3.0/SS
Limitations: None | Start Time: 0825 | Finish Time: 0829

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.: 70 °F | Scanning dB: 47.0
Cal. Report No.: CAL-09-457

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

Comments: N/A

Results: Accept ☑ Reject ☐ Info ☐ | PSI exam S/N N-32389-1
Percent Of Coverage Obtained > 90%: Yes | Reviewed Previous Data: No

Examiner	Level II-N	Signature	Date	Reviewer		Signature	Date
Dean, Steven			11/4/2009				12-8-09
Examiner	Level II-N	Signature	Date	Site Review		Signature	Date
Griebel, David M.			11/4/2009			N/A	
Other	Level N/A	Signature	Date	ANII Review		Signature	Date
N/A							4/27/11

attachment A
page 134 of 162

Duke Energy.

Supplemental Report

Report No.: BOP-UT-09-113

Summary No.: WJ-33

Examiner: Dean, Steven — Level: II-N — Reviewer: [signature] — Date: 12-007

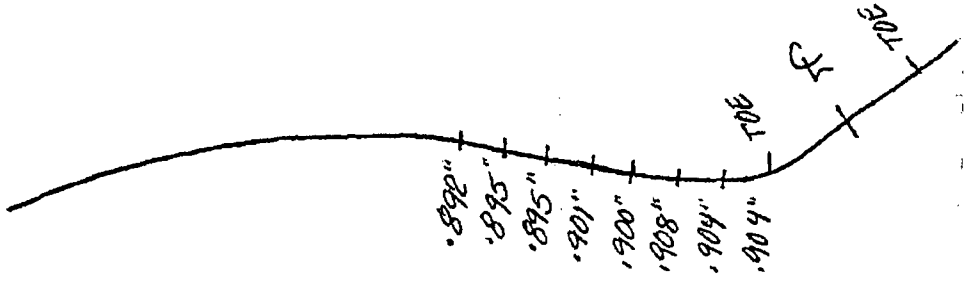
Examiner: Griebel, David M. [signature] — Level: II-N — Site Review: N/A — Date:

Other: N/A — Level: N/A — ANII Review: [signature] — Date: 4/27/11

Comments: WJ-33

S1

S2



CHANNEL BODY

NOZZLE

UT Vessel Examination

Site/Unit: Oconee / 0 | Procedure: NDE-3630 | Outage No.: N/A

Summary No.: WJ-33 | Procedure Rev.: 1 | Report No.: BOP-UT-09-117

Workscope: PSI | Work Order No.: 01889357 | Page: 1 of 2

Code: 1998/2000A | Cat./Item: B-D/B3.150 | Location: N/A

Drawing No.: NU-D-1149-1 Rev. A | Description: Nozzle to channel body

System ID: N/A

Component ID: WJ-33 | Size/Length: N/A | Thickness/Diameter: .875/3.0/SS

Limitations: Yes - See supplemental sheet | Start Time: 0952 | Finish Time: 1010

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.: 70 °F

Cal. Report No.: pmg 11-14-09 CAL-09-458, 459, 460, 461 & 462

Angle Used	0	45	45T	~~60~~ 45L	~~60T~~ 60L	70L
Scanning dB		43.0	61.7	50.2	55.0	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 ☐ | PSI examination S/N N-32389-1 FC 09-01, 09-05 pmg 4/27/11

Percent Of Coverage Obtained > 90%: No 54.6% | Reviewed Previous Data: No

Examiner: Dean, Steven	Level II-N	Signature	Date: 11/4/2009	Reviewer: Gary Moss	Signature / Date: 12/8/09
Examiner: Griebel, David M.	Level II-N	Signature	Date: 11/4/2009	Site Review: N/A	Signature / Date
Other: N/A	Level N/A	Signature	Date	ANII Review: Nancy C Ratchel-Shaffer	Signature / Date: 4/27/11

DUKE POWER COMPANY
ISI LIMITATION REPORT

Component/Weld ID: WJ-33 **Item No:** BOP-UT-09-117

☒ NO SCAN SURFACE BEAM DIRECTION
☐ LIMITED SCAN ☐ 1 ☒ 2 ☒ 1 ☒ 2 ☐ cw ☐ ccw
FROM L N/A to L N/A INCHES FROM W0 Toe 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:
Due to nozzle.

Sketch(s) attached
☒ yes ☐ No

Prepared By: Steve Dean Level: II Date: 11/04/09
Sheet 2 of 2
Reviewed By: Gary Moss Date: 12-8-09
Authorized Inspector: Nancy CRitchie-Slaughter Date: 4/27/11

Attachment A
page 137 of 162

Attachment TA
Page 138 of 162

Letdown Cooler Nozzle to Channel Body		
Weld No. WJ-33		
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 Rod Stoffel

Date 11-4-09

Letdown Cooler Nozzle to Channel Body

Weld No. : WJ-33

Item No. : N/A

BASE MATERIAL AREA OF INTEREST

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

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

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

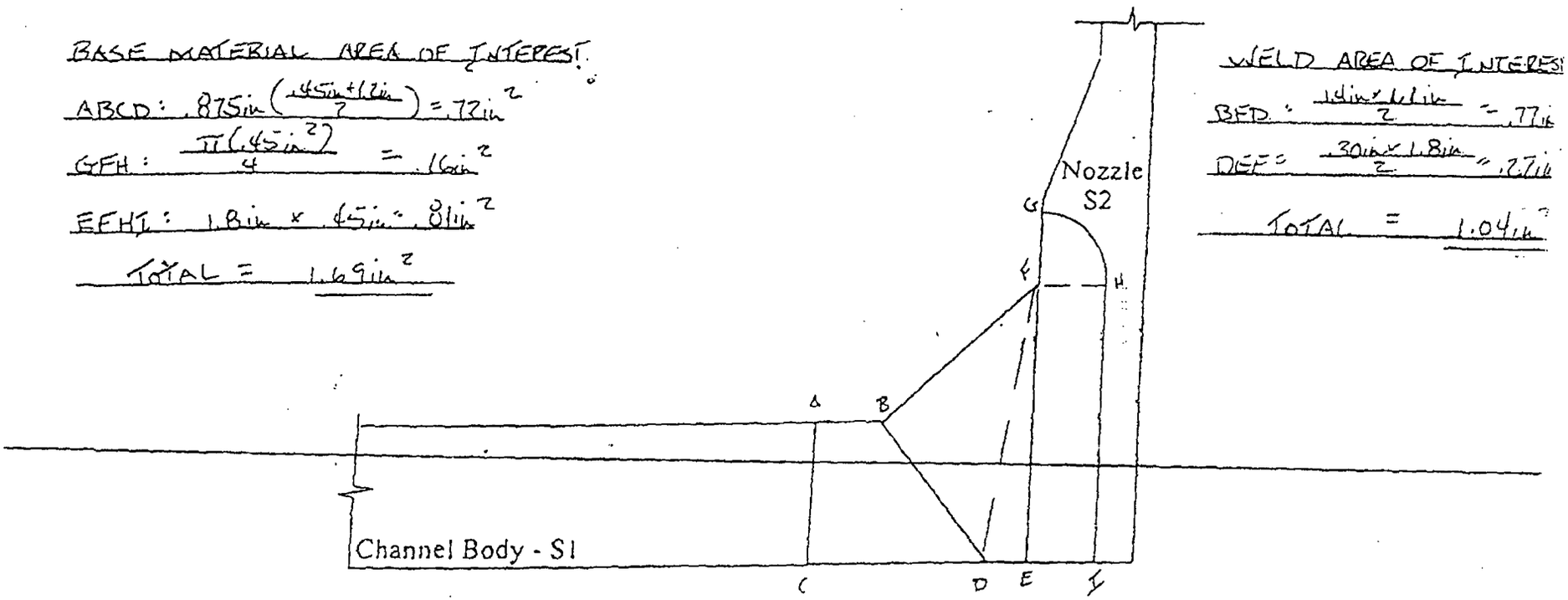
TOTAL = $1.69in^2$

WELD AREA OF INTEREST

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

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

TOTAL = $1.04in^2$



Scale: 1" = 1"

attachment A
page 139 of 162 2 of 7

Letdown Cooler Nozzle to Channel Body

Weld No. : WJ-33

Item No. N/A

BASE METAL COVERAGE - CIRC

ABCD: .75in × .875in = .72in²

JFG: $\frac{.5in \times 1.4in}{2}$ = .07in²

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

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

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

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

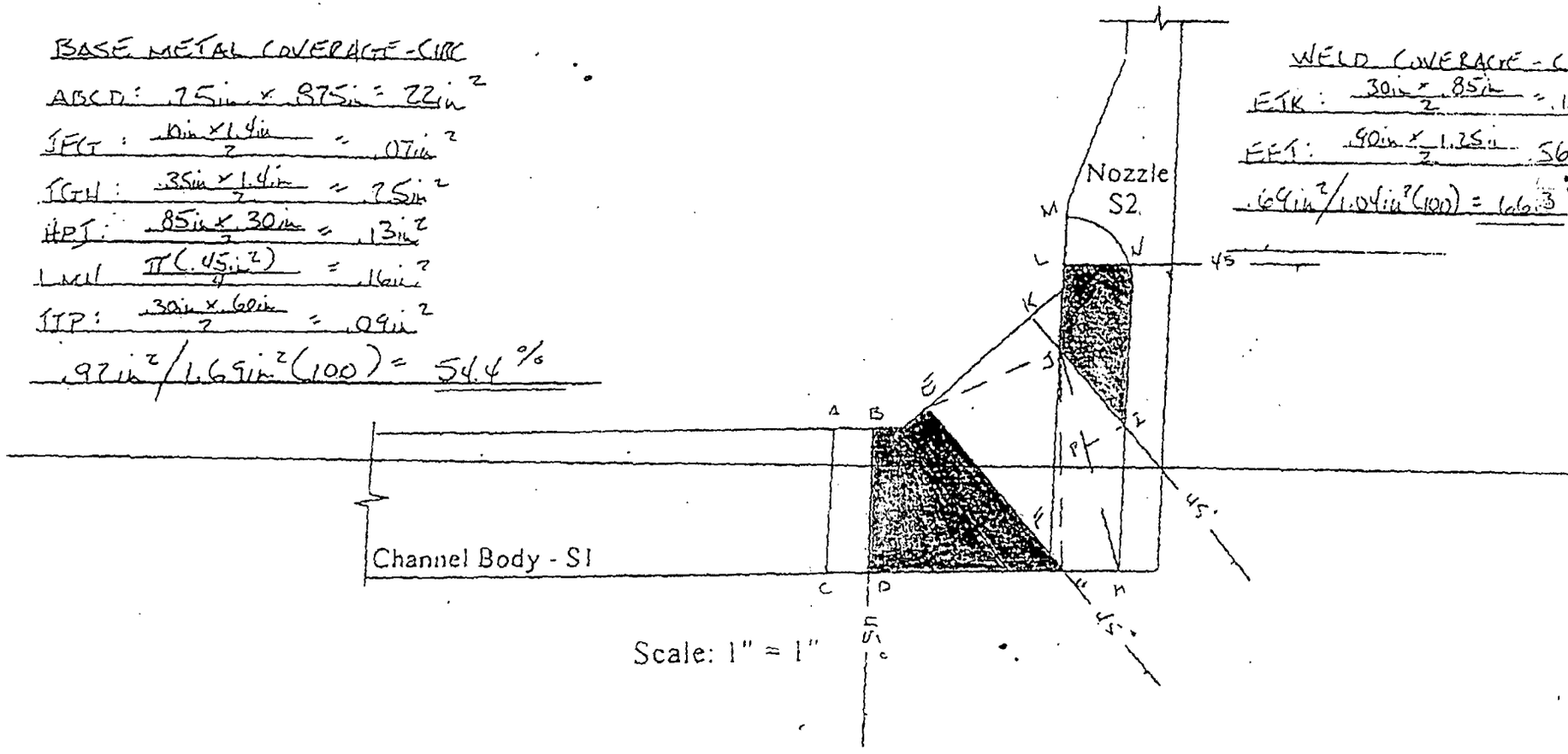
.92in²/1.69in²(100) = 54.4 %

WELD COVERAGE - CIR

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

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

.69in²/1.04in²(100) = 66.3 %



Attachment A
page 140 of 162 3 of 7

Letdown Cooler Nozzle to Channel Body

Weld No. : WJ-33

Item No. : N/A

BASE METAL COVERAGE - AXIAL

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

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

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

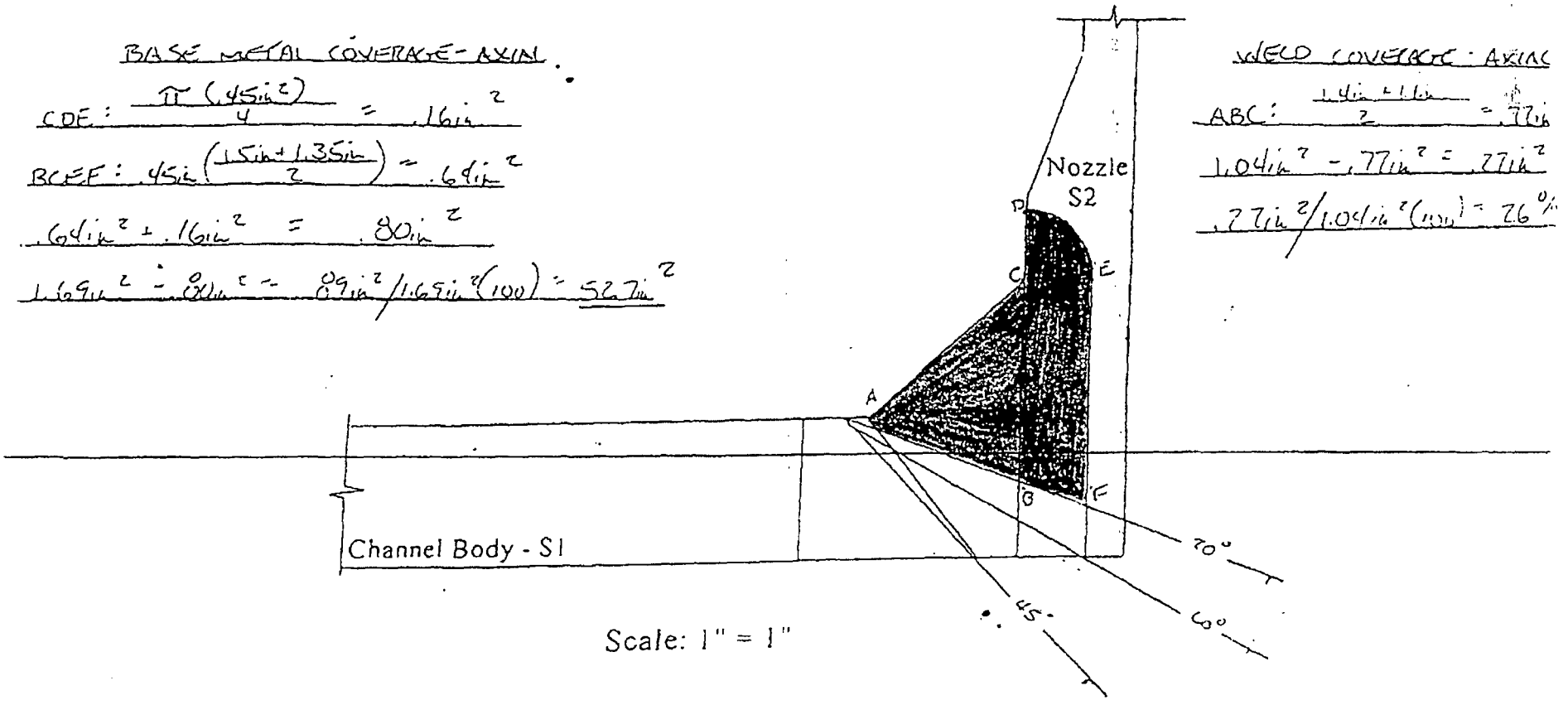
$1.69in^2 - .80in^2 = .89in^2 / 1.69in^2 (100) = 52.7in^2$

WELD COVERAGE - AXIAL

ABC: $\frac{1.4in + 1.6in}{2} = .77in$

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

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



Scale: 1" = 1"

Attachment A
page 141 of 162 4 of 7

Letdown Cooler Nozzle to Channel Body (Radius View)

Weld No. : WJ-33

Item No. : N/A

BASE METAL AREA OF INTEREST

ABCD: .875in × .46in = .39in²

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

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

MIKL: .44in × 1.25in = .55in²

IIK: $\frac{\pi(.45^2)}{4}$ = .16in²

TOTAL = 1.35in²

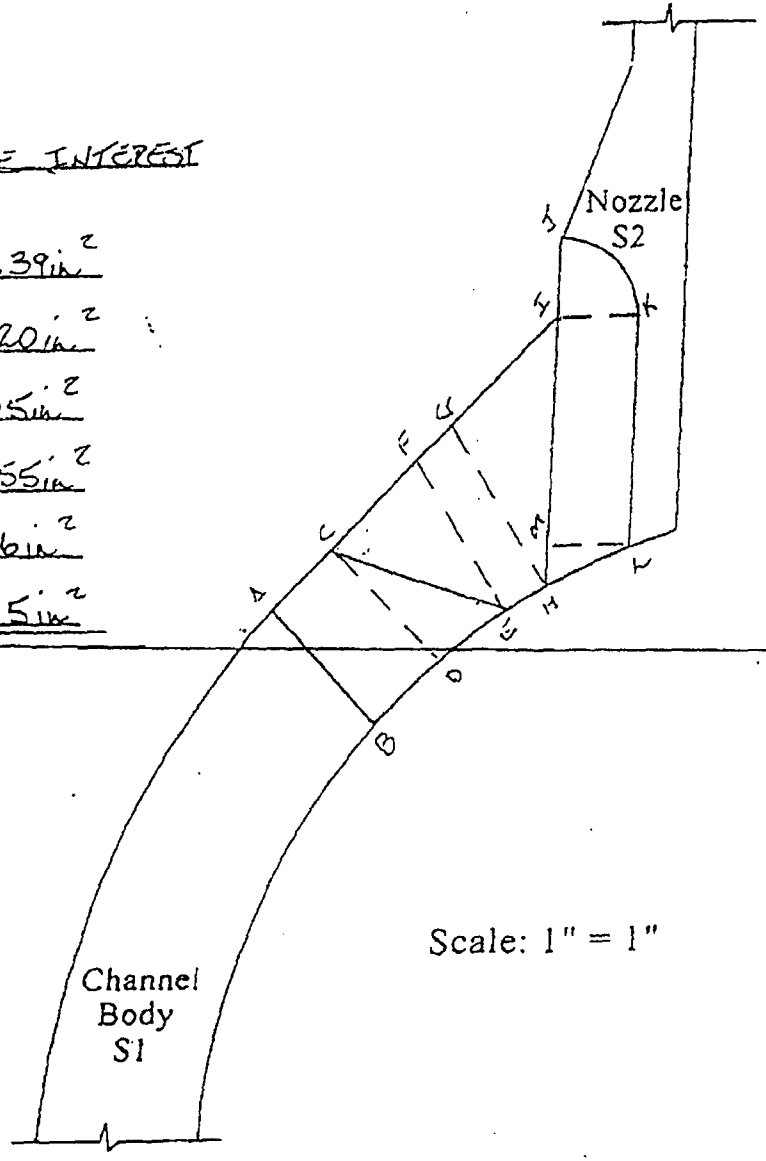
WELD AREA OF INTEREST

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

EFGH: .25in × .875in = .22in²

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

TOTAL = 0.85in²



Scale: 1" = 1"

Attachment A
page 142 of 162 5 of 7

Letdown Cooler Nozzle to Channel Body (Radius View)

Weld No. : WJ-33

Item No. : N/A

BASE MATERIAL COVERAGE - AXIAL

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

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

$.27in^2 + .16in^2 = .43in^2$

$1.35in^2 - .43in^2 = 0.92in^2$

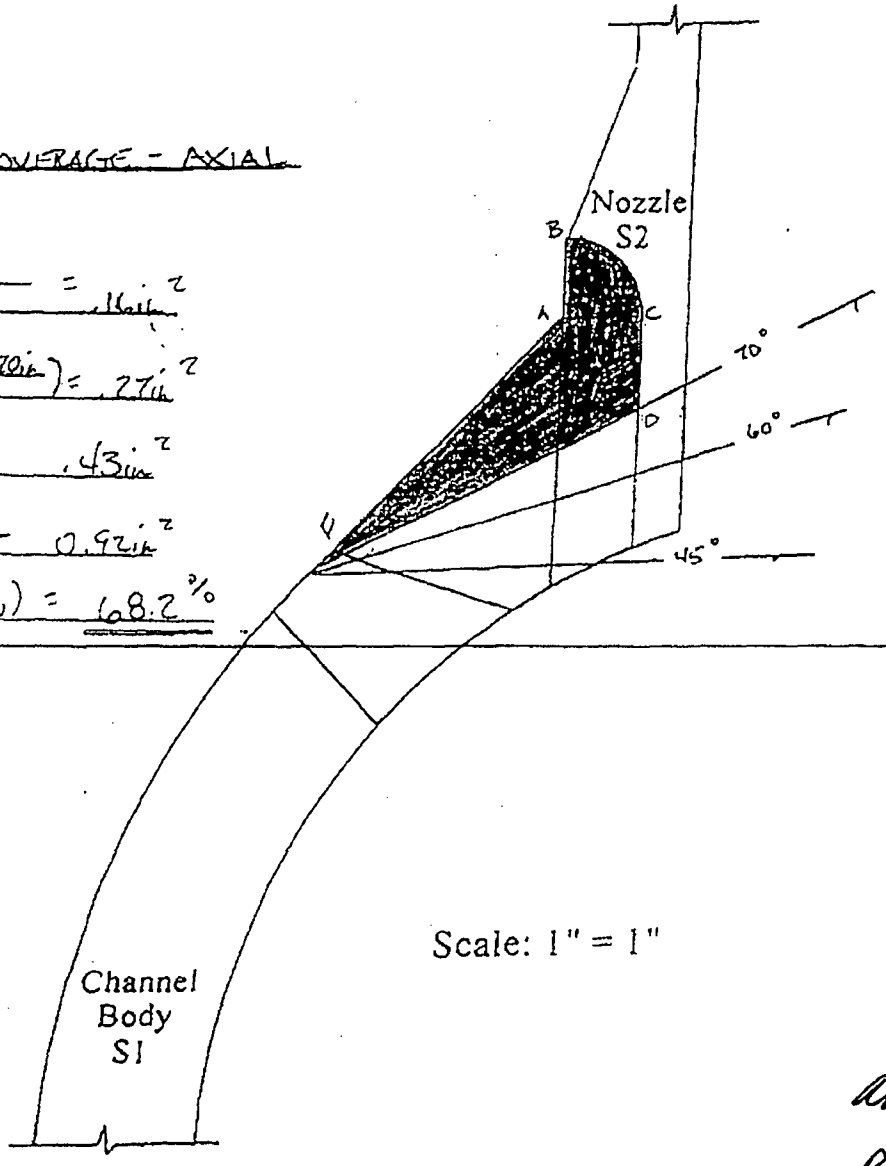
$0.92in^2 / 1.35in^2 (100) = 68.2\%$

WELD COVERAGE - AXIAL

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

$.85in^2 - .46in^2 = .39in^2$

$.39in^2 / .85in^2 (100) = 45.9\%$



Scale: 1" = 1"

Attachment A
page 143 of 162 6 of 7

Bellows Cooler Nozzle to Channel Body (Radius View)

Weld No. : WJ-33

Item No. : N/A

BASE METAL COVERAGE - CIRC

COEF : .45in ((.10in · .30in)/2) = .29in²

GHI : (.875in × .45in)/2 = .20in²

GHJK : .875in × .45in = .39in²

TOTAL = .88in²

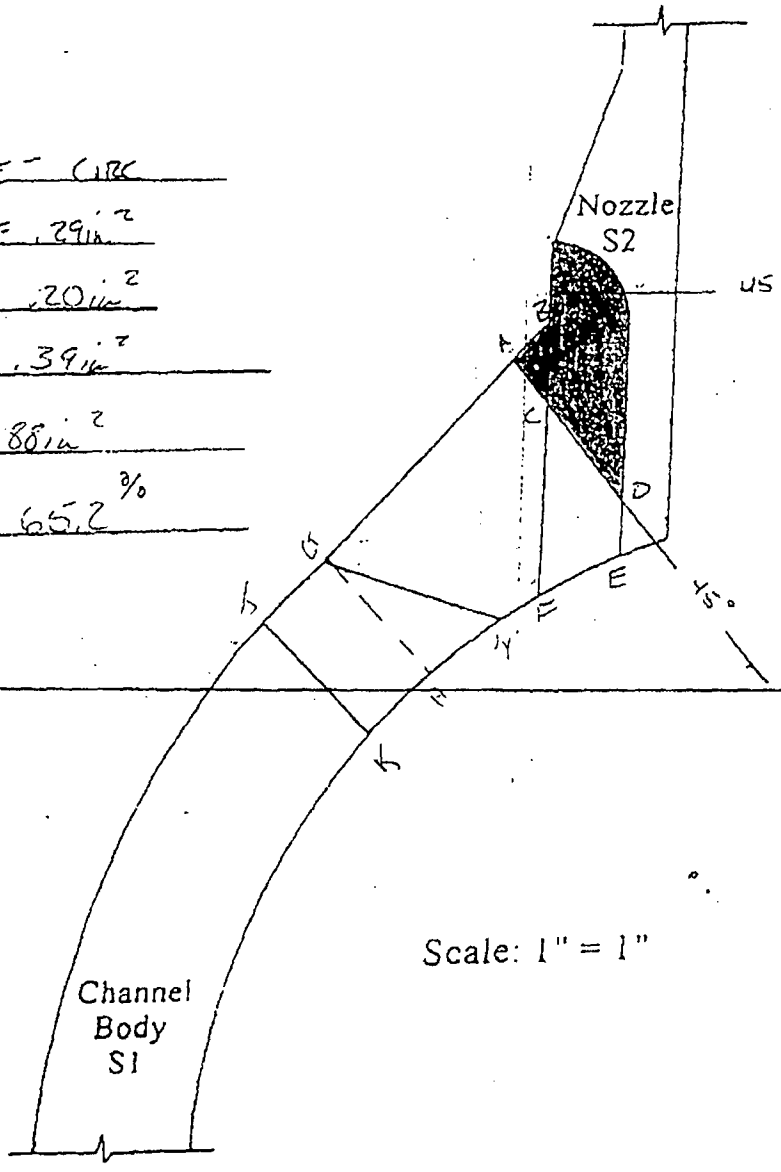
.88in²/1.35in²(100) = 65.2%

WELD COVERAGE - CIRC

ABC : (.30in × .30in)/2 = .05in²

.85in² - .05in² = .80in²

.80in²/.85in²(100) = 94.1%



Scale: 1" = 1"

attachment A
Page 144 of 162 7 of 7

Duke Energy.

UT Vessel Examination

Site/Unit: Oconee / 0 | Procedure: NDE-3630 | Outage No.: N/A
Summary No.: WJ-35 | Procedure Rev.: 1 | Report No.: BOP-UT-09-119
Workscope: PSI | Work Order No.: 01889357 | Page: 1 of 4

Code: 1998/2000A | Cat./Item: B-B/B2.51 | Location: N/A
Drawing No.: NU-D-1149-1 Rev. A | Description: Chemical connector to channel body
System ID: N/A
Component ID: WJ-35 | Size/Length: N/A | Thickness/Diameter: .875/8.0/SS
Limitations: Yes - See supplemental sheet | Start Time: 1107 | Finish Time: 1130

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.: 70 °F
Cal. Report No.: SHD 11-11-09 CAL-09-458, 459, 460, 461 & 462

Angle Used	0	45	45T	60	60T	70L
Scanning dB		43.0	61.7	50.2	55.0	49.0

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 ☐ | PSI examination S/N N-32389-1 FC 09-01, 09-05
Percent Of Coverage Obtained > 90%: No - 87.7% | Reviewed Previous Data: No

Examiner Level II-N Doan, Steven	Signature	Date 11/4/2009	Reviewer Signature 7/19/11 Date
Examiner Level N/A N/A	Signature	Date	Site Review Signature Date
Other Level N/A N/A	Signature	Date	ANII Review Signature 7/20/11 Date

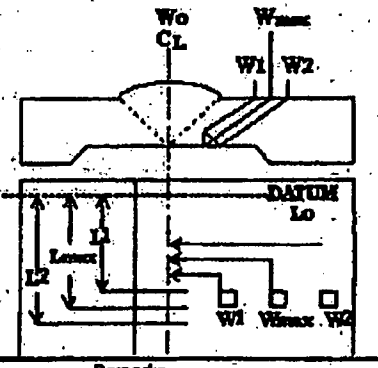
ATTACHMENT A
PAGE 145 OF 162

Ultrasonic Indication Report

Site/Unit: Oconee / 0 | Procedure: NDE-3630 | Outage No.: N/A
Summary No.: WJ-35 | Procedure Rev.: 1 | Report No.: BOP-UT-09-119
Workscope: PSI | Work Order No.: 01869357 | Page: 2 of 4

Search Unit Angle: 70
Wo Location: Centerline of Weld
Lo Location: 9.1.1.1

○ Piping Welds
○ Ferritic Vessels ≥ 2"T
◉ Other Vessels < 2" T



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: Weld WJ-35 S/N N-32389-1

Angle	Indication No.	% Of DAC	W Max		Forward Of Max		Backward Of Max		L1 Of Max	L Max	L2 Of Max	RBR Amp.	Remarks
			W	MP	W1	MP	W2	MP					
S1	1-4S	100	1.5"	2.30	N/A	N/A	N/A	N/A	360°	0-3"	INT	N/A	Root Geometry
S2	2-4S	100	0.9	1.25	N/A	N/A	N/A	N/A	360°	0-3"	INT	N/A	Root Geometry
S2	3-4SL	80	0.9	1.25	N/A	N/A	N/A	N/A	360°	0-3"	INT	N/A	Root Geometry

Examiner	Level II-N	Signature	Date	Reviewer		Signature	Date
Dean, Steven			11/4/2009				12-5-09
Examiner	Level II-N	Signature	Date	Site Review		Signature	Date
Griebel, David M.			11/4/2009				
Other	Level N/A	Signature	Date	ANII Review		Signature	Date
N/A				Nancy C Ritchie Slaughter			4/27/11

ATTACHMENT A
PAGE 146 OF 162

DUKE POWER COMPANY
ISI LIMITATION REPORT

Component/Weld ID: WJ-35 Item No: BOP-UT-09-119 | remarks:

☒ NO SCAN | SURFACE | BEAM DIRECTION | Due to nozzle.
☐ LIMITED SCAN | ☒ 1 ☐ 2 | ☒ 1 ☒ 2 ☒ cw ☒ ccw |
FROM L 0+3" to L 0-3" INCHES FROM W0 CL+1.1 to Beyond
ANGLE: ☐ 0 ☒ 45 ☒ 60 other 70 FROM 0 DEG to 360 DEG

☐ NO SCAN | SURFACE | BEAM DIRECTION | Taper on chemical
☒ LIMITED SCAN | ☐ 1 ☒ 2 | ☒ 1 ☒ 2 ☒ cw ☒ ccw | connector.
FROM L N/A to L N/A INCHES FROM W0 +0.6 to +1.5
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: Steve Dean Level: II Date: 11/04/09 Sheet 3 of 4

Reviewed By: Date: 12-5-09 Authorized Inspector: Date: 4/27/11

ATTACHMENT A
PAGE 147 OF 162

[redacted]

Supplemental Report

Report No.: BOP-UT-09-119

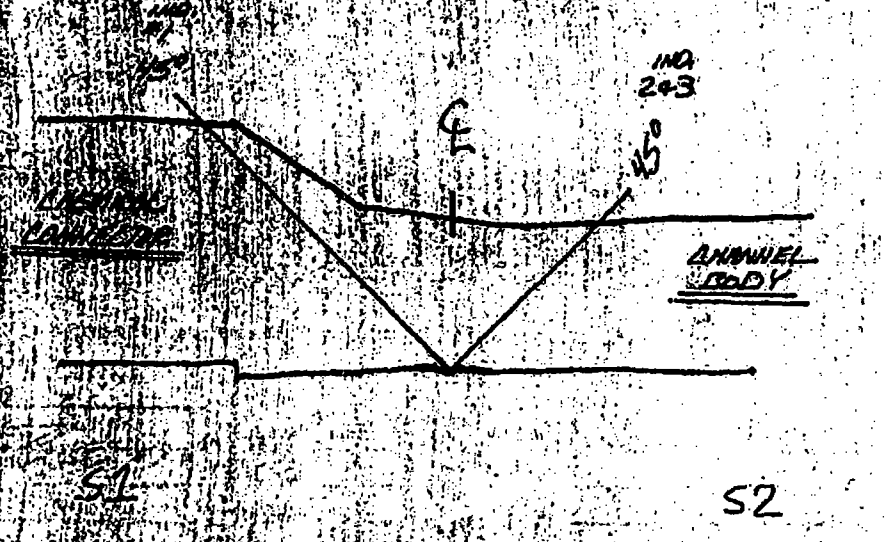
Summary No.: WJ-35

Examiner: Dean, Steven — Level: II-N — Reviewer: [signature] — Date: 12-8-09

Examiner: Griebel, David M. — Level: II-N — Site Review: — Date:

Other: N/A — Level: N/A — ANII Review: [signature] — Date: 4/27/11

Comments: Weld WJ-35
Ind. # 1, 2 & 3 are Root Geometry



ATTACHMENT A
PAGE 149 OF 162

Let Down Cooler - Chemical Connector to Channel Body

% Coverage Calculations

Weld No. : WJ-35

Ø = 8.625"

"t" = 0.875"

Weld Length = 27.1"

Total Inspection Area = 2.28 sq. in.

% Length Limited due to nozzle = 6" / 27.1" x 100 = 22.1%

Aggregate Coverage Calculation

Axial Scans

22.1% of length x 96.5% of the volume of length / 100 = 21.3%

77.9% of length x 97.4% of the volume of length / 100 = 75.9%

Aggregate coverage Axial scans = 21.1 + 75.9 = 97.2%

Circ. Scans

100% of length x 78.1% of the volume of length / 100 = 78.1%

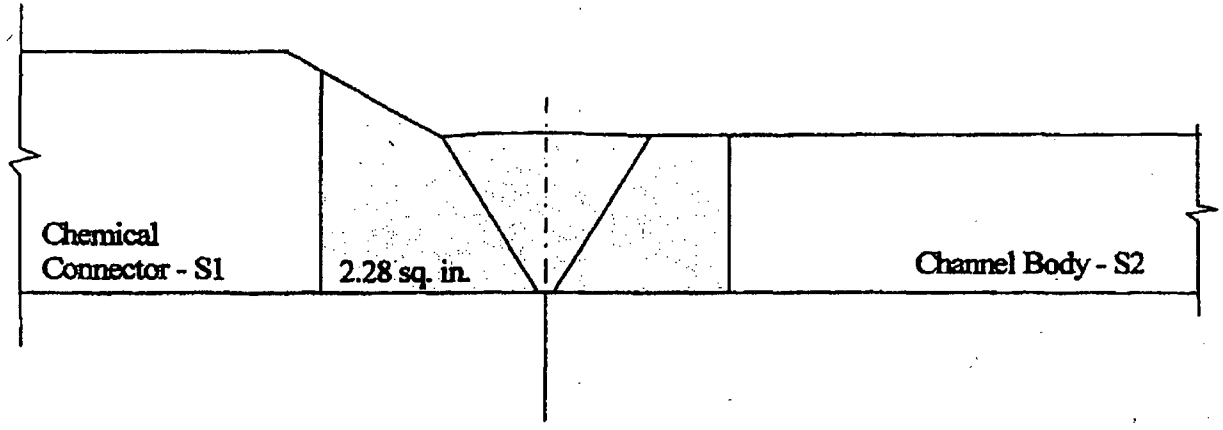
Total = (97.2 + 78.1) / 2 = 87.7% Aggregate Coverage

Inspector / Date: Rick Stafford 11-4-09 Page 1 of 5

Letdown Cooler Chemical Connector to Channel Body
Total Exam Area

Weld No. : WJ-35

Item No. : N/A



Scale: 1" = 1"

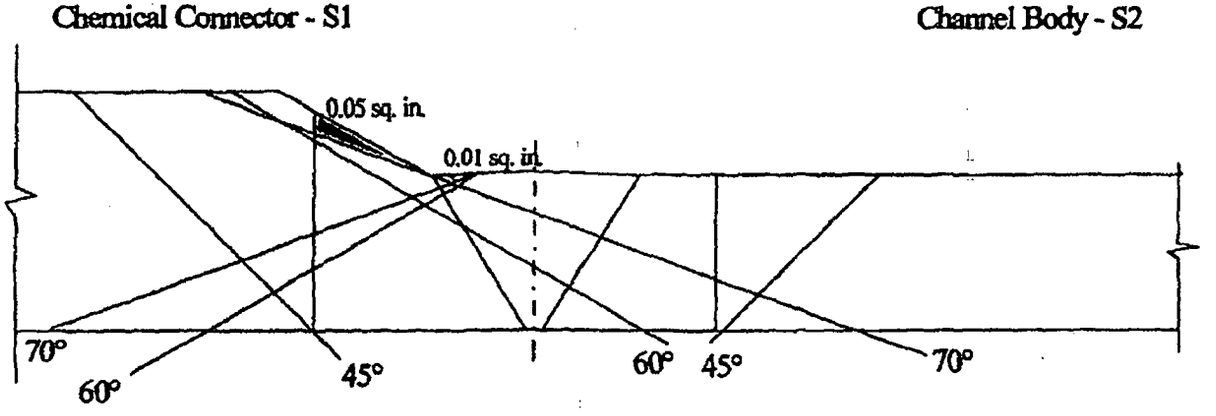
ATTACHMENT A
Page 150 of 162
2 of 5

Letdown Cooler Chemical Connector to Channel Body
Area Examined - Axial Scans

Weld No. : WJ-35 Item No. : N/A

= Area Not Examined = 0.05 + 0.01 = 0.06 sq. in.

= Area Examined = 2.28 - 0.06 / 2.28 x 100 = 97.4%



Scale: 1" = 1"

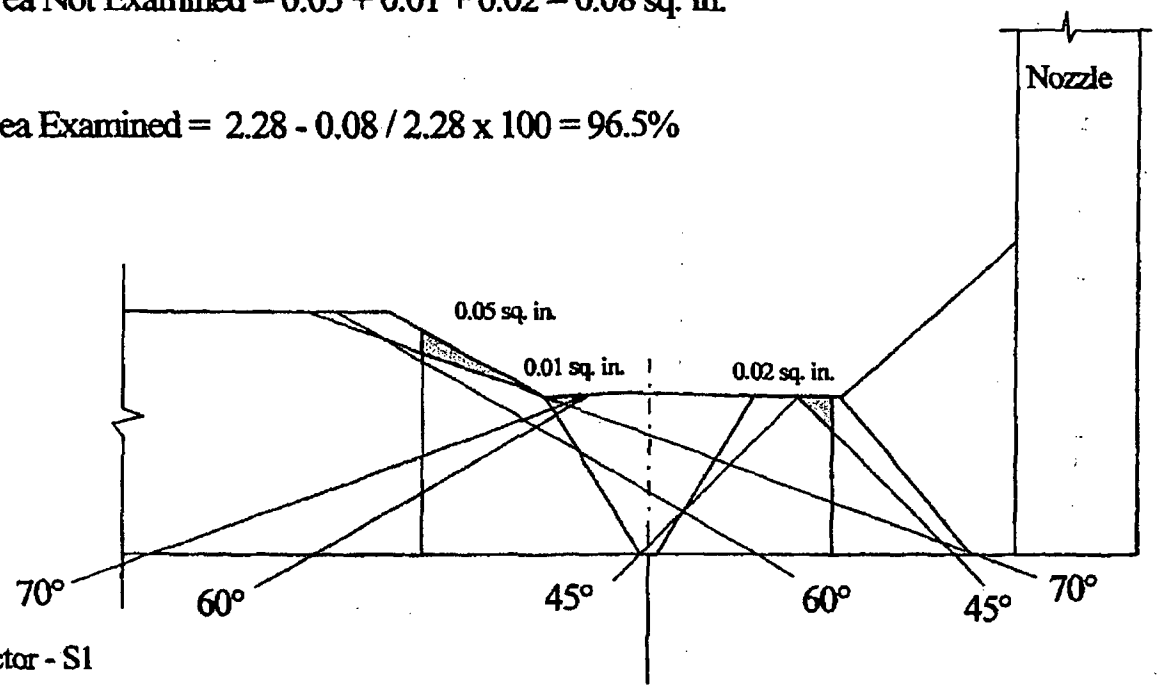
ATTACHMENT A
page 151 of 162
3 of 5

Letdown Cooler Chemical Connector to Channel Body
Area Examined @ Nozzle - Axial Scans

Weld No. : WJ-35 Item No. : N/A

= Area Not Examined = 0.05 + 0.01 + 0.02 = 0.08 sq. in.

= Area Examined = 2.28 - 0.08 / 2.28 x 100 = 96.5%



Chemical Connector - S1

Channel Body - S2

Scale: 1" = 1"

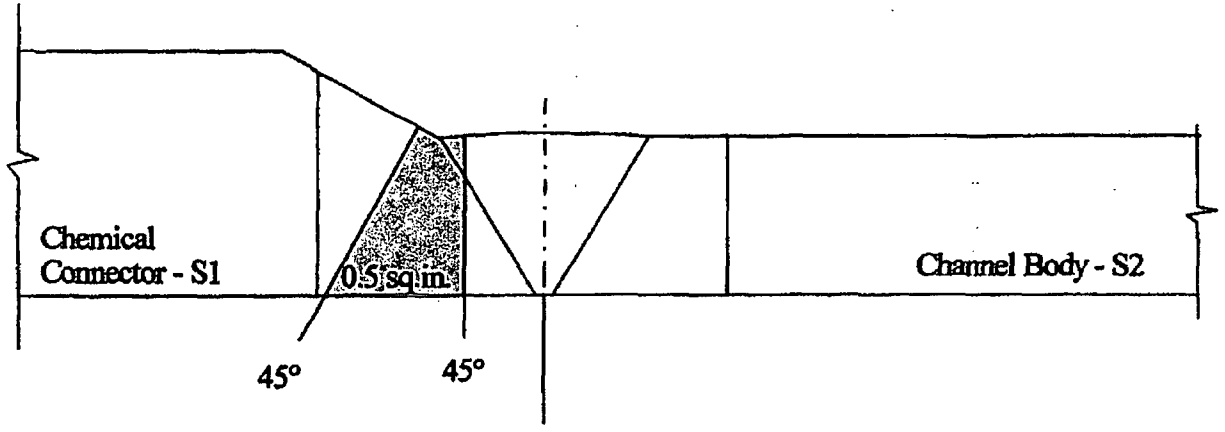
ATTACHMENT A
Page 152 of 162
4 of 5

Letdown Cooler Chemical Connector to Channel Body
Area Examined - Circ. Scan

Weld No. : WJ-35 Item No. : N/A

= Area Not Examined = 0.5 sq. in.

= Area Examined = 2.28 - 0.5 / 2.28 x 100 = 78.1%



Scale: 1" = 1"

ATTACHMENT A
page 153 of 162
5 of 5

UT Vessel Examination

Site/Unit: Oconee / 0 | Procedure: NDE-3630 | Outage No.: N/A
Summary No.: WJ-36 | Procedure Rev.: 1 | Report No.: BOP-UT-09-120
Workscope: PSI | Work Order No.: 01889357 | Page: 1 of 2

Code: 1998/2000A | Cat./Item: B-D/B3.160 | Location: N/A
Drawing No.: NU-D-1149-1 Rev. A | Description: Nozzle to channel body
System ID: N/A
Component ID: WJ-36 | Size/Length: N/A | Thickness/Diameter: .875/3.0/SS
Limitations: Yes - See supplemental sheet | Start Time: 1012 | Finish Time: 1034

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.: 70 °F
Cal. Report No.: DMB 11-14-09 CAL-09-458, 459, 460, 461 & 462

Angle Used	0	45	45T	~~60~~ 45L	~~60T~~ 60L	70L
Scanning dB		43.0	61.7	60.2	55.0	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 | | PSI examination S/N 32389-1 EC 09-01, 09-05
Percent Of Coverage Obtained > 90%: No - ~~84.6%~~ | Reviewed Previous Data: No | QL 4/27/11

Examiner Level II-N Dean, Steven	Signature	Date 11/4/2009	Reviewer Gary J Mans	Signature	Date 12-8-09
Examiner Level II-N Griebel, David M.	Signature	Date 11/4/2009	Site Review	Signature	Date
Other Level N/A N/A	Signature	Date	ANII Review Nancy C Ritchel Stoughton	Signature	Date 4/27/11

ATTACHMENT A
PAGE 154 OF 162

DUKE POWER COMPANY
ISI LIMITATION REPORT

Component/Weld ID: WJ-36 Item No: BOP-UT-09-120

remarks: Due to nozzle.

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

FROM L N/A to L N/A INCHES FROM W0 Toe 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 ☐ 5 ☐ 60 other _____ FROM _____ DEG to _____ DEG

Sketch(s) attached
☐ yes ☐ No

Prepared By: Steve Dean Level: II Date: 11/04/09 Sheet 2 of 2

Reviewed By: Gary Moore Date: 12-5-09 Authorized Inspector: Nancy C Ritchie-Slaughter Date: 4/27/11

ATTACHMENT A
PAGE 155 OF 162

attachment 4 page 156 of 162

Letdown Cooler Nozzle to Channel Body		
Weld No. WJ-36		
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 Rod Sheffield

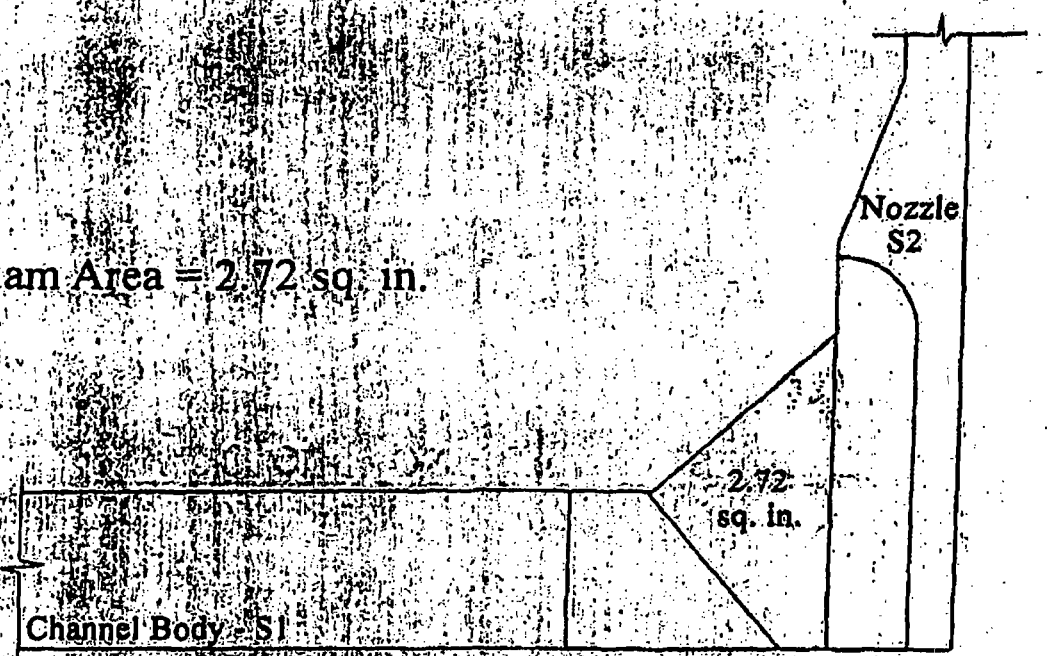
Date 11-4-09

Letdown Cooler Nozzle to Channel Body

Weld No. : WT-36

Item No. : N/A

Total Exam Area = 2.72 sq. in.



ATTACHMENT A
PAGE 159 OF 162

INSP / DATE: [signature] 11/4/09

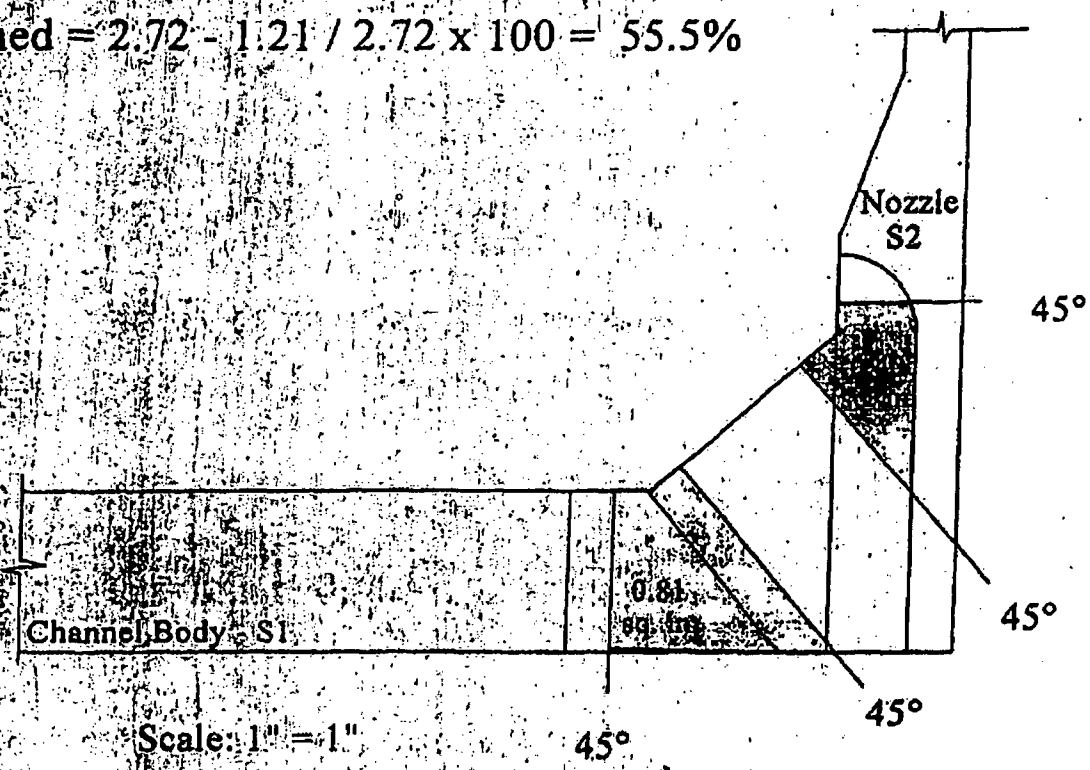
Attachment 2 of 7

Letdown Cooler Nozzle to Channel Body
Area Examined - Circ. Scans

Weld No. : W5 - 36 Item No. : N/A

Area not Examined = 0.81 + 0.40 = 1.21 sq. in.

Area Examined = 2.72 - 1.21 / 2.72 x 100 = 55.5%



Scale: 1" = 1"

INSP/DATE: David K. Ziegler / 11/4/09

ATTACHMENT A
PAGE 158 OF 162

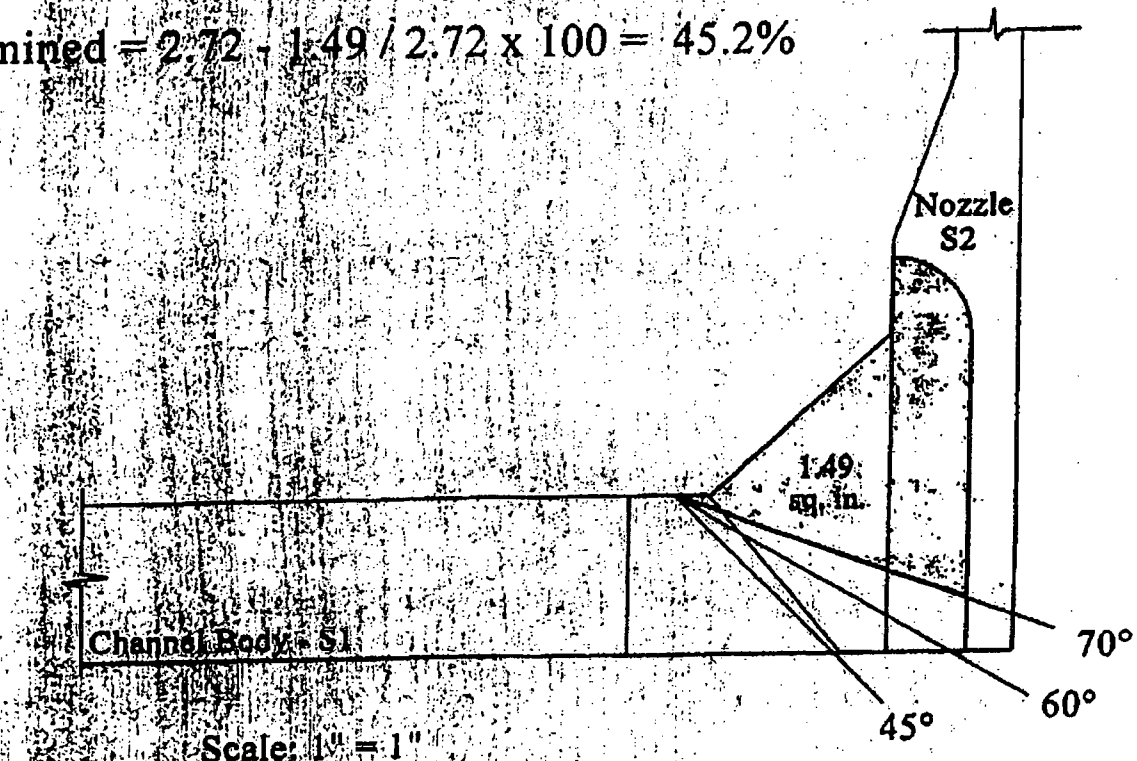
Letdown Cooler Nozzle to Channel Body
Area Examined - Axial Scans

Weld No. : WT-36

Item No. : N/A

Area not Examined = 1.49 sq. in.

Area Examined = 2.72 - 1.49 / 2.72 x 100 = 45.2%



ATTACHMENT A
PAGE 159 OF 162

Insp/Date: [illegible] 3rd / 11/4/09

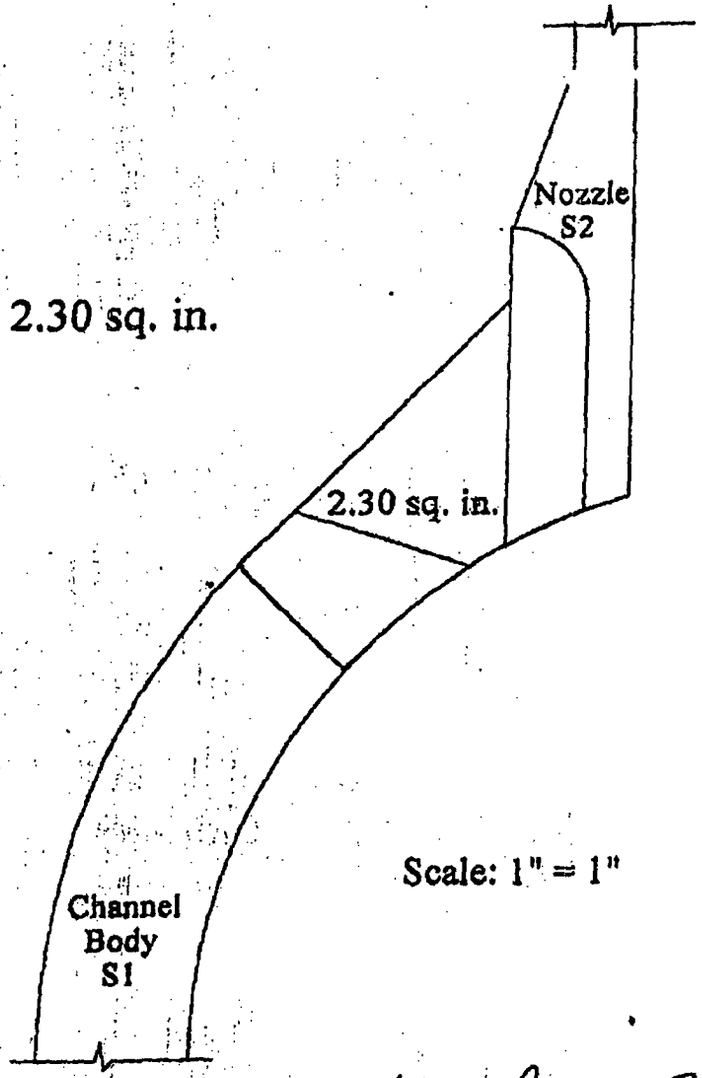
Attachment 4 of 7

Letdown Cooler Nozzle to Channel Body (Radius View)

Weld No. : W5-36

Item No. : 2/A

Total Exam Area = 2.30 sq. in.



Scale: 1" = 1"

ATTACHMENT A
PAGE 160 OF 162

INSP/DATE: David K. Z III / 11/4/09

Attachment 5 of 7

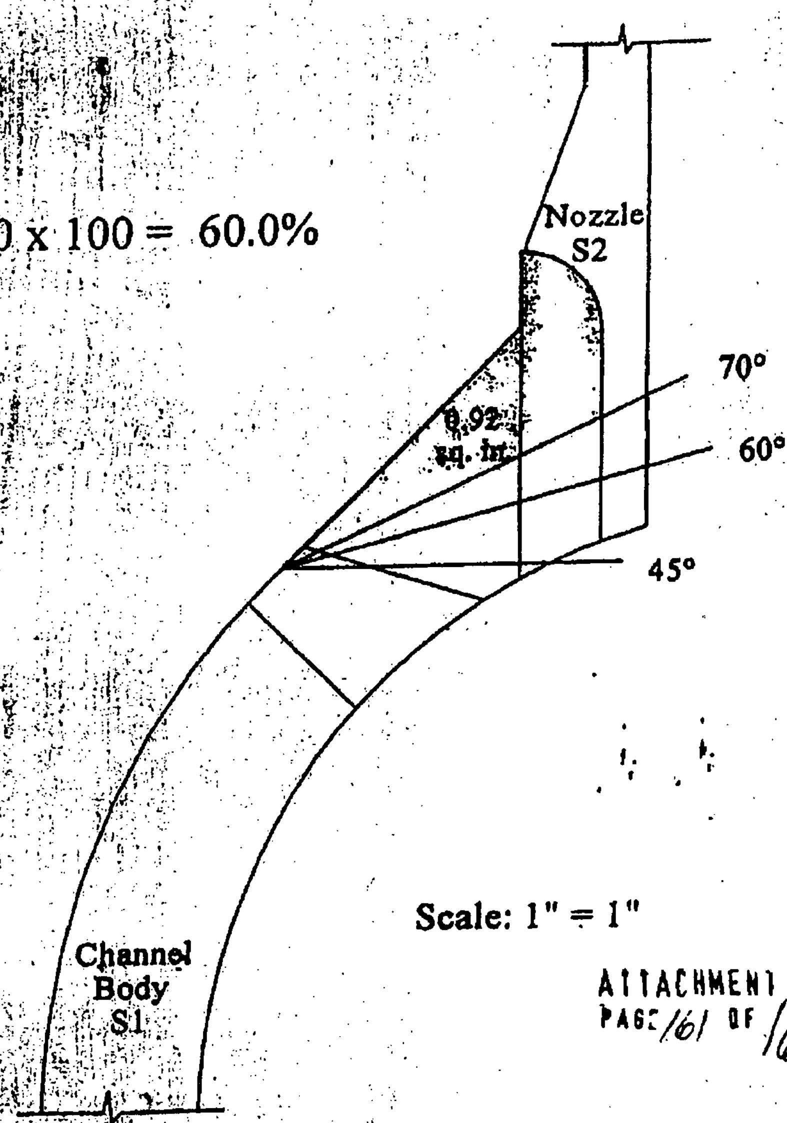
Letdown Cooler Nozzle to Channel Body (Radius View ,
Area Examined - Axial Scans

Weld No. : WJ-36

Item No. : N/A

Area not Examined = 0.92 sq. in.

Area Examined = 2.30 - 0.92 / 2.30 x 100 = 60.0%



Scale: 1" = 1"

INSP/DATE: David K. B III / 11/14/09

Attachment 6 of 7

ATTACHMENT A
PAGE 161 OF 162

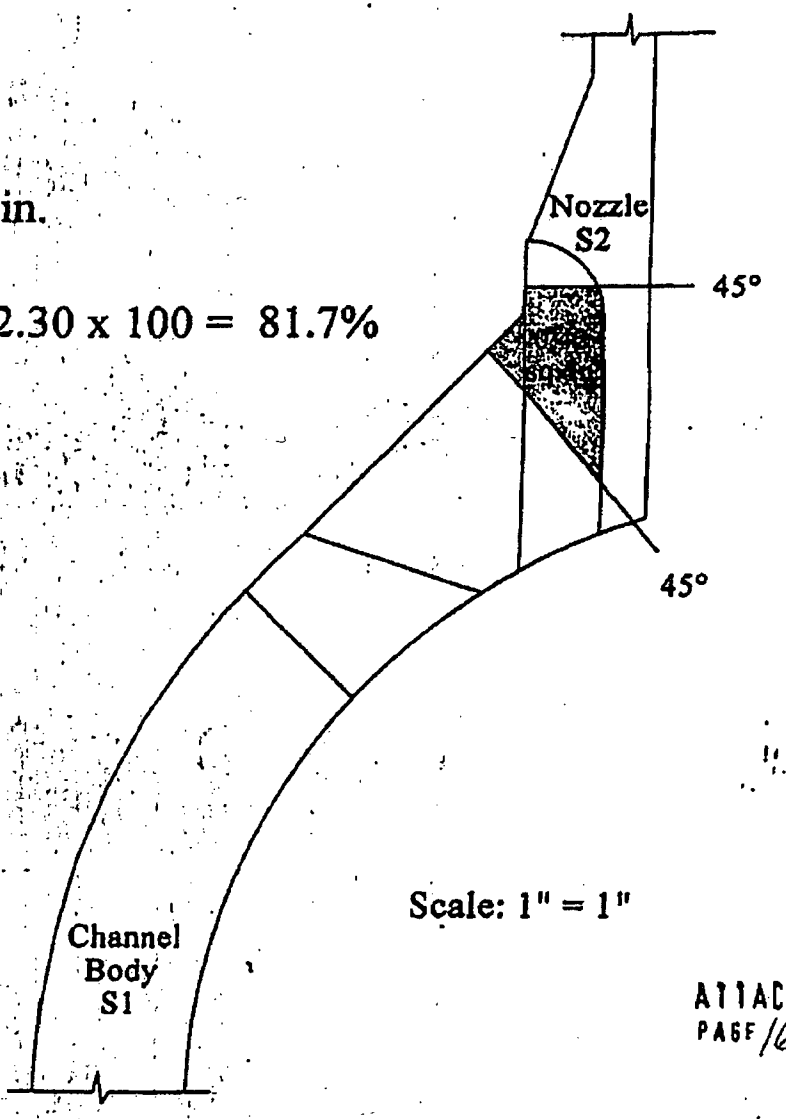
Letdown Cooler Nozzle to Channel Body (Radius View)
Area Examined - Circ. Scans

Weld No.: WT-36

Item No. : 2/A

Area not Examined = 0.42 sq. in.

Area Examined = 2.30 - 0.42 / 2.30 x 100 = 81.7%



Scale: 1" = 1"

Title/Date: Daniel K. Zimmerman / 11/4/09

Attachment 7 of 7