

DAVE BAXTER

Vice President Oconee Nuclear Station

**Duke Energy Corporation**ON01VP/7800 Rochester Highway
Seneca, SC 29672

864-885-4460 864-885-4208 fax dabaxter@dukeenergy.com

February 13, 2008

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

Subject:

Duke Power Company LLC d/b/a Duke Energy

Carolinas, LLC (Duke)

Oconee Nuclear Station, Unit 2

Docket Nos. 50-270

Third Ten Year Inservice Inspection Interval Request for Relief No. 04-ON-009, Revision 1

By letter dated September 13, 2004, Duke submitted Request for Relief 04-ON-009 seeking relief pursuant to 10 CFR 50.55a(g)(5)(iii), from the requirement to examine 100% of the volume specified by the ASME Boiler and Pressure Vessel Code, Section XI, 1989 Edition with no Addenda (as modified by Code Case N-460).

Subsequently, Duke recognized that a portion of the justification for the relief contained inaccurate wording relative to a method of detecting a leak should it develop at one of the subject welds. Duke communicated to the NRC an intent to submit a revised version of the relief to correct that issue.

Duke notes that this request applies to the third Inservice Inspection Interval for Oconee Unit 2, which terminated September 9, 2004. At this time, Duke is submitting the attached request, which is considered Revision 1 and replaces and supersedes the original request in its entirety. Duke requests NRC review and approval in order to close out the third interval documentation.

The relief would allow Duke Energy to take credit for ten (10) limited ultrasonic examinations on welds associated with various systems and components described in the request.

During examination of the subject Unit 2 welds, the ultrasonic examination coverage did not meet the 90% examination requirements of Code Case N-460. The obtainable volume coverage for each weld examination is indicated on the attached request. Achievement of greater examination coverage for these welds was impractical due to piping/valve geometry, interferences, and existing

A047

U. S. Nuclear Regulatory Commission February 13, 2008 Page 2

examination technology. Therefore, Duke Energy requests that the NRC grant relief as authorized under 10 CFR 50.55a(g)(6)(i).

If there are any questions or further information is needed you may contact Corey Gray at (864) 886-6325.

Very truly yours,

Dave Baxter

Site Vice President

Enclosure <sup>1</sup>

U. S. Nuclear Regulatory Commission February 13, 2008 Page 3

xc w/att:

Victor McCree

Region II Administrator (Acting) U.S. Nuclear Regulatory Commission Atlanta Federal Center

61 Forsyth St., SWW, Suite 23T85

Atlanta, GA 30303

L. N. Olshan, Project Manager, Section 1
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

# xc(w/o attch):

D. W. Rich Senior NRC Resident Inspector Oconee Nuclear Station

Susan E. Jenkins, Section Manager, Division of Waste Management Bureau of Land and Waste Management SC Dept. of Health & Environmental Control 2600 Bull St. Columbia, SC 29201 Relief Request 04-ON-009

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

**Inservice Inspection Impracticality** 

**Duke Energy Carolinas** 

Oconee Nuclear Station – Unit 2 (EOC-20)

Third 10-Year Interval – Inservice Inspection Plan

Interval Start Date= 12-16-1994 Interval End Date=9-9-2004

This Relief Request has ten welds for which relief is being sought.

The ID's and Item Numbers for the ten welds are as follows:

List Number	Weld ID	Item Number
1.	2-LDCB-INLET-V1	B03.150.003
2.	2-LDCB-OUTLET-V2	B03.150,004
3.	2HP-215-3	B09.011.017
4.	2-51A-17-124	C05.021.021
5.	2-51A-17-92	C05.021.022
6.	2-51A-17-125	C05.021.023
7.	2-51A-17-20A	C05.021.051
8.	2-51A-17-102	C05.021.054
9.	2HP-227-11	C05.021.056
10.	2-51A-31-50	C05.021.058

Attachment A contains a drawing for item numbers B03.150.003 and B03.150.004

Attachment B contains the inspection data for the 10 welds

Note: Items in this relief request were inspected during one of the following months: February, March, or April of 2004.

Letdown Cooler 2B High Pressure Injection System Inlet Nozzle to Channel Head Weld Weld ID = 2-LDCB-INLET-V1 Item Number/Summary Number = B03.150.003

# II. Applicable Code Edition and Addenda

ASME Section XI Code – 1989 Edition with no Addenda

# III. 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-J

# IV. <u>Impracticality of Compliance</u>

The Letdown Cooler Inlet Nozzle and Channel Head material is SA182 Grade T316L. This weld has a diameter of 3.0 inches and a wall thickness of .875 inches.

During the ultrasonic examination of the Inlet Nozzle to Channel Head weld, 29% coverage of the required examination volume was obtained for this weld. The percentage of coverage reported represents the aggregate coverage from all scans performed on the weld and adjacent base material. The coverage from each scan was as follows: 45° scan perpendicular and parallel to the weld covered 28%; 60° scan perpendicular and parallel to the weld covered, 29%. The weld joint geometry, which is essentially a branch connection arrangement using a set-on nozzle, prevented scanning from both sides of the weld. In order to scan all of the required surfaces for the inspection of these welds, the inlet nozzle would have to be redesigned to allow scanning from both sides of the weld, which is impractical. There were no recordable indications found during the inspection of this weld.

The Oconee Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage of examination volume A-B-C-D-E-F-G-H-I-J; therefore, the available coverage will not meet the acceptance criteria of this Code Case.

#### V. <u>Proposed Alternate Examinations or Testing</u>

Radiography as an alternative is not feasible because access is not available for film placement. No alternative examinations are planned for the weld during the current inspection interval.

No additional examinations were planned for the areas/welds during the third inspection interval. This request is for the duration of the third inservice inspection interval, which ended on September 9, 2004.

#### VII. Justification for Granting Relief

Ultrasonic examination of areas/welds for item number B03.150 were conducted using personnel, qualified in accordance with ASME Section XI, Appendix VII of the 1995 Edition with the 1996 Addenda. The ultrasonic procedures used complied with the requirements of ASME Section V, Article 4, 1989 Edition with no addenda.

Duke will use Class 1, Examination Category B-P, pressure testing and VT-2 visual examination to compliment the limited scan examinations. The Code requires that a pressure test be performed after each refueling outage for Class 1. These tests require a VT-2 visual examination for evidence of leakage. This testing provides adequate assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), there are other activities which provide a high level of confidence that, in the unlikely event that leakage did occur through this weld it would be detected and proper action taken. Specifically, system leak rate limitations imposed by Technical Specifications 3.4.13, "Reactor Coolant System Leakage," as well as reactor building normal sump rate monitoring, provide additional assurance that any leakage would be detected prior to gross failure of the component.

Letdown Cooler 2B High Pressure Injection System Outlet Nozzle to Channel Head Weld Weld ID = 2-LDCB-OUTLET-V2 Item Number/Summary Number = B03.150.004

# II. Applicable Code Edition and Addenda

ASME Section XI Code – 1989 Edition with no Addenda

#### III. 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-J

# IV. <u>Impracticality of Compliance</u>

The Letdown Cooler Outlet Nozzle and Channel Head material is SA182 Grade T316L. This weld has a diameter of 3.0 inches and a wall thickness of .875 inches.

During the ultrasonic examination of the Outlet Nozzle to Channel Head weld, 29 % coverage of the required examination volume was obtained. The percentage of coverage reported represents the aggregate coverage from all scans performed on the weld and adjacent base material. The coverage from each scan was as follows: 45° scan perpendicular and parallel to the weld covered 28%; 60° scan perpendicular and parallel to the weld covered 29%. The weld joint geometry, which is essentially a branch connection arrangement using a set-on nozzle, prevented scanning from both sides of the weld. In order to scan all of the required surfaces for the inspection of these welds, the outlet nozzle would have to be redesigned to allow scanning from both sides of the weld, which is impractical. There were no recordable indications found during the inspection of this weld.

The Oconee Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage of examination volume A-B-C-D-E-F-G-H-I-J; therefore, the available coverage will not meet the acceptance criteria of this Code Case.

#### V. Proposed Alternate Examinations or Testing

Radiography as an alternative is not feasible because access is not available for film placement. No alternative examinations are planned for the weld during the current inspection interval.

No additional examinations were planned for the areas/welds during the third inspection interval. This request is for the duration of the third inservice inspection interval, which ended on September 9, 2004.

# VII. Justification for Granting Relief

Ultrasonic examination of areas/welds for item number B03.150 were conducted using personnel, qualified in accordance with ASME Section XI, Appendix VII of the 1995 Edition with the 1996 Addenda. The ultrasonic procedures used complied with the requirements of ASME Section V, Article 4, 1989 Edition with no addenda.

Duke will use Class 1, Examination Category B-P, pressure testing and VT-2 visual examination to compliment the limited scan examinations. The Code requires that a pressure test be performed after each refueling outage for Class 1. These tests require a VT-2 visual examination for evidence of leakage. This testing provides adequate assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), there are other activities which provide a high level of confidence that, in the unlikely event that leakage did occur through this weld it would be detected and proper action taken. Specifically, system leak rate limitations imposed by Technical Specifications 3.4.13, "Reactor Coolant System Leakage," as well as reactor building normal sump rate monitoring, provide additional assurance that any leakage would be detected prior to gross failure of the component.

Class 1 Piping Weld High Pressure Injection System Tee to Reducer Weld Weld ID = 2HP-215-3 Item Number/Summary Number = B09.011.017

# II. Applicable Code Edition and Addenda

ASME Section XI Code – 1989 Edition with no Addenda

#### III. Applicable Code Requirement

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

#### IV. Impracticality of Compliance

The tee and reducer material is SA-403/WP304 or WP316 stainless steel. This weld has a diameter of 4.0 inches and a wall thickness of .531 inches.

During the ultrasonic examination of this weld, 88% coverage of the required examination volume was obtained. The percentage of coverage represents the aggregate coverage from all scans performed on the weld and adjacent base material. The 45° shear wave circumferential scans, both clockwise and counter-clockwise covered 100% of the examination volume and the 60° shear wave axial scan covered 77.7% from two directions. A supplemental 60° refracted longitudinal wave scan covered 100% of the examination volume in one axial direction from the reducer side. The limitation was 4 inches long on the tee side of the weld caused by the throat of the tee. In order to scan all of the required surfaces for the inspection of this weld, the tee would have to be redesigned to allow scanning from both sides of the weld, which is impractical. There were no recordable indications found during the inspection of this weld.

The Oconee Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage of examination volume C-D-E-F; therefore, the available coverage will not meet the acceptance criteria of this Code Case.

# V. Proposed Alternate Examinations or Testing

No additional examinations were planned for the areas/welds during the third inspection interval. This request is for the duration of the third inservice inspection interval, which ended on September 9, 2004.

#### VII. Justification for Granting Relief

Ultrasonic examination of area/weld for item number B09.011 was conducted using personnel, equipment and procedures qualified in accordance with ASME Section XI, Appendix VIII Supplement 2 of the 1995 Edition with the 1996 Addenda as administered by the Performance Demonstration Initiative (PDI). In addition to the volumetric examination with limited coverage, Duke performed a surface examination (code required) on the B09.011 item and achieved 100% coverage. The result of the surface examination was acceptable.

Duke does not claim credit for coverage of the far side of austenitic welds when access is limited to one side only. The characteristics of austenitic weld metal attenuate and distort the sound beam when shear waves pass through the weld. Refracted longitudinal waves provide better penetration but cannot be used beyond the first sound path leg. Duke uses a combination of shear waves and longitudinal waves to examine single sided austenitic welds when the nominal material thickness exceeds 0.5 inch. A 60° refracted longitudinal wave is used to interrogate the far side of the weld when the nominal material thickness is greater than 0.5 inch.

The procedures, personnel and equipment have been qualified through the PDI. However, although 60° longitudinal wave search units and 70° shear wave search units were used in the qualification and cracks were detected through the weld metal, PDI does not provide a qualification for single sided examination of similar metal austenitic piping welds.

Duke will use Class 1, Examination Category B-P, pressure testing and VT-2 visual examination to compliment the limited scan examinations. The Code requires that a pressure test be performed after each refueling outage for Class 1. These tests require a VT-2 visual examination for evidence of leakage. This testing provides adequate assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), there are other activities which provide a high level of confidence that, in the unlikely event that leakage did occur through this weld it would be detected and proper action taken. Specifically, system leak rate limitations imposed by Technical Specifications 3.4.13, "Reactor Coolant System Leakage," as well as reactor building normal sump rate monitoring, provide additional assurance that any leakage would be detected prior to gross failure of the component.

Class 2 Piping Weld High Pressure Injection System Pipe to Valve 2HP-118 Weld Weld ID = 2-51A-17-124 Item Number = C05.021.021

#### II. Applicable Code Edition and Addenda

ASME Section XI Code - 1989 Edition with no Addenda

# III. Applicable Code Requirement

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

# IV. <u>Impracticality of Compliance</u>

The pipe material is SA-376/TP304 or TP316 stainless steel and the valve material is A182/F316 stainless steel. This weld has a diameter of 4.0 inches and a wall thickness of .531 inches.

During the ultrasonic examination of this weld, 34.5% coverage of the required examination volume was obtained. The percentage of coverage represents the aggregate coverage from all scans performed on the weld and adjacent base material. The 45° shear wave circumferential scans, both clockwise and counter-clockwise covered 50% of the examination volume and the 60° shear wave axial scan covered 38.1%. A supplemental 60° refracted longitudinal wave scan covered 100% of the examination volume in one axial direction from the pipe side. Limitations were caused by the taper on the valve side of the weld which prevented scanning from that side. In order to scan all of the required surfaces for the inspection of this weld, the valve would have to be redesigned to allow scanning from both sides of the weld, which is impractical. There were no recordable indications found during the inspection of this weld.

The Oconee Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage of examination volume C-D-E-F; therefore, the available coverage will not meet the acceptance criteria of this Code Case.

#### V. Proposed Alternate Examinations or Testing

No additional examinations were planned for the areas/welds during the third inspection interval. This request is for the duration of the third inservice inspection interval, which ended on September 9, 2004.

#### VII. Justification for Granting Relief

Ultrasonic examination of areas/welds for the item numbers C05.021 were conducted using personnel, equipment and procedures qualified in accordance with ASME Section XI, Appendix VIII Supplement 2 of the 1995 Edition with the 1996 Addenda as administered by the PDI. In addition to the volumetric examinations with limited coverage, Duke performed a surface examination (code required) on each of the C05.021 items and achieved 100% coverage. The results from the surface examinations were acceptable.

In addition to the C05.021 welds that relief is being requested for limited scanning, there were 11 additional C05.021 welds that surface and volumetric examinations were performed on. The examinations didn't identify any recordable indications and 100% coverage was obtained on each of the 11 welds. The 11 additional welds were from the same system as the C05.021 welds of this request.

Duke does not claim credit for coverage of the far side of austenitic welds. The characteristics of austenitic weld metal attenuate and distort the sound beam when shear waves pass through the weld. Refracted longitudinal waves provide better penetration but cannot be used beyond the first path leg. Duke uses a combination of shear waves and longitudinal waves to examine single sided austenitic welds when the nominal material thickness exceeds 0.5 inch. A 70° shear wave angle beam is used to interrogate the far side of the weld when the nominal material thickness is equal to or less than 0.5 inch and a 60° refracted longitudinal wave is used to interrogate the far side of the weld when the nominal material thickness is greater than 0.5 inch.

Duke will use Class 2, Examination Category C-H, pressure testing and VT-2 visual examination to compliment the limited examination coverage. The Code requires that a pressure test be performed once each period for Class 2 items. These tests require a VT-2 visual examination for evidence of leakage. This testing provides adequate assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), there are other activities which provide a high level of confidence that, in the unlikely event that leakage did occur through this weld it would be detected and proper action taken. Specifically, system leak rate limitations imposed by Technical Specifications 3.4.13, "Reactor Coolant System Leakage," as well as visual observations performed during operator rounds, provide additional assurance that any leakage would be detected prior to gross failure of the component.

Class 2 Piping Weld High Pressure Injection System Valve 2HP-115 to Tee Weld Weld ID = 2-51A-17-92 Item Number = C05.021.022

#### II. Applicable Code Edition and Addenda

ASME Section XI Code - 1989 Edition with no Addenda

# III. Applicable Code Requirement

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

# IV. Impracticality of Compliance

The valve material is A182/F316 stainless steel and the tee material is SA-403/WP304 or WP316 stainless steel. This weld has a diameter of 4.0 inches and a wall thickness of .687 inches.

During the ultrasonic examination of this weld, 37.5% coverage of the required examination volume was obtained. The percentage of coverage represents the aggregate coverage from all scans performed on the weld and adjacent base material. The 45° shear wave circumferential and tangential scans, both clockwise and counter-clockwise covered 50% of the examination volume and the 60° shear wave axial scan covered 50% of the examination volume from the tee side. A supplemental 60° refracted longitudinal wave scan covered 18.89% of the examination volume in one axial direction from the tee side. The limitation was caused by the taper on the valve side of the weld which prevented scanning from that side. In order to scan all of the required surfaces for the inspection of this weld, the valve would have to be redesigned to allow scanning from both sides of the weld, which is impractical. There were no recordable indications found during the inspection of this weld.

The Oconee Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage of examination volume C-D-E-F; therefore, the available coverage will not meet the acceptance criteria of this Code Case.

# V. Proposed Alternate Examinations or Testing

No additional examinations were planned for the areas/welds during the third inspection interval. This request is for the duration of the third inservice inspection interval, which ended on September 9, 2004.

# VII. Justification for Granting Relief

Ultrasonic examination of areas/welds for the item numbers C05.021 were conducted using personnel, equipment and procedures qualified in accordance with ASME Section XI, Appendix VIII Supplement 2 of the 1995 Edition with the 1996 Addenda as administered by the PDI. In addition to the volumetric examinations with limited coverage, Duke performed a surface examination (code required) on each of the C05.021 items and achieved 100% coverage. The results from the surface examinations were acceptable.

In addition to the C05.021 welds that relief is being requested for limited scanning, there were 11 additional C05.021 welds that surface and volumetric examinations were performed on. The examinations didn't identify any recordable indications and 100% coverage was obtained on each of the 11 welds. The 11 additional welds were from the same system as the C05.021 welds of this request.

Duke does not claim credit for coverage of the far side of austenitic welds. The characteristics of austenitic weld metal attenuate and distort the sound beam when shear waves pass through the weld. Refracted longitudinal waves provide better penetration but cannot be used beyond the first path leg. Duke uses a combination of shear waves and longitudinal waves to examine single sided austenitic welds when the nominal material thickness exceeds 0.5 inch. A 70° shear wave angle beam is used to interrogate the far side of the weld when the nominal material thickness is equal to or less than 0.5 inch and a 60° refracted longitudinal wave is used to interrogate the far side of the weld when the nominal material thickness is greater than 0.5 inch.

Duke will use Class 2, Examination Category C-H, pressure testing and VŢ-2 visual examination to compliment the limited examination coverage. The Code requires that a pressure test be performed once each period for Class 2 items. These tests require a VT-2 visual examination for evidence of leakage. This testing provides adequate assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), there are other activities which provide a high level of confidence that, in the unlikely event that leakage did occur through this weld it would be detected and proper action taken. Specifically, system leak rate limitations imposed by Technical Specifications 3.4.13, "Reactor Coolant System Leakage," as well as visual observations performed during operator rounds, provide additional assurance that any leakage would be detected prior to gross failure of the component.

Class 2 Piping Weld High Pressure Injection System Valve 2HP-118 to Elbow Weld Weld ID = 2-51A-17-125 Item Number = C05.021.023

#### II. Applicable Code Edition and Addenda

ASME Section XI Code – 1989 Edition with no Addenda

# III. Applicable Code Requirement

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

#### IV. <u>Impracticality of Compliance</u>

The valve material is A182/F316 stainless steel and the elbow material is SA-403/WP304 or WP316 stainless steel. This weld has a diameter of 4.0 inches and a wall thickness of .531 inches.

During the ultrasonic examination of this weld, 34.5% coverage of the required examination volume was obtained. The percentage of coverage represents the aggregate coverage from all scans performed on the weld and adjacent base material. The 45° shear wave circumferential scans, both clockwise and counter-clockwise covered 50% of the examination volume and the 60° shear wave axial scan covered 38.1% of the examination volume from the elbow side. A supplemental 60° refracted longitudinal wave scan covered 100% of the examination volume in one axial direction from the elbow side. The limitation was caused by the taper on the valve side of the weld which prevented scanning from that side. In order to scan all of the required surfaces for the inspection of this weld, which is impractical. There were no recordable indications found during the inspection of this weld.

The Oconee Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage of examination volume C-D-E-F; therefore, the available coverage will not meet the acceptance criteria of this Code Case.

# V. <u>Proposed Alternate Examinations or Testing</u>

No additional examinations were planned for the areas/welds during the third inspection interval. This request is for the duration of the third inservice inspection interval, which ended on September 9, 2004.

#### VII. Justification for Granting Relief

Ultrasonic examination of areas/welds for the item numbers C05.021 were conducted using personnel, equipment and procedures qualified in accordance with ASME Section XI, Appendix VIII Supplement 2 of the 1995 Edition with the 1996 Addenda as administered by the PDI. In addition to the volumetric examinations with limited coverage, Duke performed a surface examination (code required) on each of the C05.021 items and achieved 100% coverage. The results from the surface examinations were acceptable.

In addition to the C05.021 welds that relief is being requested for limited scanning, there were 11 additional C05.021 welds that surface and volumetric examinations were performed on. The examinations didn't identify any recordable indications and 100% coverage was obtained on each of the 11 welds. The 11 additional welds were from the same system as the C05.021 welds of this request.

Duke does not claim credit for coverage of the far side of austenitic welds. The characteristics of austenitic weld metal attenuate and distort the sound beam when shear waves pass through the weld. Refracted longitudinal waves provide better penetration but cannot be used beyond the first path leg. Duke uses a combination of shear waves and longitudinal waves to examine single sided austenitic welds when the nominal material thickness exceeds 0.5 inch. A 70° shear wave angle beam is used to interrogate the far side of the weld when the nominal material thickness is equal to or less than 0.5 inch and a 60° refracted longitudinal wave is used to interrogate the far side of the weld when the nominal material thickness is greater than 0.5 inch.

Duke will use Class 2, Examination Category C-H, pressure testing and VT-2 visual examination to compliment the limited examination coverage. The Code requires that a pressure test be performed once each period for Class 2 items. These tests require a VT-2 visual examination for evidence of leakage. This testing provides adequate assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), there are other activities which provide a high level of confidence that, in the unlikely event that leakage did occur through this weld it would be detected and proper action taken. Specifically, system leak rate limitations imposed by Technical Specifications 3.4.13, "Reactor Coolant System Leakage," as well as visual observations performed during operator rounds, provide additional assurance that any leakage would be detected prior to gross failure of the component.

Class 2 Piping Weld High Pressure Injection System Pipe to Valve 2LP-56 Weld Weld ID = 2-51A-17-20A Item Number = C05.021.051

# II. Applicable Code Edition and Addenda

ASME Section XI Code – 1989 Edition with no Addenda

# III. Applicable Code Requirement

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

#### IV. <u>Impracticality of Compliance</u>

The valve material is A182/F316 stainless steel and the pipe material is SA-312/TP304 stainless steel. This weld has a diameter of 3.0 inches and a wall thickness of .216 inches.

During the ultrasonic examination of this weld, 35.2% coverage of the required examination volume was obtained. The percentage of coverage represents the aggregate coverage from all scans performed on the weld and adjacent base material. The 45° shear wave circumferential scans, both clockwise and counter-clockwise covered 50% of the examination volume and the 60° shear wave axial scan covered 40.6%. A supplemental 70° shear wave scan covered 100% of the examination volume in one axial direction from the pipe side. The limitation was caused by the taper on the valve side of the weld which prevented scanning from that side. In order to scan all of the required surfaces for the inspection of this weld, the valve would have to be redesigned to allow scanning from both sides of the weld, which is impractical. There were no recordable indications found during the inspection of this weld.

The Oconee Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage of examination volume C-D-E-F; therefore, the available coverage will not meet the acceptance criteria of this Code Case.

# V. Proposed Alternate Examinations or Testing

No additional examinations were planned for the areas/welds during the third inspection interval. This request is for the duration of the third inservice inspection interval, which ended on September 9, 2004.

#### VII. Justification for Granting Relief

Ultrasonic examination of areas/welds for the item numbers C05.021 were conducted using personnel, equipment and procedures qualified in accordance with ASME Section XI, Appendix VIII Supplement 2 of the 1995 Edition with the 1996 Addenda as administered by the PDI. In addition to the volumetric examinations with limited coverage, Duke performed a surface examination (code required) on each of the C05.021 items and achieved 100% coverage. The results from the surface examinations were acceptable.

In addition to the C05.021 welds that relief is being requested for limited scanning, there were 11 additional C05.021 welds that surface and volumetric examinations were performed on. The examinations didn't identify any recordable indications and 100% coverage was obtained on each of the 11 welds. The 11 additional welds were from the same system as the C05.021 welds of this request.

Duke does not claim credit for coverage of the far side of austenitic welds. The characteristics of austenitic weld metal attenuate and distort the sound beam when shear waves pass through the weld. Refracted longitudinal waves provide better penetration but cannot be used beyond the first path leg. Duke uses a combination of shear waves and longitudinal waves to examine single sided austenitic welds when the nominal material thickness exceeds 0.5 inch. A 70° shear wave angle beam is used to interrogate the far side of the weld when the nominal material thickness is equal to or less than 0.5 inch and a 60° refracted longitudinal wave is used to interrogate the far side of the weld when the nominal material thickness is greater than 0.5 inch.

Duke will use Class 2, Examination Category C-H, pressure testing and VT-2 visual examination to compliment the limited examination coverage. The Code requires that a pressure test be performed once each period for Class 2 items. These tests require a VT-2 visual examination for evidence of leakage. This testing provides adequate assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), there are other activities which provide a high level of confidence that, in the unlikely event that leakage did occur through this weld it would be detected and proper action taken. Specifically, system leak rate limitations imposed by Technical Specifications 3.4.13, "Reactor Coolant System Leakage," as well as visual observations performed during operator rounds, provide additional assurance that any leakage would be detected prior to gross failure of the component.

Class 2 Piping Weld High Pressure Injection System Tee to Pipe Weld Weld ID = 2-51A-17-102 Item Number = C05.021.054

# II. Applicable Code Edition and Addenda

ASME Section XI Code – 1989 Edition with no Addenda

# III. Applicable Code Requirement

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

# IV. <u>Impracticality of Compliance</u>

The tee material is SA-403/WP304 or WP316 and the pipe material is SA-376/TP304 or TP316 stainless steel. This weld has a diameter of 3.0 inches and a wall thickness of .438 inches.

During the ultrasonic examination of this weld, 86.1% coverage of the required examination volume was obtained. The percentage of coverage represents the aggregate coverage from all scans performed on the weld and adjacent base material. The 45° shear wave circumferential scans, both clockwise and counter-clockwise covered 100% of the examination volume and the 60° axial scan covered 72.1%. A supplemental 70° shear wave scan covered 100% of the examination volume in one axial direction from the pipe side. The limitation was 4 inches long on the tee side of the weld caused by the throat of the tee. In order to scan all of the required surfaces for the inspection of this weld, the tee would have to be redesigned to allow scanning from both sides of the weld, which is impractical. There were no recordable indications found during the inspection of this weld.

The Oconee Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage of examination volume C-D-E-F; therefore, the available coverage will not meet the acceptance criteria of this Code Case.

#### V. Proposed Alternate Examinations or Testing

No additional examinations were planned for the areas/welds during the third inspection interval. This request is for the duration of the third inservice inspection interval, which ended on September 9, 2004.

# VII. Justification for Granting Relief

Ultrasonic examination of areas/welds for the item numbers C05.021 were conducted using personnel, equipment and procedures qualified in accordance with ASME Section XI, Appendix VIII Supplement 2 of the 1995 Edition with the 1996 Addenda as administered by the PDI. In addition to the volumetric examinations with limited coverage, Duke performed a surface examination (code required) on each of the C05.021 items and achieved 100% coverage. The results from the surface examinations were acceptable.

In addition to the C05.021 welds that relief is being requested for limited scanning, there were 11 additional C05.021 welds that surface and volumetric examinations were performed on. The examinations didn't identify any recordable indications and 100% coverage was obtained on each of the 11 welds. The 11 additional welds were from the same system as the C05.021 welds of this request.

Duke does not claim credit for coverage of the far side of austenitic welds. The characteristics of austenitic weld metal attenuate and distort the sound beam when shear waves pass through the weld. Refracted longitudinal waves provide better penetration but cannot be used beyond the first path leg. Duke uses a combination of shear waves and longitudinal waves to examine single sided austenitic welds when the nominal material thickness exceeds 0.5 inch. A 70° shear wave angle beam is used to interrogate the far side of the weld when the nominal material thickness is equal to or less than 0.5 inch and a 60° refracted longitudinal wave is used to interrogate the far side of the weld when the nominal material thickness is greater than 0.5 inch.

Duke will use Class 2, Examination Category C-H, pressure testing and VT-2 visual examination to compliment the limited examination coverage. The Code requires that a pressure test be performed once each period for Class 2 items. These tests require a VT-2 visual examination for evidence of leakage. This testing provides adequate assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), there are other activities which provide a high level of confidence that, in the unlikely event that leakage did occur through this weld it would be detected and proper action taken. Specifically, system leak rate limitations imposed by Technical Specifications 3.4.13, "Reactor Coolant System Leakage," as well as visual observations performed during operator rounds, provide additional assurance that any leakage would be detected prior to gross failure of the component.

Class 2 Piping Weld High Pressure Injection System Elbow to Valve 2HP-114 Weld ID = 2HP-227-11 Item Number = C05.021.056

#### II. Applicable Code Edition and Addenda

ASME Section XI Code - 1989 Edition with no Addenda

# III. Applicable Code Requirement

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

# IV. <u>Impracticality of Compliance</u>

The valve material is A182/F316 stainless steel and the elbow material is SA-403/WP304 or WP316 stainless steel. This weld has a diameter of 3.0 inches and a wall thickness of .438 inches.

During the ultrasonic examination of this weld, 35.7% coverage of the required examination volume was obtained. The percentage of coverage represents the aggregate coverage from all scans performed on the weld and adjacent base material. The 45° circumferential scans, both clockwise and counter-clockwise covered 50% of the examination volume and the 60 scan covered 42.9%. A supplemental 70° shear wave scan covered 100% of the examination volume in one axial direction from the elbow side. The limitation was caused by the taper on the valve side of the weld which prevented scanning on that side. In order to scan all of the required surfaces for the inspection of this weld, the valve would have to be redesigned to allow scanning from both sides of the weld, which is impractical. There were no recordable indications found during the inspection of this weld.

The Oconee Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage of examination volume C-D-E-F; therefore, the available coverage will not meet the acceptance criteria of this Code Case.

# V. <u>Proposed Alternate Examinations or Testing</u>

No additional examinations were planned for the areas/welds during the third inspection interval. This request is for the duration of the third inservice inspection interval, which ended on September 9, 2004.

# VII. Justification for Granting Relief

Ultrasonic examination of areas/welds for the item numbers C05.021 were conducted using personnel, equipment and procedures qualified in accordance with ASME Section XI, Appendix VIII Supplement 2 of the 1995 Edition with the 1996 Addenda as administered by the PDI. In addition to the volumetric examinations with limited coverage, Duke performed a surface examination (code required) on each of the C05.021 items and achieved 100% coverage. The results from the surface examinations were acceptable.

In addition to the C05.021 welds that relief is being requested for limited scanning, there were 11 additional C05.021 welds that surface and volumetric examinations were performed on. The examinations didn't identify any recordable indications and 100% coverage was obtained on each of the 11 welds. The 11 additional welds were from the same system as the C05.021 welds of this request.

Duke does not claim credit for coverage of the far side of austenitic welds. The characteristics of austenitic weld metal attenuate and distort the sound beam when shear waves pass through the weld. Refracted longitudinal waves provide better penetration but cannot be used beyond the first path leg. Duke uses a combination of shear waves and longitudinal waves to examine single sided austenitic welds when the nominal material thickness exceeds 0.5 inch. A 70° shear wave angle beam is used to interrogate the far side of the weld when the nominal material thickness is equal to or less than 0.5 inch and a 60° refracted longitudinal wave is used to interrogate the far side of the weld when the nominal material thickness is greater than 0.5 inch.

Duke will use Class 2, Examination Category C-H, pressure testing and VT-2 visual examination to compliment the limited examination coverage. The Code requires that a pressure test be performed once each period for Class 2 items. These tests require a VT-2 visual examination for evidence of leakage. This testing provides adequate assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), there are other activities which provide a high level of confidence that, in the unlikely event that leakage did occur through this weld it would be detected and proper action taken. Specifically, system leak rate limitations imposed by Technical Specifications 3.4.13, "Reactor Coolant System Leakage," as well as visual observations performed during operator rounds, provide additional assurance that any leakage would be detected prior to gross failure of the component.

Class 2 Piping Weld High Pressure Injection System Pipe to Valve 2HP-20 Weld ID = 2-51A-31-50 Item Number = C05.021.058

# II. Applicable Code Edition and Addenda

ASME Section XI Code – 1989 Edition with no Addenda

#### III. Applicable Code Requirement

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

#### IV. <u>Impracticality of Compliance</u>

The valve material is SA479/TP316 stainless steel and the pipe material is SA-376/TP304 stainless steel.. This weld has a diameter of 3.0 inches and a wall thickness of .438 inches.

During the ultrasonic examination of this weld, 59% coverage of the required examination volume was obtained. The percentage of coverage represents the aggregate coverage from all scans performed on the weld and adjacent base material. The 45° shear wave circumferential scans, both clockwise and counter-clockwise covered 50% of the examination volume and the 60° shear wave axial scan covered 36%. A supplemental 70° shear wave scan covered 100% of the examination volume in one axial direction from the pipe side. The limitation was caused by the taper on the valve side of the weld which prevented scanning from that side. In order to scan all of the required surfaces for the inspection of this weld, the valve would have to be redesigned to allow scanning from both sides of the weld, which is impractical. There were no recordable indications found during the inspection of this weld.

The Oconee Inservice Inspection Plan allows the use of Code Case N-460, which requires greater than 90% volumetric coverage of examination volume C-D-E-F; therefore, the available coverage will not meet the acceptance criteria of this Code Case.

#### V. Proposed Alternate Examinations or Testing

No additional examinations were planned for the areas/welds during the third inspection interval. This request is for the duration of the third inservice inspection interval, which ended on September 9, 2004.

# VII. Justification for Granting Relief

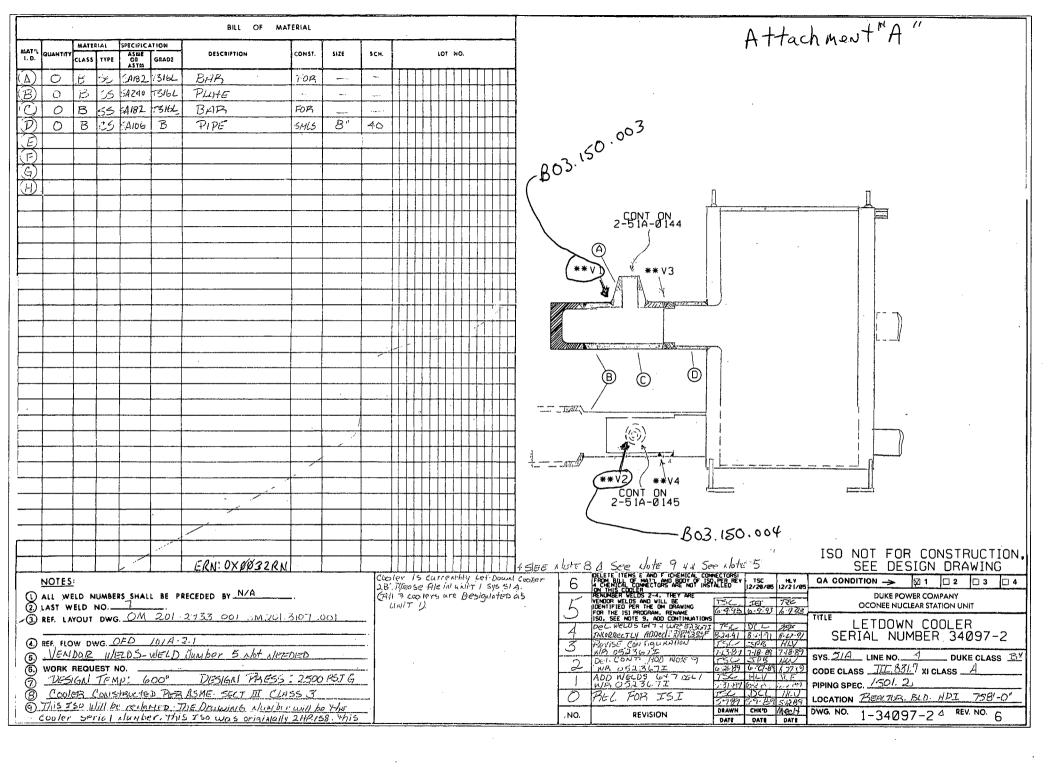
Ultrasonic examination of areas/welds for the item numbers C05.021 were conducted using personnel, equipment and procedures qualified in accordance with ASME Section XI, Appendix VIII Supplement 2 of the 1995 Edition with the 1996 Addenda as administered by the PDI. In addition to the volumetric examinations with limited coverage, Duke performed a surface examination (code required) on each of the C05.021 items and achieved 100% coverage. The results from the surface examinations were acceptable.

In addition to the C05.021 welds that relief is being requested for limited scanning, there were 11 additional C05.021 welds that surface and volumetric examinations were performed on. The examinations didn't identify any recordable indications and 100% coverage was obtained on each of the 11 welds. The 11 additional welds were from the same system as the C05.021 welds of this request.

Duke does not claim credit for coverage of the far side of austenitic welds. The characteristics of austenitic weld metal attenuate and distort the sound beam when shear waves pass through the weld. Refracted longitudinal waves provide better penetration but cannot be used beyond the first path leg. Duke uses a combination of shear waves and longitudinal waves to examine single sided austenitic welds when the nominal material thickness exceeds 0.5 inch. A 70° shear wave angle beam is used to interrogate the far side of the weld when the nominal material thickness is equal to or less than 0.5 inch and a 60° refracted longitudinal wave is used to interrogate the far side of the weld when the nominal material thickness is greater than 0.5 inch.

Duke will use Class 2, Examination Category C-H, pressure testing and VT-2 visual examination to compliment the limited examination coverage. The Code requires that a pressure test be performed once each period for Class 2 items. These tests require a VT-2 visual examination for evidence of leakage. This testing provides adequate assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric and pressure test), there are other activities which provide a high level of confidence that, in the unlikely event that leakage did occur through this weld it would be detected and proper action taken. Specifically, system leak rate limitations imposed by Technical Specifications 3.4.13, "Reactor Coolant System Leakage," as well as reactor building normal sump rate monitoring, provide additional assurance that any leakage would be detected prior to gross failure of the component.



# REQUEST RELIEF 04-ON-009

# ATTACHMENT B

# **Total Number of Pages = 75**

Page Numbers	Weld ID	Item Number			
1 thru 16	2-LDCB-INLET-V1	B03.150.0003			
17 thru 32	2-LDCB-OUTLET-V2	B03.150.0004			
33 thru 37	2HP-215-3	B09.011.017			
38 thru 42	2-51A-17-124	C05.021.021			
43 thru 49	2-51A-17-92	C05.021.022			
50 thru 54	2-51A-17-125	C05.021.023			
55 thru 59	2-51A-17-20A	C05.021.051			
60 thru 64	2-51A-17-102	C05.021.054			
65 thru 69	2HP-227-11	C05.021.056			
70 thru 75	2-51A-31-50	C05.021.058			



# **UT Vessel Examination**

. S	Site/Unit:	Ocone	e /	2				Procedure:	NDE-	330		Outage No.:	ONS2EOC	:20
Summary No.: Workscope:		B03.150.003 ISI				Procedure Re		2 98603899		Report No.: UT-04-152				
					Work Order No.		Order No.:			Page: 1 of 2			2	
Code;	Asn	Asme Section XI 1989			Cat./ltem	n: B-D-/B3	3.150.3	Locatio	Location:			N/A		
Drawing No!:		1-34097-2				Description:	Nozzle to 0	Channel Body						
System ID:	System ID: 51A													
Component ID: B03.150.003 /2-LDCB-INLET-V1								Size/Length	n: N/A	Th	ickness/Diamete	r: 0.875''	/3.0''	
Limitations:	Yes-S	ee attac	hed limi	tation re	eport.				<del></del>	Start Time:	0854	Finish Time	9: 095	10
Examination S	urface:	Insi	de 🗌	Ot	utside 🔽	]	Surface Co	ndition: AS	GROUND					
Lo Location:		9.2	2.2		_ Wo i	_ocation:	Centerline o	f Weld	Couplant:	ULTRAC	SEL II	Batch No.: _	0312	25
Temp. Tool M	fg.:	FI	SHER		_ s	erial No.:	MCNDE32	768	Surface Temp	59	°F .			
Cal. Report No	o.:				CAL	-04-242, 0	CAL-04-243, CAL-04	1-244, CAL-0	4-245	·				
Angle Used	0	45	45T	60 <b>R</b> L	60T	45RL								
Scanning dB		40.5	40.5	63.5		66.5								
Indication(s):	Yes [	] No					Scan Coverage: 1	Jpstream 🗹	Downstream[	_ cw.	CCW	V		
Comments:														
FC 99-02, 03-	17, 03-30	)					1		•					
Results:	Acce	ept 🗸	Reje	ect 🗌	Inf	o 🗌	Scanning db's I	ess than ref	.+14 to abtain 2	:1 signal to n	oise ratio.			
Percent Of Cov	verage O	btained >	> 90%:	N	o - 29.26	3%	Reviewed Previo	ous Data:	Yes					
Examiner L	evel III			0 5	Signature	<u>,</u>	Date	Reviewer		<u></u>	Signa	ture		Date
Zimmerman, D			ا م	Jaril	23	<del></del> -	4/5/2004		EATON		HV-	$\geq$	4 0	<del></del>
Examiner L Mauldin, Larry	evel    E.	L	[] [[]]	2 5	Signature	,	Date <b>4/5/2004</b>	1	,		Signa	ture		¹ Date
	evel	—— <i>ý∕</i> — \l			Signature		Date	ANII Review	oney CRit	tu Slan	Signa	ture 4//	12/04	Date
<del></del>								1	<del>- ()</del>				<del></del>	



# Determination of Percent Coverage for UT Examinations - Vessels

Si	te/Unit: Oco	nee /	2	Proce	dure:	NDE-630	Outage N	lo.: ONS2EOC20
Summary No.: <b>B03.150.003</b>			)3	Procedure	Rev::	2	Report N	No.: UT-04-152
Workscope:		ISI		Work Orde	r No.:	98603899	Pa	ge: 2 of 2
,	0 deg Plana	<u>r</u> `						
	Scan _		% Length X		% volún	ne of length / 100 =		% total for 0 deg
						1		
	45 deg	. •				•		•
	Scan 1	100.000	% Length X	35.900	% volur	ne of length / 100 =	35.900	% total for Scan 1
	Scan 2	100.000	% Length X	15.600	% volur	me of length / 100 =	15.600	% total for Scan 2
	Scan 3, _	100.000	% Length X	31.400	% volur	me of length / 100 =	31.400	% total for Scan 3
-	Scan 4	100.000	% Length X	31.400	% voluı	me of length / 100 =	31.400	% total for Scan 4
	Add tota	als and divid	e by # scans =	28.575	% total fo	or 45 deg		
	Other deg	60	<del>-</del>					
	0 4		a			(1) (1)		
	Scan 1	100.000	% Length X	46.600	% volu	me of length / 100 =	46.600	% total for Scan 1
	Scan 2	100.000	% Length X _	10.400	% volu	me of length / 100 =	10.400	% total for Scan 2
	Scan 3	100.000	% Length X _	31.400	% volu	me of length / 100 =	31.400	% total for Scan 3
	Scan 4	100.000	% Length X	31.400	% volu	me of length / 100 =	31.400	% total for Scan 4
	Add tot	als and divid	le by # scans =	29.950	% total f	or <u>60</u> deg		
		mplete cove	<del>_</del>					
		_	and scan require	d and divide I	by # of ang	les to determine;		
	Note:		•			•		
;		ith angles as				methods. When used to the total to provi		e for volume not total for the complete
	Site Field S	Supervisor:	David	lk3	92	D'ate: <u>ம</u>	1/05/04	

4/9/04

Di	UKE POWI	ER COMPANY		
	ISI LIMITAT	TION REPORT		
Component/Weld ID: 2-LDCB-II	VLET-V1 Ite	em No: B03.150.003		remarks:
⊠ NO SCAN	SURFACE	BEAM DIRECTION		Due to branch connection
☐ LIMITED SCAN	□ 1   ⋈ 2	□ 2	ccw	configuration.
FROM L N/A to L N/A	INCH	ES FROM <b>W0</b> 5" to _Beyo	ond_	
ANGLE: □ 0 ⋈ 45 ⋈ 60	other	FROM 0 DEG to 360	DEG	·
☐ NO SCAN	SURFACE	BEAM DIRECTION		
☐ LIMITED SCAN	☐ 1 ☐ 2	1 2 cw	ccw	
FROM L to L	INCHI	ES FROM <b>W0</b> 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	INCHE	ES FROM W0 to		·
ANGLE: 0 0 45 0 60	other	FROM DEG to	DEG	
☐ NO SCAN	SURFACE	BEAM DIRECTION		
☐ LIMITED SCAN	☐ 1 ☐ 2	_ 1 _ 2 _ cw _	ccw	
FROM L to L	INCHE	S FROM W0 to		Sketch(s) attached
ANGLE: 0 0 45 060				⊠ yes □ No
Prepared By: Larry Mauldin	// // Level:	u Date: 4/05/04	Chast	7/1 - 10/11
Reviewed By:	Date:	Authorized Inspector: Children	Slauker	7/12/04 24/5/24
		1 1	سهیب ۸	MCUMENT TO UT-04-+37-96

ke Energy.

Report No.: <u>UT-04-157</u>

Attachment Pages 2 of 14

Summary No Examine Examine	r: David	.150.00			Level:	111	Reviewer: Site Review:		> III		<del></del>	Date: $4/9$	04
Other					Level:		ANII Review:		CRitikio	Hauften		Date: 4/12/	104
Comments:	AUZRAGE	OF E	EVAM	AREAS	OF	AXIAL	/CIRC. (	בסעלסט	RS LIS	ED 10	DETER	MINE	
1	ΔιτυΔι	EVAN	1 ARE	Δ.					•				
Sketch or Photo:		·			····			•			•		
		ACTU	IAL EX	AM AREA	: (A)	x) 3.43	Sin +(c) 1	2.077112	= 5.50	7in/2 = 2	2.754 is		

SCAN	AXIAI AREA	CIRC. AREA	AVERACE	PERCENT ( AVE ACT. ) × 100
ц5° - 1	1,124in2	.856in <sup>2</sup>	99 in	35.9%
- 2:	.47312	,385im²	42912	15,6%
- 3	1,29 in 2	,44 is 2	865112	31.4 %
- 4	12912	44im²	.86512	31.4%
60° - 1	1,45512	1.111jh <sup>Z</sup>	1.2831,2	466%
- 2	1356in <sup>2</sup>	1219 in 2	, 288 in <sup>2</sup>	10,4%
3	1,291,2	.44in <sup>2</sup>	, 865 in 2	31.4%
- 4	129in2	J. Hyinz	865 int	31.4%

#### ke Energy.

#### Supplemental Report

Report No .: UT - 04 - 15Z

Attachment: Page: 3 of 14

Summary No.:	B03.150.003				
Examiner:	David 11. 3-	' Level: III	Reviewer:	GM I	Date: 4/9/31
Examiner:		Level:	Site Review:		Date:
Other:		Level:	ANII Review:	Noney CRetitie Slaughter	Date: 4/12/04

Comments:

Sketch or Photo:

$$CEG = \frac{5' \times .875''}{2} = .4375^{2} / N.$$

$$CEG = \frac{1.75'' \times 1.25''}{2} = .6125^{2} / N.$$

$$EFG = \frac{2.0'' \times .2''}{2} = .2^{2} / N.$$

$$GHF = \frac{1.9'' \times .75''}{2} = .7125^{2} / N.$$

$$GHIJ = .75'' \times .5'' = .375^{2} / N.$$

$$\frac{3.43/3}{4}$$

TOTAL EXAM AREA = 3.432/N.

2-LDCB-INLET-V1

	ko
COL	wrgy.

Examiner:

Other:

Supplemental Report

Report No.:	UT-04-152
lttachmenti-Page:	4 01 14
:	
Π	Date: 4/9/04

Summary No.: R03.150.003

Examiner: David K. 3

\_\_\_

Reviewer. Site Review:

ANII Review: Nancy CAtthe Stauth

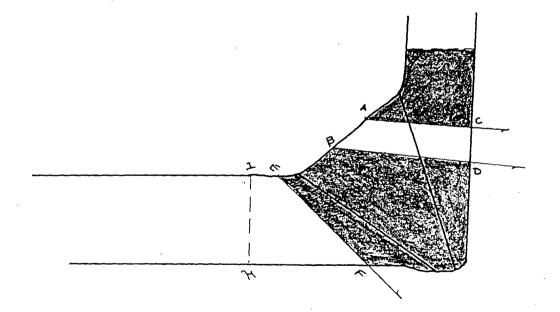
Date: 4/12/04

Comments:

2-LDCB-INLET-V1

AXIAL CONTOUR

Sketch or Photo:



 $RBCD: \left(\frac{1.1 \ln + 1.45 \ln -}{2}\right).35 \ln = .446 \ln^{2}$   $= F111: \left(\frac{.3 \ln + 1.25 \ln -}{2}\right).875 \ln = .678 \ln^{2}$ 

10/AL AREA = 1.124 in

45° AXIAL - SCAN 1

NO COVERAGE

	ke
COE	nergy.

Other:

### Supplemental Report

Altachmenti-Pago:	<u>UT-04-15</u> Z <u>5</u> of 14
	Date: 4 9 04

Summary No.: B03.150.003

Examiner: David K. 3

Examiner:

Level:

Site Review: Noney CRitche Storghter

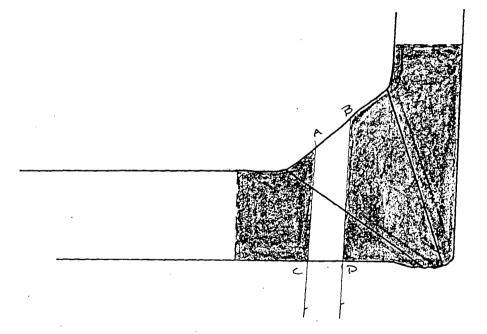
Reviewer:

Date: 4/12/04

Comments:

2-LDCB. INLET-V1

Sketch or Photo:



AXIAL CONTOUR

AREA OF COVERAGE

ABCF: (15 + 1,2 is), 35 in =, 473 in

45 AXIAL - SCANZ

NO COVERAGE

ike Energy.
Summary No.:
Examiner:
Examiner:
Other:

Altachmenti-Page: 0 of 14

Date: 4/9/04

Date:

Summary No.: 303.150.003

Examiner: David K. 3

Level:

Level: -

Site Review: Writing Ch

19/12/04 Date: 4/12/04

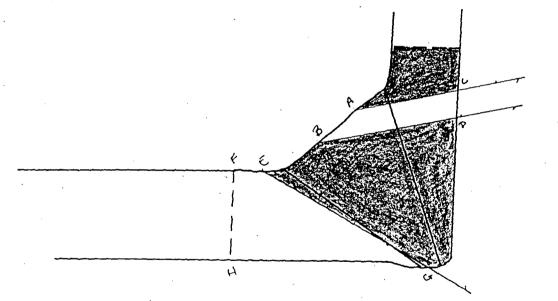
Comments:

2-LOCB-INLET-VI

AXIAL CONTOUR

AREA OF COVERAGE

Sketch or Photo:



ABCD: (145in+11in) 3in= 383in

EFGN: (3512-12, lin), 87512= 1.077in

TOTAL AREA = 1.45512

60° AXIAL - SCAN 1

FULL COVERRE ....

	iko
COL	norgy.

Cenergy.			•		No.: UT-04-152
Summary No.: B03.150.003  Examiner: David K. B.  Examiner: Other:	Level:Level:	Reviewer: Site Review: ANII Review:	Noney CR	Attachmenti-Pi	Date: 4904  Date: 47/2/04
Comments: 2-LDCR-INLET-V1				_A×ı	AL CONTOUR
Sketch or Photo:					A OF CONERACE  2-1.6in  25in = 356in
· · · · · · · · · · · · · · · · · · ·	\frac{1}{2}			•	· · · · · · · · · · · · · · · · · · ·

FULL COVERNE NO COVERAGE

<b>Tuke</b>
 wrgy.

Tuke yergy.		Supplemen	ntal Report			No: UT-04-15	Z
					Attachmenti-P	8 of 14	
,	B03,150,003	Level: 111	Reviewer:	all a	= III	Date: 4/5/54	1
Examiner:		Level:		119	our or in	Date:	
Other:		Level:	ANII Review:	Noney C	Rither Slaughter	Date: 4/12/04	
Comments: C160	c. Scan:		<del></del>				
	AREA of COVERAG	ef:		_			
•	AB	CD=.875"X	1.1"=.087	5° IN.			
Sketch or Photo:	EF	=GH=1.6"X.	7" = 1/./	122   IK. }	1.29°14. C	NERBEE	
•	G	$HI = .4'' \times .4$	= 082				
			.00 //				
			4				
•					· .	·	
•		4				· · · · · · · · · · · · · · · · · · ·	
		A 8					
•						•	
				*		;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;	
		CP	C	/ <sub>\sqrt</sub>	. •		
1 .				•		•	
NOTE: 4	5° \$ 60° CIRC. Si	CANS CON	ER IDEN	STICAL	A REAS.		
		-	•				

2-LDCB-INLET-V1

FULL COVERRE NO COVERAGE

#### ke L amy

#### Supplemental Report

Report No .: UT-04-152

Attachment: Page: 9 of 14

Summary No.:	B03.150.003			$\wedge$
Examiner:	Daniel 2	Level: 111	Reviewer:	
Examiner:	, , , , , , , , , , , , , , , , , , , ,	Level:	Site Review:	

TI II

Date:

Other:

evel: \_\_\_\_ ANII Revie

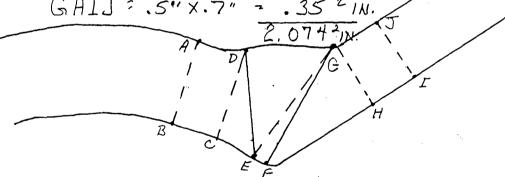
ANII Review: Nancy CRitiles Slaughten Date:

Comments:

Sketch or Photo:

$$DEG = \frac{1.4'' \times .7''}{z} = .49^{2} \text{ IN.}$$

$$EFG = \frac{1.4'' \times .2''}{z} = .14^{2} \text{ IN.}$$



TOTAL EXAM AREA: 2.072/N.

2-LDCB-INLET-V1

Xuko
wrgy.

Examiner:

Other:

#### Supplemental Report

Attachment B Page 12 of 75

Report No .: UT - 04-152

naporrio	111-	$\underline{\mathcal{Q}}$	7512
Attachment: Page:	10	of	14

Summary No.:	B03.150,003
Examiner	1.1x2

David K 3

Level:

Reviewer:

Site Review: \_\_

Date: 496

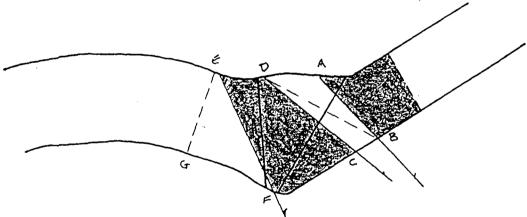
Date: 4/17/64

Comments: 2-LDCB-INLET-V1

CIRC. CONTOUR

Sketch or Photo:

AREA OF CONERAGE



ABD: 2 .2712

BCD: 1.21 × .25in = 15ic

EGF: 2 - 4301N

101AL AREA = 856in

45 AXIAL - SCAN 1

NO COVERAGE

Duke

Summary No.: Examiner:

Examiner:

### Supplemental Report

Attachment B Page 13 of 75

Attachment: Page:	UT-04=152
y Chithe Loughte	Date: 49 04 Date: 4/12/64
OUR	

Other:

Level:

Level:

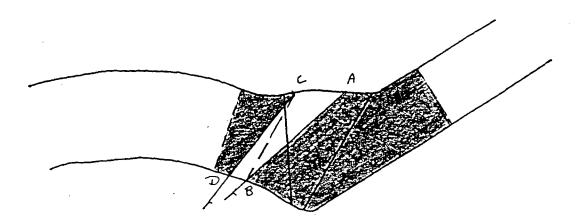
Site Review: \_\_/

Reviewer:

Comments: 2-LDCB-INLET-1/1

CIRC. CONTOUR

Sketch or Photo:



AREA OF COVERAGE

ABC: 1111 2 27516

BCD: 2:1112

TOTAL AREA = 38512

45° AXIAL - SCAD 2

FULL COVERAGE WO

Duke ergy.		Supplemen	таг нероп	Attachment: Page: 17 of 14
Summary No.: Examiner: Examiner: Other:	B03.150.003 Navil X 3	Level: Level:	Reviewer: Site Review: ANII Review:  Nowey: C	Date: 4/9/04 Date: 4/72/04 Date: 4/72/04
Comments: 2-L	-DCB-INLET-V1		CIRC. CONTOU	RAREA OF CONTRAGE
Sketch or Photo:				ABC: 101 X, lin = ,051m
			A B	ACD: 1.0 in x .55 in = .275 in
		"		EFG: 1.4in x .5in = 35in
	·	101AL	AREA: IIIII	EGH: 1.0in x . 875 in = . 4361h
60° AXIAL	· SCAU 1			FULL COVERAGE WILL

Duke
wrgy.

Attac	hment B	
Page	15 of 75	

le vergy.			1100 DI 2092122
		. A₁	tachment: Page: 13 of 14
Summary No.: 803.150.003	<del></del>		<b>(</b> )
Examiner: Dwielk 3	Level:	Reviewer:	Date: 4904
Examiner:	Level:	Site Review:	Date:
Other:	Level:	ANII Review: Noney CRite	he Slovetitu Date: 4/12/04
Comments: 2-1 DCR - T. II C //1	·		
Comments: 2-LDCB-ILLET-V1		•	
			CIRC. CONTOUR
Sketch or Photo:			AREA OF COVERAGE
			HREE OF SOVERING
·			1.25in ×.25in = 156in
	3	4	ABC: 2 .1561h
			11- × 1.25 in
			BCD: 11 2 1.25 in : , 063 in
			2
			TOTAL AREA = , 219 in
	-		
			•
60° AXIAL - SCAD 2	·		
			FULL COVERAGE
			NO COVERAGE

Other:

Sketch or Photo:

#### Supplemental Report

Attachment B Page 16 of 75

Attachmen			a 14
		Date:	4/9/04
	1	Date:	

Summary No.: 303.150.003 Examiner: Examiner:

Level:

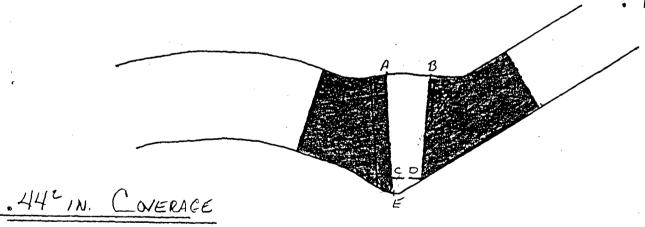
Site Review: ANII Review:

Date: 4/12/24

CIRC. SCAN:

CDE = .3" X.15" = .02252 IN.

.435° IN. = .44° IN.



Note: 45° \$ 60° CIRC. SCAMS COVER IDENTICAL

FULL COVERAGE NO COVERAGE

#### Duke Energy

# UT Vessel Examination

Summa		Oconee / B03	3.150.004 ISI		Proced	rocedure: _ ure Rev.: _ order No.:	NDE-630 2 98603899				NS2EOC2 JT-04-153 of	
Code:	=	e Section X		Cat./Itei			Location:		······	Ņ/A		
Drawing No.:	7,011	<del></del>	1097-2		Description: 1		<del></del>			1,377-3		
System ID:	51A		<del></del> -		<u>-</u>							
Component ID:	B03.15	0.004 /2-LD	CB-OUTLE	T-V2			Size/Length:	N/A	Thickne	ess/Diameter:	0.875''/3	3.0"
Limitations:	Yes-Se	ee attached	limitation r	eport.			Sta	art Time:	0854	Finish Time:	0950	)
Examination Se	urface:	Inside (		utside 🗹	Surface Cond	dition: AS G	ROUND					
Lo Location:	_	9.2.2		Wo Location:	Centerline of V	Veld	Couplant:	ULTRAG	ELIIE	Batch No.:	03125	5
Temp. Tool Mf	g.:	FISHE	R	Serial No.:	MCNDE3276	38	Surface Temp.:	59	°F			
Cal. Report No.	:			CAL-04-242,	CAL-04-243, CAL-04-2	244, CAL-04	1-245	-1-11-1	- -			
Angle Used Scanning dB Indication(s): Comments: FC 99-02, 03-1	Yes			60T 45RL 66.5	Scan Coverage: Up	istream 🗹	Downstream [	CW 🗹	ccw 🗸			•
Results: Percent Of Cov			Reject [] %: <b>!</b>	Info No-29.26%	Scanning db's les		+14 to obtain 2:1 s	signal to no	oise ratio.			<del></del>
	evel III		//	Signature -	i	Reviewer			Signature		1. 1	Date
Zimmerman, Da		<u>1</u>		wiel Kin	4/5/2004	JAY Site Review	EATON III		Signatura		4/9	1/24
Examiner Le Mauldin, Larry E	evel    :.	Lan	180	Signature	Date   1 4/5/2004	Olle Keview	-		<b>V</b> Signature			Date
	evel		5 × /	Signature		ANII Review None	y C Ritche.	Slaugh	Signature	4/12/04	/	Date



# Determination of Percent Coverage for UT Examinations - Vessels

Site/Unit:		2	Procedure:	NDE-630	Outage No.:	ONS2EOC20
Summary No.:	B03.150.0	004	Procedure Rev.:	2	Report No.	UT-04-153
Workscope:	ISI		Work Order No.:	98603899	Page	2 of 2
<u>0 deg F</u> Scan		% Length X	% \	volume of length / 100 =		% total for 0 deg
		/o Lengu / /		volume of long arry 100 = _		% total for a deg
<u>45 deg</u>						
Scan	1 100.000	% Length X _	35.900 %	volume of length / 100 = _	35.900	% total for Scan 1
Scan	100.000	<u>%</u> Length X _	15.600 %	volume of length / 100 = _	15.600	% total for Scan 2
Scan	13 100.000	% Length X _	31.400 %	volume of length / 100 = _	31.400	% total for Scan 3
Scan	100.000	% Length X _	31.400 %	volume of length / 100 =	31.400	% total for Scan 4
Ade	d totals and divid	de by # scans =		tal for 45 deg		
Other	deg 60					·
Scar	n 1 100.000	% Length X	46.600 %	volume of length / 100 =	46.600	% total for Scan 1
Scar		% Length X		volume of length / 100 =	10.400	· % total for Scan 2
Scar	· · · · · ·	% Length X		volume of length / 100 =	31.400	% total for Scan 3
Scar	n 4 100.000	% Length X	31.400 %	volume of length / 100 =	31.400	- _% total for Scan 4
Ad	ld totals and divi	de by # scans =	% to	otal for 60 deg		
	·					
Perce	nt complete cove	erage				
Add to	itals for each angl	e and scan require	d and divide by # of	angles to determine;		
29.2	263 % Total for	complete exam				
Note:						
obtain	emental coverage led with angles as nation.	may be achieved I noted above shall	by use of other angl be calculated and a	es / methods. When used added to the total to provid	d, the coverage for e the percent tota	r volume not al for the complete
Site F	ield Supervisor:		Jana K Z	Date: U	<u>/05/04</u>	
			ME.	II 4	19/04	

DUKE POWER COMPANY							
	ISI LIMITATION REPORT						
Component/Weld ID: 2-LDCB-0	OUTLET-V2 Ite	m No: <u>B03.150.004</u>		remarks:			
NO SCAN	SURFACE	BEAM DIRECTION		Due to branch connection			
☐ LIMITED SCAN	☐ 1  ☐ 2	□ 2	ccw	configuration.			
FROM L N/A to L N/A	INCHE	ES FROM W05" to _B	eyond				
ANGLE: □ 0 ⋈ 45 ⋈ 60	other	FROM 0 DEG to 36	DEG				
☐ NO SCAN	SURFACE	BEAM DIRECTION					
☐ LIMITED SCAN	_ 1 _ 2	_ 1 _ 2 _ cw _	ccw				
FROM L to L	INCHE	S FROM W0 to					
ANGLE: 0 45 60	other	FROM DEG to	DEG				
☐ NO SCAN							
LIMITED SCAN	<pre>1 2</pre>	_ 1 _ 2 _ cw _	ccw				
FROM L to L	INCḤE	S FROM W0 to					
ANGLE: 0 0 45 0 60	other	FROM DEG to	DEG				
☐ NO SCAN	SURFACE	BEAM DIRECTION					
☐ LIMITED SCAN	<u> </u>	1 2 cw	ccw	·			
FROM L to L	INCHE	S FROM <b>W0</b> to		Sketch(s) attached			
ANGLE: 0 45 60	other	FROM DEG to	DEG	yes Caldon No			
Prepared By: Larry Mauldin	Marchail Level:	Date: 4/05/04	Shee	t 71 of 1814			
Reviewed By:	Date:	4904 Namy Critical	Slauhti	( <b>\\\</b> \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\			
		U		A			

#### ke Energy.

### Supplemental Report

Report No .: UT-04-153

Attochment: Page: Z of 14

Summary No Examine Examine Othe	: <u>Davi</u>	3.150.00 US	24	Level: 200 Level:	Reviewer: Site Review: ANII Review:	Noney C	-III Retitie Sla	uzhtu	Date:	11 140 1
Comments:	AVERAGE ACTUAL	OF EX		S OF A	XIAL/CIRC. C	DUTOUR	S USÉD '	10 DETE	.RMIL	IÉ .
Sketch or Photo:		ACTUAL	- EVAM ARE	=a = (Ax)	3.43, 2 +(c) ?	2.077in =	5,507, n /2	-= 2.754	. Z   <b>L</b>	•

SCAN	AXIAI AREA	CIRC. AREA	AVERAGE	PERCENT (AVE ACT. ) 2 100
45 - 1	11124inz	856in <sup>2</sup>	99 in	35.9%
- 2	.473ju <sup>2</sup>	,385in²	429 in	15.6%
- 3	1,29 in	4412	8651	31.4 %
- 4	12916	- 44im	.8651,2	31.4%
60° - 1	1,45512	1.111 ike	1,2831,2	466%
- 2	1356in <sup>2</sup>	.219·in²	, 288; 2	10,4%
-3	1,291,2	. YYinz	865 in 2	31.4%
- 4	129in2	1 . 44in2	1 86516	31.40/0

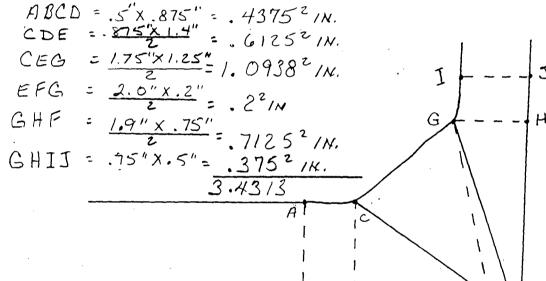
	ike
COL	nergy.

Report No .: UT - D4 -153

Attachment:	<del>-Pago:-</del>	3	of	14
-------------	--------------------	---	----	----

				[	H (( achiner C		
Summary No.:	B03.150.004			$\sim 1$			. 1
Examiner:	Daniel K. 3	Level: //L	Reviewer:	Chit		Date:	1/9/04
Examiner:		Level:	Site Review:	() [41		Date:	
Other:		Level:	ANII Review:	Noney (	Ritche Slaughter	Date: 4	1/12/04
	·			. 0			
nments:	•			•			
EXAL	n Area:						
<i>p</i>	1BCD = <"x 875" =	43752 IN					

Sketch or Photo:



· 10

YOYAL EXAM AREA = 3.432/N.

2-LDCB-OUTLET-V2

Report No.:	UT-04-	12
neportivo	01-09-	ハラン

Attachmenti-Page: 4 of 14

Summary No.:

Examiner:

Examiner: Other:

Level:

Reviewer:

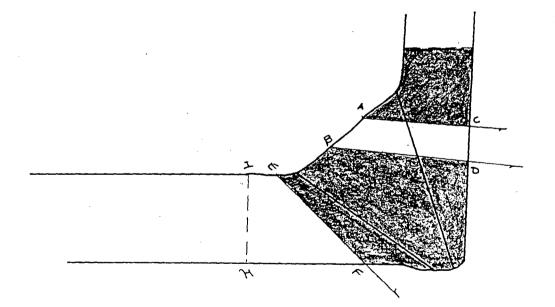
Site Review: ANII Review: Noney C.

Date: 4/12/04

Comments: 2-LDCB-OUTLET-V2

AXIAL CONTOUR

Sketch or Photo:



AREA OF COVERAGE

45° AXIAL - SCAN 1

FULL COVERNE! NO COVERAGE

	ko
COL	nergy.

Report No .: UT - 04 - 153

Attachmenti Pago: 5 of 14

Summary No.:

Examiner: Examiner:

Other:

Level:

Level:

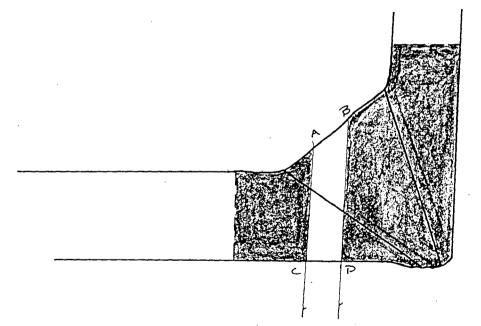
Reviewer: Site Review:

ANII Review:

Date: 4/12/04

Comments: 2-LDCB-OUTLET-12

Sketch or Photo:



45° AXIAL - SCANZ

FULL COVERNE NO COVERAGE

Supplemental Report Report No .: UT-04-153 Attachment Page: 6 of 14 Summary No.: Reviewer: - Examiner: Site Review: Level: Examiner: Date: 4/12/84 ANII Review: Other: Comments: 2-LDCB-OUTLET-U7 AXIAL CONTOUR AREA OF LOVERAGE Sketch or Photo: TOTAL AREA =

60° AXIAL - SCAU 1

FULL COVERNE NO COVERAGE ke Energy.

### Supplemental Report

Report No.: <u>UT-04-153</u>

					Httochmenti-Page:	·	or <u>14</u>
Summary No.:	B03.150.004						
Examiner:	David K. 2	Level:	Reviewer:		> TT	Date:	419104
Examiner:		Level:	Site Review:	/ 10		Date:	
Other:		Level:	ANII Review:	Noncy C	Ritetal Slaughter	Date:	4/12/04
				J		_	··

Comments: 2-LDCB-OCTLET-V2

AXIAL CONTOUR

Sketch or Photo:

AREA OF COVERAGE

ABCD: (1.25 in + 1.6 in), 25 in = 356 in

60 AXIAL - SCANZ

NO COVERAGE

	ke
COL	wrgy.

Sketch or Photo:

#### Supplemental Report

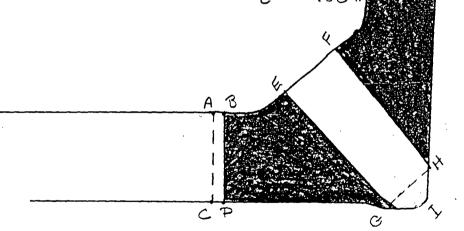
Report No .: UT-04-153 Attachment Page: 8 of 14 Date: 4/12/11

Summary No.: Examiner: Site Review: Examiner: ANII Review: Other:

CIRC. SCAN: Comments:

> AREA of COVERAGE: ABCD=.875"X.1"=.0875",N.

EFGH=1.6" X.7" = 1.122 IN. \ 1.29° IN. COVERNGE GHI = .4" X.4" = .082



NOTE: 45° \$60° CIRC. SCANS COVER I DENTICAL AREAS.

2-LDCB-OUTLET-V2

FULL COVERNE NO COVERAGE



Report No .: UT - 04 - 1.53

Attachment: Page: 9 of 14

Summary No.: Examiner:

Level:

Reviewer: Site Review: Date:

Examiner: Other:

ANII Review: Nancy CKitchel Stare

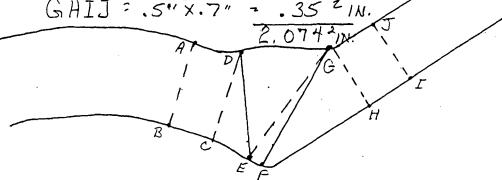
Comments:

Sketch or Photo:

EXAM AREA: ABCD= .5" X .875" = . 437521N. CDE = 1.15" x .35" = .20132 IN.

EFG = 1.4" x.2" = .14" INI.

FGH = 1.3" x.7" = .45521N. GHIJ = .5" x.7" = .3521N.



TOTAL EXAM AREA: 2.072/N.

Duke nergy.
Energy.

Pake Energy.		ouppichien	ar rieport	Attachment: Report No.	0: <u>VT-04-1</u> 53
Summary No.: Examiner: Examiner: Other:	B03.150.00d David K.Z	Level:Level:	Reviewer: Site Review: ANII Review:  **Note: *		Date: 4/12/04  Date: 4/12/04
Comments: 2-L	DCB-QMLET-VZ			CIRC	. CONTOUR
Sketch or Photo:				AREA	OF CONERAGE
				ABD:	1 × 6 in = .27 in 2
·			A	BCD:	<u> 2 × 25in</u> = 15in
			C	EGF:	01h + 18751h = 14361h
				10/AL AR	EA = ,856 in
45 AXIAL -	5CAN 1				COVERAGE COVERAGE

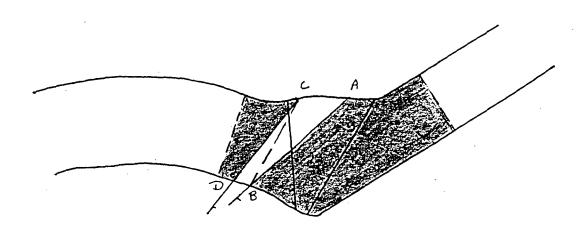
Page 29 of 75

ergy.					1 Attachment	11 of 14
Summary No.:	B03.150.004					
Examiner:	David K 3	Level: 114	Reviewer:	-M	III	Date: 4504
Examiner:	<u> </u>	Level:	Site Review:	11	· · · · · · · · · · · · · · · · · · ·	Date:
Other:		Level:	ANII Review:	Non	cy CRitche Slagt	Date: 4/12/04

Comments: 2-LDCB-CLTLET-V2

CIRC. CONTOUR

Sketch or Photo:



Report No .: UT-04-153

TOTAL AREA = ,3851

FULL COVERAGE NO COVERACTE

Duke

Duke ergy.	Supplemental Report	Attachment: Page: 17 of 14
Summary No.: Bo 3.150.000  Examiner: Dou of X. 25  Examiner: Other:	Level: Reviewer:  Level: Site Review: Niney C	Date: 4904
Comments: 2-LDCB-OUTLET:	-VZ CIRC. CONTOUR	
Sketch or Photo:		AREA OF CONERAGE
		ABC: LOIX, lin = , 05 in
		ACD: 1.0in x .55in = .275in
	H	EFG: 1.4in x .5in = .35in
	TOTAL AREA: I.III.in	EGH: 1.0in × .875in = .436in
60° AXIAL - SCAD 1	<u>.                                    </u>	FULL COVERAGE

Report No .: UT-04-153

#### Supplemental Report

Duke ergy.

Summary No.: BO3.150.000

Examiner: Devil 2 Level: Review: JII Date: 4/5/04

Examiner: Other: Level: ANII Review: Noncy Children Date: 4/12/04

Comments: 2-LDCB-OUTLET-V2

Sketch or Photo:

AREA OF CONERAGE

ABK:: 25in x.25in : 156il

TOTAL AREA = . ZIGIN

60° AXIAL - SCAD Z

NO COVERAGE

Other:

Sketch or Photo:

#### Supplemental Report

Attachment B Page 32 of 75

Report No .: UT-04-153

Attachment: Page: 14 of 14

Examiner:

Examiner:

Level:

Reviewer: Site Review:

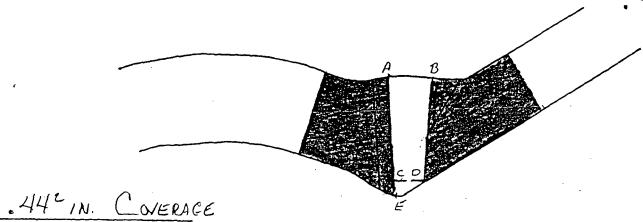
ANII Review:

CIRC. SCAN:

AREA OF COVERAGE: ABCD = 1.1 (.45"+.3") = .412521N.

CDE = .3" X.15" = .022521N.

.435° IN. = .44° IN.



NOTE: 45° \$ 60° CIRC SCAUS COVER IDENTICAL AREAS.

FULL COVERAGE ! NO COVERACTE



### UT Base Met. \_amination

		/Unit: Ocor		2					Proced	_	ND	E-640	<del></del>			IS2EOC20
	Summary Works			011.017 ISI			٠		cedure R k Order i	_	986	2				of 2
Code:		Asme Sect				 Cat./I	tem:	B-J-	/B9.11.1		Loca	ation:		· · · · · · · · · · · · · · · · · · ·	N/A	
Drawing			2HP-2					Descriptio			— ıcer	-				
System	ID: 5	1A					-	·								<del> </del>
Compo	nent ID: B	09.011.017	/2HP <b>-</b> 21	5-3		<del></del>					Size/Len	gth:	N/A	Tḩ	ickness/Diameter:	0.531"/4"
Limitatio	ons: N	ONE										Stan	t Time:	1050	Finish Time:	1057
Examir	nation Surf	ace: Ins	side []	Οι	utside 🗸		S	Surface C	ondition:	GRO	JND					
Lo Loc	ation:	9.1	1.1.1		Wo L	ocation: _	Се	nterline	of Weld		Couplant:		ULTRAG	ELII	Batch No.:	03125
		F		•	- Se	_		MCNDE3	2768		Surface Te	mp.: _	71	•F	Scanning d	B: <u>55.7</u>
Cal. Re	eport No.:					CAL-04	1-193									
Ind.	%	Amplitude		Positi	on One			Positio	on Max			Posi	tion Two		5	
No.	Loss Back Wall	% Full Screen	L1	W1	W2	MP	LM	W 1	W2	МР	L2	W 1	W2	MP .	Remark	(S
NRI																
						<del> </del>	9						<del>                                     </del>			
				·								· · ·	<u> </u>			
				<u> </u>					L							
Comme	ents: FC	03-20														
Results		Accept 🔽	Rej	ect 🗌	Info		Initial	Section	XI Exam	ination	ו					
Percent	Of Covera	age Obtained	d > 90%:	Yes	-100%	_	Revie	ewed Prev	ious Dat	a: _	No					
Examine	er Lev	el III			Signatur	e		Da	ate Revi	ewer (	<u> </u>	$\sim$		Sigr	nature	Date
Eaton,				NA		>		3/30/20	I		Jan/	<u> </u>	020		· · · · · · · · · · · · · · · · · · ·	4-1-04
Examine	er Leve	el .			Signatur	Э		Da	te Site	Review	I			Sign	nature	Date
Other	Leve	el			Signature	9		Da	te ANII	Review 1	Janey ()	Pitek	Slavy	Sign	ature :4/6/04	Date

Duke
Energy.

Report No.: UT-04-108

Page: 2 of 2

Summary No.: **B09.011.017** 

Examiner: Eaton, Jay A.

Examiner: V\*

Level: III

Level:

Level:

Reviewer:

Site Review:

ANII Review:

Date: 4-

Jate: —,

Date: 4/6/04

Comments: ;

Sketch or Photo:

C:\Documents and Settings\kbertoc\My Documents\PaintLine4.jpg

TEE

REDUCER



# UT Pipe Weld Examination

	Site/Unit:	Oconee	<b>/</b>	2			Р	rocedure:	NDE-60	00	C	Outage No.:C	NS2EOC	20
Sumr	mary No.:		B09.01	1.017			Proced	lure Rev.:	15		F	Report No.:	UT-04-10	9
w c	orkscope:		IS	ı			Work C	order No.:	986040	11		Page: 1	of	3
Code:	Asme	e Section	n XI 198	39		Cat./Item:	B-J- /B9.	11.17	Location			N/A .		
Drawing No.:		2	HP-215	5			Description:	Tee to Redu	ıcer ,					
System ID:	51A													
Component ID	B09.01	I.017 /2H	IP-215-	3					Size/Length:	N/A	Thick	kness/Diameter:	0.531	"/4"
Limitations:	Yes - Se	ee attach	ed limi	itation r	eport				SI	art Time:	1103	Finish Time:	112	4
Examination	Surface:	Inside	e 🗍	Ou	tside 🗸		Surface Con	dition: AS G	ROUND					
Lo Location:	<u> </u>	9.1.1	1.1		. Wo Loo	cation:	Centerline of	Weld	Couplant:	ULTRAGI	EL II	Batch No.:	0312	25
Temp. Tool M	Иfg.:	FIS	HER		Seria	al No.:	MCNDE327	68	Surface Temp.	:71	°F			
Cal. Report N	lo.:			C	\L-04-194	CAL-04-19	5, CAL-04-196							•
Angle Used	0	45	45T	60	60L									
Scanning dB			50.3	54.7	61.5									
Indication(s):	Yes	No.				. Sča	n Coverage: U	pstream 🗸	Downstream 🗸	CW 🗸	CCW [	<b>✓</b>		
Comments:	1		123			% - 3 - 4		_						
Comments.						•								
	•													
Results:	Accept 🔽	Rej	ect []		Info [	<u>In</u>	itial Section XI	Examination	1 					
Percent Of Co	verage Ob	tained >	90%: 1	No	- 88.8%	_ _	leviewed Previou	us Data:	No	_				
Cyaminar	l aval				Signature		Data	Reviewer		00	Signat	uro		Date
Examiner Eaton, Jay A.	Level III	. (	WH		ignature 		3/30/2004	Heviewer	Man A	///os	Signat	ure	4-2-0	
	Level		114,	9	ignature		Date	Site Review		10	Signati	ure		Date
Other I	Level				ignature		Date	ANII Review			Signati	ure , /		Date
			<del></del>					None	y C.Riteku.	Slought	tu	4/4	104	



#### **Limitation Record**

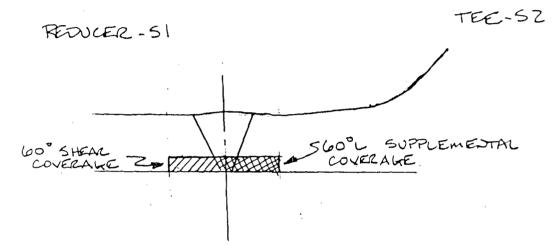
Site/Unit:	Oconee /	2	Procedure:	NDE-600	Outage No.:	ON	S2E00	220	
Summary No.:	B09.011.017		Procedure Rev.:	15	Report No.:	UT-04-109			
Workscope:	pe: ISI		Work Order No.:	98604011	Page:	2	of .	3	

Description of Limitation:

52

Limited in the throat of the tee on the 52 side of the weld with the 60° shear wave. Lo + 5.0" to Lo + 9.0"  $\mathcal{C}$  3/32/04

Sketch of Limitation:



TOTAL EXAM AREA = ,177 x 1.2 = ,21 102

60° SHEAR COVERAGE = 15+.55 x ,177 = ,09/,21 ×100 = 42.8%

60° L SUPPLEMENTAL COVERAGE = 100% - 42.8% = 57.2%

Limitations removal requirements:

Radiation	field:		11					
Examiner JA4	Level EATON	II	Signature	Date 3 30 04	Reviewer Navid	13	Signature	Date
Examiner	Level		Signature	<del></del>	Site Review		Signature	. Date

Other Level Signature Date ANII Review Signature Date



# Determination of Percent Coverage for UT Examinations - Pipe

				•			
Site/Uni		<del></del>	2	Procedure December 2		Outage No.:	
Summary No		B09.011.0	<u> </u>	Procedure Rev	<del></del>	Report No.:	<del></del>
Workscope	e. <u> </u>	ISI	····	Work Order No	98604011	_ Page	: <u>3</u> of <u>3</u>
					J		
<u>45 de</u>	eg ·			•			
Sca	ın 1		% Length X		% volume of length / 100 =		% total for Scan 1
Sca	n 2		% Length X		% volume of length / 100 =	· ·	% total for Scan 2
Sca	an 3	100.000	% Length X	100.000	% volume of length / 100 =	100.000	% total for Scan 3
Sca	an 4	100.000	% Length X	100.000	% volume of length / 100 =	100.000	% total for Scan 4
					· · · · · · · · · · · · · · · · · · ·		
	Ado	d totals an	d divide by # scar	ns = _100.000	% total for 45 deg		
		•				**************************************	
	•						•
						•	
Otho	r deg -	60	(to be used for	supplemental sc	anel		
			<del>-</del>		ained with the 45 deg scans.		
				mar mao mor ob	ed may are to dog edamer		
Sca	an 1	71.600	% Length X	100.000	% volume of length / 100 =	71.600	% total for Scan 1
Sc	an 2	71.600	% Length X	100:000	% volume of length / 100 =	71.600	_ % total for Scan 2
Sc Of 3/30/0	an 3' 1	28.400	% Length X	42.800	% volume of length / 100 =	12.155	_ % total for Scan 3
Sc		28.400	% Length X	0.000	% volume of length / 100 =	0.000	% total for Scan 4
*							
Perc	ent com	plete cove	erage				
Add	totals for	each scan	required and divid	le by # of scans	to determine;		
88	.839 °	% Total for	complete exam				·
		.*				• • • • • • • • • • • • • • • • • • •	
Site	Field Su	pervisor:	- MV		Date:	3 30 04	•
NOTE:	600	RL S	SCAD NOT	エットいつ	ED ID PERCE	a cov	ERAKE
3E CAN	SE D	F. THE	. REQUIRE	ements	OF 10CFR 50	55K(b)(z	(z)(A)(z)
BEST	EFFU	at so	HI W GA	60° 12L	OBTAINED 57.	2% 601	PERALE
IN OF	DE A	KIAL	DIRECTION	٠.			

# Energy

### UT Base Met. Lamination

Site	JUNIII. UCOI	nee /	2					Procedi	ure. $-$	- INL	JE-640			Outage No O	NS2EUC20
Summary	/ No.:	C05.0	021.021				Pro	cedure R	ev.:		2			Report No.:	JT-04-013
Works	cope:		SI				Wor	k Order N	No.:	986	06481			Page: 1	of 2
	Asme Sect	ion XI 1	989		Cat./l	tem:	C-F-	1/C5.21.2	21	Loca	ation:			N/A	
 g No.:		2-51A-	17 (2)				Descriptio	n: Pipe	to Valv	— ∕e (Valve 2l	– (118-P-1				
		· · · · · · · · · · · · · · · · · · ·	<del> </del>			•		<del></del>			·				
nent ID: C	05.021.021	/2-51 <b>A-</b> 1	7-124			·				Size/Ler	ngth:	N/A	Th	nickness/Diameter:	4.0" / .531
_	<del></del>											Time:	0957	Finish Time:	1000
nation Surf	ace: Ins	side 🔲	Ou	ıtside 🗸		5	Surface C	ondition:	AS GI	ROUND					
ation:	9.	1.1.3		Wo Lo	ocation:	Ce	nterline	of Weld		Couplant:		ULTRAG	ELII	Batch No.:	01225
Tool Mfg.:	F	ISHER		- Sei	ial No.:		MCNDE 2	27219		Surface Te	emp.: _	97	°F	Scanning d	B: <u>60</u>
eport No.:					CAL-04	1-019									
% Loss	Amplitude		Positi	on One			Positio	on Max			Positi	ion Two		Rema	ks
Back Wall	Full Screen	L1	W1	W2	MP	LM	W1	W2	MP	L2	W 1	W2	MP		
<u> </u>										+					
	ļ										<u> </u>	<del> </del> -			
			_									<u> </u>			
ents: FC	03-20				L		<u> </u>					<u> </u>			
	Accept 😧	Reje	ect [	Info		Initial	Section	Xi Inspe	ection						
Of Covera	age Obtained	1 > 90%:	Yes	-100%		Revie	ewed Prev	vious Dat	a:	No					
er Lev	el III			Signatur	9	<u> </u>	· Da	ate Revi	ewer(	1 1	M		Sigr	nature	Date
Jay A.		CM		<u> </u>						any/	//(e	20			2-11-04
er Leve J <b>oey</b>	el II	A Para						1	Review	Y /			Sigr	nature	Date
Leve	el N/A /						Da	ite ANII	Review	MA	1		Sigr	nature	Date 2/27/04
	Summary Works  J No.:  JD: 5 nent ID: Cons: N nation Surfation: Tool Mfg.: port No.: % Loss Back Wall .  Cons: FC  Of Covera	Summary No.:  Workscope:  Asme Sector No.:  ID: 51A  The point ID: C05.021.021  ID: None  Tool Mfg.:  Seport No.:  Amplitude  Loss %  Back Wall Full Screen  Accept   Of Coverage Obtained  For Level III  Lay A.  Level III	Asme Section XI 1  Non:  None  Total Minimum Surface: Inside Insi	Summary No.: C05.021.021  Workscope: ISI  Asme Section XI 1989  3 No.: 2-51A-17 (2)  ID: 51A  nent ID: C05.021.021 /2-51A-17-124  Ons: None  None  None  Sation: 9.1.1.3  Tool Mfg.: FISHER  Sport No.:  % Amplitude Positi Loss %  Back Wall Full Screen L1 W1  Sonts: FC 03-20  Accept ✓ Reject ☐  Of Coverage Obtained > 90%: Yes  Por Level III  Joey	Summary No.: C05.021.021  Workscope: ISI  Asme Section XI 1989  J No.: 2-51A-17 (2)  ID: 51A  Thent ID: C05.021.021 /2-51A-17-124  Thens: None  Station Surface: Inside □ Outside ☑  Station: 9.1.1.3 Wo Lot  Tool Mfg.: FISHER Ser  Ser  Sport No.:  % Amplitude Position One  Loss Back Wall Full Screen L1 W1 W2  Station: Signature  Position One  Ser Level III Signature  Signature	Summary No.:   C05.021.021     Workscope:   ISI	Summary No.:   C05.021.021     Workscope:   ISI	Summary No.:         C05.021.021         Pro           Workscope:         ISI         Wor           Asme Section XI 1989         Cat./Item:         C-F-           I No.:         2-51A-17 (2)         Description           ID:         51A         Inent ID:         C05.021.021 /2-51A-17-124           Inside         Outside         Outside         Surface Centerline           Tool Mfg:         FISHER         Serial No.:         MCNDE 2           Sport No.:         CAL-04-019         Position One         Position           Back Wall         Full Screen         L1         W1         W2         MP         LM         W1           W1         W2         MP         LM         W1         W1           W3         Accept         V         Reject         Info         Initial Section         Reviewed Previewed Preview	Summary No.:   C05.021.021   Procedure R	Summary No.:   C05.021.021   Procedure Rev.:   Work Order No.:	Summary No.:   C05.021.021   Procedure Rev.:	Summary No.:   C05.021.021   Procedure Rev.:   2	Summary No.   C05.021.021	Summary No.:   C05.021.021   Procedure Rev.   2	Summary No.   C05.021.021

Duke
Duke Energy

### Supplemental Report

Report No.: UT-04-013

Page: 2 of 2

Summary No.: C05.021.021

Examiner: Eaton, Jay A.

Examiner: Jordan, Joey

Other: N/A

Level: III

Level: N/A

Level:

Reviewer:

Heviewer: Jan // loss

Site Review:

ANII Review:

Date: 2-1/-04

Date: 2/27/04

Comments:

Sketch or Photo:

Z:\UT\IDDEAL\ProfileLine2.jpg

VALUE SZ

PIPE 51



### UT Pipe Weld Examination

9	Site/Unit:	Oconee /	2	_	Р	rocedure: _	NDE-600	)	0	utage No.: O	NS2EOC20
Summ	nary No.:	C05.02	1.021	_	Proced	lure Rev.:	15		F	Report No.: \(\)	JT-04-016
Wo	rkscope: _	IS	I	<del></del>	Work C	order No.:	9860648	1		Page: 1	of <u>3</u>
Code:	Asme	Section XI 198	19	Cat./It	tem: <b>C-F-1/C5.</b>	21.21	Location:			N/A	
Drawing No.:		2-51A-17	<b>7</b> (2)		Description:	Pipe to Val	ve (Valve 2HP-118	3) .			
System ID:	51A				-				-		
Component ID:	C05.021.	021 /2-51A-17-	124				Size/Length:	N/A	Thick	ness/Diameter:	4.0" / .531
Limitations:	Yes-See	Attached Limi	tation Repo	rt			Sta	art Time:	1000	Finish Time:	1040
Examination S	Surface:	Inside []	Outside	· 🗸	Surface Con	dition: AS	GROUND				
Lo Location:		9.1.1.3	W	o Location:	Centerline of	Weld	Couplant:	ULTRAGE	LII	Batch No.:	01225
Temp. Tool M	fg.:	FISHER		Serial No.:	MCNDE 272	219	Surface Temp.:	97	-°F		
Cal. Report N	o.:		CAL-0	4-022, CAL-0	04-026, CAL-04-030						
Angle Used	0	45 45T	60 <b>6</b>	30L							
Scanning dB		60	60	57	<u>:</u>						
Indication(s):	Yes [_]	No 🗸			Šcan Coverage: U	pstream 🗹	Downstream [	CW 🗸	CCW 💽	•	
Comments:											
	•										
D		D :	1								
	ccept [v]	Reject []		0 🗌	Initial Section XI	··		<del></del>		· · · · · · · · · · · · · · · · · · ·	•
Percent Of Cov	erage Obt	ained > 90%:	No - 34	1.5%	Reviewed Previou	us Data:	No				
Examiner ! L	_evel		Signa	iture	Date	Reviewer	91 10	1	Signatu	ıre	Date
Eaton, Jay A.	•••			2	2/9/2004		Day / 11	(oso	3		2-11-04
	evel II		8 gna		Date	Site Reviev			Signatu	ıre	Date
Jordan, Joey Other L	.evel	- Au	Signa		2/9/2004	ANII Revie	·		Signatu	Iro	Date
Omer L	.5 7 61		Signa	uie	Date	Z.		/	Signati	<del>.</del>	2/27/04
							<del></del>				



# Determination of Percent Coverage for UT Examinations - Pipe

	conee /	2	Procedure	NDE-600	Outage No	o.:			
imary No.:	C05.021.0	21	Procedure Rev	.: 15	Report No	o.:	JT-04-0	16	
orkscope:	ISI	<u> </u>	Work Order No	98606481	Pag -	je: <u>2</u>	of	3	
45 deg									
Scan 1		_ % Length X		% volume of length / 100 =		_ % tota	I for Sca	an 1	
Scan 2		% Length X		% volume of length / 100 =		_ % tota	I for Sca	an 2	
Scan 3	100.000	% Length X	50.000 %	% volume of length / 100 =	50.000	_ % tota	l for Sca	an 3	
Scan 4	100.000	% Length X	50.000	% volume of length / 100 =	50.000	_ % tota 	l for Sc	an 4	
P	Add totals and	I divide by # scan	s = 50.000	% total for 45 deg					
				·					
							,		
Other deg	60	_ (to be used for :	supplemental sca	ans)					
		-							
<del></del>		-	that was not obta	ans) ined with the 45 deg scans.				4	
<del></del>		-			38.100	% to	otal for S	Scan	
The data to	be listed belo	w is for coverage t	that was not obta	ined with the 45 deg scans.	38.100 0.000		otal for S		
The data to	be listed belo	w is for coverage t	that was not obta	with the 45 deg scans. % volume of length / 100 =		% to		Scan	
Scan 1 Scan 2 Scan 3	be listed belo	% Length X % Length X % Length X	that was not obta	% volume of length / 100 = % volume of length / 100 = % volume of length / 100 =		% to	otal for S	Scan Scan	
Scan 1 Scan 2	be listed belo	w is for coverage t  — % Length X  % Length X	that was not obta	" " " " " " " " " " " " " " " " " " "		% to	otal for S	Scan Scan	
Scan 1 Scan 2 Scan 3 Scan 4	be listed belo	% Length X	that was not obta	% volume of length / 100 = % volume of length / 100 = % volume of length / 100 =		% to	otal for S	Scar Scar	
Scan 1 Scan 2 Scan 3 Scan 4	100.000 100.000	% Length X	38.100 0.000	% volume of length / 100 = % volume of length / 100 = % volume of length / 100 =		% to	otal for S	Scar Scar	
Scan 1 Scan 2 Scan 3 Scan 4	100.000 100.000 omplete cove	% Length X	38.100 0.000	"w volume of length / 100 =		% to	otal for S	Scar Scar	
Scan 1 Scan 2 Scan 3 Scan 4	100.000 100.000 omplete cove	% Length X	38.100 0.000	"w volume of length / 100 =		% to	otal for S	Scar Scar	
Scan 1 Scan 2 Scan 3 Scan 4  Percent co	100.000 100.000 omplete cove	% Length X rage	38.100 0.000	"w volume of length / 100 =		% to	otal for S	Scar Scar	
Scan 1 Scan 2 Scan 3 Scan 4  Percent co	100.000 100.000 omplete cove	% Length X rage	38.100 0.000	"w volume of length / 100 =		% to	otal for S	Scan Scan	
Scan 1 Scan 2 Scan 3 Scan 4  Percent co Add totals 34.525	100.000 100.000 omplete cove	% Length X rage	38.100 0.000	"w volume of length / 100 =		% to	otal for S	Scan Scan	
Scan 1 Scan 2 Scan 3 Scan 4  Percent condition Add totals 34.525	100.000 100.000 omplete cove for each scan % Total for	% Length X rage	38.100 0.000	wolume of length / 100 =  % volume of length / 100 =		% to	otal for S	Scar Scar	

BECAUSE OF THE REQUIREMENTS OF IOCFR SO.55a (b)(z)(XV)(A)(Z)
BEST EFFORT SCALL WITH 60°RL OBTAINED 61.9% COVERAGE
IN ONE AXIAL DIRECTION.



#### **Limitation Record**

Attachment B Page 42 of 75

Site/Unit:	Oconee /	2
ımmary No.:	C05.02	21.021

Procedure:

NDE-600

Outage No.:

ONS2EOC20

Workscope:

ISI

Procedure Rev.: Work Order No.:

15 98606481 Report No.: Page: Of 3

Description of Limitation:

Limited Due to Valve Configuration

Sketch of Limitation:

VALUE 52

PIPE SI

60° SHEAR COVERAGE

60°RL SUPPLEMENTAL.

TOTAL EXAM AREA .18 × 1.15 = .21 132

60° SHEAR COVERAGE = 0.4 +0.5 x.18 = .08/21 ×100 = 38.1%

60° RL COVERANTE = 171 - .08 = 113/21 ×100 = 6

45° CW & CCW = , ZI - Z = .105/.ZI × 100 = 50%
COVERAKE

Limitations removal requirements:

N/A

Radiation field: N/A

Examiner Lev	el III /		Signature	Date	Reviewer 1 50	Signature	Date
Eaton, Jay A.		MI		2/9/2004	Dan Moss		2-11-04
Examiner Lev	el II	1	Signature ,	Date	Site Review V	Signature	Date
Jordan, Joey	Ç	a.	(Man	2/9/2004		•	
Other Lev			Signature		ANII Reviewi	Signature	Date
	e	•			Topology (		2/27/04

### UT Base Mev. Lamination



<del>,                                    </del>			2					Proced	dure:	NI	DE-640		•	Outage No.: O	NS2EOC20	
	Summar	ry No.:	C05.	021.022				Pro	cedure.F	Rev.: _		2			Report No.:	UT-04-014
	Works	scope: -		ISI				Wo	rk Order	No.:	986	506481			Page: 1	of <u>2</u>
Code:		Asme Sec	tion XI 1	989		Cat./	ltem:	C-F-	1/C5.21.	22	Loc	ation;			N/A	
Drawin	g No.:		2-51A-	17 (2)	**********		-	Descriptio	n: Valv	e (2HP-	 115) to Tee	•				:
System	ID: 5	51A					<del>-</del>	, de					· · · · · · · · · · · · · · · · · · ·			
Compo	nent ID: 0	005.021.022	/2-51 A-1	7-92				e la sego	-72 /		Size/Ler	ngth:	N/A	Т	hickness/Diameter:	4.0" / .531
Limitati	ons: 1	Vone										*****	Time:	0953	Finish Time:	0957
Examir	nation Sur	face: Ins	side 🗍	Ou	itside 🗸		9	Surface C	ondition:	AS G	ROUND				v	
Lo Loc	ation:	9.	1.1.1	*	Wo L	ocation:	Ce	enterline	of Weld		Couplant:		ULTRAG	EL II	Batch No.;	01225
Temp.	Tool Mfg.:	: <u> </u>	FISHER		Se.	rial No.:		MCNDE 2	27219		Surface Te	mp.: _	97	°F	Scanning d	B: <b>60</b>
Cal. Re	eport No.:					CAL-04	4-019	<del></del>								
Ind.	% Loss	Amplitude		Positio	on One			Positio	on Max			Positi	on Two		Remai	rks
No.	Back Wall	i	L1	W1	W2.	MP	LM	Wi	W2	MP	L2	W 1	W2	MP	, toma	
NRI									<u>.</u>						,	
				.~		-										
								11.5		-						
<del></del>		-									-					
		<u> </u>								<u> </u>						
Comme Results:		03-20 Accept   age Obtained		ect 🗆	Info		-	Section			No					
			7 \				110010				140	==				
Examine Eaton, J		el III			Signature	·		Da 2/9/200	te Revie	ewer)	on 1	No	مح	Sigi	nature	Date 2-1/-04
xamine Jordan,	r Levi Joey -	el II	1	(6)	Signature	? 7		2/9/200			, ,			Sigr	nature	'. Date
Other N/A		el N/A	- Corre		Signature	<u>*************************************</u>			te ANII		1/1/	7/		Sigr	nature	Date 2/27/04
									<del></del>			/				7.

Duke Energy
Energy.

### Supplemental Report

Report No.: UT-04-014

Page: 2 of 2

Summary No.: C05.021.022

Examiner: Eaton, Jay A.

Examiner: Jordan, Joey

Other: N/A

Level: III,

Level: N/A

Reviewer: Site Review:

ANII Review:

Day Mon

Date: 2-11-0-4

Date:

Date: 2/27/04

Comments:

Sketch or Photo:

Z:\UT\IDDEAL\ProfileLine2.jpg

SZ TEE

VALUE 51



## UT Pipe Weld Examination

Workscope	20	NS2EOC	No.: 0	Dutage No	Ou	)	e: NDE-600						2	ee /	Ocone	Site/Unit:	Site/Unit	
Code:         Asme Section XI 1989         Cat./Item:         C-F-1/C5.21.22         Location:         N/A           Drawing No.:         2-51A-17 (2)         Description:         Valve (2HP-115) to Tee           System ID:           51A           Component ID:         C05.021.022 /2-51A-17-92         Size/Length:         N/A         Thickness/Diameter:         4.0° /           Limitations:         Yes-See Attached Limitation Report         Start Time:         1000         Finish Time:         10           Examination Surface:         Inside:         Outside ☑         Surface Condition:         AS GROUND         Lo Location:         ULTRAGEL II         Batch No.:         012:           Temp. Tool Mfg:         FISHER         Serial No.:         MCNDE 27219         Surface Temp.:         97         °F           Cal. Report No.:         CAL-04-022, CAL-04-026, CAL-04-030         Angle Used         0 45 451 60 60 L         60L         Scan Coverage:         Upstream ☑         Downstream ☑         CW ☑         CCW ☑           Comments:    Results: Accept ☑ Reject ☑ Info	17	UT-04-01	No.:	Рероп Мо	Re		15		edure Rev.:	Pro			21.022	C05.0		nary No.:	Summ	
Description: Valve (2HP-115) to Tee	5	_ of _	age: 1	Page			98606481	9	Order No.:	Wor			SI	1:		rkscope:	Woi	
System ID: 51A  Component ID: C05.021.022 /2-51A-17-92  Size/Length: N/A Thickness/Diameter: 4.0° / Limitations: Yes-See Attached Limitation Report  Examination Surface: Inside Outside Surface Condition: AS GROUND  Lo Location: 9.1.1.1 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 012: Temp. Tool Mfg.: FISHER Serial No.: MCNDE 27219 Surface Temp.: 97 °F  Cal. Report No.: CAL-04-022, CAL-04-026, CAL-04-030  Angle Used O 45 45T 60 60L Scanning dB 60 60 57  Indication(s): Yes No Scan Coverage: Upstream Downstream CW CW CCW Comments:  Results: Accept V Reject Info Mo-35,5% Reviewed Previous Data: No		,		N/A			ocation:	, Lo	5.21.22	C-F-1/0	Cat./Item:		89	on XI 19	Section	Asme	ode:	
Component ID: C05.021.022 /2-51A-17-92  Limitations: Yes-See Attached Limitation Report  Start Time: 1000 Finish Time: 1000  Examination Surface: Inside: Outside  Surface Condition: AS GROUND  Lo Location: 9.1.1.1 Wo Location: Centerfine of Weld Couplant: ULTRAGEL II Batch No.: 012: Temp. Tool Mfg.: FISHER Serial No.: MCNDE 27219 Surface Temp.: 97 °F  Cal. Report No.: CAL-04-022, CAL-04-026, CAL-04-030  Angle Used 0 45 45T 60 60L Scanning dB 60 60 57  Indication(s): Yes No Scan Coverage: Upstream Downstream  CW CW CCW Comments:  Results: Accept Reject No. 31,5% 1							Гее	P-115) to Te	Valve (2H	Description			7 (2)	2-51A-1			rawing No.:	
Examination Surface: Inside ☐ Outside ☑ Surface Condition: AS GROUND  Lo Location: 9.1.1.1 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 012:  Temp. Tool Mfg: FISHER Serial No.: MCNDE 27219 Surface Temp.: 97 °F  Cal. Report No.: CAL-04-022, CAL-04-026, CAL-04-030  Angle Used 0 45 45T 60 60L Scanning dB 60 60 57  Indication(s): Yes ✓ No Scan Coverage: Upstream ☐ Downstream ☑ CW ☑ CCW ☑  Comments:  Results: Accept ☑ Reject ☐ Info ☐ Ward Instection XI Inspection  Percent Of Coverage Obtained > 90%: No 33 5% 3 4-25.07 Reviewed Previous Data: No									**	To Kangalian San Ja						51 A	ystem ID:	
Examination Surface: Inside Outside Surface Condition: AS GROUND  Lo Location: 9.1.1.1 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 012:  Temp. Tool Mfg.: FISHER Serial No.: MCNDE 27219 Surface Temp.: 97 °F  Cal. Report No.: CAL-04-022, CAL-04-026, CAL-04-030  Angle Used 0 45 45T 60 60L Scanning dB 60 60 57  Indication(s): Yes No Scan Coverage: Upstream Downstream C CW CCW C  Comments:  Results: Accept Reject Info No.: Reviewed Previous Data: No	.531	4.0" / .	Diameter:	ness/Diar	Thickn	N/A	ength:	Size/Le		\$ 15		·	-92	-51A-17	.022 /2-	C05.021	omponent ID:	
Lo Location: 9.1.1.1 Wo Location: Centerline of Weld Couplant: ULTRAGEL II Batch No.: 012:  Temp. Tool Mfg.: FISHER Serial No.: MCNDE 27219 Surface Temp.: 97 °F  Cal. Report No.: CAL-04-022, CAL-04-026, CAL-04-030  Angle Used 0 45 45T 60 60L Scanning dB 60 60 57  Indication(s): Yes ✓ No Scan Coverage: Upstream Downstream ✓ CW ✓ CCW ✓ Comments:  Results: Accept ✓ Reject Info May Previous Data: No Reviewed Previous Data: No	0.	104	sh Time:	Finish	1000	t Time:	Start					eport	itation f	ned Lim	Attach	Yes-See	mitations:	
Temp. Tool Mfg.: FISHER Serial No.: MCNDE:27219 Surface Temp.: 97 °F  Cal. Report No.: CAL-04-022, CAL-04-026, CAL-04-030  Angle Used 0 45 45T 60 60L Scanning dB 60 60 57  Indication(s): Yes No Scan Coverage: Upstream Downstream C CCW C CCW C Comments:  Results: Accept Reject Info Mark Initial Section XI Inspection  Percent Of Coverage Obtained > 90%: No - 33,5% Paragraph Reviewed Previous Data: No								GROUND	ondition: AS	Surface C		side 🔽	. Ot	de 🔝	İnsid	urface:	Examination S	
Cal. Report No.:  CAL-04-022, CAL-04-030  Angle Used  O 45 45T 60 60L  Scanning dB  Indication(s): Yes No  Scan Coverage: Upstream  Downstream  CW CCW  COMMents:  Results: Accept Reject  Info  No - 34,5% 1 25.0 Reviewed Previous Data: No	:5	0122	h No.:	Batch N	EL II	ULTRAGE	nt:	Couplan	of Weld	Centerline	cation:	Wo.Lo	<del></del>	.1.1	9.1.		lo Location:	
Angle Used 0 45 45T 60 60L Scanning dB 60 60 57  Indication(s): Yes No Scan Coverage: Upstream Downstream C CW CCW C CCW C Comments:  Results: Accept Reject Info Info Info Initial Section XI Inspection  Percent Of Coverage Obtained > 90%: No - 31,5% 1 9-25-20 Reviewed Previous Data: No		•			_ °F	97	Temp.:	Surface	7219	MCNDE 2	al No.:	Seria		SHER	FI	g.:	emp. Tool Mf	
Scanning dB    60   60   57     Indication(s): Yes   No   Scan Coverage: Upstream   Downstream   CW   CCW   Comments:    Results: Accept   Reject   Info   Magazinitial Section XI Inspection   Reviewed Previous Data: No   No   No   No   No   No   No   No				•			· 			5, CAL-04-03	, CAL-04-02	L-04-022	C.			.;	al, Report No	
Indication(s): Yes ✓ No Scan Coverage: Upstream Downstream ✓ CW ✓ CCW ✓ Comments:  Results: Accept ✓ Reject Dinfo Mark Initial Section XI Inspection  Percent Of Coverage Obtained > 90%: No - 34,5% Mark 25.07 Reviewed Previous Data: No									:		T	60L	60	45T	45	0	ingle Used	
Results: Accept Reject Info Info Info Info Info Info Info Info		***										57	. 60	60	•		canning dB	
Results: Accept ✓ Reject ☐ Info ☐ Mg-2 Initial Section XI Inspection  Percent Of Coverage Obtained > 90%: No - 34.5% ☐ Reviewed Previous Data: No				ן ו	CCW 🔀	CW 🔽	ream 🔽	Downstre	Jpstream 🗍	Coverage:	Sca:	-	<u> </u>		No	Yes:	ndication(s):	
Results: Accept ✓ Reject ☐ Info ☐ Mg-2 Initial Section XI Inspection  Percent Of Coverage Obtained > 90%: No - 34.5% ☐ Reviewed Previous Data: No		•			•				•								omments:	
Percent Of Coverage Obtained > 90%: No - 34,5% 1 9-25.07 Reviewed Previous Data: No		•			•		•									_		
Percent Of Coverage Obtained > 90%: No - 34,5% 1 9-25.07 Reviewed Previous Data: No		•										4						
Percent Of Coverage Obtained > 90%: No - 34.5% 9-25.07 Reviewed Previous Data: No							• •				MA ANTA							
						·····					179-2 In	Info 🗀		ject 🗍	Rej	cept 🕢	sults: Ac	
	÷							No	us Data:	eviewed Previo	19-25-8 R	34.5%	No	90%: 	ained >	rage Obta	rcent Of Cove	
	Date			е	Signature		M	<u>Г</u>	Reviewer			nature	Si			vel III		
Data Cita Davieur V Cianatura	4 Date	2-11-00		~	Signatura	✓	1/100-	Jan/	Sito Paviov	<u> </u>			$\Rightarrow$					
lordan, Joey  Signature  2/9/2004  Signature	Date	•		5	Signature	2		٠ ١.	Oue Deview				ו מא	سالم		vei II		
Other Level Signature Date ANII Review Signature	Date			?	Signature		0/1	1/11/	ANII Review	Date			Si	my)		vel		
	7/04/	2/27						1/1/1	Lef		···	<u>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</u>						

#### Duke Energy.

### Ultrasonic Indication Report

	nergy.	Site/Ur ummary N	nit: Oco		2)21.022				ocedure:		NDE-60	00		Outage No.: Report No.:	ONS2EC	<del></del>
		Workscop			SI		•		ire Rev.: der No.:	·	9860648	31		Page:	UT-04- 2 of	<del></del>
MF RB L	Lo Loc Metal R Rema	ation:	9.1.1.	Veld 1	- º W	1 [	Distance	From W	Piping We Ferritic Ve Other O To S.U O At	At Maxi		orward)		L Lmax L2	Wo	Wmax W1 W2  DATUM Lo  W1 Wmax W2
Scan #	Indication No.	% Of DAC		V lax MP	For W1	ward Of Max MP	i	kward Of Max	Of Max	L Max	L2 Of Max	RBR Amp.		· R	emarks	
S2	1	80%	0.7	1.0"	N/A	N/A	N/A	N/A	360°	. 0-1"	Int.	N/A	ID Geometr	у .		
xaminer Eaton, Ja	Level y A.			AM.	Signature			2/9/20	ate Revie	IJα	m//	Nor		Signature	·	Date -11-04 Date
ordan, J Other	<b>Cey</b> Level		Say	. \	Signature	2		2/9/20 Da	ate ANII	Review	III.			Signature	?	Date 2/27/04/

# Energy.

#### Supplemental Report

Report No.: UT-04-017 3 of 5

Page:

Summary No.: C05.021.022

Examiner: Eaton, Jay A.

Examiner: Jordan, Joey

Other:

Level: III

Level:

Reviewer:

Site Review:

Level: ANII Review:

Date:

Date: 2/27/14

Comments:

Ind. # 1 - 60°L is a geometric reflector from the weld root. This was verified by plotting the indication. There was no response at this location from the 60° and 70° shear waves.

Sketch or Photo:

Z:\UT\IDDEAL\ProfileLine2.jpg

SI VALUE



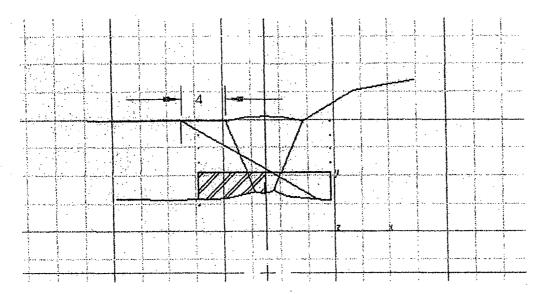
# Determination of Percent Coverage for UT Examinations - Pipe

Scan 1 Scan 2 Scan 3		% Length X				
Scan 2		% Lengin X		Warning The out 1400		04 1-4 14 . 0
		% Length X	<del> </del>	% volume of length / 100 = % volume of length / 100 =	•	% total for Scan % total for Scan
-	100	% Length X	50	% volume of length / 100 =	50	% total for Scan
Scan 4	100	% Length X	50 50	% volume of length / 100 =	<i>5</i> 0	% total for Scan
	Add totals and	i divide by # scan	s= <u>50</u>	% total for 45 deg		
Other deg		_ (to be used for own is for coverage		scans) obtained with the 45 deg scans		
	o be listed belo		that was not o	1	,~~ 1\	% total for Sca
The data to	o be listed belo	ow is for coverage	that was not o	obtained with the 45 deg scans	50	% total for Sca % total for Sca
The data to	be listed belo	w is for coverage % Length X % Length X	that was not o	obtained with the 45 deg scans  % volume of length / 100 =  % volume of length / 100 =	<u>50</u> 0	

4 of 5

#### ONS 2 C05.021.022

All dimensions are in inches



60° shear wave beam covered 50% of the required volume in one axial direction from the Tee side. (Cross hatched area)

$$.254 \div 2 = .127$$
 sq.in.

$$.127 \div .254 \times 100 = 50\%$$

45° shear wave beam covered 50% of the required volume in two circumferential and two tangential directions. (Cross hatched area)

60° RL beam covered 0.048 sq. in. on the valve side of the weld. This equates to 18.89% of the required examination volume.

$$.048 \div .254 \times 100 = 18.89\%$$

MB AN117

This limitation was caused by the valve configuration which prevents scanning on the valve side of the weld. Reported coverage is the aggregate of all scans performed on the weld.

### UT Base Met、 \_amination

	Site	Site/Unit: Oconee / 2							Proced	ure:	NI	DE-640		Outage No.: ONS2EOC20		
	Şumman	y No.:	C05.	021.023				Pro	cedure R	lev.:		2			Report No.: U	T-04-026
	Works	cope:		ISI				Woi	rk Order I	No.:	980	506488			Page: 1	of <u>2</u>
Code:		Asme Sec	tion XI 1	989		Cat./I	tem:	C-F-	1/C5.21.	23	Loc	ation:			N/A	
Drawing	g No.:		2-51 A-	17 (3)			[	Descriptio	n: Valve	e (2HP-	 ·118) to Elb	ow				
System	ID: 5	1A			,		•									
Compo	nent ID: C	05.021.023	/2-51A-1	7-125						· · · · · · · · · · · · · · · · · · ·	Size/Ler	ngth:	N/A	Th	ickness/Diameter:	4.0" / .531
Limitati	ons: N	one				•						Start	Time:	0905	Finish Time:	0908
Examir	nation Surf	ace: ins	side [	Ou	ıtside 🗸		9	Surface C	ondition:	AS G	ROUND					
Lo Loc	ation:	9.	1.1.2		Wo Le	ocation:		enterline			Couplant:		ULTRAG	ELII	Batch No.:	01225
Temp.	Tool Mfg.:		FISHER	· · · · · · · · · · · · · · · · · · ·	_ Se	rial No.:		MCNDE 2	27219		Surface Te	emp.: _	97	°F	Scanning dB	62
Cal. Re	port No.:					CAL-04	1-042									
Ind.	Report No.:  ' % Amplitude Position (			on One		Positio	on Max		Position Two			Remarks				
No.	Back Wall		L1	W 1	W2	MP	LM	W1	W2	MP	L2	W 1	W2	MP	Demaik	
NRI			1.0													
	!															
			***************************************									_		•	······································	
	1											•				·
Comme	ents: FC	03-20			•						—— <del>•</del> ,			<del></del>		
Results		Accept 🔽	Reje	ect [	Info		Initial	l Section	XI Inspe	ection						
Percent	Of Covera	ige Obtained	d > 90%	Yes	-100%	_	Revie	ewed Prev	vious Dat	a:	No				· · · · · · · · · · · · · · · · · · ·	
Examine Eaton, c		el III (			Signature	e :		Da 2/10/20	ate Revi	ewer	Yan 1	M		Sign	nature	Date
Examine Jordan,	er Leve	el II	2	50	Signature	<del></del>			ate Site	Review		<del>/                                    </del>		Sign	nature	Date
Other <b>N/A</b>	Leve	N/A	//		Signature	<del></del>		Da	ate ANII	Review Ma	iney C!	Rtch	i Sla	Sign Lugiti	ature 3/2/0	Date 4

		PageS/ of /5			
Duke Energy.	Supplemental Report	Report No.:	บา	r-04-02	26
Le Lileigy.		Page:	2	_ of _	2
Summary No.: <u>C0</u>					
Examiner: Ea	ton, Jay A. Level: III Reviewer: Jan Moss		Date:	2-11-	<u> </u>
Examiner: Joi	rdan, Joey Level: II Site Review:		Date:	· · ·	
Other: N/	A Level: N/A ANII Review: Nancy C Kitchy S	laightir.	Date:	<i>3/</i> z	104
Comments:					
Sketch or Photo:	Z:\UT\IDDEAL\ProfileLine2.jpg				
	SZ ELBOW  SO O O O O O				



### UT Pipe Weld Examination

`	Site/Onit: U	conee /			Proced	oure:	NDE-600		Outa	ige No.: U	NS2EUC2	20
Summ	nary No.:	C05.02	1.023		Procedure F	Rev.:	15		Rep	ort No.:	UT-04-030	)
Wo	rkscope:	ISI	<u> </u>		Work Order	No.:	98606488	·	·	Page:1_	_ of _	3
Code:	Asme S	ection XI 198	9	Cat./Item:	C-F-1/C5.21.23	3	Location:			N/A		
Drawing No.:		2-51A-17	(3)		Description: Valv	e (2HP-118) t	o Elbow					
System ID:	51A		. = .									
Component ID:	C05.021.0	23 /2-51A-17-	125			Size	e/Length:	N/A	Thickne	ss/Diameter:	4.0"/.	531
Limitations:	Yes-See A	ttached Limit	tation Report			<del></del>	Star	t Time:	0925	Finish Time:	095	5
Examination S	Surface:	Inside []	Outside 🗸		Surface Condition	: AS GROU	ND					
Lo Location:		9.1.1.2	Wo Lo	ocation:	Centerline of Weld	. Cou	plant:	ULTRAGE	LII E	Batch No.:	0122	:5
Temp. Tool M	lfg.:	FISHER	Ser	ial No.:	MCNDE 27219	Surf	ace Temp.:	97	_°F			
Cal. Report N	o.:		CAL-04-043	3, CAL-04-04	5, CAL-04-048							
Angle Used	0	45 45T	60 <b>60L</b>									
Scanning dB		61	62 57					-				
Indication(s):	Yes 🗀	No 🗸		Sca	n Coverage: Upstre	am 🗌 🛮 Dow	nstream 🗸	CW 🔽	CCW 🔽			
Comments:												
Results: A	Accept 🗸	Reject 🗍	Info 🗌	In	itial Section XI Inspe	ection			•			
Percent Of Cov			No - 34.5%	_	Reviewed Previous Da		No No					
T CICCIN OI OO	verage Obtain	- 1 A	110 - 34.5 /6		ieviewed i revious ba		140					بيوغ المساحد
	_evel		Signature		Date Rev	iewer 📗	1 M		Signature	<del></del>	:	Date
Eaton, Jay A.					2/10/2004	Van	// ///0	~	0:		11-04	<u> </u>
Examiner L Jordan, Joey	evel II		Signature		Date   Site   2/10/2004	Review	1		Signature			Date
	evel N/A	July )	Signature		Date ANII	Review	00+1	, 50	Signature	3/- /		Date
N/A						Woney	C Ritch	y Jenn	erill	3/2/04		
											,	



# Determination of Percent Coverage for UT Examinations - Pipe

	C05.021.0	2	Procedure Procedure Rev		Outage No.: Report No.		2EOC2	
nmary No.:		23			-		04-030	
/orkscope:	ISI		Work Order No	98606488	Page -	: _2	of	3
	<del>-</del>							
45 deg								
Scan 1		% Length X _		% volume of length / 100 =		% total fo	r Scan	1
Scan 2		% Length X _		% volume of length / 100 =		% total fo	r Scan	2
Scan 3	100.000	% Length X	50.000	% volume of length / 100 =	50.000	% total fo	r Scan	3
Scan 4	100.000	% Length X	50.000	% volume of length / 100 =	50.000	% total fo	r Scan	4
,	Add totals and	d divide by # sca	ns = 50.000	% total for 45 deg				
•								
Other deg	60	_ (to be used for	r supplemental sc	cans)	•			
		-		cans) ained with the 45 deg scans.	••			
		-		·	٠.			
The data to	be listed belo	- ow is for coverage	that was not obt	ained with the 45 deg scans.	28 100	% total	for Sca	an 1
The data to	be listed belo	ow is for coverage  % Length X	that was not obt	ained with the 45 deg scans.  _ % volume of length / 100 =	38.100	_ % total		
The data to Scan 1 Scan 2	be listed belo	w is for coverage % Length X % Length X	38.100 0.000	ained with the 45 deg scans.  % volume of length / 100 =  % volume of length / 100 =	38.100 0.000	— _ % total	for Sca	an 2
Scan 1 Scan 2 Scan 3	be listed belo	w is for coverage  % Length X  Length X  Length X	38.100 0.000	ained with the 45 deg scans.  % volume of length / 100 =  % volume of length / 100 =  % volume of length / 100 =	0.000	— _ % total _ % total	for Sca	an 2 an 3
The data to Scan 1 Scan 2	be listed belo	w is for coverage % Length X % Length X	38.100 0.000	ained with the 45 deg scans.  % volume of length / 100 =  % volume of length / 100 =	0.000	— _ % total	for Sca	an 2 an 3
Scan 1 Scan 2 Scan 3 Scan 4	be listed belo	w is for coverage % Length X % Length X % Length X % Length X	38.100 0.000	ained with the 45 deg scans.  % volume of length / 100 =  % volume of length / 100 =  % volume of length / 100 =	0.000	— _ % total _ % total	for Sca	an 2 an 3
Scan 1 Scan 2 Scan 3 Scan 4	100.000 100.000 omplete cove	w is for coverage  % Length X  % Length X  hength X  hength X  hength X  rage	38.100 0.000	ained with the 45 deg scans.  % volume of length / 100 =	0.000	— _ % total _ % total	for Sca	an 2 an 3
Scan 1 Scan 2 Scan 3 Scan 4  Percent c	100.000 100.000 omplete cove	w is for coverage  % Length X  % Length X  % Length X  % Length X  rage  required and divi	38.100 0.000	ained with the 45 deg scans.  % volume of length / 100 =	0.000	— _ % total _ % total	for Sca	an 2 an 3
Scan 1 Scan 2 Scan 3 Scan 4  Percent c	100.000 100.000 omplete cove	w is for coverage  % Length X  % Length X  hength X  hength X  hength X  rage	38.100 0.000	ained with the 45 deg scans.  % volume of length / 100 =	0.000	— _ % total _ % total	for Sca	an 2 an 3
Scan 1 Scan 2 Scan 3 Scan 4  Percent c  Add totals 34.525	100.000 100.000 omplete cove for each scan % Total for	% Length X rage required and divi	38.100 0.000 de by # of scans	ained with the 45 deg scans.  _ % volume of length / 100 =  _ to determine;	0.000	% total % total % total	for Sca for Sca	an C an C
Scan 1 Scan 2 Scan 3 Scan 4  Percent c  Add totals 34.525	100.000 100.000 omplete cove for each scan % Total for	% Length X rage required and divi	38.100 0.000 de by # of scans	ained with the 45 deg scans.  _ % volume of length / 100 =  _ to determine;	0.000	% total % total % total	for Sca for Sca	an C an C
Scan 1 Scan 2 Scan 3 Scan 4  Percent c  Add totals 34.525	100.000 100.000 omplete cove for each scan % Total for	% Length X rage required and divi	38.100 0.000 de by # of scans	ained with the 45 deg scans.  _ % volume of length / 100 =  _ to determine;	0.000	% total % total % total	for Sca for Sca	aan 2 aan 4
Scan 1 Scan 2 Scan 3 Scan 4  Percent c  Add totals 34.525	100.000 100.000 omplete cove for each scan % Total for	% Length X rage required and divi	38.100 0.000 de by # of scans	ained with the 45 deg scans.  % volume of length / 100 =	0.000	% total % total % total	for Sca for Sca	an C an C

#### **Limitation Record**



Site/Unit: Oconee /

immary No.:

C05.021.023

Procedure:

**NDE-600** 

Outage No.:

ONS2EOC20

Procedure Rev.:

15

Report No.:

UT-04-030

Workscope:

ISI

Work Order No.:

Ç

98606488

Page:

of

Description of Limitation:

Limited due to Valve Configuration.

Sketch of Limitation:

VALUE SI

5Z

SHEAR COVERAGE

60° RL SUPPLEMENTAL COVERALE

AREA

.18 x 1.15 = , Z1 12 Z

0.4 +0.5 x.18 = 1.08 /.21 ×100 = 38.1%

60° RL COVERALE =

.21 - .08 = .13/.21 × 100 = 61.9%

45° CW & CCW COVERAKE.

, 21 - 2 = .105/.21 × 100 = 50%

Limitations removal requirements:

N/A

Radiation field: N/A

Signature 7/10/04 Da	te Reviewer	∫ ∆/ Signature	Date
2/9/200	# 9E 7/10/04 Day	Mos	2-11-04
Signature 21 1 Da	te Site Review	Signature	Date
(D) 2/9/20	14 9/2 Z/10/04	,	
Signature Da	te ANII Review	∫ Signature	Date
- · ·	Nancy C Kitch	il Saughter	3/2/04
	8 grature 2   10   249/200 Signature Da	8ignature 2/10/04 Date Site Review 7 2/10/04 Signature Date ANII Review	Signature  Signature  Date   Site Review   Signature   Signature

# Energy.

### UT Base Met. \_amination

Site/Unit: Oconee / 2				Procedure:			ure: _	e: NDE-640			Outage No.: ONS2EOC2			C20			
	Summa	ry No.:	C05.0	021.051				Pro	cedure R	ev.:		2			Report No.:	JT-04-0	15
	Work	scope:		ISI .		-		Wor	rk Order 1	ا <u> </u>	986	06478			Page: 1	of	2
Code:		Asme Sec	tion XI 1	989		Cat./I	tem:	C-F-	1/C5.21.5	51	Loca	ation:			N/A		
Drawin	g No.:		2-51A-	17 (1)				Descriptio	n: Pipe	to Valv	 /e (2LP-56)	_					
System	ID; -	51A					-			·	·········			*			
Compo	nent ID: (	C05.021.051	/2-51 A-1	7-20A							Size/Ler	igth:	N/A	Th	nickness/Diameter:	3.0" /	.216
Limitati	ons: [	Vone	·									_	Time:	0950	Finish Time:	09	53
Exami	nation Sui	rface: Ins	side []	Οι	ıtside 🗸		5	Surface C	ondition:	AS G	ROUND						
Lo Loc	ation:	9.	1.1.1		_ Wo L	ocation:	Ce	enterline	of Weld		Couplant:		ULTRAG	ELII	Batch No.:	012	25 ·
Temp.	Tool Mfg.	:1	FISHER		_ Se	rial No.:		MCNDE 2	27219		Surface Te	emp.:	97	°F	Scanning d	B:	58
Cal. R	eport No.:				<del></del>	CAL-0	4-021										
Ind.	% Loss	Amplitude %		Positi	on One			Positio	on Max			Posit	ion Two		Remar	ks	
No.	Back Wal	Full Screen	L1	W1	W2	MP	LM	W1	W2	MP	L2	W 1	W2	MP			
NRI																	
		<del></del>									++						
		-	<u> </u>	ļ				<del> </del>					ļ				
}					1											•	
Comme	ents: FC	03-20			*			·	<del></del>								
Results		Accept 🔽	Pai	ect 🗍	Info		Initial	L Continu	VI I	_+!							
			·	- 1				Section									
Percen	Of Cover	age Obtained	3 > 90%:	Yes	-100%		Hevie	ewed Prev	vious Dat	a:	No						
Examin Eaton,		vel III			Signatur >	е		Da 2/9/20	ate Revie	ewen	1	M	<b>*</b>	Sigr	nature	2-11-	Date
Examin		vel II	1		Signatur	e				Review	~~~		V V	Sigr	nature .	<u> </u>	Date
Jordan,			Jour,	Sol	dan.		<u></u>	2/9/20									
Other <b>N/A</b>	Lev	/el N/A /	. /	/	Signatur	e 		Da	ate ANII	Review	Nancy	0K	tche	Sigr Ska	nature tu 3	12/0	Date 4
											11						



### Supplemental Report

Report No.:

UT-04-015

Page:

2 of

Summary No.: C05.021.051

Examiner: Eaton, Jay A.

Examiner: Jordan, Joey

Other: N/A

Level:

N/A

Level:

Level:

ANII Review:

Site Review:

Date: 3/2/09

Comments:

Sketch or Photo:

Z:\UT\IDDEAL\ProfileLine2.jpg

SZ VALVE

PIPE



### **UT Pipe Weld Examination**

5	Site/Unit:	Oconee	· /	2			þ	rocedure:	NDE-	-600		O	utage No.:	ONS2E	JC20
Summ	nary No.:		C05.02	1.051			Proced	lure Rev.:	15	5		F	Report No.:	UT-04-	018
Wo	rkscope:		IS	l			Work C	Order No.:	98606	6478			Page:	<u>1</u> of	3
Code:	Asme	Section	XI 198	9		Cat./Iter	n: <b>C-F-1/C5.</b>	21.51	Location	on:			N/A		
Drawing No.:		2-	-51A-17	(1)			Description:	Pipe to Valv	/e (2LP-56)						
System ID:	51A									_					
Component D:	C05.021	.051 /2-5	51A-17-	20A					Size/Length:	1;	N/A	Thick	ness/Diamete	r: 3.0'	" / .216
Limitations:	Yes-See	Attache	ed Lkim	itation	Report					Start	Time:	1010	Finish Time	ə: <u>1</u>	030
Examination S	Surface:	Inside	e 🗌	Ou	tside 🗸		Surface Con	dition: AS G	ROUND						
Lo Location:		9,1,1	.1		Wo Lo	cation:	Centerline of	Weld	Couplant:	_	ULTRAGE	L II	Batch No.:	0.	1225
Temp. Tool M	fg.:	FIS	HER		. Seri	al No.:	MCNDE 272	219	Surface Tem	np.: _	97	_ °F			
Cal. Report No	0.:			C	AL-04-024	, CAL-04-	-028, CAL-04-029								
Angle Used	0	45	45T	. 60	70										
Scanning dB			56	60	63										
Indication(s):	Yes	No			L	٥	يـــا can Coverage:    Ul	nstream 🕡	Downstream		CW 🔽	CCW 💽	7		
	103 [;	140	l <b>Y</b> _			O	can coverage.	30110a111 ( <u>*</u> )	20 Wilott Gairi		J., ( <u>F</u> )	00,,,			
Comments:													•		
Results: A	ccept 🔽	Rej	ect 📋		Info 🗌		Initial Section XI	Inspection							
Percent Of Cov	verage Obt	tained >	90%:	No.	o - 35.2%		Reviewed Previou	ıs Data:	No						
Examiner L	evel III			- 9	Signature		Date	Reviewer (	LO 1	v1		Signati	ure		Date
Eaton, Jay A.		(			<del></del>		2/9/2004	X	Jan //	MC	02			2-11-0	
	evel II		1		Signature		Date 2/9/2004	Site Review	' Y			Signatu	ıre		Date
Jordan, Joey Other L	evel N/A	<del>-\</del>	ay,		Signature			ANII Review	v <sub>i</sub> , ,	0 '	0 ( )	Sjánati	ıre		Date
N/A	17/7							$\wedge$	loney C/	Lite	hi Sla	ughtu	,	3/2/04	+



IN ONE AXIAL DIRECTOR.

# Determination of Percent Coverage for UT Examinations - Pipe

		2	Procedure		Outage No	
ummary No.:	C05.021.0	51	Procedure Rev		Report No	
Workscope:	ISI		Work Order No.	.: 98606478	Page 	e: <u>2</u> of <u>3</u>
					•	· .
<u>45 deg</u>						
Scan 1		_ % Length X _	······································	6 volume of length / 100 =		% total for Scan 1
Scan 2		_ % Length X _	<u> </u>	% volume of length / 100 =		% total for Scan 2
Scan 3	100.000	% Length X	50.000 %	% volume of length / 100 =	50.000	% total for Scan 3
Scan 4	100.000	% Length X	50.000 %	% volume of length / 100 =	50.000	% total for Scan 4
	Add totals and	l divide by # scar	ns = 50.000	% total for 45 deg		
		·				
•						•
				•		
Other deg	<del>-</del>		supplemental/sca	•		
	<del>-</del>		• •	ans) ined with the 45 deg scans.		
	be listed belo	w is for coverage	that was not obta	ined with the 45 deg scans.	40.600	% total for Scar
The data to	be listed below	w is for coverage	that was not obta	ined with the 45 deg scans.  % volume of length / 100 =	40.600	
Scan 1 Scan 2	be listed belo	w is for coverage  ""  ""  ""  ""  ""  ""  ""  ""  ""	that was not obta	% volume of length / 100 = % volume of length / 100 =	40.600 0.000	% total for Scar
The data to	be listed below	w is for coverage	that was not obta	% volume of length / 100 = % volume of length / 100 = % volume of length / 100 =		% total for Scar
Scan 1 Scan 2 Scan 3	be listed below	w is for coverage  ""  ""  ""  ""  ""  ""  ""  ""  ""	that was not obta	% volume of length / 100 = % volume of length / 100 =		% total for Scar
Scan 1 Scan 2 Scan 3 Scan 4	be listed below	w is for coverage  ""  ""  ""  ""  ""  ""  ""  ""  ""	that was not obta	% volume of length / 100 = % volume of length / 100 = % volume of length / 100 =		% total for Sca
Scan 1 Scan 2 Scan 3 Scan 4	100.000 100.000 omplete cover	w is for coverage  ""  ""  ""  ""  ""  ""  ""  ""  ""	40.600 0.000	<pre>with the 45 deg scans. % volume of length / 100 = % volume of length / 100 = % volume of length / 100 = % volume of length / 100 =</pre>		% total for Scar
Scan 1 Scan 2 Scan 3 Scan 4	100.000  100.000  omplete cover	w is for coverage  "	40.600 0.000	<pre>with the 45 deg scans. % volume of length / 100 = % volume of length / 100 = % volume of length / 100 = % volume of length / 100 =</pre>		% total for Scar
Scan 1 Scan 2 Scan 3 Scan 4  Percent co	100.000  100.000  omplete cover	w is for coverage  "	40.600 0.000	<pre>with the 45 deg scans. % volume of length / 100 = % volume of length / 100 = % volume of length / 100 = % volume of length / 100 =</pre>		% total for Scar % total for Scar % total for Scar % total for Scar
Scan 1 Scan 2 Scan 3 Scan 4 Percent co	100.000  100.000  omplete cover	w is for coverage  "	40.600 0.000	<pre>with the 45 deg scans. % volume of length / 100 = % volume of length / 100 = % volume of length / 100 = % volume of length / 100 =</pre>		% total for Scar
Scan 1 Scan 2 Scan 3 Scan 4  Percent condition Add totals 35.150  Site Field	100.000  100.000  100.000  omplete cover for each scan % Total for Supervisor:	w is for coverage  " Length X  " Length X  " Length X  " Length X  rage  required and divide complete exame	40.600 0.000 de by # of scans to	ined with the 45 deg scans.  % volume of length / 100 =	0.000	% total for Scar % total for Scar % total for Scar



#### **Limitation Record**

Site/Unit:	Oconee /	2
ummary No.:	C05.0	021.051

Procedure: NDE-600
Procedure Rev.: 15

Outage No.: \_\_\_\_C Report No.:

ONS2EOC20 UT-04-018

Workscope: ISI

Work Order No.: 98606478

Page: 3 of

Description of Limitation:

Limited Due to Valve Configuration

Sketch of Limitation:

SZ VALVE SI PIPE

170° SUPPLEMENTAL COVERAGE! 2 SHEAR WAVE COVERAGE

TOTAL EXAM AREA = 0.8  $\times$ .072 = .0576 10° 60° SHEAR COVERAKE = 0.3 + 0.35  $\times$ .072 = .0234/  $\times$ .0576  $\times$ 100 = 40.6%. 70° SHEAR COVERAKE = .0576 - .0234 = .0342/.0576  $\times$ 100 = 59.4%

45° CW & CCW = 10576 - Z = 10288/10576 ×100 = 50%

Limitations removal requirements:

N/A

Radiation field: N/A Examiner Level III Signature Date Reviewe 1 Signature Date Eaton, Jay A. 2/9/2004 Examiner Level II Date Site Review Signature Date Jordan, Joey 2/9/2004 'her\_ Date **ANII Review** Signature Date Namey C Ritcher Staughter 14/A

# UT Base Met。 \_amination

	Site/Unit: Oconee / 2 Summary No.: C05.021.054					Procedure:							ONS2EC				
	Summan								cedure R		<del></del>	2			Report No.:	UT-04-0	
	Works	cobe:		ISI				Wo	rk Order i	No.: 	986	606499			Page:	1 01	2
Code:		Asme Sect	tion XI 1	989		Cat./	item:	C-F-	1/C5.21.5	54	Loc	ation:			N/A	·	
Drawin			2-51A-	17 (4)			-	Descriptio	n: Tee t	o Pipe		<del>-</del>	<del></del>			·	
System		1A									<u> </u>						
•		05.021.054	/2-51A-1	7-102		<del></del>					Size/Le		N/A		hickness/Diamete		/ .438
Limitation	ons: <u>N</u>	one				<del></del>						Star	t Time:	0913	Finish Time	e:	916
Examir	nation Surfa	ace: Ins	side 🔲	Οι	utside 🗹		_	Surface (	Condition:	AS G	ROUND						
Lo Loc	ation:	9.	1.1.1		WoL	ocation:	C	enterline	of Weld		Couplant:		ULTRAG	ELII	Batch No.: _	01:	225
Temp.	Tool Mfg.:		FISHER		. Se	erial No.:		MCNDE 2	27219	<u>:</u>	Surface Te	emp.:	97	°F	Scanning	j dB:	62
Cal. Re	eport No.:					CAL-0	4-031										
Ind.	%	Amplitude		Positi	on One			Positi	on Max	-		Posit	ion Two				
No.	Loss Back Wall	% Full Screen	L1	W <sub>1</sub>	W2	MP	LM	W <sub>1</sub>	W <sub>2</sub>	MP	L2	W 1	W <sub>2</sub>	MP	Rer	narks	
- LIDI	- Buok Wall	Tun Sorcen		<del>                                     </del>	<del> </del>			<del>                                     </del>		<del>                                     </del>			<del>                                     </del>	<del>                                     </del>			
NRI				ļ				ļ		<u> </u>			<u> </u>				
							<u> </u>							1 1			
				<del> </del>		<del> </del>	<u> </u>	<del> </del>			+	<del></del>	<del> </del>				
<u></u>				<u></u>		<u></u> :	<u> </u>		<u> </u>				<u> </u>		····	<del></del>	
Comme	ents: FC	03-20				•											
Results		Accept 🗸	Rej	ect 🗌	Info		Initial	l Section	XI Inspec	ction							
Percent	Of Covera	ge Obtained	> 90%:	Yes	<b>-</b> 100%		Revie	ewed Prev	ious Data	a:	No						
Examine	er Love	el III			Signature				ate Revi	ewer 4		2/		Sign	nature		Date
Eaton,			$\bigcirc$	4		,		2/10/20	104		Jan /	///or		Olgi		2-11-04	
Examine		el II	#		Signature				ate Site			<del>( (</del>		Sigr	iature		Date
Jordan,		<del>,</del>	De	<u> </u>	Del.	m	····	2/10/20		Deviler				0:	nature		Date
Other	Leve	el /			Signature	9		Di	ate ANII	Heview	negek	tekel	Slavi	Lti:	14 (ure	2/04	⊅ate
												<del></del>		Y ====	<u>~~</u>		

Duke
Energy.

### Supplemental Report

Report No.: <u>UT-04-027</u>
Page: 2 of 2

Summary No.: C05.021.054

Examiner: Eaton, Jay A.

Examiner: Jordan, Joey

Other:

Level: III

Level: II

Level:

Reviewer:

Site Review:

ANII Review:

Date: 2.11.04

Date:

Date: 3/2/04

Comments:

Sketch or Photo:

E:\UT\IDDEAL\ProfileLine2.jpg

PIPE SI

TEE SZ

#### Duke Energy.

### **UT Pipe Weld Examination**

5	Ocone	e /	2			Р	rocedure:	NDE-6	300	Out	tage No.: C	NS2EOC	20	
Summ	nary No.:		C05.02	1.054			Proced	ure Rev.:	15		Re	port No.:	UT-04-03	1
Wo	rkscope:		IS	1		,	Work C	order No.:	986064	199		Page: 1	of _	3
Code:	Asmo	e Sectio	n XI 198	19		Cat./Item:	C-F-1/C5.	21.54	Location	n:		N/A		
Drawing No.:		2	-51A-17	(4)		_	Description:	Tee to Pipe						
System ID:	51A						·							
Component ID:	C05.02	1.054 /2-	51A-17-	102					Size/Length:	N/A	Thickne	ess/Diameter:	3.0"/	.438
Limitations:	Yes - S	ee Attac	hed Lim	itation	Report					Start Time:	0921	Finish Time:	094	8
Examination S	Surface:	Insid	le []	Ou	tside 🗸		Surface Con	dition: AS G	ROUND					
Lo Location:		9.1.	1.1		Wo Loca	ation:	Centerline of	Weld	Couplant: _	ULTRAĞI	EL II	Batch No.:	0122	25
Temp. Tool M	fg.:	FIS	SHER		Seria	I No.:	MCNDE 272	19	Surface Temp	o.: <u>97</u>	~F			
Cal. Report No	o.:		=	C	AL-04-033,	CAL-04-04	44, CAL-04-047	<del></del>						
Angle Used	0	45	45T	60	70		7		-					
Scanning dB			61	62	61									
Indication(s):	Yes ["	] No	<b>V</b>			Soa	an Coverage: U	ostream 🗹	Downstream (	<b>y</b> cw <b>y</b>	CCW 🗹			
Comments:			-									•		
Comments.													•	
:														
:														
Results: A	ccept 🗸	Re	ject 🗀	. Na	Info 🗌	<u> </u>	nitial Section XI	Inspection			·			
Percent Of Cov	rerage Ob	tained >	90%:		<del>s -</del> 86.1%	_	Reviewed Previou	ıs Data:	No	_				
Examiner L	evel III	7		5 .	Signature		Date	Reviewer		-	Signatur	e		Date
Eaton, Jay A.					Š		2/10/2004		wilk &	III			02/17	104
	evel II				Signature		Date	Site Review			Signature	e.	7	Date
Jordan, Joey	ovel		lly)	M	(An)		2/10/2004	ANIII Davian			Cianat			Date
Other L N/A :	evel N/A	1 /		5	Signature		Date	ANII Review	uy C. Rites	64.5/00	Signature	e . 3/z	1011	Date
									- July	u soul	men.	. 0/ 2	704	



# Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit: _(	Oconee /	2	Procedure	NDE-600	Outage No.:	ONS2EOC20
Summary No.:	C05.021.0	54	Procedure Rev.	.: <b>1</b> 5	Report No.:	UT-04-031
Workscope: _	ISI		Work Order No.	98606499	Page:	of3
<del></del>		, , , , , , , , , , , , , , , , , , ,				
45 deg						
Scan 1		_ % Length X _		% volume of length / 100 =		% total for Scan 1
Scan 2		_ % Length X _	·/	% volume of length / 100 =		% total for Scan 2
Scan 3	100.000	_ % Length X	100.000 %	% volume of length / 100 =	100.000	% total for Scan 3
Scan 4	100.000	% Length X	100.000 %	% volume of length / 100 =	100.000	% total for Scan 4
	,					
	Add totals and	I divide by # scan	ns = 100.000	% total for 45 deg		
Other de	eg - 60	(to be used for	supplemental sca	ans)		
The data	to be listed belo	w is for coverage	that was not obtain	ined with the 45 deg scans.		
Scan 1	63.600	% Length X	100.000	% volume of length / 100 =	63.600	% total for Scan 1
Scan 2	63.600	% Length X	100.000	% volume of length / 100 =	63.600	% total for Scan 2
Scan &	36.400	 % Length X	46.700	% volume of length / 100 =	16.999	% total for Scan 3
Yezholar Scan A	Z 36.400	% Length X	0.000	% volume of length / 100 =	0.000	% total for Scan 4
ocan y		/o Cengui X	0.000	- 76 Volume of length? 100 =	0.000	
Percent	complete cove	rage				
		<del></del>	la bu # of acona to	o determine:		
Add total	ls for each scan	required and divid	le by # of scans to	o determine;		
	ls for each scan	<del></del>	te by # of scans to	o determine;		·
Add total	ls for each scan	required and divid	te by # of scans to	o determine;	, 1	
Add total <b>86.050</b>	ls for each scan	required and divid	le by # of scans to		2/10/04	<b>t</b>
Add total 86.050 Site Field	Solution of the second of the	required and divid		Date:	-1	t
Add total 86.050 Site Field	% Total for d Supervisor:	required and divid		Date: 7	) PERCU	FOT COVERA
Add total  86.050  Site Field  SOTE:	SHEA	required and divid complete exam  AC SCA,	S SOT SIREMEN	INCUMDED INTS OF IOCF	250.55	(2)(2)(xy)
Add total  86.050  Site Field  STE:	SHEA	required and divid complete exam  AC SCA,	S SOT SIREMEN	Date:	250.55	a.(b)(2)(xy)



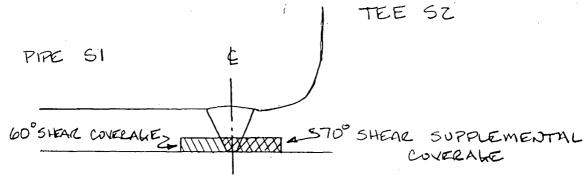
#### **Limitation Record**

Site/Unit:	Oconee / 2		Procedure:	Procedure: NDE-600				20_	
mary No.:	C05.021	.054	Procedure Rev.:	15	Report No.:	UT-04-031			
Workscope:	ISI	•	Work Order No.:	98606499	Page:	3	of	3	

Description of Limitation:

Limited in the throat on each side of the tee on the S2 side of the weld. Lo  $\pm$  1.75" to Lo  $\pm$  3.75" and Lo  $\pm$  7.25" to Lo  $\pm$  9.25".

Sketch of Limitation:



TOTAL EXAM AREA = 15 x 1.0 = 15 10 2

Limitations removal requirements:

N/A

Radiation field: N/A

Examiner	Level	III /	71	Signature	Date	Revi <b>e</b> wer ≬	21	Signature	Date
Eaton, Jay A.			M		2/10/2004	Day	Moss	2-11-04	
Examiner	Level	II		Signature	Date			Signature	Date
Jordan, Joey			Des	( perlan	2/10/2004	. '	/	,	
Other	Level			Signature	Date	ANII Review	2011	Co Signature	Date
~			-	· ·		Noncy	of Coutches	Slaughter 3/2/04	

### UT Base Met. Lamination



	Site	Unit: Oco	nee /	2					Procea	ure:	INL	JE-640		Outage No Or			250020	
	Summary	/ No.:	C05.0	021.056				Prod	cedure R	ev.:		2			Report No.:	JT-04-0	21	
	Works	cope:		ISI				Wor	k Order I	No.: _	980	606501			Page: 1	_ of	2	
Code:	****	Asme Sect	ion XI 1	989		Cat./I	tem;	C-F-	1/C5.21.5	56	Location:			N/A				
Drawin	g No.:		2HP-22	27				Description: Elbow to Valve (2HP-114)					-					
System	ID: 5	1A					-											
Compo	nent ID: C	05.021.056	/2HP-22	7-11							Size/Ler	ngth:	N/A	Th	ickness/Diameter:	3.0"	.438	
Limitati	ons: N	one										Start	Time:	0911	Finish Time:	09	16	
Examir	nation Surf	ace: Ins	side 📋	Ou	tside 🗹		S	Surface Co	ondition:	AS GI	ROUND							
Lo Loc	ation:	9.	1.1.2		. Wo Lo	ocation: _	Ce	nterline	of Weld		Couplant:		ULTRAG	ELII	Batch No.:	012	25	
Temp.	Tool Mfg.:	F	ISHER		. Ser	rial No.: _		MCNDE 2	7217		Surface Te	emp.:_	81	°F	Scanning d	B:	40	
Cal. Re	eport No.:					CAL-04	1-038							<u></u>				
Ind.	% Loss	Amplitude %		Positi	on One	· ·		Positio	on Max			Posit	tion Two		Remai	ks		
No.	Back Wall	Full Screen	L1	W1	W2	MP	LM	W 1	W2	MP	L2	W 1	W2	MP	, toma			
NRI																		
							-											
			-7	<del> </del>						<del></del>			<del> </del>					
<b> </b>			<del></del>				· · · - · · ·					<del> </del>	<del>                                     </del>					
Comme	ents: FC	03-20								<u> </u>		<del></del>		<u> </u>				
					•													
Results		Accept 🔽	•	ect	Info			Section	<del></del>									
Percent	Of Covera	age Obtained	d > 90%:	Yes	-100%		Revie	ewed Prev	ious Dat	a: 	No	<u> </u>						
Examine Houser	er Leve , <b>Gayle E</b> .	el III			Signature			Da 2/10/20	ite Revi	ewer (	Jan 1	Mo-	م	Sign	nature	2-//	Date -∂ <b>y</b>	
Examine Weaver	, Marion T		······································	7 - W	Śignature 	<u> </u>		Da <b>2/10/20</b> 0	04	Review	'				ature		.Date	
Other N/A	Leve	el N/A			Signature	)		Da	te ANII	Review	3///			Sign	nature	2/2	Date 7/•4	



### Supplemental Report

Report No.: UT-04-021

Page: 2 of 2

Summary No.: C05.021.056

Examiner: Houser, Gayle E.

Examiner: Weaver, Marion T. Marion V. Weaver

Other: N/A

Level: III

Level: II

Level: N/A

Reviewer:

Site Review:
ANII Review:

nil l

Date: 2/27/14

Comments:

Sketch or Photo:

Z:\UT\IDDEAL\ProfileLine2.jpg

(S2) MAINE ZHP-114 423 ... 423 ... 420 ... 415 ... 407 ...

5**1**) E180w



### UT Pipe Weld Examination

Site/Unit: Ocor		Oconee /	2			Pr	ocedure:	NDE-600	)	C	Outage No.:	NS2EOC	20
	ary No.:	C05.	021.056				ure Rev.:	15	<del></del>	1		UT-04-02	3
Worl	kscope:		ISI	<del></del>	·	Work O	rder No.:	9860650	1		Page: 1	of	3
Code:	Asme	e Section XI 1	989	· · · · · · · · · · · · · · · · · · ·	Cat./Item:	C-F-1/C5.2	21.56	Location:			N/A		
Drawing Nö.:		2HP-2	27			Description:	Elbow to Va	ve (2HP-114)					
System ID:	51A												
Component ID:	C05.02	1.056 /2HP-22	7-11			.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		Size/Length:	N/A	Thick	kness/Diameter:	0.438	"/3"
Limitations	Yes - Se	ee attached li	mitation re	port				Sta	ırt-Time:	0916	Finish Time:	093	0
Examination S	urface:	Inside [	Out	side 🗸		Surface Cond	dition: AS G	ROUND					
Lo Location:		9.1.1.2		Wo Loca	ition:	Centerline of	Weld	Couplant:	ULTRAGI	EL II	Batch No.: _	0122	25
Temp. Tool Mf	g.:	FISHEF	<u> </u>	Serial	No.:	MCNDE 272	17	Surface Temp.:	81	°F			
Cal. Report No	o.:		CA	L-04-039,	CAL-04-04	0, CAL-04-041							
Angle Used	0	45 45	F 60	70									
Scanning dB		45	48	48									
Indication(s):	Yes [	No 🔽			Scar	n Coverage: Up	ostream 🗌	Downstream 🗸	CW 🗸	CCW (	<b>✓</b>		
Comments:													
Dagulta: A	t [	Deject		Info [7]	I	itial Cantina VII							
	ccept 🔽			Info 🗌		itial Section XI I		- · · · · · · · · · · · · · · · · · · ·					
Percent Of Cov	erage Ot	otained > 90%	: No	- 35.7%	- -	Reviewed Previou	ıs Data:	No	•				
1	evel III		,s	ignature			Reviewer	1 M		Signat	ure		Date
Houser, Gayle E Examiner Le				ignature	1017	2/10/2004 Date	Site Review		20	Signat	uro	2-11-04	Date
Weaver, Marion	evel    ıT	Marin		gnature		2/10/2004	Site Heview	U '		Signal	uic	•	Dale
	evel	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		gnature			ANII Review		,	Signat	ure	2/27/	Date
			··········										<del></del>



# Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit:	Oconee / 2		Procedure	e: NDE-600	Outage No.:	ONS2EOC20	
Summary No.:	C05.021.0	056	Procedure Rev	15	Report No.:	: UT-04-023	
Workscope:	ISI	<u>~</u>	Work Order No	98606501	Page:	2 of 3	
<u>45 deg</u>						•	
Scan 1		% Length X _		% volume of length / 100 =		% total for Scan 1	
Scan 2		% Length X _		% volume of length / 100 =		% total for Scan 2	
Scan 3	100.000	% Length X _	50.000	% volume of length / 100 = _	50.000	% total for Scan 3	
Scan 4	100.000	% Length X _	50.000	% volume of length / 100 = _	50.000	% total for Scan 4	
					• •		
	Add totals and	d divide by # sca	ns = 50.000	% total for 45 deg			
			•			•	
Other de	eg - 60	(to be used for	r supplemental sc	ans)	•		
		<del></del>		ained with the 45 deg scans.			
me data	i to be listed beit	ow is for coverage	that was not obta	anieu with the 45 deg scans.			
Scan 1	100.000	% Length X	42.900	% volume of length / 100 =	42.900	_ % total for Scan 1	
Scan 2	100.000	— % Length X	0.000_	_ % volume of length / 100 =	0.000	% total for Scan 2	
Scan 3	3	% Length X		% volume of length / 100 =		_ % total for Scan 3	
Scan 4	4	% Length X		% volume of length / 100 =	<u> </u>	% total for Scan 4	
Percent	complete cove	rano					
<u>i ciccin</u>	complete cove	rage					
			de by # of scans t	o determine;			
35.72	5 % lotal for	complete exam					
Site Fie	ld Supervisor:			Date:	2/10/04	•	
NOTE:	70° SHEC	r scan	かび エ	NCLUDED IN	PERCEN	IT COVERALLE	
BEST	EFFOLT	5CW 4	21TH 70	" SHEAR OBT	FINED S	7.1%	
COVERA	KE IN	ONE	AXIAL -	DIRECTION.			

#### **Limitation Record**



Site/Unit: Oconee /

Procedure:

**NDE-600** 

Outage No.:

ONS2EOC20

.mmary No.:

C05.021.056

Procedure Rev.:

15

Report No.:

UT-04-023

Workscope:

ISI

Work Order No.:

98606501

Page:

of

Description of Limitation:

Partial coverage from S1 CW & CCW - No scan S2 due to valve configuration.

Sketch of Limitation:

VALUE 52

ELBOW SI

60° SHEAR COVERALLE

TOTAL EXAM AREA = 115 x ,95 = 14 12 60° SHEAR COVERALE = 0.35+0.4 x.15=,06/14 x100 = 42,9% 70° SHEAR COVERAGE = .14 - .06 = .08/14 × 100 = 57.1% 45° CW & CCW = .14 - 2 = .07/14 ×100 = 50%

Limitations removal requirements:

N/A

Radiation field: N/A

Examiner	Level	ш	Signature	Date	Reviewer	Signature	Date
Houser, Ga	yle E.		NICHTHER	2/10/2004	I WE		2/10/04
Examiner	Level	11	Signature	Date	Site Review	Signature	Date
Weaver, Ma	rion T.	Man	Ti Wence	2/10/2004	V		
ther	Level		Signature	Date	ANII Review	Signature	Date
	-, -				111/		2/27/04

# Energy.

### UT Base Meta \_amination

	Site	Junit: Ucor	nee /						Procedi	ore: NDE-640 Outage No.,			Odlage No.	152EUU20		
	Summan	/ No.:	C05.	021.058				Pro	cedure R	ev.:	·	2	<del></del>		Report No.:U	T-04-104
	Works	cope:		ISI				Wor	k Order 1	۷o.:	986	304113	<del>,</del> ,	Page: 1 of		
ode:		Asme Sect	ion XI 1	989		Cat./I	tem:	C-F-	1/C5.21.5	58	Loca	ation:			N/A	
rawing	g No:		2-51 A	-31				Descriptio	n: Pipe	to Valv	—- /e (2HP-20)	•				
ystem	ID: 5	1A					•								•	
ompoi	nent ID: C	05.021.058	/2-51A-3	31-50							Size/Ler	ngth:	N/A	Th	ickness/Diameter:	.438"/3.0"
imitatio	ons: N	ONE										Start	t Time:	1103	Finish Time:	1105
xamir	nation Surf	ace: Ins	ide 🗍	Ou	tside 🗹		5	Surface C	ondition:	GRO	JND					
o Loc	ation:	9.	1.1.1		- Wo Lo	ocation: _	Ce	nterline	of Weld	<del></del>	Couplant:		ULTRAG	ELII	Batch No.:	03125
emp.	Tool Mfg.:	F	ISHER		. Sei	rial No.: _		MCNDE	2769		Surface Te	emp.: _	63	— °F	Scanning de	B: <u>45</u>
al. Re	eport No.:					CAL-04	-186				····					
Ind.	% Loss	Amplitude %		Positi	on One			Positio	on Max		Position Two			Remark	.s	
No.	Back Wall	Full Screen	L1	W1	W2	MP	LM	W1	W2	MP	L2	W1	W2 MP			
NRI																
							· · · · · · · · · · · · · · · · · · ·						<del>                                     </del>			······
				<del> </del>	ļ					ļ	1		<del> </del>	1		
			<del></del>	<del> </del>	<u> </u>								<u> </u>			
													1			
omme esults:	:	03-20 Accept 🗹		ect 🗀	Info			l Section	<del></del>							·
ercent	Of Covera	ige Obtained	1 > 90%:	Yes	100%	<u></u>	Revie	ewed Prev	ious Dat	a:	No	==				
amine	er Leve James H.	el II		nest	Signature			Da 3/30/20	ate Revie	ewer	Yan	1	Mos	Sign	nature	4-2-6
amine auldin	er Leve , <b>Larry E</b> .	el II	T mu	87	Signature	9		Da 3/30/20	1	Review		ΥT			ature	
lher	Leve	el .	0		Signature			Da	ite ANII	Review ${\cal L}$	anuy C	Rtil	v Slav	Sign	ature 4/6/6	4.

Duke
Duke Energy

### Supplemental Report

Report No.: <u>UT-04-104</u>
Page: 2 of 2

Summary No.: C05.021.058

Examiner: Resor, James H.

Examiner: Mauldin, Larry E.

Other:

Level: II

Level:

Level:

Site Review:

ANII Review: /

Date: \_3-

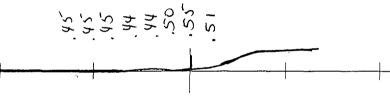
Date:

Date: <u>4/6/64</u>

Comments:

Sketch or Photo:

Z:\UT\PERSONEL\JHR9576\PaintLine4.jpg



PIPE S2

VALVE SI



### **UT Pipe Weid Examination**

\$	Site/Unit: C	Oconee /	2	· ·		Procedure:	: <u>NDE-6</u>	00	(	Dutage No.: Of	NS2EOC20	
Summ	nary No.:	C05.02	21.058			Procedure Rev.:	15			Report No.:	JT-04-105	
Wo	rkscope:	IS	61			Work Order No.:	986041	13		Page: <u>1</u>	of <u>4</u>	
Code:	Asme S	Section XI 19	39	Cat.	/Item:	C-F-1/C5.21.58	Location	1:		N/A		
Drawing No.:		2-51A-3	1			Description: Pipe to \	/alve (2HP-20)					_
System ID:	51A											
Component ID:	C05.021.0	)58 /2-51 A-31	-50				Size/Length:	N/A	Thic	kness/Diameter:	.438"/3.0"	_
Limitations:	Yes - See	attached she	ets					tart Time:	1114	Finish Time:	1131	_
Examination S	Surface:	Inside [	Out	side 🗸		Surface Condition: G	ROUND					
Lo Location:		9.1.1.1		Wo Location	ı:	Centerline of Weld	Couplant:	ULTRAG	EL II	Batch No.:	03125	
Temp. Tool M	lfg.:	FISHER		Serial No.	:	MCNDE32769	Surface Temp	.:63	°F			
Cal. Report N	o.:		CA	L-04-187, CAL	04-188	3, CAL-04-189						
Angle Used	0	45 45T	60	70	1							
Scanning dB		43	45	47			•					
Indication(s):	Yes [	No 🗸		· · · · · · · · · · · · · · · · · · ·	Scar	Coverage: Upstream[	Downstream	Z CW 🔽	CCW [	<b>✓</b>		
Comments:												
*See attache	d limitation	n sheets										
Results: A	Accept 🗸	Reject []		Info 🗌								
Percent Of Cov	verage Obta	nined > 90%:		No*	R	eviewed Previous Data:	No					
	_evel		s	ignature		Date Reviewe			Signat	ure	Da	
Resor, James		-	En	then	<u> </u>	3/30/2004	1 ay/11	lon	Cianat		4.2-04	
Examiner L Mauldin, Larry	_evel    <b>E</b> .	2001		ignature	111	Date   Site Rev 3/30/2004	view f	•	Signat	ure -	Da	лe
	_evel		S	igṇature		Date ANII Rev	view Isney Chitch	f. Slave	Signat	ure	16/04 Da	te
							J Chicago	C S trong	~			_

DUKE POWER COMPANY							
	ISI LII	MITATI	ON REI	PORT	•		
Component/Weld ID: 2-5/A-	31-50	lter	n No:	OS. 021	.058	remarks:	
✓ NO SCAN						DUE TO	VALVE
LIMITED SCAN	∑ 1	2	_ 1		cw 🗌 ccw	Configur	MION
FROM L N/A to L N/A		INCHE	S FROM W	′0 <u>€</u> t	O Beyond		
ANGLE: □ 0 □ 45 ☒ 60							
☐ NO SCAN	SUR	FACE	BE	AM DIRECTI	ION		
LIMITED SCAN	1	<u> </u>	<u> </u>	_ 2 _ c	cw 🗌 ccw		
FROM L to L		INCHE	S FROM W	'0 t	0		
ANGLE: 0 45 60	other	·	FROM _	DEG to	DEG		
☐ NO SCAN							
☐ LIMITED SCAN	<u> </u>	<u> </u>	_ 1	2 c	cw ccw		
FROM L to L	···	INCHE	S FROM W	0 t	0		
ANGLE: 0 0 45 0 60	other		FROM _	DEG to	DEG		
☐ NO SCAN	SUR	FACE	BE,	AM DIRECTI	ON		
☐ LIMITED SCAN	□ 1	<u> </u>	□ 1	2 c	cw 🗌 ccw		
FROM L to L		INCHE	S FROM W	0 t	0	Sketch(s)	attached
ANGLE: 0 45 60  Prepared By: ARRY MSULSI.  Reviewed By: Sand Mors	other		FROM _	DEG to	DEG		☐ No.
Prepared By: (ARRY MAULD)	ر د	Level: Z	_ Date:	3-30-04	Shee	t <u>2</u> of	-4
Reviewed By: Yay Mors		Date:	ŧ	Authorized In	spector: Retire &	Soughter	Date: 4/6/04
V (					$\mathcal{G}$		,



# Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit:	Oconee /	2	Procedure	e: NDE-600	Outage No.:	ONS2EOC20		
Summary No.:	C05.021.0	)58	Procedure Rev	/.: <b>1</b> 5	Report No.:	UT-04-1	05	
Workscope:	ISI	<del></del>	Work Order No	98604113	Page:	of	4	
		<del></del>			<del></del>			
<u>45 deg</u>								
Scan	1	% Length X		% volume of length / 100 =	c	% total for Sca	an 1	
Scan	2	% Length X _		% volume of length / 100 =		% total for Sc	an 2	
Scan	3 100.000	% Length X	100.000	% volume of length / 100 =	100.000	% total for Sc	an 3	
Scan	4 100.000	% Length X	100.000	% volume of length / 100 =	100.000	% total for Sc	an 4	
	Add totals an	d divide by # sca	ns = 100.000	% total for 45 deg		÷		
Other o	deg - 60	to be used for	supplemental sc	ans)				
The dat	ta to be listed bel	ow is for coverage	that was not obta	ained with the 45 deg scans.				
						t		
Scan	1 100.000	% Length X	0.000	% volume of length / 100 =	0.000	_% total for \$	Scan 1	
Scan	2 100.000	% Length X	36.000	% volume of length / 100 =	36.000	_ % total for \$	Scan 2	
Scan	3	% Length X		% volume of length / 100 =		% total for	Scan 3	
Scan	4	% Length X		% volume of length / 100 =		_ % total for	Scan 4	
Percer	nt complete cove	erage		·				
Add tol	tals for each scar	required and divi	de by # of scans t	to determine;				
		complete exam	•					
						•		
Site Fi	eld Supervisor:	Dar	ik KZ	Date:	15/04			
Note.	70° Su	one WALL	SOME NO	1 INCLUDED IL	DE-ROEN	1 of Co	NI/ERAI	
				ENTS of 10 CFRS				
				70' SHEAR WAVE				
	2,03, 6,19	0.61 36.74	~ W///	O LO - A COLL	. , , , , , ,	1,711 ~		

Duke Energy.	
-----------------	--

### Supplemental Report

[ <b># Energy</b> .			rteport ivo	
			Page:	of
Summary No.: Co5.021.0  Examiner: LARRY E. MAULDIN  Examiner:  Other:	Level: II Level: II	Reviewer: Dand X = Site Review: Normy CRIT	<i></i>	Date: <u>4/6/04</u> Date: <u>4/6/04</u>
Comments:				
	1.1" X./6" = .176 = .18 s	U		
Sketch or Photo:	COVERACE . 16 (.38+.43 SUPPLE MENTAL COVER	3) = 0648 = ,0648 <sup>2</sup> /W = ACE = <u>16</u> (.72+,67) = ./	: .185g. IN = 3 (1 1/2 ÷ .185g IN = 6	5 % 1.78 %
SI VALUE		-		Se PIAG
70° SHETTR WAY	IL COVERACE LE SUPPLEMENTAL COVERACE	1.1"———————————————————————————————————		

NOTE: SUPPLE MENTAL COVERABE IS NOT USED IN COVERAGE CALCULATIONS.