

Enclosure to ONS-2015-086

**Duke Energy Carolinas, LLC
Oconee Nuclear Station, Units 1 and 2**

Relief Request Serial #15-ON-002:

**Limited volume examinations per 10 CFR 50.55a(g)(5)(iii) for
Unit 1 and 2, Fourth Inservice Inspection Interval**

Oconee Relief Request 15-ON-002

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 1, 2004

Interval End Date: July 15, 2014

Table 1					
<u>Relief Request Section Number</u>	<u>Oconee Unit Number</u>	<u>Examination Performed (Refueling Outage)</u>	<u>Weld ID Number</u>	<u>Item/Summary Number</u>	<u>Examination Data</u>
2.0	1	1EOC27	1-RPV-WR34	O1.B1.11.0005	See Attachment A Pages 1-2
3.0	1	1EOC27	1-RPV-WR35	O1.B1.21.0001	See Attachment A Pages 3-8
4.0	1	1EOC27	1LDCB-INLET	O1.B2.51.0003	See Attachment A Pages 9-21
5.0	1	1EOC27	1LDCB-OUTLET	O1.B2.51.0004	See Attachment A Pages 22-34
6.0	1	1EOC27	1-PDA1-1	O1.B9.11.0059	See Attachment A Pages 35-44

Note:

1. 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 15-ON-002 without indications were marked "reject" on data sheets.
2. Duke Energy has invoked Code Case N-663 which allows elimination of Code required surface exams for welds listed in Section 6.0 of this Relief Request.

2.0 Weld # 1-RPV-WR34

2.1. ASME Code Component(s) Affected

Unit 1 Reactor Vessel Lower Shell Course to Lower Ring Section Weld, Reactor Coolant System, Weld # 1-RPV-WR34, Summary Number O1.B1.11.0005, 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-A, Item Number B1.11 Fig. IWB-2500-1, 100% Volume Coverage of Examination Volume A-B-C-D.

2.4. Impracticality of Compliance

Component configuration:

- Surface 1: Lower Shell Course - Carbon steel
- Surface 2: Lower Ring Section - Carbon steel
- Diameter: 170.000 in.
- Thickness: 5.500 in.

This component was scanned with automated methods from the Reactor Vessel interior. 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:

- Inner 15% thickness (T) coverage using 45° & 70° longitudinal waves for axial scans (S1, S2), and circumferential scans (CW, CCW) obtained 36.00% coverage.
- Outer 85% thickness (T) coverage using 45° longitudinal waves and 45° shear waves for axial scans (S1, S2), and circumferential scans (CW, CCW) obtained 44.00% coverage.
- The aggregate coverage was calculated to be $(15\%)(36\%) + (85\%)(44\%) = 43.00\%$.

The impracticality was caused by the Reactor Vessel Interior configuration (Core Guide Lugs and Flow stabilizers) that does not allow meaningful interrogation. The current configuration does not allow scanning of all of the required volume for this weld. The weld configuration would have to be redesigned and replaced, which is impractical.

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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.

Indications were recorded and found to be acceptable during this examination.

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 fourth inservice inspection interval. The interval ended on July 15, 2014.

2.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number O1.B1.11.0005 was conducted using personnel, equipment, and procedures qualified in accordance with ASME Section XI, 1998 Edition with the 2000 Addenda.

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

In addition to the above Code required examinations (volumetric and pressure test), Reactor Building Normal Sump monitoring and Reactor Building process radiation monitoring contribute to ensuring pressure boundary integrity by providing means to detect reactor coolant leakage and take prompt corrective actions.

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's position that the combination of examinations provides a reasonable assurance of quality and safety.

2.8. References

Duke Energy Relief Request 02-ON-005 was approved by the NRC during the last inspection interval. The previous approved SE is documented in Accession Number ML032721404, TAC No.MB5830 dated September 29, 2003.

3.0 Weld # 1-RPV-WR35

3.1. ASME Code Component(s) Affected

Unit 1 Reactor Vessel Lower Head Cap Section to Lower Head Ring Section Weld, Reactor Coolant System, Weld # 1-RPV-WR35, Summary Number O1.B1.21.0001, 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-A, Item Number B1.21 Fig. IWB-2500-3, 100% Volume Coverage of Examination Volume A-B-C-D.

3.4. Impracticality of Compliance

Component configuration:

- Surface 1: Lower Head Cap Section - Carbon steel
- Surface 2: Lower Head Ring Section - Carbon steel
- Diameter: 143.00 in.
- Thickness: 5.375 in.

This component was scanned with automated methods from the Reactor Vessel interior. 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:

- Inner 15% thickness (T) coverage using 45° & 70° longitudinal waves for axial scans (S1, S2), and circumferential scans (CW, CCW) obtained 33.00% coverage.
- Outer 85% thickness (T) coverage using 45° longitudinal waves and 45° shear waves for axial scans (S1, S2), and circumferential scans (CW, CCW) obtained 37.00% coverage.
- The aggregate coverage was calculated to be $(15\%)(33\%) + (85\%)(37\%) = 36.00\%$.

The impracticality was caused by the Reactor Vessel interior configuration (Incore Nozzles and Flow Stabilizers) that does not allow meaningful interrogation. The current configuration does not allow scanning of all of the required volume for this weld. The weld configuration 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. 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.

Indications were recorded and found to be acceptable during this examination.

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 fourth inservice inspection interval. The interval ended on July 15, 2014.

3.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number O1.B1.21.0001 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 Reactor Building process radiation monitoring contribute to ensuring pressure boundary integrity by providing means to detect reactor coolant leakage and take prompt corrective actions.

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's position that the combination of examinations provides a reasonable assurance of quality and safety.

3.8. References

Duke Energy Relief Request 02-ON-005 was approved by the NRC during the last inspection interval. The previous approved SE is documented in Accession Number ML032721404, TAC No.MB5830 dated September 29, 2003.

4.0 Weld # 1LDCB-INLET

4.1. ASME Code Component(s) Affected

Unit 1 Letdown Cooler, Head to Head, Reactor Coolant System, Weld # 1LDCB-INLET (same as weld ID: WJ-32), Summary Number O1.B2.51.0003, 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-B, Item Number B2.51, Fig. IWB-2500-3, 100% Volume Coverage of Examination Volume A-B-C-D.

4.4. Impracticality of Compliance

Component configuration:

- Surface 1: Chemical Connector - Stainless steel
- Surface 2: Channel Body - Stainless steel
- Diameter: 8.75 in.
- Thickness: 0.875 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:

- Axial scan coverage (S1,S2) using 45° Shear and Longitudinal and 60° & 70° Longitudinal waves obtained 97.2% coverage.
- Circumferential scan coverage (CW, CCW) using a 45° shear wave obtained 78.1% coverage.
- The aggregate coverage was calculated to be $(97.2\% + 78.1\%)/2 = 87.7\%$.

The impracticality was caused by the taper configuration and nozzle on the chemical connector that does not allow meaningful interrogation. In order to scan all of the required volume for this weld. The shell to sampling 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. 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 relevant indications were recorded during this examination. The reject box on data sheet is marked for internal tracking purposes of the coverage limitation only.

4.5. 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.

4.6. Duration of Proposed Alternative

This request is for the fourth inservice inspection interval. The interval ended on July 15, 2014.

4.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number O1.B2.51.0003 was conducted using personnel, equipment, and procedures qualified in accordance with ASME Section XI, 1998 Edition with the 2000 Addenda.

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

In addition to the above Code required examinations (volumetric and pressure test), Reactor Building Normal Sump monitoring and Reactor Building process radiation monitoring contribute to ensuring pressure boundary integrity by providing means to detect reactor coolant leakage and take prompt corrective actions.

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's position that the combination of examinations provides a reasonable assurance of quality and safety.

4.8. References

Duke Energy Relief Request 12-ON-001 was approved by the NRC during the last inspection interval. The previous approved SE is documented in Accession Number ML13365A023, TAC No.MF0648 and MF0649 dated January 17, 2014.

5.0 Weld # 1LDCB-OUTLET

5.1. ASME Code Component(s) Affected

Unit 1 Letdown Cooler, Head to Head, Reactor Coolant System, Weld # 1LDCB-OUTLET(same as weld ID: WJ-35), Summary Number O1.B2.51.0004, 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-B, Item Number B2.51 Figure IWB-2500-3, 100% Volume Coverage of Examination Volume A-B-C-D.

5.4. Impracticality of Compliance

Component configuration:

- Surface 1: Chemical Connector – Stainless Steel
- Surface 2: Channel Body – Stainless Steel
- Diameter: 8.75 in.
- Thickness: 0.875 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:

- Axial scan coverage (S1,S2) using 45° Shear and Longitudinal and 60° & 70° Longitudinal waves obtained 97.2% coverage.
- Circumferential scan coverage (CW, CCW) using a 45° shear wave obtained 78.1% coverage.
- The aggregate coverage was calculated to be $(97.2\% + 78.1\%)/2 = 87.7\%$.

The impracticality was caused by the taper configuration and nozzle on the chemical connector that does not allow meaningful interrogation. In order to scan all of the required volume for this weld. The shell to sampling 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 relevant indications were recorded during this examination. The reject box on data sheet is marked for internal tracking purposes of the coverage limitation only.

5.5. 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 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 technique available would incur the same physical scanning limitations.

5.6. Duration of Proposed Alternative

This request is for the fourth inservice inspection interval. The interval ended on July 15, 2014.

5.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number O1.B2.51.0004 was conducted using personnel, equipment, and procedures qualified in accordance with ASME Section XI, 1998 Edition with the 2000 Addenda.

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

In addition to the above Code required examinations (volumetric and pressure test), Reactor Building Normal Sump monitoring and Reactor Building process radiation monitoring contribute to ensuring pressure boundary integrity by providing means to detect reactor coolant leakage and take prompt corrective actions.

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's position that the combination of examinations provides a reasonable assurance of quality and safety.

5.8. References

Duke Energy Relief Request 12-ON-001 was approved by the NRC during the last inspection interval. The previous approved SE is documented in Accession Number ML13365A023, TAC No.MF0648 and MF0649 dated January 17, 2014.

6.0 Weld # 1-PDA1-1

6.1. ASME Code Component(s) Affected

Unit 1 Reactor Coolant Pump 1A1, RCP-1A1 to Safe-End, Reactor Coolant System, Weld # 1-PDA1-1, Summary Number O1.B9.11.0059, and ASME Code Class 1.

6.2. Applicable Code Edition and Addenda

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

6.3. Applicable Code Requirement

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

6.4. Impracticality of Compliance

Component configuration:

- Surface 1: Safe-end – Stainless Steel
- Surface 2: RCP-1A1 – Stainless Steel
- Diameter: 33.50 in.
- Thickness: 2.330 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:

- Examination coverage using a 45° shear wave and a 60° longitudinal wave for axial scans (S1) and 60° & 70° longitudinal waves for axial scans (S2).
- Examination coverage using 45° shear waves for circumferential (CW, CCW) scans (S1) and 60° & 70° longitudinal waves for circumferential (CW, CCW) scans (S2).
- Surface (S2) was scanned 100% but, no credit for Surface 2 volume is being taken since this side is fabricated from cast stainless material.
- The aggregate coverage was calculated to be $(100.0\% + 0\% + 50.0\% + 50.0\%)/4 = 50\%$.

The impracticality was caused by the cast stainless material that does not allow meaningful interrogation from the Surface 2 RCP-1A1 side. The current configuration allows 100% scanning of all of the required volume for this weld, but credit for the surface 2 cast stainless side which is considered “best effort” is not being claimed. The weld configuration 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 data sheet is marked for internal tracking purposes of the coverage limitation only.

6.5. 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 techniques, whether conventional or phased array, were considered, but would not increase coverage due to the limitation created by the component cast stainless material. The use of any other technique available would incur the same physical scanning limitations.

6.6. Duration of Proposed Alternative

This request is for the fourth inservice inspection interval. The interval ended on July 15, 2014.

6.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number O1.B9.11.0059 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 Reactor Building process radiation monitoring contribute to ensuring pressure boundary integrity by providing means to detect reactor coolant leakage and take prompt corrective actions.

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's position that the combination of examinations provides a reasonable assurance of quality and safety.

6.8. References

None.

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7.0 Scope of Relief Request

Relief is requested pursuant to 10 CFR 50.55a(g)(5)(iii) for welds listed in Table 2. These welds were required to be examined in accordance with Inservice Inspection Plans for the following Units.

Oconee Nuclear Station - Unit 2
Fourth 10-Year Inservice Inspection Interval
Interval Start Date: September 9, 2004
Interval End Date: July 15, 2014

Table 2					
<u>Relief Request Section Number</u>	<u>Oconee Unit Number</u>	<u>Examination Performed (Refueling Outage)</u>	<u>Weld ID Number</u>	<u>Item/Summary Number</u>	<u>Examination Data</u>
8.0	2	2EOC26	2-RPV-WR18	O2.B1.11.0003	See Attachment B Pages 1-4
9.0	2	2EOC26	2-RPV-WR34	O2.B1.11.0004	See Attachment B Pages 5-11
10.0	2	2EOC26	2-RPV-WR35	O2.B1.21.0001	See Attachment B Pages 12-15
11.0	2	2EOC26	2-PZR-WP26-1	O2.B3.110.0009	See Attachment B Pages 16-28
12.0	2	2EOC26	2-PZR-WP26-2	O2.B3.110.0010	See Attachment B Pages 29-40
13.0	2	2EOC26	2-PZR-WP26-3	O2.B3.110.0011	See Attachment B Pages 41-48
14.0	2	2EOC26	2-LDCB-IN-WJ33V	O2.B3.150.0003	See Attachment B Pages 49-58
15.0	2	2EOC26	2-LDCB-OUT-WJ36V	O2.B3.150.0004	See Attachment B Pages 59-68
16.0	2	2EOC26	2-SGB-W69	O2.C1.30.0001	See Attachment B Pages 69-80

8.0 Weld # 2-RPV-WR18

8.1. ASME Code Component(s) Affected

Unit 2 Reactor Vessel Upper Nozzle Belt to Upper Shell Weld, Reactor Coolant System, Weld # 2-RPV-WR18, Summary Number O2.B1.11.0003, and ASME Code Class 1.

8.2. Applicable Code Edition and Addenda

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

8.3. Applicable Code Requirement

IWB-2500, Table IWB-2500-1, Examination Category B-A, Item Number B1.11 Fig. IWB-2500-1, 100% Volume Coverage of Examination Volume A-B-C-D.

8.4. Impracticality of Compliance

Component configuration:

- Surface 1: Upper Nozzle Belt - Carbon steel
- Surface 2: Upper Shell Weld - Carbon steel
- Diameter: 167.63 in.
- Thickness: 12.00 in.

This component was scanned with automated methods from the Reactor Vessel interior. 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:

- Inner 15% Thickness coverage using 45° & 70° longitudinal waves for axial scans (S1, S2), and circumferential scans (CW, CCW) obtained 83.2% coverage.
- Outer 85% Thickness coverage using 45° longitudinal waves and 45° shear waves for axial scans (S1, S2), and circumferential scans (CW, CCW) obtained 77.8% coverage.
- The aggregate coverage was calculated to be 78.60%. See attached examination coverage sheet for calculations.

The impracticality was caused by the Reactor Vessel Outlet Nozzle Boss configuration that does not allow meaningful interrogation. The current configuration does not allow scanning of all of the required volume for this weld. The weld configuration 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. 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.

Two indications were recorded during this examination and determined to be acceptable per IWB-3510-1.

8.5. 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.

8.6. Duration of Proposed Alternative

This request is for the fourth inservice inspection interval. The interval ended on July 15, 2014.

8.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number O2.B1.11.0003 was conducted using personnel, equipment, and procedures qualified in accordance with ASME Section XI, 1998 Edition with the 2000 Addenda.

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

In addition to the above Code required examinations (volumetric and pressure test), Reactor Building Normal Sump monitoring and Reactor Building process radiation monitoring contribute to ensuring pressure boundary integrity by providing means to detect reactor coolant leakage and take prompt corrective actions.

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's position that the combination of examinations provides a reasonable assurance of quality and safety.

8.8. References

None.

9.0 Weld # 2-RPV-WR34

9.1. ASME Code Component(s) Affected

Unit 2 Reactor Vessel Lower Shell to Transition Piece Weld, Reactor Coolant System, Weld # 2-RPV-WR34, Summary Number O2.B1.11.0004, and ASME Code Class 1.

9.2. Applicable Code Edition and Addenda

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

9.3. Applicable Code Requirement

IWB-2500, Table IWB-2500-1, Examination Category B-A, Item Number B1.11 Fig. IWB-2500-1, 100% Volume Coverage of Examination Volume A-B-C-D.

9.4. Impracticality of Compliance

Component configuration:

- Surface 1: Lower Shell - Carbon steel
- Surface 2: Transition Piece - Carbon steel
- Diameter: 170.25 in.
- Thickness: 5.5 in.

This component was scanned with automated methods from the Reactor Vessel interior. 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:

- Inner 15% Thickness coverage using 45° & 70° longitudinal waves for axial scans (S1, S2), and circumferential scans (CW, CCW) obtained 35% coverage.
- Outer 85% Thickness coverage using 45° longitudinal waves and 45° shear waves for axial scans (S1, S2), and circumferential scans (CW, CCW) obtained 44% coverage.
- The aggregate coverage was calculated to be 42.7%. See attached examination coverage sheet for calculations.

The impracticality was caused by the Reactor Vessel interior configuration (Guide Lugs and Flow Stabilizers) that does not allow meaningful interrogation. The current configuration does not allow scanning of all of the required volume for this weld. The weld configuration would have to be redesigned and replaced, which is impractical.

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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.

Fourteen indications were recorded during this examination and determined to be acceptable per IWB-3510-1.

9.5. 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.

9.6. Duration of Proposed Alternative

This request is for the fourth inservice inspection interval. The interval ended on July 15, 2014.

9.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number O2.B1.11.0004 was conducted using personnel, equipment, and procedures qualified in accordance with ASME Section XI, 1998 Edition with the 2000 Addenda.

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

In addition to the above Code required examinations (volumetric and pressure test), Reactor Building Normal Sump monitoring and Reactor Building process radiation monitoring contribute to ensuring pressure boundary integrity by providing means to detect reactor coolant leakage and take prompt corrective actions.

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's position that the combination of examinations provides a reasonable assurance of quality and safety.

Oconee Relief Request 15-ON-002

9.8. References

Duke Energy Relief Request 04-ON-003 was approved by the NRC during the last inspection interval. The previous approved SE is documented in Accession Number ML051640307, TAC No. MC2704 dated July 22, 2005.

10.0 Weld # 2-RPV-WR35

10.1. ASME Code Component(s) Affected

Unit 2 Reactor Vessel Transition Piece to Lower Head Weld, Reactor Coolant System, Weld # 2-RPV-WR35 Summary Number O2.B1.21.0001, and ASME Code Class 1.

10.2. Applicable Code Edition and Addenda

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

10.3. Applicable Code Requirement

IWB-2500, Table IWB-2500-1, Examination Category B-A, Item Number B1.21 Fig. IWB-2500-3, 100% Volume Coverage of Examination Volume A-B-C-D.

10.4. Impracticality of Compliance

Component configuration:

- Surface 1: Transition Piece - Carbon steel
- Surface 2: Lower Head - Carbon steel
- Diameter: 143.00 in.
- Thickness: 5.375 in.

This component was scanned with automated methods from the Reactor Vessel interior. 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:

- Inner 15% Thickness coverage using 45° & 70° longitudinal waves for axial scans (S1, S2), and circumferential scans (CW, CCW) obtained 32.7% coverage.
- Outer 85% Thickness coverage using 45° longitudinal waves and 45° shear waves for axial scans (S1, S2), and circumferential scans (CW, CCW) obtained 37.1% coverage.
- The aggregate coverage was calculated to be 36.4%. See attached examination coverage sheet for calculations.

The impracticality was caused by the Reactor Vessel interior configuration (Incore Nozzles and Flow Stabilizers) that does not allow meaningful interrogation. The current configuration does not allow scanning of all of the required volume for this weld. The weld configuration would have to be redesigned and replaced, which is impractical.

Oconee Relief Request 15-ON-002

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.

10.5. 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.

10.6. Duration of Proposed Alternative

This request is for the fourth inservice inspection interval. The interval ended on July 15, 2014.

10.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number O2.B1.21.0001 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 Reactor Building process radiation monitoring contribute to ensuring pressure boundary integrity by providing means to detect reactor coolant leakage and take prompt corrective actions.

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's position that the combination of examinations provides a reasonable assurance of quality and safety.

10.8. References

Duke Energy Relief Request 04-ON-003 was approved by the NRC during the last inspection interval. The previous approved SE is documented in Accession Number ML051640307, TAC No. MC2704 dated July 22, 2005.

11.0 Weld # 2-PZR-WP26-1

11.1. ASME Code Component(s) Affected

Unit 2 Pressurizer Shell to Sampling Nozzle Weld, Reactor Coolant System, Weld # 2-PZR-WP26-1, Summary Number O2.B3.110.0009, and ASME Code Class 1.

11.2. Applicable Code Edition and Addenda

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

11.3. Applicable Code Requirement

IWB-2500, Table IWB-2500-1, Examination Category B-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.

11.4. Impracticality of Compliance

Component configuration:

- Surface 1: Shell - Carbon steel
- Surface 2: Sampling Nozzles - Carbon steel
- Diameter: 1.00 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° & 70° shear waves for axial scans (S1, S2), and 45° & 60° shear waves for circ. scans (CW, CCW) obtained 12.3% coverage.
- Base material coverage using 45°, 60° & 70° shear wave for axial scans (S1) and 45° & 60° shear waves for circ. scans (CW, CCW) obtained 49.3% coverage.
- 0° scan coverage obtained 29.1% coverage.
- The aggregate coverage was calculated to be $(12.3\% + 49.3\% + 29.1\%)/3 = 30.2\%$.

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 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 and replaced, which is impractical.

Oconee Relief Request 15-ON-002

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.

11.5. 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.

11.6. Duration of Proposed Alternative

This request is for the fourth inservice inspection interval. The interval ended on July 15, 2014.

11.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number O2.B3.110.0009 was conducted using personnel, equipment, and procedures qualified in accordance with ASME Section XI, 1998 Edition with the 2000 Addenda.

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

In addition to the above Code required examinations (volumetric and pressure test), Reactor Building Normal Sump monitoring and Reactor Building process radiation monitoring contribute to ensuring pressure boundary integrity by providing means to detect reactor coolant leakage and take prompt corrective actions.

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's position that the combination of examinations provides a reasonable assurance of quality and safety.

11.8. References

Duke Energy Relief Request 01-ON-001 was approved by the NRC during the last inspection interval. The previous approved SE is documented in Accession Number ML020840711, TAC No. MB1706 through MB1708 dated April 2, 2002.

12.0 Weld # 2-PZR-WP26-2

12.1. ASME Code Component(s) Affected

Unit 2 Pressurizer Shell to Sampling Nozzle Weld, Reactor Coolant System, Weld # 2-PZR-WP26-2, Summary Number O2.B3.110.0010, and ASME Code Class 1.

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

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.

12.4. Impracticality of Compliance

Component configuration:

- Surface 1: Shell - Carbon steel
- Surface 2: Sampling Nozzles - Carbon steel
- Diameter: 1.00 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° & 70° shear waves for axial scans (S1, S2), and 45° & 60° shear waves for circ. scans (CW, CCW) obtained 12.3% coverage.
- Base material coverage using 45°, 60° & 70° shear wave for axial scans (S1) and 45° & 60° shear waves for circ. scans (CW, CCW) obtained 49.3% coverage.
- 0° scan coverage obtained 29.1% coverage.
- The aggregate coverage was calculated to be $(12.3\% + 49.3\% + 29.1\%)/3 = 30.2\%$.

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 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 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. 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.

12.5. 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.

12.6. Duration of Proposed Alternative

This request is for the fourth inservice inspection interval. The interval ended on July 15, 2014.

12.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number O2.B3.110.0010 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 Reactor Building process radiation monitoring contribute to ensuring pressure boundary integrity by providing means to detect reactor coolant leakage and take prompt corrective actions.

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's position that the combination of examinations provides a reasonable assurance of quality and safety.

12.8. References

Duke Energy Relief Request 01-ON-001 was approved by the NRC during the last inspection interval. The previous approved SE is documented in Accession Number ML020840711, TAC No. MB1706 through MB1708 dated April 2, 2002.

13.0 Weld # 2-PZR-WP26-3

13.1. ASME Code Component(s) Affected

Unit 2 Pressurizer Shell to Sampling Nozzle Weld, Reactor Coolant System, Weld # 2-PZR-WP26-3, Summary Number O2.B3.110.0011, and ASME Code Class 1.

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

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.

13.4. Impracticality of Compliance

Component configuration:

- Surface 1: Shell - Carbon steel
- Surface 2: Sampling Nozzles - Carbon steel
- Diameter: 1.00 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 circ. scans (CW, CCW) obtained 15.4% coverage.
- Base material coverage using 45°, 60° & 70° shear wave for axial scans (S1) and 45° & 60° shear waves for circ. scans (CW, CCW) obtained 54.8% coverage.
- 0° scan coverage obtained 33.8% coverage.
- The aggregate coverage was calculated to be $(12.3\% + 49.3\% + 29.1\%)/3 = 34.7\%$.

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 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 and replaced, which is impractical.

Oconee Relief Request 15-ON-002

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.

13.5. 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.

13.6. Duration of Proposed Alternative

This request is for the fourth inservice inspection interval. The interval ended on July 15, 2014.

13.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number O2.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 Reactor Building process radiation monitoring contribute to ensuring pressure boundary integrity by providing means to detect reactor coolant leakage and take prompt corrective actions.

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's position that the combination of examinations provides a reasonable assurance of quality and safety.

13.8. References

Duke Energy Relief Request 01-ON-001 was approved by the NRC during the last inspection interval. The previous approved SE is documented in Accession Number ML020840711, TAC No. MB1706 through MB1708 dated April 2, 2002.

14.0 Weld # 2-LDCB-IN-WJ33V

14.1. ASME Code Component(s) Affected

Unit 2 Letdown Cooler 2B, Nozzle to Channel Body Weld, Reactor Coolant System, Weld # 2-LDCB-IN-WJ33V, Summary Number O2.B3.150.0003, and ASME Code Class 1.

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

IWB-2500, Table IWB-2500-1, Examination Category B-D, Item Number B3.150, Fig. IWB-2500-7 (a), 100% Volume Coverage of Examination Volume A-B-C-D-E-F-G-H-I.

14.4. Impracticality of Compliance

Component configuration:

- Surface 1: Channel Body - Stainless steel
- Surface 2: Inlet Nozzle - Stainless steel
- Diameter: 6.00 in.
- Thickness: 0.875 in.

This component was scanned manually with 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 60° and 70° longitudinal waves in the S1 and S2 direction obtained an aggregate coverage of 41.0%.
- Circumferential scan coverage: 45° shear waves obtained an aggregate coverage of 68.6%.
- The total aggregate coverage was calculated to be $(41.0\% + 68.6\%)/2 = 54.8\%$.

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

14.5. 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.

14.6. Duration of Proposed Alternative

This request is for the fourth inservice inspection interval. The interval ended on July 15, 2014.

14.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number O2.B3.150.0003 was conducted using personnel, equipment, and procedures qualified in accordance with ASME Section XI, 1998 Edition with the 2000 Addenda.

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

In addition to the above Code required examinations (volumetric and pressure test), Reactor Building Normal Sump monitoring and Reactor Building process radiation monitoring contribute to ensuring pressure boundary integrity by providing means to detect reactor coolant leakage and take prompt corrective actions.

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's position that the combination of examinations provides a reasonable assurance of quality and safety.

14.8. References

Duke Energy Relief Request 12-ON-002 was approved by the NRC on the PSI examination during the last inspection interval. The previous approved SE is documented in Accession Number ML13365A023, TAC No. MF0649 dated January 17, 2014.

15.0 Weld # 2-LDCB-OUT-WJ36V

15.1. ASME Code Component(s) Affected

Unit 2 Letdown Cooler 2B, Nozzle to Channel Body Weld, Reactor Coolant System, Weld # 2-LDCB-OUT-WJ36V, Summary Number O2.B3.150.0004, and ASME Code Class 1.

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

IWB-2500, Table IWB-2500-1, Examination Category B-D, Item Number B3.150, Fig. IWB-2500-7 (a), 100% Volume Coverage of Examination Volume A-B-C-D-E-F-G-H-I.

15.4. Impracticality of Compliance

Component configuration:

- Surface 1: Channel Body - Stainless steel
- Surface 2: Outlet Nozzle - Stainless steel
- Diameter: 6.00 in.
- Thickness: 0.875 in.

This component was scanned manually with 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 60° and 70° longitudinal waves in the S1 and S2 direction obtained an aggregate coverage of 41.0%.
- Circumferential scan coverage: 45° shear waves obtained an aggregate coverage of 68.6%.
- The total aggregate coverage was calculated to be $(41.0\% + 68.6\%)/2 = 54.8\%$.

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

Oconee Relief Request 15-ON-002

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.

15.5. 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.

15.6. Duration of Proposed Alternative

This request is for the fourth inservice inspection interval. The interval ended on July 15, 2014.

15.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number O2.B3.150.0004 was conducted using personnel, equipment, and procedures qualified in accordance with ASME Section XI, 1998 Edition with the 2000 Addenda.

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

In addition to the above Code required examinations (volumetric and pressure test), Reactor Building Normal Sump monitoring and Reactor Building process radiation monitoring contribute to ensuring pressure boundary integrity by providing means to detect reactor coolant leakage and take prompt corrective actions.

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's position that the combination of examinations provides a reasonable assurance of quality and safety.

15.8. References

Duke Energy Relief Request 12-ON-002 was approved by the NRC on the PSI examination during the last inspection interval. The previous approved SE is documented in Accession Number ML13365A023, TAC No. MF0649 dated January 17, 2014.

16.0 Weld # 2-SGB-W69

16.1. ASME Code Component(s) Affected

Unit 2 Steam Generator 2B, Upper Tube Sheet to Shell Can Weld, Feedwater System, Weld # 2-SGB-W69, Summary Number O2.C1.30.0001, 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-A, Item Number C1.30, Figure IWC-2500-2, 100% Volume Coverage of Examination Volume E-F-G-H.

16.4. Impracticality of Compliance

Component configuration:

- Surface 1: Tube Sheet - Carbons Steel
- Surface 2: Shell – Carbon Steel
- Diameter: 148 in.
- Thickness: 5.125 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 35°, 45° & 60° shear waves for axial scans (S1, S2), and 45° & 60° shear waves for circ. scans (CW, CCW) obtained 73.8% coverage.
- Base material coverage using 35°, 45° & 60° shear wave for axial scans (S1) and 45° & 60° shear waves for circ. scans (CW, CCW) obtained 78.4% coverage.
- 0° scan coverage obtained 73.1% coverage.
- The aggregate coverage was calculated to be $(73.1\% + 73.8\% + 78.4\%)/3 = 75.1\%$.

The impracticality was caused by four lateral restraints that did not allow scanning from the Surface 1, CW and CCW direction, and only partial scanning from the Surface 2 direction, as well as the location of two lifting trunnions and a manway which allowed only partial scanning from Surface 1. In order to scan all of the required volume for this weld, the lateral supports, lifting trunnions, and manway would have to be redesigned and replaced, which is impractical.

Oconee Relief Request 15-ON-002

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.

16.5. 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 techniques, whether conventional or phased array, were considered, but would not increase coverage due to the limitation created by the component cast stainless material. The use of any other technique available would incur the same physical scanning limitations.

16.6. Duration of Proposed Alternative

This request is for the fourth inservice inspection interval. The interval ended on July 15, 2014.

16.7. Justification for Granting Relief

Ultrasonic examination of the weld for the item number O2.C1.30.0001 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 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 contribute to ensuring pressure boundary integrity by providing means to detect feed water, steam or reactor coolant leakage and take prompt corrective actions.

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's position that the combination of examinations provides a reasonable assurance of quality and safety.

16.8. References

None

Attachment A

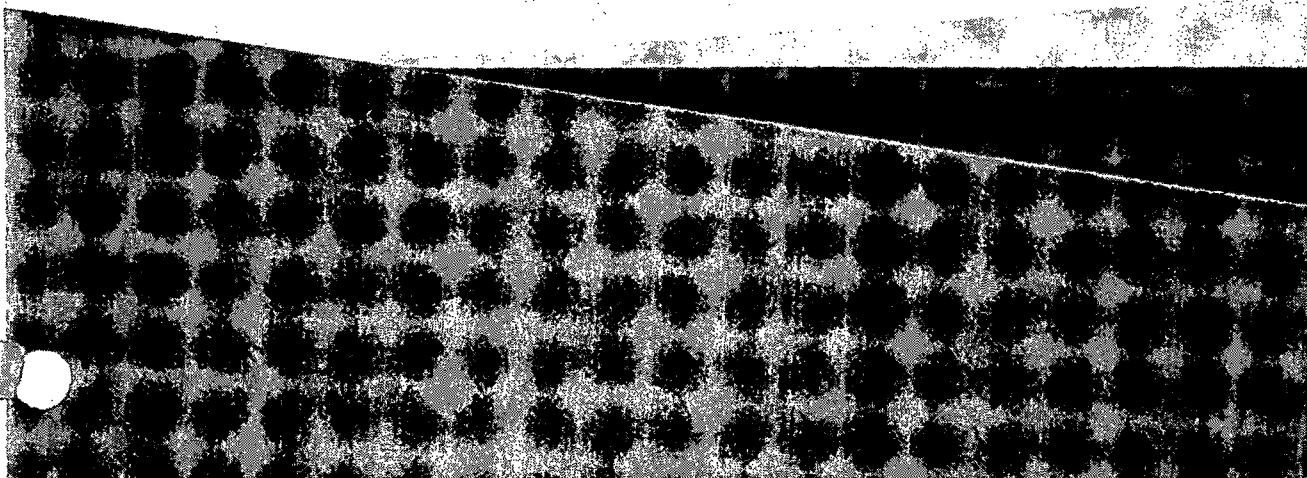
to Relief Request

15-ON-002

UT Detail Data sheets from

1EOC-27

Limited Exam Coverage





Document No.: 51-9193316-000

Duke Energy / Oconee Unit 1 EOC27 RPV 10 Year ISI Final Report

OCONEE - UNIT 1									
EXAMINATION COVERAGE FOR WELD: W06									
LOWER SHELL TO LOWER HEAD WELD									
Summary Number: 01.81.11.0005									
Component ID: 1-RPV-WR34									
Scan Plan Drawing Number: 806854D Sheets 12 & 13									
WELD VOLUME COVERAGE OBTAINED: 43%									
Zone Coverage Obtained									
Inner 15%T: 36%		Outer 85%T: 44%		Aggregate: 43%					
Examination Volume Definition									
Weld Length: 538.4 in.									
Area Measurement (axial plane)									
Inner 15%T		10.54 sq. in.		Volume Calculation		5674.8 cu. in.			
Outer 85%T		44.46 sq. in.		Inner 15%T		23937.5 cu. in.			
Outer 85%T				Outer 85%T					
Limitations									
Limits seen by:									
Compensation(s)									
Core Guide Lugs		Guide Lugs and Flow Stabilizers restrict UT head movement						None	
Flow Stabilizers		Guide Lugs and Flow Stabilizers restrict UT head movement						None	
Examination Coverage Calculations									
INNER 15%T									
Axial Beam Direction Coverages									
Entry #	Exam. Angle (deg.)	Beam Direction	Area Examined (sq. in.)	Length Examined (in.)	Volume Examined (cu. in.)	Volume Required (cu. in.)	Percent Examined	Limited	Comment
1	70L/45L	Up/Dn	10.54	64.3	677.7	677.7	100%	No	Coverage between lugs and stabilizers
2	70L/45L	Up/Dn	6.95	193.4	1344.1	2038.4	66%	Yes	Coverage above stabilizers
3	70L/45L	Up/Dn	0.00	280.7	0.0	2958.8	0%	Yes	Obstructed
Total Axial Coverage			638.4	2021.9	5674.8	36%			
Circumferential Beam Direction Coverages									
Entry #	Exam. Angle (deg.)	Beam Direction	Area Examined (sq. in.)	Circ Extent Examined (%)	Axial Extent Examined (%)	Percent Examined	Limited	Comment	
4	70L/45L	CW/CCW	88.44	20%	43%	6%	Yes	Coverage between lugs and stabilizers	
5	70L/45L	CW/CCW	345.72	45%	57%	25%	Yes	Coverage above stabilizers	
Total Circ. Beam Direction Coverage:						34%			
Inner 15% coverage: 36%									
OUTER 85%T									
Axial Beam Direction Coverages									
Entry #	Exam. Angle (deg.)	Beam Direction	Area Examined (sq. in.)	Length Examined (in.)	Volume Examined (cu. in.)	Volume Required (cu. in.)	Percent Examined	Limited	Comment
1	45L/45S	Up/Dn	44.46	64.3	2658.8	2658.8	100%	No	Coverage between lugs and stabilizers
2	45L/45S	Up/Dn	28.28	193.4	5489.4	8598.6	64%	Yes	Coverage above stabilizers
3	45L/45S	Up/Dn	0.00	280.7	0.0	12480.2	0%	Yes	Obstructed
Total Axial Coverage			838.4	9328.1	23937.5	36%			
Circumferential Beam Direction Coverages									
Entry #	Exam. Angle (deg.)	Beam Direction	Area Examined (sq. in.)	Circ Extent Examined (%)	Axial Extent Examined (%)	Percent Examined	Limited	Comment	
4	45L/45S	CW/CCW	1482.80	31%	43%	13%	Yes	Coverage between lugs and stabilizers	
5	45L/45S	CW/CCW	3250.44	70%	67%	40%	Yes	Coverage above stabilizers	
Total Circ. Beam Direction Coverage:						63%			
Outer 85% coverage: 44%									

ATTACH

PAGE |

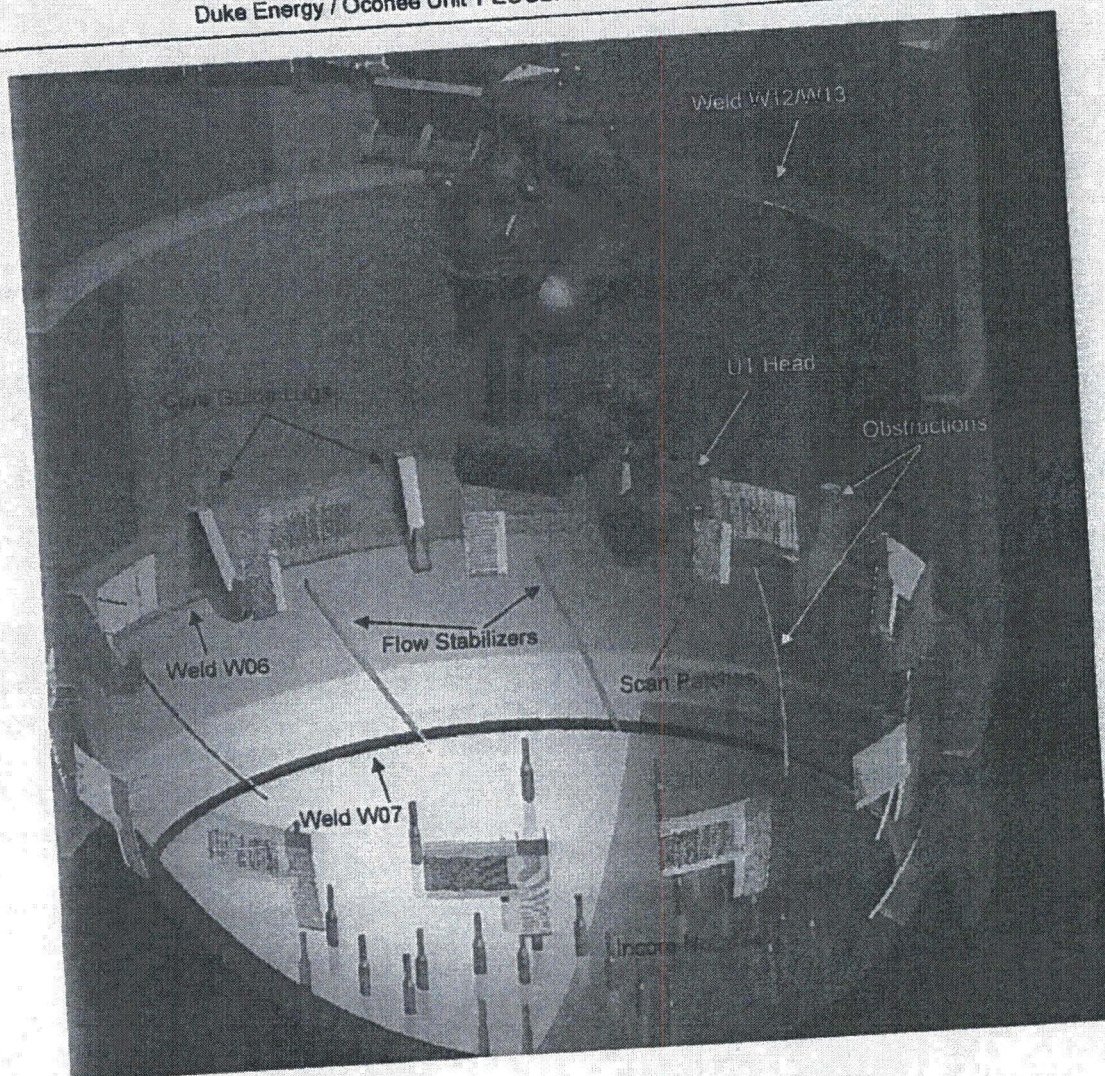


Figure 1-2

TWS Weld W06: LOWER SHELL TO LOWER HEAD WELD

View of TWS robot in vessel lower head region showing scan limitations caused by the Core Guide Lugs and Flow Stabilizers. The weld is partially covered by the Core Guide Lugs and Flow Stabilizers welded to the head below the weld and the Core Guide Lugs restrict the UT head from scanning the entire weld. These limitations occur between each lug set. Single sided scan parameters are used near obstructions to improve examination coverage. Coverage obtained on this weld is 43%.



Document No.: 51-9193316-000

Duke Energy / Oconee Unit 1 EOC27 RPV 10 Year ISI Final Report

OCONEE - UNIT 1									
EXAMINATION COVERAGE FOR WELD: W07									
LOWER HEAD TO LOWER HEAD DOME WELD									
Summary Number: 01.B1.21.0001									
Component ID: 1-RPV-WR35									
Scan Plan Drawing Number: 8056844D Sheet 14									
WELD VOLUME COVERAGE OBTAINED: 36%									
Zone Coverage Obtained									
Inner 15%T: 33%		Outer 85%T: 37%		Aggregate: 36%					
Examination Volume Definition									
Weld Length: 448.2 in.									
Area Measurement (axial plane)				Volume Calculation					
Inner 15%T		5.77 sq. in.		Inner 15%T		2592.2 cu. in.			
Outer 85%T		33.04 sq. in.		Outer 85%T		14843.1 cu. in.			
Limitations		Limits seen by:				Compensation(s)			
Incore instrumentation Nozzles		Incore Nozzles restrict UT head movement				None			
Flow Stabilizers		Flow Stabilizers restrict UT head movement				None			
Examination Coverage Calculations									
INNER 15%T									
Axial Beam Direction Coverages									
Entry #	Exam. Angle (deg.)	Beam Direction	Area Examined (sq. in.)	Length Examined (in.)	Volume Examined (cu. in.)	Volume Required (cu. in.)	Percent Examined	Limited	Comment
1	70L/45L	Up/Dn	5.77	180.8	828.7	828.7	100%	No	Coverage between nozzles and stabilizers
2	70L/45L	Up/Dn	3.28	34.4	113.0	188.7	57%	Yes	Coverage above nozzles 45 and 52
3	70L/45L	Up/Dn	1.07	11.2	12.0	64.8	19%	Yes	Coverage above nozzle 46
4	70L/45L	Up/Dn	0.00	243.0	0.0	1401.9	0%	Yes	Obstructed
Total Axial Coverage				449.2	1061.7	2592.2	41%		
Circumferential Beam Direction Coverages									
Entry #	Exam. Angle (deg.)	Beam Direction	Area Examined (sq. in.)	Circ Extent Examined (%)	Axial Extent Examined (%)	Percent Examined	Limited	Comment	
5	70L/45L	CW/CCW	80.72	20%	100%	20%	Yes	Coverage between nozzles and stabilizers	
6	70L/45L	CW/CCW	20.16	5%	80%	4%	Yes	Coverage above nozzles 45 and 52	
7	70L/45L	CW/CCW	10.08	2%	42%	1%	Yes	Coverage above nozzle 46	
Total Circ. Beam Direction Coverage:						26%			
Inner 15% coverage:							33%		
OUTER 85%T									
Axial Beam Direction Coverages									
Entry #	Exam. Angle (deg.)	Beam Direction	Area Examined (sq. in.)	Length Examined (in.)	Volume Examined (cu. in.)	Volume Required (cu. in.)	Percent Examined	Limited	Comment
1	45L/45S	Up/Dn	33.04	180.81	5308.4	5308.4	100%	No	Coverage between nozzles and stabilizers
2	45L/45S	Up/Dn	28.96	34.44	997.4	1138.0	88%	Yes	Coverage above nozzles 45 and 52
3	45L/45S	Up/Dn	17.91	11.23	201.2	371.1	54%	Yes	Coverage above nozzle 46
4	45L/45S	Up/Dn	0.00	242.97	0.0	8027.7	0%	Yes	Obstructed
Total Axial Coverage				448.2	6505.0	14843.1	44%		
Circumferential Beam Direction Coverages									
Entry #	Exam. Angle (deg.)	Beam Direction	Area Examined (sq. in.)	Circ Extent Examined (%)	Axial Extent Examined (%)	Percent Examined	Limited	Comment	
5	45L/45S	CW/CCW	638.28	25%	100%	25%	Yes	Coverage between nozzles and stabilizers	
6	45L/45S	CW/CCW	141.84	8%	81%	4%	Yes	Coverage above nozzles 45 and 52	
7	45L/45S	CW/CCW	70.92	3%	39%	1%	Yes	Coverage above nozzle 46	
Total Circ. Beam Direction Coverage:						30%			
Outer 85% coverage:							37%		

ATTACHED
PAGE 3 OF 4

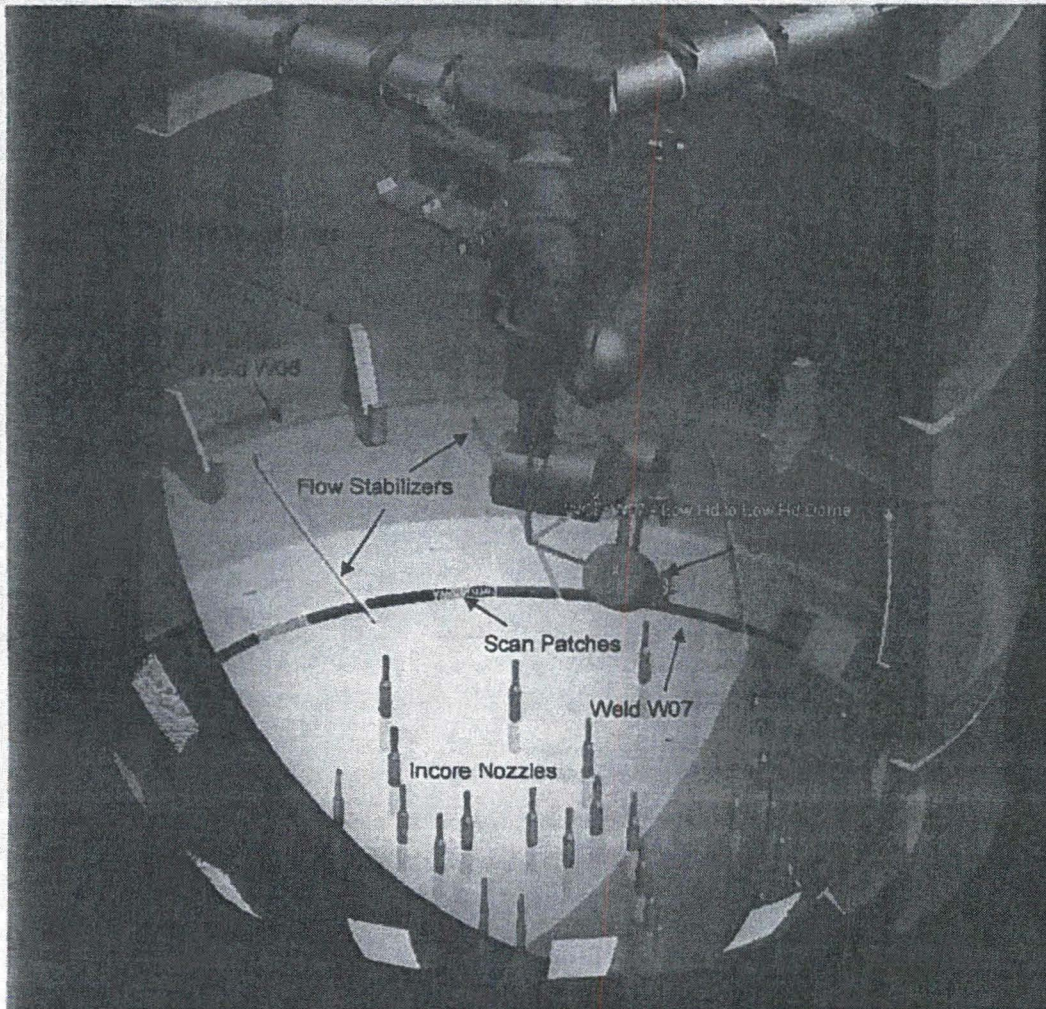
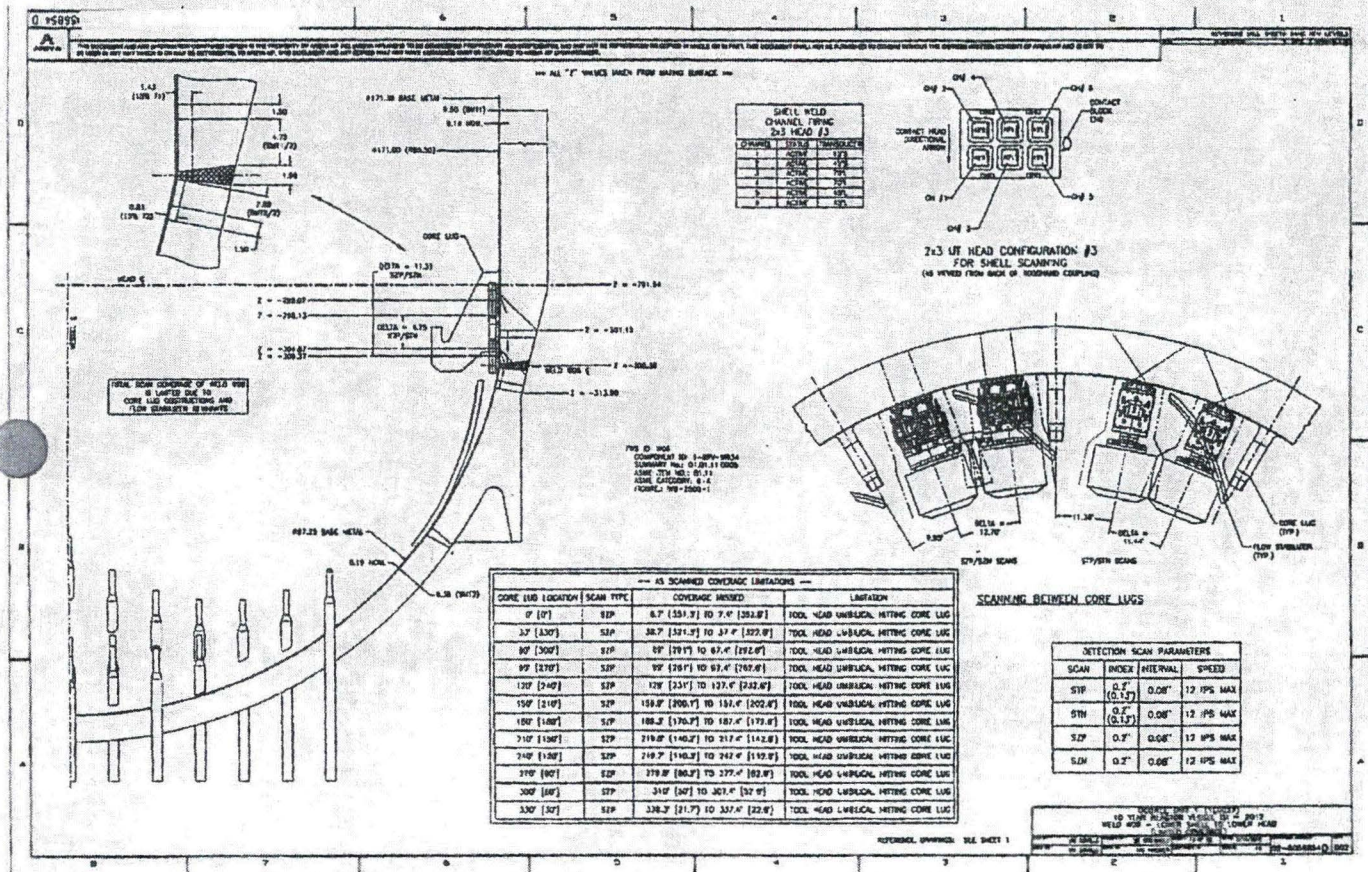
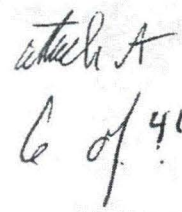


Figure 1-3

TWS Weld W07: LOWER SHELL TO LOWER HEAD WELD

View of TWS robot in vessel lower head region showing scan limitations caused by the Incore Nozzles and Flow Stabilizers. The weld is partially covered by the Flow Stabilizers. Flow Stabilizers welded to the head above the weld and the Incore Nozzles restrict the UT head from scanning the entire weld. The Core Guide Lugs also provide some interference with robot movement. These limitations occur between each Flow Stabilizer/Core Guide Lug set. Single-sided scan parameters are used near obstructions to improve examination coverage. Coverage obtained on this weld is 36%.







UT Calibration/Examination

Site/Unit: Oconee / 1
Summary No.: 01.B2.51.0003
Workscope: ISI

Procedure: NDE-3830
Procedure Rev.: 2
Work Order No.: 1992022

Outage No.: 01-27
Report No.: UT-12-1059
Page: 1 of 13

Code: 1998/2000A Cal./Item: B-B /B2.51 Location: _____
Drawing No.: O-ISIN4-101A-1.1 Description: Head to Head
System ID: 51A
Component ID: 1LDCB-INLET Size/Length: N/A Thickness/Diameter: SS / .875 / NA
Limitations: Yes - See attached sheets Start Time: 0821 Finish Time: 0835

Instrument Settings
Serial No.: 0265P4
Manufacturer: GE
Model: USN 60 SW
Delay: 4.1050 Range: 2.5"
M/I Cal/Vol: .1280 Pulser: Square
Damping: 500 Reject: 0%
Rep. Rate: Autohigh Freq.: 2.25 MHz
Filter: Fixed Mode: PE
Voltage: 450 Other: Fullwave
Ax. Gain (dB): N/A Circ. Gain (dB): 38.0
1 Screen Div. = .25 In. of Sound Path
Linearity Report No.: L-12-225

Search Unit
Serial No.: 01F3J5
Manufacturer: KBA
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

Cal. Checks	Time	Date
Initial Cal	0807	11/7/2012
Inter. Cal.		
Inter. Cal.	0820	11/7/2012
Inter. Cal.		
Final Cal	1000	11/7/2012

Couplant
Cal. Batch: 12125
Type: ULTRAGEL II
Mfg.: MAGNAFLUX
Exam Batch: 12125
Type: ULTRAGEL II
Mfg.: MAGNAFLUX

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
ID Notch	80	5.3	1.35"

Reference/Simulator Block				
Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
29.0	2" Radius	80	8.0	2.00"

Calibration Block
Cal. Block No. 40411
Thickness 0.875 Dia.: 8.75
Cal. Bk. Temp. 84 Temp. Tool: MCNDE40129
Comp. Temp. 60 Temp. Tool: MCNDE40129
Recordable Indication(s): Yes ☐ No ☒ (If Yes, Ref. Attached Ultrasonic Indication Report.)
Results: Accept ☐ Reject ☒ Info ☐

Scan Coverage
Upstream ☐ Downstream ☐ Scan dB: N/A
CW ☒ CCW ☒ Scan dB: 52.0
Exam Surface: O.D.
Surface Condition: As Ground

Reference Block
Serial No.: 97-5590
Type: ROMPAS

Comments: FC 11-18

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

Examiner	Level	Signature	Date	Reviewer	Signature	Date
Griebel, David M.	II-N	<i>[Signature]</i>	11/7/2012	JAMES J. McARDLE III	<i>[Signature]</i>	11-10-12
Bull, W. Keith	II-N	<i>[Signature]</i>	11/7/2012			
Other	Level	Signature	Date	NANCY FITCHIE-SLAUGHTER	<i>[Signature]</i>	11/13/12
N/A	N/A					

ATTACH



UT Calibration Examination

Site/Unit: Oconee / 1
Summary No.: 01.B2.51.0003
Workscope: ISI

Procedure: NDE-3630
Procedure Rev.: 2
Work Order No.: 1992022

Outage No.: 01-27
Report No.: UT-12-1059
Page: 2 of 13

Code: 1998/2000A Cat./Item: B-B /B2.51 Location: _____

Drawing No.: 0-4SIN4-101A-1.1 Description: Head to Head

System ID: 51A

Component ID: 1LDCB-INLET Size/Length: N/A Thickness/Diameter: SS / .875 / NA

Limitations: Yes - See attached sheets Start Time: 0837 Finish Time: 0850

Instrument Settings				Search Unit				Cal. Checks			Axial Orientated Search Unit			
Serial No.:	<u>0265P4</u>			Serial No.:	<u>01F3J5</u>			Initial Cal	<u>0800</u>	<u>11/7/2012</u>	Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
Manufacturer:	<u>GE</u>			Manufacturer:	<u>KBA</u>			Inter. Cal.			ID Notch	<u>80</u>	<u>2.7</u>	<u>1.18"</u>
Model:	<u>USN 80 SW</u>			Size:	<u>.25</u>	Shape:	<u>Round</u>	Inter. Cal.	<u>0836</u>	<u>11/7/2012</u>	OD Notch	<u>40</u>	<u>5.4</u>	<u>2.43"</u>
Delay:	<u>4.1050</u>	Range:	<u>4.5"</u>	Freq.:	<u>2.25 MHz</u>	Style:	<u>Comp - G</u>	Inter. Cal.			ID Notch	<u>20</u>	<u>8.2</u>	<u>3.69"</u>
M'd Cal/Vol:	<u>1280</u>	Pulser:	<u>Square</u>	Exam Angle:	<u>45</u>	# of Elements:	<u>Single</u>	Final Cal	<u>1005</u>	<u>11/7/2012</u>				
Damping:	<u>500</u>	Reject:	<u>0%</u>	Mode:	<u>Shear</u>									
Rep. Rate:	<u>Autohigh</u>	Freq.:	<u>2.25 MHz</u>	Measured Angle:	<u>45</u>									
Filter:	<u>Fixed</u>	Mode:	<u>PE</u>	Wedge Style:	<u>MSWQC</u>									
Voltage:	<u>450</u>	Other:	<u>Fullwave</u>											
Ax. Gain (dB):	<u>26.7</u>	Circ. Gain (dB):	<u>N/A</u>											
1 Screen Div. =	<u>.45</u>	in. of	<u>Sound Path</u>											
Linearity Report No.:	<u>L-12-225</u>													

Calibration Block				Scan Coverage				Reference Block				
Cal. Block No.	<u>40411</u>			Upstream <input checked="" type="checkbox"/>	Downstream <input checked="" type="checkbox"/>	Scan dB:	<u>40.7</u>	Cal. Batch:	<u>12125</u>			
Thickness	<u>0.875</u>	Dia.:	<u>8.75</u>	CW <input type="checkbox"/>	CCW <input type="checkbox"/>	Scan dB:	<u>N/A</u>	Type:	<u>ULTRAGEL II</u>			
Cal. Blk. Temp.	<u>84</u>	Temp. Tool:	<u>MCNDE40129</u>	Exam Surface:	<u>O.D.</u>			Mfg.:	<u>MAGNAFLUX</u>			
Comp. Temp.	<u>80</u>	Temp. Tool:	<u>MCNDE40129</u>	Surface Condition:	<u>As Ground</u>			Exam Batch	<u>12125</u>			
Recordable Indication(s):	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> (If Yes, Ref. Attached Ultrasonic Indication Report.)						Type:	<u>ULTRAGEL II</u>				
Results:	Accept <input type="checkbox"/> Reject <input checked="" type="checkbox"/> Info <input type="checkbox"/>						Mfg.:	<u>MAGNAFLUX</u>				
Percent Of Coverage Obtained > 90%:	No <input type="checkbox"/> Reviewed Previous Data: Yes <input type="checkbox"/>						Reference Block					
Examiner	Level	<u>II-N</u>	Signature	Date	Reviewer	Signature	Date	Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
Griebel, David M.				<u>11/7/2012</u>	<u>JAMES J. McARDLE III</u>		<u>11-10-12</u>	<u>21.7</u>	<u>2" Radius</u>	<u>80</u>	<u>4.5</u>	<u>2.00"</u>
Examiner	Level	<u>II-N</u>	Signature	Date	Site Review	Signature	Date					
Bull, W. Keith				<u>11/7/2012</u>	<u>N/A</u>							
Other	Level	<u>N/A</u>	Signature	Date	<u>NANCY RITCHIE-SLAUGHTER</u>	Signature	Date					
N/A					<u>Nancy Ritchie Slaughter</u>		<u>11/13/12</u>					

11/10/12
ATTACHMENT



UT Calibration/Examination

Site/Unit: Oconee / 1 Procedure: NDE-3830 Outage No.: 01-27
Summary No.: 01.B2.51.0003 Procedure Rev.: 2 Report No.: UT-12-1059
Workscope: ISI Work Order No.: 1992022 Page: 3 of 13

Code: 1998/2000A Cat./Item: B-B /B2.51 Location: _____
Drawing No.: OJSIN4-101A-1.1 Description: Head to Head
System ID: 51A
Component ID: 1LDCB-INLET Size/Length: N/A Thickness/Diameter: SS / .875 / NA
Limitations: Yes - See attached sheets Start Time: 0852 Finish Time: 0905

Instrument Settings
Serial No.: 0285P4
Manufacturer: GE
Model: USN 60 SW
Delay: 6.9147 Range: 2.5"
M/V Cal/Vel: .2293 Pulsar: Square
Damping: 500 Reject: 0%
Rep. Rate: Autohigh Freq.: 2 MHz
Filter: Fixed Mode: Dual
Voltage: 450 Other: Fullwave
Ax. Gain (dB): 51.0 Circ. Gain (dB): N/A
1 Screen Div. = .25 in. of Sound Path
Linearity Report No.: L-12-225

Search Unit
Serial No.: 03-784
Manufacturer: RTD
Size: 2(7x10) Shape: Rect.
Freq.: 2.0 MHZ Style: TRL2
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

Cal. Checks	Time	Date
Initial Cal	0810	11/7/2012
Inter. Cal.		
Inter. Cal.	0851	11/7/2012
Inter. Cal.		
Final Cal	1007	11/7/2012

Couplant
Cal. Batch: 12125
Type: ULTRAGEL II
Mfg.: MAGNAFLUX
Exam Batch: 12125
Type: ULTRAGEL II
Mfg.: MAGNAFLUX

Axial Orientated Search Unit			
Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
ID Notch	80	4.9	1.22"

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
22.8	2" Radius	80	8.0	2.00"

Calibration Block
Cal. Block No. 40411
Thickness 0.875 Dia.: 8.75
Cal. Blk. Temp. 84 Temp. Tool: MCNDE40129
Comp. Temp. 80 Temp. Tool: MCNDE40129
Recordable Indication(s): Yes ☒ No ☐ (If Yes, Ref. Attached Ultrasonic Indication Report.)
Results: Accept ☐ Reject ☒ Info ☐

Scan Coverage
Upstream ☒ Downstream ☐ Scan dB: 53.0
CW ☐ CCW ☐ Scan dB: N/A
Exam Surface: O.D.
Surface Condition: As Ground

Reference Block
Serial No.: 97-5590
Type: ROMPAS

Comments: FC 11-16
Scanning dB lowered to maintain a 2:1 signal to noise ratio

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

Examiner	Level	Signature	Date	Reviewer	Signature	Date
Griebel, David M.	II-N		11/7/2012	JAMES J. McARDLE III		11-10-12
Examiner	Level	Signature	Date	Site Review	Signature	Date
Bull, W. Keith	II-N		11/7/2012	N/A		
Other	Level	Signature	Date		Signature	Date
N/A	N/A			NANCY RITCHIE-SLAUGHTER		11/13/12

11/10/12
ATTACHMENT



UT Calibration/Examination

Site/Unit: Oconee / 1
Summary No.: 01.B2.51.0003
Workscope: ISI

Procedure: NDE-3630
Procedure Rev.: 2
Work Order No.: 1992022

Outage No.: 01-27
Report No.: UT-12-1059
Page: 4 of 13

Code: 1998/2000A Cat./Item: B-B /B2.51 Location: _____
Drawing No.: O-ISIN4-101A-1.1 Description: Head to Head
System ID: 51A
Component ID: 1LDCB-INLET Size/Length: N/A Thickness/Diameter: 3S / .875 / NA
Limitations: Yes - See attached sheets Start Time: 0907 Finish Time: 0920

Instrument Settings
Serial No.: 0285P4
Manufacturer: GE
Model: USN 60 SW
Delay: 8.0128 Range: 4.00"
M/I Cal/Vel: .2198 Pulsar: Square
Damping: 500 Reject: 0%
Rep. Rate: Autohigh Freq.: 2 MHz
Filter: Fixed Mode: Dual
Voltage: 450 Other: Fullwave
Ax. Gain (dB): 45.3 Circ. Gain (dB): N/A
1 Screen Div. = .4 in. of Sound Path
Linearity Report No.: L-12-225

Search Unit
Serial No.: 03-786
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

Cal. Checks	Time	Date
Initial Cal	0813	11/7/2012
Inter. Cal.		
Inter. Cal.	0908	11/7/2012
Inter. Cal.		
Final Cal	1012	11/7/2012

Couplant
Cal. Batch: 12125
Type: ULTRAGEL II
Mfg.: MAGNAFLUX
Exam Batch: 12125
Type: ULTRAGEL II
Mfg.: MAGNAFLUX

Axial Orientated Search Unit			
Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
ID Notch	80	5.0	2.02"

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
26.6	2" Radius	80	5.0	2.00"

Calibration Block
Cal. Block No. 40411
Thickness 0.875 Dia.: 8.75
Cal. Blk. Temp. 64 Temp. Tool: MCNDE40129
Comp. Temp. 60 Temp. Tool: MCNDE40129
Scan Coverage
Upstream ☒ Downstream ☒ Scan dB: 45.3
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 ☐

Reference Block
Serial No.: 97-5590
Type: ROMPAS

Comments: FC 11-18
Scanning dB lowered to maintain a 2:1 signal to noise ratio

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

Examiner	Level	II-N	Signature	Date	Reviewer	Signature	Date
Griebel, David M.			<i>[Signature]</i>	11/7/2012	JAMES J. McARDLE III	<i>[Signature]</i>	11-10-12
Examiner	Level	II-N	Signature	Date	Site Review	Signature	Date
Bull, W. Keith			<i>[Signature]</i>	11/7/2012	N/A		
Other	Level	N/A	Signature	Date	QA Review	Signature	Date
N/A					NANCY RITCHIE-SLAUGHTER	<i>[Signature]</i>	11/13/12

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ATTACH



UT Calibration/Examination

Site/Unit: Oconee / 1
Summary No.: 01.B2.51.0003
Workslope: ISI

Procedure: NDE-3630
Procedure Rev.: 2
Work Order No.: 1992022

Outage No.: 01-27
Report No.: UT-12-1059
Page: 5 of 13

Code: 1998/2000A Cat./Item: B-B /B2.51 Location: _____
Drawing No.: 0-5IN4-101A-1.1 Description: Head to Head
System ID: 51A
Component ID: 1LDCB-INLET Size/Length: N/A Thickness/Diameter: SS / .875 / NA
Limitations: Yes - See attached sheets Start Time: 0922 Finish Time: 0937

Instrument Settings
Serial No.: 0265P4
Manufacturer: GE
Model: USN 80 SW
Delay: 7.3091 Range: 5.00"
M₀ Cal/Vol: .2266 Pulsar: Square
Damping: 500 Reject: 0%
Rep. Rate: Autohigh Freq.: 2 MHz
Filter: Fixed Mode: Dual
Voltage: 450 Other: Fullwave
Ax. Gain (dB): 42.3 Circ. Gain (dB): N/A
1 Screen Div. = .5 in. of Sound Path
Linearity Report No.: L-12-225

Search Unit
Serial No.: 03-771
Manufacturer: RTD
Size: 2(7x10) Shape: Rect.
Freq.: 2.0 MHZ Style: TRL2
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

Cal. Checks	Time	Date
Initial Cal	0815	11/7/2012
Inter. Cal.		
Inter. Cal.	0921	11/7/2012
Inter. Cal.		
Final Cal	1015	11/7/2012

Couplant
Cal. Batch: 12125
Type: ULTRAGEL II
Mfg.: MAGNAFLUX
Exam Batch: 12125
Type: ULTRAGEL II
Mfg.: MAGNAFLUX

Axial Orientated Search Unit			
Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
ID Notch	80	5.0	2.50"

Circumferential Orientated Search Unit			
Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Calibration Block
Cal. Block No. 40411
Thickness 0.875 Dis.: 8.75
Cal. Blk. Temp. 64 Temp. Tool: MCNDE40129
Comp. Temp. 60 Temp. Tool: MCNDE40129
Recordable Indication(s): Yes ☒ No ☐ (If Yes, Ref. Attached Ultrasonic Indication Report.)
Results: Accept ☐ Reject ☒ Info ☐

Scan Coverage
Upstream ☒ Downstream ☒ Scan dB: 42.3
CW ☐ CCW ☐ Scan dB: N/A
Exam Surface: O.D.
Surface Condition: As Ground

Reference Block
Serial No.: 97-5590
Type: ROMPAS

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
30.6	2" Radius	80	4.0	2.00"

Comments: FC 11-16
Scanning dB lowered to maintain a 2:1 signal to noise ratio

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

Examiner	Level	Signature	Date	Reviewer	Signature	Date
Griebel, David M.	II-N	<i>[Signature]</i>	11/7/2012	JAMES J. McARDLE III	<i>[Signature]</i>	11-10-12
Examiner	Level	Signature	Date	Site Review	Signature	Date
Bull, W. Keith	II-N	<i>[Signature]</i>	11/7/2012	N/A		
Other	Level	Signature	Date	AMT Rep.	Signature	Date
N/A	N/A			NANCY RITCHIE-SLAUGHTER	<i>[Signature]</i>	11/13/12

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ATTACHMENT

DUKE POWER COMPANY

ISI LIMITATION REPORT

Component/Weld ID: <u>WJ-32</u>		Item No: <u>01.B2.51.0003</u>		remarks:
<input checked="" type="checkbox"/> NO SCAN	SURFACE	BEAM DIRECTION		No scan due to nozzle & taper
<input type="checkbox"/> LIMITED SCAN	<input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	<input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input checked="" type="checkbox"/> cw <input checked="" type="checkbox"/> ccw		on chemical connector.
FROM L <u>0+3"</u> to L <u>0-3"</u>		INCHES FROM W0 <u>CL+1.1</u> to <u>Beyond</u>		
ANGLE: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 45 <input checked="" type="checkbox"/> 60 other <u>70</u>		FROM <u>0</u> DEG to <u>360</u> DEG		
<input type="checkbox"/> NO SCAN	SURFACE	BEAM DIRECTION		
<input checked="" type="checkbox"/> LIMITED SCAN	<input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	<input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input checked="" type="checkbox"/> cw <input checked="" type="checkbox"/> ccw		
FROM L <u>N/A</u> to L <u>N/A</u>		INCHES FROM W0 <u>+0.6</u> to <u>+1.5</u>		
ANGLE: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 45 <input checked="" type="checkbox"/> 60 other <u>70</u>		FROM <u>0</u> DEG to <u>360</u> DEG		
<input type="checkbox"/> NO SCAN	SURFACE	BEAM DIRECTION		
<input type="checkbox"/> LIMITED SCAN	<input type="checkbox"/> 1 <input type="checkbox"/> 2	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw		
FROM L _____ to L _____		INCHES FROM W0 _____ to _____		
ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 other _____		FROM _____ DEG to _____ DEG		
<input type="checkbox"/> NO SCAN	SURFACE	BEAM DIRECTION		
<input type="checkbox"/> LIMITED SCAN	<input type="checkbox"/> 1 <input type="checkbox"/> 2	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw		
FROM L _____ to L _____		INCHES FROM W0 _____ to _____		
ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 other _____		FROM _____ DEG to _____ DEG		
				UT-12-1059
				Sketch(s) attached
				<input checked="" type="checkbox"/> yes <input type="checkbox"/> No
Prepared By: <u>David Griebel</u>		Level: <u>II</u>	Date: <u>11/07/12</u>	Sheet <u>6</u> of <u>13</u>
Reviewed By: <u>JAMES J. McARDLE</u>		Date: <u>11-10-12</u>	ANAN RICHIE SLAUGHTER <u>Nancy Ritchie Slaughter</u> 11/13/12	

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ATTACHMENT



Supplemental Report

Report No.: UT-12-1059

Page: 7 of 13

Summary No.: 01.B2.51.0003

Examiner: Griebel, David M.

Level: II-N

Reviewer: JAMES J. McARDLE

Date: 11-10-12

Examiner: Bull, W. Keith

Level: II-N

Site Review: N/A

Date: 11/13/12

Other: N/A

Level: N/A

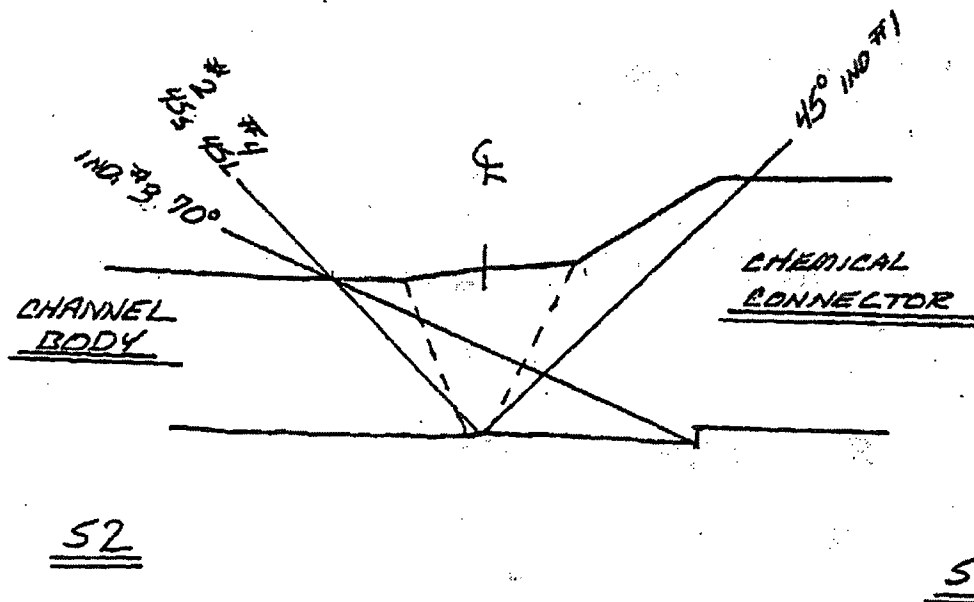
ANII Review: NANCY RITCHIE-SLAUGHTER

Nancy Ritchie-Slaughter

Comments: Weld WJ-32

Ind. # 1, 2 & 4 are root geometry. Ind. # 3 is a geometric reflector from offset on the I. D. surface.

Sketch or Photo:



ATTACHMENT
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Let Down Cooler - Chemical Connector to Channel Body

% Coverage Calculations

Weld No. : WJ- 32

$\varnothing =$ 8.625"

"t" = 0.875"

Weld Length = 27.1"

Total Inspection Area = 2.28 sq. in.

% Length Limited due to nozzle = $6" / 27.1" \times 100 = 22.1\%$

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:

James J. McArdle
JAMES J. McARDLE III

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ATTACHMENT 1

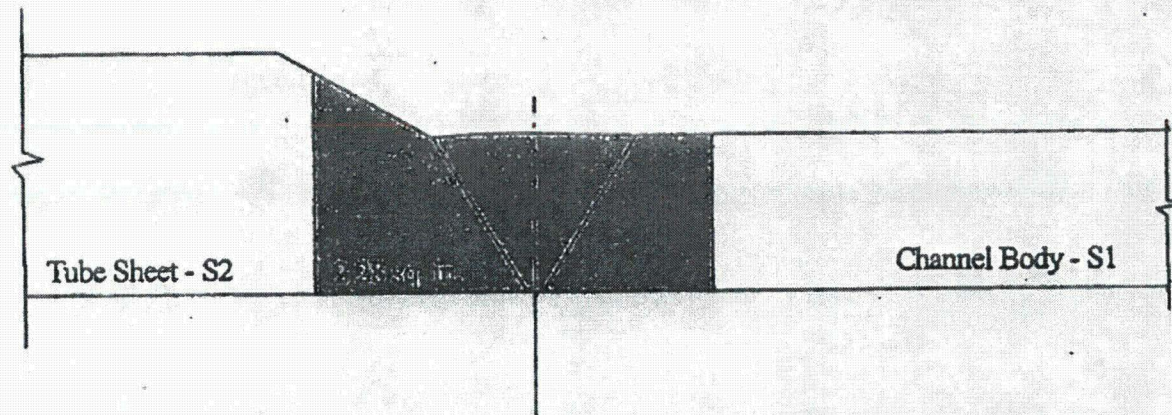
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Letdown Cooler Chemical Collector to Channel Body

Total Exam Area

Weld No. : WJ-32

Item No. : N/A



Scale: 1" = 1"

ATTACHMENT
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Letdown Cooler Chemical Collector to Channel Body

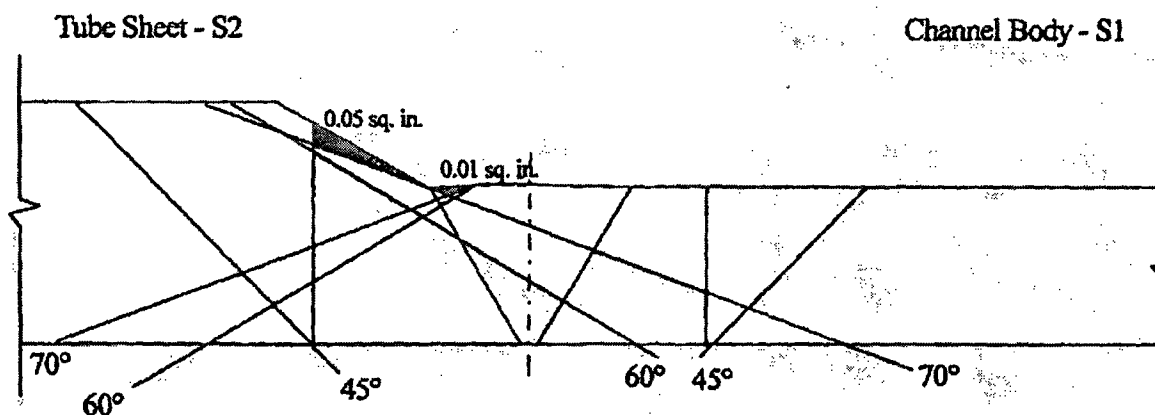
Area Examined - Axial Scans

Weld No. : WJ-32

Item No. : N/A

 = Area Not Examined = $0.05 + 0.01 = 0.06$ sq. in.

 = Area Examined = $2.28 - 0.06 / 2.28 \times 100 = 97.4\%$



Scale: 1" = 1"

ATTACHMENT /
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Letdown Cooler Chemical Collector to Channel Body

Area Examined @ Nozzle - Axial Scans

Weld No. : WJ-32

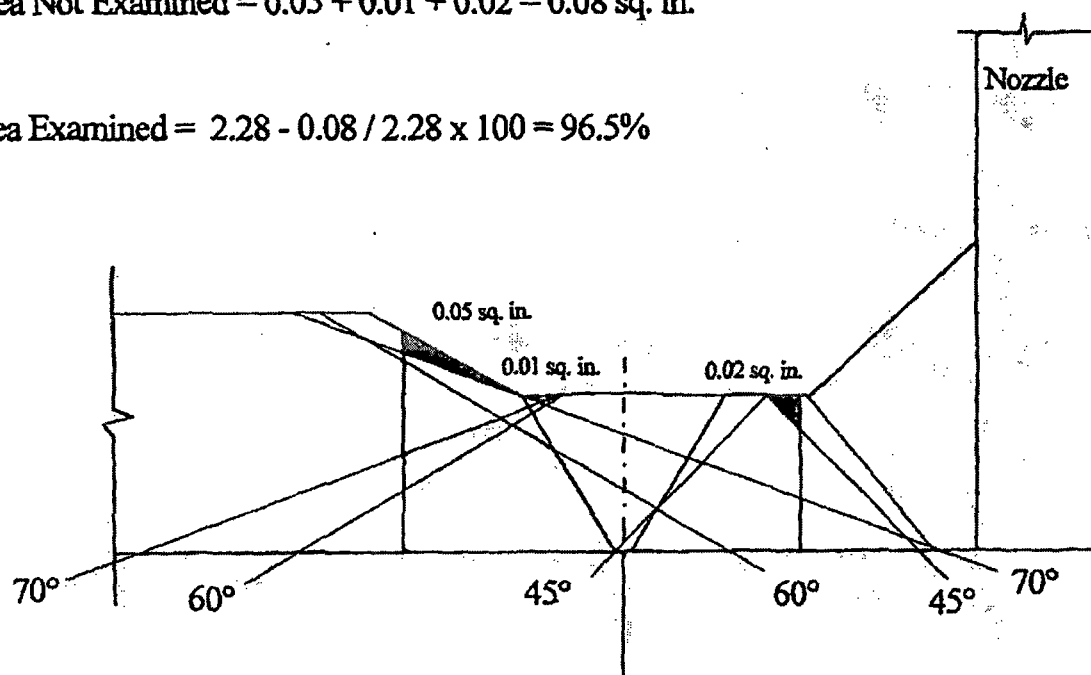
Item No. : N/A



= Area Not Examined = $0.05 + 0.01 + 0.02 = 0.08$ sq. in.



= Area Examined = $2.28 - 0.08 / 2.28 \times 100 = 96.5\%$



Tube Sheet - S2

Channel Body - S1

Scale: 1" = 1"


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ATTACHMENT

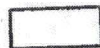
Letdown Cooler Chemical Collector to Channel Body

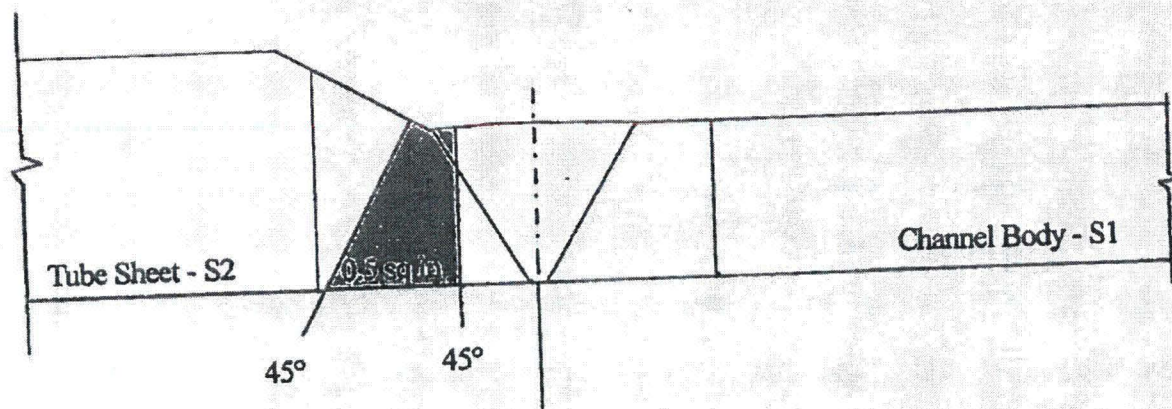
Area Examined - Circ. Scan

Weld No. : WJ-32

Item No. : N/A

 = Area Not Examined = 0.5 sq. in.

 = Area Examined = $2.28 - 0.5 / 2.28 \times 100 = 78.1\%$



Scale: 1" = 1"

ATTACHMENT
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Ultrasonic Indication Report

Site/Unit: Oconee / 1
Summary No.: 01.B2.51.0003
Workscope: ISI

Procedure: NDE-3630
Procedure Rev.: 2
Work Order No.: 1992022

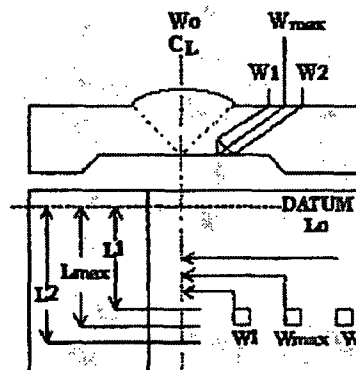
Outage No.: 01-27
Report No.: UT-12-1059
Page: 13 of 13

Search Unit Angle: 45 & 70 °
Wo Location: Weld Centerline
Lo Location: 9.1.1.1

- ☐ Piping Welds
☐ Ferritic Vessels $\geq 2"$ 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



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	1-45°	90	1.5	2.14	N/A	N/A	N/A	N/A	360°	0-1"	INT	N/A	Root geometry
S2	2-45°	85	0.9	1.20	N/A	N/A	N/A	N/A	360°	0-1"	INT	N/A	Root geometry
S3	3-70°	55	0.9	N/A	N/A	N/A	N/A	N/A	360°	0-6"	INT	N/A	Offset
S4	4-45L	80	0.9	1.20	N/A	N/A	N/A	N/A	360°	0-1"	INT	N/A	Root geometry

Examiner Level II-N Griebel, David M.	Signature <i>[Signature]</i>	Date 11/7/2012	Reviewer JAMES J. MCARDLE III	Signature <i>[Signature]</i>	Date 11-12-12
Examiner Level II-N Bull, W. Keith	Signature <i>[Signature]</i>	Date 11/7/2012	Site Review 2/4	Signature <i>[Signature]</i>	Date
Other Level N/A N/A	Signature	Date	NANCY RITCHIE-SLAUGHTER <i>[Signature]</i>	Signature <i>[Signature]</i>	Date 11/13/12

2/02 44
ATTACHMENT.



UT Calibration/Examination

Site/Unit: Oconee / 1
Summary No.: 01.B2.51.0004
Workslope: ISI

Procedure: NDE-3630
Procedure Rev.: 2
Work Order No.: 1992022

Outage No.: 01-27
Report No.: UT-12-1060
Page: 1 of 13

Code: 1998/2000A Cat./Item: B-B /B2.51 Location: _____
Drawing No.: O-JSIN4-101A-1.1 Description: Head to Head
System ID: 51A
Component ID: 1LDCB-OUTLET Size/Length: N/A Thickness/Diameter: SS / .875 / NA
Limitations: Yes - See attached sheets Start Time: 0821 Finish Time: 0835

Instrument Settings
Serial No.: 0265P4
Manufacturer: GE
Model: USN 60 SW
Delay: 4.1050 Range: 2.5"
M'U Cal/Vol: .1280 Pulsar: Square
Damping: 500 Reject: 0%
Rep. Rate: Autohigh Freq.: 2.25 MHz
Filter: Fixed Mode: PE
Voltage: 450 Other: Fullwave
Ax. Gain (dB): N/A Circ. Gain (dB): 38.0
1 Screen Div. = .25 in. of Sound Path
Linearity Report No.: L-12-225

Search Unit
Serial No.: 01F3J5
Manufacturer: KBA
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

Cal. Checks	Time	Date
Initial Cal	0807	11/7/2012
Inter. Cal.		
Inter. Cal.	0820	11/7/2012
Inter. Cal.		
Final Cal	1000	11/7/2012

Couplant
Cal. Batch: 12125
Type: ULTRAGEL II
Mfg.: MAGNAFLUX
Exam Batch: 12125
Type: ULTRAGEL II
Mfg.: MAGNAFLUX

Reference Block
Serial No.: 97-5590
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
ID Notch	80	5.3	1.35"

Reference/Simulator Block				
Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
29.0	2" Radius	80	8.0	2.00"

Calibration Block
Cal. Block No. 40411
Thickness 0.875 Dia.: 8.75
Cal. Blk. Temp. 64 Temp. Tool: MCNDE40129
Comp. Temp. 60 Temp. Tool: MCNDE40129
Recordable Indication(s): Yes ☐ No ☒ (If Yes, Ref. Attached Ultrasonic Indication Report.)
Results: Accept ☐ Reject ☒ Info ☐

Scan Coverage
Upstream ☐ Downstream ☐ Scan dB: N/A
CW ☒ CCW ☒ Scan dB: 52.0
Exam Surface: O.D.
Surface Condition: As Ground

Comments: FC 11-16

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

Examiner	Level	Signature	Date	Reviewer	Signature	Date
Griebel, David M.	II-N	<i>[Signature]</i>	11/7/2012	JAMES J. McARDLE III	<i>[Signature]</i>	11-10-12
Examiner	Level	Signature	Date	Site Review	Signature	Date
Bull, W. Keith	II-N	<i>[Signature]</i>	11/7/2012	N/A		
Other	Level	Signature	Date	Final Review	Signature	Date
N/A	N/A			NANCY RITCHIE-SLAUGHTER	<i>[Signature]</i>	11/11/12

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ATTACHMENT



UT Calibration/Examination

Site/Unit: Oconee / 1
Summary No.: 01.B2.51.0004
Workscope: ISI

Procedure: NDE-3630
Procedure Rev.: 2
Work Order No.: 1992022

Outage No.: 01-27
Report No.: UT-12-1080
Page: 2 of 13

Code: 1998/2000A Cat./Item: B-B /B2.51 Location: _____

Drawing No.: 0-4SIN4-101A-1.1 Description: Head to Head

System ID: 51A

Component ID: 1LDCB-OUTLET Size/Length: N/A Thickness/Diameter: SS / .875 / NA

Limitations: Yes - See attached sheets Start Time: 0837 Finish Time: 0850

Instrument Settings				Search Unit				Cal. Checks			Axial Orientated Search Unit			
Serial No.:	<u>0265P4</u>			Serial No.:	<u>01F3J5</u>			Initial Cal	<u>0800</u>	<u>11/7/2012</u>	Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
Manufacturer:	<u>GE</u>			Manufacturer:	<u>KBA</u>			Inter. Cal.			ID Notch	<u>80</u>	<u>2.7</u>	<u>1.18"</u>
Model:	<u>USN 60 SW</u>			Size:	<u>.25</u>	Shape:	<u>Round</u>	Inter. Cal.	<u>0836</u>	<u>11/7/2012</u>	OD Notch	<u>40</u>	<u>5.4</u>	<u>2.43"</u>
Delay:	<u>4.1050</u>	Range:	<u>4.5"</u>	Freq.:	<u>2.25 MHz</u>	Style:	<u>Comp - G</u>	Inter. Cal.			ID Notch	<u>20</u>	<u>8.2</u>	<u>3.69"</u>
M'd Cal/Vol:	<u>.1280</u>	Pulser:	<u>Square</u>	Exam Angle:	<u>45</u>	# of Elements:	<u>Single</u>	Final Cal	<u>1005</u>	<u>11/7/2012</u>				
Damping:	<u>500</u>	Reject:	<u>0%</u>	Mode:	<u>Shear</u>									
Rep. Rate:	<u>Autohigh</u>	Freq.:	<u>2.25 MHz</u>	Measured Angle:	<u>45</u>									
Filter:	<u>Fixed</u>	Mode:	<u>PE</u>	Wedge Style:	<u>MSWQC</u>									
Voltage:	<u>450</u>	Other:	<u>Fullwave</u>								Couplant			
Ax. Gain (dB):	<u>26.7</u>	Circ. Gain (dB):	<u>N/A</u>								Cal. Batch:	<u>12125</u>		
1 Screen Div. =	<u>.45</u>	In. of	<u>Sound Path</u>								Type:	<u>ULTRAGEL II</u>		
Linearity Report No.:	<u>L-12-225</u>										Mfg.:	<u>MAGNAFLUX</u>		
				Search Unit Cable										
				Type:	<u>RG - 174</u>									
				Length:	<u>6'</u>	No. Conn.:	<u>0</u>							
				Scan Coverage										
				Upstream <input checked="" type="checkbox"/>	Downstream <input checked="" type="checkbox"/>	Scan dB:	<u>40.7</u>							
				CW <input type="checkbox"/>	CCW <input type="checkbox"/>	Scan dB:	<u>N/A</u>							
				Reference Block										
				Serial No.:	<u>97-5590</u>									
				Type:	<u>ROMPAS</u>									

Calibration Block				Reference/Simulator Block				
Cal. Block No.	<u>40411</u>			Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
Thickness	<u>0.875</u>	Dia.:	<u>8.75</u>	<u>21.7</u>	<u>2" Radius</u>	<u>80</u>	<u>4.5</u>	<u>2.00"</u>
Cal. Blk. Temp.	<u>64</u>	Temp. Tool:	<u>MCNDE40129</u>					
Comp. Temp.	<u>60</u>	Temp. Tool:	<u>MCNDE40129</u>					
Recordable Indication(s):	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> (If Yes, Ref. Attached Ultrasonic Indication Report.)							
Results:	Accept <input type="checkbox"/>	Reject <input checked="" type="checkbox"/>	Info <input type="checkbox"/>	Comments: <u>FC 11-16</u>				

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

Examiner	Level	Signature	Date	Reviewer	Signature	Date
Griebel, David M.	II-N	<i>[Signature]</i>	11/7/2012	JAMES J. MCARDLE III	<i>[Signature]</i>	11-10-12
Bull, W. Keith	II-N	<i>[Signature]</i>	11/7/2012			
Other	Level	Signature	Date	NANCY RITCHIE SLAUGHTER	<i>[Signature]</i>	11/11/12
N/A	N/A					

ATTACHMENT
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UT Calibration/Examination

Site/Unit: Oconee / 1
Summary No.: 01.B2.51.0004
Workscope: ISI

Procedure: NDE-3630
Procedure Rev.: 2
Work Order No.: 1982022

Outage No.: 01-27
Report No.: UT-12-1060
Page: 3 of 13

Code: 1988/2000A Cat./Item: B-B /B2.51 Location:
Drawing No.: O-4SIN4-101A-1.1 Description: Head to Head
System ID: 51A
Component ID: 1LDCB-OUTLET Size/Length: N/A Thickness/Diameter: SS / .875 / NA
Limitations: Yes - See attached sheets Start Time: 0852 Finish Time: 0905

Instrument Settings
Serial No.: 0285P4
Manufacturer: GE
Model: USN 60 SW
Delay: 6.9147 Range: 2.5"
MTI Cal/Vel: .2293 Pulsar: Square
Damping: 500 Reject: 0%
Rep. Rate: Autohigh Freq.: 2 MHz
Filter: Fixed Mode: Dual
Voltage: 450 Other: Fullwave
Ax. Gain (dB): 51.0 Circ. Gain (dB): N/A
1 Screen Div. = .25 in. of Sound Path
Linearity Report No.: L-12-225

Search Unit
Serial No.: 03-764
Manufacturer: RTD
Size: 2(7x10) Shape: Rect.
Freq.: 2.0 MHZ Style: TRL2
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

Cal. Checks	Time	Date
Initial Cal	0910	11/7/2012
Inter. Cal.		
Inter. Cal.	0851	11/7/2012
Inter. Cal.		
Final Cal	1007	11/7/2012

Couplant
Cal. Batch: 12125
Type: ULTRAGEL II
Mfg.: MAGNAFLUX
Exam Batch: 12125
Type: ULTRAGEL II
Mfg.: MAGNAFLUX

Reference Block
Serial No.: 97-5590
Type: ROMPAS

Axial Orientated Search Unit			
Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
ID Notch	80	4.8	1.22"

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
22.8	2" Radius	80	8.0	2.00"

Calibration Block
Cal. Block No.: 40411
Thickness: 0.875 Dia.: 8.75
Cal. Blk. Temp.: 64 Temp. Tool: MCNDE40129
Comp. Temp.: 60 Temp. Tool: MCNDE40129
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

Comments: FC 11-16
Scanning dB lowered to maintain a 2:1 signal to noise ratio

Examiner	Level	Signature	Date	Reviewer	Signature	Date
Griebel, David M.	II-N	<i>[Signature]</i>	11/7/2012	JAMES J. MCARDLE III	<i>[Signature]</i>	11-10-12
Examiner	Level	Signature	Date	Site Review	Signature	Date
Bull, W. Keith	II-N	<i>[Signature]</i>	11/7/2012	D/A		
Other	Level	Signature	Date		Signature	Date
N/A	N/A			NANCY RITCHIE-SLAUGHTER	<i>[Signature]</i>	11/11/12

ATTACHMENT
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UT Calibration/Examination

Site/Unit: Oconee / 1
Summary No.: 01.B2.51.0004
Workscope: ISI

Procedure: NDE-3630
Procedure Rev.: 2
Work Order No.: 1892022

Outage No.: 01-27
Report No.: UT-12-1060
Page: 4 of 13

Code: 1998/2000A Cat./Item: B-B /B2.51 Location: _____

Drawing No.: 0-JSIN4-101A-1.1 Description: Head to Head

System ID: 51A

Component ID: 1LDCB-OUTLET Size/Length: N/A Thickness/Diameter: SS / .075 / NA

Limitations: Yes - See attached sheets Start Time: 0907 Finish Time: 0920

Instrument Settings				Search Unit				Cal. Checks			Axial Orientated Search Unit				
Serial No.:	<u>0265P4</u>			Serial No.:	<u>03-766</u>			Cal. Checks	Time	Date	Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path	
Manufacturer:	<u>GE</u>			Manufacturer:	<u>RTD</u>			Initial Cal	<u>0813</u>	<u>11/7/2012</u>	ID Notch	<u>80</u>	<u>5.0</u>	<u>2.02"</u>	
Model:	<u>USN 60 SW</u>			Size:	<u>2(7x10)</u>	Shape:	<u>Rect.</u>	Inter. Cal.							
Delay:	<u>6.0128</u>	Range:	<u>4.00"</u>	Freq.:	<u>2.0 MHZ</u>	Style:	<u>TRL2</u>	Inter. Cal.	<u>0906</u>	<u>11/7/2012</u>					
M'd Cal/Val:	<u>.2198</u>	Pulser:	<u>Square</u>	Exam Angle:	<u>60</u>	# of Elements:	<u>Dual</u>	Inter. Cal.							
Damping:	<u>500</u>	Reject:	<u>0%</u>	Mode:	<u>Long.</u>			Final Cal	<u>1012</u>	<u>11/7/2012</u>					
Rep. Rate:	<u>Autohigh</u>	Freq.:	<u>2 MHZ</u>	Measured Angle:	<u>80</u>										
Filter:	<u>Fixed</u>	Mode:	<u>Dual</u>	Wedge Style:	<u>Integral</u>										
Voltage:	<u>450</u>	Other:	<u>Fullwave</u>												
Ax. Gain (dB):	<u>45.3</u>	Circ. Gain (dB):	<u>N/A</u>												
<u>1</u> Screen Div. = <u>.4</u> in. of <u>Sound Path</u>															
Linearity Report No.: <u>L-12-225</u>															

Calibration Block				Scan Coverage				Couplant				Circumferential Orientated Search Unit			
Cal. Block No.	<u>40411</u>			Upstream <input checked="" type="checkbox"/>	Downstream <input checked="" type="checkbox"/>	Scan dB:	<u>45.3</u>	Cal. Batch:	<u>12125</u>			Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
Thickness	<u>0.875</u>	Dia.:	<u>8.75</u>	CW <input type="checkbox"/>	CCW <input type="checkbox"/>	Scan dB:	<u>N/A</u>	Type:	<u>ULTRAGEL II</u>			N/A			
Cal. Blk. Temp.	<u>64</u>	Temp. Tool:	<u>MCNDE40129</u>	Exam Surface:				Mfg.:	<u>MAGNAFLUX</u>						
Comp. Temp.	<u>60</u>	Temp. Tool:	<u>MCNDE40129</u>	Surface Condition:				Exam Batch	<u>12125</u>						
Recordable Indication(s): Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If Yes, Ref. Attached Ultrasonic Indication Report.)				Type:				<u>ULTRAGEL II</u>							
Results: Accept <input type="checkbox"/> Reject <input checked="" type="checkbox"/> Info <input type="checkbox"/>				Mfg.:				<u>MAGNAFLUX</u>							
Percent Of Coverage Obtained > 80%: No <input type="checkbox"/> Reviewed Previous Data: Yes <input type="checkbox"/>				Reference Block							Reference/Simulator Block				
				Serial No.:				<u>97-5590</u>			Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
				Type:				<u>ROMPAS</u>			<u>28.8</u>	<u>2" Radius</u>	<u>80</u>	<u>5.0</u>	<u>2.00"</u>

Comments: FC 11-16
Scanning dB lowered to maintain a 2:1 signal to noise ratio

Examiner	Level	Signature	Date	Reviewer	Signature	Date
Griebel, David M.	II-N	<i>[Signature]</i>	11/7/2012	JAMES J. MCARDLE III	<i>[Signature]</i>	11-10-12
Bull, W. Keith	II-N	<i>[Signature]</i>	11/7/2012	Site Review	<i>[Signature]</i>	
Other	Level	Signature	Date	ANN RITCHIE SLAUGHTER	<i>[Signature]</i>	11/11/12
N/A	N/A					

ATTACHMENT 1
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UT Calibration/Examination

Site/Unit: Oconee / 1
Summary No.: 01.B2.51.0004
Workscope: ISI

Procedure: NDE-3830
Procedure Rev.: 2
Work Order No.: 1992022

Outage No.: 01-27
Report No.: UT-12-1060
Page: 5 of 13

Code: 1998/2000A Cat./Item: B-B /B2.51 Location: _____
Drawing No.: O-ISIS4-101A-1.1 Description: Head to Head
System ID: 51A
Component ID: 1LDCB-OUTLET Size/Length: N/A Thickness/Diameter: SS / .875 / NA
Limitations: Yes - See attached sheets Start Time: 0922 Finish Time: 0937

Instrument Settings
Serial No.: 0265P4
Manufacturer: GE
Model: USN 60 SW
Delay: 7.3091 Range: 5.00"
M/V Cal/Vel: .2266 Pulsar: Square
Damping: 500 Reject: 0%
Rep. Rate: Autohigh Freq.: 2 MHz
Filter: Fixed Mode: Dual
Voltage: 450 Other: Fullwave
Ax. Gain (dB): 42.3 Circ. Gain (dB): N/A
1 Screen Div. = .5 in. of Sound Path
Linearity Report No.: L-12-225

Search Unit
Serial No.: 03-771
Manufacturer: RTD
Size: 2(7x10) Shape: Rect.
Freq.: 2.0 MHZ Style: TRL2
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

Cal. Checks	Time	Date
Initial Cal	0815	11/7/2012
Inter. Cal.		
Inter. Cal.	0921	11/7/2012
Inter. Cal.		
Final Cal	1015	11/7/2012

Couplant
Cal. Batch: 12125
Type: ULTRAGEL II
Mfg.: MAGNAFLUX
Exam Batch: 12125
Type: ULTRAGEL II
Mfg.: MAGNAFLUX

Axial Orientated Search Unit			
Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
ID Notch	80	5.0	2.50"

Circumferential Orientated Search Unit			
Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Calibration Block
Cal. Block No.: 40411
Thickness: 0.875 Dia.: 8.75
Cal. Blk. Temp.: 84 Temp. Tool: MCNDE40129
Comp. Temp.: 80 Temp. Tool: MCNDE40129
Recordable Indication(s): Yes ☐ No ☒ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Scan Coverage
Upstream ☒ Downstream ☒ Scan dB: 42.3
CW ☐ CCW ☐ Scan dB: N/A
Exam Surface: O.D.
Surface Condition: As Ground

Reference Block
Serial No.: 97-5590
Type: ROMPAS

Reference/Simulator Block				
Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
30.6	2" Radius	80	4.0	2.00"

Results: Accept ☐ Reject ☒ Info ☐

Comments: FC 11-16
Scanning dB lowered to maintain a 2:1 signal to noise ratio

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

Examiner	Level	Signature	Date	Reviewer	Signature	Date
Griebel, David M.	II-N	<i>[Signature]</i>	11/7/2012	JAMES J. McARDLE III	<i>[Signature]</i>	11-10-12
Examiner	Level	Signature	Date	Site Review	Signature	Date
Bull, W. Keith	II-N	<i>[Signature]</i>	11/7/2012	N/A		
Other	Level	Signature	Date		Signature	Date
N/A	N/A			NANCY RITCHIE-SLAUGHTER	<i>[Signature]</i>	11/11/12

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attached

DUKE POWER COMPANY

ISI LIMITATION REPORT

Component/Weld ID: <u>WJ-35</u>		Item No: <u>01.B2.51.0004</u>		remarks:	
<input checked="" type="checkbox"/> NO SCAN	SURFACE	BEAM DIRECTION		No scan due to nozzle & taper	
<input type="checkbox"/> LIMITED SCAN	<input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	<input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input checked="" type="checkbox"/> cw <input checked="" type="checkbox"/> ccw		on chemical connector.	
FROM L <u>0+3"</u> to L <u>0-3"</u>		INCHES FROM W0 <u>CL+1.1</u> to <u>Beyond</u>			
ANGLE: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 45 <input checked="" type="checkbox"/> 60 other <u>70</u>		FROM <u>0</u> DEG to <u>360</u> DEG			
<input type="checkbox"/> NO SCAN	SURFACE	BEAM DIRECTION			
<input checked="" type="checkbox"/> LIMITED SCAN	<input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	<input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input checked="" type="checkbox"/> cw <input checked="" type="checkbox"/> ccw			
FROM L <u>N/A</u> to L <u>N/A</u>		INCHES FROM W0 <u>+0.6</u> to <u>+1.5</u>			
ANGLE: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 45 <input checked="" type="checkbox"/> 60 other <u>70</u>		FROM <u>0</u> DEG to <u>360</u> DEG			
<input type="checkbox"/> NO SCAN	SURFACE	BEAM DIRECTION			
<input type="checkbox"/> LIMITED SCAN	<input type="checkbox"/> 1 <input type="checkbox"/> 2	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw			
FROM L _____ to L _____		INCHES FROM W0 _____ to _____			
ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 other _____		FROM _____ DEG to _____ DEG			
<input type="checkbox"/> NO SCAN	SURFACE	BEAM DIRECTION			
<input type="checkbox"/> LIMITED SCAN	<input type="checkbox"/> 1 <input type="checkbox"/> 2	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw			
FROM L _____ to L _____		INCHES FROM W0 _____ to _____			
ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 other _____		FROM _____ DEG to _____ DEG			
<input type="checkbox"/> NO SCAN	SURFACE	BEAM DIRECTION			
<input type="checkbox"/> LIMITED SCAN	<input type="checkbox"/> 1 <input type="checkbox"/> 2	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw		UT-12-1060	
FROM L _____ to L _____		INCHES FROM W0 _____ to _____		Sketch(s) attached	
ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 5 <input type="checkbox"/> 60 other _____		FROM _____ DEG to _____ DEG		<input checked="" type="checkbox"/> yes <input type="checkbox"/> No	
Prepared By: <u>David Griebel</u>		Level: <u>II</u>	Date: <u>11/07/12</u>	Sheet <u>6</u> of <u>13</u>	
Reviewed By: <u>JAMES J. McArdle III</u>		Date: <u>11-10-12</u>	<u>NANCY RICHIE-SLAUGHTER</u>		Date: <u>11/11/12</u>

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ATTACHMENT A



Supplemental Report

Report No.: UT-12-1060

Page: 7 of 13

Summary No.: O1.B2.51.0004

Examiner: Griebel, David M.

Examiner: Bull, W. Keith

Other: N/A

Level: II-N

Level: II-N

Level: N/A

Reviewer: JAMES J. MAROLE

Site Review: NANCY RITCHIE SLAUGHTER

ANII Review: Nancy Ritchie Slaughter

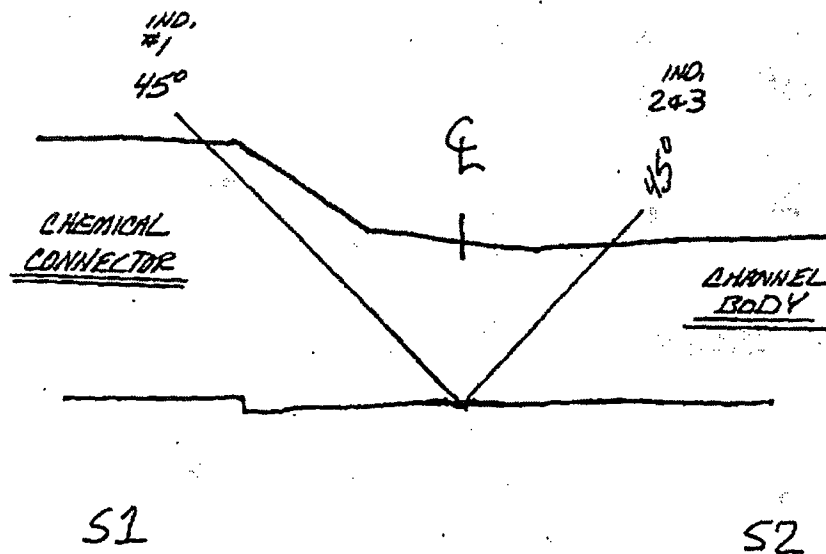
Date: 11-10-12

Date: 11/11/12

Date: 11/11/12

Comments: Weld WJ-35
Ind. # 1, 2 & 3 are root geometry.

Sketch or Photo:



ATTACHMENT A
28 of 44

Let Down Cooler - Chemical Connector to Channel Body

% Coverage Calculations

Weld No. : WJ- 35

$\varnothing = 8.625"$

"t" = 0.875"

Weld Length = 27.1"

Total Inspection Area = 2.28 sq. in.

% Length Limited due to nozzle = $6" / 27.1" \times 100 = 22.1\%$

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:

James J. McRable III
JAMES J. McRABLE III

Page 8 of 13

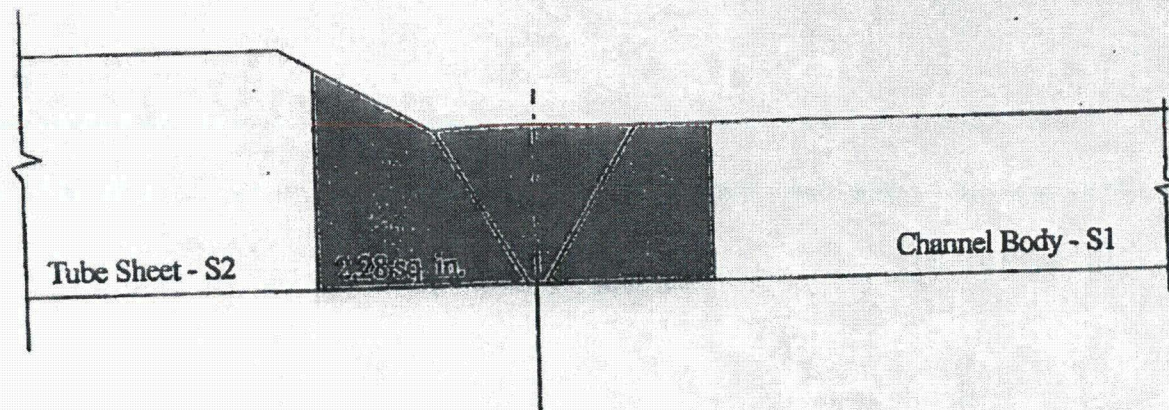
ATTACHMENT A
29144-

Letdown Cooler Chemical Collector to Channel Body

Total Exam Area

Weld No. : WJ-35

Item No. : N/A



Scale: 1" = 1"

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ATTACHMENT 1


Letdown Cooler Chemical Collector to Channel Body

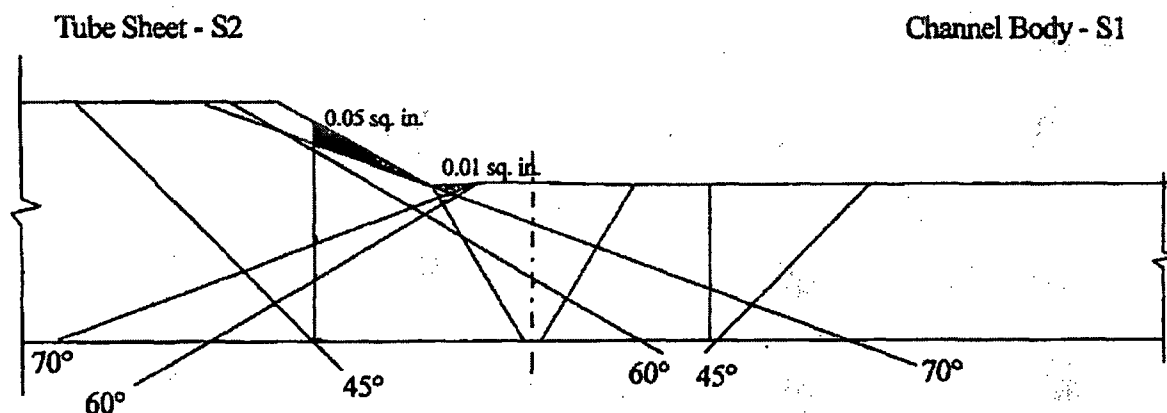
Area Examined - Axial Scans

Weld No. : WJ-35

Item No. : N/A

 = Area Not Examined = $0.05 + 0.01 = 0.06$ sq. in.

 = Area Examined = $2.28 - 0.06 / 2.28 \times 100 = 97.4\%$



Scale: 1" = 1"


ATTACHMENT A
8/24/94


Letdown Cooler Chemical Collector to Channel Body

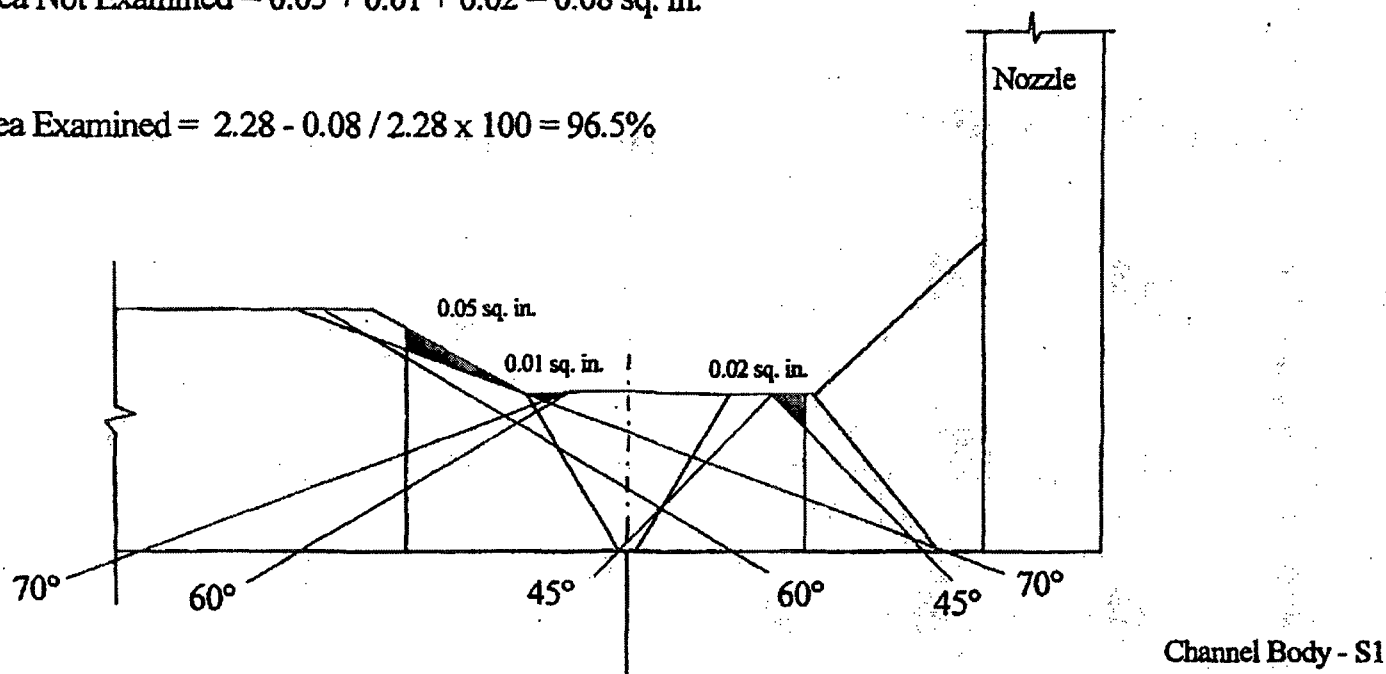
Area Examined @ Nozzle - Axial Scans

Weld No. : WJ-35

Item No. : N/A

 = Area Not Examined = $0.05 + 0.01 + 0.02 = 0.08$ sq. in.

 = Area Examined = $2.28 - 0.08 / 2.28 \times 100 = 96.5\%$



Scale: 1" = 1"


ATTACHMENT A
32 of 44

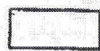
Letdown Cooler Chemical Connector to Channel Body

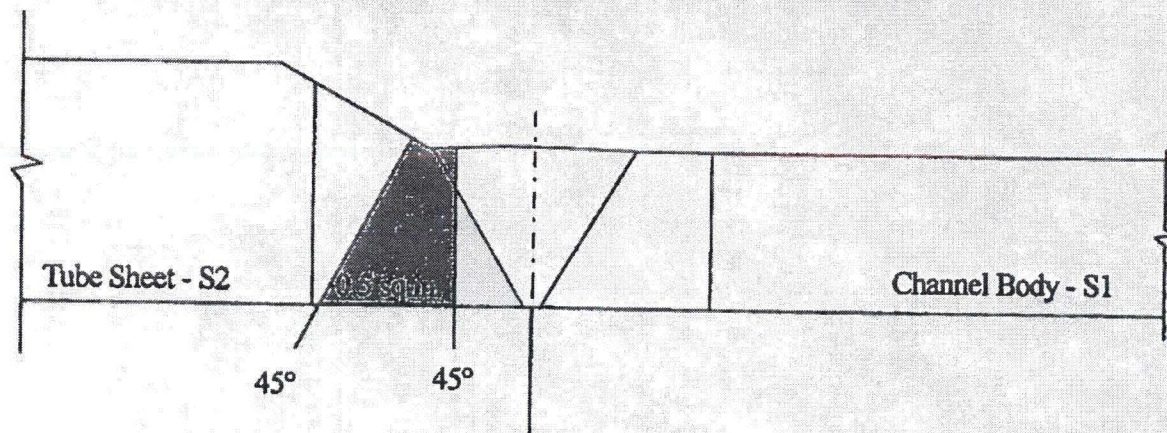
Area Examined - Circ. Scan

Weld No. : WJ-35

Item No. : N/A

 = Area Not Examined = 0.5 sq. in.

 = Area Examined = $2.28 - 0.5 / 2.28 \times 100 = 78.1\%$



Scale: 1" = 1"

ATTACHMENT 4
33 of 44



Ultrasonic Indication Report

Site/Unit: Oconee / 1
Summary No.: 01.B2.51.0004
Workscope: ISI

Procedure: NDE-3630
Procedure Rev.: 2
Work Order No.: 1992022

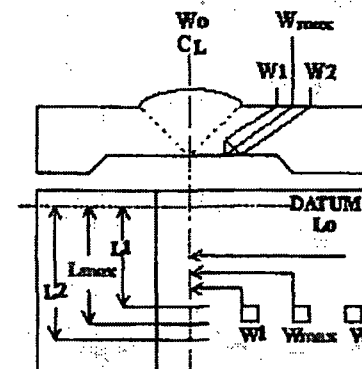
Outage No.: 01-27
Report No.: UT-12-1060
Page: 13 of 13

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

- ☐ Piping Welds
☐ Ferritic Vessels $\geq 2" T$
☒ 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



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	1-45	90	1.5	2.20	N/A	N/A	N/A	N/A	360°	0-3"	INT	N/A	Root geometry
S2	2-45	100	0.9	1.25	N/A	N/A	N/A	N/A	360°	0-3"	INT	N/A	Root geometry
S3	3-45L	85	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
Griebel, David M.			<i>[Signature]</i>	11/7/2012	JAMES J. McARDLE III	<i>[Signature]</i>	11-10-12
Examiner	Level	II-N	Signature	Date	Site Review	Signature	Date
Bull, W. Keith			<i>[Signature]</i>	11/7/2012	N/A		
Other	Level	N/A	Signature	Date	ANGY RITCHIE SLAUGHTER	Signature	Date
N/A					Nancy Ritchie - Slaughter		11/11/12

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ATTACHMENT 1



UT Calibration Examination

Site/Unit: Oconee / 1
Summary No.: 01.B9.11.0059
Workscope: ISI

Procedure: NDE-830
Procedure Rev.: 1
Work Order No.: 1981598

Outage No.: 01-27
Report No.: UT-12-1078
Page: 1 of 3

Code: 1988/2000A Cat./Item: B-J /B9.11 Location: _____
Drawing No.: O-1SIN4-100A-1.1 Description: RC Pump 1A1 to Safe end
System ID: 50
Component ID: 1-PDA1-1 Size/Length: N/A Thickness/Diameter: SS / 2.330 / 33.5
Limitations: Yes - See attached sheets Start Time: 1315 Finish Time: 1355

Instrument Settings
Serial No.: 014738
Manufacturer: KRAUTKRAMER
Model: USN-60 SW
Delay: 15.1378 Range: 7.0"
M/U Cal/Vol: .2478 Pulser: Square
Damping: 500 Reject: 0%
Rep. Rate: Autohigh Freq.: 1 MHz
Filter: Fixed Mode: Dual
Voltage: 450 Other: Fullwave
Ax. Gain (dB): 61.8 Circ. Gain (dB): 70.0
1 Screen Div. = .7 In. of Sound Path
Linearity Report No.: L-12-228

Search Unit
Serial No.: 03-788
Manufacturer: RTD
Size: 2(20x34) Shape: Rect.
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

Cal. Checks	Time	Date
Initial Cal	1110	11/11/2012
Inter. Cal.		
Inter. Cal.	1315	11/11/2012
Inter. Cal.		
Final Cal	1540	11/11/2012

Couplant
Cal. Batch: 12125
Type: ULTRAGEL II
Mfg.: MAGNAFLUX
Exam Batch 12125
Type: ULTRAGEL II
Mfg.: MAGNAFLUX

Axial Orientated Search Unit			
Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
3/4 T SDH	80	4.8	3.15"

Circumferential Orientated Search Unit			
Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
3/4T SDH	80	5.2	3.80"

Reference Block
Serial No.: 04-8740
Type: ROMPAS

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
46.0	2" Radius	80	2.8	2.00"

Calibration Block
Cal. Block No. 50214
Thickness 2.464 Dia.: Flat
Cal. Blk. Temp. 70 Temp. Tool: MCNDE40130
Comp. Temp. 73 Temp. Tool: MCNDE40130
Recordable Indication(s): Yes ☐ No ☒ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Scan Coverage
Upstream ☒ Downstream ☐ Scan dB: 72.0
CW ☒ CCW ☒ Scan dB: 72.0
Exam Surface: O.D.
Surface Condition: As Ground

Results: Accept ☐ Reject ☒ Info ☐

Comments: Initial Section XI Exam FC 11-08
See Report UT-12-1073 for T & C; also coverage plot

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

Examiner	Level	II-N	Signature	Date	Reviewer	Signature	Date
Griebel, David M.			<i>[Signature]</i>	11/11/2012	JAMES J. McARDLE III	<i>[Signature]</i>	11-13-12
Examiner	Level	II-N	Signature	Date	Site Review	Signature	Date
Dean, Steven			<i>[Signature]</i>	11/11/2012	N/A		
Other	Level	N/A	Signature	Date	ANII Review	Signature	Date
N/A					N/A		

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ATTACHMENT



UT Calibration Examination

Site/Unit: Oconee / 1
Summary No.: 01.88.11.0058
Workscope: ISI

Procedure: NDE-830
Procedure Rev.: 1
Work Order No.: 1881586

Outage No.: 01-27
Report No.: UT-12-1078
Page: 2 of 3

Code: 1998/2000A Cat./Item: B-J / B8.11 Location: _____
Drawing No.: O-ISIN4-100A-1.1 Description: RC Pump 1A1 to Safe end
System ID: 50
Component ID: 1-PDA1-1 Size/Length: N/A Thickness/Diameter: SS / 2.330 / 33.5
Limitations: Yes - See attached sheets Start Time: 1315 Finish Time: 1355

Instrument Settings
Serial No.: 014738
Manufacturer: KRAUTKRAMER
Model: USN-60 SW
Delay: 9.9722 Range: 5.00"
M'tl Cal/Vel: .2302 Pulser: Square
Damping: 500 Reject: 0%
Rep. Rate: Autohigh Freq.: 2 MHz
Filter: Fixed Mode: Dual
Voltage: 450 Other: Fullwave
Ax. Gain (dB): 53.2 Circ. Gain (dB): 58.0
1 Screen Div. = .5 in. of Sound Path
Linearity Report No.: L-12-228

Search Unit
Serial No.: 90-371
Manufacturer: RTD
Size: 2(10x18) Shape: Rect.
Freq.: 2.0 MHz Style: TRL2
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

Cal. Checks	Time	Date
Initial Cal	1122	11/11/2012
Inter. Cal.		
Inter. Cal.	1333	11/11/2012
Inter. Cal.		
Final Cal	1545	11/11/2012

Couplant
Cal. Batch: 12125
Type: ULTRAGEL II
Mfg.: MAGNAFLUX
Exam Batch: 12125
Type: ULTRAGEL II
Mfg.: MAGNAFLUX

Axial Orientated Search Unit			
Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
1/4T SDH	80	3.4	1.65"

Circumferential Orientated Search Unit			
Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
1/4T SDH	80	3.6	1.72"

Reference Block
Serial No.: 04-8740
Type: ROMPAS

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
44.0	2" Radius	80	2.8	2.00"

Calibration Block
Cal. Block No.: 50214
Thickness: 2.484 Dia.: Flat
Cal. Blk. Temp.: 70 Temp. Tool: MCNDE40130
Comp. Temp.: 73 Temp. Tool: MCNDE40130

Scan Coverage
Upstream ☒ Downstream ☐ Scan dB: 62.0
CW ☒ CCW ☒ Scan dB: 62.0
Exam Surface: O.D.
Surface Condition: As Ground

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

Results: Accept ☐ Reject ☒ Info ☐

Comments: Initial Section XI Exam FC 11-08
See Report # UT-12-1073

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

Examiner	Level	Signature	Date	Reviewer	Signature	Date
Griebel, David M.	II-N	<i>[Signature]</i>	11/11/2012	JAMES J. McARDLE III	<i>[Signature]</i>	11-13-12
Examiner	Level	Signature	Date	Site Review	Signature	Date
Dean, Steven	II-N	<i>[Signature]</i>	11/11/2012	N/A		
Other	Level	Signature	Date	ANII Review	Signature	Date
N/A	N/A			N/A		

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ATTACHMENT 4

DUKE POWER COMPANY

ISI LIMITATION REPORT

Component/Weld ID: 1-PDA1-1

Item No: 01.B9.11.0059

remarks:

☒ NO SCAN

SURFACE

BEAM DIRECTION

☐ LIMITED SCAN

☒ 1

☐ 2

☐ 1

☒ 2

☒ cw

☒ ccw

FROM L N/A to L N/A

INCHES FROM W0 CL to Beyond

ANGLE: ☐ 0 ☐ 45 ☒ 60

other 70

FROM 0 DEG to 360 DEG

Procedure allows scanning from

cast side only.

☐ NO SCAN

SURFACE

BEAM DIRECTION

☐ LIMITED SCAN

☐ 1

☐ 2

☐ 1

☐ 2

☐ cw

☐ ccw

FROM L _____ 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

UT-12-1078

Sketch(s) attached

☐ yes

☒ No

Prepared By: David Griebel

Level: II

Date: 11/11/12

Sheet 3 of 3

Reviewed By: JAMES J. McARDLE III

Date: 11-13-12

Authorized Inspector: N/A

Date:

37 of 44
ATTACHMENT A



UT Calibration/Lamination

Site/Unit: Oconee / 1
Summary No.: 01.B9.11.0059
Workscope: ISI

Procedure: PDI-UT-2
Procedure Rev.: E
Work Order No.: 1981506

Outage No.: 01-27
Report No.: UT-12-1073
Page: 1 of 7

Code: 1998/2000A Cat./Item: B-J /B9.11 Location: _____
Drawing No.: O-ISIN4-100A-1.1 Description: RC Pump 1A1 to Safe end
System ID: 50
Component ID: 1-PDA1-1 Size/Length: N/A Thickness/Diameter: SS/2.330/33.50
Limitations: Yes - See attached sheets Start Time: 1405 Finish Time: 1503

Instrument Settings
Serial No.: 014738
Manufacturer: KRAUTKRAMER
Model: USN-80 SW
Delay: 8.8388 Range: 8"
M'll Cal/Vel: .1238 Pulser: Square
Damping: 500 Reject: 0%
Rep. Rate: Autohigh Freq.: 2.25
Filter: Fixed Mode: PE
Voltage: 450 Other: Fullwave
Ax. Gain (dB): 31.0 Circ. Gain (dB): 31.0
1 Screen Div. = .8 in. of Sound Path
Linearity Report No.: L-12-228

Search Unit
Serial No.: SE0355
Manufacturer: GE
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

Cal. Checks	Time	Date
Initial Cal	1220	11/11/2012
Inter. Cal.		
Inter. Cal.	1405	11/12/2012
Inter. Cal.		
Final Cal	1515	11/11/2012

Couplant
Cal. Batch: 12125
Type: ULTRAGEL II
Mfg.: MAGNAFLUX
Exam Batch: 12125
Type: ULTRAGEL II
Mfg.: MAGNAFLUX

Axial Orientated Search Unit			
Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
ID Notch	80	5.5	4.45"

Circumferential Orientated Search Unit			
Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
See Axial			

Reference Block
Serial No.: 04-8740
Type: ROMPAS

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
16.0	1" Radius	80	1.25	1.0"

Calibration Block
Cal. Block No. 40397
Thickness 3.000 Dia.: Flat
Cal. Blk. Temp. 70 Temp. Tool: MCNDE40130
Comp. Temp. 73 Temp. Tool: MCNDE40130
Recordable Indication(s): Yes ☐ No ☒ (If Yes, Ref. Attached Ultrasonic Indication Report.)
Results: Accept ☐ Reject ☒ Info ☐

Upstream ☐ Downstream ☒ Scan dB: 50.0
CW ☒ CCW ☒ Scan dB: 50.0
Exam Surface: O.D.
Surface Condition: As Ground

Comments: Pulse Width: 220ns
Initial Section XI Exam

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

Examiner	Level	II-N	Signature	Date	Reviewer	Signature	Date
Dean, Steven				11/11/2012	JAMES J. McARDLE III		11-13-12
Examiner	Level	II-N	Signature	Date	Site Review		
Griebel, David M.				11/11/2012			
Other	Level	N/A	Signature	Date	NANCY RITCHIE-SLAUGHTER		11/15/12
N/A							

attachment A



UT Calibration/Lamination

Site/Unit: Oconee / 1
Summary No.: 01.B9.11.0059
Workscope: ISI

Procedure: PDI-UT-2
Procedure Rev.: E
Work Order No.: 1981596

Outage No.: 01-27
Report No.: UT-12-1073
Page: 2 of 7

Code: 1998/2000A Cat./Item: B-J /B9.11 Location: _____
Drawing No.: O-1SIN4-100A-1.1 Description: RC Pump 1A1 to Safe end
System ID: 50
Component ID: 1-PDA1-1 Size/Length: N/A Thickness/Diameter: SS/2.330/33.50
Limitations: Yes - See attached sheets Start Time: 1405 Finish Time: 1503

Instrument Settings
Serial No.: 014738
Manufacturer: KRAUTKRAMER
Model: USN-60 SW
Delay: 8.8319 Range: 10.00"
M'd Cal/Vel: .2010 Pulser: Square
Damping: 500 Reject: 0%
Rep. Rate: Autohigh Freq.: 2 MHz
Filter: Fixed Mode: Dual
Voltage: 450 Other: Fullwave
Ax. Gain (dB): 47.6 Circ. Gain (dB): N/A
1 Screen Div. = 1.0 in. of Sound Path
Linearity Report No.: L-12-228

Search Unit
Serial No.: 03-795
Manufacturer: RTD
Size: 2(20x34) 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

Cal. Checks	Time	Date
Initial Cal	1225	11/11/2012
Inter. Cal.		
Inter. Cal.	1435	11/11/2012
Inter. Cal.		
Final Cal	1520	11/11/2012

Couplant
Cal. Batch: 12125
Type: ULTRAGEL II
Mfg.: MAGNAFLUX
Exam Batch: 12125
Type: ULTRAGEL II
Mfg.: MAGNAFLUX

Axial Orientated Search Unit			
Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
3/4 T SDH	80	4.2	4.222"

Reference Block
Serial No.: 04-8740
Type: ROMPAS

Circumferential Orientated Search Unit			
Calibration Reflector	Signal Amplitude %	Sweep Division	Sound Path
N/A			

Reference/Simulator Block
Gain dB: 36.6 Reflector: 2" Radius Signal Amplitude %: 80 Sweep Division: 2.0 Sound Path: 2.00"

Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
36.6	2" Radius	80	2.0	2.00"

Calibration Block
Cal. Block No.: 40397
Thickness: 3.000 Dia.: Flat
Cal. Blk. Temp.: 70 Temp. Tool: MCNDE40130
Comp. Temp.: 73 Temp. Tool: MCNDE40130
Recordable Indication(s): Yes ☐ No ☒ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Scan Coverage
Upstream ☐ Downstream ☒ Scan dB: 65.0
CW ☐ CCW ☐ Scan dB: N/A
Exam Surface: O.D.
Surface Condition: As Ground

Results: Accept ☐ Reject ☒ Info ☐

Comments: Pulse Width: 250ns
Initial Section XI Exam

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

Examiner	Level	Signature	Date	Reviewer	Signature	Date
Dean, Steven	II-N		11/11/2012	JAMES J. McARDLE II		11-13-12
Examiner	Level	Signature	Date	Site Review	Signature	Date
Griebel, David M.	II-N		11/11/2012	N/A		
Other	Level	Signature	Date	ANII Review	Signature	Date
N/A	N/A			NANCY RITCHIE-SLAUGHTER		11/15/12

Attachment A



UT Calibration/Lamination

Site/Unit: Oconee / 1 Procedure: NDE-840 Outage No.: 01-27
Summary No.: 01.89.11.0059 Procedure Rev.: 5 Report No.: UT-12-1073
Workscope: ISI Work Order No.: 1981596 Page: 3 of 7

Code: 1998/2000A Cat./Item: B-J /B9.11 Location: _____
Drawing No.: O-1SIN4-100A-1.1 Description: RC Pump 1A1 to Safe end
System ID: 50
Component ID: 1-PDA1-1 Size/Length: N/A Thickness/Diameter: SS/2.330/33.50
Limitations: None Start Time: 1348 Finish Time: 1402

Instrument Settings
Serial No.: 014738
Manufacturer: KRAUTKRAMER
Model: USN-80 SW
Delay: 0.5487 Range: 5.0"
M'tl Cal/Vel: .2250 Pulsar: Square
Damping: 500 Reject: 0%
Rep. Rate: Autohigh Freq.: 2.25 MHz
Filter: Fixed Mode: PE
Voltage: 450 Other: Fullwave
Ax. Gain (dB): 24.5 Circ. Gain (dB): N/A
1 Screen Div. = .5 In. of Sound Path
Linearity Report No.: L-12-228

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: 0
Wedge Style: Integral

Search Unit Cable
Type: RG - 174
Length: 6" No. Conn.: 0

Cal. Checks	Time	Date
Initial Cal	1348	11/11/2012
Inter. Cal.		
Inter. Cal.		
Inter. Cal.		
Final Cal	1402	11/11/2012

Couplant
Cal. Batch: 12125
Type: ULTRAGEL II
Mfg.: MAGNAFLUX
Exam Batch: 12125
Type: ULTRAGEL II
Mfg.: MAGNAFLUX

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 Block
Serial No.: 04-8735
Type: ROMPAS

Reference/Simulator Block				
Gain dB	Reflector	Signal Amplitude %	Sweep Division	Sound Path
2.2	1" BW	80	2.0	1.00"

Calibration Block
Cal. Block No. Component
Thickness 2.330 Dia.: 33.500"
Cal. Blk. Temp. 73 Temp. Tool: MCNDE40130
Comp. Temp. 73 Temp. Tool: MCNDE40130
Recordable Indication(s): Yes ☐ No ☒ (If Yes, Ref. Attached Ultrasonic Indication Report.)

Upstream ☒ Downstream ☒ Scan dB: 28.0
CW ☒ CCW ☒ Scan dB: 28.0
Exam Surface: O.D.
Surface Condition: As Ground

Results: Accept ☒ Reject ☐ Info ☐

Comments: Initial Section XI Exam

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

Examiner	Level	II-N	Signature	Date	Reviewer	Signature	Date
Dean, Steven				11/11/2012	G.E. HOUSER		11-15-12
Examiner	Level	II-N	Signature	Date	SRe Review	Signature	Date
Griebel, David M.				11/11/2012	N/A		
Other	Level	N/A	Signature	Date	ANII Review	Signature	Date
N/A					NANCY RITCHIE-SLAUGHTER		11/15/12

Attachment A

DUKE POWER COMPANY

ISI LIMITATION REPORT

Component/Weld ID: <u>1-PDA1-1</u>		Item No: <u>01.B9.11.0059</u>		remarks:	
<input checked="" type="checkbox"/> NO SCAN <input type="checkbox"/> LIMITED SCAN		SURFACE <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2		BEAM DIRECTION <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw	
FROM L <u>N/A</u> to L <u>N/A</u>		INCHES FROM W0 <u>CL</u> to <u>Beyond</u>		Due to 1A1 RCP nozzle configuration.	
ANGLE: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 45 <input checked="" type="checkbox"/> 60 other _____		FROM <u>0</u> DEG to <u>360</u> DEG			
<input type="checkbox"/> NO SCAN <input type="checkbox"/> LIMITED SCAN		SURFACE <input type="checkbox"/> 1 <input type="checkbox"/> 2		BEAM DIRECTION <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw	
FROM L _____ to L _____		INCHES FROM W0 _____ to _____			
ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 other _____		FROM _____ DEG to _____ DEG			
<input type="checkbox"/> NO SCAN <input type="checkbox"/> LIMITED SCAN		SURFACE <input type="checkbox"/> 1 <input type="checkbox"/> 2		BEAM DIRECTION <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw	
FROM L _____ to L _____		INCHES FROM W0 _____ to _____			
ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 other _____		FROM _____ DEG to _____ DEG			
<input type="checkbox"/> NO SCAN <input type="checkbox"/> LIMITED SCAN		SURFACE <input type="checkbox"/> 1 <input type="checkbox"/> 2		BEAM DIRECTION <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw	
FROM L _____ to L _____		INCHES FROM W0 _____ to _____		UT-12-1073	
ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 other _____		FROM _____ DEG to _____ DEG		Sketch(s) attached	
				<input checked="" type="checkbox"/> yes <input type="checkbox"/> No	
Prepared By: <u>Steve Dean</u>		Level: <u>II</u>		Date: <u>11/11/12</u>	
Reviewed By: <u>JAMES J. McARDLE</u>		Date: <u>11-13-12</u>		Authorized Inspector: <u>NANCY FITCHIE-SLAUGHTER</u> Date: <u>11/13/12</u>	

Attachment A

RECEIVED

Page: 5 of 7

Examiner: Dean, Steven

Examiner: Griebel, David M.

Other: N/A

Level: 11-N

Level: 11-N

Level: N/A

Reviewer:**Site Review:**

ANII Review:

JAMES J. McADAMS, James J. McAdams

...

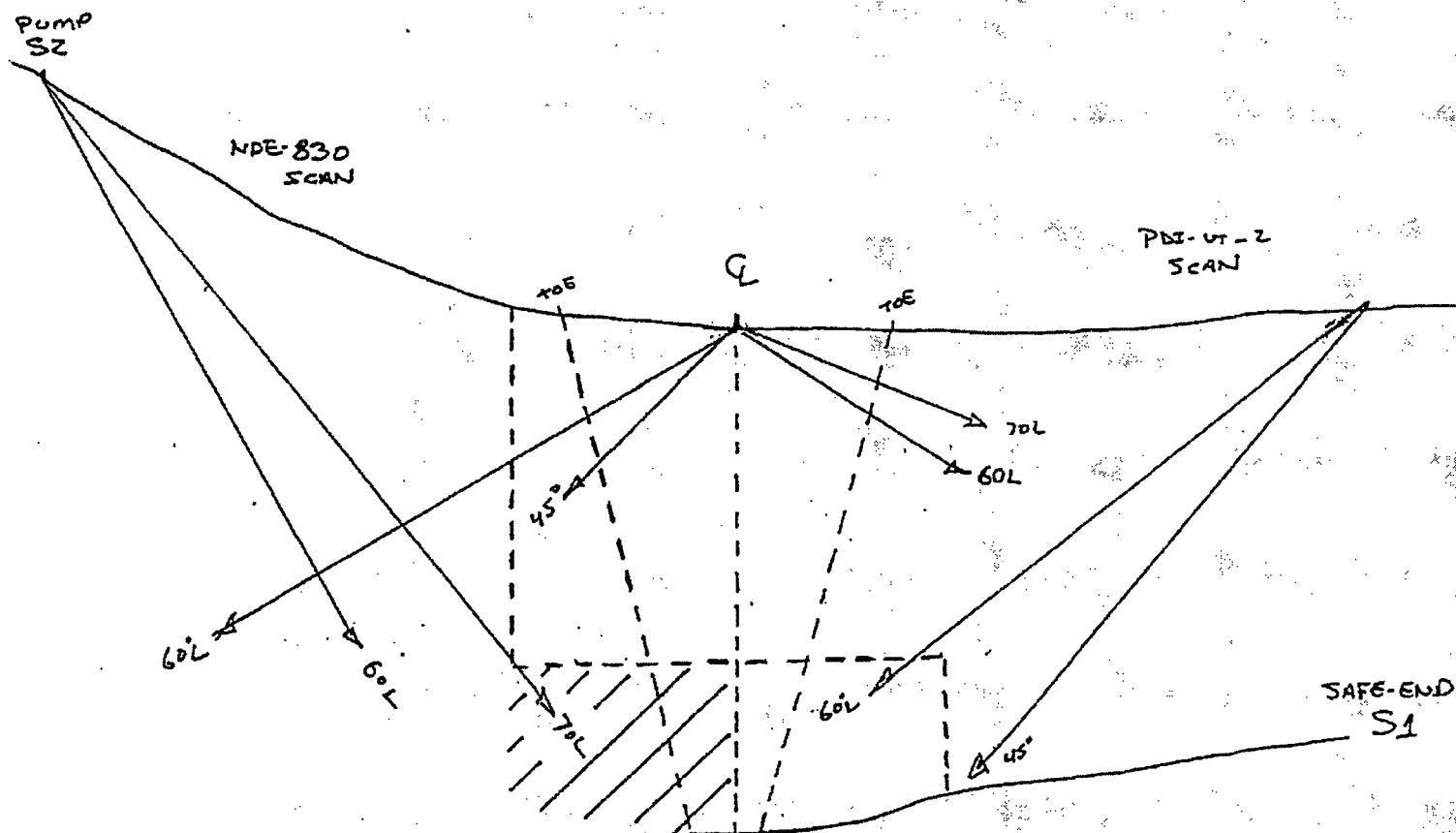
NANCY RITCHIE-SLAUGHTER

Date: 11-12-12

Date:

Date: 11/15/12

Sketch or Photo:



Attachment A



Supplemental Report

Report No.: UT-12-1073

Page: 6 of 7

Summary No.: O1.B9.11.0059

Examiner: Dean, Steven

Examiner: Griebel, David M.

Other: N/A

Level: II-N

Level: II-N

Level: N/A

Reviewer: JAMES J. MARDLE

Site Review: N/A

ANII Review: NANCY RITCHIE-SLAUGHTER

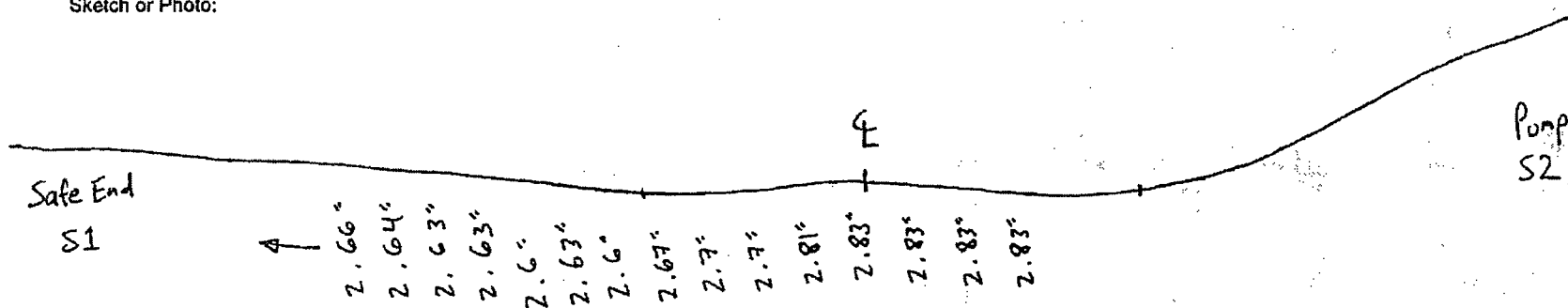
Date: 11-13-12

Date: 11-15-12

Date: 11-15-12

Comments: Profile of weld: 1-PDA1-1

Sketch or Photo:



Attachment A



Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit: Oconee / 1 Procedure: PDI-UT-2 Outage No.: 01-27
Summary No.: 01.B9.11.0059 Procedure Rev.: E Report No.: UT-12-1073
Workscope: ISI Work Order No.: 1981596 Page: 7 of 7

45 deg

Upstream	<u>100.000</u>	% Length X	<u>100.000</u>	% volume of length / 100 =	<u>100.000</u>	% total for Upstream
Downstream	<u>100.000</u>	% Length X	<u>0.000</u>	% volume of length / 100 =	<u>0.000</u>	% total for Downstream
CW	<u>100.000</u>	% Length X	<u>50.000</u>	% volume of length / 100 =	<u>50.000</u>	% total for CW
CCW	<u>100.000</u>	% Length X	<u>50.000</u>	% volume of length / 100 =	<u>50.000</u>	% total for CCW

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

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

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

Upstream	_____	% Length X	_____	% volume of length / 100 =	_____	% total for Upstream
Downstream	_____	% Length X	_____	% volume of length / 100 =	_____	% total for Downstream
CW	_____	% Length X	_____	% volume of length / 100 =	_____	% total for CW
CCW	_____	% Length X	_____	% volume of length / 100 =	_____	% total for CCW

Percent complete coverage

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

50.000 % Total for complete exam

Site Field Supervisor:

Steven Dean L-III

Date: 2/2/15