

RONALD A JONES Vice President Oconee Nuclear Site

Duke Power ONO1VP / 7800 Rochester Hwy. Seneca. SC 29672

864 885 3158 864 885 3564 fax

June 24, 2005

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

Subject: Duke Energy

Oconee Nuclear Station, Unit 3

Docket Nos. 50-270

Third Ten Year Inservice Inspection Interval Requests for Relief No. 05-ON-001 and 002

Pursuant to 10 CFR 50.55a(g) (5)(iii), attached are two Requests for Relief 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).

Request for Relief 05-ON-001 is to allow Duke Energy to take credit for eleven (11) limited ultrasonic examinations on welds associated with various systems and components described in the attached request (Attachment A).

Request for Relief 05-ON-002 is a similar request but addresses seven (7) limited ultrasonic examinations on welds specifically associated with the Reactor Vessel as described in the attached request (Attachment B).

During the recent Unit 3 EOC-21 refueling outage, from 10-9-04 through 1-2-05, numerous ultrasonic examinations were conducted on various welds. The ultrasonic examination coverage of the subject Unit 3 welds 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 requests. Achievement of greater examination coverage for these welds is impractical due to piping/valve geometry, interferences, and existing examination technology. Therefore, Duke Energy requests that the NRC grant relief as authorized under 10 CFR 50.55a(g)(6)(i).

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If there are any questions or further information is needed you may contact R. P. Todd at (864) 885-3418.

Very truly yours,

R. A./Johes

Site Wice President

Attachments A and B

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xc w/att: Mr. William D. Travers
Administrator, Region II
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

S. E. Peters, 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):

M. C. Shannon Senior NRC Resident Inspector Oconee Nuclear Station

Mr. Henry Porter
Division of Radioactive Waste Management
Bureau of Land and Waste Management
SC Dept. of Health & Environmental Control
2600 Bull St.
Columbia, SC 29201

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bxc w/att: R. L. Gill, Jr.

T. J. Coleman

V. B. Dixon

B. W. Carney, Jr.

R. P. Todd

L. C. Keith

G. L. Brouette (ANII)

J. J. Mc Ardle III

ISI Relief Request File

NRIA File/ELL EC050

Document Control

Attachment A

Request for Relief

05-ON-001

Limited Examinations Associated With Various Systems and Components

3EOC 21

Proposed Relief in Accordance with 10 CFR 50.55a(g)(5)(iii)
Inservice Inspection Impracticality
Duke Energy Corporation
Oconee Nuclear Station – Unit 3 (EOC-21)
Third 10-Year Interval – Inservice Inspection Plan
Interval Start Date= 12-16-1994 Interval End Date=1-2-2005
ASME Section XI Code – 1989 Edition with No Addenda
Code Case N-460 is applicable

	I.	II.	III.	IV. &V.	VI.	VII.	VIII.
List Number	Limited Area/Weld I.D. Number	System / Component for Which Relief is Requested: Area or Weld to be Examined	Code Requirement from Which Relief is Requested: 100% Exam Volume Coverage Exam Category Item No. Fig. No. Limitation Percentage	Impracticality/ Burden Caused by Compliance	Proposed Alternate Examinations or Testing	Implementation Schedule and Duration	Justification for Granting Relief
1.	3-PZR-WP26-1	Reactor Coolant System Pressurizer Sensing Sample Nozzle to Heater Belt Weld	Exam Category B-D Item Number B03.110.009 Fig. IWB-2500-7(a) 25.92% Volume Coverage Limited Scan of Examination Volume A-B-C-D-E-F-G-H-I	See Paragraph "A"	See Paragraph "H"	See Paragraph "I"	See Paragraph "J"
2.	3-PZR-WP26-2	Reactor Coolant System Pressurizer Sensing Sample Nozzle to Heater Belt Weld	Exam Category B-D Item Number B03.110.010 Fig. IWB-2500-7(a) 25.92% Volume Coverage Limited Scan of Examination Volume A-B-C-D-E-F-G-H-I	See Paragraph "A"	See Paragraph "H"	See Paragraph "I"	See Paragraph "J"
3.	3-PZR-WP26-3	Reactor Coolant System Pressurizer Sensing Sample Nozzle to Heater Belt Weld	Exam Category B-D Item Number B03.110.011 Fig. IWB-2500-7(a) 25.92% Volume Coverage Limited Scan of Examination Volume A-B-C-D-E-F-G-H-I	See Paragraph "A"	See Paragraph "H"	See Paragraph "I"	See Paragraph "J"

	I.	II.	III.	IV. &V	VI.	VII.	VIII.
List Number	Limited Area/Weld I.D. Number	System / Component for Which Relief is Requested: Area or Weld to be Examined	Code Requirement from Which Relief is Requested: 100% Exam Volume Coverage Exam Category Item No. Fig. No. Limitation Percentage	Impracticality/ Burden Caused by Compliance	Proposed Alternate Examinations or Testing	Implementation Schedule and Duration	Justification for Granting Relief
4.	3-PZR-WP26-7	Reactor Coolant System Pressurizer Sensing Sample Nozzle to Heater Belt Weld	Exam Category B-D Item Number B03.110.012 Fig. IWB-2500-7(a) 25.92% Volume Coverage Limited Scan of Examination Volume A-B-C-D-E-F-G-H-I	See Paragraph "A"	See Paragraph "H"	See Paragraph "I"	See Paragraph "J"
5.	3-LDCB-IN-V1	High Pressure Injection System Letdown Cooler 3B Inlet Nozzle to Channel Head Weld	Exam Category B-D Item Number B03.150.003 Fig. IWB-2500-7(a) 29.26% Volume Coverage Limited Scan of Examination Volume A-B-C-D-E-F-G-H-I-J	See Paragraph "B"	See Paragraph "H"	See Paragraph "I"	See Paragraph "J"
6.	3-LDCB-OUT- V2	High Pressure Injection System Letdown Cooler 3B Outlet Nozzle to Channel Head Weld	Exam Category B-D Item Number B03.150.004 Fig. IWB-2500-7(a) 29.26% Volume Coverage Limited Scan of Examination Volume A-B-C-D-E-F-G-H-I-J	See Paragraph "B"	See Paragraph "H"	See Paragraph "I"	See Paragraph "J"
7.	3-14B-H20A	Low Pressure Service Water System Component Support Attachment to Pipe Weld	Exam Category C-C Item Number C03.020.017 Fig. IWC-2500-5(a) 50% Surface Coverage Limited Coverage of Examination Surfaces A-B and C-D	See Paragraph "C"	See Paragraph "H"	See Paragraph "I"	See Paragraph "K"
8.	3-51A-67-3	High Pressure Injection System Pipe to Elbow Weld (circumferential weld)	Exam Category C-F-1 Item Number C05.021.049 Fig. IWC-2500-7(a) 87.38% Volume Coverage Limited Scan of Examination Volume C-D-E-F	See Paragraph "D"	See Paragraph "H"	See Paragraph "I"	See Paragraph "L"

	I.	II.	III.	IV. & V.	VI.	VII.	VIII.
List	Limited	System /	Code Requirement from	Impracticality/	Proposed	Implementation	Justification for
Number	Area/Weld I.D.	Component for Which	Which Relief is Requested:	Burden Caused by	Alternate	Schedule and	Granting Relief
1	Number	Relief is Requested:	100% Exam Volume Coverage	Compliance	Examinations or	Duration	
		Area or Weld to be	Exam Category		Testing		
]		Examined	Item No.				
			Fig. No.				
			Limitation Percentage				
9.	3HP-241-2	High Pressure Injection	Exam Category C-F-1	See Paragraph "E"	See Paragraph "H"	See Paragraph "I"	See Paragraph "L"
		System	Item Number C05.021.051				
1		Pipe to Valve 3HP-194	Fig. IWC-2500-7(a)				
		Weld	35.55% Volume Coverage				
1		(circumferential weld)	Limited Scan of Examination	,			
		·	Volume C-D-E-F				
10.	3-51A-119-11	High Pressure Injection	Exam Category C-F-1	See Paragraph "F"	See Paragraph "H"	See Paragraph "I"	See Paragraph "L"
		System	Item Number C05.021.076				
)		Flange to Pipe Weld	Fig. IWC-2500-7(a)				
		(circumferential weld)	58% Volume Coverage				
			Limited Scan of Examination				
			Volume C-D-E-F				
11.	3-51A-67-4	High Pressure Injection	Exam Category C-F-1	See Paragraph "G"	See Paragraph "H"	See Paragraph "I"	See Paragraph "L"
1		System	Item Number C05.021.091	<u>.</u>			
		Elbow to Pipe Weld	Fig. IWC-2500-7(a)				
		(circumferential weld)	87.38% Volume Coverage				
			Limited Scan of Examination				
			Volume C-D-E-F				

See Attachment A for B03.110 area/weld locations.

See Attachment B for B03.150 area/weld locations.

See Attachment C for inspection data on all items listed in the above table for this Relief Request.

Note: Items in this relief request were inspected during one of the following months: July, October, or November of 2004.

IV. & V. Impracticality/Burden Caused by Code Compliance

Paragraph A: (The Pressurizer Sensing Sampling Nozzle material is SA508 Grade B and the Pressurizer Heater Belt material is SA516 Grade 70. This weld has a diameter of 5.75 inches and a wall thickness of 6.187 inches.) During the ultrasonic examination of the Sensing Sampling Nozzle to Heater Belt weld, 25% 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% of the weld and base material; 60° scan perpendicular and parallel to the weld covered, 30% of the weld and base material. The weld joint geometry, which is essentially a branch connection arrangement using a set-in nozzle, prevented scanning from both sides of the weld. In order to scan all of the required volume for these welds, the sensing sampling 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.

Paragraph B: (The Letdown Cooler Inlet/Outlet Nozzles and Channel Head material is SA182 Grade T316L. These welds have a diameter of 3.0 inches and a wall thickness of .875 inches.)

During the ultrasonic examination of the Inlet/Outlet Nozzles to Channel Head welds, 29% coverage of the required examination volume was obtained for each of the welds. 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% of the weld and base material; 60° scan perpendicular and parallel to the weld covered, 29% of the weld and base material. The weld joint geometry, which is essentially a branch connection arrangement using a set-on nozzle, prevented scanning from both sides of the welds. In order to scan all of the required surfaces for the inspection of these welds, the inlet/outlet nozzles would have to be redesigned to allow scanning from both sides of the welds, which is impractical. There were no recordable indications found during the inspection of theses welds.

Paragraph C: (The Pipe and Lug material is carbon steel. This pipe has a diameter of 8.0 inches and a wall thickness of .500 inches. The four lugs are 1.5 inches thick and the welds are ¼ inch fillet welds.)

During the MT examination of the attachment welds on lugs for the component support, 50% coverage of the required examination surfaces was obtained. The percentage of coverage represents the aggregate coverage for all the examinations surfaces required to be examined. The limitations were due to limited access space that would not allow 2 of the attachment lugs to be examined. In order to examine all of the required surfaces for the inspection of these attachment lugs, the support would have to be redesigned to allow access for examining the attachment lugs or the piping rerouted to allow access, which is impractical. There were no recordable indications found during the inspection of the accessible lug welds.

Paragraph D: (The pipe and elbow material is stainless steel. This weld has a diameter of 2.5 inches and a wall thickness of .375 inches.)

During the ultrasonic examination of this weld, 87% 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 48% from the pipe side of the weld. A supplemental 70° shear wave scan covered 22% of the examination volume in one axial direction from the pipe side of the weld. Limitations were caused by elbow configuration which prevented scanning from that side. In order to scan all of the required volume for this weld, the elbow 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.

Paragraph E: (The valve and pipe material is stainless steel. This weld has a diameter of 4.0 inches and a wall thickness of .674 inches.)

During the ultrasonic examination of this weld, 35% 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 47% of the examination volume and the 60° shear wave axial scan covered 47% of the examination volume from one direction.

A supplemental scan using a 60° refracted longitudinal wave search unit covered 52.6% of the examination volume including 100% of the inside surface within the area of interest. 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.

Paragraph F: (The flange and pipe material is 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, 58% 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 32% of the examination volume from the elbow side. The limitation was caused by the taper on the flange 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 flange 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.

Paragraph G: (The pipe and elbow material is stainless steel. This weld has a diameter of 2.5 inches and a wall thickness of .375 inches.)

During the ultrasonic examination of this weld, 87% 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 48%. A supplemental 70° shear wave scan covered 22% of the examination volume in one axial direction from the pipe side. Limitations were caused by elbow configuration which prevented scanning from that side. In order to scan all of the required surfaces for the inspection of this weld, the elbow 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.

VI. Proposed Alternate Examinations or Testing

Paragraph H:

The scheduled 10-year code examination was performed on the referenced area/weld and it resulted in the noted limited coverage of the required ultrasonic volume. These inspections were performed during the last inspection outage of the interval; no additional examinations are planned for the area/weld during the current inspection interval.

VII. Implementation Schedule and Duration

Paragraph I

The scheduled third 10-year interval plan code examination was performed on the referenced areas/welds resulting in limited scan and volumetric coverage. No additional examinations are planned for the areas/welds during the current inspection interval. The same areas/welds may be examined again as part of the next (fourth) 10-year interval plan, depending on the applicable code year edition and addenda requirements adopted in the future.

VIII. Justification for Granting Relief

Paragraph J:

Ultrasonic examination of areas/welds for item number B03.110 and 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. Although 100% coverage of the examination volume could not be achieved, the amount of coverage obtained for this examination provides an acceptable level of quality and integrity.

Duke Energy 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 these welds, it would be detected and isolated. Specifically, leakage from these welds would be detected by monitoring of the Reactor Coolant System (RCS), which is performed once each shift under procedure PT/3/A/0600/10, "RCS Leakage". This RCS leakage monitoring is a requirement of Technical Specification 3.4.13, "Reactor Coolant System Leakage". Any leakage is also evaluated in accordance with this Technical Specification. The leakage could also be detected through several other methods. One method is the Reactor Building air particulate monitor. This monitor is sensitive to low leak rates; the iodine monitor, gaseous monitor and area monitor are capable of detecting any fission products in the coolant and will make these monitors sensitive to coolant leakage. A second is the level indicator in the Reactor Building normal sump. A third is a loss of level in the Letdown Storage Tank. Based on the results of the required volumetric, surface and VT-2 examinations performed during this outage, it is Duke's belief that this combination of examinations provides a reasonable assurance of component integrity.

Paragraph K:

MT examination of the support attachment welds for item number C03.020.017 were conducted using personnel, qualified in accordance with paragraph IWA-2300 of the 1989 Edition with no addenda, ASME Section XI Code. The examination procedure was demonstrated using the remote camera equipment and the 1/32 inch black line on an 18% neutral gray card. Although 100% of the required examination surfaces could not be examined, the amount of surface that was examined provides an acceptable level of quality and integrity. In addition to the MT examinations with limited coverage, Duke Energy performed a supplemental Visual VT-1 examination on the welds of the 2 lugs that were not accessible for MT and achieved 100% coverage. The results from the Visual VT-1 examinations were acceptable. (See Paragraph M for additional justification.)

Duke Energy has examined the support referenced in this request to the maximum extent possible utilizing the latest in examination techniques and equipment. Based on the inspections coverage and results of the required MT exam this outage and the supplemental VT-1 exam on the inaccessible lugs, it is Duke's belief that this examination provides a reasonable assurance of component integrity.

Paragraph L:

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. Although 100% coverage of the examination volume could not be achieved, the amount of coverage obtained for each of these welds provides an acceptable level of quality and integrity. In addition to the volumetric examinations with limited coverage, Duke Energy 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.

(See Paragraph M for additional justification for all C05.021 items except for C05.021.076.) (For item C05.021.076 see Paragraph N for additional justification)

In addition to the C05.021 welds that relief is being requested for limited scanning, there were 13 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 13 welds. The 13 additional welds were from the same system as the C05.021 welds of this request.

Duke Energy Corporation 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 Energy Corporation 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.

Paragraph M:

Duke Energy 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, surface and pressure test), there are other activities which provide a high level of confidence that, in the unlikely event that leakage did occur through these welds, it would be detected and isolated. Specifically, leakage from these welds would be detected by monitoring of the Reactor Coolant System (RCS), which is performed once each shift under procedure PT/3/A/0600/10, "RCS Leakage". This RCS leakage monitoring is a requirement of Technical Specification 3.4.13, "Reactor Coolant System Leakage". Any leakage is also evaluated in accordance with this Technical Specification. The leakage could also be detected through several other methods. One method is the Reactor Building air particulate monitor. This monitor is sensitive to low leak rates; the iodine monitor, gaseous monitor and area monitor are capable of detecting any fission products in the coolant and will make these monitors sensitive to coolant leakage. A second is the level indicator in the Reactor Building normal sump. A third is a loss of level in the Letdown Storage Tank. Based on the results of the required volumetric, surface and VT-2 examinations performed during this outage, it is Duke's belief that this combination of examinations provides a reasonable assurance of component integrity.

Paragraph N:

Duke Energy 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 case that leakage did occur through this weld, it would be detected and isolated. One is that leakage from these welds would be detected by Operations personnel during their regular rounds (reference procedure OP/3/A/1102/020A "Primary Rounds"). The Nuclear Equipment Operator has been trained to look for any unusual conditions, such as leaks. In addition, the procedure addresses leaks as being an item to consider during rounds. The C05.021 item in this request is located in an area where operations personnel will be walking through as part of their rounds; therefore, any leak would be identified by visual observation.

Duke Energy has examined the welds/components referenced in this request to the maximum extent possible utilizing the latest in examination techniques and equipment. The welds/components identified in Section II of this request were rigorously inspected by volumetric NDE methods during construction and verified to be free from unacceptable fabrication defects. Based on the coverage and results of the required volumetric exams and surface exams this outage and the pressure testing (VT-2) exams, it is Duke's belief that this combination of examinations provides a reasonable assurance of component integrity.

IX. Other Information

The following individuals contributed to the development of this relief request:

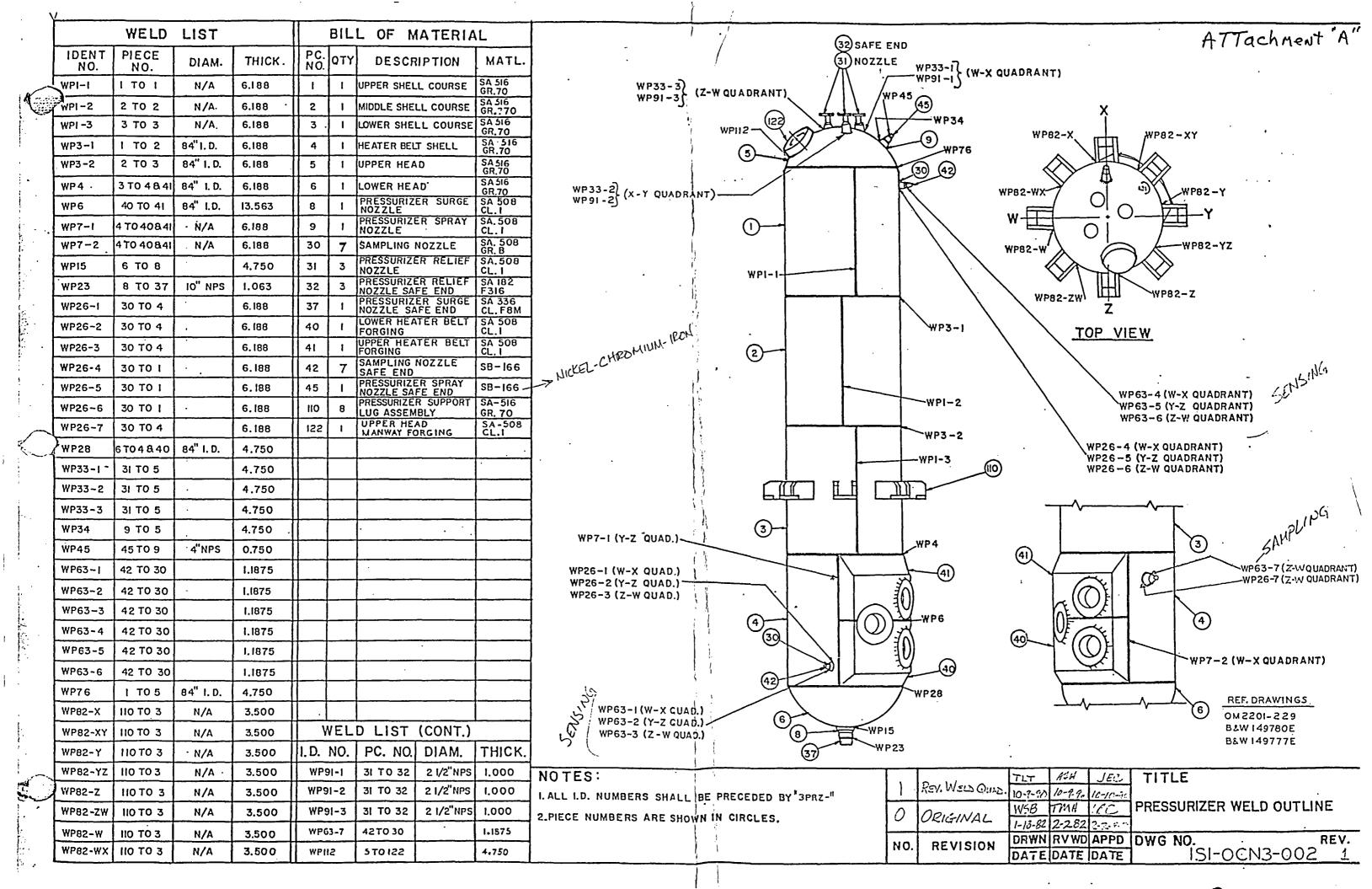
James J. McArdle (Principal UT NDE Level III Examiner) provided Sections III., IV., V., and part of Section VIII.

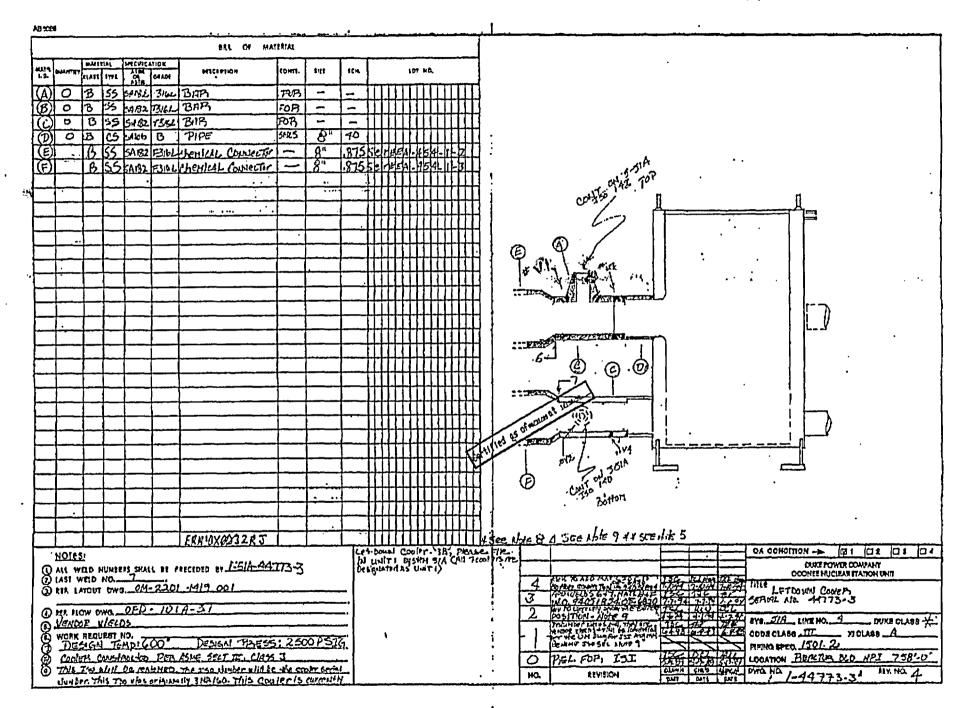
B. W. Carney, Jr. (Oconee Engineering) provided part of Section VIII.

Larry C. Keith (Oconee ISI Plan Manager) compiled the remaining sections.

Sponsored By: Ramy Co Kerth Date 5-3-2005

Approved By: L. Lewin Hayne Date 5/3/05





Duke Energy.

UT Vessel Examination

Sit	te/Unit:	Oconee	: 1	О3				Procedure:	N	DE-640		(Outage No.:	ONS	3EOC	21
Summa	ry No.:		B03.110	.009			Р	rocedure Rev.:		2			Report No.:	UT	-04-47	0
Work	scope:		ISI					ork Order No.:	98	641456			Page: _	1	of _	1
Code:	Asm	e Sectio	n XI 19	39		Cat./Item	:B-D	-/B3.110.9	Loc	cation:			N/A			
Drawing No.:		15	SI-OCN3	-002			Descrip	tion: Nozzle to	To Shell							
System ID:	50															
Component ID:	B03.11	0.009 /3	-PZR-W	P26-1					Size/Le	ength:	N/A	Thic	kness/Diamete	er: <u> </u>	i.187"/	/5.75"
Limitations:	See lin	nitation	calcula	ions o	n report	UT-04-47	1.			Star	rt Time:	1115	Finish Tim	e:	112	20
Examination S	Surface:	Insi	de 🔲	Οι	utside 🔽		Surface	e Condition: AS	GROUND							
Lo Location:		9.2	2.3	<u>. </u>	_ Wo L	ocation:	Centerli	ne of Weld	Couplan	t:	ULTRAGE	L II	Batch No.:		031	25
Temp. Tool M	fg.:	FI	SHER		_ Se	rial No.:	MCNI)E32768	Surface	Temp.:	72	_ °F				
Cal. Report N	o.:						CAL-04-7	735								
Angle Used	0	45	45T	60	60T	1										
Scanning dB	39															
Indication(s):	Yes [7 No			!	<u> </u>	Scan Coverag	e: Upstream 🗹	n Downstr	eam 🔽	cw₩	ccw	7			
		۰۰۰ ب	· 🖭							ري ۱۰۰۰	ـي ٠٠٠	•				
Comments:																
FC 03-20																
Results:	Acc	ept 🔽	Reje	ect 🗀	inf	• 										
Percent Of Co	overage (Obtained	l > 90%:	N	o - 25,92	7%_	Reviewed	Previous Data:	Ye	s						
Examiner I	Level II	N			Sigpatur	e e		Date Review	r	.~		Signa	ature			Date
Mauldin, Larry	/ E.		4au	XI	-//(auli	Cr 11/1	/2004	Jan /	116	920	· · · · · · · · · · · · · · · · · · ·			11-	9-04
Examiner l Eaton, Jay A.	Level	١	\bigcap_{n}	14	Signatur	e	11/1	Date Site Rev	iew //			Signa	ature			Date
	Level N	/A		<u></u>	Signatur	e		Date ANII Rev	riew	WHI	SH	Signa	iture		4/10/	Date /
									//_	·· ///	~~~		···	ے۔۔	7.7.	



UT Vessel Examination

Sit	te/Unit: _	Oconee	<u> </u>	03				Procedure: _	NDE	-820			Outage No.:	ON	S3EOC	21
Summary No.: B03.110.009 Workscope: ISI				0.009			Pro	cedure Rev.:		1			Report No.:	U	T-04-47	' 1
Work	scope: _		ISI				Wor	rk Order No.:	9864	1456			Page:	1	of	3
Code:	Asme	Section	on XI 19	89		Cat./Item	: B-D-/	B3.110.9	Locat	ion:			N/A			
Drawing No.:		15	SI-OCN3	3-002			Descriptio	n: Nozzle to To	o Shell							
System ID:	50															
Component ID:	B03.110	0.009 /3	-PZR-W	P26-1					Size/Leng	gth: _	N/A		nickness/Diam	eter:	6.187"	/5.75"
Limitations:	See att	ached I	imitatio	n repor	t.					Start	Time:	1121	Finish T	ime: _	11:	31
Examination S	Surface:	Insi	de 🔲	Ot	itside 🔽		Surface (Condition: AS G	ROUND							
Lo Location:		9.2	2.3		_ Wo L	ocation:	Centerline	of Weld	Couplant:		ULTRAGE	L II	Batch No	.:	031	25
Temp. Tool M	fg.:	FI	SHER		_ Se	rial No.:	MCNDE	32768	Surface Te	mp.:	72_	°F				
Cal. Report No	o.:						CAL-04-736, CAL	-04-737			<u></u>					
Angle Used	0	45	45T	60	60T	1	1									
Scanning dB		70.2	70.2	84.6	84.6		1									
Indication(s):	Yes [] No			· · · · · · · · · · · · · · · · · · ·	l	Scan Coverage:	Upstream ✓	Downstream	m 🗹	cw⊌	CC	w 🗹			
Comments:																
FC 03-29, 03	-31															
Results:	Acce	pt 🔽	Reje	ect 🗍	Inf	• <u> </u>										
Percent Of Co		_	•	_		_	Reviewed Pr	evious Data:	Yes				······································			·
			71	1												
Examiner L Mauldin, Larry	_evel _ E.	N L	isid	9-	Signatur	e uldi		Pate Reviewer 004	Jan 1	M	020	Sig	nature		11-9-0	Date 94
Examiner L Eaton, Jay A.	evel III	7-6		K	Signatur	e	D 11/1/20	oate Site Review	<u> </u>			Sig	nature			Date
Other L	evel N/	A		 -	Signatur	e		ate ANII Review	w All	a K	M -	Sig	nature		11/10/	Date
N/A									////////	<u> </u>	N				<u> 14/0/.</u>	VH



Limitation Record

Site/Unit:	Oconee /	О3	Procedure:	NDE-820	•	Outage No.:	ONS3EOC2			
ummary No.:	B03.110.009		Procedure Rev.:	1		Report No.:	UT-04-471		71	
Workscope:	e: ISI		Work Order No.:	98641456		Page:	2	of	3_	

Description of Limitation:

Limited 360° from the weld edge and beyond due to blend radius and nozzle configuration.

Aggregrate Coverage

<u>Angle</u>	Beam Dir.	Base Metal	Weld	Aggregate
0	N/A	37.42%	0%	18.71%
45	SI	61.77%	44.14%	52.96%
45	S 2	0%	0%	0%
45	CW	47.28%	13.1%	30.19%
45	CCW	47.28%	13.1%	30.19%
60	S1	72.03%	53.1%	62.57%
60	S2	0%	0%	0%
60	CW	47.28%	13.1%	30.19%
60	CCW	47.28%	13.1%	30.19%

Limitations removal requirements:

N/A

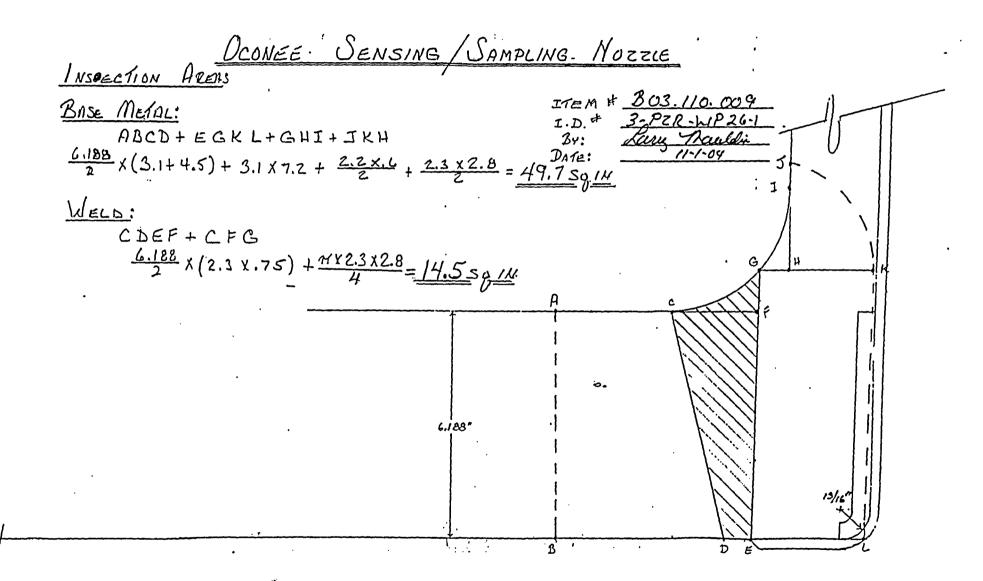
Radiation field: N/A

Examiner	Level	II-N	Signature	Date	Reviewe	1 2/	Signature	Date
Mauldin, La	rry E.	La	MIN MOUL	11/1/2004	Van/	Mos	o .	11-9-04
Examiner	Level	111	Signature	Date	Site Review		Signature	Date
Eaton, Jay	A.			11/1/2004	•			·
er	Level	N/A	Signature	Date	ANII Review	11/1/1011-	Signature	Date
/A				`		VIUNCE		11/10/04

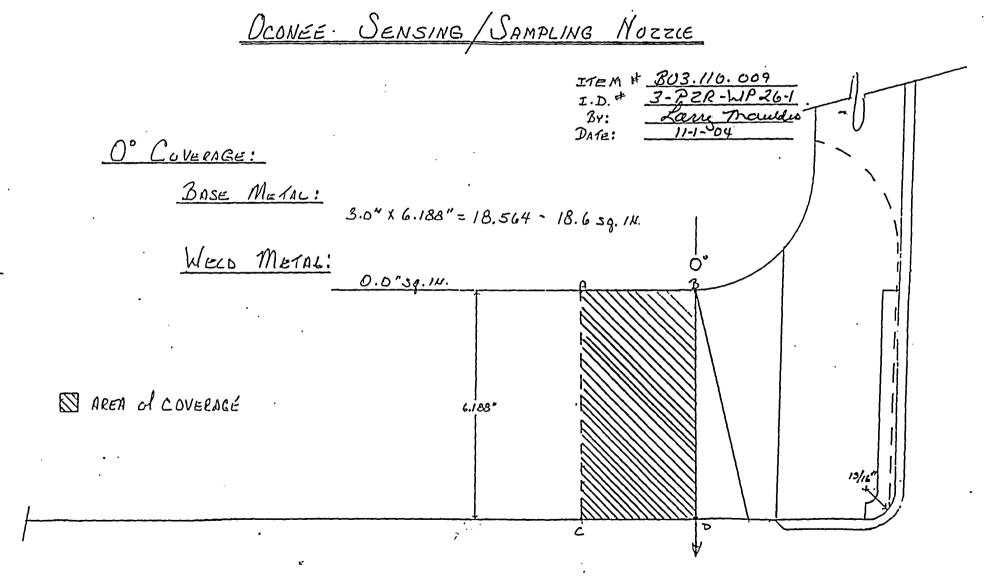


Determination of Percent Coverage for UT Examinations - Vessels

Site/Unit: Occ	onee /	03	Proce	dure:	NDE-820	Outage i	No.: ONS3EOC21
nary No.:	B03.110.00	9	Procedure	Rev.:	1	Report f	No.: UT-04-471
rkscope:	<u>ısı</u>		Work Order	r No.:	98641456	 Pa	ige: 3 of 3
0 deg Plan	ar						
Scan _	100.000	% Length X	18.710	_ % volume	of length / 100 = _	18.710	% total for 0 deg
<u>45 deg</u>							
Scan 1	100.000	% Length X	52.960	_ % volume	of length / 100 = _	52.960	% total for Scan 1
Scan 2	100.000	% Length X	0.000	_ % volume	e of length / 100 = _	0.000	% total for Scan 2
Scan 3	100.000	% Length X	30.190	_ % volume	e of length / 100 = _	30.190	% total for Scan 3
Scan 4	100.000	% Length X	30.190	_ % volume	e of length / 100 = _	30.190	% total for Scan 4
Add tot Other deg	als and divide	e by # scans =	28.335	% total for	45 deg		
Scan 1	100,000	% Length X _	62.570	% volume	e of length / 100 = _	62.570	% total for Scan 1
Scan 2	100,000	% Length X _	0.000	% volume	e of length / 100 = _	0.000	% total for Scan 2
Scan 3	100.000	% Length X _	30.190	% volume	e of length / 100 = _	30.190	% total for Scan 3
Scan 4	100.000	% Length X _	30.190	% volume	e of length / 100 =	30.190	% total for Scan 4
Add tot	als and divide	e by # scans =	30.738	% total for	60 deg		
Add totals for 25.927 Note:	% Total for c	and scan required	·	·			
	th angles as n				thods. When used, the total to provide Date:		for volume not tal for the complete

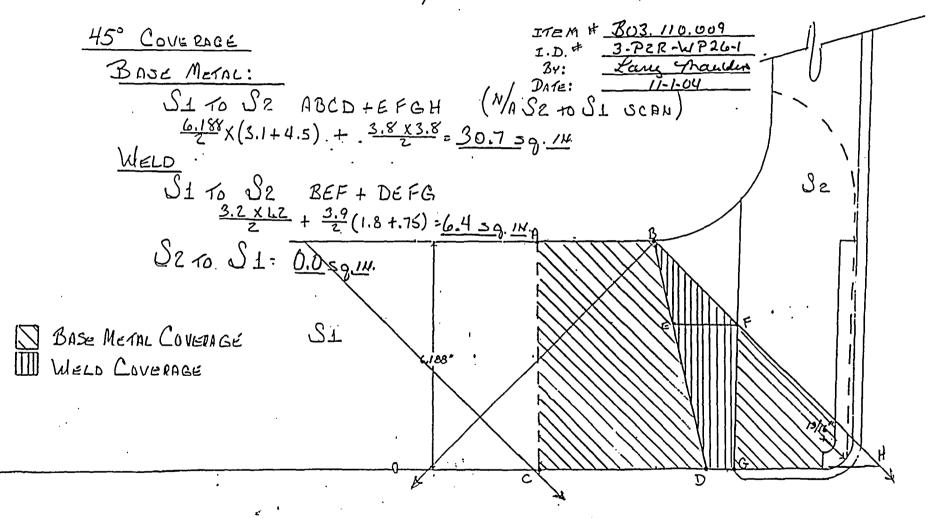


ATTACHMENT TO UT-04-471
PALE 1 OF S



ATTACHMENT TO UT-04-47
PAGE Z OFS

DONÉE SENSING/SAMPLING MOZZIE



ATTACHMENT TO UT-4-47
PAGE 3 OF 5

DOONÉE SENSING SAMPLING NOZZIE 60. CONERVER ITEM #. BO3. 110.009

I.D. # 3.72 R. WP 26-1

BY: Zany Maulds

Date: 11-1-04 BASE METAL: SITO SZ ABCD+FGHI $\frac{6.188}{2} + (3.1 + 4.5) + \frac{3.7}{2} (3.0 + 4.7) = 35.8 59,114.$ NA-B2 TO SI MELD SITO SZ BEF+DEFG 7.6 X.9 + 9. S2 $\frac{2.6 \times .9}{2} + \frac{7.75}{2} (2.0 + .75) = 7.7 s_{9.1 \text{ M}}$ Se 10 SI - 0:0 59.14. 31 6.1882

PAGE 4 OFS

DOONÉE SENSING/SAMPLING MOZZLE 45° \$60° CIEC. SCAN COIVERAGE ITEM # BO3. 110.009 I.D. # 3.PZP-WP26-1 BASE METAL: 6.188 x (3.1+4.5) = 23.5 sq 111. WELD

BDE

6.4 x.L = 1.9 = 9.1x. (20° OSCILLATION) BASE METAL COVERAGE WELD COVERAGE 6.188*

ATTACHMENT TO UT-04-471
PAGE 5 OFS



UT Vessel Examination

Site Summar Works Code:	y No.:	Oconee / B03.11 IS e Section XI 19		- - Cat./ltem:	Procedu Work Or	der No.:	98641450 Location:				NS3EOC2 JT-04-472 of	
Drawing No.:	50	ISI-OCN			Description: N					N/A		
Component ID: Limitations:		0.010 /3-PZR-V		ort UT-04-47:	3.		Size/Length:	N/A art Time:	Thicl	kness/Diameter: Finish Time:	6.187"/5 1142	
Examination State Lo Location: Temp. Tool Mfg Cal. Report No Angle Used Scanning dB Indication(s): Comments:	g.:	FISHER		/o Location: _ Serial No.: _	Surface Cond Centerline of V MCNDE3276 CAL-04-735 Scan Coverage: Up	Veld 68	Couplant:	72	°F	Batch No.:	03125	<u> </u>
Mauldin, Larry Examiner Lo Eaton, Jay A.	evel -	Obtained > 90%	Sign	Info 5.927% ature ature ature	11/1/2004 Date 11/1/2004	Reviewer Site Review ANII Review	any 1	- Nos	Signa Signa Signa	ture	11-9-04	Date

Duke Energy.

UT Vessel Examination

Site Summar	_	Oconee	<u>/</u> B03.110	03			Proc	Procedure: cedure Rev.:		E-820 1				NS3EO0 JT-04-47	
Works	scope:		ISI				Worl	k Order No.:	9864	11456			Page: 1	of	3
Code:	Asm	e Sectio	n XI 198	39		Cat./Item;	B-D-/B	3.110.10	Local	tion:			N/A		
Drawing No.:		IS	I-OCN3	-002			Description	n: Nozzle to To	Shell						
System ID:	50														
Component ID:	B03.11	0.010 /3-	PZR-W	P26-2					Size/Leng	gth:	N/A	Thic	ckness/Diameter:	3,187"	75.75"
Limitations:	See att	ached li	mitatio	n repor	t.					Star	t Time:	1143	Finish Time:	11	54
Examination S	urface:	Insid	le 🗌	Ou	tside 🗹		Surface C	ondition: AS G	ROUND						
Lo Location:		9,2	.3		- Wo L	ocation: _	Centerline	of Weld	Couplant:		ULTRAGE	LII	Batch No.:	031	25
Temp. Tool Mf	g.:	FIS	SHER_		_ Se	rial No.: _	MCNDE	2768	Surface Te	mp.:	72	_ °F			
Cal. Report No	o.:					C	AL-04-736, CAL-	04-737							
Angle Used	0	45	45T	60	60T				-						
Scanning dB		70.2	70.2	84.6	84.6										
Indication(s):	Yes [] No					Scan Coverage:	Upstream 🔽	Downstread	m 🗹	cw √	ccw	· 🔽		
Comments:	_	-	_												
FC 03-29, 03-	24														
FG 03-23, 03-	3 1														
Results:	Acce	ept 🗹	Reje	ect 🔲	inf	• <u> </u>			·· <u>···</u>						
Percent Of Cov	verage C	Obtained	> 90%:	Nc	<u>- 25.92</u>	7%	Reviewed Pre	vious Data:	Yes						
	evel II-		/ 	10	Signatur	,,		ate Reviewer		1	1	Signa	ature		Date
Mauldin, Larry			M	<u>a</u>		arlde			Day/	_//	Loso			//-9-	
Examiner Lo Eaton, Jay A.	evel III	($\langle \gamma \rangle$		Signatur	e	Da 11/1/20	ate Site Review	' /			Signa	ature		Date
Other Le	evel N	'A		1	Signatur	e		ate ANII Review	N Tools	11619	\mathcal{A}	Signa	ature	ula:	Date
N/A										ZJXL	$\mathcal{U}_{}$			<u> [[[0]E</u>) <u>/</u> /



Limitation Record

Site/Unit:	Oconee /	03	Procedure:	NDE-820	Outage No.:	ONS3EO		C21
Summary No.:	B03	3.110.010	Procedure Rev.:	11	Report No.:	UT	-04-4	173
Workscope:		ISI	Work Order No.:	98641456	Page:	2	of	3

Description of Limitation:

Limited 360° from the weld edge and beyond due to blend radius and nozzle configuration.

Aggregrate Coverage

<u>Angle</u>	Beam Dir.	Base Metal	Weld	Aggregate
0	N/A	37.42%	0%	18.71%
45	S1	61.77%	44.14%	52.96%
45	S2	0%	0%	0%
45	CW	47.28%	13.1%	30.19%
45	CCW	47.28%	13.1%	30.19%
60	S1	72.03%	53.1%	62.57%
60	S2 .	0%	0%	0%
60	CW	47.28%	13.1%	30.19%
60	CCW	47.28%	13.1%	30.19%

Limitations removal requirements:

N/A

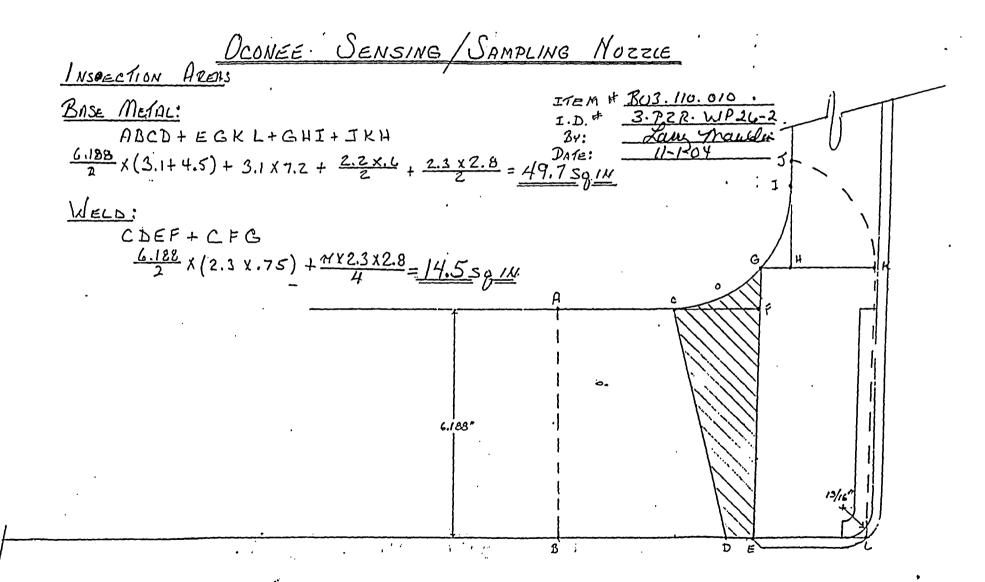
Radiation field: N/A

Examiner	Level	11-M/	′	\(\signature	Date	Reviewer ()	Λ	M	Signature	Date
Mauldin, La	arry E.	KU)	W	a Il audi	11/1/2004	_ XIan		116	~~	11-9-04
Examiner	Level	III	abla 1	Signature	Date	Site Review	77	7	Signature	Date
Eaton, Jay	A.	(W		11/1/2004		/ \			
ther	Level	N/A	-7	Signature	Date	ANII Review		1,00	Signature	Date
N/A			•	••		///		XIO ·		11/10/04
										7-7-

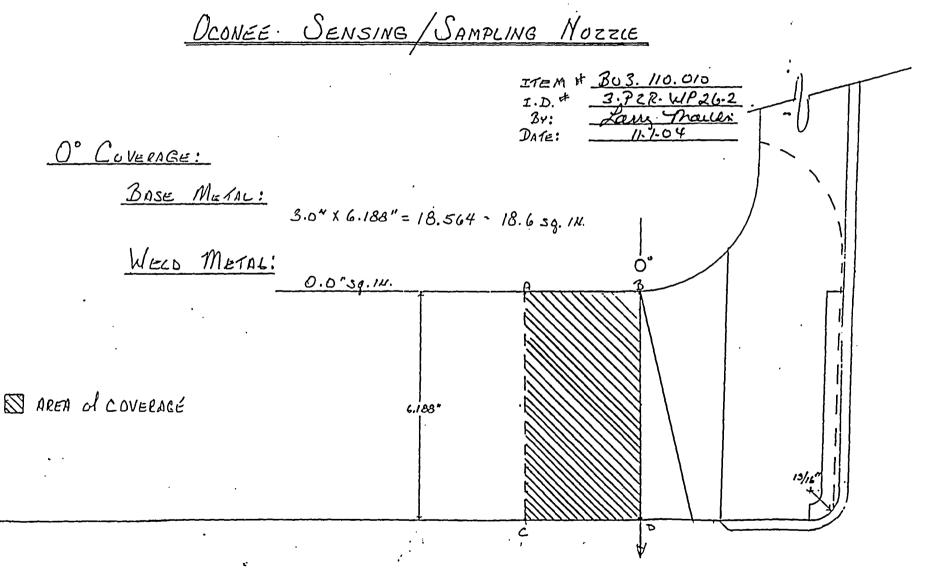


Determination of Percent Coverage for UT Examinations - Vessels

		<u>O3</u>	1 1000	edure:	NDE-820	Outage I	No.: ONS3EC
ary No.:	B03.110.01	10	Procedure	Rev.:	1	Report N	No.: <u>UT-04-</u>
kscope:	ISI		Work Orde	r No.:	98641456	Pa	nge: <u>3</u> of
0 deg Plan	<u>ar</u>						
Scan	100.000	% Length X _	18.710	_ % volume	of length / 100 = _	18.710	% total for 0 (
45 deg							
Scan 1	100.000	% Length X _	52.960	_ % volume	of length / 100 = _	52.960	% total for So
Scan 2	100.000	% Length X _	0.000	_ % volume	of length / 100 = _	0.000	% total for So
Scan 3	100.000	% Length X _	30.190	_ % volume	of length / 100 = _	30.190	% total for So
Scan 4	100.000	% Length X _	30.190	_ % volume	of length / 100 = _	30.190	% total for So
Other deg	60						
		- 9/ Langth V	CO F70	9/ scale	of Joseph 1400	60.570	O/ Antol for Co
Scan 1	100.000	% Length X			of length / 100 = _		
		% Length X _ % Length X _ % Length X		% volume	of length / 100 = _ of length / 100 = _ of length / 100 =	62.570 0.000 30.190	% total for So
Scan 1	100.000	% Length X _	0.000	% volume % volume	of length / 100 = _	0.000	% total for So% total for So%
Scan 1 Scan 2 Scan 3 Scan 4	100.000 100.000 100.000	% Length X _	0.000 30.190	% volume % volume	of length / 100 = _ of length / 100 = _	0.000 30,190	% total for So % total for So
Scan 1 Scan 2 Scan 3 Scan 4 Add to	100.000 100.000 100.000 100.000 tals and divide	% Length X _ % Length X _ % Length X _ % Length X _ e by # scans =	0.000 30.190 30.190 30.738	% volume % volume % volume % total for	of length / 100 = _ of length / 100 = _ of length / 100 = 60 deg	0.000 30,190	% total for So% total for So%
Scan 1 Scan 2 Scan 3 Scan 4 Add to	100.000 100.000 100.000 tals and divide	% Length X _ % Length X _ % Length X _ e by # scans =	0.000 30.190 30.190 30.738	% volume % volume % volume % total for	of length / 100 = _ of length / 100 = _ of length / 100 = 60 deg	0.000 30,190	% total for So% total for So
Scan 1 Scan 2 Scan 3 Scan 4 Add to	100.000 100.000 100.000 tals and divide	% Length X % Length X % Length X % Length X e by # scans =	0.000 30.190 30.190 30.738	% volume % volume % volume % total for	of length / 100 = _ of length / 100 = _ of length / 100 = 60 deg	0.000 30,190	% total for So % total for So % total for So % total for So

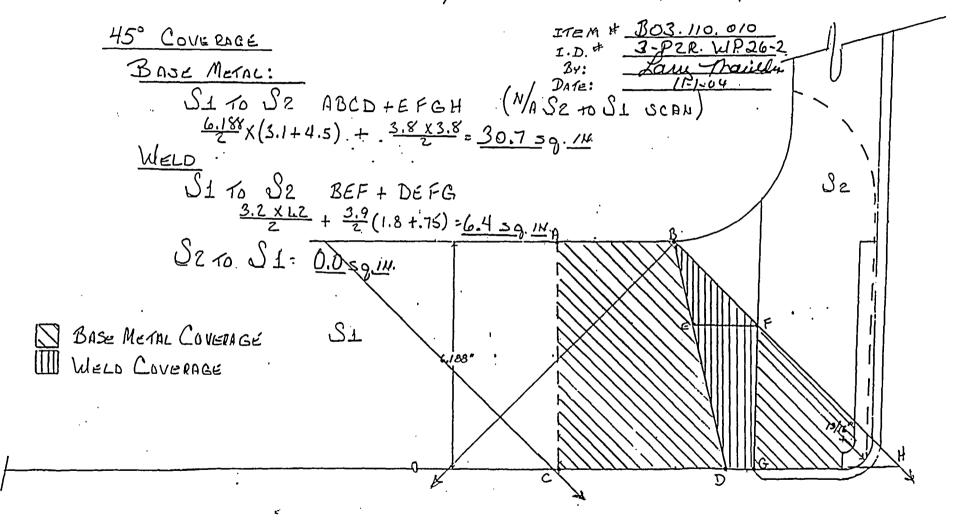


ATTACHMENT TO UT-04-473
PAGE 1 OF 5



ATTACHMENT TO UT-04-473
PAGE Z OFS

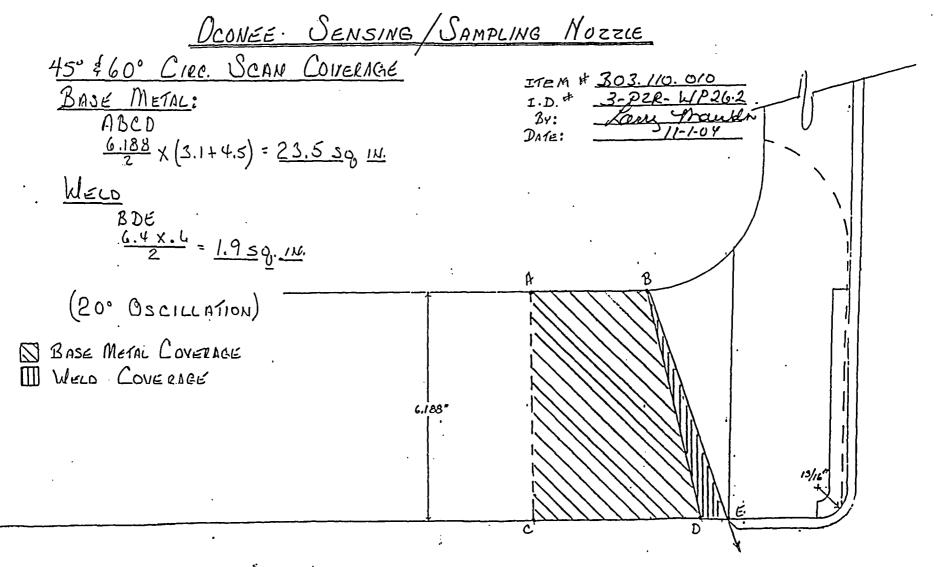
DONÉE SENSING / SAMPLING MOZZIE



ATTACHMENT TO UT-04-473
PAGE 3 OF S

DONÉE SENSING/SAMPLING NOZZIE 60. CONESUGE ITEM #. 803.110.010 BASE METAL! I.D. # 3-PZR-VJP26.2 BY: Lan Thanks DATE: 11. + 04 SI 10 SZ ABCD + FGHI By: Date: $\frac{6.188}{2} + (3.1 + 4.5) + \frac{3.7}{2} (3.0 + 4.7) = 35.8 \times 9.1N$ N/A-12 TO SI WELD SITO SZ BEF + DEF G 2.6 x.9 + 4.75 (2.0+.75) = 7.7 sq.14. S2 10 S1 - 0.0 59.14. 31

ATTACHMENT TO UT-04-473



ATTACHMENT TO UT-04-473
PAGE 5 OF 5

Duke Energy.

UT Vessel Examination

Site Summar Works Code:	y No.: scope:	Oconee	B03.110 ISI		Cat./lt	em:	Proced	rocedure: dure Rev.: order No.:	986414 Location	156			NS3EOC2 UT-04-474 of	
Drawing No.:	50	15	SI-OCN3	-002			Description:	Nozzle to To	Shell					
Component ID: Limitations:					n report UT-04	-475.			Size/Length	: N/A Start Time:	Thic 1204	kness/Diameter: Finish Time:	6.187"/5	
Examination S	urface:	Insi	de 🗌	Oı	utside 🗹		Surface Con	dition: AS G	ROUND					
Lo Location:		9.5	2.3		_ Wo Locatio	n:	Centerline of	Weld	Couplant:	ULTRAG	EL II	Batch No.:	03125	<u> </u>
Temp. Tool Mf	g.:	F	SHER_		Serial No	o.:	MCNDE327	68	Surface Temp	o.: <u>72</u>	°F			
Cal. Report No	·.:				····		CAL-04-735							
Angle Used Scanning dB Indication(s): Comments: FC 03-20	9 Yes [45T ○ ☑	60	60T	Scan	Coverage: U _l	pstream 🗹	Downstream (☑ cw.☑] ccw	☑		
Results:	Acc	ept 🗹	Reje	ect 🗌	Info 🗌							·		
Percent Of Co	verage	Obtained	l > 90%:	_No	o - 25.927%	F	eviewed Previo	ous Data:	Yes					
Examiner L Mauldin, Larry	evel [[-N	20	m (Signature	ulle		Reviewet	m/ 1	Nos	Signa		-9-04	Date
Examiner L Eaton, Jay A.	evel [[1	W.	2	Signature		Date 11/1/2004	Site Review	10		Signa			Date
Other L N/A	evel N	!/A	71		Signature		Date	ANII Review	Mille	alt	Signa		19/04	Date

Duke Energy.

UT Vessel Examination

Site Summar Works	y No.:	Oconee	B03,110				Proce	Procedure:edure Rev.: Order No.:	NDE-820 1 9864145				NS3EOC: JT-04-47! of	5
Code:	Asm	e Sectio				at./Item:			Location:			N/A		
Drawing No.:		15	SI-OCN3	-002			Description	Nozzle to To	o Shell			 		
System ID:	50								0'- "		71.1.1	/D:		
Component ID:									Size/Length:			ness/Diameter:		
Limitations:	See at	tached I	imitatio	n repor	t,				Sta	art Time:	1213	Finish Time:	123	3
Examination S	urface:	Insi	de 🔲	Ou	tside 🔽		Surface Co	ndition: AS G	ROUND		· ·			
Lo Location:		9.2	2.3		_ Wo Lo	cation: _	Centerline o	f Weld	Couplant:	ULTRAGE	<u>L II </u>	Batch No.:	0312	25
Temp. Tool Mf	g.:	FI	SHER		Seri	ial No.:	MCNDE32	2768	Surface Temp.:	72	⊸ °F			
Cal. Report No	.:					c	AL-04-736, CAL-0	4-737						
Angle Used	0	45	45T	60	60T									
Scanning dB		70.2	70.2	84.6	84.6									
Indication(s):	Yes [] No	· 🔽	·			Scan Coverage:	Upstream 🗹	Downstream 🗹	cw ∑	ccw	Z		
Comments:		_												
FC 03-29, 03-	31													
10 00-20,00-	•													
Results:	Acc	ept 🔽	Reje	ect 🗀	Info									
Percent Of Cov	/erage	Obtained	l > 90%:	_ No	o - 25.927	<u>%</u>	Reviewed Prev	rious Data:	Yes	_				
Examiner L Mauldin, Larry	evel E.	-N /	9110	ida	Signature	ruldi	, Dat	te Reviewe	an 1 M	200	Signat		11-9-04	Date
	evel	/			Signature			te Site Review			Signat		<u> </u>	Date
	evel N	/A			Signature		Dat	te ANII Reviev	MALK	B	Signat		1/10/01	Date 4



Limitation Record

Site/Unit:	Oconee / O3	Procedure:	NDE-820	Outage No.:	ONS	3EO	C21
Summary No.:	B03.110.011	Procedure Rev.:	1	Report No.:	UT	-04-4	75
Workscope:	ISI	Work Order No.:	98641456	Page:	2	of	3

Description of Limitation:

Limited 360° from the weld edge and beyond due to blend radius and nozzle configuration.

Aggregrate Coverage

<u>Angle</u>	Beam Dir.	Base Metal	Weld	Aggregate
0	N/A	37.42%	0%	18.71%
45	S1	61.77%	44.14%	52.96%
45	S2	0%	0%	0%
45	CW	47.28%	13.1%	30.19%
45	CCW	47.28%	13.1%	30.19%
60	S1	72.03%	53.1%	62.57%
60	S2	0%	0%	0%
60	CW	47.28%	13.1%	30.19%
60	CCW	47.28%	13.1%	30.19%

Limitations removal requirements:

N/A

Radiation field: N/A

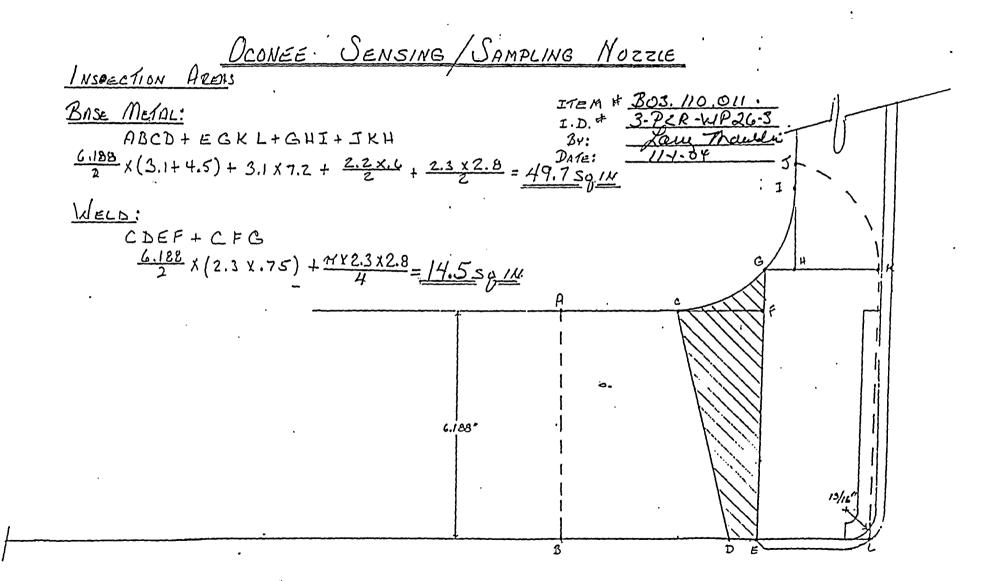
Level II-N	/ N	Signature	Date	Reviewer A	100	Signature	Date
y E.	real	Mouldy	11/1/2004	Jan/1	Moss		11-9-04
Level III		Signature				Signature	Date
(7 111		11/1/2004	١.			
Level N/A		Signature	Date	ANII Revigw///	1111	Signature	Date
	·	-		<i> </i>	1000		11/10/04
	y E. Level III	y E. Level III	y E. Level III Signature	y E	Level N/A Signature Date ANII Review Level N/A Signature Date ANII Review	Level III Signature Date Site Review 11/1/2004	Level N/A Signature Date ANII Revigw/// Signature Signature Date ANII Revigw/// Signature



Site Field Supervisor:

Determination of Percent Coverage for UT Examinations - Vessels

Site/Unit: Occ	<u> </u>	03	1100	edure:	NDE-820	Outage I	No.: ONS3EO
ary No.:	B03.110.01	11	Procedure	Rev.:	1	Report N	No.: <u>UT-04-4</u>
rkscope:	ISI		Work Ord	er No.:	98641456	Pa	age: 3 of
0 deg Plana	<u>ar</u>						
Scan _	100.000	% Length X _	18.710	% volume	e of length / 100 =	18.710	% total for 0 d
45 deg							
Scan 1 _	100.000	% Length X	52.960	% volume	e of length / 100 = _	52.960	% total for Sca
Scan 2	100.000	% Length X	0.000	% volume	e of length / 100 =	0.000	% total for Sca
Scan 3	100.000	% Length X _	30.190	% volume	e of length / 100 = _	30.190	% total for Sca
Scan 4	100.000	% Length X	30.190	% volume	e of length / 100 = _	30.190	% total for Sca
Add tot	als and divide	e by # scans =	28.335	% total for	45 deg		
Add tot	als and divide	e by # scans =	28.335	% total for	45 deg		·
		e by # scans = % Length X			45 deg e of length / 100 = _	62.570	% total for Sc
Other deg	60	_		% volume	·	62.570 0.000	
Other deg Scan 1	100.000	_ % Length X _	62.570	% volume % volume	e of length / 100 = _		% total for Sc
Other deg Scan 1 Scan 2	60 100.000 100.000	% Length X _ % Length X _	62.570 0.000 30.190	% volume % volume % volume	e of length / 100 = _ e of length / 100 = _	0.000 30.190	% total for Sca % total for Sca % total for Sca % total for Sca
Other deq Scan 1 Scan 2 Scan 3 Scan 4	100.000 100.000 100.000	% Length X _ % Length X _ % Length X _	62.570 0.000 30.190	% volume % volume % volume	e of length / 100 = _ e of length / 100 = _ e of length / 100 = _	0.000 30.190	% total for Sc
Scan 1 _ Scan 2 _ Scan 3 _ Scan 4 _ Add tot	100.000 100.000 100.000	- % Length X _	62.570 0.000 30.190 30.190	% volume % volume % volume % volume	e of length / 100 = e of length / 100 = e of length / 100 = e of length / 100 =	0.000 30.190	% total for Sca
Scan 1 Scan 2 Scan 3 Scan 4 Add tot	100.000 100.000 100.000 100.000 als and divide	- % Length X _	62.570 0.000 30.190 30.190 30.738	% volume % volume % volume % volume % total for	e of length / 100 =	0.000 30.190	% total for Sc
Scan 1 Scan 2 Scan 3 Scan 4 Add total	100.000 100.000 100.000 100.000 als and divide	- % Length X _ % Length X _ % Length X _ % Length X _ e by # scans =	62.570 0.000 30.190 30.190 30.738	% volume % volume % volume % volume % total for	e of length / 100 =	0.000 30.190	% total for Sc



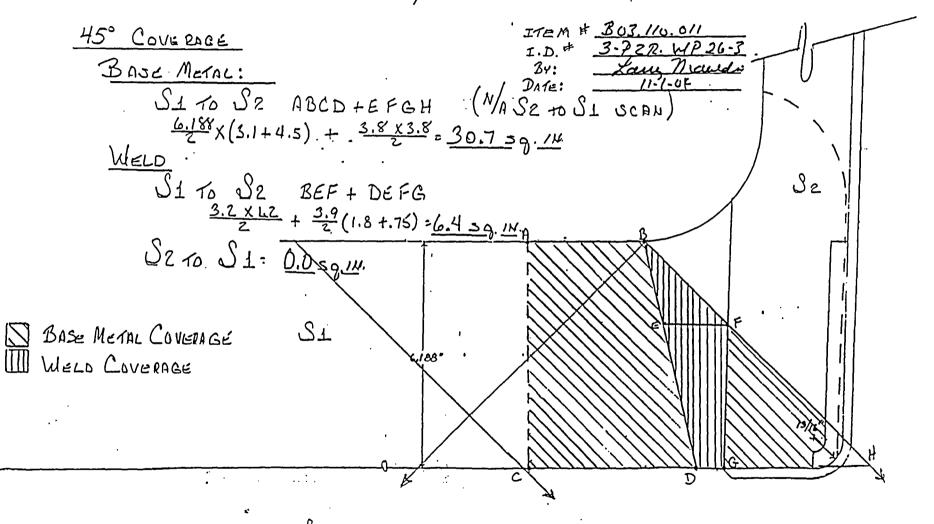
ATTACHMENT TO UT. 04-475
PAGE 1 OFS

ATTACHMENT TO UT-04-475

PAKE ZOFS

DOONÉE SENSING / SAMPRING NOZZIE ITEM # 303./10.011 I.D. # 3.P.Z.R. W.P.26.3 O° COVERAGE: BASE METAL: 3.0" x 6.188" = 18.564 - 18.6 sq. 14. WELD METAL: 0.0"39.14. AREA of COVERAGÉ 6.188"

DOONÉE SENSING / SAMPLING MOZZIE

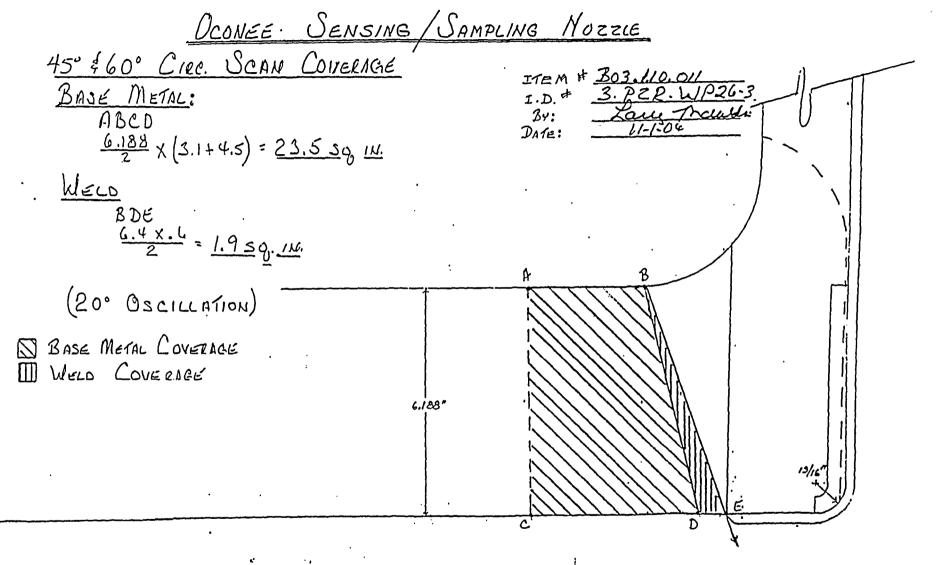


ATTACHMENT TO UT-04-475

PAGE 3 OF 5

DONÉE SENSING/SAMPLING MOZZIE 60. CONESVOR ITEM # . . BOJ. 110.011 I.D. # 3-PTR. 61P.26-3 BASE METAL: SITO SZ ABCD+FGHI $\frac{6.188}{2} + (3.1 + 4.5) + \frac{3.7}{2} (3.0 + 4.7) = 35.8 \text{ Sq./N}.$ N/A-S2 TO SI MELD S2 J1 10 S2 BEF + DEF G 2.6 x.9 + 7.75 (2.0+.75) = 7.7 sq.14. Se 1. SI - 0.0 sq.14.

ATTACHMENT TO UT-04-475
PAGE 4 0F5



ATTACHMENT TO UT-04-475
PALE 5 OF 5



UT Vessel Examination

		03	Procedure:	NDE-640			S3EOC21
Summary		12	Procedure Rev.:	2	Rep		T-04-476
Worksc	cope: ISI		Work Order No.:	98641456		Page: 1	of <u>1</u>
Code:	Asme Section XI 1989	Cat./Item:	B-D-/B3.110.12	Location:		N/A	
Drawing No.:	ISI-OCN3-00)2	Description: Nozzle to T	o Shell			
System ID: 5	50						
Component ID: B	303.110.012 /3-PZR-WP2	6-7		Size/Length:	V/A Thickne	ess/Diameter: _	6.187"/5.75"
Limitations: S	See limitation calculation	ns on report UT-04-477.		Start Tim	ne: <u>1209</u>	Finish Time: _	1212
Examination Sur	rface: Inside 🗌	Outside 🗹	Surface Condition: AS C	BROUND			
Lo Location:	9.2.3	Wo Location:	Centerline of Weld	Couplant: UL	TRAGEL II	Batch No.:	03125
Temp. Tool Mfg.	: FISHER	Serial No.:	MCNDE32768	Surface Temp.:	72°F		
Cal. Report No.:			CAL-04-735				
Angle Used	0 45 45T 6	60T					
Scanning dB	39						
Indication(s):	Yes ☐ No 🗸	Sc	an Coverage: Upstream 🗹	Downstream 🗹 💢	cw ccw v		
Comments:							
FC 03-20							
Results:	Accept ☑ Reject	Info					
Percent Of Cove	erage Obtained > 90%:	No - 25.927%	Reviewed Previous Data:	Yes			
	vel II-N	Signature	Date Reviewer	M = H V H	Signatur		Date
Mauldin, Larry E Examiner Lev	vel III	4 Mocellary Signature	2 11/1/2004 Date Site Review	Jany///Co	Signatur		9-04 Date
Eaton, Jay A.	/e' "	Oignature	11/1/2004	"	Oigilatui	•	Date
Other Lev	vel N/A	Signature	Date ANII Revie	W FALLS ABOUT	. Signatur	е ,,	Date Date
N/A	· · · · · · · · · · · · · · · · · · ·						1964



UT Vessel Examination

		Ocone		03			D	Procedure:		-820			Outage No.:		S3EOC:	
Summa Work	scope:		B03.110					cedure Rev.: rk Order No.:		1456			Report No.: Page:		T-04-47	
Code:	Asn	ne Sectio	on XI 19	89		Cat./Item	: B-D-/	B3.110.12	Locati	ion:			N/A			
Drawing No.:	- · · · · · · · · · · · · · · · · · · ·	- !	SI-OCN:	3-002			Descriptio	n: Nozzle to To	o Shell							
System ID:	50															
Component ID:	B03.1	10.012 /3	-PZR-W	P26-7			·····		Size/Leng	th:	N/A	Thi	ckness/Dian	neter: _	6.187"/	5.75"
Limitations:	See at	tached I	imitatio	n repor	t					Start	Time:	1219	Finish	Time: _	124	0
Examination S	Surface:	Insi	de 🗌	Ot	ıtside 🔽]	Surface C	Condition:								
Lo Location:		9.:	2.3		_ Wo L	ocation:	Centerline	of Weld	Couplant:		ULTRAGE	LII	Batch N	o.:	0312	.5
Temp. Tool M	fg.:	F	SHER		_ Se	erial No.:	MCNDE	32768	Surface Ter	np.: _	72	°F				
Cal. Report No	o.:						CAL-04-736, CAL	-04-737								
Angle Used	0	45	45T	60	60T											
Scanning dB		70.2	70.2	84.6	84.6											
Indication(s):	Yes		• 	·		<u>. </u>	Scan Coverage:	Upstream 🗹	Downstrean	n 🗹	cw₽	ccw	' ✓			
Comments:																
FC 03-29, 03	-31															
Results:	Acc	ept 🗹	Reje	ect 🔲	Inf	• 	<u></u>									
Percent Of Co	verage	Obtained	ł > 90%:	No	o - 25.92	7%	Reviewed Pr	evious Data:	Yes							
	evel [-N			Signatur	9/1 /	<i>()</i>	ate Reviewer)	-	M		Sign	ature			Date
Mauldin, Larry			ALL.			Oula	11/1/20		Jan //	// (000	0:		1-10-	04	
Examiner l Eaton, Jay A.	evel	1	()	MI	Signatur	e	ں 11/1/20	ate Site Review	v & (Sign	ature			Date
	evel N	I/A		 \ -	Signatur	e		ate ANII Review	" Moder	XX		Sign	ature	// //	10/04	Date
177									ארגע זוייניג	M_{\perp}					701	



Limitation Record

Site/Unit:	Oconee /	03	Procedure:	NDE-820	Outage No.:	ON	S3E0	C21
Summary No.:	B03	.110.012	Procedure Rev.:	1	Report No.:	UT-04-477		77
Workscope:		ISI	Work Order No.:	98641456	Page:	2	of	3_

Description of Limitation:

Limited 360° from the weld edge and beyond due to blend radius and nozzle configuration.

Aggregrate Coverage

Angle	Beam Dir.	Base Metal	Weld	Aggregate
0	N/A	37.42%	0%	18.71%
45	S1	61.77%	44.14%	52.96%
45	S2	0%	0%	0%
45	CW	47.28%	13.1%	30.19%
45	CCW	47.28%	13.1%	30.19%
60	S1	72.03%	53.1%	62.57%
60	S2 .	0%	0%	0%
60	CW	47.28%	13.1%	30.19%
60	ccw	47.28%	13.1%	30.19%

Limitations removal requirements:

N/A

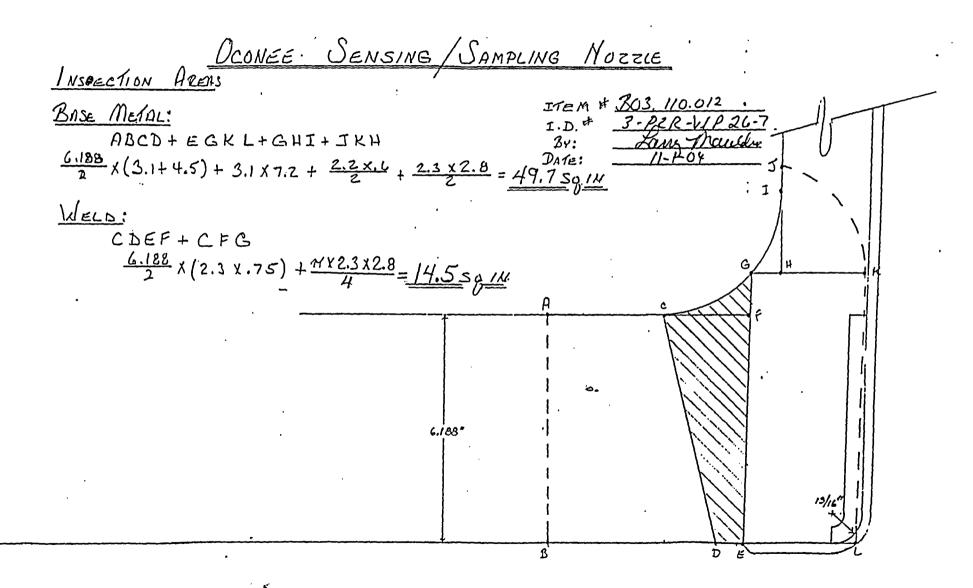
Radiation field: N/A

Reviewe Signature Date Examiner Level Date II-N 11/1/2004 Mauldin, Larry E. Examiner Date Level [] Signature Date Site Review Signature 11/1/2004 Eaton, Jay A. ther Level Signature Date ANII Review Signature Date N/A .4/A



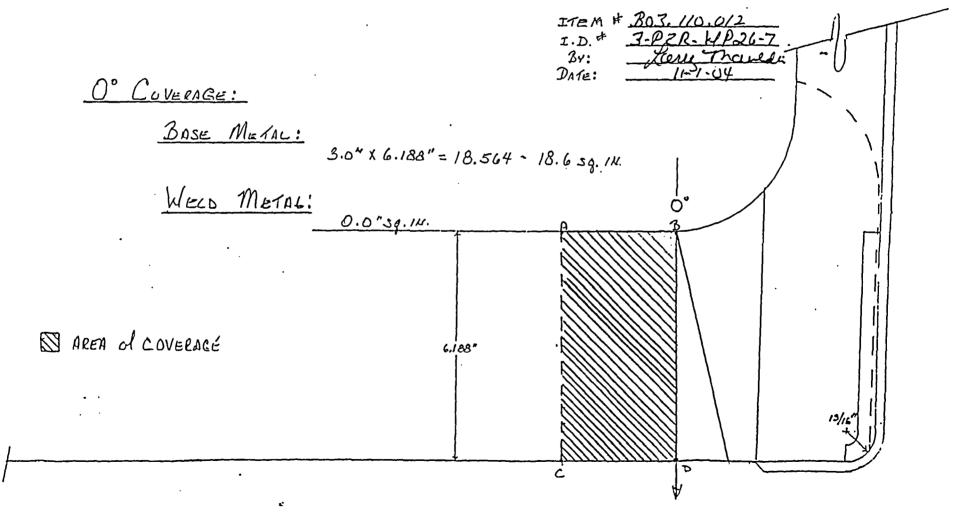
Determination of Percent Coverage for UT Examinations - Vessels

Site/Unit:	Oconee /	О3	Proce	edure:	NDE-820	Outage N	No.: ONS3EOC
nary No.:	B03.11	0.012	Procedure	Rev.:	1	Report N	No.: UT-04-47
rkscope: _	<u>IS</u>	<u> </u>	Work Orde	er No.:	98641456	Pa	ge: <u>3</u> of _
0 deg P	lanar						
Scan	100.00	0 % Length X	18.710	% volume	of length / 100 = _	18.710	% total for 0 deg
<u>45 deg</u>							
Scan	1 100.00	0 % Length X	52.960	% volume	of length / 100 = _	52.960	% total for Scar
Scan	2 100.00	0 % Length X	0.000	% volume	of length / 100 = _	0.000	% total for Scar
Scan	3 100.00	0 % Length X	30.190	% volume	e of length / 100 = _	30.190	% total for Scar
Scan	4 100.00	0 % Length X	30.190	% volume	e of length / 100 = _	30.190	% total for Scar
Other d	<u>leg</u> 60						
Scan	1100.00	00 % Length X	62.570	% volum	e of length / 100 =	62.570	% total for Scar
Scan	2 100.00	00% Length X _	0.000	% volum	e of length / 100 =	0.000	% total for Sca
Scan	3 100.00	00 % Length X	30.190	% volum	e of length / 100 =	30.190	% total for Sca
Scan	4 100.00	00 % Length X	30.190	% volum	e of length / 100 =	30.190	% total for Sca
Add	d totals and d	ivide by # scans =	30.738	% total for	60 deg		
Percen	t complete co	overa d e		·			
Add tot	als for each ar	ngle and scan require	d and divide I	by # of angle:	s to determine;		
	27 % Total 1	or complete exam					
Note:							
	d with angles	ge may be achieved I as noted above shall					
Site Fie	eld Supervisor	:	Mt	III	Date:!	1104	



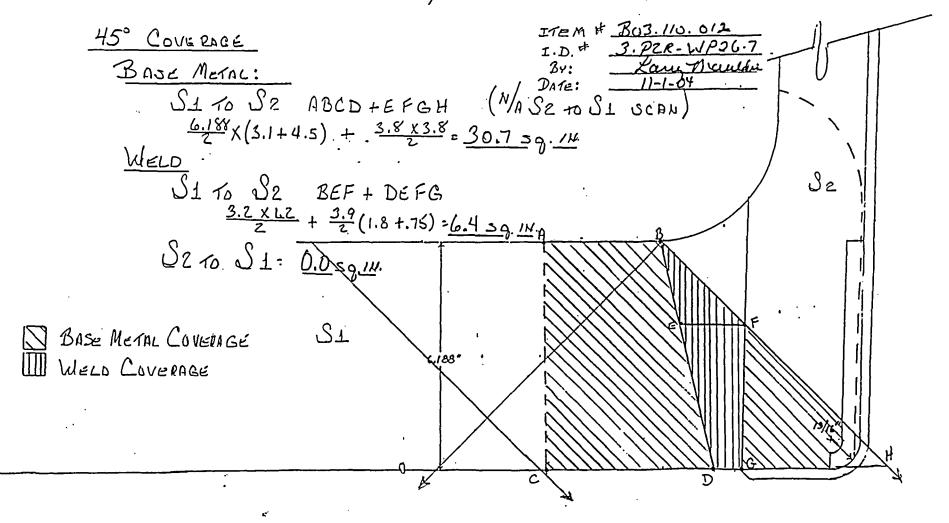
PAGE 1 OF 5

DOONÉE SENSING SAMPLING HOZZIE



AMACUMENT TO UT-04-477
PALE Z OF 5

DONÉE SENSING SAMPLING MOZZIE



ATTACHMENT TO UT-04-477
PAGE 3 OF 5

DOONÉE SENSING SAMPLING NOZZIE 60. CONERVER ITEM # BU3. 110. 012 I.D. # 3-P2R. WP 26-7 BY: Law Mauldon DATE: 11-1=04 BASE METAL: SI 10 S2 ABCD+FGHI By: Date: $\frac{G.188}{2} + (3.1 + 4.5) + \frac{3.2}{2}(3.0 + 4.7) = 35.8 \text{ S}_{2}.1N.$ $N_A - S_2$ to S_1 MELD SI TO SZ BEF+DEFG 21, X.9 + 9 S2 $\frac{2.6 \times .9}{2} + \frac{4.75}{2} (2.0 + .75) = 7.7 s_{9.14}$ Se 10 SI - 0:0 59.14. 22

 $\cdot = \pm 1$

APPACHMENT TO UT-04-477
PAGE 4 OF5

DONÉE. SENSING/SAMPLING NOZZIE 45° \$60° CIEC. SCAN COIVERIGE ITEM # 303.110.012 I.D. # 3-PZR-WP26-7 By: Kare Thousand DATE: 11-ROY BASE METAL: 6.188 x (3.1+4.5) = 23.5 sq IN. BDE 6.4 x.6 = 1.9 sq. 16. (20° OSCILLATION) D BASE METAL COVERAGE WELD COVERAGE 6.1881

ATTACHMENT TO UT-04-477

PAGE 5 OFS

Duke Energy.

UT Vessel Examination

Sit	e/Unit:	Oconee /	03		Procedure:	NDE-630		Outage No.: _	ONS3EO	21
Summa	ry No.:	В0	3.150.003		Procedure Rev.:	2		Report No.:	UT-04-48	37
Work	scope:		ısı		Work Order No.:	98641451		Page:	1 of	2
Code:	Asm	e Section :	XI 1989	Cat./Item:	B-D-/B3.150.3	Location:		N/A		
Drawing No.:		1-4	4773-1		Description: Nozzle to	Channel Body				
System ID:	51A									3.0 "
Component ID:	B03.15	0.003 /3-L1	DCB-IN-V1			Size/Length:	N/A	Thickness/Diamet	er: .8 75 "/	8.62 27
Limitations:	None					Sta	rt Time: 0815	Finish Tim	ne: 08	47
Examination S	urface:	Inside	Ou	tside √	Surface Condition: AS	GROUND				
Lo Location:		9.2.2		Wo Location: _	Centerline of Weld	Couplant:	ULTRAGEL II	Batch No.:	031	25
Temp. Tool M	i g.:	FISH	IER	Serial No.:	MCNDE 27220	Surface Temp.:	°F			
Cal. Report No	o.:			CAL-04-	741, CAL-04-742, CAL-04-743			_		
Angle Used	0	45 4	45T 60	60T 45 RL						
Scanning dB		45.0	45.0 70.5	66.5			•			
Indication(s):	Yes [No [v			Scan Coverage: Upstream ☑	Downstream □	cw ⊋ co	CW 🗹		
, ,	, , , ,		J		<u>-</u>		2.1.22			
Comments:										
Results:	Acc	ept 🗹	Reject 🔲	Info 🗌	Scanning dB's less than re	ef +14 to obtain 2:	1 signal to noise r	atio.		
Percent Of Co	verage	Obtained >	90%: <u>No</u>	o - 29.263%	Reviewed Previous Data:	Yes	•	-		
Examiner L	evel ji			Şignature	Date Reviewer(1 1 (1)	Si	ignature		Date
Resor, James	н		James 4.	Leson	11/4/2004	- 00 00 7 7 7 7 7	200		11-10-09	
Examiner L Jones, Russel	evel	·N	13/1	Signature	Date Site Revie	w - } / /	Si	ignature	•	Date
	evel N	IA	70	Signature	Date ANII Revie	ew -	, Si	gpature	, ,	Date
N/A					No	ney Chite	the Short	th 11/1	11/04	



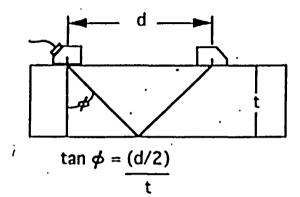
Determination of Percent Coverage for UT Examinations - Vessels

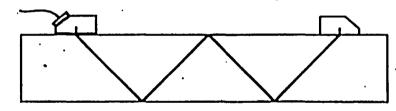
Site/Unit: Oc ary No.:	B03.150.0	03	Proce Procedure		NDE-630 2	Outage I Report I	
rkscope:	ISI		Work Orde	 -	98641451		age: 2 of
							
0 deg Plar	<u>nar</u>						
Scan	 	% Length X _		_ % volun	ne of length / 100 = _		% total for 0 d
45 deg							
Scan 1	100.000	% Length X _	35.900	_ % volun	me of length / 100 = _	35.900	% total for Sc
Scan 2	100.000	% Length X _	15.600	% volun	me of length / 100 = _	15.600	_ % total for Sc
Scan 3	100.000	% Length X _	31.400	_ % volun	me of length / 100 = _	31.400	% total for Sc
Scan 4	100.000	% Length X _	31.400	_ % volun	ne of length / 100 = _	31.400	% total for Sc
Other deg		-	40.000	٠.		40.00-	W 4 2 14 C
Scan 1	100.000	% Length X _	46.600	_ % volur	me of length / 100 = _	46.600	% total for Sc
Scan 2	100.000	% Length X _	10.400	% volur	me of length / 100 = _	10.400	% total for Sc
Scan 3	100.000	% Length X _	31.400	_ % volur	me of length / 100 = _	31.400	% total for Sc
Scan 4	100.000	% Length X _	31.400	% volur	me of length / 100 = _	31.400	% total for Sc
Add to	tals and divid	e by # scans =	29.950	% total fo	or <u>60</u> deg		
Percent co	omplete cover	ana					
<u> </u>		and scan required	d and divide by	/ # of angle	es to determine;		
29.263	_ % Total for c	omplete exam					
Note:		•					
	rith angles as n				nethods. When used, to the total to provide		
examination	on.		1			·	

DUKE POWER COMPANY

ULTRASONIC BEAM ANGLE MEASUREMENT RECORD

B03.150.003





For thin wall pipe use 2nd Vee path $tan \phi = (d/2)$

2t

1. Take thickness measurements between wedge locations.

- 2. Place search unit on straight run of pipe, and peak the signal.
- 3. Measure distance (d) between exit points.
- 4. Calculate beam angle with formula as shown using measured wall thickness.
- 5. Use the measured beam angle to determine coverage and when plotting any indications.

Pipe size: 8.42" (Custom Nozz) Pipe Schedule: N/A

Nominal 45 deg: d=_1.70"; t=__.875,_; measured angle=_44.16 deg

Nominal 60 deg: d= 3.0"; t= .875; measured angle= 59.74 deg

Nominal 70 deg: d=____; t=_____; measured angle=____deg

Examiner	Level	Date	Examiner	Level	Date
Jones Hoser	I	11-4-04	·		
Reviewed By J	Level	Date	Authorized Inspector	<u> </u>	, Date
Vay///los	>. /1	11-10-04	Nancy Chilety	Shighter 1	1/11/04

DUKE POWER COMPANY									
ISI LIMITATION REPORT									
Component/Weld ID: 3-LDCB-IN	remarks:								
☐ NO SCAN	☐ NO SCAN SURFACE BEAM DIRECTION								
	□ 1	⊠ 2	⊠ 1 □] 2 🛭 cw	√ ⊠ ccw				
FROM L N/A to L N/A		INCHES	FROM W0	5" to	Beyond				
ANGLE: □ 0 ⊠ 45 □ 60	other _		FROM 0	_ DEG to	360 DEG				
NO SCAN					_	Due to branch c	onn. config.		
☐ LIMITED SCAN	□ 1	⊠ 2	⊠ 1 □] 2 🗌 cw	ccw				
FROM L to L		INCHES	FROM W0	.5" to	Beyond				
ANGLE: □ 0 □ 45 ⊠ 60	other _		FROM 0	_ DEG to _	360 DEG				
☐ NO SCAN									
☐ LIMITED SCAN	□ 1	□ 2	<pre>1 [</pre>] 2 🗌 cw	ccw				
FROM L to L		INCHES	FROM W0	to			····		
ANGLE: □ 0 □ 45 □ 60	other _		FROM	DEG to _	DEG				
☐ NO SCAN									
☐ LIMITED SCAN	□ 1	□ 2	□ 1 □	2 🗌 cw	_ ccw				
FROM L to L		INCHES	FROM WO	to		Sketch(s)	attached		
ANGLE: 0 0 45 0 60	other _		FROM	_ DEG to _	DEG	⊠ yes	☐ No		
Prepared By: James H. Resor	Valles 11. 16501 Frue H Sun								
Reviewed By: Jay Mon		Date: //-/	10-04	Authorized Insp Waney	ector. CRItikul	Sloughter	Date; /64		
٧, ١,				U		J			

Supplem : al Report

ke Energy.

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	2	-1	111

Summary No.:	B03.150.003				1 /
Examiner:	Jones H. Besa	Level: I	Reviewer:		Date: 11/10/04
Examiner:		Level:	Site Review:	· · · · · · · · · · · · · · · · · · ·	Date:
Other:		Level:	ANII Review:	Vanly CKitchel Soughter	Date: 11/1/0 4

- rents: Comments:

AVERAGE OF EXAM AREAS OF AXIAL/CIRC. COLLYOURS USED TO DETERMINE

ALTUAL EXAM AREA.

Sketch or Photo:

ACTUAL EVAM AREA : (Ax) 3.4312 + (c) 2.07712 = 5.50712/2 = 2.75412

3. LDCB. INLET-VI

-scarl.	AVIAL AREA	CIRC. AREA	AVERAGE	PERCENY (AVE/ACT.) × 100
ц 5° - 1	1.124in ²	. ASkain ²	99.iz	35.9%
- 2	.4731.2	,385ik²	429 in 2	15,6%
- 3	1,29in 2	44 is 2	.865in	31,4 %
- 4	1.29 in 2	.4412	.86512	31.4%
60° - 1	1.455;,2	1.111ihz	1.283in2	46.6%
- 2	1356in	.219 in	, 288 in 2	10,4%
3	1,29;2	,44 in2	, 865 in 2	31.4%
- 4	12912	. 44in2	865 in C	31.4%

Supplem. ial Report

Energy.

Report No.:	

Page:	3	of	14

Summary No.: 303.150.003

Examiner: Fried Bear

Examiner:

Other:

Level: II

Level:

Reviewer:

Site Review: __ ANII Review: Date: 11/10/0

Date: _

Date: 11/11/04

Comments:

Exam AREA:

ABCD = .5"x .875" = . 4375"

CDE = \$75 x 1.4 = . 41252 in

Sketch or Photo:

QEG = 1.75" x 1.25 = 1.0938" in

 $EFG = 2.0" \times .2" = .2^{1} in$

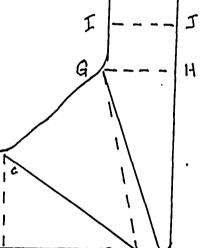
GHF = 1.9" x .75" = .7125"

GHIJ = .75'x .5" = .375"

TOTAL EXAM AREA 3.432 in

3.4313"

A



3-LDCB-INLET-VI

ke
Łiergy.

Other:

Suppleme al Report

ATTACHMENT C

PAGE 430F 76 Report No.:

Page: 4 of 14

B03.150.003 Summary No.: Examiner:

Examiner:

Level: I Level:

Level:

Reviewer:

Site Review:

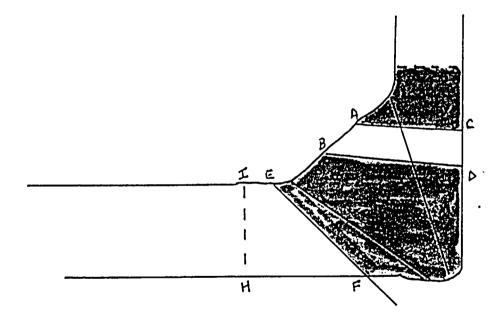
ANII Review: Vane

Date: 14/11/80

Comments:

3-LDCB-INLET-VI

Sketch or Photo:



45° AKIAL SCAN 1

AREA OF COVERAGE

ABCD: $\left(\frac{1.1+1.45}{2}\right).35in = .446^{2}in$ EFHI (3in + 1.25in) . 875in = 6.78 in TOTAL AREA = 1.124 in2

ke
Energy.

Supplemo al Report

PAGE 440F 96

Report No.:

Page: 5 of 14

Summary No.:

B03.150.003

Examiner:

Examiner: Other:

Level: #

Reviewer:

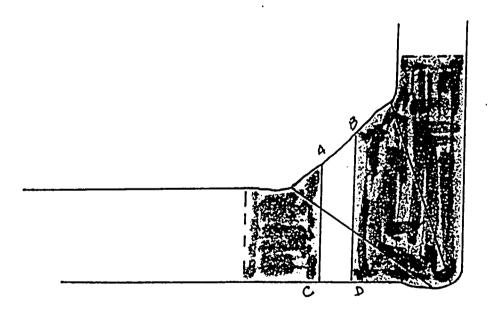
Site Review:

ANII Review:

Comments:

3-LDCB-INLET-VI

Sketch or Photo:



450 A KIAL SCAN Z

AREA OF COVERAGE

ABCD: (152+1.21).35 in $= .473^{2}$ in

Suppleme 'al Report

Other:

Summary No.:	B03.150.003	

Examiner: Examiner:

Level: II

Level: . Level:

Reviewer:

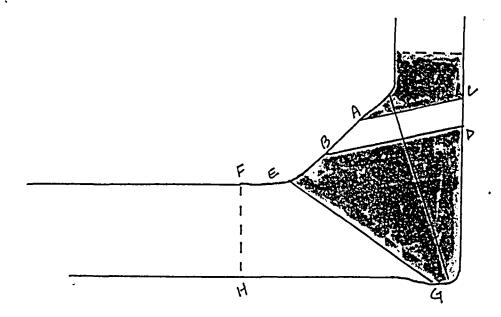
Site Review: ANII Review:

6 01 14

Comments:

3-LDCB-INLET- VI

Sketch or Photo:



60° AXIAL SCAN 1

AREA OF COVERAGE

Report No.:

Page:

ABCD: (1.45(n+1.11)).3"=383"in

EFGH: (.35: + 2.1in). 37520

 $= 1.455^{2}$ in

Suppleme .al Report

ke Energy.

				1	Page: 7 of 14
Summary No.:	B03.15D.00.3				_
Examiner:	Jones HBen	Level: II	Reviewer:		Date: 11/10/04
Examiner:		Level:	Site Review:	,	Date:
Other:		Level:	ANII Review:	Nancy CRititus	loughty Date: 11/11/84

Comments:

3-LDCB-INLET - VI

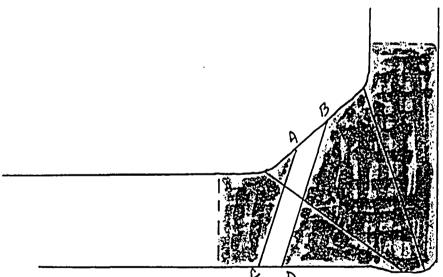
60° AXIAL SCAN Z

Report No.:

AREA of COVERAGE

ARCD: $(1.25^{\circ} + 1.6^{\circ}).25in = .356^{2}in$

Sketch or Photo: .



Supplem 'al Report

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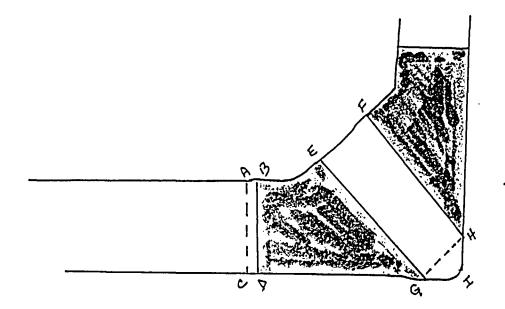
Report No.:				_
Page:	8	of	14	

Summary No.:	B03.150.003	_			
Examiner:	Jones & Bys	Level: II	Reviewer:		Date: 11/10/04
Examiner:	10	Level:	Site Review:		Date:
Other:		Level:	ANII Review:	Nancy Ckitchel Structur	Date: /1////

Comments:

3-LDCB-INLET-VI

Sketch or Photo:



CIRCLEAN COVERAGE

ABCD = $.875 \times .1 = .0875^{2}$ in EFGH= $1.6 \times .7 = 1.12^{2}$ in GHI = $.4 \times .4 = .08^{2}$ in · $\frac{1.29^{2}}{1}$ in = CIRC SCAN Greenie

Suppleme al Report

Report No.:	

Page: 9 of 14

Summary No.:

B03.150.003

Examiner:

Other:

Examiner:

Level: II Level:

Level:

Reviewer: Site Review:

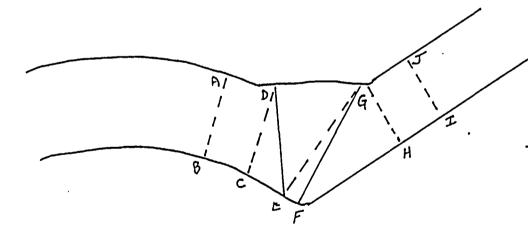
ANII Review:

Date: /////

Comments:

3-LDCB-INLET-VI

Sketch or Photo:



TOTAL EXAM AREA

ABCD = 15 x . 275 = .4375 in

CDE = 1.15 x .35 = . 20132 in

DE6 = 1.4x.7" - .491 in

EFG = 1.4"x.2 = ,142in

FGH = 1.3 x.7 = .4552in

GHIT= .5 × .7"= ,352 in

TOTAL Exam AREA = 2.072 in

Suppleme al Report

Report No.:

Page: 10 of 14

Summary No.:

B03.150.003

Examiner:

Other:

Examiner:

Level:

Level: #

Reviewer:

Site Review:

ANII Review: /

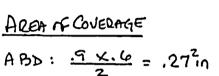
Date:

Date: (1)

Comments:

Sketch or Photo:

3-LDCB-INLET-VI

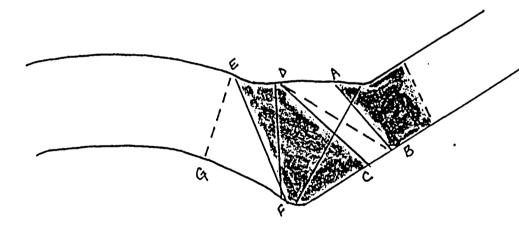


45° AXIAL SCAN 1

BCD: 1.2 x.25 = .15210

EGF: 1.0 x.875 = .4362 in

TOTAL EXAM AREA = . 856 in



al Report Supplem.

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Energy.

Report No.:

11 of 14

Summary No.:

B03,150.003

Examiner:

Other:

Examiner:

Level: 7

Level:

Level:

Site Review:

Reviewer:

ANII Review: Noncy

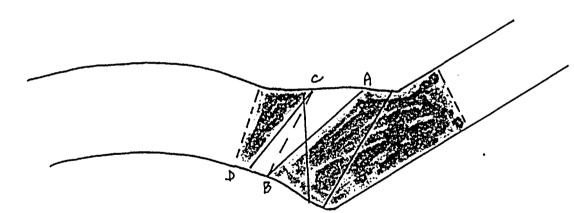
Date:

Date: /////0

Comments:

3-LDCB-INLET-VI

Sketch or Photo:



45° AXIAL SCAN 2

ABC: $\frac{1.1 \times .5}{2} = .275^2$ in

BCD: $\frac{.2 \times 1.1}{2} = .11^{2}$ in

Tomac Alea = . 3852 in

	tke
COL	sergy.

Other:

Suppleme 'al Report

ATTACHMENT C

Report No.: PAGE 51 OF 96

Page: 12 of 14

Summary No.: B03.150.003

Examiner: Jones HBeson

Examiner:

Level:

Reviewer:

Site Review:

ANII Review:

Monce

Date: 11/10/04

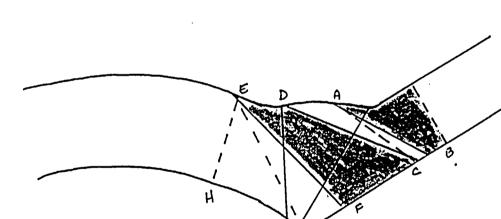
Date:

Date: 21/1/04

Comments:

3-LDCB-INLET-VI

Sketch or Photo:



60° AXWAL SCAN 1

Examiner:

Examiner:

Other:

Suppleme .al Report

ATTACKMENT C PAGE 520F 96

Report No.:

Page: 13 of 14

Summary No.: <u>B03.150.003</u>

Townt Pyon

Level: II

Level:

Level:

Reviewer:

Site Review:

ANII Review:

Date: 11/10/04

Date:

-Date: /////oy

Comments:

3-LDCB-INLET-VI

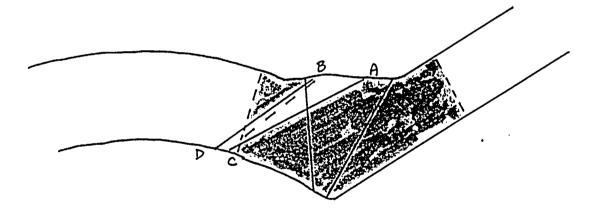
Sketch or Photo:

600 AXIAL SCAN 2

ABC: 1.25 x.25 = . 1562

BCD: $\frac{.1 \times 1.25}{2} = .063$ in

TOTAL SCAN AREA = .2192 ;



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Litergy.

Other:

Suppleme al Report

ATTACHMENT C PAGE 530F 96

Report No.:

Page: 14 01 14

Summary No.: B03.150,003

Examiner: Examiner:

Level: 7Z Level:

Level:

Reviewer: Site Review:

ANII Review: Nancy

Date: 11/11/6

Comments:

3-LDCB - INLET - V.1

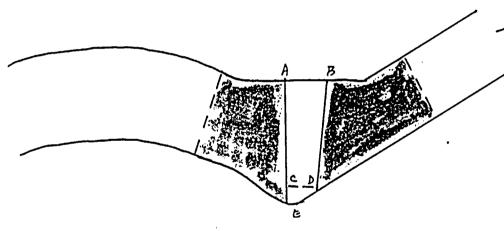
Sketch or Photo:

45° & 60° CIECSCANCOVERISE

ABCD =
$$\frac{1.1}{2}(.45+.3) = .4125^{2}$$
in

CDE = $\frac{.3 \times .15}{2} = \frac{.0225^{2}}{.435^{2}}$ in

TOTAL 45' \$ 60' COVERNIE = .44" in



UT Vessel Examination



Sit	e/Unit:	Oconee /			Pro	ocedure: _	NDE-630		С	outage No.:	ONS3EOC	;21
Summa	ry No.:	B03.150	.004		Procedu	ıre Rev.:	2		F	Report No.: _	UT-04-48	16
Work	scope:	ISI			Work Or	der No.:	98641451	····		Page:	1 of	
Code:	Asm	ne Section XI 198	9	Cat./Item:	B-D-/B3.1	50.4	Location:			N/A		
Drawing No.:		1-44773-	1		Description:	Nozzle to C	Channel Body					
System ID:	51A											3.0
Component ID:	B03.1	50.004 /3-LDCB-0	OUT-V2				Size/Length:	N/A	Thick	kness/Diamete	er: <u>.875'4</u>	8.62
Limitations:	See at	tached documer	nts.				Star	rt Time:	0815	Finish Tim	e: <u>08</u> 4	8.62 ^ー 47
Examination S	Surface:	Inside 🗌	Outside [Surface Cond	ition: AS C	ROUND					
Lo Location:		9.2.2	Wo	Location: _	Centerline of V	Weld	Couplant:	ULTRAG	EL II	Batch No.:	031	25
Temp. Tool M	fg.:	FISHER	s	erial No.: _	MCNDE 272	20	Surface Temp.:	74	°F			
Cal. Report No	o.:			CAL-04	741, CAL-04-742, CA	AL-04-743		- -				
Angle Used	0	45 45T	60 60T	45 RL								
Scanning dB		45.0 45.0	70.5	66.5								
Indication(s):	Yes		·	_!	Scan Coverage: Up	stream 🔲	Downstream 🗹	cw⊵] ccw[₹		
	·											
Comments:												
-												
Results:	Acc	ept 🔽 Reje	ct 🔲 In	fo 🗌	Scanning dB's le	ss than ref	+14 to obtain 2:1	signal to	noise ratio	,	·	
Percent Of Co	verage	Obtained > 90%:	No - 29.2	63%	Reviewed Previou	us Data:	Yes	.				
Examiner L	evel [Signatu	re	Date	Reviewer	91 1 M		Signa	ture		Date
Resor, James			Paneet 15	val_	11/4/2004			20_			11-10-04	
Examiner L Jones, Russel	_evel	-N	Signatu	re	Date 11/4/2004	Site Reviev	v		Signa	ture	·	Date
	evel N	IIA ,	Signatu	re		ANII Revie	Ψ 0	1-1 5	Signa)			Date
N/A			·····			10	Jancy CKit	und)	laugh	tu 11/1	1/04	



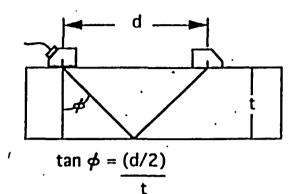
Determination of Percent Coverage for UT Examinations - Vessels

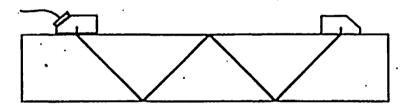
	conee /	<u>O3</u>	Proced		NDE-630	Outage I	No.: ONS3EC
ary No.:	B03.150.00	04	Procedure R	ev.:	2	Report I	No.: <u>UT-04-</u>
kscope:	ISI		Work Order I	No.:	98641451	Pa	age: 2 of
0 deg Pla	<u>nar</u>						
Scan		% Length X _		% volume	of length / 100 = _		% total for 0
<u>45 deg</u>							
Scan 1	100.000	% Length X _	35.900	% volume	of length / 100 = _	35.900_	% total for So
Scan 2	100.000	% Length X _	15.600	% volume	of length / 100 = _	_15.600	% total for So
Scan 3	100.000	% Length X _	31.400	% volume	of length / 100 = _	31.400	% total for So
Scan 4	100.000	% Length X	31.400	% volume	of length / 100 =	31.400	% total for So
Scan 1	100.000	% Length X	46.600	% volume	of length / 100 =	46.600	% total for So
Scan 1	100.000	% Length X _	46.600	% volume	of length / 100 =	46.600	% total for So
Scan 2	100.000	% Length X _	10.400	% volume	of length / 100 = _	10.400	% total for So
Scan 3	100.000	% Length X _	31.400	% volume	of length / 100 =	31.400	% total for So
Scan 4	100.000	% Length X _	31.400	% volume	of length / 100 =	31.400	% total for So
Add to	otals and divide	e by # scans =	29.950 %	% total for	60deg		
	omplete cover:	ane					
Percent c		<u></u>	d amal alisida bus	t of angles t	o determine:		
Percent c		and scan required	and divide by i				
Add totals	for each angle	and scan required	and divide by i		•		
Add totals		·	and divide by t	•	•		

DUKE POWER COMPANY

ULTRASONIC BEAM ANGLE MEASUREMENT RECORD

B03.150.004





For thin wall pipe use 2nd Vee path $tan \phi = (d/2)$

2t

1. Take thickness measurements between wedge locations.

- 2. Place search unit on straight run of pipe, and peak the signal.
- 3. Measure distance (d) between exit points.
- 4. Calculate beam angle with formula as shown using measured wall thickness.
- 5. Use the measured beam angle to determine coverage and when plotting any indications.

Pipe size: 8.42 (Custom Nozz)

Pipe Schedule: N/A

Nominal 45 deg: d=_<u>1.70"</u>; t=<u>.875.</u>; measured angle=<u>44.16</u> deg

Nominal 60 deg: d= 3.0; t= .875; measured angle= 59.74 deg

Nominal 70 deg: d=____; t=____; measured angle=____deg

Examiner Janus H Ben	Level	Date	Examiner	Level	Date
Reviewed By Jany Mon	Level	Date //-/0-04	Authorized Inspector Nancy C Rethy Slavy	Ster	Date 11/11/64

DUKE POWER COMPANY						
ISI LIMITATION REPORT						
Component/Weld ID: 3-LDCB-OUTLET-V2 Item No: B03.150.004 remarks:						
☐ NO SCAN	SURFACE	BEAM DIRECTION	Due to branch conn. config.			
	☐ 1 ☐ 2	□ 2				
FROM L N/A to L N/A	INCH	IES FROM W05" to _Beyond				
ANGLE: □ 0 ⊠ 45 □ 60	other	FROM 0 DEG to 360 DEG				
⊠ NO SCAN	SURFACE	BEAM DIRECTION				
☐ LIMITED SCAN	☐ 1 ☐ 2	□ 2 □ cw □ ccw	Due to branch conn. config.			
FROM L N/A to L N/A	INCH	IES FROM W05" to _Beyond				
ANGLE: □ 0 □ 45 ⊠ 60	other	FROM 0 DEG to 360 DEG				
☐ NO SCAN	SURFACE	BEAM DIRECTION				
☐ LIMITED SCAN	□ 1 □ 2	☐ 1 ☐ 2 ☐ cw ☐ ccw				
FROM· L to L	INCH	IES FROM W0 to				
ANGLE: □ 0 □ 45 □ 60	other	FROM DEG to DEG				
☐ NO SCAN	SURFACE	BEAM DIRECTION				
☐ LIMITED SCAN	□ 1 □ 2	☐ 1 ☐ 2 ☐ cw ☐ ccw				
FROM L to L	INCH	ES FROM W0 to	Sketch(s) attached			
ANGLE: 0 0 45 0 60	other	FROM DEG to DEG	⊠ yes □ No			
Prepared By: James H. Resor			et <u>1</u> of <u>14</u>			
Reviewed By: Jan / Mos	Date:	11-10-04 Authorized Inspector: Nancy CRite	tuSaughta 11/11/04			

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Page:	2	of	14

Summary No.:	B03.150.004	_			
Examiner:	Janus 4 Rem	Level: II	Reviewer:		_ Date: 11 10 04
Examiner:		Level:	Site Review:	V .	Date:
Other:		Level:	ANII Review:	Nancy CKitchel Strugter	Date: ((////64
				والمراب والمراب والمراب المراب المراب والمراب والمراب والمراب والمراب والمراب والمراب والمرابع المرابع المرابع	

Comments:

AVERAGE OF EVAM AREAS OF AXIAL/CIRC. COLYOURS USED TO DETERMINE ACTUAL EXAM AREA.

Sketch or Photo:

ACTUAL EVAM AREA : (Ax) 3.4312 - (C) 2.07712 = 5.50712/2 = 2.75412

3-LDCB-OUTLET-V2

SCALL	AYIAI AREA	CIRC. AREA	AVERAGE	PERCENT (AVE ACT.) × 100
45° - 1	uzdinz	. AStain E	.99 iv	35.9%
- 7	4312	,385ik²	42912	15,6%
- 3	1,291,2	, 44 in 2	.865in	31.4 %
- 4	1.29 in 2	. 44 iw²	.865il ²	31.4%
60° - 1	1.455;12	1.111 in E	1.283	46.6%
-2	135612	.219 in 2	, 288 i. ²	10,4%
3	1,291,2	, 44 in 2	1865 in 2	31.4%
- 4	179in=	. 44in2	. 865 in C	31.4%

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Supplem tal Report

ATTACHMENT C PAGE 59 OF 96 Report No.:

Page: 3 of 14

B03.150.004 Summary No.:

Examiner: Examiner: Other: Level: II Level:

Level:

Reviewer:

Site Review:

ANII Review:

Date:

Date: /////00

Comments:

Sketch or Photo:

Exami AREA:

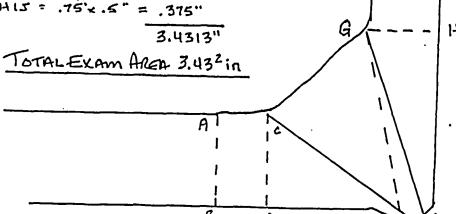
ABCD = .5"x .875" = . 4375 CDE = \$75 x 1.4 = . 41252 in

QEG = 1.75" x 1.25 = 1.0938"in

EFG = 2.0" x.2" = .2"in

GHF = 1.9" x .75" = .7125" in

GHIJ = .75'x .5" = .375"



3-LDCB-OUTLET-V2

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Energy.

Supplem lal Report

ATTACHMENT C PAGE 600F 96

Report No.:

4 of 14 Page:

Summary No.:

B03.150.004

Examiner:

Other:

Examiner:

Level: 7

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Level:

Reviewer:

Site Review:

ANII Review: Nancy C

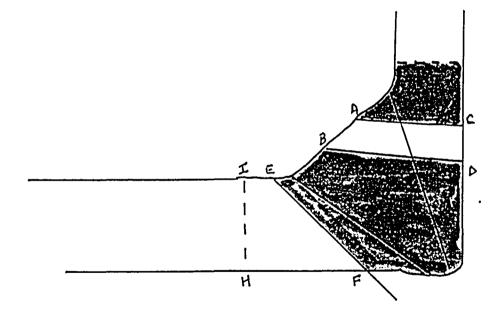
Date:

Date: 11/11/04

Comments:

3-LDCB-OUTLET-V2

Sketch or Photo:



45° AKIAL SCAN 1

AREA OF COVERAGE

ABCD: $\left(\frac{1.1+1.45}{2}\right).35:n=.446^{2}in$ EFHI (3in + 1.25in) . 875in = 6.78 in TOTAL AREA = 1.124in2

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Page: 5 of 14

Summary No.:

B03.650.004

Examiner:

Examiner:

Other:

Level: II

Reviewer:

Level:

Site Review: ANII Review: / Date: 11/10/04

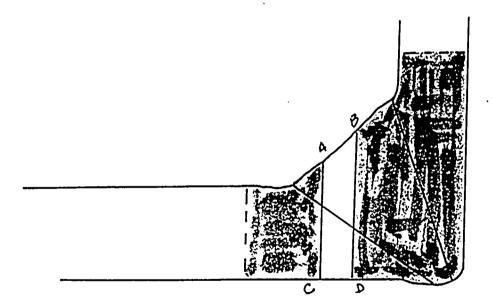
Date:

Date: 11/11/04

Comments:

3-LDCB - OUTLET - VZ

Sketch or Photo:



450 AKIAL SCAN Z

AREA OF COVERAGE

ABCD: (1.52+1.21) 25 in $= .473^{2}$ in

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Energy.

Suppleme al Report

ATTACHMENT C Report No.: PAGE 62 0F 96

Page: 6 of 14

Summary No.:

B03.150.00.4

Examiner:

Other:

Examiner:

Level: TT

Reviewer:

Site Review:

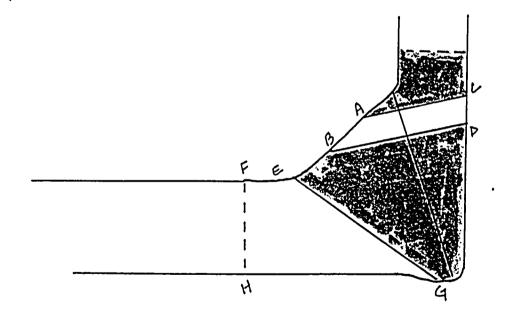
ANII Review:

Date: 11/11/

Comments:

3-LDCB-OUTLET - VZ

Sketch or Photo:



60° AXIAL SCAN 1

AREA OF COVERAGE

ABCD: (1.451n+1.11n).3"= 383"in

EFGH: (-35: 1 + 2.11) .87521

 $= 1.455^{2}$ in

ke
Energy.

Supplemo al Report

Report No.:

ATTACHMENT C PAGE 63 OF 96

Page: 7 of 14

Summary No.:

B03.150.00.4

Examiner:

Other:

Examiner:

Level: I

Level:

Reviewer:

Site Review: ANII Review:

Date: 11/11/6 L

Comments:

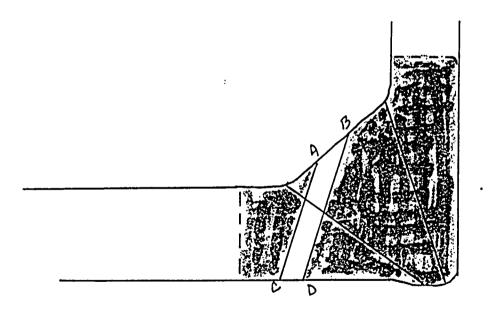
Sketch or Photo:

3-LDCB-OURET- V2

60° AXIAL SCAN 2

AREA of COVERAGE

ABCD: $\left(1.\frac{25^{\circ} + 1.6^{\circ}}{2}\right).25in = .356^{2}in$



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Supplem al Report

ATTACHMENT C PAGE 64 OF 96

Report No.:

Page: 8 of 14

Summary No.: 303.150.004

Examiner: 303.4/Range

Level: II

Reviewer:

Date: 11/10

Examiner: Other: Level: ____

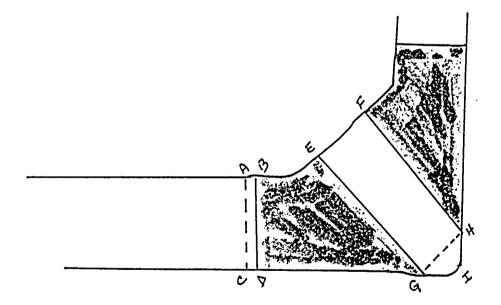
Site Review: _____

Date: 11/11/61/

Comments:

3-LDCB · OUTLET - V2

Sketch or Photo:



CIRC SCAN COVERAGE

ABCD =
$$.875 \times .1 = .0875^{2}$$
 in
EFGH= $1.6 \times .7 = 1.12^{2}$ in
GHI = $.4 \times .4 = .08^{2}$ in

1.292 in = CIRC SCAN GNERAGE

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Energy.

Suppleme 'al Report

ATTACHMENT 1: PAGE 65 0F 96

Report No.:

Page: 9 01 14

Summary No.:

B03.150.004

Examiner:

Other:

Examiner:

Level:

Level:

Level: II

Reviewer:

Site Review:

ANII Review:

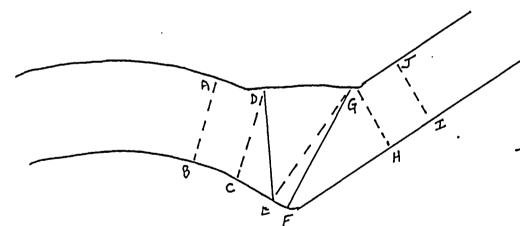
Date: 11/10/04

Date: 11/11/09

Comments:

3-LDCB - OUTLET-. V2

Sketch or Photo:



TOTAL EXAM AREA

ABCD = .5x.875 = .43752 in

CDE = 1.15 x .35 = . 20132 in

DE6 = 1.4x.7" - .491 in

EFG = 1.4"x.2 = ,142in

FGH = 1.3 x.7 = .4552 in

GHIT = .5 × .7" = ,352;n

TOTAL EXAM AREA = 2.072 in

	ike
COE	nergy.

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ATTACHMENT C Report No.: PAGE 66 OF 96

Page: 10 of 14

Summary No.:

B03.150.004

Examiner:

Examiner:

Other:

Level: ZZ

Level:

Level:

Reviewer:

Site Review:

ANII Review: Nonce

Comments:

Sketch or Photo:

3-LDCB-OUTLET-V2

45° AXIAL SCAN 1

AREA OF COVERAGE

ABD: 9 x.6 = ,2720

BCD: 1.2 x.25 = .152 in

 $EGF: 1.0 \times .875 = .436^{2}$ in

TOTAL EXAM AREA = . 856 in

	ıke
(0)	energy.

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PAGE 67 OF 96

Report No.:

11 of 14

Summary No.:

B03,150.004

Examiner:

Examiner: Other:

Level:

Level: II

Reviewer: Site Review:

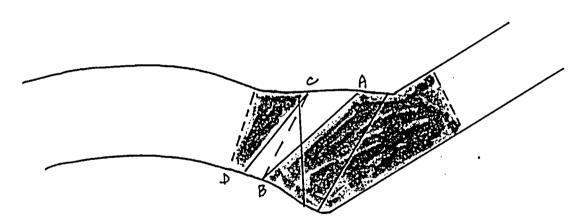
ANII Review:

Date: 11/11

Comments:

3-LDCB-DUTLET - V2

Sketch or Photo:



45° AXIAL SCAN 2

ABC: $\frac{1.1 \times .5}{2} = .275^{2}$ in

BCD: $\frac{.2 \times 1.1}{2} = \frac{11^2}{11}$

Tomal AREA = . 3852 in

ike
inergy.

Supplem al Report

ATTACHMENT C Report No.: PAGE 68 OF 96

Page: 12 of 14

Summary No.:

B03.150.004

Examiner: Examiner:

Other:

Level: 7

Site Review:

Reviewer:

ANII Review:

Date: 21/11/04

Comments:

3-LDCB-OUNET-V2

Sketch or Photo:

60° AXWAL SCAN 1

ABC: 1.0 x.1 = .05 in

ACD: 1.0 x .55 = .2752 in

EFG: 1.4 x .5 = .352 in

EGH: 1.0x.875 = .4342in

TOTAL AREA = 1.1112 in

•	ike
سا	ærgy.

Supplem 'al Report

ATTACHMENT C Report No.: PAGE 69 DE 96

Page: 13 of 14

Summary No.: B03.150,004

Examiner: Examiner:

Reviewer: Site Review:

ANII Review: Nonce C

Date:

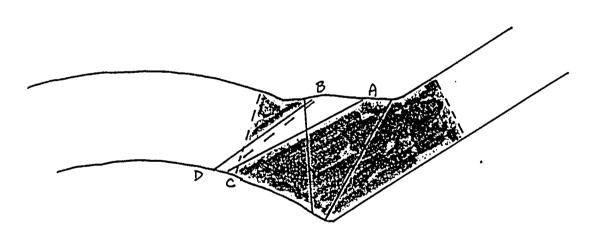
Date: [1/1/

Comments:

Other:

3-LDCB-OUTLET-V2

Sketch or Photo:



600 AXIAL SCAN 2

ABC: 1.25 x.25 = . 1562

BCD: $\frac{.1 \times 1.25}{2} = .063$ in

TOTAL SCAN AREA = . 2192 ;

Examiner:

Other:

Supplem. .al Report

ATTACHMENT C PAGE 70 0F 96

Report No.:

1 -3 -1 (at a. fint	Page:	14	of	14
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Summary No.: B03.150.004 Examiner:

Level: 77 Level:

Level:

Reviewer:

Site Review: ANII Review: Date:

Comments:

3-LACB-OUTLET. V2

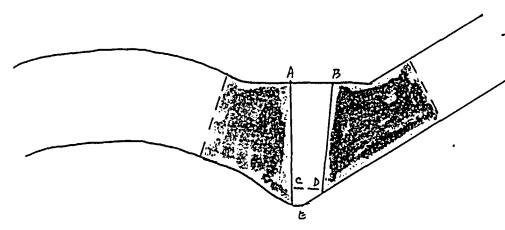
Sketch or Photo:

45° & 60° CIECSCANCOVERIGE

 $ABCD = \frac{1.1}{7}(.45+.3) = .4125^{2}$:

CDE = $\frac{.3 \times .15}{2} = \frac{.0225^{2} \text{in}}{.435^{2} \text{in}}$

TOTAL 45' \$ 60' COVERNIE = .442 in





Magnetic Particle Examination

ATTACHMENT C PAGE 7/ OF 96

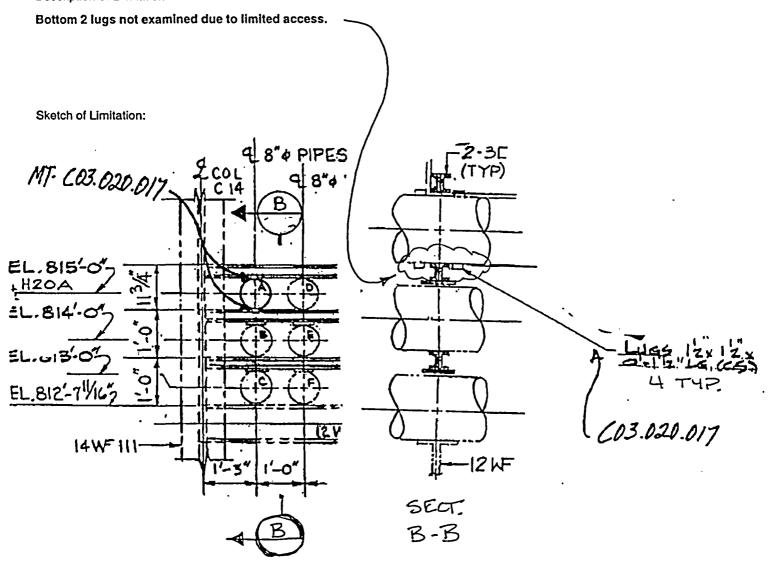
Site/	Unit:	Ocone	e /	O3			Proced	ure:		NDE-2	5	_ Ou	tage No.:	_0	VS3EO	C21
Summary	No.:		C03.0	20.017		Proc	edure R	ev.:		21		R	eport No.:		1T-04-0	94
Workso	ope:		1	SI		Wor	k Order I	No.:		986425	93	_	Page:	1	_ of	3
Code:	Asme	Section	on XI 1	1989	Cat./It	em:	C-C-/C	3.20	.17 L	ocation:			N/A			
Drawing No.:		0-2	479A			Des	scription	Rig	gid Rest	raint						
System ID:	14B	·														
Component II	D: C 03	.020.0	17 /3-1	4B-H20A								Size/	Length:		3.0"/1.5	•
Limitations:	Yes	- see	attach	ed limitat	ion repor	ts.										
Light Meter	Mfg.:			N/A			Serial	No.:		N/A		Illumir	nation:		N/A	
Temp. Tool	Mfg.:			N/A			Serial l	No.:		N/A		Surfac	e Temp.:		N/A	°F
Resolution:				N/A												
Lift Block S		o.:			V/A	 ,				ondition:			As Weld			
Lo/Wo Loc	-			N//	-			r	iela One	entation:		- I W	o Perpend	alcuia	<u> </u>	
Magnetic F Brand:						,	Wet □		Mixed:	Yes [٦	٨	pplied By:		Dustii	na 🔀
Type:							Dry ☑		WIIXEG.	No (_		ppned by.	•	Sprayin	-
Batch No.:			-2101		 Eli		cent 🔲		With	140 [Floodi	
Equipment					— MAGNA				_		Serial N		—- NГ	E-UT		·9 Ш
Head Shot		7	1	I/A	Ampere		`	_	Fixed S			···		AC [
Adj. Spacin	_	- <u>-</u> Z		3-6	inches				Encirclin	_		N/A		urns	_	_
Prods. Spa] _		I/A	inches					_	e setting)		N/A		Am	peres
Indication	Loc		Loc	Diameter	Length		Type					Remark	<s< td=""><td></td><td></td><td></td></s<>			
No.	L		w]			R/L	İ								
NRI								7								
ļ	<u> </u>	_						+			<u> </u>				<u> </u>	
	<u> </u>							╁							_	
		-{-				 		_								
<u></u>	<u> </u>	L_				<u> </u>										
Comments Technique		ceptan	ce Sta	ındard J, I	PIP 0-04-	07725	5, VT-1 p	erfo	rmed or	n limited	area.					
Results:	Δ	ccept		Reject [Info	. 🗆	lnit	ial Sect	ion XI Ex	caminatio	n				
Percent Of		-		ī,	_	- 50%	_				ous Data:		No			<u></u>
			7					<u>. 15</u>						=		Date
Examiner Eaton, Jay		el II		₩ [™]	ature	-	Dat 11/8/200		eviewer	1and	1 177	07.O	Signatur		11-14-	
Examiner	Lev	el N/A	1	Sign	ature		Dat		ite Revie	ew /			Signatur		در رو در رو	Date
N/A Other	Lev	ol 11/4		Sign	ature		Det		NII Revi	1-)	<u> </u>	ma	Signatur		11-16 0	Date
N/A	LEV	el N/A	٠	Sign	atule		Dal	^ "	No	_	2, titi	D.Slay	water	- 1	117/0) 4
										77			7)			

Duke Energy.

Limitation Record

Site/Unit:	Oconee /	О3	Procedure:	NDE-25	Outage No.:	ONS	3EO	C21
ummary No.:	: C03.020.017		Procedure Rev.:	Procedure Rev.: 21		MT-04-094		94
Workscope:	ISI		Work Order No.:	98642593	Page:	2	of	3

Description of Limitation:



Limitations removal requirements:

Radiation field:			
Examiner Level JAM EATOL II	Signature	Date Reviewer Jan Mors	Signature Date
Examiner Level	Signature	Date Site Review	Signature , Date
her Level	Signature	Date ANII Review Cataly Slav	Signature



Determination of Percent Coverage for Surface Examinations

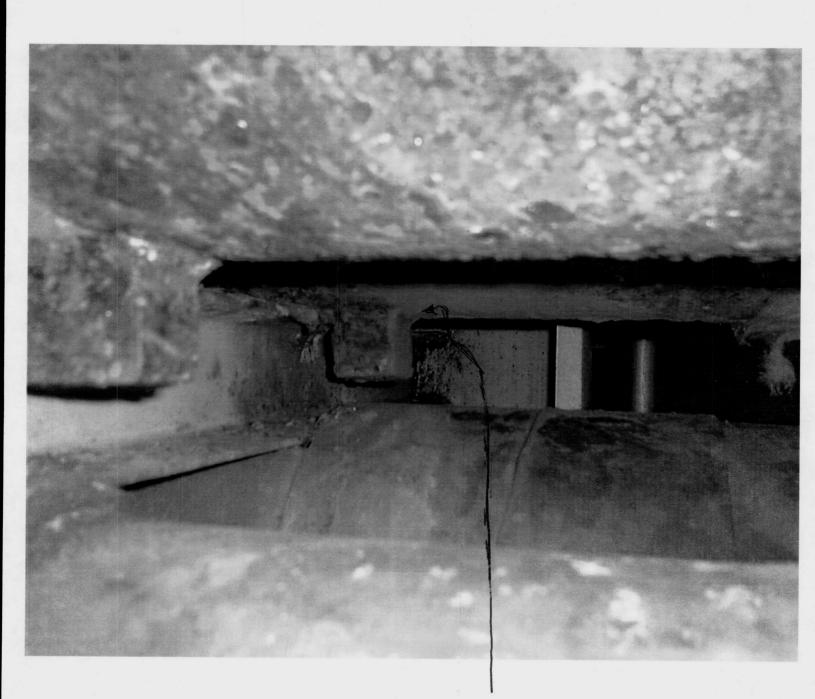
Site/Unit:	Oconee / Oc	3	Procedure:	NDE-25	Outage No.:	ONS	S3E0(321
Summary No.:	C03.020.017	Proce	edure Rev.:	21	Report No.:	MT	Γ-04-0	94
Workscope:	:ISI	Work	Order No.:	98642593	Page:	3	of	3
								
Area Requ	uired (as shown in ap	plicable code reference	drawing)					
	Length 18.	000* Width	1.250					
	= Total Area required	22.500 sc	quare inches					
0	Ashiawad							
Coverage	Achieved							
	Area examined	11.250 sq. ir	n. / Total area re	quired (100%)	22.500 sq. in			
=	= Percent coverage	50.000 % (a	rea required - ar	ea of limitations = a	rea examined)			
								_
To determ	sing longth of a given	mfarantial wald						
	nine length of a circu							
Not	te - Diameter refers t	o actual external diame	ter not pipe size	(see table below)				
	Diameter	* (Pi) 3.1	416					
	= Length	inches						
	= Lengur	niches						
	Pipe A	ctual (Length)	- 1	Pipe Actual	(Lenath)	7		

Pipe Size	Actual Diameter	(Length) Circumference	Pipe Size	Actual Diameter	(Length) Circumference
2	2.375	7.46	12	12.75	40.06
2.5	2.875	9.03	14	14.0	43.98
3	3.5	11.0	16	16.0	50.27
3.5	4.0	12.57	18	18.0	56.55
4	4.5	14.14	20	20.0	62.83
5	5.563	17.48	22	22.0	69.12
6	6.625	20.81	24	24.0	75.40
8	8.625	27.10	30	30.0	94.25
10	10.75	33.77			

Site Field Supervisor:

Dan	1	Mon	
	/\	(

Date: 11-14-04



Lug Not accessible

(Note: There is a Lug on the opposite side of "I"Bean that could Not be examined also.

)uke energy.

UT Base N : I Lamination

	Site	VUnit: Ocon	ee /	03					Procedi	ıre:	ND	E-640			Outage No.: O	NS3EO	C21
	Summary	/ No.:	C05.0	21.049				Prod	edure Re	ev.: _		2	·		Report No.:	JT-04-4	88
	Works	cope:	1	SI				Worl	k Order N	lo.: _	986	43243			Page: 1	of of	_2
Code:		Asme Sect	ion XI 19	989		Cat./It	tem:	C-F-	1/C5.21.4	9	Loca	tion:			N/A		
Drawing	No.:		3-5	1A-67				Description	n: Elbov	v to Pip	 De	_					
System		1A					•			*. U*							
Compor	nent ID: C	05.021.049 /	3-51A-6	7-3							Size/Len	gth:	N/A	Th	ickness/Diameter:	.375	"/2.5"
Limitatio	ons: N	lone										Start	Time:	0954	Finish Time:	09	958
Examin	ation Sur	face: Ins	ide 🔲	Ou	tside 🗹		5	Surface C	ondition:	AS GI	ROUND						
Lo Loca	ation:	9,1	1.1.2		Wo Lo	ocation: _	Ce	nterline	of Weld		Couplant:		ULTRAG	EL II	Batch No,:	031	25
Temp.	Tool Mfg.:	:F	ISHER		Sei	rial No.: _		MCNDE	2768		Surface Te	mp.: _	62	°F	Scanning of	IB:	66
Cal. Re	port No.:					CAL-04	1-744										
Ind.	% Loss	Amplitude %		Positi	on One			Position	on Max			Posit	tion Two		Rema	rke	
No.	Back Wall	1	L1	W1	W2	MP	LM	W1	W2	MP	L2	W1	W2	MP	nema	ins	
NRI																	
																	
			!			 		 -					 				
 				 				 			_		 				
Comme	ents: FC			L	J	i	<u> </u>	<u> </u>	<u></u>	<u> </u>				<u></u>	 		
D!		Account C	D-:	(~~	4	_			W =								
Results		Accept 🗹		_	Info	_		I Section				Λ.					
Percent	Of Cover	rage Obtaine	d > 90%	Yes	/ 100%	=	Revi	ewed Pre	vious Da	ta:	No				·		
Examine Tucker,	er Le	vel II-N		://	Signatur			D 11/5/20	ate Rev	iewer		W		Sign	nature		Pat 12/0
Examin	er Le	vel II			Signatur	9			ate Site	Review	v /	1	······································		nature		Dat
Jordan, Other		vel N/A	ay	SA	Signatur			11/5/20	ate ANII	Rovios	At .	7. /4 1 .	100	Sign	nature		Dat
N/A					Signatur	· <u>·</u>			AINII	1 IGNIG		MA	VIII .	oiyi	inatul o	11/2	2/04



Supple. Intal Report

Report No.: UT-04-488

> Page: 2 of 2

Summary No.: C05.021.049

Examiner: Tucker, David K.

Examiner: Jordan, Joey

Other: N/A

Elbaw

Level: II-N

Level: II

Site Review: Level: N/A

ANII Review:

Reviewer:

Date:

Comments:

Sketch or Photo:

\\Ngofs1\ndeess\UT\IDDEAL\ProfileLine2.jpg

Dune Energy.

UT Pipe Weid Examination

S	ite/Unit:	Ocone	/	03				Procedure: _	NDE-60	00	Οι	ıtage No.: _	ON	S3EOC	21
Summ	ary No.:		C05.02	1.049			Proc	edure Rev.:	15		R	eport No.:	UT	-04-49	0
Wor	kscope:		ISI				Worl	k Order No.:	986432	43		Page:	1	of	3
Code:	Asm	e Section	n XI 198	9		Cat./Item:	C-F-1/0	5.21.49	Location	n:		N/A			
Drawing No.:			3-51/	4-67			Description	n: Elbow to Pi	ре						
System ID:	51A														
Component ID:	C05.02	1.049 /3-	51A-67-	3				·	Size/Length:	N/A	Thick	ness/Diamet	er:_	.375"/	/2.5"
Limitations:	Yes - se	ee attacl	ed limit	ation re	eport.				S	Start Time:	1005	Finish Tin	ne:	102	<u> </u>
Examination S	Surface:	Insid	le 🔲	Ou	tside 🗹		Surface C	Condition: AS C	GROUND						
Lo Location:		9.1.	1.2		Wo Loo	cation:	Centerline	of Weld	Couplant:	ULTRAG	EL II	Batch No.:	·	031	25
Temp. Tool M	fg.:	FI	SHER		Seri	al No.:	MCNDE	32768	Surface Temp	o.: <u>62</u>	°F			•	
Cal. Report N	o.:			C	AL-04-745	, CAL-04-74	16, CAL-04-74	17							
Angle Used	0	45	45T	60	70]		•			•			
Scanning dB			45.0	48.0	55]								
Indication(s):	Yes [] No				Sca	ın Coverage:	Upstream 	Downstream [Z cw ∑	ccw €	2			
Comments:															
Results:	Accept 💽	g R	eject 🗀		Info 🔲	i	nitial Section	XI Examination	n						
Percent Of Co	verage C	btained :	> 90%:	No	/ 87.388%	<u>.</u>	Reviewed Pre	vious Data:	No	_					
Examiner	Level II				Signature	\rightarrow	1 Di	ate Reviewer	0 4	. 0	Signate	ITO.			Date
Jordan, Joey	revei [[Signature 2	lorda	11/5/20		Jan / 1/	llos	Signati		1- 14	-04	
	Level N	/A			Signature			ate Site Revie		<u> </u>	Signati	ıre ,	, , 0		Date
N/A											·				
Other I	Level N	/A		;	Signature		Da	ate ANII Revie	Washington	<u> </u>	Signati	ire /-	.10	مى	_ Date
I IVA									X						



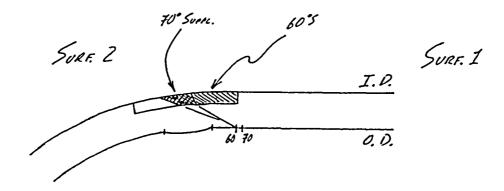
Limitation Record

Site/Unit:	Oconee /	О3	Procedure:	NDE-600	Outage No.:	ONS	S3EO	C21_
^ummary No.:	C05.02	1.049	Procedure Rev.:	15	Report No.:	וט	r-04-4	90
Workscope:	IS	<u> </u>	Work Order No.:	98643243	Page:	2	of	3

Description of Limitation:

Limited at the intrados on the elbow side of the weld. Limitation dimension is the inner third of the elbow (Lo + 3.0° to Lo + 6.0°).

Sketch of Limitation:



TOTAL EXAM FREA = 1.0 m × 0.125 m = 0.125 m²

60° SHEAR COVERAGE =
$$\left(\frac{.45m + .52m}{2}\right)$$
 × .125 m = .0606 m²/ = 48.5%

70° SHEAR SUPPL. CVG. = $\left(\frac{.15m + .30m}{2}\right)$ × .125 m = .0281 m²/ = 22.5%

Limitations removal requirements:

Radiation field:

Examiner Level	II-N	7 Signature	Date	Reviewer	Signature	Date
Tucker, David K.	A ku	Muchen	11/5/2004		Maril K 2	11/22/04
Examiner Level Jordan, Joey	"	8tgnature	Date 11/5/2004	Site Review	Signature	Date
Other Level	N/A	Signature	Date	ANII Review	Signature Signature	Date 11/22/04



Determination of Percent Coverage for UT Examinations - Pipe

	Oconee /	C05.021.049		e: NDE-600	Outage No	•
mmary No.:		.049	Procedure Rev	v.: <u>15</u>	Report No	o.: <u>UT-04-490</u>
Workscope:	ISI		Work Order No	98643243	– Pag	e: <u>3</u> of <u>3</u>
<u>45 deg</u>						
Scan 1	<u> </u>	% Length X _	· · · · · · · · · · · · · · · · · · ·	% volume of length / 100 = _	<u> </u>	% total for Scan 1
Scan 2	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 ar	ed divide by # sca	ns = 100.000	% total for 45 deg		
Other de The data	to be listed bel			ans) ined with the 45 deg scans. % volume of length / 100 =	66.700	% total for Scan 1
Scan 2	66.700	% Length X	100.000	% volume of length / 100 =	66.700	— % total for Scan 2
Scan 2	,	% Length X		% volume of length / 100 =	16.150	— % total for Scan 3
Scan A	Z 33.300	% Length X	0.000	% volume of length / 100 =	0.000	% total for Scan 4
Percent	complete cove	erage				
Add tota 87.388		required and divid	de by # of scans to	o determine;		
Site Field	d Supervisor: -	Da	well 5	Date:	22/04	
Note:				N PERCENT COVERAGE X2YXVYAX2). BEST		

70 SHEAR OBTHING AN ADDITIONAL 22.5% COVERAGE IN ONE AKIAL DIRECTION.

Energy.

UT Base Metե. Lamination

	Site/	Unit: Ocon	iee /	03					Procedu	ıre:	NDI	E-640			Outage No.: ON	IS3EOC21
	Summary	No.:	C05.0	21,051				Proc	edure Re	ev.:		2			Report No.:U	T-04-393
	Worksc	ope:	19	SI				Work	(Order N	10.:	986	42953			Page: 1	of <u>2</u>
Code:		Asme Sect	ion XI 19	989		Cat./It	em:	C-F-1	/C5.21.5	51	Loca	tion:	. <u>.</u> -		N/A	
Drawing	No.:		3HP-24	1				escription	n: Pipe i	to Valv	 e (3HP-194))				
System	ID: 51	Α														
Compor	nent ID: C	05.021.051 /	/3HP-241	-2							Size/Len	gth:	N/A	Thi	ickness/Diameter:	0,674"/4.0"
Limitation	ons: No	one										Start	Time:	1102	Finish Time:	1105
Examir	nation Surfa	ace: ins	ide 🗌	Ou	tside 🗸		s	Surface Co	ondition:	AS GI	ROUND_					
Lo Loc	ation:	9.	1.1.1		Wo Lo	ocation:	Ce	nterline (of Weld		Couplant:		ULTRAG	ELII	Batch No.:	03125
Temp.	Tool Mfg.:	F	ISHER		Sei	rial No.: _	!	MCNDE 2	7220		Surface Te	mp.: _	74	°F	Scanning d	B: <u>65.6</u>
Cal. Re	eport No.:				·	CAL-04	1-643									
Ind.	% Loss	Amplitude %		Positi	on One			Position	on Max			Positi	ion Two		Remar	ko
No.		Full Screen	L1	W1	W2	MP	LM	W1	W2	MP	L2	W1	W2	MP	Homai	
NRI															-	
								 								
								 		-	1		 			
								 		<u> </u>			 -			
Comm	ents: FC	03-20	1	l. <u></u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>							
Results	5 :	Accept 🗹	Rej	ect 🗌	Info		Initia	I Section	XI Exan	ninatio	n					
Percen	t Of Covera	age Obtaine	d > 90%:	Yes	/ 100%		Revi	ewed Pre	vious Da	ta:	No					
Examin		el III		0	Signatur	θ			ate Rev	iewer		10	1	Sig	nature	Date
Examin	rman, Dav	el II-N		f temid	Signatur	e e		10/20/20 D	ate Site	Review	/ Jany	-//	رها	Sig	nature	· /0-22-04 Date
	Russel	S. 11.1V	42	//_	. • · g · · · · · · · ·			10/20/20				\ 				
Other N/A	Lev	el N/A			Signatur	Э		D	ate ANI	l Revie	" ////	KH/	MA	Sig	nature	Date
1.77	<u> </u>						•				U VI	· 1.112	uw_			14401



Supplemental Report

Report No.:

UT-04-393

Page:

2 of 2

Summary No.: C05.021.051

Examiner: Zimmerman, David K.

Examiner: Jones, Russel

Other: N/A

Level: III

Level: II-N

Reviewer: Site Review:

Level: N/A **ANII Review:** Date:

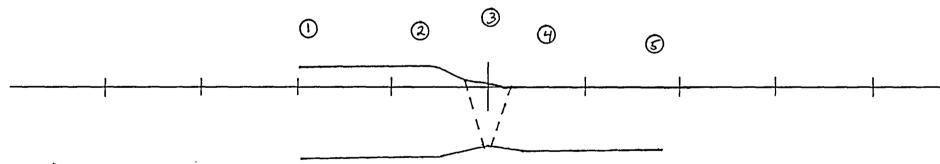
Date: 10

Comments:

Thickness/Profile sheet.

Sketch or Photo:

\ngofs1\ndeess\UT\IDDEAL\ProfileLine2.jpg





Duke Energy.

UT Pipe Weld Examination

Sit	te/Unit:	Oconee /	03			Pro	cedure:	NDE-600		Out	age No.: <u>ON</u>	IS3EOC2	1
Summa	ry No.:	C	05.021.051			Procedu	re Rev.:	15		Re	port No.:u	T-04-394	
Work	scope:		ISI			Work Or	der No.:	98642953			Page: 1	of _	3
Code:	Asme	Section X	(1 1989		Cat./Item:	C-F-1/C5.2	1.51	Location:			N/A		
Drawing No.:		знг	P-241			Description: F	ipe to Valve	(3HP-194)					
System ID:	51A												-
Component ID:	C05.021	.051 /3HP-	-241-2					Size/Length:	N/A	Thickne	ess/Diameter:	0.674" /	/ 4"
Limitations:	Yes - S	See ISI Lim	itation Repo	rt Attachme	ent			Sta	rt Time:	1107	Finish Time:	1125	<u>; </u>
Examination St	urface:	Inside	Ou	itside 🔽		Surface Cond	lition: AS G	ROUND					
Lo Location:		N/A		_ Wo Loca	tion:	Centerline of V	Veld	Couplant:	ULTRAGE	LII	Batch No.:	0312	5
Temp. Tool Mig	g.:	FISH	ER	Serial	No.:	MCNDE 272	20	Surface Temp.:	74	_ °F			
Cal. Report No.	.:		C	AL-04-644, (CAL-04-64	5, CAL-04-646							
Angle Used	0	45	45T 60	38°	60RL								
Scanning dB			49.6	49.6	54.1								
Indication(s):	Yes] No 🗸	*	. l l.	Sca	ı n Coverage: Up	stream 🗸	Downstream [cw ∑	ccw ☑			
Comments:		ي ۲۰۰۰	J										
None													
HOHE													
Results: Ad	ccept 🔽] Reje	ct 🗆	info 🗀	1m	nitial Section XI I	Evam						
			-		_								
Percent Of Cove	erage O	otained > 9	10%: <u>Ne</u>	0 / 35.55%	- -	Reviewed Previou	s Data:	No	·	· · · · · · · · · · · · · · · · · · ·			
	evel III		1	Signature		,	Reviewer	QP AY	1/1	Signatu		/ ,	Date
Zimmerman, Da			Ja Va	sill ?	}	10/20/2004		Jan/1	Mons			0/22/04	
Examiner Lo Jones, Russel	evel -	N All	2///	Signature		Date 1 10/20/2004	Site Review	<i>)</i> (Signatu	· e	•	Date
	evel N/	A	''	Signature	· · · · · · · · · · · · · · · · · · ·		ANII Review	Thath	MARIA	Signatur		<u></u>	Date
N/A								//////	Mulu			10/22/0	911



Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit:	Oconee /	O3	Procedure	e: NDE-600	Outage No.	: ONS3EOC21
Summary No.:	C05.021	1.051	Procedure Rev	/.: <u>15</u>	Report No.	: <u>UT-04-394</u>
Workscope:	ISI		Work Order No	98642953	Page	: <u>2</u> of <u>3</u>
····						
45 deg						
Scan '	1	% Length X _		% volume of length / 100 = _		% total for Scan 1
Scan 2	2	% Length X	<u></u>	% volume of length / 100 = _		% total for Scan 2
Scan :	100.000	% Length X _	47.400	% volume of length / 100 = _	47.400	% total for Scan 3
Scan 4	100.000	% Length X _	47.400	% volume of length / 100 =	47.400	% total for Scan 4
<u>Other d</u>	eg - <u>60</u>	_	supplemental sca	ans)		
The data Scan 1		·		ined with the 45 deg scans. % volume of length / 100 =	0.000	% total for Scan 1
Scan 2	100.000	% Length X	47.400	% volume of length / 100 =	47.400	- % total for Scan 2
Scan 3	3	% Length X		% volume of length / 100 =		_ % total for Scan 3
Scan 4	1	% Length X		% volume of length / 100 =		_% total for Scan 4
Add tota 35.550 Site Fiel	% Total for	required and divider complete exam		•	0/20/04 km= Due=	10
				reccent consert a(b)(2)(xv)(A)(
		H (m°R)			C) . BEST	EPON

oue AxiAc SCAN.

Supplemental Report

PAGE 84 0F 96

Report No.: UT-04-394

Page:

Summary No.: C05.021.051

Examiner: Zimmerman, David K.

Other: N/A

Examiner: Jones, Russel

Level: !!! Level: II-N

Level: N/A

Reviewer: Site Review:

ANII Review:

Comments: Scan 2, 3, 4 coverage.

Sketch or Photo:

TOTAL AREA OF TUBFECTION

ABCD: .225in 4 95in = 213in2

TOTAL AREA OF COVERAGE

ECPD: (.din +, 5in), 225in = .101in2

PERCENT OF COVERAGE

101in² 1213in² = .474 × 100 = 47.4%

PERCENT OF SUPPLEMENTAL

112in²/213in² = .526×100 = 52.6%

TOTAL SUPPLIENCEMAL CONFRACTE

21511 = - 101in2 = 112in2

DU	JKE POWE	ER COMPANY	UT-04-394
	ISI LIMITAT	TION REPORT	Attachment
Component/Weld ID: _C05.021.0	51 Ite	m No: <u>3HP-241-2</u>	remarks:
NO SCAN	SURFACE	BEAM DIRECTION	Valve Conf.
☐ LIMITED SCAN	□ 2	☐ 1 ☐ 2 ☐ cw ☐ ccw	
FROM L N/A to L N/A	INCH	ES FROM W0 C/L to Beyond	
ANGLE: ☐ 0 ☐ 45 ⊠ 60	other	FROM 0 DEG to 360 DEG	
☐ NO SCAN	SURFACE	BEAM DIRECTION	Valve Conf.
□ LIMITED SCAN □	□ 1 □ 2	☐ 1 ☐ 2 ☒ cw ☒ ccw	
FROM L N/A to L N/A	INCH	ES FROM W0 C/L to Beyond	
ANGLE: ☐ 0 ⊠ 45 ☐ 60	other	FROM 0 DEG to 360 DEG	
☐ NO SCAN	SURFACE	BEAM DIRECTION	
☐ LIMITED SCAN	□ 1 □ 2	☐ 1 ☐ 2 ☐ cw ☐ ccw	
FROM L to L	INCHI	ES FROM W0 to	
ANGLE: ☐ 0 ☐ 45 ☐ 60	other	FROM DEG to DEG	
☐ NO SCAN	SURFACE	BEAM DIRECTION	
☐ LIMITED SCAN	□ 1 □ 2	☐ 1 ☐ 2 ☐ cw ☐ ccw	
FROM L to L	INCHI	ES FROM W0 to	Sketch(s) attached
ANGLE: 0 0 45 0 60	other	FROM DEG to DEG	☐ yes
Prepared By: David Zimmerman	AZ Level:	III Date: 10/20/2004 Attachmer	nt <u>1</u> of <u>1</u>
Reviewed By: Jan / M or	Date:	10/22/04 Authorized inspector. Authorized inspector.	Date: 10/12/04

Energy.

UT Base Meta _amination

	Site/	Unit: Ocon	iee /	О3					Procedu	ıre;	ND	E-640			Outage No.: ONS	3EOC21
	Summary	No.:	C05.0	21.076				Prod	edure Re	ev.:		2			Report No.: UT	-04-181
	Workso	cope:	1	SI				Worl	k Order N	lo.:	986	45068			Page: 1	of <u>2</u>
Code:	= = = = = = = = = = = = = = = = = = = =	Asme Sect	ion XI 19	989		Cat./II	em:	C-F-1	1/C5.21.7	6	Loca	ation:	<u></u>		N/A	
Drawing	No.:		3-51 A-1	119				escription	n: Flang	e to Pl	_ pe					
System	1D: 51	Α				- -	ı									
Compoi	nent ID: C	05.021.076	/3-51A-1	19-11							Size/Len	gth:	N/A	Th	nickness/Diameter:	4.0" / .531
Limitati	ons: N	one										Start	Time:	1109	Finish Time:	1113
Examir	nation Surfa	ace: Ins	side 🔲	Ou	tside 🔽		s	Surface Co	ondition:	AS GI	ROUND					
	ation:		1.1.1					nterline			Couplant:		JLTRAG	EL II	Batch No.:	03125
Temp.	Tool Mfg.:	F			•	_		MCNDE3			Surface Te				Scanning dB:	
Cal. Re	eport No.:					CAL-04	-433					-				
Ind.	%	Amplitude		Position	on One			Position	on Max			Position	on Two			
No.	Loss Back Wall	% Full Screen	L1	W1	W2	MP	LM	W ₁	W2	MP	12	W1	W2	MP	Remarks	3
NRI											-					
				<u> </u>	ļ	 -		 		<u> </u>	_			<u> </u>		
<u></u>				ļ				ļ		ļ		·				
]														<u> </u>		
Comm	ents: FC	03-20		l	!	<u> </u>	L.,	<u> </u>	!	!	!,!		<u>. </u>	<u>l.,</u>	<u> </u>	
Results		Accept 🗸	•	ect 🗀	Info			I Section								
Percen	t Of Covera	age Obtaine	d > 90%:	Yes	-100%		Revi	ewed Pre	vious Da	la:	No			_	· · · · · · · · · · · · · · · · · · ·	
Examin		el II			Signatur	1			ate Revi	ewer	M	1 1	87 -	-	nature	Date
Examin	James H.	el II			Signatur		سيد	7/12/20	ate Site	Review	, Vary	1/	(000		nature	7-14-04 Date
Jordan		C, II				30/2	, ,,	7/12/20		1101101	,	1		O,g	, raid o	Dun
Other	Lev	el N/A			Signatur	θ		D	ate ANII	Revie	v	3		Sig	gnature	Date
N/A		<u></u>				_					458	<u> </u>	u		1/14	104



Supplemental Report

Report No.: <u>UT-04-181</u>
Page: 2 of 2

Summary No.: C05.021.076

Examiner: Resor, James H. Jones H.

Examiner: Jordan, Joey

Other: N/A

Level: II

Level: II
Level: N/A

Reviewer: Site Review:

ANII Review:

Date: 4-14

Date: 2/16/04

Comments:

Sketch or Photo:

Z:\UT\IDDEAL\ProfileLine2.jpg

SI Pipe

52 Flange



UT Pipe Werd Examination

\$	Site/Unit: _	Oconee	· /	03			Pre	ocedure:	NDE-600)	Ou	tage No.: OI	NS3EOC	21
Summ	nary No.:		C05.021	1.076			Procedu	ıre Rev.:	15		Re	port No.:	JT-04-182	2
Wo	rkscope:		ISI				Work O	rder No.:	9864506	8		Page: 1	of _	3
Code:	Asme	Section	XI 198	9		Cat./Item:	C-F-1/C5.2	1.76	Location:			N/A		
Drawing No.:		3	-51A-11	9			Description: I	Flange to Pi	oe					
System ID:	51A								-					
Component ID:	C05.021	.076 /3-!	51A-119)-11					Size/Length:	N/A	Thickn	ess/Diameter:	4.0"/.	.531
Limitations:	Yes - Se	e Attaci	ned Lim	itation	Report				Sta	art Time:	1116	Finish Time:	113	1
Examination :	Surface:	Insid	e 🗀	Ou	itside 🔽		Surface Cond	dition: AS G	ROUND					
Lo Location:		9.1.	1.1		Wo Loc	ation:	Centerline of	Weld	Couplant:	ULTRAGE	LII	Batch No.:	0312	25
Temp. Tool M	1fg.:	FIS	HER		Seria	l No.:	MCNDE327	68	Surface Temp.:	88	_°F			
Cal. Report N	lo.:			C.	AL-04-434,	CAL-04-43	5, CAL-04-436							
Angle Used	0	45	45T	60	60L									
Scanning dB			42	45	60									
Indication(s):	Yes [No.	v			Sca	- n Coverage: Ur	ostream 🔲	Downstream 🗸	cw ☑	ccw 🔽]		
Comments:		•												
See attached	i calculati	on shee	ets											
	2 00,00,01,													
Results:	Accept 🕢	Re	eject 🗀		Info 🗀	Ît	nitial Section XI	Inspection						
Percent Of Co			_		No	-	Reviewed Previou	<u> </u>	No					
						·								
	Level				Signature			Reviewer	MA	M	Signatu	ire		Date
Resor, James Examiner	H. Level []		<u></u>		Signature	ger_	7/12/2004 Date	Site Review	Man/	11/00	Signatu	ITO.	<u> 7-1</u>	4-04 Date
Jordan, Joey	read: []				Maria Curio	, ,,	7/12/2004	Oute Lieview	'		Signatu			Date
Other	Level N/	4			Signature			ANII Review	1 ///	, ,	Signatu	re	1	Date
N/A	-,,,							<u> </u>	A CAR	and			<u> 12/09</u>	<u>~</u>

Duke Energy.

Limitation Record

Site/Unit:	Oconee /	О3	Procedure:	NDE-600	Outage No.:	ON	S3EO	C21
Summary No.:	C05.02	1.076	Procedure Rev.:	15	Report No.:	บา	Г-04-1	82
Workscope:	IS	<u> </u>	Work Order No.:	98645068	Page:	3	of	3

Description of Limitation:

See attached sketch for calculations of aggregate coverage.

Sketch of Limitation:

Limitations removal requirements:

Radiation field:

Examiner	Level	11	Signatyre	Date	Reviewe	1 1	Signature	Date
Resor, Jame	es H.		famillan	7/12/2004	Jan	111000		7-14-04
Examiner	Level	11	Sighalure	Date	Site Review	7	Signature	Date
Jordan, Joe	у		Car andan	7/12/2004		•		
Other	Level	N/A	Signature		ANII Review	21.	Signature	Date
J N/A						Doub		2/14/04

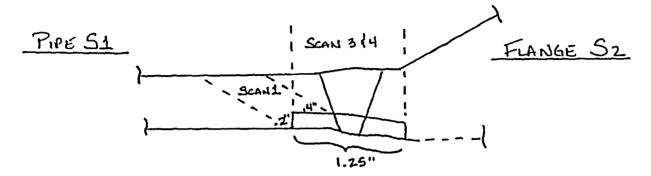


Determination of Percent Coverage for UT Examinations - Pipe

nmary No.:		O3	Procedure	e:NDE-600	Outage No.:	ONS	3EOC21
	C05.02	1.076	Procedure Rev	v.: <u>15</u>	Report No.:	% total for Scan 1 % total for Scan 2 % total for Scan 4 % total for Scan 4 % total for Scan	04-182
orkscope:	ISI		Work Order No	o.: <u>98645068</u>	Page:		of <u>3</u>
	· 			······			
45 deg							
Scan 1	1	% Length X		% volume of length / 100 =	ç	% total fo	r Scan 1
Scan 2	2	% Length X		% volume of length / 100 = _		% total for	r Scan 2
Scan 3	3 100.000	% Length X	100.000	% volume of length / 100 =	100.000	% total for	r Scan 3
Scan 4	100.000	% Length X	100.000	% volume of length / 100 = _	100.000	% total fo	r Scan 4
	Add totals a	nd divide by # scar	ns = <u>100.000</u>	% total for 45 deg			
Othord	ea - 60	(to be used for	supplemental sca	2001			
Other de			* *	·			
me date	a to de listed de	low is for coverage	that was not obta	lined with the 45 deg scans.			
Scan 1	1 100.000	% Length X	32.000	% volume of length / 100 =	32.000	_% total f	or Scan 1
Scan 2		% Length X % Length X		% volume of length / 100 = % volume of length / 100 =		-	
	0.000		0.000	-		- _% total f	or Scan 2
Scan 2	2 0.000	% Length X	0.000	% volume of length / 100 =		- _% total f _% total f	or Scan 2 for Scan 3
Scan 2	2 0.000	% Length X	0.000	% volume of length / 100 = % volume of length / 100 =		- _% total f _% total f	or Scan 2 for Scan 3
Scan 2 Scan 3	2 0.000	% Length X % Length X % Length X	0.000	% volume of length / 100 = % volume of length / 100 =		- _% total f _% total f	or Scan 2 for Scan 3
Scan 2 Scan 2 Scan 4	2 0.000 3 complete cov	% Length X % Length X % Length X	0.000	% volume of length / 100 = % volume of length / 100 = % volume of length / 100 =		- _% total f _% total f	or Scan 2 for Scan 3
Scan 2 Scan 2 Scan 4	2 0.000 3 complete cov	% Length X % Length X % Length X erage	0.000	% volume of length / 100 = % volume of length / 100 = % volume of length / 100 =		- _% total f _% total f	or Scan 2 for Scan 3
Scan 2 Scan 2 Scan 4 Percent Add tota 58.000	2 0.000 3 4 complete cov	% Length X % Length X % Length X erage n required and divider complete exam	0.000 e by # of scans to	% volume of length / 100 = % volume of length / 100 = % volume of length / 100 = ode determine;	0.000	- _% total f _% total f	or Scan 2 for Scan 3
Scan 2 Scan 2 Scan 4 Percent Add tota 58.000	2 0.000 3 4 4 complete cov als for each scar 0 % Total fo	% Length X % Length X % Length X erage n required and divider complete exam	e by # of scans to	% volume of length / 100 = % volume of length / 100 = % volume of length / 100 = determine; Date:	0.000 2. 13.04	- % total f % total f	for Scan 2 for Scan 3 for Scan 4
Scan 2 Scan 2 Scan 4 Percent Add tota 58.000	2 0.000 3 4 4 complete cov als for each scar 0 % Total fo	% Length X % Length X % Length X erage n required and divider complete exam	e by # of scans to	% volume of length / 100 = % volume of length / 100 = % volume of length / 100 = determine; Date:	0.000 2. 13.04	- % total f % total f	for Scan 2 for Scan 3 for Scan 4
Scan 2 Scan 2 Scan 4 Percent Add tota 58.000	2 0.000 3 4 4 complete cov als for each scar 0 % Total fo	% Length X % Length X % Length X erage n required and divider complete exam	e by # of scans to	% volume of length / 100 = % volume of length / 100 = % volume of length / 100 = determine; Date:	0.000 2. 13.04	- % total f % total f	for Scan 2 for Scan 3 for Scan 4
Scan 2 Scan 2 Scan 2 Percent Add tota 58.000 Site Fiel	2 0.000 3 4 4 complete cov als for each scale 0 % Total for d Supervisor: 0 TE: Co	% Length X % Length X % Length X erage n required and divider complete exam O° RL Sc.	e by # of scans to	% volume of length / 100 = % volume of length / 100 = % volume of length / 100 = ode determine;	0.000 - 13.04 PERCENT CFR 50.55	total f % total f % total f % total f	for Scan 2 for Scan 3 for Scan 4

CD5.021.076

3-51A-119-11



SCAN INFO.

SCAN 1 (60°) .2x.4x 14.14 = 1.1313in

SCAN 2 (600) = 0"

SCAN 3 (45°).25 x 14.14 = 3.5353in

SCANY (45), 25 x 14.14 = 3.5353 in

TOTAL VOL. SCANNED = 8.203 in

SCAN1 = 32%

SCAN 2 = 0%

SCAN 3 = 100%

SCAN 4= 100%

WELD DIMS

4" x .531" (4.5"x .531)

CIRCUMFERENCE = 14.14"

AREA OF INTEREST =

.2" x 1.25" = .25"2

WELD AREA OF INTEREST & CIRC

= TOTAL REO'S VOLUMI $.25^2 \times 14.14 = 3.535^3 in$

3.535 X TOTAL SCANS (4) = TOTAL (LEGID SCAN AREA = 14.14°in

232% ÷ 4(5cans) = 58%

TOTAL AGGREGATE SHEAR WAVE COVERAGE (AXIAL & CIRCUMFENCIAL)

= 58%



UT Base I I Lamination

	Site	/Unit: Ocon	ee /	03					Procedu	ıre:	ND	E-640	·		Outage No.: ON	S3EOC21
	Summary	/ No.:	C05.0	21.091				Prod	edure Re	ev.:		2			Report No.: U	T-04-489
	Works	cope:		sı	·····			Worl	k Order N	lo.:	986	43243			Page:1	of <u>2</u>
Code:		Asme Secti	on XI 19	989		Cat./It	em:	C-F-1	I/C5.21.9	1	Loca	tion;			N/A	_
Drawing	No.:		3-5	1A-67				Description	n: Pipe t	lo Elbo	w	_				
System	ID: 5	1A					•			·						
Compor	nent ID: C	05.021.091 /	3-51A-6	7-4							Size/Len	gth;	N/A	Th	ickness/Diameter:	.375"/2.5"
Limitatio	ons: N	lone										Start	Time:	0958	Finish Time:	1002
Examir	ation Surf	ace: Ins	ide 🔲	Ou	tside 🗹	***	S	Surface Co	ondition:	AS GF	ROUND					
Lo Loca	ation:	9,1	.1.2		Wo Lo	ocation: _	Ce	nterline	of Weld		Couplant:		ULTRAG	ELII	Batch No.:	03125
Temp.	Tool Mfg.:	F	ISHER		. Ser	rial No.: _		MCNDE3	2768		Surface Te	mp.: _	62	°F	Scanning d	3: <u>66</u>
Cal. Re	port No.:					CAL-04	1-744									
ind.	% Loss	Amplitude %		Positi	on One			Position	on Max			Posit	tion Two		Remark	(S
No.	Back Wall	i 1	L1	W1	W2	MP	LM	W1	W2	MP	L2	W1	W2	MP		
NRI				}												
													1			·
							! <u>_</u>						 			
Comme	ents: FC	03-20		<u> </u>	l	J.,	!. <u>.</u>	<u>!</u>	!		_!		_!	LL		
Results	ı:	Accept 🗸	Rei	ect 🗀	Info		Initia	l Section	XI Exam	ninatio	n					
		age Obtaine						ewed Pre			No		1			
Examin	er Lev	vel II-N	///		Signatur	0 -/		D:	ate Revi	iewer				Sig	nature	Da
Examin		/el	<u>//a</u>	5/9	Signatur	е			ate Site	Review	,	174			nature	11/12/0 Da
Jordan	, Joey		le.		alas			11/5/20	004			·	_			
Other N/A	Lev	vel N/A	/,		Signatur	Ө		D	ate ANII	Reviev		MU	Mill	Sig	nature	1/2/04

hika
Juke Energy.
Energy.

Supple Intal Report

Report No.: <u>UT-04-489</u>

Page: 2 of 2

Summary No.: C05.021,091

Examiner: Tucker, David K.

Examiner: Jordan, Joey (

Other: N/A

Level: II-N

Level: II

Level: __N/A

11

Reviewer: Site Review:

ANII Review:

Date:

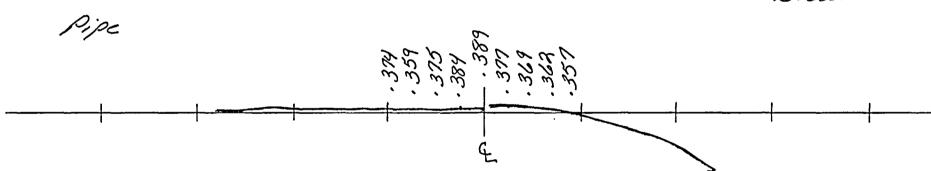
Date: ///12/04

Comments:

Sketch or Photo:

\\Ngofs1\ndeess\UT\IDDEAL\ProfileLine2.jpg

Elbow



Energy.

UT Pipe ald Examination

Site/Unit:		it: Oconee / O3				Pro	ocedure:	NDE-60	0	Ot	utage No.: Oi	ONS3EOC21		
Summ	ary No.:		C05.021	.091			Procedu	re Rev.:	15		R	eport No.:l	JT-04-491	
Wor	rkscope:		ISI				Work O	der No.:	9864324	13		Page: 1	of _	3
Code:	Asme	Section	n XI 198	9	(Cat./Item:	C-F-1/C5.2	1.91	Location			N/A		
Drawing No.:			3-51/	\-67			Description:	Pipe to Elbo	w					
System ID:	51A						_							
Component ID:	C05.02	.091 /3-	51A-67-	4					Size/Length:	N/A	Thick	ness/Diameter:	.375"/2	2.5"
Limitations:	Yes - se	e attacl	ned limit	ation re	port.				SI	art Time:	1009	Finish Time:	1030)
Examination (Surface:	insid	de 📋	Out	side 🗸		Surface Cond	dition: AS G	ROUND					
Lo Location:		9.1.	1.1		Wo Loca	tion:	Centerline of \	Weld	Couplant:	ULTRAG	EL II	Batch No.:	0312	5
Temp. Tool M	lfg.:	FI	SHER		Serial	No.:	MCNDE327	68	Surface Temp.	: 62	⊶°F			
Cal, Report N	o.:			CA	L-04-745, (CAL-04-74	6, CAL-04-747							
Angle Used	0	45	45T	60	70									
Scanning dB			45	48	55									
Indication(s):	Yes	7 No	N N			Sca	r n Coverage: Up	stream 🗸	Downstream 🔽	g cw €	CCW E	7]		
Comments:		_								-	_	_		
Results: /	Accept 💆	R	eject 🔲		Info 🔲	<u>tr</u>	nitial Section XI	Examination	1					
Percent Of Co	verage O	btained :	> 90%:	No /	87.388%	- -	Reviewed Previou	ıs Data:	No					
Examiner Tucker, David	Level II- K.	N A bi		Tree	ignature		Date 11/5/2004	Reviewen	and M	or	Signat		11-16-09	Date
Examiner Jordan, Joey	Level II		(h)	1	ignature	יי	Date 11/5/2004	Site Review			Signat	ure		Date
	Level N/	Ά /		9	ignature		Date	ANII Reviev	MAL	With	Signat	ure	11/22/	Date M

Duke Energy.

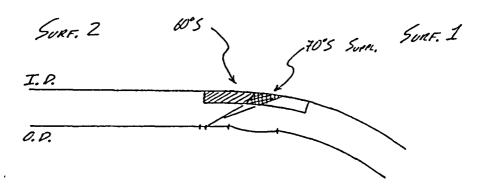
Limitation Record

Site/Unit:	Oconee / O3	Procedure:	NDE-600	Outage No.:	ONS	3EO(C21
Summary No.:	C05.021.091	Procedure Rev.:	15	Report No.:	UT-04-491		91
Workscope:	ISI	Work Order No.:	98643243	Page:	2	of	3

Description of Limitation:

Limited at the intrados on the elbow side of the weld. Limitation dimension is the inner third of the elbow (Lo + 3.0" to Lo + 6.0").

Sketch of Limitation:



TOTAL EXAM AREA = 1.0m * 0.125 m = 0.125 m² $60^{\circ} \text{ SHEAR COVERAGE} = \left(.45 \text{m} + .52 \text{m}\right) \times .125 \text{m} = .0606 \text{m}^{2}/ = 48.5\%$ $\frac{2}{1.125 \text{m}^{2}}$ $70^{\circ} \text{ SHEAR SUPPL. Cy4.} = \left(.15 \text{m} + .30 \text{m}\right) \times .125 \text{m} = .0281 \text{m}^{2}/ = 22.5\%$

Limitations removal requirements:

Radiation field:

Examiner	Level	II-N	Signature	Date	Reviewer	0	Signature	Date
Tucker, Davi	d K.	M	willtuch	11/5/2004	<u> </u>	Panil KS		11/22/04
Examiner	Level	11	Signature), Date	Site Review		Signature	Date
Jordan, Joey	1		Che Com	11/5/2004				
Other	Level	N/A	Signature	Date	ANII Review	TWINOWAR	Signature	Date
AVA			•		j			11/22/04



Determination of Percent Coverage for UT Examinations - Pipe

Site/Unit:	Oconee / O3		Procedure: NDE-600		Outage No	ONS3EOC21		
mary No.:	C05.02	1.091	Procedure Rev	/.: <u>15</u>	Report No	.: UT-04-491		
orkscope:	IS	1	Work Order No	98643243	Page	e: <u>3</u> of <u>3</u>		
		<u></u>	<u> </u>		<u> </u>	<u></u>		
<u>45 deg</u>								
Scan 1	1	% Length X		% volume of length / 100 =		% total for Scan 1		
Scan 2	2	% Length X		% volume of length / 100 =		% total for Scan 2		
Scan 3	3 100.000	% Length X	100.000	% volume of length / 100 =	100.000	% total for Scan 3		
Scan 4	4100.000	% Length X	100.000	% volume of length $/$ 100 = $\frac{1}{2}$	100.000	% total for Scan 4		
	Add totals a	nd divide by # scar	ns = 100.000	% total for 45 deg				
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			, , , , , , , , , , , , , , , , , , , ,				
Other de	<u>eg - 60</u>	(to be used for	supplemental sca	ans)				
The data	a to be listed be	elow is for coverage	that was not obta	ined with the 45 deg scans.				
Seen	1	9/ Leagth V	400.000	9/ values of locath / 100		9/ total for Conn 1		
Scan 1		•	100.000	% volume of length / 100 =		_ % total for Scan 1		
Scan 2		% Length X	100.000	% volume of length / 100 =	66.700	_% total for Scan 2		
Scan 2	g 1 <u>33.300</u>	Length X	48.500	% volume of length / 100 =	16.150	_% total for Scan 3		
Scan 9	¥ <u>2 33.300</u>	Length X	0.000	% volume of length / 100 =	0.000	_ % total for Scan 4		
Percent	complete cov	<u>/erage</u>						
Add tota	de for oach eca	n required and divide	a by # of coans to	a datarmina:				
87.388		or complete exam	e by # or scaris to	o determine,				
		n complete cam						
Site Fiel	d Supervisor	Davil	1,2	Date:	11-1			
0.001101	a Caporvicor.	VICUN	(1.5)		1/22/04			
Nore:	: 70° SHEA	e Scan Not I	NELUDED TA	PERCENT COVERAGE	- Dur To			
	MEQUIRER	IENTS UF IUC	.rx 20.55 a	(6X2XXVXAX2).	DEST EFFOR	CT DCHN		

Wine 70'S OSTAINGT AN ADDITIONAL 22.5% COVERENT IN ONE PRIME DIRECTION.

Attachment B

Request for Relief

05-ON-002

Limited Examinations on Reactor Vessel

3EOC 21

Proposed Relief in Accordance with 10 CFR 50.55a(g)(5)(iii)
Inservice Inspection Impracticality
Duke Energy Corporation
Oconee Nuclear Station – Unit 3 (EOC-21)
Third 10-Year Interval – Inservice Inspection Plan
Interval Start Date = 12-16-1994 Interval End Date = 1-2-2005
ASME Section XI Code – 1989 Edition with No Addenda
Code Case N-460 is applicable

	ĭ.	II.	III.	IV. &V.	VI,	VII.	VIII.
List Number	Limited Area/Weld I.D. Number	System / Component for Which Relief is Requested: Area or Weld to be Examined	Code Requirement from Which Relief is Requested: 100% Exam Volume Coverage Exam Category Item No.	Impracticality/ Burden Caused by Compliance	Proposed Alternate Examinations or Testing	Implementation Schedule and Duration	Justification for Granting Relief
1.	3-RPV-WR34	NC System	Fig. No. Limitation Percentage	See Paragraph "A"	See Paragraph "E"	See Paragraph "F"	See Paragraph "G"
1.	3-RFV-WR34	Reactor Vessel Lower Shell to Lower Head Ring Circumferential Weld	Exam Category B-A Item No. B01.011.004 Fig. IWB-2500-1 44.5% Volume Coverage				
2.	3-RPV-WR35	NC System Reactor Vessel Lower Head Cap to Lower Head Ring Circumferential Weld	Exam Category B-A Item No. B01.021.003 Fig. IWB-2500-3 50% Volume Coverage	See Paragraph "B"	See Paragraph "E"	See Paragraph "F"	See Paragraph "G"
3	3-RPV-WR19	NC System Reactor Vessel Upper Shell to Flange Circumferential Weld	Exam Category B-A Item No. B01.030.001 Fig. IWB-2500-4 85.8% Volume Coverage	See Paragraph "C"	See Paragraph "E"	See Paragraph "F"	See Paragraph "G"
4.	3-RPV-WR54	NC System Reactor Vessel Core Flood Nozzle-to-Vessel Weld @ 0°	Exam Category B-D Item No. B03.090.007 (UT from vessel I.D.) Fig. IWB-2500-7(a) 84.2% Volume Coverage	See Paragraph "D"	See Paragraph "E"	See Paragraph "F"	See Paragraph "H"

	I.	II,	III.	IV. &V.	VI.	VII.	VIII.
List	Limited	System /	Code Requirement from	Impracticality/	Proposed Alternate	Implementation	Justification for
Number	Area/Weld I.D.	Component for Which	Which Relief is Requested:	Burden Caused by	Examinations or	Schedule and	Granting Relief
ł	Number	Relief is Requested:	100% Exam Volume Coverage	Compliance	Testing	Duration	
		Area or Weld to be	Exam Category				
	Ì	Examined	Item No.				
ĺ	Í		Fig. No.				
			Limitation Percentage				
5.	3-RPV-WR54	NC System	Exam Category B-D	See Paragraph "D"	See Paragraph "E"	See Paragraph "F"	See Paragraph "H"
		Reactor Vessel	Item No. B03.090.007A				
		Core Flood	(UT from nozzle bore.)				
		Nozzle-to-Vessel Weld	Fig. IWB-2500-7(a)				
		<u>@</u> 0°	84.2% Volume Coverage				
6.	3-RPV-WR54A	NC System	Exam Category B-D	See Paragraph "D"	See Paragraph "E"	See Paragraph "F"	See Paragraph "H"
		Reactor Vessel	Item No. B03.090.008				
		Core Flood	(UT from vessel ID)				
		Nozzle-to-Vessel Weld	Fig. IWB-2500-7(a)				
		@ 180°	84.2% Volume Coverage				
7.	3-RPV-WR54A	NC System	Exam Category B-D	See Paragraph "D"	See Paragraph "E"	See Paragraph "F"	See Paragraph "H"
		Reactor Vessel	Item No. B03.090.008A				
		Core Flood	(UT from nozzle bore)				
		Nozzle-to-Vessel Weld	Fig. IWB-2500-7(a)				
		@ 180°	84.2% Volume Coverage]			

See Attachment A for area/weld locations.

Note: The welds listed in the table above were inspected in December of 2004.

IV. & V. Impracticality/Burden Caused by Code Compliance

Paragraph A: (The Lower Shell and Lower Head Ring material is SA508 CL2. This weld has a diameter of 170.250 inches and a wall thickness of 5.5 inches.)

During ultrasonic examination, 100% coverage of the required examination volume could not be obtained. Twelve core guide lugs restrict the scanning surface, as shown on the Attachment B drawing, causing limitations that resulted in 44.5% coverage. The percentage of coverage reported represents the aggregate coverage from all scans parallel and perpendicular to the weld. The weld and adjacent base material were examined using 45° refracted shear waves and 45° refracted longitudinal waves. Examination volumes directly below the core guide lugs received no coverage when scanned parallel to the weld. Additionally no scans were performed perpendicular to the weld directly below the core guide lugs. Scans parallel to the weld were restricted to 7.6 inches on either side of each core guide lug and scans perpendicular to the weld were restricted to 4.7 inches on either side of each core guide lug. In order to achieve more coverage, the core guide lugs would have to be moved to allow greater access, which is impractical. There were no recordable indications found in the areas that were examined.

54% of the weld and base material volume received coverage in two directions perpendicular to the weld.

35% of the weld and base material volume received coverage in two directions parallel to the weld.

55.50% of the weld and base material volume received no coverage.

(See Attachment B for exam information)

Paragraph B: (The Lower Head Cap material is SA533 CL1 GRB and Lower Head Ring material is SA508 CL2. This weld has a diameter of 143.00 inches and a wall thickness of 5.375 inches.)

During ultrasonic examination, 100% coverage of the required examination volume could not be obtained. The examination coverage was limited to 50%. The percentage of coverage reported represents the aggregate coverage from all scans parallel and perpendicular to the weld. The flow stabilizers, core guide lugs and in-core nozzles that restrict the scanning surface, as shown on the Attachment C drawing, caused the limitations. The weld and adjacent base material were examined using 45° refracted shear waves and 45° refracted longitudinal waves. There were no recordable indications found in the areas that were examined. In order to achieve more coverage the flow stabilizers, core guide lugs and in-core nozzles would have to be moved to allow greater access for scanning, which is impractical.

53.33% of the weld and base material volume received coverage in two directions perpendicular to the weld.

46.66% of the weld and base material volume received coverage in two directions parallel to the weld.

50% of the weld and base material received no coverage.

(See Attachment C for exam information)

Paragraph C: (The Upper Shell and Flange material is SA508 CL2. This weld has a diameter of 167.630 inches and a wall thickness of 12.00 inches.)

During ultrasonic examination, 100% coverage of the required examination volume could not be obtained. The examination coverage was limited to 85.8%. The percentage of coverage reported represents the aggregate coverage from all scans parallel and perpendicular to the weld. Limitations were caused by inside surface taper and the ledge shown in Attachment D. The percentage of coverage reported represents the aggregate coverage from all scans. The weld and adjacent base material were examined using 45° refracted shear waves and 45° refracted longitudinal waves. There were no recordable indications found in the areas that were examined. In order to achieve more coverage, the weld would have to be redesigned which is impractical. (See Attachment D for exam information)

Paragraph D: (The Upper Shell and Core Flood Nozzle material is SA508 CL2. This weld has a diameter of 25.00 inches and a wall thickness of 12.00 inches.)

During ultrasonic examination, 100% coverage of the required examination volume could not be obtained. The examination coverage was limited to 84.2% of the required volume. The Core Flood Nozzles of a B&W 177 plant have several obstructions which limit ultrasonic examination coverage. In order of significance these are:

- The flow restrictor which is welded to the inner bore of the nozzle;
- The inlet nozzles located 30° on either side of each core flood nozzle;
- The taper above the core flood nozzles associated with the Core Support Ledge.

The percentage of exam volume coverage reported represents the aggregate coverage as follows:

Weld and adjacent base material = 87.6% scanned parallel to the weld in two opposite directions and 72.9% scanned perpendicular to the weld centerline from the nozzle bore and the vessel inside surface.

There were no recordable indications found in the areas that were examined for either of these welds. In order to achieve more coverage, the inlet nozzles would have to be moved, and the taper on the flange would have to be redesigned to allow greater access for scanning, which is impractical. In addition, because of the proximity of the flow restrictors limited scanning was performed from the nozzle I.D as shown in Attachment E. In order to achieve more coverage, the flow restrictor would have to be moved to allow access for scanning, which is impractical.

(See Attachment E for exam information)

VI. Proposed Alternate Examinations or Testing

Paragraph E:

The scheduled 10-year code examination was performed on the referenced area/weld and it resulted in the noted limited scanning and coverage of the required ultrasonic volume. No additional examinations are planned for the area/weld during the current inspection interval.

VII. Implementation Schedule and Duration

Paragraph F

The scheduled third 10-year interval plan code examination was performed on the referenced area/weld resulting in limited scanning and volumetric coverage. No additional examinations are planned for the area/weld during the current inspection interval. The same area/weld may be examined again as part of the next (fourth) 10-year interval plan, depending on the applicable code year edition and addenda requirements adopted in the future.

VIII. Justification for Granting Relief

Paragraph G:

Ultrasonic examination of welds for item numbers B01.011, B01.021 and B01.30 were conducted using personnel, equipment and procedures qualified in accordance with ASME Section XI, Appendix VIII, Supplements 4 and 6, 1995 Edition with the 1996 Addenda as administered through the Performance Demonstration Initiative (PDI) Program. Although limited scanning prevented 100% coverage of the examination volume, the amount of coverage obtained for these examinations along with the additional volumetric and visual examinations (listed in the next paragraph) provides an acceptable level of quality and integrity. (See Paragraph I for additional justification.)

In addition to the Category B-A welds that relief is being sought for, there were 3 circumferential Category B-A welds that were inspected and all obtained greater than 90 % coverage and there were no reportable indications found during the inspections. Visual examinations were also performed as part of the reactor vessel inspections (item number B13.010.001 and B13.050.001) and were found to be without any reportable indications.

Paragraph H:

Ultrasonic examination of areas/welds for item numbers B03.090 were conducted using personnel, equipment and procedures qualified in accordance with ASME Section XI, Appendix I, 1989 Edition with no Addenda. Although limited scanning prevented 100% coverage of the examination volume, the amount of coverage obtained for these examinations provides an acceptable level of quality and integrity. (See Paragraph I for additional justification.)

Paragraph I:

Duke Energy will use the Code required pressure testing and VT-2 visual examination to compliment the limited examination coverage. The Code requires (reference Table IWB-2500-1, item numbers B15.010 and B15.050) that a system leakage test be performed after each refueling outage for Class 1. Additionally a system hydrostatic test (reference Table IWB-2500-1, item numbers B15.011 and B15.051) is required once during each 10-year inspection interval; however, Code Case N-498-1 was invoked in lieu of performing the hydrostatic test. These tests require a VT-2 visual examination for evidence of leakage. This testing provides adequate additional assurance of pressure boundary integrity.

Duke Energy will use VT-3 visual examination to compliment the limited examination coverage. The Code requires (reference Table IWB-2500-1, item number B13.010) that a VT-3 examination be performed after the first refueling outage and subsequent refueling outages at approximately 3 year periods. During the first and second periods of an interval a VT-3 examination is performed on areas above and below the reactor core that are made accessible for examination by removal of components during normal refueling outages. During the third period of an interval the VT-3 examination is performed on all of the reactor vessel interior surfaces at the same time that the automated UT exams are performed on the reactor vessel welds. These examinations provide adequate additional assurance of pressure boundary integrity.

In addition to the above Code required examinations (volumetric, pressure test, and VT-3), there are other activities which provide a high level of confidence that, in the unlikely case that leakage did occur through these welds, it would be detected and isolated. Specifically, leakage from these welds would be detected by monitoring of the Reactor Coolant System (RCS), which is performed once each shift under procedure PT/1,2,3/A/0600/10, "RCS Leakage". This RCS leakage monitoring is a requirement of Technical Specification 3.4.13, "Reactor Coolant System Leakage". Leakage is also evaluated in accordance with this Technical Specification. The leakage could also be detected through several other methods. One is the Reactor Building air particulate monitor. This monitor is sensitive to low leak rates; the iodine monitor, gaseous monitor and area monitor are capable of detecting any fission products in the coolant and will be activated by coolant leakage. A second is the level indicator in the Reactor Building normal sump. A third is a loss of level in the Letdown Storage Tank.

Duke Energy Corporation has examined the welds/components referenced in this request to the maximum extent possible utilizing the latest in examination techniques and equipment. These welds were rigorously inspected by volumetric NDE methods during construction and verified to be free from unacceptable fabrication defects. Based on the coverage and results of the required volumetric and visual examinations performed during this outage, it is Duke's belief that this combination of elements provides a reasonable assurance of component integrity.

IX. Other Information

The following individuals contributed to the development of this relief request:

James J. McArdle (Principal NDE Level III Inspector) provided Sections III through V and part of Section VIII.

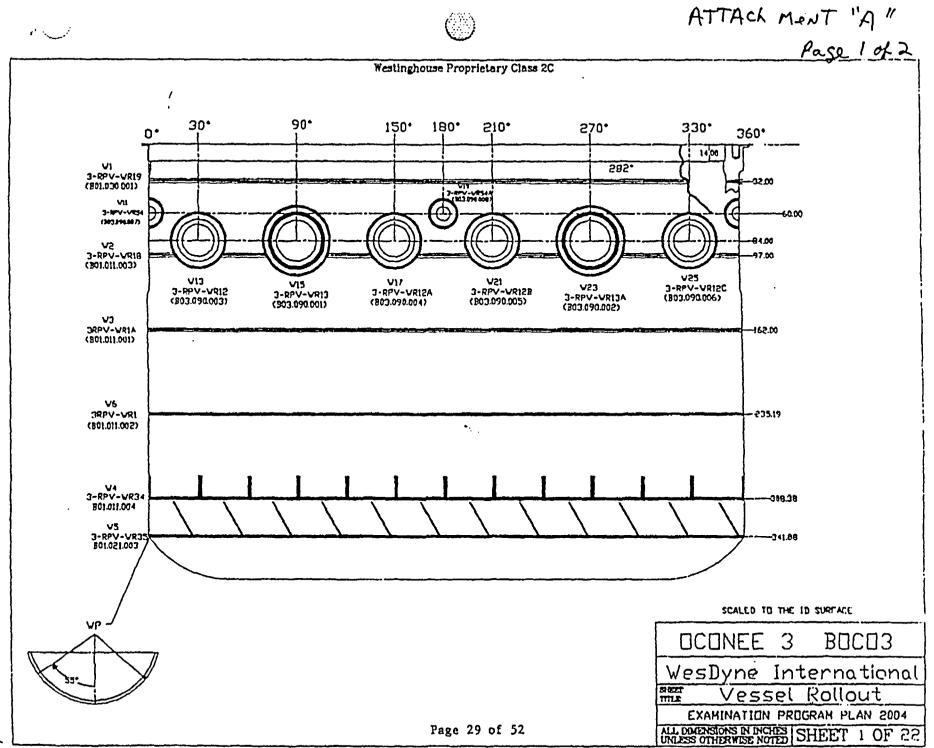
B. W. Carney, Jr. (Oconee Engineering) provided part of Section VIII.

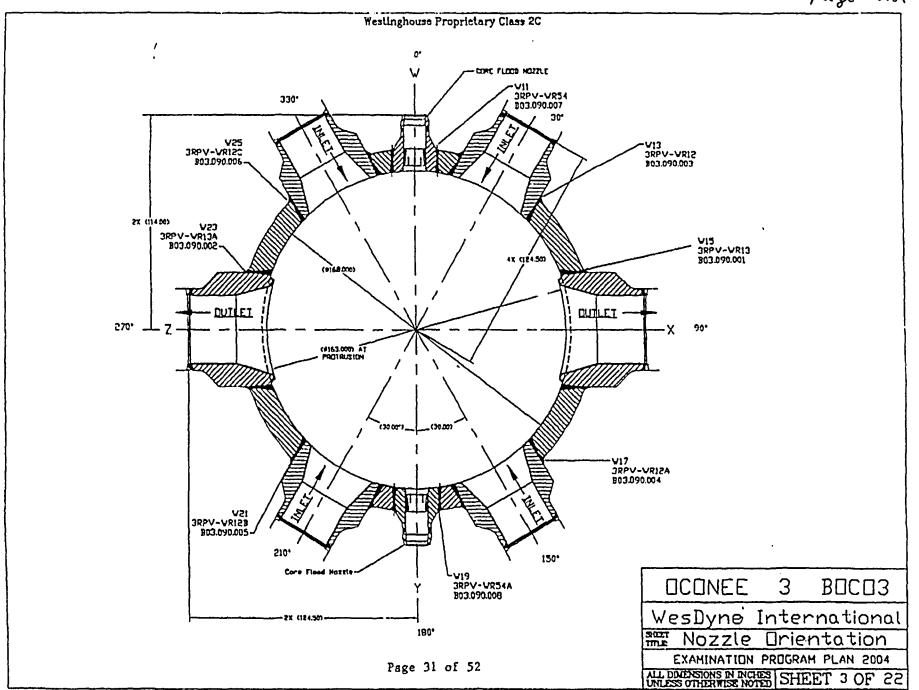
Larry C. Keith (Oconee ISI Plan Manager) compiled the remaining sections.

Sponsored By:	Larry C. Keith	Date	5-26-05
		Date	5/26/05



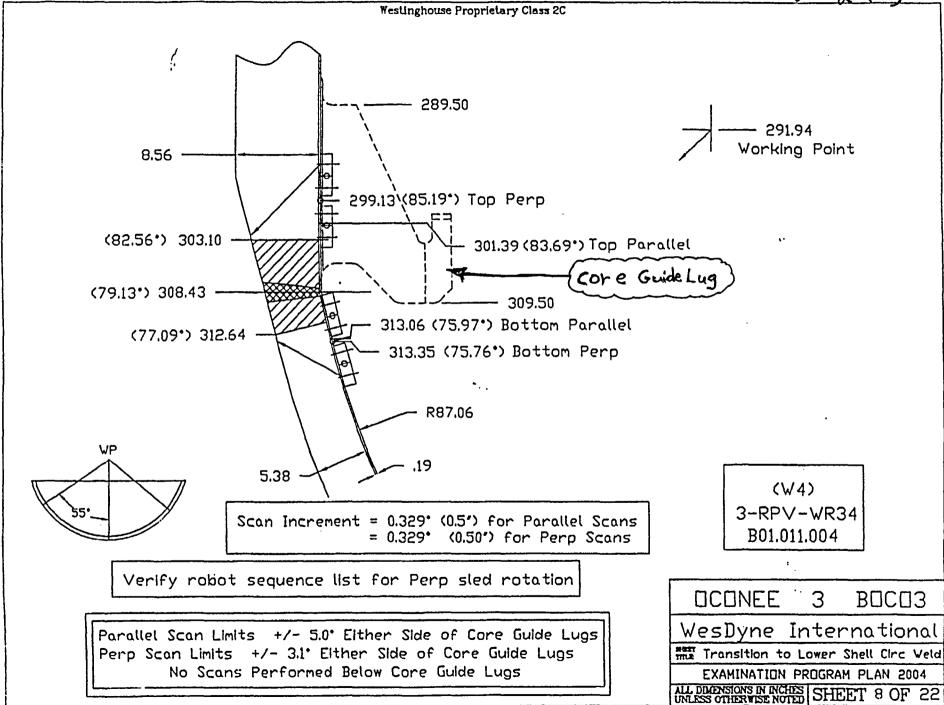
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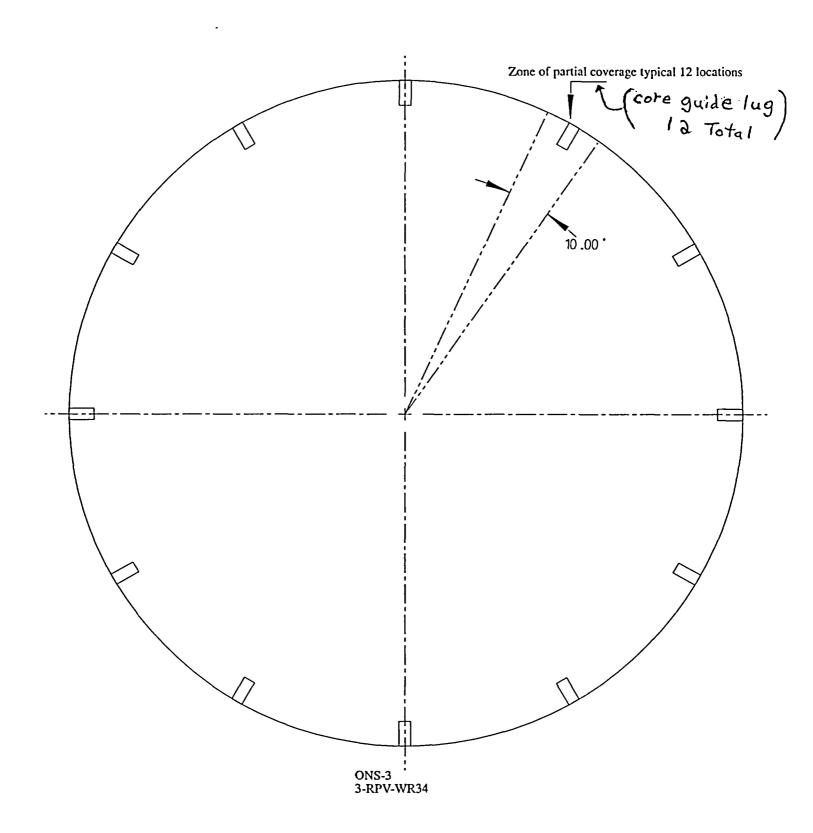




			R.V. C	OVERA	GE EST	IMATE B	REAK	OOWNS				
PLANT	NAME		Occ	onee		_						
						WesDyne						
WELD I	NO.	,	W4 (3-RF	PV-WR34)								
	·	•				-]	Inte	rnati	ona	l		
COMPO	ONENT .	Transitio	n to Low	er Shell Ci	rc. Weld	_						
				BEAN	ANGLE	BREAK D	OWN			·		
	BEAM D	IRECTION	45 Shear		45 L Single		45 L Dual					
i			WELD	VOLUME	WELD	VOLUME	WELD	VOLUME	WELD	VOLUME		
	Perpe	ndicular	54.00	54.00	54.00	54.00	54.00	54.00				
	Pa	rallel	35.00	35.00	35.00	35.00	35.00	35.00				
	AVE	RAGE	44	.50	44	.50	44	1.50		1		
Comme	nts:											
Combine	d Perp.	54.0	00	Combined F	Para.	35.	00	Combined A	Average	44.50		
	•	alyst	Jan	12				-	Date	12/4/04		

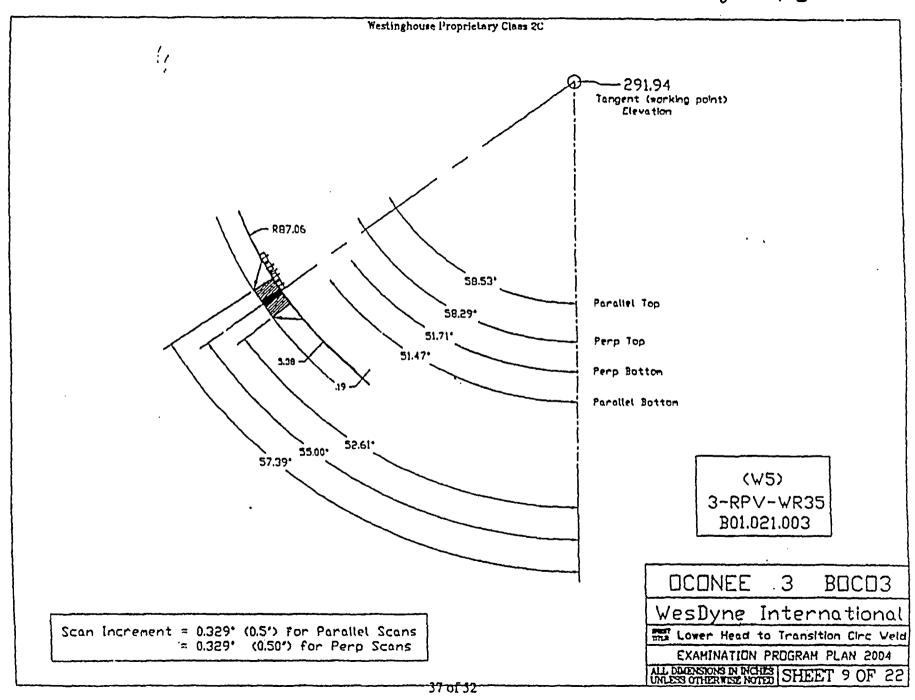
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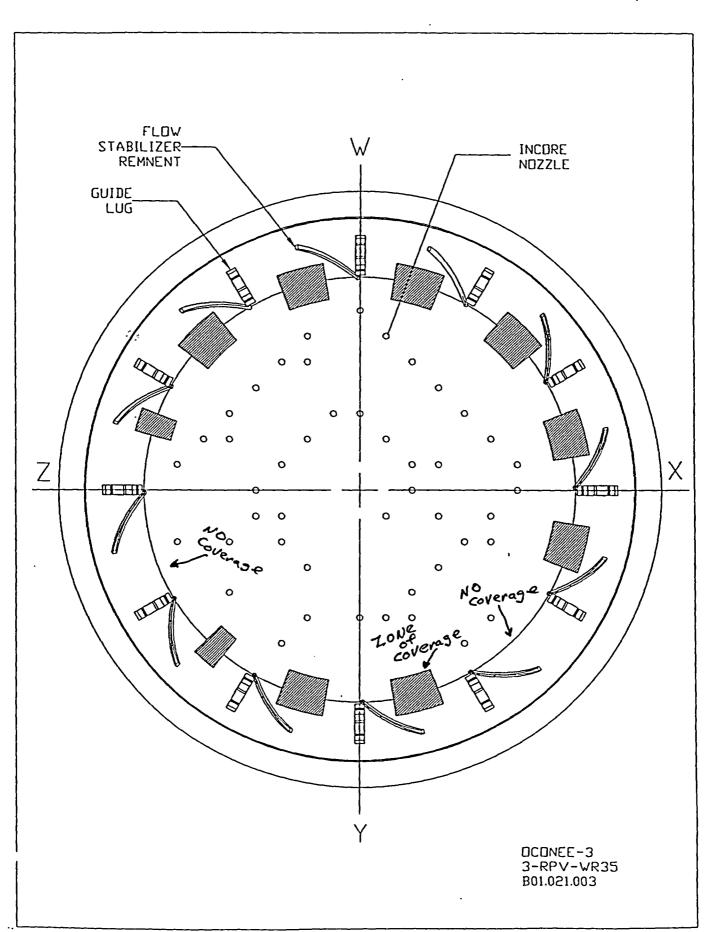




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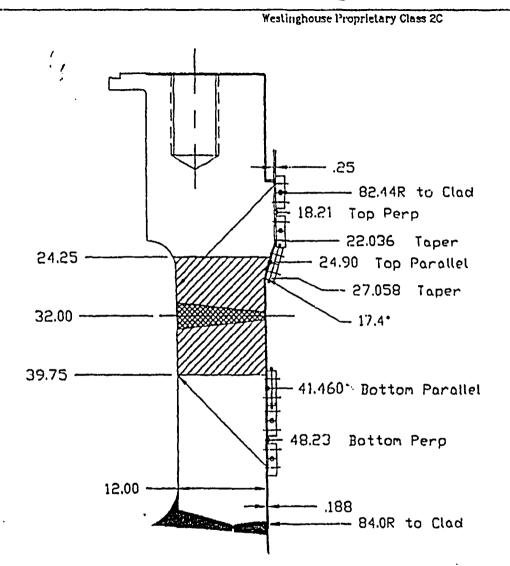
		R.V. (COVERA	GE EST	MATE B	REAKE	OWNS					
PLANT	NAME	Oc	onee		_							
	-				WesDyne							
WELD I	NO.	W5 (3-RI	PV-WR35))								
					International							
СОМРО	DNENT Lower	Head to Tr	ansition C	irc. Weld	-							
			BEAN	ANGLE	BREAK D	OWN						
	BEAM DIRECTIO	N 45	45 Shear		Single	45 1	L Dual]		
		WELD	VOLUME	WELD	VOLUME	WELD	VOLUME	WELD	VOLUME			
	Perpendicular	53.33	53.33	53.33	53.33	53.33	53.33					
	Parallel	46.66	46.66	46.66	46.66	46.66	46.66					
	AVERAGE	50	0.00	50	.00	50	0.00]		
Comme	ents:				· · · · · · · · · · · · · · · · · · ·				······································			
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co	MBINED AVERAG	E 50	0.00	Analyst	Jun	12		Date	12/4/0)		





										-	
		R.V. C	COVERA	GE ESTI	MATE B	REAKD	OWNS				
PLANT	NAME	000	ONEE								
					WesDyne						
WELD	NO.	W1 (3-RF	PV-WR19)	l 							
					•	Inte	rnatio	ona	Ī		
СОМРО	ONENT S	Shell to FI	lange Weld	<u>t</u>	-						
			BEAN	I ANGLE	BREAK D	OWN					
								l		_	
ļ	BEAM DIRECTION	45 \$	Shear	45 L !	Single	45 [L Dual			1	
		WELD	VOLUME	WELD	VOLUME	WELD	VOLUME	WELD	VOLUME	1	
	Perpendicular	86.66	86.66	86.66	86.66	86.66	86.66				
	Parallel	85.00	85.00	85.00	85.00	85.00	85.00				
	AVERAGE	. 85	5.83	85	.83	85.83					
Comme	ents:										
Combine	ed Perp86.	66	_	bined Para.	85.0	00	Combined	Average	85.83		
ľ	Analyst	1	and A	•				Date	12/4/04	<i>f</i>	





(W1) 3-RPV-WR19 B01.030.001

Scan Increment = 0.5' for Parallel Scans = 0.341' for Perp Scans DCDNEE 3 BDCD3

WesDyne International

STORY Upper Shell to Flange

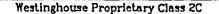
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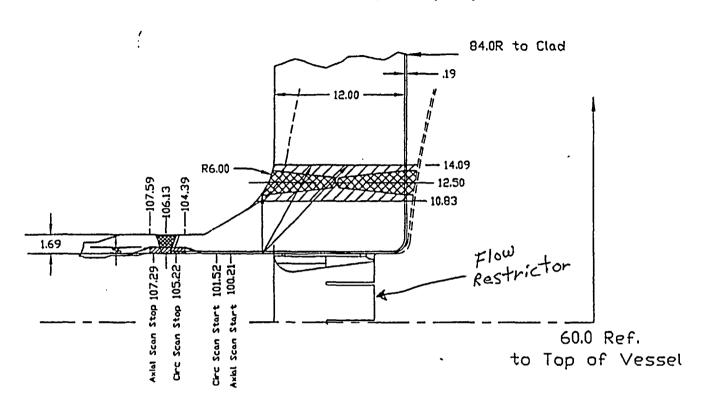
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			R.V. C	OVERAG	SE ESTI	MATE BI	REAKD	OWNS			
PLANT	Г NAME		Ocor	nee							
						•	W	esDy	/ne		
WELD	NO	W	11 (3-RP	V-WR54)							
ł ł						International					
COMP	PONENT Co	re Flo	od Nozz	le to Shell	@ 0°						
}				BEAM	ANGLE	BREAK D	OWN				
	BEAM DIRECT	ION	45 Shear *		45 L	Single	· 45 L	. Dual	Combine	ed Bore/Star	ĺ
		-	WELD	VOLUME	WELD	VOLUME	WELD	VOLUME		VOLUME	
	TAN Scar	1									
	Parallel		94.22	80.95	100.00	98.71	100.00	100.00			
	Combined Bore	⋆									
}	Perpendicu	lar							74.75	71.01	
	AVERAGE		87	7.59	99.35		100.00		72.88		
Comm	ents: <u>Covera</u>	ige cal	culation i	s based on	the Bore	and Star so	can (comb	oined) as p	erpendicı	ular,	
ł	and the	Tan S	Scan (par	allel). Limit	ation is du	e to vesse	l saddle e	ffect at 90°	% 270° a	and	
				ted in the ir					<u> </u>		
Combin	ied Perp	72.88	3	Combined	Para.	95.6	65	Combined A	Average	84.26	<u>}</u>
	Analyst / Juny 2								Date	12/4/0	, <i>L</i> /

		R.V. C	OVERAC	E ESTI	MATE BI	REAKD	OWNS					
PLAN ⁻	T NAME	Oco	nee									
					WesDyne							
WELD	NO. W	19 (3-RP	V-WR54A))								
						Inte	rnati	ona	l			
СОМР	COMPONENT Core Flood Nozzle to Shell @ 180°											
			BEAM	ANGLE	BREAK D	OWN						
	BEAM DIRECTION	45	45 Shear		Single	45 [_ Dual	Combine	ed Bore/Star			
٠,		WELD	VOLUME	WELD	VOLUME	WELD	VOLUME	WELD	VOLUME			
1 1	TAN Scan											
i 1	Parallel	94.22	80.95	100.00	98.71	100.00	100.00					
	Combined Bore⋆											
	Perpendicular							74.75	71.01			
	AVERAGE	8	7.59	99	.35	10	0.00	7	2.88			
Comm	nents: <u>Coverage ca</u>	alculation i	is based on	the Bore	and Star so	can (comb	oined) as p	erpendicı	ular,			
l .	and the Tan	Scan (par	rallel). Limit	ation is du	e to vessel	l saddle e	ffect at 90°	° & 270° a	and			
i	the flow rest	rictor loca	ted in the ir	iside of the	e nozzle.							
Combin	ned Perp. 72.8	8	Combined I	Para.	95.6	35	Combined .	Average	84.26			
	Analyst	1 de	m 2					Date	12/4/04			





Core Flood Nozzle to Shell @ 0° - 3RPV-WR54 (B03.090.007A)
Core Flood Nozzle to Shell @ 180° - 3RPV-WR54A (B03.090.008A)

Core Flood Nozzle Safe End @ 0° - 3RPV-WR53 (B05.010.001A, B05.010.001B)
Core Flood Nozzle Safe End @ 180° - 3RPV-WR53A (B05.010.002A, B05.010.002B)

Scan Increment: Axial Scans 1.15° Circ. Scans 0.080°

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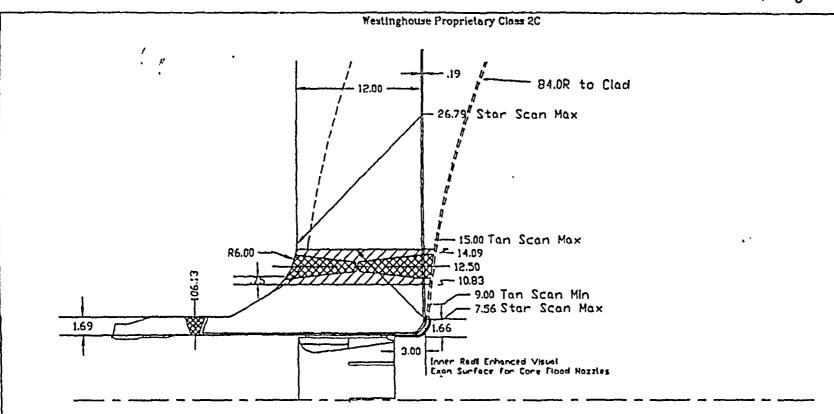
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WesDyne International

MAN Core Flood Nozzle to Shell & Safe End Velds

EXAMINATION PROGRAM PLAN 2004

ALL DIMENSIONS IN INCHES SHEET 19 OF 22



Core Flood Nozzle to Shell @ 0° Inner Radius VT-- 3RPV-WR54 (B03.100.007)
Core Flood Nozzle to Shell @ 180° Inner Radius VT- 3RPV-WR54A (B03.100.008)

Core Flood Nozzle to Shell @ 0° - 3RPV-WR54 (B03.090.007)
Core Flood Nozzle to Shell @ 180° - 3RPV-WR54A (B03.090.008)

Scan Increment: Star Scans = 2.29' (0.50' @ Nozzle to Shell Weld @ Tan Scans = 0.50'

OCONEE 3 BOCO3

WesDyne International

Core Flood Nazzle to Shell TAN, Star IR Exans

EXAMINATION PROGRAM PLAN 2004

ALL DIMENSIONS IN INCIDES SHEET 21 OF 22

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