Inservice Inspection Report Catawba Unit 2 2001 Refueling Outage EOC 11 (Outage 4)

NRC Document Control

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		e Provisions of the	······································	
1. Owner: <u>Dul</u>	<u>ke Energy Corpor</u> (N	ation, 526 S. Church ame and Address of	<u>St Charlotte, NC</u> Owner)	<u>28201-1006</u>
2. Plant: <u>Cat</u>		ation, 4800 Concord I Name and Address of		<u>45</u>
3. Plant Unit:	$\underline{2}$ 4. Owner (Certificate of Author	ization (if required)	<u>N/A</u>
5. Commercia	ll Service Date: <u>8/1</u>	<u>9/86</u> 6. Nationa	l Board Number for	r Unit <u>173</u>
7. Component	ts Inspected:			
Component or Appurtenance	Manufacturer Installer	Manufacturer Installer Serial No.	State or Province No.	National Board No.
— Number, the syst	ems and the NS	report lists the Man nce Number; and Na SS Components. contained in Sectior	tional Board Numb Detailed listings	per for
— Number, the syst	; State or Provider ems and the NS	nce Number; and Na SS Components.	tional Board Numb Detailed listings	per for
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FORM NIS-1 (Back)

Examination Dates	April 8, 2000		to	October 22, 2001
Inspection Period	Identification:	Second Period		· · · · · · · · · · · · · · · · · · ·
Inspection Interva	l Identification:	Second Inservice	Inspe	ection Interval
Applicable Edition	of Section XI	1989	A	ddenda <u>None</u>
Date/Revision of I	nspection Plan:	September 9, 199	9 / Re	evision 2
bstract of Results o	f Examination an	d Tests. See S	ectio	ns 5.0 and 11.0
bstract of Correctiv	ve Measures. See	e Section 8.0		
nspection Plan as re	equired by the ASI	ME Code, Section Y	correc I, and	t b) the examinations and tests mee d c) corrective measures taken
ficate of Authorizat	ion No. (if applica	ble) <u>N/A</u>		Expiration Date <u>N/A</u>
1/17/02	Signed Duk	e Energy Corp. Owner	^{By} ∡	C. Levin Plyne
······································	CERTIFICATE	OF INSERVICE	INSI	PECTION
el Inspectors and the <u>n Boiler Inspection</u> ibed in this Owner istate that to the best and taken correct extion Plan and as no v signing this cer- essed or implied, cor- ers' Report. Further my personal injury of extin. <u>1-1)-6</u> e Hartford Steam H	tive measures de required by the AS tificate neither the example of property damage for property damage 20 <u>C 2</u> .	ce of <u>NC</u> <u>Company</u> of <u>Connec</u> the period <u>4 - E</u> re and belief, the O scribed in the Ove ME Code, Section the Inspector nor ninations, test, and a Inspector nor his ge or a loss of any k missions <u>NC 978</u> National Board,	ecticu wner vners' XI. his d corr emplo ind as State,	employed by <u>* The Hartford</u> <u>t</u> have inspected the components <u>to letters</u> to <u>letters</u> , has performed examinations and Report in accordance with the employer makes any warranty, ective measures described in this over shall be liable in any manner rising from or connected with this , Province, and Endorsements
ite 300				
	Inspection Interval Applicable Edition Date/Revision of In bstract of Examination cerning status of bstract of Results of bstract of Corrective e certify that a) the inspection Plan as re- rm to the rules of the ficate of Authorizate 1/17/02 e undersigned, hold el Inspectors and the <u>n Boiler Inspection</u> ibed in this Owner state that to the best and taken correc- ection Plan and as re- state that to the best and taken correc- ection Plan and as re- y signing this cer essed or implied, co- ers' Report. Further and taken correc- ection.	Inspection Interval Identification: Applicable Edition of Section XI Date/Revision of Inspection Plan: bstract of Examinations and Test. In oncerning status of work required for bstract of Results of Examination and bstract of Corrective Measures. Sec e certify that a) the statements made inspection Plan as required by the ASI rm to the rules of the ASME Code, Sec ficate of Authorization No. (if applica 1/17/02 Signed Duk CERTIFICATH e undersigned, holding a valid commination in Boiler Inspection and Insurance Of ibed in this Owners' Report during the state that to the best of my knowledg and taken corrective measures de ection Plan and as required by the ASI y signing this certificate neither the extent for the proving the example of the the corrective measures de fits of my knowledg and taken corrective measures de ection Plan and as required by the ASI y signing this certificate neither the extent for the proving the example of the my personal injury or property damaged toton. Mathematical fits of the example 1-17-6 20 CC.	Inspection Interval Identification: Second Inservice Applicable Edition of Section XI 1989 Date/Revision of Inspection Plan: September 9, 199 bstract of Examinations and Test. Include a list of examination required for the Inspection Plan bstract of Results of Examination and Tests. See S bstract of Corrective Measures. See Section 8.0 e certify that a) the statements made in this report are on spection Plan as required by the ASME Code, Section XI. ficate of Authorization No. (if applicable) N/A $1/17/or$ Signed Duke Energy Corp. Owner Owner Owner CERTIFICATE OF INSERVICE e undersigned, holding a valid commission issued by the el Inspectors and the State or Province of	Inspection Interval Identification: Second Inservice Inspection Applicable Edition of Section XI 1989 A Date/Revision of Inspection Plan: September 9, 1999 / Reduction of Examinations and Test. Include a list of examination on the Inspection Plan. bstract of Examinations and Test. Include a list of examination on the Inspection Plan. See Section Plan. bstract of Results of Examination and Tests. See Section Plan. See Section Plan. bstract of Corrective Measures. See Section 8.0 See certify that a) the statements made in this report are correctionspection Plan as required by the ASME Code, Section XI, and run to the rules of the ASME Code, Section XI. Inficate of Authorization No. (if applicable) N/A $1/17/ordering Code Signed Duke Energy Corp. By 7 Owner Owner Owner CERTIFICATE OF INSERVICE $

INSERVICE INSPECTION REPORT

CATAWBA UNIT 2 2001 REFUELING OUTAGE EOC11 (OUTAGE 4)

Location: 4800 Concord Road, York, South Carolina 29745

NRC Docket No. 50-414

National Board No. 173

Commercial Service Date: August 19, 1986

Owner: Duke Energy Corporation 526 South Church St. Charlotte, N. C. 28201-1006

Revision 0

Prepared By:

Reviewed By:

Approved By:

a. Hogge, N.	Date
J.E. Cherry	_ Date
R. Revie Rhine) Date
	-

the $\frac{1-17-2002}{1-17-2002}$ the $\frac{1-17-2002}{1/17/02}$

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^C/_O R. N. McGill Catawba Nuclear Station

Laura Burba Nuclear GO Regulatory & Industrial Affairs Mail Code - EC05O

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1.0 General Information

This report describes the Inservice Inspection of Duke Energy Corporation's Catawba Nuclear Station, Unit 2 during the 2001 Refueling Outage [also referred to as EOC11 (Outage 4)]. This is the second outage in the Second Inspection Period in the Second Ten Year Interval.

Included in this report are the final inservice inspection plan, the inspection results for each item, a summary for each category of examination and corrective action taken when unacceptable conditions were found. In addition, there is a section included for repairs and replacements required since 4/8/2000.

ltem	Manufacturer or Installer	Manufacturer or Installer Serial No.	State or Province No.	National Board No.
Reactor Vessel	Combustion Engineering	8871	N/A	21667
Pressurizer	Westinghouse	1931	N/A	W26949
Steam Generator 2A	Westinghouse	1923	N/A	4
Steam Generator 2B	Westinghouse	1922	N/A	3
Steam Generator 2C	Westinghouse	1921	N/A	2
Steam Generator 2D	Westinghouse	1924	N/A	5
Reactor Coolant Pump 2A	lonics, Inc.	1S-86P765	N/A	342
Reactor Coolant Pump 2B	lonics, Inc.	2S-86P765	N/A	343

1.1 Identification Numbers

Refueling Outage Report EOC 11 Catawba Unit 2 Section 1 Page 1 of 4 Revision 0 December 6, 2001

1.1 Identification Numbers

Continued

Item Manufacturer or Installer		Manufacturer or Installer Serial No.	State or Province No.	National Board No.
Reactor Coolant Pump 2C	lonics, Inc.	3S-86P765	N/A	586
Reactor Coolant Pump 2D	Ionics, Inc.	4S-86P765	N/A	587
Reactor Coolant System	Duke Power Co.	C-2NC	N/A	171
Safety Injection System	Duke Power Co.	C-2NI	N/A	172
Residual Heat Removal System	Duke Power Co.	C-2ND	N/A	154
Chemical and Volume Control System	Duke Power Co.	C-2NV	N/A	170
Auxiliary Feedwater System	Duke Power Co.	C-2CA	N/A	159
Feedwater System	Duke Power Co.	C-2CF	N/A	158
Refueling Water System	Duke Power Co.	C-2FW	N/A	141
Main Steam Supply to Auxiliary Equipment	Duke Power Co.	C-2SA	N/A	134
Main Steam System	Duke Power Co.	C-2SM	N/A	162
Main Steam Vent to Atmosphere System	Duke Power Co.	C-2SV	N/A	156
Containment Spray System	Duke Power Co.	C-2NS	N/A	150
Steam Generator Blowdown System	Duke Power Co.	C-2BB	N/A	155
Steam Generator Wet Layup Recirculation System	Duke Power Co.	C-2BW	N/A	152

Refueling Outage Report EOC 11 Catawba Unit 2 Section 1 Page 2 of 4 Revision 0 December 6, 2001

1.1 Identification Numbers

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Continued

ltem	Manufacturer or Installer	Manufacturer or Installer Serial No.	State or Province No.	National Board No.
Spent Fuel Cooling System	Duke Power Co.	C-2KF	N/A	151
Boron Recycle System	Duke Power Co.	C-2NB	N/A	153
Nuclear Sampling System	Duke Power Co.	C-2NM	N/A	169
Containment Penetration Valve Injection Water System	Duke Power Co.	C-2NW	N/A	165
Liquid Radwaste System	Duke Power Co.	C-2WL	N/A	168
Excess Letdown Heat Exchanger	Atlas Industrial Manufacturing Company	3205	N/A	2583
Seal Water Heat Exchanger	Atlas Industrial Manufacturing Company	3621	N/A	2977
Vertical Letdown Heat Exchanger	Joseph Oat Corporation	2268-2B	N/A	944
Regenerative Heat Exchanger	Joseph Oat Corporation	2255-1C3	N/A	877
Residual Heat Removal Heat Exchanger	Joseph Oat Corporation	2A 2267-3C	N/A	848
Tieat Excitatiger	Corporation	2B 2267-3D	N/A	849
Co n tainment Spray Heat Ex c hanger	Yuba Heat Transfer	2A 74-N-009-2A	N/A	3330
	Corporation	2B 74-N-009-2B	<u>N/A</u>	3331
Seal Water Injection Filter	Pall Trinity Micro Corporation	2A ⁻ 35367	N/A	19025
		2B 35366	N/A	19024
Volume Control Tank	Lamco Industries Inc.	2286.30	N/A	77171

Refueling Outage Report EOC 11 Catawba Unit 2 Section 1 Page 3 of 4 Revision 0 December 6, 2001

1.1 Identification Numbers

Continued

Item	Manufacturer or Installer	Manufacturer or Installer Serial No.		State or Province No.	National Board No.
Residual Heat Removal	Ingersoll-Rand	2A (077647	N/A	237
Pump		2B	077648	N/A	238
Containment Spray Pump	Bingham- Willamette	2A	230342	N/A	215
	winamette	2B	230343	N/A	216
Safety Injection Pump	Pacific Pumps	2A	49361	N/A	240
		2B	49362	N/A	241
Centrifugal Charging Pump	Pacific Pumps	2A	49780	N/A	262
		2B	49779	N/A	259

1.2 Authorized Nuclear Inservice Inspector(s)

Name: R. N. McGill

Employer: The Hartford Steam Boiler Inspection & Insurance Company of Connecticut (HSB CT)

Business The Hartford Steam Boiler Inspection & Insurance Company Address: of Connecticut (HSB CT) 200 Ashford Center North Suite 300 Atlanta, GA 30338

2.0 Summary of Inservice Inspections

The information shown below provides an abstract of ASME Section XI Class 1, Class 2, and Augmented / Elective Items scheduled and examined during EOC11 (Outage 4) at Catawba Nuclear Station, Unit 2.

2.1 Class 1 Inspection

Examination C	ategory	B-A	Pressure Retaining Welds in Reactor Ve	ssel
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ltem Number	Description	Total Examined During Outage
B01.010	Shell Welds	
B01.011	Circumferential	0
B01.012	Longitudinal	0
B01.020	Head Welds	
B01.021	Circumferential	0
B01.022	Meridional	0
B01.030	Shell to Flange Welds	0
B01.040	Head to Flange Welds	0
B01.050	Repair Welds	
B01.051	Beltline Region	NA
TOTALS		0

Refueling Outage Report EOC 11 Catawba Unit 2 Section 2 Page 1 of 20 Revision 0 December 6, 2001

Examination Category B-B

Pressure Retaining Welds in Vessels Other than Reactor Vessels

ltem Number	Description	Total Examined During Outage
	Description	
	Pressurizer	
B02.010	Shell to Head Welds	
B02.011	Circumferential	1
B02.012	Longitudinal	1
B02.020	Head Welds	
B02.021	Circumferential	NA
B02.022	Meridional	NA
	Steam Generators (Primary Side)	
B02.030	Head Welds	
B02.031	Circumferential	NA
B02.032	Meridional	NA
B02.040	Tubesheet to Head Weld	0
	Heat Exchangers (Primary Side) Head	
B02.050	Head Welds	
B02.051	Circumferential	NA
B02.052	Meridional	NA
	Heat Exchangers (Primary Side) Shell	
B02.060	Tubesheet to Head Welds	NA
B02.070	Longitudinal Welds	NA
B02.080	Tubesheet to Shell Welds	NA
TOTALS		2

Refueling Outage Report EOC 11 Catawba Unit 2 Section 2 Page 2 of 20 Revision 0 December 6, 2001

Examination Category B-D Full Penetration Welds of Nozzles in Vessels Inspection Program B

ltem Number	Description	Total Examined During Outage
	Reactor Vessel	
B03.090	Nozzle-to-Vessel Welds	0
B03.100	Nozzle Inside Radius Section	0
	Pressurizer	
B03.110	Nozzle-to-Vessel Welds	11
B03.120	Nozzle Inside Radius Section	1
	Steam Generators (Primary Side)	
B03.130	Nozzle-to-Vessel Welds	NA
B03.140	Nozzle Inside Radius Section	0
	Heat Exchangers (Primary Side)	
B03.150	Nozzle-to-Vessel Welds	NA
B03.160	Nozzle Inside Radius Section	NA
TOTALS		2

Examination Category B-E

Pressure Retaining Partial Penetration Welds in Vessels

REFERENCE SECTION 11.0 OF THIS REPORT

Refueling Outage Report EOC 11 Catawba Unit 2 Section 2 Page 3 of 20 Revision 0 December 6, 2001

Examination Category B-F Pressure Retaining Dissimilar Metal Welds

ltem Number	Description	Total Examined During Outage
	Reactor Vessel	
B05.010	Nominal Pipe Size 4" or Larger Nozzle-to-Safe End Butt Welds	0
B05.020	Nominal Pipe Size Less Than 4" Nozzle-to-Safe End Butt Welds	NA
B05.030	Nozzle-to-Safe End Socket Welds	NA
	Pressurizer	
B05.040	Nominal Pipe Size 4" or Larger Nozzle-to-Safe End Butt Welds	1
B05.050	Nominal Pipe Size Less Than 4" Nozzle-to-Safe End Butt Welds	NA
B05.060	Nozzle-to-Safe End Socket Welds	NA
	Steam Generator	
B05.070	Nominal Pipe Size 4" or Larger Nozzle-to-Safe End Butt Welds	0
B05.080	Nominal Pipe Size Less Than 4" Nozzle-to-Safe End Butt Welds	NA
B05.090	Nozzle-to-Safe End Socket Welds	NA
• #	Heat Exchangers	
B05.100	Nominal Pipe Size 4" or Larger Nozzle-to-Safe End Butt Welds	NA
B05.110	Nominal Pipe Size Less Than 4" Nozzle-to-Safe End Butt Welds	NA
B05.120	Nozzle-to-Safe End Socket Welds	NA

Refueling Outage Report EOC 11 Catawba Unit 2 Section 2 Page 4 of 20 Revision 0 December 6, 2001

Examination Category B-F (Continued)

ltem Number	Description	Total Examine d During Outage
	Piping	
B05.130	Nominal Pipe Size 4" or Larger Dissimilar Metal Butt Welds	0
B05.140	Nominal Pipe Size Less Than 4" Dissimilar Metal Butt Welds	NA
B05.150	Dissimilar Metal Socket Welds	NA
TOTALS		1

Refueling Outage Report EOC 11 Catawba Unit 2 Section 2

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Examination Category B-G-1

Pressure Retaining Bolting, Greater Than 2" in Diameter

ltem Number	Description	Total Examined During Outage
	Reactor Vessel	
B06.010	Closure Head Nuts	18
B06.020	Closure Studs (in place)	0
B06.030	Closure Studs (when removed)	18
B06.040	Threads in Flange	18
B06.050	Closure Washers, Bushings	18
	Pressurizer	
B06.060	Bolts and Studs	NA
B06.070	Flange Surface (when connection disassembled)	NA
B06.080	Nuts, Bushings and Washers	NA
	Steam Generators	
B06.090	Bolts and Studs	NA
B06.100	Flange Surface (when connection disassembled)	NA
B06.110	Nuts, Bushings and Washers	NA
	Heat Exchangers	
B06.120	Bolts and Studs	NA
B06.130	Flange Surface (when connection disassembled)	NA
B06.140	Nuts, Bushings and Washers	NA
	Piping	
B06.150	Bolts and Studs	NA
B06.160	Flange Surface (when connection disassembled)	NA
B06.170	Nuts, Bushings and Washers	NA

Refueling Outage Report EOC 11 Catawba Unit 2 Section 2 Page 6 of 20 Revision 0 December 6, 2001

Examination Category B-G-1

(Continued)

ltem Number	Description	Total Examined During Outage
	Pumps	
B06.180	Bolts and Studs	0
B06.190	Flange Surface (when connection disassembled)	0
B06.200	Nuts, Bushings and Washers	NA
	Valves	
B06.210	Bolts and Studs	NA
B06.220	Flange Surface (when connection disassembled)	NA
B06.230	Nuts, Bushings and Washers	NA
TOTALS		72

Refueling Outage Report EOC 11 Catawba Unit 2 Section 2 Page 7 of 20 Revision 0 December 6, 2001

Examination Category B-G-2

Pressure Retaining Bolting, 2" and Less in Diameter

ltem Number	Description	Total Examined During Outage
	Reactor Vessel	
B07.010	Bolts, Studs and Nuts	NA
	Pressurizer	
B07.020	Bolts, Studs and Nuts	0
	Steam Generators	
B07.030	Bolts, Studs and Nuts	0
F	Heat Exchangers	
B07.040	Bolts, Studs and Nuts	NA
	Piping	
B07.050	Bolts, Studs and Nuts	0
	Pumps	
B07.060	Bolts, Studs and Nuts	0
	Valves	
B07.070	Bolts, Studs and Nuts	2
	CRD Housing	
B07.080	Bolts, Studs and Nuts in CRD Housing (when disassembled)	0
TOTALS		2

Refueling Outage Report EOC 11 Catawba Unit 2 Section 2 Page 8 of 20 Revision 0 December 6, 2001

Examination Category B-H

Integral Attachments for Vessels

ltem Number	Description	Total Examined During Outage
	Reactor Vessel	
B08.010	Integrally Welded Attachments	0
	Pressurizer	
B08.020	Integrally Welded Attachments	1
	Steam Generators	
B08.030	Integrally Welded Attachments	NA
	Heat Exchangers	
B08.040	Integrally Welded Attachments	NA
TOTALS		1

Examination Category B-J

Pressure Retaining Welds in Piping

ltem Number	Description	Total Examined During Outage
B09.010	Nominal Pipe Size 4" or Larger	秋清神子 了
B09.011	Circumferential Welds	9
B09.012	Longitudinal Welds ¹	0
B09.020	Nominal Pipe Size Less than 4"	
B09.021	Circumferential Welds	1
B09.022	Longitudinal Welds ¹	NA

1 Reference Code Case N-524 "Alternative Examination Requirements for Longitudinal Welds in Class 1 and 2 Piping Section XI, Division 1."

Refueling Outage Report EOC 11 Catawba Unit 2 Section 2 Page 9 of 20 Revision 0 December 6, 2001

Examination Category B-J

(Continued)

ltem Number	Description	Total Examined During Outage
B09.030	Branch Pipe Connection Welds	
B09.031	Nominal Pipe Size 4" or Larger	1
B09.032	Less than Nominal Pipe Size 4"	3
B09.040	Socket Welds	12
TOTALS		26

Examination Category B-K-1

Integral Attachments for Piping, Pumps and Valves

ltem Number	Description	Total Examined During Outage
a tanan Tanan Santa	Piping	
B10.010	Integrally Welded Attachments	NA
	Pumps	
B10.020	Integrally Welded Attachments	NA
	Valves	SPICE ST
B10.030	Integrally Welded Attachments	NA
TOTALS		NA

Refueling Outage Report EOC 11 Catawba Unit 2 Section 2 Page 10 of 20 Revision 0 December 6, 2001

Pressure Retaining Welds in Pump Casings and Valve Bodies

B-L-2, B-M-2 Pump Casings and Valve Bodies

ltem Number	Description	Total Examined During Outage
	Pumps	
B12.010	Pump Casing Welds (B-L-1)	NA
B12.020	Pump Casing (B-L-2) (when disassembled for Maintenance Repair or Volumetric Examination)	0
	Valves	
B12.030	Valves, Nominal Pipe Size Less than 4" Valve Body Welds (B-M-1)	NA
B12.040	Valves, Nominal Pipe Size 4" or Larger Valve Body Welds (B-M-1)	0
B12.050	Valve Body, Exceeding 4" Nominal Pipe Size (B-M-2)	10
TOTALS		10

Refueling Outage Report EOC 11 Catawba Unit 2 Section 2

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B-N-2 Integrally Welded Core Support Structures and Interior Attachments to Reactor Vessels

B-N-3 Removable Core Support Structures

Item Number	Description	Total Examined During Outage
	Reactor Vessel	
B13.010	Vessel Interior (B-N-1)	0
	Reactor Vessel (PWR)	
B13.050	Interior Attachments Within the Beltline Region (B-N-2)	NA
B13.060	Interior Attachments Beyond Beltline Region (B-N-2)	0
B13.070	Core Support Structure (B-N-3)	0
TOTALS		0

Examination Category B-O

Pressure Retaining Welds in Control Rod Housings

Item Number	Description	Total Examined During Outage
	Reactor Vessel	
B14.010	Welds in CRD Housing	0
TOTALS		0

Examination Category B-P All Pressure Retaining Components

REFERENCE SECTION 11.0 OF THIS REPORT

Refueling Outage Report EOC 11 Catawba Unit 2 Section 2 Page 12 of 20 Revision 0 December 6, **20**01

Examination Category B-Q Steam Generator Tubing

ltem Number	Description	Total Examined During Outage
B16.010	Steam Generator Tubing in Straight Tube Design	NA
B16.020	Steam Generator Tubing in U-Tube Design ²	NA
TOTALS		NA

Examination Category F-A

Class 1 Component Supports

(Co	de	Case	N-49	1)

ltem Number	Description	Total Examined During Outage
F01.010	Class 1 Piping Supports (One- Directional)	5
F01.011	Class 1 Piping Supports (Multi- Directional)	4
F01.012	Class 1 Piping Supports (Thermal Movement)	9
F01.040	Class 1 Supports other than Piping	2
F01.050	Class 1 Snubbers ³	NA
TOTALS		20

² Steam Generator Tubing is examined and documented by the Steam Generator Maintenance Group of the Nuclear Services Division as required by the Station Technical Specifications and is not included in this report.

3 See Request for Relief 96-01 in Section 9 of this report.

Refueling Outage Report EOC 11 Catawba Unit 2 Section 2 Page 13 of 20 Revision 0 December 6, 2001

2.2 Class 2 Inspections

Examination Category C-A

Pressure Retaining Welds in Pressure Vessels

ltem Number	Description	Total Examined During Outage
C01.010	Shell Circumferential Welds	2
C01.020	Head Circumferential Welds	2
C01.030	Tubesheet to Shell Weld	0
TOTALS		4

Examination Category C-B

Pressure Retaining Nozzle Welds in Vessels

ltem Number	Description	Total Examined During Outage
C02.010	Nozzles in Vessels \leq 1/2" Nominal Thickness	
C02.011	Nozzle to Shell (or Head) Weld	2
C02.020	Nozzles Without Reinforcing Plate in Vessels >1/2" Nominal Thickness	
C02.021	Nozzle to Shell (or Head) Weld	3
C02.022	Nozzle Inside Radius Section	0

Refueling Outage Report EOC 11 Catawba Unit 2 Section 2 Page 14 of 20 Revision 0 December 6, 2001

Examination Category C-B (Continued)

C02.030	Nozzles With Reinforcing Plate in Vessels >1/2" Nominal Thickness	
C02.031	Reinforcing Plate Welds to Nozzle and Vessel	NA
C02.032	Nozzle to Shell (or Head) Welds when Inside of Vessel is Accessible	NA
C02.033	Nozzle to Shell (or Head) Welds when Inside of Vessel is Inaccessible	NA
TOTALS		5

Examination Category C-C Integral Attachments for Vessels, Piping, Pumps, and Valves

ltem Number	Description	Total Examined During Outage
	Pressure Vessels	
C03.010	Integral Welded Attachments	1
	Piping	
C03.020	Integrally Welded Attachments	3
	Pumps	
C03.030	Integrally Welded Attachments	0
	Valves	
C03.040	Integrally Welded Attachments	NA
TOTALS		4

Refueling Outage Report EOC 11 Catawba Unit 2 Section 2 Page 15 of 20 Revision 0 December 6, 2001

Examination Category C-D

Pressure Retaining Bolting Greater Than 2" in Diameter

Item Number	Description	Total Examined During Outage
	Pressure Vessels	
C04.010	Bolts and Studs	NA
	Piping	
C04.020	Bolts and Studs	NA
	Pumps	
C04.030	Bolts and Studs	NA
	Valves	
C04.040	Bolts and Studs	NA
TOTALS		NA

Examination Category C-F-1

Pressure Retaining Welds in Austenitic Stainless Steel or High Alloy Piping

ltem Number	Description	Total Examined During Outage
C05.010	Piping Welds ≥ 3/8" Nominal Wall Thickness for Piping > Nominal Pipe Size 4"	
C05.011	Circumferential Weld	15
C05.012	Longitudinal Weld ⁴	0

⁴ Reference Code Case N-524 "Alternative Examination Requirements for Longitudinal Welds in Class 1 and 2 Piping Section XI, Division 1."

Refueling Outage Report EOC 11 Catawba Unit 2 Section 2 Page 16 of 20 Revision 0 December 6, 2001

Examination Category C-F-1 (Continued)

ltem Num b er	Description	Total Examined During Outage
C05. 0 20	Piping Welds > 1/5" Nominal Wall Thickness for Piping ≥ Nominal Pipe Size 2" and ≤ Nominal Pipe Size 4"	
C05. 0 21	Circumferential Weld	5
C05. 02 2	Longitudinal Weld ⁵	0
C05. 0 30	Socket Welds	4
C05. 0 40	Pipe Branch Connections of Branch Piping ≥ Nominal Pipe Size 2"	
C05. 0 41	Circumferential Weld	0
C05. 0 42	Longitudinal Weld ⁵	0
TOTALS		24

Examination Category C-F-2 Pressure Retaining Welds in Carbon or Low Alloy Steel Piping

ltem N umber	Description	Total Examined During Outage
C05.050	Piping Welds ≥ 3/8" Nominal Wall Thickness for Piping > Nominal Pipe Size 4"	
C05.051	Circumferential Weld	9
C05.052	Longitudinal Weld ⁵	0

⁵ Reference Code Case N-524 "Alternative Examination Requirements for Longitudinal Welds in Class 1 and 2 Piping Section XI, Division 1."

Refueling Outage Report EOC 11 Catawba Unit 2 Section 2 Page 17 of 20 Revision 0 December 6, 2001

ltem Number	Description	Total Examined During Outage
C05.060	Piping Welds > 1/5" Nominal Wall Thickness for Piping ≥ Nominal Pipe Size 2" and ≤ Nominal Pipe Size 4"	
C05.061	Circumferential Weld	NA
C05.062	Longitudinal Weld ⁶	NA
C05.070	Socket Weids	NA
C05.080	Pipe Branch Connections of Branch Piping ≥ Nominal Pipe Size 2"	
C05.081	Circumferential Weld	0
C05.082	Longitudinal Weld ⁶	NA
TOTALS		9

Examination Category C-F-2 (Continued)

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Examination Category C-G Pressure Retaining Welds in Pumps and Valves

ltem Number	Description	Total Examined During Outage
	Pumps	
C06.010	Pump Casing Welds	NA
	Valves	「「「「「」」」である。
C06.020	Valve Body Welds	5
TOTALS		5

⁶ Reference Code Case N-524 "Alternative Examination Requirements for Longitudinal Welds in Class 1 and 2 Piping Section XI, Division 1."

Refueling Outage Report EOC 11 Catawba Unit 2 Section 2 Page 18 of 20 Revision 0 December 6, 2001 Examination Category C-H All Pressure Retaining Components

REFERENCE SECTION 11.0 OF THIS REPORT

Examination Category F-A Class 2 Component Supports

(Code Case N-491)

ltem Number	Description	Total Examined During Outage
F01.020	Class 2 Piping Supports (One Directional)	7
F01.021	Class 2 Piping Supports (Multi- Directional)	10
F01.022	Class 2 Piping Supports (Thermal Movement)	9
F01.040	Class 2 Supports other than Piping	1
F01.050	Class 2 Snubbers ⁷	NA
TOTALS		27

7 Reference Request for Relief Serial No. 96-01.

Refueling Outage Report EOC 11 Catawba Unit 2 Section 2

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2.3 <u>Augmented / Elective Inspection</u>

ltem Number	Description	Total Examined During Outage
G01.001	Reactor Coolant Pump Flywheels	11
G02.001	Postulated Pipe Failures Main Steam System	0
G03.001	Thermal Stress Piping (NRC Bulletin 88- 08)	0
G04.001	Unguarded Containment Sump Suction Line Piping Weld per 12/1/89 UFSAR Table 1.8-1(Page 49)	0
H02.001	Class 2 Welded attachment Pipe to Anchor Pad Weld	1
TOTALS		2

A detailed description of each examination listed in Section 2.1 through 2.3 are located in Section 4.0 of this report. Results of each examination are located in Section 5.0 of this report.

Refueling Outage Report EOC 11 Catawba Unit 2 Section 2 Page 20 of 20 Revision 0 December 6, 2001

3.0 Second Ten Year Interval Inspection Status

The completion status of inspections required by the 1989 ASME Section XI Code, no Addenda, is summarized in this section. The requirements are listed by the ASME Section XI Examination Category as defined in Table IWB-2500-1 for Class 1 Inspections and Table IWC-2500-1 for Class 2 Inspections. Augmented / Elective inspections are also included.

Examination Category	Description	Inspections Required	Inspections Completed	Percentage Completed	Deferral Allowed ⁸	
B-A	Pressure Retaining Welds in Reactor Vessel	24	6.5	27.08%	Yes	
В-В	Pressure Retaining Welds in Vessels Other than Reactor Vessel	5 3		60%	No	
B-D	Full Penetration Welds of Nozzles in Vessels Inspection Program B	36	14	38.89%	Partial	
B-F	Pressure Retaining Dissimilar Metal Welds	46	17.666	38.40%	No	
B-G-1	Pressure Retaining Bolting Greater than 2 Inch Diameter	224	146	65.18%	No	
B-G-2	Pressure Retaining Bolting 2 Inches and Less in Diameter	28	16	57.14%	No	

Class 1 Inspections

⁸ Deferral of inspection to the end of the interval as allowed by ASME Section XI Table IWB-2500-1.

Refueling Outage Report EOC 11 Catawba Unit 2 Section 3 Page 1 of 4 Revision 0 December 6, 2001

Class 1 Inspections (Continued)

Examination Category	Description	Inspections Required	Inspections Completed	Percentage Completed	Deferral Allowed ⁹
B-H	Integral Attachment for Vessels	5	3	60%	No
B-J	Pressure Retaining Welds in Piping	224	120	53.57%	No
B-K-1	Integral Attachments for Piping, Pumps and Valves	N/A	N/A	N/A	N/A
B-L-1	Pressure Retaining Welds in Pump Casings	N/A	N/A	N/A	N/A
B-L-2	Pump Casings	1	0	0%	Yes
B-M-1	Pressure Retaining Welds in Valve Bodies	1	0	0%	Yes
B-M-2	Valve Bodies	7	7	100%	Yes
B-N-1	Interior of Reactor Vessel	3	2	66.66%	No
B-N-2	Integrally Welded Core Support Structures and Interior Attachments to Reactor Vessels	2	0	0%	Yes
B-N-3	Removable Core Support Structures	1	0	0%	Yes
B-O	Pressure Retaining Welds in Control Rod Housings	3	0	0%	Yes
B-Q	Steam Generator Tubing ¹⁰	N/A	N/A	N/A	N/A
F-A	Class 1 Component Supports F01.010, F01.011, F01.012 & F01.040 (Code Case N-491)	71	42	59.15%	No

⁹ Deferral of inspection to the end of the interval as allowed by ASME Section XI Table IWB-2500-1.

¹⁰ Steam Generator Tubing is examined and documented by the Steam Generator Maintenance Group of the Nuclear Services Division as required by the Station Technical Specifications and is not included in this report.

Refueling Outage Report EOC 11 Catawba Unit 2 Section 3 Page 2 of 4 Revision 0 December 6, 2001

Class 2 Inspections

Examination Category	Description	Inspections Required	Inspections Completed	Percentage Completed	Deferral Allowed ¹¹
C-A	Pressure Retaining Welds in Pressure Vessels	29	13	44.83%	No
C-B	Pressure Retaining Nozzle Welds in Vessels	11	7	63.64%	No
C-C	Integral Attachments for Vessels, Piping, Pumps and Valves	68	39	57.35%	No
C-D	Pressure Retaining Bolting Greater Than 2 Inches in Diameter	N/A	N/A	N/A	N/A
C-F-1	Pressure Retaining Welds in Austenitic Stainless Steel or High Alloy Piping	289	155	53.63%	No
C-F-2	Pressure Retaining Welds in Carbon or Low Alloy Steel Piping	46	26	56.52%	No
C-G	Pressure Retaining Welds in Pumps and Valves	20	12	60%	No
F-A	Class 2 Component Supports F01.020, F01.021, F01.022 & F01.040 (Code Case N-491)	229	136	59.39%	No

11 Deferral of inspection to the end of the interval as allowed by ASME Section XI Table IWB-2500-1.

Refueling Outage Report EOC 11 Catawba Unit 2 Section 3 Page 3 of 4 Revision 0 December 6, 2001

Augmented / Elective Inspections

Description

Percentage Complete

Reactor Coolant Pump Flywheel Inspection

NC System

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100% of requirements for EOC11 (Outage 4)

100% of Requirements for EOC11 (Outage 4)

Refueling Outage Report EOC 11 Catawba Unit 2 Section 3 Page 4 of 4 Revision 0 December 6, 2001

4.0 Final Inservice Inspection Plan

The final Inservice Inspection Plan shown in this section lists all ASME Section XI Class 1, ASME Section XI Class 2, and Augmented / Elective examinations credited for EOC11 (Outage 4) at Catawba Nuclear Station, Unit 2.

The information shown below is a field description for the reporting format included in this section of the report:

Item Number	Ξ	ASME Section XI Tables IWB-2500-1 (Class 1), IWC-2500-1 (Class 2), IWF-2500-1 (Class 1 and Class 2), and Augmented / Elective Requirements
ID Number	=	Unique Identification Number
lso / Dwg Numbers	=	Location and/or Detail Drawings
Proc	=	Examination Procedures
Insp Req	=	Examination Technique - Magnetic Particle, Dye Penetrant, etc.
Mat / Sch	=	General Description of Material
Dia / Thk	=	Diameter/Thickness
Cal Blocks	=	Calibration Block Number
Comments	=	General and/or Detail Description

Refueling Outage Report EOC 11 Catawba Unit 2 Section 4 Page 1 of 1 Revision 0 December 6, 2001

DUKE ENERGY CORPORATION QUALITY ASSURANCE TECHNICAL SERVICES

CATEGORY B		<u>Retaining Welds</u> ctor Vessels		SSURANCE	TECHNICAL	SERVICES	n	Pla	an Report	
Pressurizer				Cataw	/ba 2			Page 1		
TESSUITEST			Inservice Inspection Plan for Interval 2 Outage 4				12/06/200			
ITEM NUMBER	ID NUMBER	SYS ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK CA	AL BLOCKS	COMMENTS		
**** Shell-to-Hea	ad Welds; Circu	mferential ****								
B02.011.001 2PZR-W8A NC Circumferential CNM 2201.01-110/1		NC	NDE-620 UT CS PZR Lower Head Shell			91.500 50337 3.750 50236A		Pressurizer Lower Head To Shell Circumferential Weld Depending upon the examiner's qualifications, Procedure PDI-UT-6 may be used in lieu of Procedure NDE-620.		
Total B02.011 Ite	ems: 1									
**** Shell-to-Hea	ad Welds; Long	itudinal ****								
B02.012.001 2P	ZR-W9A itudinal	NC CNM 2201.01-110/1 CNM 2201.01-110/2	NDE-620	UT PZR Lo Shell	CS wer Head to	91.500 3.750	50337 50236A	Pressurizer Lower Head To Shell Longitu Depending upon the examiner's qualifica Procedure PDI-UT-6 may be used in lieu Procedure NDE-620.	tions,	
Total B02.012 Ite Total B02 Items:										

EOC	11	

DUKE ENERGY CORPORATION **CATEGORY B-D, Full Penetration Welds of** QUALITY ASSURANCE TECHNICAL SERVICES Inservice Inspection Database Management System Plan Report **Nozzels in Vessels** Page 2 Catawba 2 Pressurizer 12/06/2001 Inservice Inspection Plan for Interval 2 Outage 4 INSP REQ MAT/SCH DIA/THK CAL BLOCKS COMMENTS PROC ID NUMBER SYS ISO/DWG NUMBERS ITEM NUMBER **** Nozzle-to-Vessel welds **** Pressurizer Surge Nozzle To Lower Head CS 50337 UT 24.500 2PZR-W1 NC CNM 2201.01-110/1 NDE-620 B03.110.001 Depending upon the examiner's qualifications, 50236A 3.750 CNM 2201.01-110/2 Circumferential Procedure PDI-UT-6 may be used in lieu of PZR Surge Nozzle to Class A Procedure NDE-620. Lower Head 1

Total B03.110 Items:

EOC 11 CATEGOR Nozzels in Pressuriz	Vessels	I Penet	ration Welds of		KE ENERGY ASSURANCE Dection Datab Cataw	TECHNICAL base Manage	SERVICES	n		Plan Report Page 3
Flessunz				Inservice I	nspection P	lan for Inte	rval 2 Outag	ge 4		12/06/2001
	R ID NU	JMBER	SYS ISO/DWG NUMBER	S PROC	INSP REQ	MAT/SCH	DIA/THK CA	L BLOCKS	COMMENTS	
**** Nozzle	Inside Radiu	s Sectio	n ****							
B03.120.001	2PZR-W1		NC CNM 2201.01-110/1 CNM 2201.01-110/2	NDE-680	UT	CS	24.500 2.550	50337	Pressurizer Surge Nozzle Radius)	e To Lower Head (Inside
Class A			01111 2201101 110/2		PZR Su Lower H	rge Nozzle to lead				
Total B03.1	20 Items:	1								
Total B03 It	tems:	2	-							

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DUKE ENERGY CORPORATION QUALITY ASSURANCE TECHNICAL SERVICES

Dissimilar Metal Welds

CATEGORY B-F, Pressure Retaining

Inservice Inspection Database Management System Catawba 2

Plan Report Page 4 12/06/2001

<u>Pressurizer</u>

ITEM NUMBER

Inservice Inspection Plan for Interval 2 Outage 4

INSP REQ MAT/SCH DIA/THK CAL BLOCKS COMMENTS PROC SYS ISO/DWG NUMBERS

**** NPS 4 or Larger: Nozzle-to-Safe End Butt Welds ****

ID NUMBER

NF 3 4		LLIC IO Oui	C Ella Ball Holde						
B05.040.001	2PZR-W1SE Circumferentia	_	IC CNM 2201.01-110/1 CNM 2201.01-110/2	NDE-610	UT	SS-CS	14.000 1.640	50339	Pressurizer Surge Nozzle Safe End
Class A	Term end Dissimilar					zle to End			
B05.040.001		-	IC CNM 2201.01-110/1 CNM 2201.01-110/2	NDE-35	PT	SS-CS	14.000 1.640		Pressurizer Surge Nozzle Safe End
Class A	Term end Dissimilar		01111 2201101 1107			zle to End			
Total B05.	.040 Items:	2							
Total B05	Items:	2							

Total B05 Items:

CATEGORY B-G-1, Pressure Retaining

DUKE ENERGY CORPORATION QUALITY ASSURANCE TECHNICAL SERVICES

Bolting, Gr	eater than 2" In	Diame	eter	Inservice Ins	pection Datab		Plan Report		
Reactor V					Cataw		Page 5 12/06/2001		
<u> </u>				Inservice I	•		terval 2 Outage 4		12/06/2001
ITEM NUMBER	R ID NUMBER	SYS	ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SC	H DIA/THK CAL BLOCKS	COMMENTS	
**** Closure	Head Nuts ****								
B06.010.019	2RPV-179-102-19		E 8871-179-001 CNM 2201.01-67	NDE-25	MT	CS	10.580 1.857	RPV Closure Head Nut 2RPV-NU	-19
Class A									
B06.010.020	2RPV-179-102-20A		E 8871-179-001 CNM 2201.01-67	NDE-25	MT	CS	10.580 1.857	RPV Closure Head Nut 2RPV-NU	Г-20А
Class A									
B06.010.021	2RPV-179-102-21A		E 8871-179-001 CNM 2201.01-67	NDE-25	MT	CS	10.580 1.857	RPV Closure Head Nut 2RPV-NU	T-21A
Class A									
B06.010.022	2RPV-179-102-22		E 8871-179-001 CNM 2201.01-67	NDE-25	MT	CS	10.580 1.857	RPV Closure Head Nut 2RPV-NU	T-22
Class A									
B06.010.023	2RPV-179-102-23		E 8871-179-001 CNM 2201.01-67	NDE-25	MT	CS	10.580 1.857	RPV Closure Head Nut 2RPV-NU	T-23
Class A									
B06.010.024	2RPV-179-102-24	NC	E 8871-179-001 CNM 2201.01-67	NDE-25	MT	CS	10.580 1.857	RPV Closure Head Nut 2RPV-NU	T-24
Class A									
B06.010.025	2RPV-179-102-25	NC	E 8871-179-001 CNM 2201.01-67	NDE-25	MT	CS	10.580 1.857	RPV Closure Head Nut 2RPV-NU	T-25
Class A								,	
B06.010.026	2RPV-179-102-26	NC	E 8871-179-001 CNM 2201.01-67	NDE-25	MT	CS	10.580 1.857	RPV Closure Head Nut 2RPV-NU	T-26

Class A

CATEGORY B-G-1, Pressure Retaining

Bolting, Gre	eater than 2" In	Dian	neter	Inservice Ins	pection Datat	base Manag	ement System		Plan Report
	Reactor Vessel					Page 6 12/06/2001			
				Inservice	Inspection P		erval 2 Outage 4		12/00/2001
ITEM NUMBER	ID NUMBER	SYS	S ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK CAL BLOCKS		
B06.010.027	2RPV-179-102-27	NC	E 8871-179-001 CNM 2201.01-67	NDE-25	MT	CS	10.580 1.857	RPV Closure Head Nut 2RPV-NUT-2	:7
Class A						·			
B06.010.028	2RPV-179-102-28	NC	E 8871-179-001 CNM 2201.01-67	NDE-25	MT	CS	10.580 1.857	RPV Closure Head Nut 2RPV-NUT-2	:8
Class A									
B06.010.029	2RPV-179-102-29	NC	E 8871-179-001 CNM 2201.01-67	NDE-25	MT	CS	10.580 1.857	RPV Closure Head Nut 2RPV-NUT-2	29
Class A									
B06.010.030	2RPV-179-102-30	NC	E 8871-179-001 CNM 2201.01-67	NDE-25	MT	CS	10.580 1.857	RPV Closure Head Nut 2RPV-NUT-	30
Class A									
B06.010.031	2RPV-179-102-31	NC	E 8871-179-001 CNM 2201.01-67	NDE-25	MT	CS	10.580 1.857	RPV Closure Head Nut 2RPV-NUT-	31
Class A									
B06.010.032	2RPV-179-102-32	NC	E 8871-179-001 CNM 2201.01-67	NDE-25	MT	CS	10.580 1.857	RPV Closure Head Nut 2RPV-NUT-	32
Class A									
B06.010.033	2RPV-179-102-S2	NC	E 8871-179-001 CNM 2201.01-67	NDE-25	MT	CS	10.580 1.857	RPV Closure Head Nut 2RPV-NUT-	32
Class A									
B06.010.034	2RPV-179-102-34	NC	E 8871-179-001 CNM 2201.01-67	NDE-25	MT	CS	10.580 1.857	RPV Closure Head Nut 2RPV-NUT-	34
Class A									
B06.010.035	2RPV-179-102-35	NC	E 8871-179-001 CNM 2201.01-67	NDE-25	MT	CS	10.580 1.857	RPV Closure Head Nut 2RPV-NUT-	35

EOC	11	
EUC	11	

ITEM NUMBER

DUKE ENERGY CORPORATION **CATEGORY B-G-1, Pressure Retaining** QUALITY ASSURANCE TECHNICAL SERVICES Inservice Inspection Database Management System Bolting, Greater than 2" In Diameter Catawba 2 Reactor Vessel Inservice Inspection Plan for Interval 2 Outage 4 PROC INSP REQ MAT/SCH DIA/THK CAL BLOCKS COMMENTS SYS ISO/DWG NUMBERS **ID NUMBER**

Plan Report Page 7 12/06/2001

B06.010.036	2RPV-179-102-36	NC	E 8871-179-001 CNM 2201.01-67	NDE-25	MT	CS	10.580 1.857	RPV Closure Head Nut 2RPV-NUT-36
Class A								
Total B06.01	l0 Items: 18							

EOC	11
EUC	

DUKE ENERGY CORPORATION **CATEGORY B-G-1, Pressure Retaining** QUALITY ASSURANCE TECHNICAL SERVICES **Inservice Inspection Database Management System** Bolting, Greater than 2" In Diameter **Plan Report** Page 8 Catawba 2 Reactor Vessel 12/06/2001 Inservice Inspection Plan for Interval 2 Outage 4 COMMENTS INSP REQ MAT/SCH DIA/THK CAL BLOCKS **ID NUMBER** SYS ISO/DWG NUMBERS PROC ITEM NUMBER **** Closure Studs, when removed **** **RPV Closure Stud 2RPV-STUD-19** 7.000 50501 NC E 8871-179-001 PDI-UT-5 UT CS 2RPV-179-101-19 B06.030.019 57.688 CNM 2201.01-67 Class A **RPV Closure Stud 2RPV-STUD-19** CS 7.000 NC E 8871-179-001 NDE-25 MT B06.030.019A 2RPV-179-101-19 57.688 CNM 2201.01-67 Class A **RPV Closure Stud 2RPV-STUD-20A** PDI-UT-5 UT CS 7.000 50501 2RPV-179-101-20A NC E 8871-179-001 B06.030.020 57.688 CNM 2201.01-67 Class A **RPV Closure Stud 2RPV-STUD-20A NDE-25** MT CS 7.000 2RPV-179-101-20A NC E 8871-179-001 B06.030.020A 57.688 CNM 2201.01-67 Class A **RPV Closure Stud 2RPV-STUD-21A** PDI-UT-5 UT CS 7.000 50501 2RPV-179-101-21A NC E 8871-179-001 B06.030.021 57.688 CNM 2201.01-67 Class A RPV Closure Stud 2RPV-STUD-21A NDE-25 MT CS 7.000 NC E 8871-179-001 B06.030.021A 2RPV-179-101-21A 57.688 CNM 2201.01-67 Class A CS 7.000 50501 RPV Closure Stud 2RPV-STUD-22 PDI-UT-5 UT NC E 8871-179-001 B06.030.022 2RPV-179-101-22 57.688 CNM 2201.01-67 Class A **RPV Closure Stud 2RPV-STUD-22** NDE-25 MT CS 7.000 NC E 8871-179-001 2RPV-179-101-22 B06.030.022A 57.688 CNM 2201.01-67

Class A

••••••••••••••••••••••••••••••••••••••	/ B-G-1, Pressur					TECHNICA	L SERVICES	n		Plan Report
Reactor Ve	essel				Cataw	/ba 2				Page 9
				Inservice l	nspection P	lan for Int	erval 2 Outag	ge 4		12/06/2001
ITEM NUMBER	ID NUMBER	SYS	ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	H DIA/THK CA	L BLOCKS	COMMENTS	
B06.030.023	2RPV-179-101-23	NC	E 8871-179-001 CNM 2201.01-67	PDI-UT-5	UT	CS	7.000 57.688	50501	RPV Closure Stud 2RPV-STUD-23	
Class A										
B06.030.023A	2RPV-179-101-23	NC	E 8871-179-001 CNM 2201.01-67	NDE-25	MT	CS	7.000 57.688		RPV Closure Stud 2RPV-STUD-23	
Class A										
B06.030.024	2RPV-179-101-24	NC	E 8871-179-001 CNM 2201.01-67	PDI-UT-5	UT	CS	7.000 57.688	50501	RPV Closure Stud 2RPV-STUD-24	
Class A										
B06.030.024A	2RPV-179-101-24	NC	E 8871-179-001 CNM 2201.01-67	NDE-25	MT	CS	7.000 57.688		RPV Closure Stud 2RPV-STUD-24	<u> </u>
Class A										
B06.030.025	2RPV-179-101-25	NC	E 8871-179-001 CNM 2201.01-67	PDI-UT-5	UT	CS	7.000 57.688	50501	RPV Closure Stud 2RPV-STUD-25	
Class A										
B06.030.025A	2RPV-179-101-25	NC	E 8871-179-001 CNM 2201.01-67	NDE-25	MT	CS	7.000 57.688		RPV Closure Stud 2RPV-STUD-25	
Class A										
B06.030.026	2RPV-179-101-26	NC	E 8871-179-001 CNM 2201.01-67	PDI-UT-5	UT	CS	7.000 57.688	50501	RPV Closure Stud 2RPV-STUD-26	
Class A										
B06.030.026A	2RPV-179-101-26	NC	E 8871-179-001 CNM 2201.01-67	NDE-25	MT	CS	7.000 57.688		RPV Closure Stud 2RPV-STUD-26	
Class A										
B06.030.027	2RPV-179-101-27	NC	E 8871-179-001 CNM 2201.01-67	PDI-UT-5	UT	CS	7.000 57.688	50501	RPV Closure Stud 2RPV-STUD-27	
Class A										

CATEGORY B-G-1, Pressure Retaining

Bolting, Gre	eater than 2" In	Diam	neter	Inservice Insp	ection Data	oase Manage	ment System			Plan Report
Reactor Ve					Cataw					Page 10 12/06/2001
				inservice l		12/06/2001				
ITEM NUMBER			SISO/DWG NUMBERS	PROC			DIA/THK CAI	L BLOCKS	COMMENTS	
B06.030.027A	2RPV-179-101-27	NC	E 8871-179-001 CNM 2201.01-67	NDE-25	MT	CS	7.000 57.688		RPV Closure Stud 2RPV-STUD-27	
Class A										
B06.030.028	2RPV-179-101-28	NC	E 8871-179-001 CNM 2201.01-67	PDI-UT-5	UT	CS	7.000 57.688	50501	RPV Closure Stud 2RPV-STUD-28	
Class A			GNW 2201.01-07				••••••			
B06.030.028A	2RPV-179-101-28	NC	E 8871-179-001 CNM 2201.01-67	NDE-25	MT	CS	7.000 57.688		RPV Closure Stud 2RPV-STUD-28	
Class A										
B06.030.029	2RPV-179-101-29	NC	E 8871-179-001 CNM 2201.01-67	PDI-UT-5	UT	CS	7.000 57.688	50501	RPV Closure Stud 2RPV-STUD-29	
Class A										
B06.030.029A	2RPV-179-101-29	NC	E 8871-179-001 CNM 2201.01-67	NDE-25	MT	CS	7.000 57.688		RPV Closure Stud 2RPV-STUD-29	
Class A										
B06.030.030	2RPV-179-101-30	NC	E 8871-179-001 CNM 2201.01-67	PDI-UT-5	UT	CS	7.000 57.688	50501	RPV Closure Stud 2RPV-STUD-30	
Class A										
B06.030.030A	2RPV-179-101-30	NC	E 8871-179-001 CNM 2201.01-67	NDE-25	MT	CS	7.000 57.688		RPV Closure Stud 2RPV-STUD-30	
Class A										
B06.030.031	2RPV-179-101-31	NC	E 8871-179-001 CNM 2201.01-67	PDI-UT-5	UT	CS	7.000 57.688	50501	RPV Closure Stud 2RPV-STUD-31	
Class A										
B06.030.031A	2RPV-179-101-31	NC	E 8871-179-001 CNM 2201.01-67	NDE-25	MT	CS	7.000 57.688	<u></u>	RPV Closure Stud 2RPV-STUD-31	
Class A										

CATEGORY B-G-1, Pressure Retaining

	eater than 2" In		Inservice Insp	pection Data			n		Plan Report
Reactor V	<u>essel</u>			Cataw					Page 11 12/06/2001
				nspection P			12/00/2001		
ITEM NUMBER	R ID NUMBER	SYS ISO/DWG NUMBERS	PROC	INSP REQ		DIA/THK CA		COMMENTS	
B06.030.032	2RPV-179-101-32	NC E 8871-179-001 CNM 2201.01-67	PDI-UT-5	UT	CS	7.000 57.688	50501	RPV Closure Stud 2RPV-STUD-32	
Class A									
B06.030.032A	2RPV-179-101-32	NC E 8871-179-001 CNM 2201.01-67	NDE-25	MT	CS	7.000 57.688		RPV Closure Stud 2RPV-STUD-32	
Class A									
B06.030.033	2RPV-179-101-S2	NC E 8871-179-001 CNM 2201.01-67	PDI-UT-5	UT	CS	7.000 57.688	50501	RPV Closure Stud 2RPV-STUD-S2	
Class A									
B06.030.033A	2RPV-179-101-S2	NC E 8871-179-001 CNM 2201.01-67	NDE-25	MT	CS	7.000 57.688	· · · · · · · · · · ·	RPV Closure Stud 2RPV-STUD-S2	<u>,</u>
Class A									
B06.030.034	2RPV-179-101-34	NC E 8871-179-001 CNM 2201.01-67	PDI-UT-5	UT	CS	7.000 57.688	50501	RPV Closure Stud 2RPV-STUD-34	
Class A									
B06.030.034A	2RPV-179-101-34	NC E 8871-179-001 CNM 2201.01-67	NDE-25	MT	CS	7.000 57.688		RPV Closure Stud 2RPV-STUD-34	
Class A									
B06.030.035	2RPV-179-101-35	NC E 8871-179-001 CNM 2201.01-67	PDI-UT-5	UT	CS	7.000 57.688	50501	RPV Closure Stud 2RPV-STUD-35	
Class A									
B06.030.035A	2RPV-179-101-35	NC E 8871-179-001 CNM 2201.01-67	NDE-25	M⊤	CS	7.000 57.688		RPV Closure Stud 2RPV-STUD-35	
Class A									
B06.030.036	2RPV-179-101-36	NC E 8871-179-001 CNM 2201.01-67	PDI-UT-5	UT	CS	7.000 57.688	50501	RPV Closure Stud 2RPV-STUD-36	
Class A									

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DUKE ENERGY CORPORATION QUALITY ASSURANCE TECHNICAL SERVICES

	B-G-1, Pressur ater than 2" In I		QUALITY ASSURANCE TECHNICAL SERVICES Inservice Inspection Database Management System						
Reactor Vessel					Page 12 12/06/2001				
			Inservice I	nspection P	lan for Inte	rval 2 Outage 4		12/00/2001	
ITEM NUMBER	ID NUMBER	SYS ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK CAL BLOCKS	COMMENTS		
B06.030.036A	2RPV-179-101-36	NC E 8871-179-001	NDE-25	MT	CS	7.000	RPV Closure Stud 2RPV-STUD-36		
		CNM 2201.01-67				57.688			
Class A									

Total B06.030 Items: 36

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Reactor Ve	eater than 2" In essel	Diameter		Cataw	/ba 2	gement System erval 2 Outag			Plan Report Page 13 12/06/2001
ITEM NUMBER	ID NUMBER	SYS ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCI	H DIA/THK CA	L BLOCKS	COMMENTS	
**** Threads	in Flange ****								
B06.040.019	2RPV-THREAD-19	NC E 8871-126-002 CNM 2201.01-52	NDE-640	UT	CS	7.000 12.000	40387	Threads in RPV Flange	
Class A									
B06.040.020	2RPV-THREAD-20	NC E 8871-126-002 CNM 2201.01-52	NDE-640	UT	CS	7.000 12.000	40387	Threads in RPV Flange	
Class A									
B06.040.021	2RPV-THREAD-21	NC E 8871-126-002 CNM 2201.01-52	NDE-640	UT	CS	7.000 12.000	40387	Threads in RPV Flange	
Class A									
B06.040.022	2RPV-THREAD-22	NC E 8871-126-002 CNM 2201.01-52	NDE-640	UT	CS	7.000 12.000	40387	Threads in RPV Flange	
Class A									
B06.040.023	2RPV-THREAD-23	NC E 8871-126-002 CNM 2201.01-52	NDE-640	UT	CS	7.000 12.000	40387	Threads in RPV Flange	
Class A									
B06.040.024	2RPV-THREAD-24	NC E 8871-126-002 CNM 2201.01-52	NDE-640	UT	CS	7.000 12.000	40387	Threads in RPV Flange	
Class A									
B06.040.025	2RPV-THREAD-25	NC E 8871-126-002 CNM 2201.01-52	NDE-640	UT	CS	7.000 12.000	40387	Threads in RPV Flange	
Class A									
B06.040.026	2RPV-THREAD-26	NC E 8871-126-002 CNM 2201.01-52	NDE-640	UT	CS	7.000 12.000	40387	Threads in RPV Flange	
Class A									

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Class A

CATEGOR	<u> / B-G-1, Pressur</u>	<u>e Re</u>	etaining		KE ENERGY		ATION AL SERVICES			
Bolting, Gro	eater than 2" In	Diam	neter	Inservice Insp			agement System			Plan Report
Reactor V	essel				Cataw					Page 14 12/06/2001
					-		nterval 2 Outage			12/00/2001
ITEM NUMBER	ID NUMBER	SYS	S ISO/DWG NUMBERS	PROC	INSP REQ		CH DIA/THK CAL		COMMENTS	
B06.040.027	2RPV-THREAD-27	NC	E 8871-126-002 CNM 2201.01-52	NDE-640	UT	CS	7.000 12.000	40387	Threads in RPV Flange	
Class A										
B06.040.028	2RPV-THREAD-28	NC	E 8871-126-002 CNM 2201.01-52	NDE-640	UT	CS	7.000 12.000	40387	Threads in RPV Flange	
Class A										
B06.040.029	2RPV-THREAD-29	NC	E 8871-126-002 CNM 2201.01-52	NDE-640	UT	CS	7.000 12.000	40387	Threads in RPV Flange	
Class A										
B06.040.030	2RPV-THREAD-30	NC	E 8871-126-002 CNM 2201.01-52	NDE-640	UT	CS	7.000 12.000	40387	Threads in RPV Flange	
Class A										
B06.040.031	2RPV-THREAD-31	NC	E 8871-126-002 CNM 2201.01-52	NDE-640	UT	CS	7.000 12.000	40387	Threads in RPV Flange	
Class A										
B06.040.032	2RPV-THREAD-32	NC	E 8871-126-002 CNM 2201.01-52	NDE-640	UT	CS	7.000 12.000	40387	Threads in RPV Flange	
Class A										
B06.040.033	2RPV-THREAD-33	NC	E 8871-126-002 CNM 2201.01-52	NDE-640	UT	CS	7.000 12.000	40387	Threads in RPV Flange	
Class A										
B06.040.034	2RPV-THREAD-34	NC	E 8871-126-002 CNM 2201.01-52	NDE-640	UT	CS	7.000 12.000	40387	Threads in RPV Flange	
Class A										
B06.040.035	2RPV-THREAD-35	NC	E 8871-126-002 CNM 2201.01-52	NDE-640	UT	CS	7.000 12.000	40387	Threads in RPV Flange	
Class A										

EOC	11	
EUC	11	

DUKE ENERGY CORPORATION **CATEGORY B-G-1, Pressure Retaining** QUALITY ASSURANCE TECHNICAL SERVICES Inservice Inspection Database Management System Bolting, Greater than 2" In Diameter Plan Report Page 15 Catawba 2 Reactor Vessel 12/06/2001 Inservice Inspection Plan for Interval 2 Outage 4 INSP REQ MAT/SCH DIA/THK CAL BLOCKS COMMENTS PROC ITEM NUMBER ID NUMBER SYS ISO/DWG NUMBERS Threads in RPV Flange UT CS 7.000 40387 2RPV-THREAD-36 NC E 8871-126-002 NDE-640 B06.040.036 12.000 CNM 2201.01-52 Class A

Total B06.040 Items: 18

DUKE ENERGY CORPORATION **CATEGORY B-G-1.** Pressure Retaining QUALITY ASSURANCE TECHNICAL SERVICES Inservice Inspection Database Management System Bolting, Greater than 2" In Diameter **Plan Report** Page 16 Catawba 2 Reactor Vessel 12/06/2001 Inservice Inspection Plan for Interval 2 Outage 4 INSP REQ MAT/SCH DIA/THK CAL BLOCKS COMMENTS SYS ISO/DWG NUMBERS PROC ITEM NUMBER ID NUMBER **** Closure Washers, Bushings **** **RPV Closure Head Washer 2RPV-Washer-19 QAL-13** VT-1 CS 10.560 B06.050.019 2RPV-179-103-19 NC E 8871-179-001 1.719 CNM 2201.01-67 Class A **BPV Closure Head Washer 2BPV-Washer-20A** NC E 8871-179-001 **QAL-13** VT-1 CS 10.560 2RPV-179-103-20A B06.050.020 1.719 CNM 2201.01-67 Class A **RPV Closure Head Washer 2RPV-Washer-21A** QAL-13 VT-1 CS 10.560 2RPV-179-103-21A NC E 8871-179-001 B06.050.021 1.719 CNM 2201.01-67 Class A **RPV Closure Head Washer 2RPV-Washer-22 QAL-13** VT-1 CS 10.560 2RPV-179-103-22 NC E 8871-179-001 B06.050.022 1.719 CNM 2201.01-67 Class A **RPV Closure Head Washer 2RPV-Washer-23** CS 10.560 2BPV-179-103-23 NC E 8871-179-001 QAL-13 VT-1 B06.050.023 1.719 CNM 2201.01-67 Class A **RPV Closure Head Washer 2RPV-Washer-24** CS 10.560 NC E 8871-179-001 **QAL-13** VT-1 2RPV-179-103-24 B06.050.024 1.719 CNM 2201.01-67 Class A **RPV Closure Head Washer 2RPV-Washer-25** NC E 8871-179-001 QAL-13 VT-1 CS 10.560 B06.050.025 2RPV-179-103-25 1.719 CNM 2201.01-67 Class A QAL-13 VT-1 CS 10.560 RPV Closure Head Washer 2RPV-Washer-26 2RPV-179-103-26 NC E 8871-179-001 B06.050.026 1.719 CNM 2201.01-67

Class A

DUKE ENERGY CORPORATION **CATEGORY B-G-1.** Pressure Retaining QUALITY ASSURANCE TECHNICAL SERVICES Inservice Inspection Database Management System Bolting, Greater than 2" In Diameter **Plan Report** Page 17 Catawba 2 Reactor Vessel 12/06/2001 Inservice Inspection Plan for Interval 2 Outage 4 INSP REQ MAT/SCH DIA/THK CAL BLOCKS COMMENTS PROC ITEM NUMBER ID NUMBER SYS ISO/DWG NUMBERS **RPV Closure Head Washer 2RPV-Washer-27 QAL-13 VT-1** CS 10.560 NC E 8871-179-001 2BPV-179-103-27 B06.050.027 1.719 CNM 2201.01-67 Class A **RPV Closure Head Washer 2RPV-Washer-28** VT-1 CS 10.560 **QAL-13** 2BPV-179-103-28 NC E 8871-179-001 B06.050.028 1.719 CNM 2201.01-67 Class A **RPV Closure Head Washer 2RPV-Washer-29** VT-1 CS 10.560 **QAL-13** NC E 8871-179-001 2RPV-179-103-29 B06.050.029 1.719 CNM 2201.01-67 Class A **RPV Closure Head Washer 2RPV-Washer-30** VT-1 CS 10.560 **QAL-13** 2BPV-179-103-30 NC E 8871-179-001 B06.050.030 1.719 CNM 2201.01-67 Class A **RPV Closure Head Washer 2RPV-Washer-31** 10.560 **QAL-13** VT-1 CS NC E 8871-179-001 2RPV-179-103-31 B06.050.031 1.719 CNM 2201.01-67 Class A **RPV Closure Head Washer 2RPV-Washer-32 QAL-13** VT-1 CS 10.560 NC E 8871-179-001 B06.050.032 2RPV-179-103-32 1.719 CNM 2201.01-67 Class A **RPV Closure Head Washer 2RPV-Washer-S2 QAL-13** VT-1 CS 10.560 NC E 8871-179-001 2RPV-179-103-S2 B06.050.033 1.719 CNM 2201.01-67 Class A **RPV Closure Head Washer 2RPV-Washer-34** VT-1 CS 10.560 NC E 8871-179-001 **QAL-13** B06.050.034 2RPV-179-103-34 1.719 CNM 2201.01-67

Class A

RPV Closure Head Washer 2RPV-Washer-35 NC E 8871-179-001 QAL-13 **VT-1** CS 10.560 B06.050.035 2RPV-179-103-35 1.719 CNM 2201.01-67

Class A

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DUKE ENERGY CORPORATION QUALITY ASSURANCE TECHNICAL SERVICES

CATEGORY B-G-1, Pressure Retaining Bolting, Greater than 2" In Diameter			QUALITY A		Plan Report			
Reactor Ve	essel		Inservice I	Cataw nspection P			Page 18 12/06/2001	
ITEM NUMBER	ID NUMBER	SYS ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	I DIA/THK CAL BLOCKS	COMMENTS	····
B06.050.036	2RPV-179-103-36	NC E 8871-179-001 CNM 2201.01-67	QAL-13	VT-1	CS	10.560 1.719	RPV Closure Head Washer 2RPV-	Washer-36
Class A								

Total B06.050 Items: 18 Total B06 Items: 90

DUKE ENERGY CORPORATION CATEGORY B-G-2, Pressure Retaining QUALITY ASSURANCE TECHNICAL SERVICES Bolting, 2" And Less In Diameter Inservice Inspection Database Management System **Plan Report** Page 19 Catawba 2 Valves 12/06/2001 Inservice Inspection Plan for Interval 2 Outage 4 INSP REQ MAT/SCH DIA/THK CAL BLOCKS COMMENTS SYS ISO/DWG NUMBERS PROC ID NUMBER ITEM NUMBER **** Bolts, Studs, and Nuts **** 10" Valve 18 Studs, 18 Nuts CN-2NI-59 QAL-13 1.630 VT-1 SS B07.070.021 2NI-54A NI 10.500 CNM-1205.00-71 Class A 10" Valve 18 Studs, 18 Nuts CN-2NI-184 QAL-13 VT-1 1.630 SS B07.070.022 2NI-59 NI 10.500 CNM-1205.00-62 Class A Total B07.070 Items: 2 2

Total B07 items:

DUKE ENERGY CORPORATION QUALITY ASSURANCE TECHNICAL SERVICES Inservice Inspection Database Management System

Catawba 2

Plan Report Page 20 12/06/2001

Vessels Pressurizer

CATEGORY B-H, Integral Attachments for

Pressurize	er								
				Inservice I	nspection P	lan for Inte	erval 2 Outa	ge 4	12/06/2001
	R ID N	UMBER	SYS ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK C/	AL BLOCKS	COMMENTS
**** Integrall	y Welded A	ttachme	nts ****						
B08.020.001	2PZR-SKIF		CNM 1201.01-66	NDE-25	MT	CS	87.000 1.500		Pressurizer Support Skirt to Lower Head. An ultrasonic examination shall be performed to obtain additional coverage on ID surface (C-D). Referenc
Class A									Request for Relief Serial No. 94-04
B08.020.001A	2PZR-SKIF	RT	CNM 1201.01-66	NDE-952	UT	CS	87.000 1.500	50237B	Pressurizer Support Skirt to Lower Head. An ultrasonic examination shall be performed to obtain
Class A									additional coverage on ID surface (C-D). Referenc Request for Relief Serial No. 94-04
Total B08.02	0 Items:	2			<u> </u>				
Total B08 Ite	ems:	2							

EOC 11	_				<u>,</u>				(N ₁	
Piping	(B-J, Pressure Re	<u>eta</u> i			SSURANCE	CORPORAT	SERVICES			Plan Report	
NPS 4 or La	arder				Cataw	vba 2				Page 21	
				Inservice lr	nspection P	vlan for Inte	erval 2 Outage	4	12/06/2		
ITEM NUMBER	ID NUMBER	SYS	S ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK CAL	BLOCKS	COMMENTS		
**** Circumfer	erential Welds ****										
B09.011.047 Cire			CN-2NC-8 CN-2553-1.1	NDE-600	UT Pipe to	SS 160	14.000 1.406	*	CNM 2201.01-95 P6 To P5 * Reference General Requiremer	nts Section 8.1.10	
Class A					Pipe to Pipe						
	2NC8-2 I ircumferential		CN-2NC-8 CN-2553-1.1	NDE-35	PT	SS 160	14.000 1.406		CNM 2201.01-95 P6 To P5		
Class A					Pipe to Pipe						
	2NC8-3 I ircumferential	NC	CN-2NC-8 CN-2553-1.1	NDE-600	UT	SS 160	14.000 1.406	*	CNM 2201.01-95 PZF * Reference General Requirement	R TO P1 nts Section 8.1.10	
Class A					Pipe to PZR No	o ozzle SE					
	2NC8-3	NC	CN-2NC-8 CN-2553-1.1	NDE-35	PT	SS 160	14.000 1.406		CNM 2201.01-95 PZF	R TO P1	
Class A					Pipe to PZR No	o ozzle SE					
	2NI74-1 Sircumferential	NI	CN-2NI-74 CN-2562-1.1	NDE-600	UT	SS 160	6.000 0.719	*	* Reference General Requirement	nts Section 8.1.10	
Class A					90 Degr Pipe	ree Elbow to					
	2NI74-1 Circumferential	NI	CN-2NI-74 CN-2562-1.1	NDE-35	PT	SS 160	6.000 0.719				
Class A					90 Degi Pipe	gree Elbow to					
		NI		NDE-600	UT	SS 160	6.000 0.719	*	* Reference General Requireme	nts Section 8.1.10	
Class A	Dircumferential		CN-2562-1.1		90 Degi Pipe	gree Elbow to	0.710				
	2NI74-11 Circumferential	NI	CN-2NI-74 CN-2562-1.1	NDE-35	PT 90 Degi Pipe	SS 160 gree Elbow to	6.000 0.719				

CATEGORY B-J, Pressure Retaining Welds In

DUKE ENERGY CORPORATION QUALITY ASSURANCE TECHNICAL SERVICES

QUALITY ASSURANCE TECHNICAL SERVICES

Piping			-	Inservice Insp	ection Datal	base Manag	ement System	Plan Report
NPS 4 or	Larger				Catav	vba 2		Page 22
	<u></u>			Inservice II	nspection F	Plan for Inte	erval 2 Outage 4	12/06/2001
	ER ID NUMBER	SY	S ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK CAL BLOC	KS COMMENTS
B09.011.089	2NI74-3	NI	CN-2NI-74	NDE-600	UT	SS	6.000 *	* Reference General Requirements Section 8.1.10
	Circumferential		CN-2562-1.1			160	0.719	
Class A					_	ree Elbow to		
					Pipe			
B09.011.089A	2NI74-3	NI		NDE-35	PT	SS	6.000	
	Circumferential		CN-2562-1.1		45 D	160	0.719	
Class A					45 Degi Pipe	ree Elbow to		
					· · · · · · · · · · · · · · · · · · ·		6.000 *	t Deference Consul Dequirements Section 9 1 10
B09.011.090	2NI74-9	NI	CN-2NI-74	NDE-600	UT	SS 160	6.000 * 0.719	* Reference General Requirements Section 8.1.10
	Circumferential		CN-2562-1.1		Pipe to		0.719	
Class A					-	ree Elbow		
B09.011.090A	2NI74-9	NI	CN-2NI-74	NDE-35	PT	SS	6.000	
B09.011.090A	Circumferential	INI	CN-2562-1.1	NDE 00		160	0.719	
Class A	Onodimercial		011 2002 111		Pipe to			
Chabb / Y					90 Deg	ree Elbow		
B09.011.093	2NI91-5	NI	CN-2NI-91	NDE-600	UT	SS	8.000 *	* Reference General Requirements Section 8.1.10
	Circumferential		CN-2562-1.2			160	0.906	
Class A					Pipe to			
					90 Deg	ree Elbow	·····	
B09.011.093A	A 2NI91-5	NI	CN-2NI-91	NDE-35	PT	SS	8.000	
	Circumferential		CN-2562-1.2		_	160	0.906	
Class A					Pipe to			
						ree Elbow		
B09.011.094	2NI91-7	NI	CN-2NI-91	NDE-600	UT	SS	8.000 *	* Reference General Requirements Section 8.1.10
	Circumferential		CN-2562-1.2		Dine to	160	0.906	
Class A					Pipe to 90 Deg	ree Elbow		
							8.000	
B09.011.094/		NI		NDE-35	PT	SS 160	8.000 0.906	
	Circumferential		CN-2562-1.2		Pipe to		0.000	
Class A					•	ree Elbow		
B09.011.095	2NI91-9	NI	CN-2NI-91	NDE-600	 UT	SS	8.000 *	* Reference General Requirements Section 8.1.10
200.011.000	Circumferential		CN-2562-1.2			160	0.906	•
Class A					Pipe to			
					90 Deg	ree Elbow		

FOC	44	
EOC	11	

DUKE ENERGY CORPORATION CATEGORY B-J, Pressure Retaining Welds In QUALITY ASSURANCE TECHNICAL SERVICES

Piping		lotaning rolao in	Inservice Ins		Plan Report					
	NPS 4 or Larger			Catawba 2						
			Inservice I	nspection P	lan for Ir	nterval 2 Outage 4		12/06/2001		
ITEM NUMBER	ID NUMBER	SYS ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SC	CH DIA/THK CAL BLOCKS	COMMENTS			
B09.011.095A 2NI91	-9	NI CN-2NI-91	NDE-35	PT	SS	8.000				
Circumfe	rential	CN-2562-1.2			160	0.906				
Class A				Pipe to						
				90 Degr	ee Elbow		·····			

Total B09.011 Items: 18

EOC 11 (CATEGORY B- Piping	-J, Pressure P	Retaining Welds In	DU QUALITY A Inservice Ins		Pian Report			
Less Than NP	S 4			Cataw	vba 2			Page 24
	<u></u>		Inservice I	nspection P	lan for Inte	rval 2 Outage 4		12/06/2001
ITEM NUMBER	ID NUMBER	SYS ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK CAL BLOCKS	COMMENTS	
**** Circumferen	tial Welds ****							
309.021.028 2N	1396-5	NI CN-2NI-396	NDE-35	PT	SS	2.000		
Circur	nferential	CN-2562-1.2			160	0.344		
Class A				4X2 Red	ducer to			
0.0007.				Pipe				

EOC 11		Dete	ining Wolds In		KE ENERGY				
	Y B-J, Pressure	Rela					AL SERVICES agement System		Dian Banart
<u>Piping</u>							agomoni o jotom		Plan Report Page 25
Branch Pipe Connection Welds Inservice Inspection Plan for Interval 2 Outage 4								12/06/2001	
		0.14		PROC			CH DIA/THK CAL BLC	CKS COMMENTS	
ITEM NUMBE		513	S ISO/DWG NUMBERS	PROC	INSP NEQ	WA1750		OKS COMMENTS	
**** NPS 4 c	or Larger ****								
B09.031.003	2NC13-WN9	NC	CN-2NC-13	NDE-610	UT	SS	12.000 5038	36 CNM 2201.01-104/7 Nozzle B to P1	
-	Branch		CN-2553-1.0		Nozzle	140	2.300	NOZZIE BIO PI	
Class A					Pipe	10			
							10.000	CNM 2201.01-104/7	
B09.031.003A		NC	CN-2NC-13	NDE-35	PT	SS 140	12.000 2.300	Nozzle B to P1	
	Branch		CN-2553-1.0		Nozzle		2.500		
Class A					Pipe	10			
Total B09.0	31 Items: 2								
	······································		· · · · · · · · · · · · · · · · · · ·		<u></u>			, <u>_, _, _, _, _, _, _, _, _, _, _, _, _, _</u>	
	nan NPS 4 ****								
B09.032.001	2NC13-WN4	NC	CN-2NC-13	NDE-35	PT	SS	2.000	CNM 2201.01-104/9 Nozzle E to P1	
	Branch		CN-2553-1.0		Nozzle	160 to	1.355	NOZZIE E IO F I	
Class A					Pipe	10			
						00	1.500	CNM 2201.01-104/9	
B09.032.004	2NC13-WN8A	NC	CN-2NC-13	NDE-35	PT	SS 160	1.081	Nozzle C to P1	
	Branch		CN-2553-1.0		Nozzle		1.001		
Class A					Pipe				
B09.032.006	2NC9-WN6	NC	CN-2NC-9	NDE-35	PT	SS	2.000	CNM 2201.01-104/2	
	Branch	NO	CN-2553-1.0			160	1.355	Nozzle D to P2	
Class A			014 2000-110		Nozzle				
VIQ33 A					Pipe				

EOC	44	
EUC	11	

	RY B-J, Pressure	Reta		QUALITY /	ASSURANCE	CORPORATIO	SERVICES		
<u>Piping</u>				Inservice Ins	-	base Managen	nent System		Plan Report
Socket	<u>Welds</u>				Cataw		Page 26 12/06/2001		
Inservice Inspection Plan for Interval 2 Outage 4									12/00/2001
ITEM NUMBER ID NUMBER SYS ISO/DWG NUMBERS PROC INSP REQ MAT/SCH DIA/THK CAL BLOCKS COMMENT								COMMENTS	
B09.040.009	2NC74-1	NC	CN-2NC-74	NDE-35	PT	SS	2.000		
	Socket		CN-2553-1.0			160	0.344		
Class A	Stress weld				D-Cross Pipe	over Leg Noz	zle to		
B09.040.010	2NC74-10	NC	CN-2NC-74	NDE-35	PT	SS	2.000		
20010101010	Socket		CN-2553-1.0			160	0.344		
Class A					Tee to Pipe				
B09.040.011	2NC74-12	NC	CN-2NC-74	NDE-35	PT	SS	2.000		
	Socket		CN-2553-1.0			160	0.344		
Class A					Tee to 2X1/2 F	Reducing Insert			
B09.040.012	2NC74-9	NC	CN-2NC-74	NDE-35	PT	SS	2.000		
	Socket		CN-2553-1.0			160	0.344		
Class A					Pipe to Tee				
B09.040.022	2NI295-2	NI	CN-2NI-295	NDE-35	PT	SS	2.000		
	Socket		CN-2562-1.3			160	0.344		
Class A					Pipe to 90 Degi	ree Elbow			
B09.040.023	2NI295-4	NI	CN-2NI-295	NDE-35	PT	SS	2.000		
000.040.020	Socket		CN-2562-1.3			160	0.344		
Class A	Cooker				Pipe to	ı			
0100071					Special	Weld Boss			
B09.040.024	2NI297-3	NI	CN-2NI-297	NDE-35	PT	SS	2.000		
	Socket		CN-2562-1.3			160	0.344		
Class A					Elbow Pipe	90 Degree to			
B09.040.025	2NI297-5	NI	CN-2NI-297	NDE-35	PT	SS	2.000		
	Socket		CN-2562-1.3			160	0.344		
Class A						90 Degree to			
					Pipe				

Piping				<u>ining Welds In</u>		ASSURANCE		ement System		Plan Report
Socket	Welds					Catav	vba 2			Page 27
					Inservice I	Inspection F	Plan for Inte	erval 2 Outage 4		12/06/2001
ITEM NUMB	ER IDN	IUMBER	SYS	S ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK CAL BLOCKS	COMMENTS	
B09.040.026	2NI301-1		NI	CN-2NI-301	NDE-35	PT	SS	2.000		
	Socket			CN-2562-1.3			160	0.344		
Class A										
						Pipe				
B09.040.027	2NI301-4		NI	CN-2NI-301	NDE-35	PT	SS	2.000		
	Socket			CN-2562-1.3			160	0.344		
Class A						Pipe to)			
						Special	Weld Boss			
B09.040.028	2NI304-1		NI	CN-2NI-304	NDE-35	PT	SS	2.000		
	Socket			CN-2562-1.0			160	0.344		
Class A							Red Insert to	o		
						VLV 2N	11354			
B09.040.029	2NI304-3		NI	CN-2NI-304	NDE-35	PT	SS	1.500		
	Socket			CN-2562-1.0			160	0.281		
Class A						2X1 1/2	Red Insert to	D		
						Pipe				
Total B09.	040 Items:	12		······································						an ann a ann a' an feil Mean Meil an Mairt Barain a Mhair An Shini a Mhair An Shini
Total B09	Items:	36								

CATEGORY B-M-2, Valve Bodies

DUKE ENERGY CORPORATION QUALITY ASSURANCE TECHNICAL SERVICES Inservice Inspection Database Management System

				Inservice Ins	pection Datab	base Mana	igement System	Plan Repor
Valves					Cataw	vba 2		Page 25
				12/06/200				
ITEM NUMBER	ID NUMBER	SYS	S ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SC	CH DIA/THK CAL BLOCKS	COMMENTS
**** Valve Bo	dy, Exceeding NPS	4 ***	**					
B12.050.001A	2NC-1	NC	CN-2NC-112 CNM-1205.09-01	QAL-14	VT-3	SS 160	6.000 0.719	Inspect one of the following (2NC-1,2,or 3) if disassembled
Class A								
B12.050.002A	2NC-27	NC	CN-2NC-24	QAL-14	VT-3	SS 160	6.000 0.719	Inspect one of the following (2NC-27,or 29) if disassembled
Class A			CNM-1205.06-41			100	0.719	
B12.050.002B	2NC-29	NC	CN-2NC-33	QAL-14	VT-3	SS	6.000	Inspect one of the following (2NC-27,or 29) if disassembled
Class A			CNM-1205.06-41			160	0.719	uisassembled
B12.050.004E	2NI-175	NI	CN-2NI-70	QAL-14	VT-3	SS	6.000	Inspect one of the following
Class A			CNM-1205.00-63			160	0.719	(2NI126,134,157,160,175,176,180 or 181) if disassembled
B12.050.004G	2NI-180	NI	CN-2NI-145 CNM-1205.00-63	QAL-14	VT-3	SS 160	6.000 0.719	Inspect one of the following (2NI126,134,157,160,175,176,180 or 181) if
Class A								disassembled
B12.050.006B	2NI-60	NI	CN-2NI-184	QAL-14	VT-3	SS 140	10.000 1.000	Inspect one of the following (2NI59,60,70,71,81,82,93, or 94) if disassembled
Class A			CNM-1205.00-62			140	1.000	
B12.050.006E	2NI-81	NI	CN-2NI-55	QAL-14	VT-3	SS	10.000	Inspect one of the following
Class A			CNM-1205.00-62			140	1.000	(2NI59,60,70,71,81,82,93 or 94) if disassembled
			CN-2NI-55	QAL-14	VT-3	SS	10.000	Inspect one of the following
B12.050.006F	2NI-82	NI	CNM-1205.00-62	WAL-14	V 1*3	33 140	1.000	(2NI59,60,70,71,81,82,93 or 94) if disassembled
Close A								

Class A

CATEGORY B-M-2, Valve Bodies

DUKE ENERGY CORPORATION QUALITY ASSURANCE TECHNICAL SERVICES

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		11	nservice Ins	pection Datab	base Manage	ement System	Plan Report
Valves Catawba 2							Page 29
			Inservice	Inspection P	Plan for Inte	erval 2 Outage 4	12/06/2001
ITEM NUMBER ID NU	MBER	SYS ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK CAL BLOCKS	COMMENTS
B12.050.006H 2NI-94		NI CN-2NI-183 CNM-1205.00-62	QAL-14	VT-3	SS 140	10.000 1.000	Inspect one of the following (2NI59,60,70,71,81,82,93 or 94) if disassembled
Class A							
B12.050.007A 2NI-125		NI CN-2NI-94	QAL-14	VT-3	SS	8.000	Inspect one of the following (2NI-125 or 129) if
		CNM-1205.00-59			160	0.906	disassembled
Class A							
Total B12.050 Items:	10						
Total B12 Items:	10						

EOC ⁴	11
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CATEGORY C-A, Pressure Retaining Welds

DUKE ENERGY CORPORATION QUALITY ASSURANCE TECHNICAL SERVICES

Inservice Inspection Database Management System In Pressure Vessels Plan Report Page 30 Catawba 2 Shell Circumferential Welds 12/06/2001 Inservice Inspection Plan for Interval 2 Outage 4 COMMENTS PROC INSP REQ MAT/SCH DIA/THK CAL BLOCKS ID NUMBER SYS ISO/DWG NUMBERS **ITEM NUMBER** Steam Generator 2D Transition Cone To Upper CS 50366 NDE-620 0.000 NC CN-2553-1.0 UT C01.010.003 2SGD-05-06A Shell PC, 5 To PC, 6A 4.000 50236A CNM 2201.01-114 Circumferential Depending upon the examiner's qualifications, Transition Cone to Class B Procedure PDI-UT-6 may be used in lieu of Upper Shell Procedure NDE-620. Seal Water Heat Exchanger Shell To Flange PC. 5 SS 20.000 NDE-35* PT 2SWHX-5-3 NV CN-2554-1.6 C01.010.005 To PC. 3 0.187 Circumferential CNM 1201.06-50 Shell to Class B * Reference General Requirements Section 1.2.2 Flange Total C01.010 Items: 2

DUKE ENERGY CORPORATION QUALITY ASSURANCE TECHNICAL SERVICES

In Pressure Vessels

Head Circumferential Welds

CATEGORY C-A, Pressure Retaining Welds

4

Inservice Inspection Database Management System

Catawba 2

Plan Report Page 31 12/06/2001

Inservice Inspection Plan for Interval 2 Outage 4								
ITEM NUMBER	ID NUMBER	SYS ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SC	h dia/thk ca	AL BLOCKS	COMMENTS
C01.020.002	2ELDHX-HD-FLG	NV CN-2554-1.0 CNM 1201.06-37	NDE-630	UT	SS-CS	9.500 0.750	CB0803	Excess Letdown Heat Exchanger Elliptical Head To Flange
Class B				Head to Flange				
C01.020.016 Ci	2SWHX-5-6 ircumferential	NV CN-2554-1.6 CNM 1201.06-50	NDE-35*	PT	SS	20.000 0.187		Seal Water Heat Exchanger Shell To Head PC. 5 To PC. 6
Class B				Shell to Head				* Reference General Requirements Section 1.2.2
Total C01.020) Items: 2			. <u>.</u>				

Total C01 Items:

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EUC		

DUKE ENERGY CORPORATION QUALITY ASSURANCE TECHNICAL SERVICES

Inservice Inspection Database Management System Welds In Vessels Plan Report Catawba 2 Page 32 Nozzles in Vessels <= 1/2 in. Nominal Thickness 12/06/2001 Inservice Inspection Plan for Interval 2 Outage 4 INSP REQ MAT/SCH DIA/THK CAL BLOCKS ID NUMBER PROC COMMENTS ITEM NUMBER SYS ISO/DWG NUMBERS **** Nozzie-to-Shell (or Head) Weld **** Seal Water Heat Exchanger Inlet Nozzle To Shell 2SWHX-5-A NDE-35 PT SS 4.000 C02.011.001 NV PC. 5 To PC. A 0.237 CN-2554-1.6 Circumferential Nozzle to CNM 1201.06-50 Class B Shell Seal Water Heat Exchanger Outlet Nozzle To Shell NDE-35 PT SS 4.000 C02.011.002 2SWHX-5-B NV PC. 5 To PC. B 0.237 CN-2554-1.6 Circumferential Nozzle to CNM 1201.06-50 Class B Shell 2

Total C02.011 Items:

CATEGORY C-B, Pressure Retaining Nozzle

DUKE ENERGY CORPORATION CATEGORY C-B. Pressure Retaining Nozzle QUALITY ASSURANCE TECHNICAL SERVICES Inservice Inspection Database Management System Welds In Vessels Plan Report Page 33 Catawba 2 Nozzles Without Reinforcing Plate In Vessels > 12/06/2001 Inservice Inspection Plan for Interval 2 Outage 4 1/2 in. Nom. Thickness INSP REQ MAT/SCH DIA/THK CAL BLOCKS COMMENTS PROC SYS ISO/DWG NUMBERS ITEM NUMBER ID NUMBER **** Nozzie-to-Shell (or Head) Weld **** Steam Generator 2B Auxiliary FDWTR Nozzle To 50366 UT CS 6.000 NDE-620 C02.021.001 2SGB-06A-18 NC 3.890 50236A Shell CNM-2201.01-102/1 Circumferential PC. 6A To PC. 18 Nozzle to CNM-2201.01-106/1 Class B Depending upon the examiner's qualifications. Shell Procedure PDI-UT-6 may be used in lieu of Procedure NDE-620. Steam Generator 2B Auxiliary FDWTR Nozzle To CS 6.000 MT NC NDE-25 C02.021.001A 2SGB-06A-18 Shell 3.890 CNM-2201.01-102/1 Circumferential PC. 6A To PC. 18 Nozzle to CNM-2201.01-106/1 Class B Shell 50380 Containment Spray Heat Exchanger 2B Inlet Nozzle UT SS 12.000 NDE-630 NS CN-2563-1.0 C02.021.004 2BNSHX-3-N1 To Channel 0.500 CNM 1201.06-0090 Circumferential PC. 3 To PC. N1 Inlet Nozzle to CNM 2201.06-2 Class B Channel Containment Spray Heat Exchanger 2B Inlet Nozzle 12.000 NDE-35 PT SS C02.021.004A 2BNSHX-3-N1 NS CN-2563-1.0 To Channel 0.500 CNM 1201.06-0090 Circumferential PC. 3 To PC. N1 Inlet Nozzle to CNM 2201.06-2 Class B Channel Containment Spray Heat Exchanger 2B Outlet UT SS 12.000 50380 2BNSHX-3-N2 NS CN-2563-1.0 NDE-630 C02.021.005 Nozzle To Channel 0.500 CNM 1201.06-0090 Circumferential PC. 3 To PC. N2 Outlet Nozzle to CNM 2201.06-2 Class B Channel Containment Spray Heat Exchanger 2B Outlet SS 12.000 PT C02.021.005A 2BNSHX-3-N2 NS CN-2563-1.0 **NDE-35** Nozzle To Channel 0.500 CNM 1201.06-0090 Circumferential PC: 3 To PC: N2 Outlet Nozzle to CNM 2201.06-2 Class B Channel 6

Total C02.021 Items: 8

Total C02 Items:

<u>chments For</u> /alves				. SERVICES ement System		Plan Report			
Vessels, Piping, Pumps, And Valves Pressure Vessels			Catawba 2						
	Inservice i	nspection P	lan for Inte	rval 2 Outage 4	12/06/				
/S ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK CAL BLOCKS	COMMENTS				

D CN-2554-1.6	NDE-35	PT	SS	0.000	•				
CNM 1201.06-50				0.750	PC. 5 To PC. 31 And PC.	32 (One Each Side)			
		Shell to							
		Support							
¥	YS ISO/DWG NUMBERS **** D CN-2554-1.6	Inservice I YS ISO/DWG NUMBERS PROC **** D CN-2554-1.6 NDE-35	Cataw Inservice Inspection P YS ISO/DWG NUMBERS PROC INSP REQ **** D CN-2554-1.6 NDE-35 PT CNM 1201.06-50 Shell to	Catawba 2 Inservice Inspection Plan for Inter YS ISO/DWG NUMBERS PROC INSP REQ MAT/SCH **** D CN-2554-1.6 NDE-35 PT SS CNM 1201.06-50 Shell to	Catawba 2 Inservice Inspection Plan for Interval 2 Outage 4 YS ISO/DWG NUMBERS PROC INSP REQ MAT/SCH DIA/THK CAL BLOCKS *****	Catawba 2 Inservice Inspection Plan for Interval 2 Outage 4 YS ISO/DWG NUMBERS PROC INSP REQ MAT/SCH DIA/THK CAL BLOCKS COMMENTS *****			

EOC	11	
EUU		

DUKE ENERGY CORPORATION CATEGORY C-C, Integral Attachments For QUALITY ASSURANCE TECHNICAL SERVICES Vessels, Piping, Pumps, And Valves Inservice Inspection Database Management System Plan Report Page 35 Catawba 2 Piping 12/06/2001 Inservice Inspection Plan for Interval 2 Outage 4 INSP REQ MAT/SCH DIA/THK CAL BLOCKS COMMENTS SYS ISO/DWG NUMBERS PROC ITEM NUMBER ID NUMBER **** Integrally Weided Attachments **** Welded Attachment NDE-25 CS 34.000 MT C03.020.063 2-R-SM-1546 SM CN-2491-SM007 0.750 CN-2593-1.0 **Rigid Support** Class B Welded Attachment NDE-25 MT CS 34.000 2-R-SM-1537 SM CN-2491-SM007 C03.020.077 0.750 CN-2593-1.0 Mech Snubber Class B Welded Attachment CS 34.000 2-R-SM-1541 SM CN-2491-SM007 NDE-25 ΜT C03.020.080 0.750 CN-2593-1.0 Mech Snubber Class B Total C03.020 Items: 3 Total C03 Items: 4

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DUKE ENERGY CORPORATION **CATEGORY C-F-1**, Pressure Retaining Welds QUALITY ASSURANCE TECHNICAL SERVICES **Inservice Inspection Database Management System** In Austenitic SS or High Alloy Piping Plan Report Page 36 Catawba 2 Piping Welds >= 3/8 in. Nominal Wall Thickness 12/06/2001 Inservice Inspection Plan for Interval 2 Outage 4 for Piping > NPS 4 INSP REQ MAT/SCH DIA/THK CAL BLOCKS COMMENTS SYS ISO/DWG NUMBERS PROC ITEM NUMBER ID NUMBER **** Circumferential Weld **** 50331 UT SS-CS 6.000 CA CN-2CA-59 NDE-610 2CA59-22 C05.011.001 80 0.432 50319 CN-2592-1.1 Circumferential Pipe to Class B 45 Degree Elbow Dissimilar SS-CS CA CN-2CA-59 **NDE-35** PT 6.000 C05.011.001A 2CA59-22 80 0.432 CN-2592-1.1 Longitudinal Pipe to Class B 45 Degree Elbow Dissimilar * * Reference General Requirements Section 8.1.10 SS 6.000 CA CN-2CA-59 UT 2CA59-23 NDE-600 C05.011.002 80 0.432 CN-2592-1.1 Circumferential 45 Degree Elbow to Class B Pipe PT SS 6.000 CA CN-2CA-59 **NDE-35** C05.011.002A 2CA59-23 80 0.432 CN-2592-1.1 Circumferential 45 Degree Elbow to Class B Pipe * * Reference General Requirements Section 8.1.10 SS UT 6.000 CA CN-2CA-59 NDE-600 C05.011.003 2CA59-25 80 0.432 CN-2592-1.1 Circumferential 45 Degree Elbow to Class B Pipe NDE-35 PT SS 6.000 CA CN-2CA-59 C05.011.003A 2CA59-25 80 0.432 CN-2592-1.1 Circumferential 45 Degree Elbow to Class B Pipe * SS 6.000 * Reference General Requirements Section 8.1.10 CA CN-2CA-72 NDE-600 UT C05.011.016 2CA72-53 80 0.432 CN-2592-1.1 Circumferential Tee to Class B 45 Degree Elbow 6.000 SS 2CA72-53 CA CN-2CA-72 **NDE-35** PT C05.011.016A 0.432 80 CN-2592-1.1 Circumferential Tee to Class B 45 Degree Elbow

DUKE ENERGY CORPORATION **CATEGORY C-F-1. Pressure Retaining Welds** QUALITY ASSURANCE TECHNICAL SERVICES Inservice Inspection Database Management System In Austenitic SS or High Allov Piping **Plan Report** Page 37 Catawba 2 Piping Welds >= 3/8 in. Nominal Wall Thickness 12/06/2001 Inservice Inspection Plan for Interval 2 Outage 4 for Piping > NPS 4 COMMENTS INSP REQ MAT/SCH DIA/THK CAL BLOCKS SYS ISO/DWG NUMBERS PROC ID NUMBER ITEM NUMBER SS * Reference General Requirements Section 8.1.10 CA CN-2CA-72 NDE-600 UT 6.000 2CA72-58 C05.011.017 80 0.432 CN-2592-1.1 Circumferential 45 Degree Elbow to Class B Pipe CA CN-2CA-72 **NDE-35** PT SS 6.000 C05.011.017A 2CA72-58 80 0.432 CN-2592-1.1 Circumferential 45 Degree Elbow to Class B Pipe * * Reference General Requirements Section 8.1.10 CA CN-2CA-72 NDE-600 UT SS 6.000 2CA72-60 C05.011.018 80 0.432 CN-2592-1.1 Circumferential 45 Degree Elbow to Class B Pipe CA CN-2CA-72 **NDE-35** PT SS 6.000 C05.011.018A 2CA72-60 80 0.432 CN-2592-1.1 Circumferential 45 Degree Elbow to Class B Pipe * Reference General Requirements Section 8.1.10 UT SS 6.000 * CN-2NI-86 **NDE-600** C05.011.131 2NI86-2 NL 160 0.719 CN-2562-1.3 Circumferential 90 Degree Elbow to Class B Pipe SS CN-2NI-86 **NDE-35** PT 6.000 2NI86-2 C05.011.131A NI 160 0.719 CN-2562-1.3 Circumferential 90 Degree Elbow to Class B Pipe * * Reference General Requirements Section 8.1.10 UT SS 6.000 **CN-2NI-86** NDE-600 C05.011.132 2NI86-3 NL 160 0.719 Circumferential CN-2562-1.3 Pipe to Class B 90 Degree Elbow PT SS 6.000 CN-2NI-86 **NDE-35** C05.011.132A 2NI86-3 NL 0.719 160 Circumferential CN-2562-1.3 Pipe to Class B 90 Degree Elbow * Reference General Requirements Section 8.1.10 NDE-600 UT SS 6.000 CN-2NI-86 C05.011.133 2NI86-12 NL 160 0.719 Circumferential CN-2562-1.3 45 Degree Elbow to

DUKE ENERGY CORPORATION QUALITY ASSURANCE TECHNICAL SERVICES

CATEGOE	RY C-F-1, Pressure	e Re	taining Welds		KE ENERGY						
	itic SS or High All			Inservice Insp				Plan Report			
	/elds >= 3/8 in. Nomir				Cataw	/ba 2		Page 38			
	<u>g > NPS 4</u>	<u>Iui II</u>		Inservice l	nspection P	lan for Inte	rval 2 Outage 4	12/06/2001			
		SYS	S ISO/DWG NUMBERS		INSP REQ		DIA/THK CAL BLOCKS	COMMENTS			
C05.011.133A		NI	CN-2NI-86	NDE-35	PT	SS	6.000				
	Circumferential		CN-2562-1.3			160	0.719				
Class B					-	ee Elbow to					
					Pipe						
C05.011.134	2NI86-13	NI	CN-2NI-86	NDE-600	UT	SS	6.000 *	* Reference General Requirements Section 8.1.10			
	Circumferential		CN-2562-1.3			160	0.719				
Class B					-	ree Elbow to					
						ree Elbow					
C05.011.134A	a 2NI86-13	NI	CN-2NI-86	NDE-35	PT	SS	6.000				
	Circumferential		CN-2562-1.3		45 Dam	160 160	0.719				
Class B					-	ree Elbow to ree Elbow					
							6.000 *	* Reference General Requirements Section 8.1.10			
C05.011.135	2NI86-15	NI	CN-2NI-86	NDE-600	UT	SS 160	6.000 * 0.719	Reference General Requirements Section 6.1.10			
	Circumferential		CN-2562-1.3		45 Degi	ree Elbow to	0.715				
Class B					Pipe						
 C05.011.135A	2NI86-15	NI	CN-2NI-86	NDE-35	PT	SS	6.000				
000.0111100.	Circumferential		CN-2562-1.3			160	0.719				
Class B	-				_	ree Elbow to					
					Pipe						
C05.011.136	2NI86-16	NI	CN-2NI-86	NDE-600	UT	SS	6.000 *	* Reference General Requirements Section 8.1.10			
	Circumferential		CN-2562-1.3			160	0.719				
Class B					•	ree Elbow to					
			· · · · · · · · · · · · · · · · · · ·			ree Elbow					
C05.011.1364	A 2NI86-16	NI	CN-2NI-86	NDE-35	PT	SS	6.000				
	Circumferential		CN-2562-1.3			160	0.719				
Class B					-	ree Elbow to					
						ree Elbow					
C05.011.137		NI		NDE-600	UT	SS	6.000 *	* Reference General Requirements Section 8.1.10			
	Circumferential		CN-2562-1.3		00	160 ree Elbow to	0.719				
Class B					90 Deg Pipe						
C05.011.137/	A 2NI86-18	NI	CN-2NI-86	NDE-35	PT	SS	6.000				
000.011.10//	Circumferential		CN-2562-1.3			160	0.719				
Class B					90 Deg	ree Elbow to					
					Pipe						

DUKE ENERGY CORPORATION OUNLITY ASSURANCE TECHNICAL SERVICES

	Y C-F-1, Pressur tic SS or High All				SSURANCE		SERVICES		Plan Report
	elds >= 3/8 in. Nomir	nal W	all Thickness		Cataw	vba 2			Page 39
for Piping				Inservice li	nspection P	Plan for Inte	rval 2 Outage 4		12/06/2001
ITEM NUMBE		SY	S ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK CAL BLO	CKS	COMMENTS
C05.011.138	2NI86-19	NI	CN-2NI-86	NDE-600	UT	SS	6.000 *		* Reference General Requirements Section 8.1.10
	Dircumferential		CN-2562-1.3			160	0.719		
Class B					Pipe to				
01000 2					90 Degr	ree Elbow			
C05.011.138A	2NI86-19	NI	CN-2NI-86	NDE-35	PT	SS	6.000		
	Circumferential		CN-2562-1.3			160	0.719		
Class B					Pipe to 90 Deai	ree Elbow			
005 011 120	2NI86-20	NI	CN-2NI-86	NDE-600	UT	SS	6.000 *		* Reference General Requirements Section 8.1.10
C05.011.139	Circumferential	111	CN-2562-1.3	NDE 000	01	160	0.719		
	Circumierential		011-2002-1.0		45 Deg	ree Elbow to			
Class B					Pipe				
C05.011.139A	2NI86-20	NI	CN-2NI-86	NDE-35	PT	SS	6.000		
	Circumferential		CN-2562-1.3			160	0.719		
Class B					45 Deg	ree Elbow to			
					Pipe				

30 Total C05.011 Items:

FOC	11

DUKE ENERGY CORPORATION CATEGORY C-F-1, Pressure Retaining Welds QUALITY ASSURANCE TECHNICAL SERVICES Inservice Inspection Database Management System In Austenitic SS or High Alloy Piping Plan Report Page 40 Catawba 2 Piping Welds > 1/5 in. Nom Wall For Piping >= 12/06/2001 Inservice Inspection Plan for Interval 2 Outage 4 NPS 2 And <= NPS 4 INSP REQ MAT/SCH DIA/THK CAL BLOCKS COMMENTS PROC ITEM NUMBER ID NUMBER SYS ISO/DWG NUMBERS **** Circumferential Weld **** * Reference General Requirements Section 8.1.10 NDE-600 UT SS 3.000 2NV20-1 NV CN-2NV-20 C05.021.230 40 0.216 CN-2554-1.1 Circumferential 90 Degree Elbow to Class B Pipe NDE-35 PT SS 3.000 C05.021.230A 2NV20-1 NV CN-2NV-20 40 0.216 CN-2554-1.1 Circumferential 90 Degree Elbow to Class B Pipe * Reference General Requirements Section 8.1.10 * SS 3.000 NV CN-2NV-20 NDE-600 UT 2NV20-2 C05.021.231 40 0.216 CN-2554-1.1 Circumferential Pipe to Class B 90 Degree Elbow SS 3.000 NV CN-2NV-20 NDE-35 PT 2NV20-2 C05.021.231A 40 0.216 CN-2554-1.1 Circumferential Pipe to Class B 90 Degree Elbow * Reference General Requirements Section 8.1.10 SS * NV CN-2NV-20 NDE-600 UT 4.000 C05.021.232 2NV20-5 40 0.237 CN-2554-1.1 Circumferential Pipe to Class B VLV 2NV-204 4.000 NV CN-2NV-20 **NDE-35** PT SS 2NV20-5 C05.021.232A 40 0.237 CN-2554-1.1 Circumferential Pipe to Class B VLV 2NV-204 * Reference General Requirements Section 8.1.10 UT SS 4.000 NV CN-2NV-20 **NDE-600** 2NV20-7 C05.021.233 0.237 40 CN-2554-1.1 Circumferential Tee to Class B Pipe PT SS 4.000 NV CN-2NV-20 **NDE-35** 2NV20-7 C05.021.233A 0.237 40 CN-2554-1.1 Circumferential Tee to Class B Pipe

DUKE ENERGY CORPORATION QUALITY ASSURANCE TECHNICAL SERVICES

In Austenitic S	S or High Alle	e Retaining Welds by Piping all For Piping >=	QUALITY ASSURANCE TECHNICAL SERVICES Inservice Inspection Database Management System Catawba 2 Inservice Inspection Plan for Interval 2 Outage 4					Plan Repo Page 12/06/20		
ITEM NUMBER	ID NUMBER	SYS ISO/DWG NUMBERS		INSP REQ		CH DIA/THK CAL BLC	скѕ	COMMENTS		
C05.021.234 2NV	/20-8 ferential	NV CN-2NV-20 CN-2554-1.1	NDE-600	UT	SS 40	4.000 * 0.237		* Reference General Requirements Section 8.1.		
Class B				Pipe to Tee						
	/20-8 Iferential	NV CN-2NV-20 CN-2554-1.1	NDE-35	PT	SS 40	4.000 0.237				
Class B				Pipe to Tee						

Total C05.021 Items: 10

EOC	11	

DUKE ENERGY CORPORATION **CATEGORY C-F-1, Pressure Retaining Welds** QUALITY ASSURANCE TECHNICAL SERVICES In Austenitic SS or High Alloy Piping Inservice Inspection Database Management System Plan Report Page 42 Catawba 2 Socket Welds 12/06/2001 Inservice Inspection Plan for Interval 2 Outage 4 INSP REQ MAT/SCH DIA/THK CAL BLOCKS COMMENTS ITEM NUMBER SYS ISO/DWG NUMBERS PROC **ID NUMBER** NDE-35 PT SS 2.000 C05.030.101 2NV16-10 NV CN-2NV-16 160 0.344 CN-2554-1.7 Socket Pipe to Class B Flange NV CN-2NV-16 NDE-35 PT SS 2.000 C05.030.102 2NV16-11 160 0.344 Socket CN-2554-1.7 Flange to Class B Pipe NV CN-2NV-16 PΤ SS 2.000 2NV16-12 NDE-35 C05.030.103 160 0.344 CN-2554-1.7 Socket Pipe to Class B **VLV 2NV288** 2NV16-14 NV CN-2NV-16 **NDE-35** PT SS 2.000 C05.030.104 160 0.344 CN-2554-1.7 Socket Pipe to Class B Half Coupling

Total C05.030 Items: 4

EOC	11

DUKE ENERGY CORPORATION **CATEGORY C-F-2.** Pressure Retaining Welds QUALITY ASSURANCE TECHNICAL SERVICES Inservice Inspection Database Management System In Carbon Or Low Alloy Steel Piping Plan Report Page 43 Catawba 2 Piping Welds >= 3/8 in. Nominal Wall Thickness 12/06/2001 Inservice Inspection Plan for Interval 2 Outage 4 for Piping > NPS 4 INSP REQ MAT/SCH DIA/THK CAL BLOCKS COMMENTS PROC **ITEM NUMBER** ID NUMBER SYS ISO/DWG NUMBERS **** Circumferential Weld **** Steam Generator 2B UT CS 6.000 2CA67-1 CA CN-2CA-67 NDF-600 C05.051.005 * Reference General Requirements Section 8.1.10 0.432 80 CN-2592-1.1 Circumferential 90 Degree Elbow to Class B Term end 2BSG Nozzle Steam Generator 2B CA CN-2CA-67 NDE-25 MT CS 6.000 C05.051.005A 2CA67-1 0.432 80 CN-2592-1.1 Circumferential 90 Degree Elbow to Class B Term end 2BSG Nozzle * Reference General Requirements Section 8.1.10 * UT CS 6.000 2CA93-9 CA CN-2CA-93 NDE-600 C05.051.010 80 0.432 CN-2592-1.1 Circumferential 90 Degree Elbow to Class B Pipe CS 6.000 CA CN-2CA-93 NDE-25 MT 2CA93-9 C05.051.010A 80 0.432 CN-2592-1.1 Circumferential 90 Degree Elbow to Class B Pipe Steam Generator 2C UT CS 16.000 CF CN-2CF-66 **NDE-600** C05.051.057 2CF66-29 * Reference General Requirements Section 8.1.10 80 0.844 CN-2591-1.1 Circumferential 90 Degree Elbow to Class B Term end SG2C Nozzle Steam Generator 2C CS C05.051.057A 2CF66-29 CF CN-2CF-66 **NDE-25** MT 16.000 80 0.844 Circumferential CN-2591-1.1 90 Degree Elbow to Class B Term end SG2C Nozzle * Reference General Requirements Section 8.1.10 NDE-600 UT CS 16.000 CF CN-2CF-66 C05.051.058 2CF66-38 80 0.844 CN-2591-1.1 Circumferential Pipe to Class B 90 Degree Elbow MT CS 16.000 2CF66-38 CF CN-2CF-66 NDE-25 C05.051.058A 0.844 80 CN-2591-1.1 Circumferential Pipe to Class B 90 Degree Elbow

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CATEGORY C-F-2, Pressure Retaining Welds QUALITY ASSURANCE TECHNICAL SERVICES Inservice Inspection Database Management System In Carbon Or Low Allov Steel Piping **Plan Report** Page 44 Catawba 2 Piping Welds >= 3/8 in. Nominal Wall Thickness 12/06/2001 Inservice Inspection Plan for Interval 2 Outage 4 for Piping > NPS 4 INSP REQ MAT/SCH DIA/THK CAL BLOCKS COMMENTS PROC **ID NUMBER** SYS ISO/DWG NUMBERS ITEM NUMBER Steam Generator 2D UT CS 16.000 CF CN-2CF-67 NDE-600 2CF67-26 C05.051.059 * Reference General Requirements Section 8.1.10 80 0.844 CN-2591-1.1 Circumferential 90 Degree Elbow to Class B Term end SG2D Nozzle Steam Generator 2D CS 16.000 C05.051.059A 2CF67-26 CF CN-2CF-67 **NDE-25** MT 80 0.844 CN-2591-1.1 Circumferential 90 Degree Elbow to Term end Class B SG2D Nozzle * Reference General Requirements Section 8.1.10 * CS 16.000 CF CN-2CF-67 NDE-600 UT C05.051.060 2CF67-39 80 0.844 CN-2591-1.1 Circumferential 90 Degree Elbow to Class B Pipe CF CN-2CF-67 NDE-25 MT CS 16.000 2CF67-39 C05.051.060A 80 0.844 CN-2591-1.1 Circumferential 90 Degree Elbow to Class B Pipe * * Reference General Requirements Section 8.1.10 SM CN-2SM-14 NDE-600 UT CS 34.000 C05.051.105 2SM14-2 1.375 CN-2593-1.0 Circumferential Pipe to Class B 90 Degree Elbow **NDE-25** MT CS 34.000 2SM14-2 SM CN-2SM-14 C05.051.105A 1.375 CN-2593-1.0 Circumferential Pipe to Class B 90 Degree Elbow * Reference General Requirements Section 8.1.10 UT CS 34.000 SM CN-2SM-14 NDE-600 2SM14-3 C05.051.106 1.375 CN-2593-1.0 Circumferential 90 Degree Elbow to Class B Pipe MT CS 34.000 SM CN-2SM-14 C05.051.106A 2SM14-3 1.375 Circumferential CN-2593-1.0 90 Degree Elbow to Class B Pipe * Reference General Requirements Section 8.1.10 NDE-600 UT CS 6.000 SV CN-2SV-6 C05.051.154 2SV6-4 0.432 80 CN-2593-1.0 Circumferential Pipe to Class B

DUKE ENERGY CORPORATION

90 Degree Elbow

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DUKE ENERGY CORPORATION **CATEGORY C-F-2, Pressure Retaining Welds** QUALITY ASSURANCE TECHNICAL SERVICES In Carbon Or Low Alloy Steel Piping Inservice Inspection Database Management System Plan Report Catawba 2 Page 45 Piping Welds >= 3/8 in. Nominal Wall Thickness 12/06/2001 Inservice Inspection Plan for Interval 2 Outage 4 for Piping > NPS 4 INSP REQ MAT/SCH DIA/THK CAL BLOCKS COMMENTS ID NUMBER SYS ISO/DWG NUMBERS PROC ITEM NUMBER C05.051.154A 2SV6-4 SV CN-2SV-6 NDE-25 MT cs 6.000 80 0.432 CN-2593-1.0 Circumferential Pipe to Class B 90 Degree Elbow Total C05.051 Items: 18

Total C05 Items:

62

DUKE ENERGY CORPORATION **CATEGORY C-G. Pressure Retaining Welds** QUALITY ASSURANCE TECHNICAL SERVICES Inservice Inspection Database Management System In Pumps And Valves **Plan Report** Page 46 Catawba 2 Valves 12/06/2001 Inservice Inspection Plan for Interval 2 Outage 4 PROC INSP REQ MAT/SCH DIA/THK CAL BLOCKS COMMENTS ID NUMBER SYS ISO/DWG NUMBERS ITEM NUMBER **** Valve Body Welds **** Valve Body Weld - Valve Numbers in Valve Group SS 4.000 **NDE-35** PT C06.020.004 2NI-9A NL 2NI-9A, 2NI-10B 0.867 CN-2562-1.0 Circumferential Valve Body to CNM-1205.00-83 Class B Bonnet Valve Body Weld - Valve Numbers in Valve Group PT SS 4.000 **NDE-35** C06.020.006 2NI-117 NI 2NI-117, 2NI-149 0.534 CN-2562-1.2 Circumferential Valve Body to CNM-1205.00-90 Class B Bonnet Valve Body Weld - Valve Numbers in Valve Group SS NDE-35 PT 4.000 2NI-121A NL C06.020.008 2NI-121A, 2NI-152B 0.867 Circumferential CN-2562-1.2 Valve Body to CNM-1205.00-87 Class B Bonnet Valve Body Weld - Valve Numbers in Valve Group SS NDE-35 PT 8.000 C06.020.012 2NS-98 NS 2NS-98, 2NS-99 0.477 Circumferential CN-2563-1.0 Valve Body to Class B CNM-1205.00-152 Bonnet Valve Body Weld - Valve Numbers in Valve Group SS PT 4.000 C06.020.013 2NV-292 NV NDE-35 2NV-272, 2NV-292, 2NV-485, 2NV-488 0.867 CN-2554-1.7 Circumferential Valve Body to CNM-1205.00-82 Class B Bonnet Total C06.020 Items: 5 5

Total C06 Items:

EOC 11	EOC	11	
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DUKE ENERGY CORPORATION CATEGORY D-B, Systems In Support Of ECC. QUALITY ASSURANCE TECHNICAL SERVICES Inservice Inspection Database Management System CHR, Atmos. Cleanup, And Reactor RHR **Plan Report** Page 47 Catawba 2 Integral Attachment 12/06/2001 Inservice Inspection Plan for Interval 2 Outage 4 INSP REQ MAT/SCH DIA/THK CAL BLOCKS COMMENTS PROC SYS ISO/DWG NUMBERS ID NUMBER ITEM NUMBER **** Component Supports and Restraints **** Welded Attachment QAL-14 VT-3 NA 6.000 2-R-KC-0387 KC CN-2492-KC066 D02.020.009 To Be Done With F01.031.053 0.906 CN-2573-1.3 Rigid Support Class C Welded Attachment VT-3 NA 18.000 QAL-14 RN CN-2492-RN105 D02.020.013 2-R-RN-0012 To Be Done With F01.030.156 0.750 **Rigid Support** CN-2574-2.4 Class C Total D02.020 Items: 2 2

Total D02 Items:

CATEGORY F-A, Supports

DUKE ENERGY CORPORATION QUALITY ASSURANCE TECHNICAL SERVICES

			ļ	Inservice Ins	pection Datal	base Ma	nagement System		Plan Report
Class 1	Piping Supports			Cataw		Page 48			
				Inservice I	nspection P	Plan for	Interval 2 Outage 4		12/06/2001
ITEM NUMB	ER ID NUMBER	SYS	S ISO/DWG NUMBERS	PROC	INSP REQ	MAT/	SCH DIA/THK CAL BLOCKS	COMMENTS	
**** One-D	irectional ****								
F01.010.005	2-R-NC-1512 Rigid Support	NC	CN-2491-NC039 CN-2553-1.1	QAL-14	VT-3	NA	6.000 0.000		
Class A									
F01.010.006	2-R-NC-1514	NC	CN-2491-NC039 CN-2553-1.1	QAL-14	VT-3	NA	6.000 0.000		
Class A	Rigid Support		GN-2005-1.1						
F01.010.094	2-R-NV-1070 Rigid Support	NV	CN-2491-NV095 CN-2554-1.5	QAL-14	VT-3	NA	2.000 0.000		
Class A									
F01.010.095		NV	CN-2491-NV095	QAL-14	VT-3	NA	2.000 0.000		
Class A	Rigid Support		CN-2554-1.5				0.000		
F01.010.096	2-R-NV-1075 Rigid Support	NV	CN-2491-NV095 CN-2554-1.5	QAL-14	VT-3	NA	2.000 0.000		
Class A			01-2004-1.0						
Total F01.	010 Items: 5							······································	
**** Multid	lirectional ****								
F01.011.031	2-R-ND-1005 Rigid Support	ND	CN-2491-ND001 CN-2561-1.1	QAL-14	VT-3	NA	12.000 0.000		
Class A	nigid Support		014-2001 1.1						
F01.011.032		ND	CN-2491-ND001 CN-2561-1.1	QAL-14	VT-3	NA	12.000 0.000		
Class A	Rigid Support		UN-2001-1.1						
F01.011.053	2-R-NI-1548 Rigid Support	NI	CN-2491-NI067 CN-2562-1.2	QAL-14	VT-3	NA	8.000 0.000		

DUKE ENERGY CORPORATION **CATEGORY F-A, Supports** QUALITY ASSURANCE TECHNICAL SERVICES Inservice Inspection Database Management System Plan Report Page 49 Catawba 2 Class 1 Piping Supports 12/06/2001 Inservice Inspection Plan for Interval 2 Outage 4 MAT/SCH DIA/THK CAL BLOCKS COMMENTS INSP REQ PROC ITEM NUMBER **ID NUMBER** SYS ISO/DWG NUMBERS QAL-14 VT-3 NA 8.000 2-R-NI-1549 NL CN-2491-NI067 F01.011.054 0.000 **Rigid Support** CN-2562-1.2 Class A Total F01.011 Items: 4 **** Thermal Movement **** QAL-14 VT-3 NA 4.000 NC CN-2491-NC039 F01.012.003 2-R-NC-1503 0.000 **Constant Support** CN-2553-1.1 Class A VT-3 NA 6.000 NC CN-2491-NC039 **QAL-14** F01.012.004 2-R-NC-1504 0.000 CN-2553-1.1 Constant Support Class A VT-3 NA 6.000 NC CN-2491-NC039 **QAL-14** F01.012.005 2-B-NC-1505 0.000 CN-2553-1.1 Spring Hgr Class A VT-3 NA 6.000 **QAL-14** F01.012.006 2-B-NC-1518 NC CN-2491-NC039 0.000 CN-2553-1.1 Mech Snubber Class A 6.000 VT-3 NA F01.012.007 2-R-NC-1520 NC CN-2491-NC039 **QAL-14** 0.000 CN-2553-1.1 Mech Snubber Class A NA 1.500 NC CN-2491-NC079 QAL-14 VT-3 2-R-NC-1747 F01.012.008 0.000 Mech Snubber CN-2553-1.0 Class A 1.500 2-R-NC-1749 NC CN-2491-NC079 **QAL-14** VT-3 NA F01.012.009 0.000 CN-2553-1.0 Spring Hgr

Class A

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DUKE ENERGY CORPORATION QUALITY ASSURANCE TECHNICAL SERVICES

CATEGOF	Y F-A, Supports			Plan Report Page 50 12/06/2001				
<u>Class 1 F</u>	Piping Supports							
	R ID NUMBER	SYS ISO/DWG NUMBERS	PROC	INSP REQ		nterval 2 Outage 4 CH DIA/THK CAL BLOCKS	COMMENTS	
F01.012.031 Class A	2-R-ND-1000 Spring Hgr	ND CN-2491-ND001 CN-2561-1.1	QAL-14	VT-3	NA	12.000 0.000		
F01.012.091 Class A	2-R-NV-1074 Mech Snubber	NV CN-2491-NV095 CN-2554-1.5	QAL-14	VT-3	NA	2.000 0.000		

CATEGORY F-A, Supports

DUKE ENERGY CORPORATION QUALITY ASSURANCE TECHNICAL SERVICES

				Inservice Ins	pection Datal	base Man	agement System		Plan Report
Class 2	Piping Supports			Page 51					
	ping oupporto			12/06/2001					
	ER ID NUMBER	SYS	S ISO/DWG NUMBERS	PROC	INSP REQ	MAT/S	CH DIA/THK CAL BLOCKS	COMMENTS	
	irectional ****								· · · · · · · · · · · · · · · · · · ·
F01.020.069 Class B	2-R-NI-1682 Rigid Support	NI	CN-2491-NI066 CN-2562-1.3	QAL-14	VT-3	NA	6.000 0.000		
01835 D									
F01.020.070	2-R-NI-1683 Rigid Support	NI	CN-2491-NI066 CN-2562-1.3	QAL-14	VT-3	NA	6.000 0.000		
Class B									
F01.020.099 Class B	2-R-NS-1140 Rigid Support	NS	CN-2491-NS007 CN-2563-1.0	QAL-14	VT-3	NA	8.000 0.000		
									· · · · · · · · · · · · · · · · · · ·
F01.020.100 Class B	2-R-NS-1141 Rigid Support	NS	CN-2491-NS007 CN-2563-1.0	QAL-14	VT-3	NA	8.000 0.000		
Class D									······································
F01.020.154 Class B	2-A-NV-3417 Rigid Support	NV	CN-2492-NV038 CN-2554-1.2	QAL-14	VT-3	NA	4.000 0.000		
									······································
F01.020.155 Class B	2-A-NV-3418 Rigid Support	NV	CN-2492-NV040 CN-2554-1.2	QAL-14	VT-3	NA	4.000 0.000		
F01.020.205 Class B	2-R-SM-1543 Rigid Support	SM	CN-2491-SM007 CN-2593-1.0	QAL-14	VT-3	NA	34.000 0.000		
Total F01.	020 Items: 7								
**** Multic	lirectional ****								
F01.021.073		NI	CN-2491-NI056 CN-2562-1.3	QAL-14	VT-3	NA	6.000 0.000		

DUKE ENERGY CORPORATION QUALITY ASSURANCE TECHNICAL SERVICES

CATEGO	RY F-A, Supports				Plan Report				
	Piping Supports				Cataw	/ba 2			Page 52
Class 2	Piping Supports			Inservice I	nspection P	lan for li	nterval 2 Outage 4		12/06/2001
	ER ID NUMBER	SYS	S ISO/DWG NUMBERS	PROC	INSP REQ		CH DIA/THK CAL BLOCKS	COMMENTS	
F01.021.074	2-R-NI-1617 Rigid Support			QAL-14	VT-3	NA	6.000 0.000		
F01.021.075 Class B	2-R-NI-1618 Rigid Support	NI	CN-2491-NI056 CN-2562-1.3	QAL-14	VT-3	NA	6.000 0.000		
F01.021.076 Class B	2-R-NI-1680 Rigid Support	NI	CN-2491-NI066 CN-2562-1.3	QAL-14	VT-3	NA	6.000 0.000		
F01.021.077 Class B	2-R-NI-1681 Rigid Support	NI	CN-2491-NI066 CN-2562-1.3	QAL-14	VT-3	NA	6.000 0.000		
F01.021.102 Class B	2-R-NS-1117 Rigid Support	NS	CN-2491-NS009 CN-2563-1.0	QAL-14	VT-3	NA	8.000 0.000		
F01.021.103 Class B	2-R-NS-1125 Rigid Support	NS	CN-2491-NS009 CN-2563-1.0	QAL-14	VT-3	NA	8.000 0.000		
F01.021.153 Class B	2-R-NV-0062 Rigid Support	NV	CN-2492-NV035 CN-2554-1.2	QAL-14	VT-3	NA	3.000 0.000		
F01.021.154 Class B	2-R-NV-0063 Rigid Support	NV	CN-2492-NV035 CN-2554-1.2	QAL-14	VT-3	NA	3.000 0.000		
F01.021.155 Class B	2-R-NV-0064 Rigid Support	NV	CN-2492-NV035 CN-2554-1.2	QAL-14	VT-3	NA	3.000 0.000		

DUKE ENERGY CORPORATION **CATEGORY F-A, Supports** QUALITY ASSURANCE TECHNICAL SERVICES **Inservice Inspection Database Management System Plan Report** Page 53 Catawba 2 Class 2 Piping Supports 12/06/2001 Inservice Inspection Plan for Interval 2 Outage 4 INSP REQ MAT/SCH DIA/THK CAL BLOCKS COMMENTS ITEM NUMBER **ID NUMBER** SYS ISO/DWG NUMBERS PROC 10 Total F01.021 Items: **** Thermal Movement **** CF CN-2491-CF003 QAL-14 VT-3 NA 18.000 F01.022.013 2-R-CF-1559 0.000 CN-2591-1.1 Mech Snubber Class B VT-3 2-R-CF-1563 CF CN-2491-CF003 **QAL-14** NA 18.000 F01.022.014 0.000 CN-2591-1.1 Spring Har Class B 2-A-NV-0358 NV CN-2492-NV064 **QAL-14** VT-3 NA 2.000 F01.022.143 0.000 CN-2554-1.5 Spring Hgr Class B NV CN-2492-NV064 QAL-14 VT-3 NA 2.000 F01.022.144 2-R-NV-0136 0.000 CN-2554-1.5 Spring Hgr Class B **QAL-14** VT-3 NA 6.000 F01.022.193 2-R-SA-1518 SA CN-2491-SA002 0.000 CN-2593-1.1 Spring Hgr Class B VT-3 NA 6.000 2-R-SA-1520 SA CN-2491-SA002 **QAL-14** F01.022.194

0.000 CN-2593-1.1 Mech Snubber Class B SM CN-2491-SM007 QAL-14 VT-3 NA 34.000 2-R-SM-1541 F01.022.205 0.000 Mech Snubber CN-2593-1.0 Class B QAL-14 VT-3 NA 34.000 F01.022.206 2-R-SM-1542 SM CN-2491-SM007 0.000 Mech Snubber CN-2593-1.0 Class B

FOC	-11
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CATEGORY F-A, Supports

DUKE ENERGY CORPORATION QUALITY ASSURANCE TECHNICAL SERVICES Inservice Inspection Database Management System

		I	iiseivice ilis	pection Data	Jase manaye	ement System		Plan Report				
Class 2 F	Piping Supports		Catawba 2									
			12/06/2001									
ITEM NUMBE	R ID NUMBER	SYS ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK CAL BLOCKS	COMMENTS					
F01.022.208	2-R-SM-1549	SM CN-2491-SM007	QAL-14	VT-3	NA	34.000						
	Mech Snubber	CN-2593-1.0				0.000						
Class B												

Total F01.022 Items:

9

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DUKE ENERGY CORPORATION

<u>CATEGOI</u>	RY F-A, Supports		l		Plan Report				
Class 3	Piping Supports				Cataw	/ba 2			Page 55
				Inservice	Inspection P	lan for	Interval 2 Outage 4		12/06/2001
ITEM NUMB	ER ID NUMBER	SYS	S ISO/DWG NUMBERS	PROC INSP I		MAT/S	CH DIA/THK CAL BLOCKS	COMMENTS	
**** One-D	irectional ****								
F01.030.004	2-R-CA-0104 Rigid Support	CA	CN-2492-CA027 CN-2592-1.1	QAL-14	VT-3	NA	4.000 0.000		
Class C									
F01.030.005	2-R-CA-0236 Rigid Support	CA	CN-2492-CA029 CN-2592-1.1	QAL-14	VT-3	NA	4.000 0.000		
Class C	•								
F01.030.006	2-R-CA-0239 Rigid Support	CA	CN-2492-CA029 CN-2592-1.1	QAL-14	VT-3	NA	4.000 0.000		
Class C									
F01.030.059	2-R-KC-0283	KC	CN-2492-KC057	QAL-14	VT-3	NA	16.000	· · · · · · · · · · · · · · · · · · ·	
Class C	Rigid Support		CN-2573-1.0				0.000		
F01.030.060	2-R-KC-0285	KC	CN-2492-KC057	QAL-14	VT-3	NA	16.000		
Class C	Rigid Support		CN-2573-1.0				0.000		
F01.030.061	2-R-KC-0425	KC	CN-2492-KC057	QAL-14	VT-3	NA	16.000		
Class C	Rigid Support		CN-2573-1.0				0.000		
F01.030.062		KC		QAL-14	VT-3	NA	20.000		
Class C	Rigid Support		CN-2573-1.0				0.000		
F01.030.063		KC		QAL-14	VT-3	NA	20.000		
Class C	Rigid Support		CN-2573-1.0				0.000		

Class C

DUKE ENERGY CORPORATION OHALITY ASSURANCE TECHNICAL SERVICES

Class 3	Piping Supports			Catawba 2										
01055 5	Fiping Supports			Inservice I	nspection P	lan for Inte	erval 2 Outage 4		12/06/2001					
ITEM NUMB	ER ID NUMBER	SYS	SISO/DWG NUMBERS	PROC	INSP REQ		DIA/THK CAL BLOCKS	COMMENTS						
F01.030.064 Class C	2-R-KC-0371 Rigid Support	KC	CN-2492-KC062 CN-2573-1.0	QAL-14	VT-3	NA	20.000 0.000							
F01.030.102 Class C	2-R-KD-0066 Rigid Support	KD	CN-2493-KD020 CN-2609-1.0	QAL-14	VT-3	NA	8.000 0.000							
F01.030.121 Class C	2-R-LD-0027 Rigid Support	LD	CN-2493-LD005 CN-2609-2.2	QAL-14	VT-3	NA	6.000 0.000							
F01.030.123 Class C	2-R-LD-0001 Rigid Support	LD	CN-2493-LD028 CN-2609-2.0	QAL-14	VT-3	NA	6.000 0.000							
F01.030.155 Class C	2-R-RN-0010 Rigid Support	RN	CN-2492-RN105 CN-2574-2.4	QAL-14	VT-3	NA	18.000 0.000							
F01.030.156 Class C	2-R-RN-0012 Rigid Support	RN	CN-2492-RN105 CN-2574-2.4	QAL-14	VT-3	NA	18.000 0.000	To Be Done With D02.020.013						
F01.030.157 Class C	2-R-RN-0015 Rigid Support	RN	CN-2492-RN105 CN-2574-2.4	QAL-14	VT-3	NA	18.000 0.000							
F01.030.158 Class C	2-R-RN-0018 Rigid Support	RN	CN-2492-RN105 CN-2574-2.4	QAL-14	VT-3	NA	18.000 0.000							

**** Multidirectional ****

DUKE ENERGY CORPORATION QUALITY ASSURANCE TECHNICAL SERVICES

CATEGO	<u>RY F-A, Supports</u>		li		ASSURANCE		_ SERVICES ement System		Plan Report				
Class 3	Piping Supports		Catawba 2										
				12/06/2001									
ITEM NUMB	ER ID NUMBER	SYS ISC	DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK CAL BLOCKS	COMMENTS					
F01.031.053	2-R-KC-0387	KC CN-	2492-KC066	QAL-14	VT-3	NA	6.000	To Be Done With D02.020.009					
	Rigid Support	CN-	2573-1.3				0.000						
Class C													
F01.031.101	2-R-KD-0040	KD CN-	-2493-KD023	QAL-14	VT-3	NA	6.000						
	Rigid Support	CN-	-2609-1.0				0.000						
Class C													
Total F01.0)31 Items: 2												
**** Therm	al Movement ****												
F01.032.054	2-R-KC-0420	KC CN-	-2492-KC068	QAL-14	VT-3	NA	8.000						
	Mech Snubber	CN	-2573-1.2				0.000						
Class C													
F01.032.223	2-R-VN-0096	VN CN	-2493-VN012	QAL-14	VT-3	NA	26.000						
	Mech Snubber	CN	-2609-5.0				0.000						
Class C													

CATEGORY F-A, Supports

DUKE ENERGY CORPORATION QUALITY ASSURANCE TECHNICAL SERVICES Inservice Inspection Database Management System

			I	Inservice Ins	pection Datab	base Ma	nagement System		Plan Report				
Class 1.2	2,3 Supports				Cataw	/ba 2			Page 58 12/06/2001				
			Inservice Inspection Plan for Interval 2 Outage 4										
	ER ID NUMBE	R SY	S ISO/DWG NUMBERS	PROC	INSP REQ	MAT/	SCH DIA/THK CAL BLOCKS	COMMENTS					
**** Suppor	rts Other Than Pip	ing Sup	oports ****										
F01.040.002	2PZR-SKIRT		CN-2553-1.0	QAL-14	VT-3	NA	0.000	PZR Support Skirt					
	Rigid Support		CNM 2201.01.110				0.000						
Class A													
F01.040.003	2PZR-SUPPORT		CN-2553-1.0	QAL-14	VT-3	NA	0.000	PZR Lower Support Frame					
	Rigid Support		CN-1070-14				0.000						
Class A													
	2SWHX-SUPPOR	RT NC	CN-2554-1.6	QAL-14	VT-3	NA	0.000	Seal Water Heat Exchanger Supp	ort				
	Rigid Support		CNM 1201.06-50				0.000						
Class B													
Total F01.0	040 Items: 3												
Total F01 I	tems: 67												

EOC 11 CATEGORY , Augmen	nted		KE ENERGY ASSURANCE	TECHNICAL	Plan Repor		
Reactor Coolant Pump	Flywheel Inspection	Inservice I	Cataw Inspection P		Page 59 12/06/2001		
ITEM NUMBER ID NU	MBER SYS ISO/DWG NUMB		INSP REQ		DIA/THK CAL		COMMENTS
**** NRC Regulatory Gui	de 1.14 ****						
G01.001.004 2RCP-2D Class A	NC CN-2NC-015 CN-2553-1.0	NDE-949	UT	CS	0.000 5 0.000	50237	Reactor Coolant Pump 2D Flywheel A qualified in-place UT examination over the volum from the inner bore of the flywheel to the circle one-half of the outer radius or a surface examinatio (MT and/or PT) of exposed surfaces of the removed flywheels may be conducted at approximately 10 year intervals coinciding with the Inservice Inspection Schedule as required by ASME Section XI.

Total G01 Items:

EOC 11 (CATEGORY,		QUALITY /		TECHNICA	ATION AL SERVICES gement System		(Plan Report
			Cataw	/ba 2			Page 60 12/06/2001
		Inservice l	nspection P	lan for In	terval 2 Outage 4		12/00/2001
ITEM NUMBER ID NUMBER	SYS ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SC	H DIA/THK CAL BLOCKS	COMMENTS	
H02.001.001 2-R-NC-1929	NC CN-2NC-094	NDE-35	PT	SS	0.750	Class 2 Welded Attachment	
	CN-2491-NC-052				0.218	Pipe to Anchor Pad Weld	
Class B			Pipe to				
			Anchor	Pad		·····	
Total H02.001 Items: 1							
Total H02 Items: 1							

-

5.0 Results Of Inspections Performed

The results of each examination shown in the final Inservice Inspection Plan (Section 4.0 of this report) are included in this section. The completion date and status for each examination are shown. Limited examinations are described in further detail in Section 5.2. All examinations revealing reportable indications are described in further detail in Section 6.0.

5.1 The information shown below is a field description for the reporting format included in this section of the report:

Item Number	=	ASME Section XI Tables IWB-2500-1 (Class 1), IWC-2500-1 (Class 2), IWF- 2500-1 (Class 1 and Class 2), and Augmented / Elective Requirements
ID Number	=	Unique Identification Number
System	=	Plant System Designation
Insp Date	=	Date of Examination
Insp Status	=	CLR Clear REC Recordable REP Reportable
Insp Limited	=	Indicates inspection was limited Coverage obtained is listed
Geo Ref (Geometric Reflector applies only to UT)	=	<u>Y</u> Yes <u>N</u> No
RFR (Request for Relief)	Ξ	Y Yes <u>N</u> No
Comments	=	General and/or Detail Description

Refueling Outage Report EOC 11 Catawba Unit 2 Section 5 Page 1 of 2 Revision 0 December 6, 2001

DUKE ENER ORPORATION QUALITY ASSURANCE TECHNICAL SERVICES

In-Service Inspection Database Management System

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EOC 11		Catawba 2 Inservice Inspection Listing										
Plant: Catawba				erval 2 Outage				12/06/20				
ITEM NUMBER	ID NUMBER	SYSTEM	INSP DATE	INSP STATUS	INSP LIMITED	GEO REF	RFR	COMMENTS				
B02.011.001	2PZR-W8A	NC	09/23/2001	CLR		Ν	Ν					
B02.012.001	2PZR-W9A	NC	09/23/2001	CLR		Ν	Ν					
B03.110.001	2PZR-W1	NC	10/09/2001	CLR	42.80%	Ν	Y	Request for Relief Serial No. 01-003				
B03.120.001	2PZR-W1	NC	10/09/2001	CLR		Ν	Ν					
B05.040.001	2PZR-W1SE	NC	10/09/2001	CLR		N	Ν					
B05.040.001A	2PZR-W1SE	NC	10/09/2001	CLR		Ν	N					
B06.010.019	2RPV-179-102-19	NC	10/02/2001	CLR		N	Ν					
B06.010.020	2RPV-179-102-20A	NC	09/27/2001	CLR		N	Ν					
B06.010.021	2RPV-179-102-21A	NC	09/27/2001	CLR		N	Ν					
B06.010.022	2RPV-179-102-22	NC	09/27/2001	CLR		N	Ν					
B06.010.023	2RPV-179-102-23	NC	09/27/2001	CLR		Ν	Ν					
B06.010.024	2RPV-179-102-24	NC	09/27/2001	CLR		N	Ν					
B06.010.025	2RPV-179-102-25	NC	09/27/2001	CLR		Ν	Ν					
B06.010.026	2RPV-179-102-26	NC	09/27/2001	CLR		N	Ν					
B06.010.027	2RPV-179-102-27	NC	09/27/2001	CLR		N	N					
B06.010.028	2RPV-179-102-28	NC	09/27/2001	CLR		Ν	Ν					
B06.010.029	2RPV-179-102-29	NC	09/27/2001	CLR		Ν	Ν					
B06.010.030	2RPV-179-102-30	NC	09/27/2001	CLR		Ν	Ν					
B06.010.031	2RPV-179-102-31	NC	09/27/2001	CLR		Ν	Ν					
B06.010.032	2RPV-179-102-32	NC	10/02/2001	CLR		Ν	N					
B06.010.033	2RPV-179-102-S2	NC	10/02/2001	CLR		Ν	Ν					
B06.010.034	2RPV-179-102-34	NC	10/02/2001	CLR		Ν	Ν					
B06.010.035	2RPV-179-102-35	NC	10/02/2001	CLR		N	Ν					
B06.010.036	2RPV-179-102-36	NC	10/02/2001	CLR		N	Ν					
B06.030.019	2RPV-179-101-19	NC	10/01/2001	CLR		N	Ν					
B06.030.019A	2RPV-179-101-19	NC	10/02/2001	CLR		Ν	N					
B06.030.020	2RPV-179-101-20A	NC	09/27/2001	CLR		N	Ν					
B06.030.020A	2RPV-179-101-20A	NC	09/27/2001	CLR		N	Ν					
B06.030.021	2RPV-179-101-21A	NC	09/27/2001	CLR		N	Ν					
B06.030.021A	2RPV-179-101-21A	NC	09/27/2001	CLR		Ν	Ν					
B06.030.022	2RPV-179-101-22	NC	09/27/2001	CLR		N	Ν					
B06.030.022A	2RPV-179-101-22	NC	09/27/2001	CLR		N	Ν					
B06.030.023	2RPV-179-101 - 23	NC	09/27/2001	CLR		Ν	Ν					
B06.030.023A	2RPV-179-101-23	NC	09/27/2001	CLR		Ν	Ν					
B06.030.024	2RPV-179-101-24	NC	09/27/2001	CLR		Ν	N					
B06.030.024A	2RPV-179-101-24	NC	09/27/2001	CLR		Ν	Ν					

DUKE ENER

QUALITY ASSURANCE TECHNICAL SERVICES

In-Service Inspection Database Management System Catawba 2 Inservice Inspection Listing

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Plant: Catawba 2

Interval 2 Outage 4

ITEM NUMBER	ID NUMBER	SYSTEM	INSP DATE	INSP STATUS	INSP LIMITED	GEO REF	RFR	COMMENTS
B06.030.025	2RPV-179-101-25	NC	09/27/2001	CLR		Ν	Ν	
B06.030.025A	2RPV-179-101-25	NC	09/27/2001	CLR		Ν	Ν	
B06.030.026	2RPV-179-101-26	NC	09/27/2001	CLR		N	Ν	
B06.030.026A	2RPV-179-101-26	NC	09/27/2001	CLR		Ν	Ν	
B06.030.027	2RPV-179-101-27	NC	09/27/2001	CLR		Ν	Ν	
B06.030.027A	2RPV-179-101-27	NC	09/27/2001	CLR		Ν	Ν	
B06.030.028	2RPV-179-101-28	NC	09/27/2001	CLR		Ν	Ν	
B06.030.028A	2RPV-179-101-28	NC	09/27/2001	CLR		Ν	Ν	
B06.030.029	2RPV-179-101-29	NC	09/27/2001	CLR		Ν	Ν	
B06.030.029A	2RPV-179-101-29	NC	09/27/2001	CLR		Ν	Ν	
B06.030.030	2RPV-179-101-30	NC	09/27/2001	CLR		Ν	Ν	
B06.030.030A	2RPV-179-101-30	NC	09/27/2001	CLR		Ν	Ν	
B06.030.031	2RPV-179-101-31	NC	09/27/2001	CLR		Ν	Ν	
B06.030.031A	2RPV-179-101-31	NC	09/27/2001	CLR		Ν	Ν	
B06.030.032	2RPV-179-101-32	NC	10/01/2001	CLR		Ν	Ν	
B06.030.032A	2RPV-179-101-32	NC	10/02/2001	CLR		Ν	Ν	
B06.030.033	2RPV-179-101-S2	NC	10/01/2001	CLR		Ν	Ν	
B06.030.033A	2RPV-179-101-S2	NC	10/02/2001	CLR		Ν	N	
B06.030.034	2RPV-179-101-34	NC	10/01/2001	CLR		N	N	
B06.030.034A	2RPV-179-101-34	NC	10/02/2001	CLR		N	N	
B06.030.035	2RPV-179-101-35	NC	10/01/2001	CLR		Ν	Ν	
B06.030.035A	2RPV-179-101-35	NC	10/02/2001	CLR		N	Ν	
B06.030.036	2RPV-179-101-36	NC	10/01/2001	CLR		N	N	
B06.030.036A	2RPV-179-101-36	NC	10/02/2001	CLR		Ν	Ν	
B06.040.019	2RPV-THREAD-19	NC	09/20/2001	CLR		Ν	Ν	
B06.040.020	2RPV-THREAD-20	NC	09/20/2001	CLR		N	N	
B06.040.021	2RPV-THREAD-21	NC	09/20/2001	CLR		Ν	Ν	
B06.040.022	2RPV-THREAD-22	NC	09/20/2001	CLR		Ν	Ν	
B06.040.023	2RPV-THREAD-23	NC	09/20/2001	CLR		N	Ν	
B06.040.024	2RPV-THREAD-24	NC	09/20/2001	CLR		Ν	Ν	
B06.040.025	2RPV-THREAD-25	NC	09/20/2001	CLR		N	Ν	
B06.040.026	2RPV-THREAD-26	NC	09/20/2001	CLR		Ν	Ν	
B06.040.027	2RPV-THREAD-27	NC	09/20/2001	CLR		Ν	Ν	
B06.040.028	2RPV-THREAD-28	NC	09/20/2001	CLR		N	Ν	
B06.040.029	2RPV-THREAD-29	NC	09/20/2001	CLR		Ν	Ν	
B06.040.030	2RPV-THREAD-30	NC	09/20/2001	CLR		Ν	Ν	

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QUALITY ASSURANCE TECHNICAL SERVICES

In-Service Inspection Database Management System Catawba 2 Inservice Inspection Listing

Plant: Catawba 2

Interval 2 Outage 4

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ITEM NUMBER	ID NUMBER	SYSTEM	INSP DATE	INSP STATUS	INSP LIMITED	GEO REF	RFR	COMMENTS
B06.040.031	2RPV-THREAD-31	NC	09/20/2001	CLR		Ν	N	
B06.040.032	2RPV-THREAD-32	NC	09/20/2001	CLR		N	Ν	
B06.040.033	2RPV-THREAD-33	NC	09/20/2001	CLR		N	Ν	
B06.040.034	2RPV-THREAD-34	NC	09/20/2001	CLR		Ν	Ν	
B06.040.035	2RPV-THREAD-35	NC	09/20/2001	CLR		N	Ν	
B06.040.036	2RPV-THREAD-36	NC	09/20/2001	CLR		Ν	N	
B06.050.019	2RPV-179-103-19	NC	09/28/2001	CLR		N	N	
B06.050.020	2RPV-179-103-20A	NC	09/28/2001	CLR		N	Ν	
B06.050.021	2RPV-179-103-21A	NC	09/28/2001	CLR		N	N	
B06.050.022	2RPV-179-103-22	NC	09/28/2001	CLR		N	Ν	
B06.050.023	2RPV-179-103-23	NC	09/28/2001	CLR		N	Ν	
B06.050.024	2RPV-179-103-24	NC	09/28/2001	CLR		Ν	Ν	
B06.050.025	2RPV-179-103-25	NC	09/28/2001	CLR		Ν	Ν	
B06.050.026	2RPV-179-103-26	NC	09/27/2001	CLR		N	N	
B06.050.027	2RPV-179-103-27	NC	09/25/2001	CLR		Ν	Ν	
B06.050.028	2RPV-179-103-28	NC	09/27/2001	CLR		Ν	Ν	
B06.050.029	2RPV-179-103-29	NC	09/27/2001	CLR		Ν	Ν	
B06.050.030	2RPV-179-103-30	NC	09/27/2001	CLR		N	N	
B06.050.031	2RPV-179-103-31	NC	09/27/2001	CLR		Ν	Ν	
B06.050.032	2RPV-179-103-32	NC	09/25/2001	CLR		Ν	Ν	
B06.050.033	2RPV-179-103-S2	NC	10/01/2001	CLR		Ν	Ν	
B06.050.034	2RPV-179-103-34	NC	09/25/2001	CLR		Ν	Ν	
B06.050 .035	2RPV-179-103-35	NC	10/01/2001	CLR		Ν	Ν	
B06.050.036	2RPV-179-103-36	NC	09/25/2001	CLR		Ν	Ν	
B07.070.021	2NI-54A	NI	09/29/2001	CLR		Ν	Ν	
B07.070.022	2NI-59	NI	10/06/2001	CLR		Ν	Ν	
B08.020.001	2PZR-SKIRT		09/23/2001	CLR		Ν	Ν	
B08.020.001A	2PZR-SKIRT		09/23/2001	CLR	75.16%	Y	Ν	
B09.011.047	2NC8-2	NC	10/09/2001	CLR		Ν	Ν	
B09.011.047A	2NC8-2	NC	10/09/2001	CLR		Ν	Ν	
B09.011.048	2NC8-3	NC	10/09/2001	CLR		Y	Ν	
B09.011.048A	2NC8-3	NC	10/09/2001	CLR		Ν	Ν	
B09.011.087	2NI74-1	NI	09/25/2001	CLR		Ν	Ν	
B09.011.087A	2NI74-1	NI	09/25/2001	CLR		Ν	Ν	
B09.011.088	2NI74-11	NI	09/25/2001	CLR		Ν	Ν	
B09.011.088A	2NI74-11	NI	09/25/2001	CLR		N	Ν	

Plant: Catawba 2

DUKE ENER ORPORATION

QUALITY ASSURANCE TECHNICAL SERVICES

In-Service Inspection Database Management System Catawba 2 Inservice Inspection Listing Interval 2 Outage 4

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ITEM NUMBER	ID NUMBER	SYSTEM	INSP DATE	INSP STATUS	INSP LIMITED	GEO REF	RFR	COMMENTS
B09.011.089	2NI74-3	NI	09/25/2001	CLR		N	Ν	
B09.011.089A	2NI74-3	NI	09/25/ 2 001	CLR		Ν	Ν	
B09.011.090	2NI74-9	NI	09/25/2001	CLR		Ν	Ν	
B09.011.090A	2NI74-9	NI	09/25/2001	CLR		Ν	Ν	
B09.011.093	2NI91-5	NI	09/26/2001	CLR		Ν	Ν	
B09.011.093A	2NI91-5	NI	09/26/2001	CLR		Ν	Ν	
B09.011.094	2NI91-7	NI	09/26/2001	CLR		Y	N	
B09.011.094A	2NI91-7	NI	09/26/2001	CLR		N	Ν	
B09.011.095	2NI91-9	NI	09/26/2001	CLR		Y	Ν	
B09.011.095A	2NI91-9	NI	09/26/2001	CLR		Ν	N	
B09.021.028	2NI396-5	NI	09/20/2001	CLR		Ν	Ν	
B09.031.003	2NC13-WN9	NC	09/19/2001	CLR	22.87%	Ν	Y	Request for Relief Serial No. 01-003
B09.031.003A	2NC13-WN9	NC	09/19/2001	CLR		N	Ν	
B09.032.001	2NC13-WN4	NC	09/26/2001	CLR		N	Ν	
B09.032.004	2NC13-WN8A	NC	09/19/2001	CLR		N	Ν	
B09.032.006	2NC9-WN6	NC	09/19/2001	CLR		Ν	Ν	
B09.040.009	2NC74-1	NC	09/19/2001	CLR		Ν	N	
B09.040.010	2NC74-10	NC	09/19/2001	CLR		N	Ν	
B09.040.011	2NC74-12	NC	09/19/2001	CLR		Ν	Ν	
B09.040.012	2NC74-9	NC	09/19/2001	CLR		Ν	Ν	
B09.040.022	2NI295-2	NI	09/29/2001	CLR		N	N	
B09.040.023	2NI295-4	NI	09/29/2001	CLR		Ν	Ν	
B09.040.024	2NI297-3	NI	09/29/2001	CLR		N	N	
B09.040.025	2NI297-5	NI	09/29/2001	CLR		Ν	N	
B09.040.026	2NI301-1	NI	10/01/2001	CLR		N	N	
B09.040.027	2NI301-4	NI	10/01/2001	CLR		Ν	N	
B09.040.028	2NI304-1	NI	09/20/2001	CLR		N	N	
B09.040.029	2NI304-3	NI	09/20/2001	CLR		Ν	N	
B12.050.001A	2NC-1	NC	04/18/2000	CLR		N	Ν	
B12.050.002A	2NC-27	NC	09/25/2001	CLR		Ν	Ν	
B12.050.002B	2NC-29	NC	09/27/2001	CLR		Ν	N	
B12.050.004E	2NI-175	NI	10/03/2001	REC		Ν	N	
B12.050.004G	2NI-180	NI	10/04/2001	CLR		N	N	
B12.050.006B	2NI-60	NI	10/03/2001	CLR		N	N	
B12.050.006E	2NI-81	NI	10/03/2001	CLR		N	N	
B12.050.006F	2NI-82	NI	10/02/2001	REC		N	N	

Plant: Catawba 2

ORPORATION

QUALITY ASSURANCE TECHNICAL SERVICES In-Service Inspection Database Management System Catawba 2 Inservice Inspection Listing Interval 2 Outage 4

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ITEM NUMBER	ID NUMBER	SYSTEM	INSP DATE	INSP STATUS	INSP LIMITED	GEO REF	RFR	COMMENTS
B12.050.006H	2NI-94	NI	10/03/2001	CLR		Ν	Ν	
B12.050.007A	2NI-125	NI	10/04/2001	CLR		Ν	Ν	
C01.010.003	2SGD-05-06A	NC	09/27/2001	CLR		Ν	Ν	
C01.010.005	2SWHX-5-3	NV	09/06/2001	CLR		N	Ν	
C01.020.002	2ELDHX-HD-FLG	NV	10/01/2001	CLR		Y	Ν	
C01.020.016	2SWHX-5-6	NV	09/06/2001	CLR		Ν	Ν	
C02.011.001	2SWHX-5-A	NV	09/06/2001	CLR		Ν	Ν	
C02.011.002	2SWHX-5-B	NV	09/06/2001	CLR		Ν	Ν	
C02.021.001	2SGB-06A-18	NC	09/28/2001	CLR	75.00%	Ν	Y	Request for Relief Serial No. 01-003
C02.021.001A	2SGB-06A-18	NC	09/28/2001	CLR		Ν	Ν	
C02.021.004	2BNSHX-3-N1	NS	09/11/2001	CLR	49.03%	Y	Y	Request for Relief Serial No. 01-003
C02.021.004A	2BNSHX-3-N1	NS	09/11/2001	CLR		N	Ν	
C02.021.005	2BNSHX-3-N2	NS	09/11/2001	CLR	49.03%	Y	Y	Request for Relief Serial No. 01-003
C02.021.005A	2BNSHX-3-N2	NS	09/11/2001	CLR		Ν	Ν	
C03.010.002	2SWHX-SUPP	ND	09/06/2001	CLR		Ν	Ν	
C03.020.063	2-R-SM-1546	SM	10/02/2001	CLR		Ν	Ν	
C03.020.077	2-R-SM-1537	SM	10/02/2001	CLR		N	Ν	
C03.020.080	2-R-SM-1541	SM	10/02/2001	CLR		Ν	Ν	
C05.011.001	2CA59-22	CA	10/03/2001	CLR		N	Ν	
C05.011.001A	2CA59-22	CA	10/01/2001	CLR		N	N	
C05.011.002	2CA59-23	CA	10/03/2001	CLR		Ν	Ν	
C05.011.002A	2CA59-23	CA	10/01/2001	CLR		Ν	Ν	
C05.011.003	2CA59-25	CA	10/03/2001	CLR		Ν	N	
C05.011.003A	2CA59-25	CA	10/01/2001	CLR		Ν	Ν	
C05.011.016	2CA72-53	CA	10/02/2001	CLR		Ν	Ν	
C05.011.016A	2CA72-53	CA	10/02/2001	CLR		Ν	Ν	
C05.011.017	2CA72-58	CA	10/02/2001	CLR		N	Ν	
C05.011.017A	2CA72-58	CA	10/02/2001	CLR		Ν	Ν	
C05.011.018	2CA72-60	CA	10/02/2001	CLR		Ν	Ν	
C05.011.018A	2CA72-60	CA	10/02/2001	CLR		Ν	Ν	
C05.011.131	2N186-2	NI	09/29/2001	CLR		Ν	Ν	
C05.011.131A	2N186-2	NI	09/29/2001	CLR		Ν	Ν	
C05.011.132	2N186-3	NI	09/29/2001	CLR		Ν	Ν	
C05.011.132A	2N186-3	NI	09/29/2001	CLR		Ν	Ν	
C05.011.133	2NI86-12	NI	09/29/2001	CLR		Ν	Ν	
C05.011.133A	2NI86-12	NI	09/29/2001	CLR		Ν	Ν	

QUALITY ASSURANCE TECHNICAL SERVICES

In-Service Inspection Database Management System Catawba 2 Inservice Inspection Listing

Plant: Catawba 2

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ITEM NUMBER	ID NUMBER	SYSTEM	INSP DATE	INSP STATUS	INSP LIMITED	GEO REF	RFR	COMMENTS
C05.011.134	2N186-13	NI	09/29/2001	CLR		Ν	Ν	
C05.011.134A	2NI86-13	NI	09/29/2001	CLR		Ν	Ν	
C05.011.135	2NI86-15	NI	09/29/2001	CLR		Y	Ν	
C05.011.135A	2NI86-15	NI	09/29/2001	CLR		N	Ν	
C05.011.136	2N186-16	NI	09/29/2001	CLR		Ν	Ν	
C05.011.136A	2NI86-16	NI	09/29/2001	CLR		N	Ν	
C05.011.137	2NI86-18	NI	09/29/2001	CLR		Y	Ν	
C05.011.137A	2NI86-18	NI	09/29/2001	CLR		N	Ν	
C05.011.138	2NI86-19	NI	09/29/2001	CLR		Ν	Ν	
C05.011.138A	2NI86-19	NI	09/29/2001	CLR		Ν	Ν	
C05.011.139	2NI86-20	NI	09/29/2001	CLR		N	Ν	
C05.011.139A	2N186-20	NI	09/29/2001	CLR		Ν	Ν	
C05.021.230	2NV20-1	NV	09/12/2001	CLR		Ν	Ν	
C05.021.230A	2NV20-1	NV	09/11/2001	CLR		N	Ν	
C05.021.231	2NV20-2	NV	09/12/2001	CLR		Ν	Ν	
C05.021.231A	2NV20-2	NV	09/11/2001	CLR		Ν	Ν	
C05.021.232	2NV20-5	NV	09/12/2001	CLR	61.09%	N	Y	Request for Relief Serial No. 01-003
C05.021.232A	2NV20-5	NV	09/11/2001	CLR		Ν	Ν	
C05.021.233	2NV20-7	NV	09/12/2001	CLR		Ν	N	
C05.021.233A	2NV20-7	NV	09/11/2001	CLR		Ν	Ν	
C05.021.234	2NV20-8	NV	09/12/2001	CLR		Ν	Ν	
C05.021.234A	2NV20-8	NV	09/11/2001	CLR		Ν	Ν	
C05.030.101	2NV16-10	NV	09/06/2001	CLR		Ν	Ν	
C05.030.102	2NV16-11	NV	09/06/2001	CLR		Ν	Ν	
C05.030.103	2NV16-12	NV	09/06/2001	CLR		Ν	Ν	
C05.030.104	2NV16-14	NV	09/06/2001	CLR		N	Ν	
C05.051.005	2CA67-1	CA	09/28/2001	CLR		Y	Ν	
C05.051.005A	2CA67-1	CA	09/28/2001	CLR		Ν	Ν	
C05.051.010	2CA93-9	CA	09/30/2001	CLR		Y	Ν	
C05.051.010A	2CA93-9	CA	09/30/2001	CLR		N	Ν	
C05.051.057	2CF66-29	CF	09/28/2001	CLR		Y	Ν	
C05.051.057A	2CF66-29	CF	09/28/2001	CLR		N	N	
C05.051.058	2CF66-38	CF	09/28/2001	CLR		Y	Ν	
C05.051.058A	2CF66-38	CF	09/28/2001	CLR		Ν	Ν	
C05.051.059	2CF67-26	CF	09/28/2001	CLR		Y	Ν	
		CF	09/28/2001	CLR				

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In-Service Inspection Database Management System Catawba 2 Inservice Inspection Listing

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Plant: Catawba 2				Int								
ITEM NUMBER	ID NUMBER	SYSTEM	INSP DATE	INSP STATUS	INSP LIMITED	GEO REF	RFR	COMMENTS				
C05.051.060	2CF67-39	CF	09/28/2001	CLR		Y	Ν					
C05.051.060A	2CF67-39	CF	09/28/2001	CLR		N	Ν					
C05.051.105	2SM14-2	SM	09/28/2001	CLR		Ν	Ν					
C05.051.105A	2SM14-2	SM	09/28/2001	CLR		Ν	Ν					
C05.051.106	2SM14-3	SM	09/28/2001	CLR		Ν	Ν					
C05.051.106A	2SM14-3	SM	09/28/2001	CLR		Ν	Ν					
C05.051.154	2SV6-4	SV	09/30/2001	CLR		Y	Ν					
C05.051.154A	2SV6-4	SV	09/30/2001	CLR		Ν	Ν					
C06.020.004	2NI-9A	NI	09/06/2001	CLR		Ν	N					
C06.020.006	2NI-117	NI	09/06/2001	CLR		Ν	Ν					
C06.020.008	2NI-121A	NI	09/06/2001	CLR		Ν	Ν					
C06.020.012	2NS-98	NS	09/06/2001	CLR		Ν	Ν					
C06.020.013	2NV-292	NV	09/06/2001	CLR		N	Ν					
D02.020.009	2-R-KC-0387	KC	09/20/2001	CLR		Ν	Ν					
D02.020.013	2-R-RN-0012	RN	09/20/2001	CLR		Ν	Ν					
F01.010.005	2-R-NC-1512	NC	09/23/2001	CLR		Ν	Ν					
F01.010.006	2-R-NC-1514	NC	09/20/2001	CLR		N	Ν					
F01.010.094	2-R-NV-1070	NV	09/20/2001	CLR		N	Ν					
F01.010.095	2-R-NV-1072	NV	09/20/2001	CLR		Ν	N					
F01.010.096	2-R-NV-1075	NV	09/20/2001	CLR		N	Ν					
F01.011.031	2-R-ND-1005	ND	09/20/2001	CLR		N	Ν					
F01.011.032	2-R-ND-1006	ND	09/20/2001	CLR		N	Ν					
F01.011.053	2-R-NI-1548	NI	09/20/2001	CLR		Ν	Ν					
F01.011.054	2-R-NI-1549	NI	09/20/2001	CLR		N	N					
F01.012.003	2-R-NC-1503	NC	09/23/2001	REC		N	Ν					
F01.012.004	2-R-NC-1504	NC	09/20/2001	CLR		Ν	Ν					
F01.012.005	2-R-NC-1505	NC	09/20/2001	CLR		Ν	Ν					
F01.012.006	2-R-NC-1518	NC	09/20/2001	CLR		Ν	Ν					
F01.012.007	2-R-NC-1520	NC	09/20/2001	CLR		Ν	Ν					
F01.012.008	2-R-NC-1747	NC	09/20/2001	CLR		N	Ν					
F01.012.009	2-R-NC-1749	NC	09/20/2001	CLR		N	Ν					
F01.012.031	2-R-ND-1000	ND	09/20/2001	CLR		Ν	Ν					
F01.012.091	2-R-NV-1074	NV	09/20/2001	CLR		Ν	Ν					
F01.020.069	2-R-NI-1682	NI	09/20/2001	CLR		Ν	Ν					
F01.020.070	2-R-NI-1683	NI	09/20/2001	CLR		Ν	Ν					
F01.020.099	2-R-NS-1140	NS	09/23/2001	CLR		Ν	Ν					
F01.020.070	2-R-NI-1683	NI	09/20/2001	CLR		Ν	N					

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QUALITY ASSURANCE TECHNICAL SERVICES In-Service Inspection Database Management System Catawba 2 Inservice Inspection Listing

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ITEM NUMBER	ID NUMBER	SYSTEM	INSP DATE	INSP STATUS	INSP LIMITED	GEO REF	RFR	COMMENTS
F01.020.100	2-R-NS-1141	NS	09/23/2001	CLR		Ν	N	
F01.020.154	2-A-NV-3417	NV	09/16/2001	CLR		Ν	Ν	
F01.020.155	2-A-NV-3418	NV	09/15/2001	CLR		Ν	Ν	
F01.020.205	2-R-SM-1543	SM	09/24/2001	CLR		N	Ν	
F01.021.073	2-R-NI-1616	NI	09/20/2001	CLR		Ν	Ν	
F01.021.074	2-R-NI-1617	NI	09/20/2001	CLR		N	Ν	
F01.021.075	2-R-NI-1618	NI	09/20/2001	CLR		Ν	Ν	
F01.021.076	2-R-NI-1680	NI	09/20/2001	CLR		Ν	Ν	
F01.021.077	2-R-NI-1681	NI	09/20/2001	CLR		Ν	Ν	
F01.021.102	2-R-NS-1117	NS	09/23/2001	CLR		N	Ν	
F01.021.103	2-R-NS-1125	NS	09/23/2001	CLR		N	Ν	
F01.021.153	2-R-NV-0062	NV	09/16/2001	CLR		N	Ν	
F01.021.154	2-R-NV-0063	NV	09/15/2001	CLR		Ν	Ν	
F01.021.155	2-R-NV-0064	NV	09/15/2001	CLR		Ν	Ν	
F01.022.013	2-R-CF-1559	CF	09/26/2001	CLR		N	Ν	
F01.022.014	2-R-CF-1563	CF	09/26/2001	CLR		N	Ν	
F01.022.143	2-A-NV-0358	NV	09/21/2001	CLR		Ν	Ν	
F01.022.144	2-R-NV-0136	NV	09/16/2001	CLR		Ν	Ν	
F01.022.193	2-R-SA-1518	SA	09/20/2001	CLR		Ν	Ν	
F01.022.194	2-R-SA-1520	SA	09/20/2001	CLR		Ν	Ν	
F01.022.205	2-R-SM-1541	SM	09/15/2001	CLR		Ν	Ν	
F01.022.206	2-R-SM-1542	SM	09/15/2001	CLR		Ν	Ν	
F01.022.208	2-R-SM-1549	SM	09/15/2001	REC		N	Ν	
F01.030.004	2-R-CA-0104	CA	09/20/2001	CLR		N	Ν	
F01.030.005	2-R-CA-0236	CA	09/15/2001	CLR		Ν	Ν	
F01.030.006	2-R-CA-0239	CA	09/20/2001	CLR		N	Ν	
F01.030.059	2-R-KC-0283	KC	09/20/2001	CLR		Ν	Ν	
F01.030.060	2-R-KC-0285	KC	09/20/2001	CLR		N	Ν	
F01.030.061	2-R-KC-0425	KC	09/20/2001	CLR		N	N	
F01.030.062	2-R-KC-0291	KC	09/20/2001	CLR		N	Ν	
F01.030.063	2-R-KC-0293	KC	09/20/2001	CLR		Ν	Ν	
F01.030.064	2-R-KC-0371	KC	09/20/2001	CLR		N	Ν	
F01.030.102	2-R-KD-0066	KD	09/20/2001	CLR		Ν	Ν	
F01.030.121	2-R-LD-0027	LD	09/15/2001	CLR		N	Ν	
		10	00/10/0001	CLR		Ν	Ν	
F01.030.123	2-R-LD-0001	LD	09/18/2001	ULII		14		

QUALITY ASSURANCE TECHNICAL SERVICES

In-Service Inspection Database Management System Catawba 2 Inservice Inspection Listing

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Plant: Catawba 2

Interval 2 Outage 4

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ITEM NUMBER	ID NUMBER	SYSTEM	INSP DATE	INSP STATUS	INSP LIMITED	GEO REF	RFR	COMMENTS
F01.030.156	2-R-RN-0012	RN	09/20/2001	CLR	***	Ν	Ν	
F01.030.157	2-R-RN-0015	RN	09/20/2001	CLR		Ν	Ν	
F01.030.158	2-R-RN-0018	RN	09/20/2001	CLR		Ν	Ν	
F01.031.053	2-R-KC-0387	KC	09/20/2001	CLR		N	Ν	
F01.031.101	2-R-KD-0040	KD	09/26/2001	CLR		Ν	Ν	
F01.032.054	2-R-KC-0420	KC	09/20/2001	CLR		N	Ν	
F01.032.223	2-R-VN-0096	VN	09/15/2001	CLR		N	N	
F01.040.002	2PZR-SKIRT		10/09/2001	CLR		N	Ν	
F01.040.003	2PZR-SUPPORT		10/09/2001	CLR		N	Ν	
F01.040.108	2SWHX-SUPPORT	NC	09/27/2001	CLR		Ν	Ν	
G01.001.004	2RCP-2D	NC	10/10/2001	CLR		Ν	N	
H02.001.001	2-R-NC-1929	NC	10/01/2001	CLR		Ν	Ν	

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5.2 Limited examinations (i.e., 90% or less of the required examination coverage obtained) identified during EOC11 (Outage 4) are shown below. A copy of the Request for Relief is contained in Section 9.0 of this report.

<u>Item Number</u>	Request for Relief Serial Number
B03.110.001	01-003
B09.031.003	01-003
C02.021.001	01-003
C02.021.004	01-003
C02.021.005	01-003
C02.021.232	01-003

Refueling Outage Report EOC 11 Catawba Unit 2 Section 5 Page 2 of 2 Revision 0 December 6, 2001

6.0 Reportable Indications

EOC11 (Outage 4) had no reportable indications.

Refueling Outage Report EOC 11 Catawba Unit 2 Section 6 Page 1 of 1 Revision 0 December 6, 2001

7.0 Personnel, Equipment and Material Certifications

All personnel who performed or evaluated the results of inservice inspections from April 8, 2000 to October 22, 2001 at Catawba Nuclear Station, Unit 2, were certified in accordance with the requirements of the 1989 Edition of ASME Section XI, with no Addenda. The appropriate certification records for each inspector are on file at Catawba Nuclear Station or copies can be obtained by contacting the Duke Energy Corporate Office in Charlotte, North Carolina.

Records of periodic calibration of inspection equipment are on file at Catawba Nuclear Station or copies can be obtained by contacting the Duke Energy Corporate Office in Charlotte, North Carolina.

Records of materials used (i.e., NDE consumables) are on file at Catawba Nuclear Station or copies can be obtained by contacting the Duke Energy Corporate Office in Charlotte, North Carolina.

Refueling Outage Report EOC 11 Catawba Unit 2 Section 7 Page 1 of 1 Revision 0 December 6, 2001

8.0 Corrective Action

No corrective action was required as a result of examinations performed during EOC11 (Outage 4).

Refueling Outage Report EOC 11 Catawba Unit 2 Section 8 Page 1 of 1 Revision 0 December 6, 2001

9.0 Reference Documents

The following reference documents apply to the inservice inspections performed during EOC11 (Outage 4) at Catawba Nuclear Station, Unit 2.

• Duke Energy Corporation Catawba Nuclear Station, Unit 2 Docket Number 50-414, Request for Relief Serial Number 01-003 Limited Weld Coverage During End-of-Cycle 11 Refueling Outage

Refueling Outage Report EOC 11 Catawba Unit 2 Section 9 Page 1 of 1 Revision 0 December 6, 2001



Duke Power 4800 Concord Rd. York, SC 29710 (803) 831-4251 OFFICE (803) 831-3221 FAX grpeters@duke-energy.com

Gary R. Peterson Vice President Catawba Nuclear Station

December 20, 2001

U.S. Nuclear Regulatory Commission Attention: Document Control Desk Washington, D.C. 20555

Subject: Duke Energy Corporation Catawba Nuclear Station, Unit 2 Docket Number 50-414 Request for Relief Number 01-003 Limited Weld Examinations in End-of-Cycle 11 Refueling Outage

Please find attached, pursuant to 10 CFR 50.4 and 10 CFR 50.55a(g)(5)(iii), Request for Relief Number 01-003. This request pertains to limited weld examinations during the Unit 2 End-of-Cycle 11 Refueling Outage. Duke is requesting that NRC review and approve this Request for Relief at your earliest available opportunity.

There are no regulatory commitments contained in this letter or its attachment.

If you have any questions concerning this subject, please call L.J. Rudy at (803) 831-3084.

truly yours Very

Gary R. Peterson

LJR/s

Attachment

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xc (with attachment):

L.A. Reyes, Regional Administrator U.S. Nuclear Regulatory Commission, Region II Atlanta Federal Center 61 Forsyth St., SW, Suite 23T85 Atlanta, GA 30303

D.J. Roberts, Senior Resident Inspector U.S. Nuclear Regulatory Commission Catawba Nuclear Station

C.P. Patel, Senior Project Manager (addressee only) U.S. Nuclear Regulatory Commission Mail Stop 08-H12 Washington, D.C. 20555-0001 Document Control Desk Page 3 December 20, 2001

bxc (with attachment):

G.D. Gilbert L.J. Rudy R.K. Rhyne K.E. Nicholson R.N. McGill RGC File Document Control File 801.01 ELL-EC050 NCMPA-1 NCEMC PMPA SREC

Request for Relief Serial No. 01-003 Page 1 of 20

DUKE ENERGY CORPORATION

STATION: CATAWBA NUCLEAR STATION UNIT 2

10-YEAR INTERVAL REQUEST FOR RELIEF NO. 01-003

Duke Energy Corporation has determined that conformance with certain ASME Section XI Code requirements is impractical. Therefore, pursuant to 10CFR50.55a(g)(5)(iii), Duke Energy requests relief from applicable portions of the code.

Reference Attachment 1 for welds addressed by this relief request. There are six (6) welds in this request: one B-D, one B-J, three C-B, and one C-F-1.

ASME Section XI Code of Record: 1989 Edition with no addenda

Interval: Second Ten-Year Interval; Second Inspection Period

Applicable Code Case: N-460

I. System/Component(s) for Which Relief is Requested:

ASME Section XI Code Class 1 Examination Category B-D Full Penetration Welds of Nozzles In Vessels

ID Number	Item Number	Configuration
2PZR-W1	B03.110.001	Pressurizer Nozzle-to-Vessel Welds

II. Code Requirement:

ASME Section XI 1989 Edition with no addenda, Examination Category B-D, Item No. B03.110, Figure IWB-2500-7 (b), Examination Volume A-B-C-D-E-F-G-H.

Request for Relief Serial No. 01-003 Page 2 of 20

III. Code Requirement from which Relief is Requested:

Relief is being sought from the requirement to examine 100% of the volume A-B-C-D-E-F-G-H shown in Figure IWB-2500-7(b).

IV. Basis for Relief:

During the ultrasonic examination of the Pressurizer Surge Nozzle to Head Weld, 2PZR-W1 shown in Attachment 2, 100% coverage of the required examination volume could not be obtained. The examination coverage was limited to 42.80%. Limitations are caused by the weld geometry that restricts access to only one side of the weld, and the proximity of heater tubes that restrict the scanning surface. The percentage of coverage reported represents the aggregate coverage obtained from one scan perpendicular to the weld axis and two scans, 180° apart parallel to the weld.

V. Alternate Examinations or Testing:

No additional examinations are planned during the current interval for 2PZR-W1. Radiography is not practical because of the geometry of the component, which prevents placement of the film and exposure source. Duke Energy Corporation will continue to use the most effective ultrasonic techniques available to obtain maximum coverage for future examination of this weld.

VI. Justification for the Granting of Relief:

Although the examination volume A-B-C-D-E-F-G-H in Figure IWB-2500-7(b) for ID Number 2PZR-W1 could not be covered, the amount of coverage obtained for this examination provides an acceptable level of quality and integrity. For results of the examination, reference Attachment 2.

Pressurizer Surge Nozzle to Head Weld, 2PZR-W1 is located inside containment and is part of the reactor coolant system pressure boundary. General Design Criterion 30, "Quality of Reactor Coolant Pressure

Request for Relief Serial No. 01-003 Page 3 of 20

Boundary, " of Appendix A to 10 CFR Part 50, "General Design Criteria for Nuclear Power Plants," mandates that means be provided for detecting and, to the extent practical, identifying the location of the source of reactor coolant leakage. If a leak were to develop at this weld location, the instrumentation available to the operators for detection and monitoring of leakage would provide prompt and qualitative information necessary to permit them to take immediate corrective action. If a leak should develop, the only corrective action would be to shutdown and depressurize the reactor coolant system, since the component is nonisolable.

Plant Technical Specifications dictate that a reactor coolant system water inventory balance be performed on a regular basis. A normal operating practice is to perform this computer based mass balance on a daily frequency and/or whenever the operators suspect any abnormal changes to other leakage detection systems. A plant technical specification requires that if the leak rate cannot be reduced below 1 gpm unidentified that the plant be put in hot standby within 6 hours and in cold shutdown within the following 30 hours. Leakage as a result of a failed weld discussed in this section would show up as unidentified leakage and subject to the 1 gpm limit.

Other leakage detection systems available to the operator and dictated per plant technical specifications are:

- Containment Atmosphere Gaseous and Particulate Radioactivity Monitoring System (EMF monitors 38 & 39) which would detect airborne radiological activity;
- Containment Floor and Equipment Sump Level and Flow Monitoring Subsystem where unidentified accumulated water on the containment floor would be monitored and evaluated as sump level changes;
- Containment Ventilation Unit Condensate Drain Tank Level Monitoring Subsystem which collects and measures as unidentified leakage the moisture removed from the containment atmosphere.

Additionally, other indicators are also available to the operator that a leak exists or may be developing:

• Containment Atmosphere Iodine Monitor (EMF 40)

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- Charging / Letdown system mismatches;
- Containment humidity indications;
- Pre-Cycle walkdowns performed each outage while system is at operating temperature and pressure prior to criticality;
- Post-Cycle walkdowns performed at operating temperature and pressure performed during unit shutdown.

VII. Implementation Schedule:

This examination will continue to be scheduled in accordance with the requirements of ASME Section XI for future inspection intervals.

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I. System/Component(s) for Which Relief is Requested:

ASME Section XI Code Class 1 Examination Category B-J Pressure Retaining Welds in Piping; Branch Pipe Connection Welds

ID Number	Item Number	Configuration		
2NC13-WN9	B09.031.003	Nozzle to Pipe		

II. Code Requirement:

ASME Section XI 1989 Edition with no addenda, Examination Category B-J, Item No. B09.031, Figure IWB-2500-8(c). ASME Section XI, Appendix III, Paragraph III-4420, 1989 Edition with no addenda as modified by Code Case N-460. "The examination shall be performed using a sufficiently long examination beam path to provide coverage of the required examination volume in two-beam path directions. The examination shall be performed from two sides of the weld, where practicable, or from one side of the weld, as a minimum."

III. Code Requirement from which Relief is Requested:

Relief is being sought from the requirement to examine the weld in two beam path directions.

IV. Basis for Relief:

During the ultrasonic examination of this branch pipe connection weld, 2NC13-WN9 shown in Attachment 3, greater than 90% of the required examination volume as allowed by Code Case N-460 could not be achieved. The examination coverage was limited to 22.87% of the required examination volume. This is an austenitic stainless steel branch connection weld where access is limited to the main run pipe side of the weld. The main run of pipe is cast stainless steel. The percentage of coverage reported represents the aggregate coverage obtained from one scan parallel to the pipe axis and two scans, 180° apart in the circumferential direction

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on each weld. The weld design prevented any scan from the branch connection side. In order to achieve more coverage the weld would have to be re-designed to allow scanning from both sides.

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. Duke Energy Corporation uses refracted longitudinal waves to examine cast austenitic welds.

V. Alternate Examinations or Testing:

No additional examinations are planned during the current interval for 2NC13-WN9. Radiography is not practical because of the geometry of the component, which prevents placement of the film and exposure. Duke Energy Corporation will continue to use the most effective ultrasonic techniques available to obtain maximum coverage for future examination of this weld.

VI. Justification for the Granting of Relief:

Although the examination requirements as defined in ASME Section XI 1989 Edition with No Addenda, Appendix III, Paragraph III-4420, for ID Number 2NC13-WN9, could not be covered, the amount of coverage obtained for this examination provides an acceptable level of quality and integrity. For results of the examination, reference Attachment 3.

2NC13-WN9 is located inside containment and is part of the reactor coolant system pressure boundary. General Design Criterion 30, "Quality of Reactor Coolant Pressure Boundary," of Appendix A to 10 CFR Part 50, "General Design Criteria for Nuclear Power Plants," mandates that means be provided for detecting and, to the extent practical, identifying the location of the source of reactor coolant leakage. If a leak were to develop at this weld location, the instrumentation available to the operators for detection and monitoring of leakage would provide prompt and qualitative information necessary to permit them to take immediate corrective action. If a leak should develop, the only

Request for Relief Serial No. 01-003 Page 7 of 20

corrective action would be to shutdown and depressurize the reactor coolant system, since the component is nonisolable.

Plant Technical Specifications dictate that a reactor coolant system water inventory balance be performed on a regular basis. A normal operating practice is to perform this computer based mass balance on a daily frequency and/or whenever the operators suspect any abnormal changes to other leakage detection systems. A plant technical specification requires that if the leak rate cannot be reduced below 1 gpm unidentified that the plant be put in hot standby within 6 hours and in cold shutdown within the following 30 hours. Leakage as a result of a failed weld discussed in this section would show up as unidentified leakage and subject to the 1 gpm limit.

Other leakage detection systems available to the operator and dictated per plant technical specifications are:

- Containment Atmosphere Gaseous and Particulate Radioactivity Monitoring System (EMF monitors 38 & 39) which would detect airborne radiological activity;
- Containment Floor and Equipment Sump Level and Flow Monitoring Subsystem where unidentified accumulated water on the containment floor would be monitored and evaluated as sump level changes;
- Containment Ventilation Unit Condensate Drain Tank Level Monitoring Subsystem which collects and measures as unidentified leakage the moisture removed from the containment atmosphere.

Additionally, other indicators are also available to the operator that a leak exists or may be developing:

- Containment Atmosphere Iodine Monitor (EMF 40)
- Charging / Letdown system mismatches;
- Containment humidity indications;
- Pre-Cycle walkdowns performed each outage while system is at operating temperature and pressure prior to criticality;
- Post-Cycle walkdowns performed at operating temperature and pressure performed during unit shutdown.

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VII. Implementation Schedule:

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This examination will continue to be scheduled in accordance with the requirements of ASME Section XI for future inspection intervals.

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# I. System/Component(s) for Which Relief is Requested:

ASME Section XI Code Class 2 Examination Category C-B Pressure Retaining Nozzle Welds in Vessels; Nozzle to Shell (or Head) Weld

| ID Number   | Item Number | Configuration           |
|-------------|-------------|-------------------------|
| 2SGB-06A-18 | C02.021.001 | Nozzle to<br>Shell Weld |

#### II. Code Requirement:

ASME Section XI 1989 Edition with no addenda, Examination Category C-B, Item No. C02.021, Figure IWC-2500-4 (a). ASME Section V, Article 4, Paragraph T-424.1 states: "The volume shall be examined by moving the search unit over the examination surface so as to scan the entire examination volume."

#### III. Code Requirement from which Relief is Requested:

Relief is being sought from the requirement to scan the entire examination volume C-D-E-F shown in Figure IWC-2500-4(a).

#### IV. Basis for Relief:

During the ultrasonic examination of Steam Generator 2B Auxiliary Feedwater Nozzle-to-Shell Weld 2SGB-06A-18, Item Number C02.021.001, greater than 90% coverage of the required examination volume could not be obtained. The examination coverage was limited to 75.00% of the required examination volume. This is a ferritic nozzle to shell weld where access is limited to the vessel shell side only. The weld would have to be re-designed to allow scanning from both sides in order to achieve greater than 90% coverage. The percentage of coverage reported represents the aggregate coverage obtained from one scan perpendicular to the weld axis and two scans, 180° apart parallel to the weld as shown in Attachment 4.

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### V. Alternate Examinations or Testing:

No additional examinations are planned during the current interval for ID Number 2SGB-06A-18. Radiography is not an acceptable alternative because of access restrictions for source and film placement. Duke Energy Corporation will continue to use the most effective ultrasonic techniques available to obtain maximum coverage for future examination of this weld.

### VI. Justification for the Granting of Relief:

Although the entire examination volume C-D-E-F in Figure IWC-2500-4(a) for ID Number 2SGB-06A-18 could not be covered, the amount of coverage obtained for this examination provides an acceptable level of quality and integrity. For results of the examination, reference Attachment 4.

Steam Generator 2B Auxiliary Feedwater Nozzle-to-Shell Weld 2SGB-06A-18 is located inside containment and is part of the secondary system pressure boundary. If a leak were to develop at this weld location, the instrumentation available to the operators for detection and monitoring of leakage would provide prompt and qualitative information necessary to permit them to take immediate corrective action. If a leak should develop, the probable corrective action would be shutdown and depressurize the steam generators, since the weld is non-isolable.

Other leakage detection systems available to the operator and dictated per plant technical specifications are:

- Containment Floor and Equipment Sump Level and Flow Monitoring Subsystem where unidentified accumulated water on the containment floor would be monitored and evaluated as sump level changes;
- Containment Ventilation Unit Condensate Drain Tank Level Monitoring Subsystem which collects and measures as unidentified leakage the moisture removed from the containment atmosphere.

Additionally, other indicators are also available to the operator that a leak exists or may be developing:

• Containment humidity indications;

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- Pre-Cycle walkdowns performed each outage while system is at operating temperature and pressure prior to criticality;
- Post-Cycle walkdowns performed at operating temperature and pressure performed during unit shutdown.

## VII. Implementation Schedule:

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This examination will continue to be scheduled in accordance with the requirements of ASME Section XI for future inspection intervals.

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### I. System/Component(s) for Which Relief is Requested:

ASME Section XI Code Class 2 Examination Category C-B Pressure Retaining Nozzle Welds in Vessels; Nozzle to Shell (or Head) Weld

| ID Number   | Item Number | Configuration             |
|-------------|-------------|---------------------------|
| 2BNSHX-3-N1 | C02.021.004 | Nozzle to<br>Channel Weld |
| 2BNSHX-3-N2 | C02.021.005 | Nozzle to<br>Channel Weld |

#### II. Code Requirement:

ASME Section XI 1989 Edition with no addenda, Category C-B, Item No. C02.021, Figure IWC-2500-4(a). ASME Section XI, Appendix III, Paragraph III-4420, 1989 Edition with no addenda as modified by Code Case N-460. "The examination shall be performed using a sufficiently long examination beam path to provide coverage of the required examination volume in two-beam path directions. The examination shall be performed from two sides of the weld, where practicable, or from one side of the weld, as a minimum."

# III. Code Requirement from which Relief is Requested:

Relief is being sought from the requirement to perform the examination from two beam path directions.

#### IV. Basis for Relief:

During the ultrasonic examination of the Containment Spray Heat Exchanger Inlet and Outlet Nozzle to Channel Welds 2BNSHX-3-N1 and 2BNSHX-3-N2 shown in Attachments 5 and 6, respectively, greater than 90% coverage of the required examination volume could not be obtained. The examination coverage for both welds was limited to 49.03%. Austenitic weld metal characteristics and single sided access caused by the component geometry

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prevents two-beam path direction coverage of the examination volume. Obtaining coverage greater than 90% of the weld volume as defined in Code Case N-460 is not possible. In order to achieve two beam path direction coverage, the welds would have to be redesigned to allow scanning from both sides.

The most effective ultrasonic technique for the examination of dissimilar metal welds uses refracted longitudinal waves. The longitudinal wave is preferred as the austenitic weld metal creates highly attenuative barriers to shear wave ultrasound. The longitudinal wave is less affected by these difficulties. However, the longitudinal wave is affected by mode conversion when it strikes the inside surface of the safe end or pipe at any angle other than a right angle to the surface.

The calculations below show that a  $45^{\circ}$  refracted longitudinal wave striking the inside surface of a pipe will produce a 22.9° refracted shear wave in addition to the normally expected  $45^{\circ}$  reflected longitudinal wave.

 $\sin^{-1} = (\sin 45^0 \times V_s) \div V_L$ 

 $= (0.707 \times 0.123) \div 0.223$ 

Where:  $\sin^{-1}$  is the shear wave angle

 $V_s$  is the shear wave velocity of the stainless steel safe end/pipe material in inches /µsec.

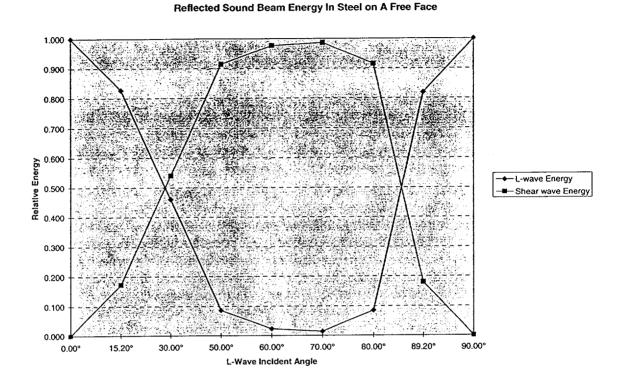
 $V_L$  is the longitudinal wave velocity of the stainless steel safe/pipe end material in inches/µsec.

As shown in the graph below, the mode conversion process creates two sound beams of differing intensities reflecting off the inside surface<sup>1</sup>. At incident angles greater than 30 degrees, the shear wave will predominate. However, the shear wave is attenuated and scattered by the austenitic weld metal and the layer of buttering. The examination sensitivity is degraded to such an extent that any examination using the second sound path leg is meaningless. Therefore, the two-beam path direction coverage requirement is impractical.

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In order to obtain the required two-beam path direction coverage, welds would have to be redesigned to allow scanning from both sides.

<sup>1</sup>Firestone, F.A.: Tricks with the Supersonic Reflectoscope, J. Soc. Nondestructive Testing, vol. 7, no. 2, Fall 1948.



#### V. Alternate Examinations or Testing:

No additional examinations are planned during the current interval for weld Numbers 2BNSHX-3-N1 and 2BNSHX-3-N2. Radiography is not an acceptable alternative because of access restrictions for source and film placement Duke Energy Corporation will continue to use the most effective ultrasonic techniques available to obtain maximum coverage for future examination of these welds.

### VI. Justification for the Granting of Relief:

Although the examination volume as defined in ASME Section XI 1989 Edition with no addenda, Figure IWC-2500-4 (a) could not be covered in two beam path

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directions, the amount of coverage obtained for this examination provides an acceptable level of quality and integrity. These welds were examined using procedures and calibration blocks in accordance with ASME Section XI, Appendix III.

Containment Spray (NS) is used to control pressure inside the containment vessel during a safety injection with high containment pressure. This system is not used for normal operation of the plant.

The area that contains the welds (Containment Spray Heat Exchanger Inlet and Outlet Nozzle to Channel) is surveyed twice a day by Operations during their routine rounds. One of the items that must be checked off is for general condition of the room containing the heat exchanger. It is reasonable to expect the operator making these rounds to detect any external leaks from these welds.

This same area is also surveyed once a week by a periodic test that is used to specifically look for radioactive leaks outside containment. This area must be surveyed and signed off. If a leak were encountered, it would be written up in a work request and a Problem Investigation Process form filled out. The Fluid Leak Management Process then examines the leak. The leak is either repaired or set up for periodic monitoring. A leak in the NS system would also have to be entered into the Emergency Core Cooling System Leakage Program managed by Technical Specification 5.5.3.

### VII. Implementation Schedule:

These examinations will continue to be scheduled in accordance with the requirements of ASME Section XI for future inspection intervals.

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### I. System/Component(s) for Which Relief is Requested:

ASME Section XI Examination Category C-F-1 Pressure Retaining Welds in Austenitic Stainless Steel or High Alloy Piping; Circumferential Weld

| ID Number | Item Number | Configuration |
|-----------|-------------|---------------|
| 2NV20-5   | C05.021.232 | Pipe to Valve |

#### II. Code Requirement:

ASME Section XI 1989 Edition with no addenda, Examination Category C-F-1, Item No. C05.021, Figure IWC-2500-7 (a), Examination Volume C-D-E-F.

## III. Code Requirement from which Relief is Requested:

Relief is being sought from the requirement to examine 100% of Volume C-D-E-F shown in Figure IWC-2500-7 (a).

### IV. Basis for Relief:

During the ultrasonic examination of this pipe to valve weld, 2NV20-5 shown in Attachment 7, greater than 90% of the required examination volume as allowed by Code Case N-460 could not be achieved. The examination coverage was limited to 61.09% of the required examination volume. This is an austenitic stainless steel pipe to valve weld where access is limited to the pipe side of the weld only. The percentage of coverage reported represents the aggregate coverage obtained from one scan parallel to the pipe axis and two scans, 180° apart in the circumferential direction on each The weld design prevented any axial scan from weld. the valve side. In order to achieve more coverage the weld would have to be re-designed to allow scanning from both sides.

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

Request for Relief Serial No. 01-003 Page 17 of 20

the weld. Refracted longitudinal waves provide better penetration. Duke Energy Corporation uses a combination of shear waves and longitudinal waves to examine single sided austenitic welds.

The procedures, personnel and equipment have been qualified through the Performance Demonstration Initiative (PDI). However, although longitudinal wave search units were used in the qualification and cracks were detected through the weld metal, PDI does not provide a qualification for single sided examinations of austenitic welds.

#### V. Alternate Examinations or Testing:

No additional examinations are planned during the current interval for ID Number 2NV20-5. Because of the valve configuration, radiography would not provide any additional coverage. Duke Energy Corporation will use the most effective ultrasonic techniques available to obtain maximum coverage for future examination of this weld.

#### VI. Justification for the Granting of Relief:

Although the examination volume as defined in ASME Section XI 1989 Edition with no addenda, Figure IWC-2500-7 (a) could not be covered, the amount of coverage obtained for these examinations provides an acceptable level of quality and integrity. These welds were examined using procedures, personnel and equipment qualified through the Performance Demonstration Initiative (PDI).

This weld is located on the Seal Return Line from the Reactor Coolant Pumps. This same line also provides mini-flow protection for the high head safety injection pumps. The seal return line containing this weld is normally in service during power operations. The Seal Return Line containing the weld is located in the Auxiliary Building. During power operations and unit refueling outages, the Seal Return Line is accessible for visual inspections.

If a leak were to occur at the weld in question (at Valve 2NV-204), there are several periodic tests and

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evaluations that are performed by established procedures that should identify the leakage for prompt OPS/ENG evaluation:

- During power operation, any leakage from the Seal Return Line would be identified as a mass loss in the reactor coolant system water inventory balance. As described above, a normal operating practice is to perform this computer based mass balance on a daily frequency and/or whenever the operators suspect any abnormal changes to other leakage detection systems. A plant technical specification requires that if the leak rate cannot be reduced below 1 gpm unidentified that the plant be put in hot standby within 6 hours and in cold shutdown within the following 30 hours. Leakage as a result of a failed weld discussed in this section would show up as unidentified leakage and subject to the 1-gpm limit.
- If a leak were to occur at the subject weld, the water would spill on the floor in the Auxiliary Building and flow to a floor drain and then to the Floor Drain Tank. Our Chemistry department periodically monitors the tank level and evaluates unidentified leakage for correction.

This same area is also surveyed once a week by a periodic test that is used to specifically look for radioactive leaks outside containment. This area must be surveyed and signed off. If a leak were encountered, it would be written up in a work request and a Problem Investigation Process form filled out. The Fluid Leak Management Process then examines the leak. The leak is either repaired or set up for periodic monitoring.

#### VII. Implementation Schedule:

This examination will continue to be scheduled in accordance with the requirements of ASME Section XI for future inspection intervals.

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Finally, for all of the welds covered by this request for relief, in the event that a through wall leak were discovered, the affected component would be subjected to an operability determination as required by existing plant processes. Should the affected component be determined to be inoperable, the applicable Technical Specification remedial actions would be followed.

The following individuals contributed to the development of this RFR:

Jim McArdle (NDE Level III) provided Sections II-V and part of Section VI

David Goforth (Systems Engineer) provided part of Section VI

Andy Hogge (Sponsor) compiled the remaining sections

Sponsored By:

<u>pe: N. Date 12/19/2001</u> <u>Rhyne Date 12/19/01</u>

Approved By:

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| Attachment 3 | 1 | Description Table               |  |  |  |  |  |
|--------------|---|---------------------------------|--|--|--|--|--|
| Attachment 2 | 2 | UT Examination Data B03.110.001 |  |  |  |  |  |
| Attachment 3 | 3 | UT Examination Data B09.031.003 |  |  |  |  |  |
| Attachment   | 4 | UT Examination Data C02.021.001 |  |  |  |  |  |
| Attachment   | 5 | UT Examination Data C02.021.004 |  |  |  |  |  |
| Attachment   | 6 | UT Examination Data C02.021.005 |  |  |  |  |  |
| Attachment   | 7 | UT Examination Data C05.021.232 |  |  |  |  |  |

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Request for Relief Serial No. 01-003 Page 1 of 3 Attachment 1

ASME Class 1 & 2 Inservice Inspection Request For Relief 01-003 For Catawba Unit 2 Based on ASME Section XI - 1989 Code

Item No.	Exam Category/ Figure No.	System Or Component	Area To Be Examined	Reason For Request	Licensee Proposed Alternate Examination
в03.110.001	B-D IWB-2500-7 (b)	Pressurizer	Pressurizer Surge Nozzle to Lower Head	restricts access to only one side of the weld, and	None
в09.031.003	B-J IWB-2500- 8(c) Appendix III, Paragraph III-4420	NC System	Reactor Coolant System Nozzle to Pipe	Limited scan due to access limited to the main run pipe side of the weld. Actual coverage obtained = 22.87% (See Attachment 3)	None

Request for Relief Serial No. 01-003 Page 2 of 3 Attachment 1

ASME Class 1 & 2 Inservice Inspection Request For Relief 01-003 For Catawba Unit 2 Based on ASME Section XI - 1989 Code

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Item No.	Exam Category /Figure No.	System Or Component	Area To Be Examined	Reason For Request	Licensee Proposed Alternate Examination
C02.021.001	C-B IWC-2500-4 (a)	Steam Generator	Steam Generator 2B Auxilliary Feedwater Nozzle to Shell	Limited scan due to access limited to the vessel shell side only. Actual coverage obtained = 75% (See Attachment 4)	None
C02.021.004	C-B IWC-2500- 4(a) Appendix III, Paragraph III-4420	Containment Spray Heat Exchanger	Containment Spray Heat Exchanger Outlet Nozzle to Channel		None
C02.021.005	C-B IWC-2500- 4(a) Appendix III, Paragraph III-4420	Containment Spray Heat Exchanger	Containment Spray Heat Exchanger Inlet Nozzle to Channel	Limited scan due to single-sided access caused by the component geometry. Actual coverage obtained = 49.03% (See Attachment 6)	None

Request for Reilef Serial No. 01-003 Page 3 of 3 Attachment 1

ASME Class 1 & 2 Inservice Inspection Request For Relief 01-003 For Catawba Unit 2 Based on ASME Section XI - 1989 Code

Item No.	Exam Category /Figure No.	System Or Component	Area To Be Examined	Reason For Request	Licensee Proposed Alternate Examination
C05.021.232	C-F-1 IWC-2500-7 (a)	NV System	Chemical and Volume Control Valve 2NV- 204 to Pipe	Limited scan due to access limited to the pipe side of the weld only. Actual coverage obtained = 61.09% (See Attachment 7)	None



DUKE POWER COMPANY					Exam Sta	art: 14	433	Form	NDE-UT	-2A
ULTRASONIC EXAMINATION DATA SHEET FOR PLANAR REFLECTORS						nish: 1:	504	R	evision 4	
Station: CNS	Unit: 2	Component/V	Veld ID: 21	PZR-W1	· · · · · · · · · · · · · · · · · · ·			Date:	10/9/20	001
Weld Length (in.): 77"	Surface Condi	tion: AS (GROUND	Lo:	9.2.3	Surface ⁻	 Fempera	ture:	71 °	F
Examiner: David Zimmerman	Level: III Level: III	Scans: 45 □	dB	70 🖾	50 dB	Pyromete Cal Due:	er S/N:	MCNI		
Procedure: NDE-620 Rev: 8	FC: 00-07	45T 60 <u>74/7</u>	dB 7		<u>59</u> dB		2	Flow _	S1	
Calibration Sheet No: 0102054, 0102055, 0102056		60T ⊠ <u>74/7</u>		dI	3		Scan Scan	to <u>Surface:</u> o NDE-6	OD	
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NRI 60/70										

Remarks:					
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Reviewed By: Lan Moss	Level:	Date: /0-//-01	Authorized Inspector:	Date:	Item No: B03.110.001
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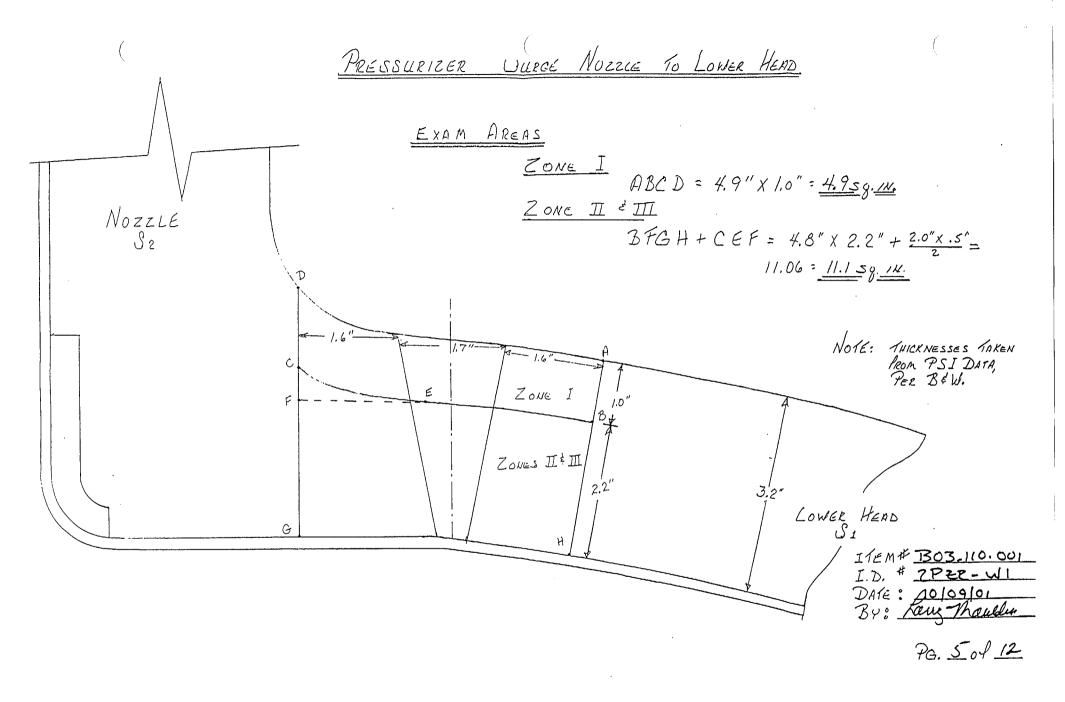
		FORM NDE-UT-4		
	DUKE POWER C ISI LIMITATION			Revision 1
Component/Weld ID: 2PZR-W1	lte	em No: B03.110.001	Remarks:	ι
□ NO SCAN ☑ LIMITED SCAN	SURFACE			.75" Dia.@) Heater ss-2.3" @ = 46 in. / @ = 64 in.
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ANGLE: 0 0 45 🛛 60 🖾 Other	SURFACE	BEAM DIRECTION		
FROM L to L ANGLE: 0 0 45 0 60 0 Other		WO to FROM DEG to DEG		
□ NO SCAN □ LIMITED SCAN	SURFACE	BEAM DIRECTION		
FROM L to L	INCHES FROM	WO to		
ANGLE: 0 0 45 0 60 0 Other		FROM DEG to		
Prepared By: David K. S.	Level: IL Da	ate: 10/0৭/01 Sketch(s) attached 🛛	yes 🖾 no	Sheet_2_of /2_
	Date: 10-11-01		1: Jul	Date: 10/17/07

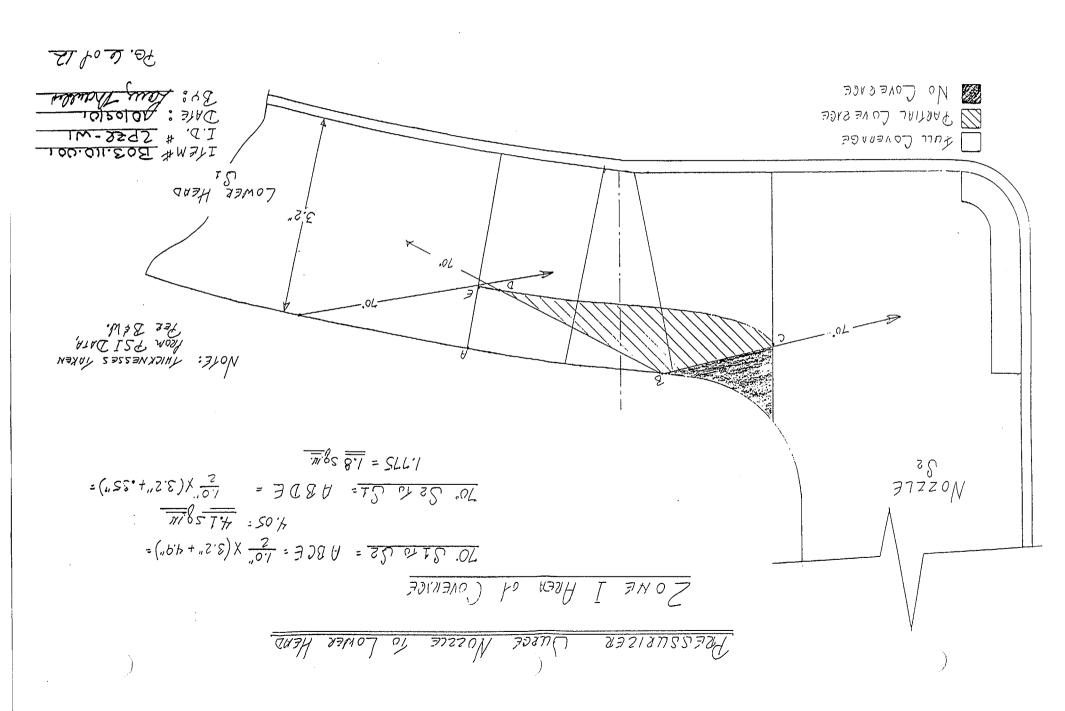
DUKE POWER COMPANY							NDE-91-1
Limited Examination Coverage Worksheet							Revision 0
			Examinatio	on Volume/A	rea Defined		
🗆 Bas	Base Metal Weld Near Surface Boltin						Inner Radius
Area Calculation Volume Calculation							ition
See Drwg. For CalculationsZone I = 4.9 sq.in. X 78 in. = 382.2 cu.in.Zone I = 4.9 sq.in. X 78 in. = 365.8 cu.in.Zone II & III = 11.1 sq. in.Zone II & III = 11.1 sq. in.Zone II & III = 11.1 sq. in.							
			Cov	erage Calcu	lations		
Scan #	Angle	Beam Direction	Cov Area Examined (sq.in.)	erage Calcu Length Examined (in.)	lations Volume Examined (cu.in.)	Volume Required (cu.in.)	Percent Coverage
Scan #	Angle 70		Area Examined	Length Examined	Volume Examined	Required	Percent Coverage
		Direction	Area Examined (sq.in.)	Length Examined (in.)	Volume Examined (cu.in.)	Required (cu.in.)	Percent Coverage
1	70	Direction 2	Area Examined (sq.in.) 4.1	Length Examined (in.) 32	Volume Examined (cu.in.) 131.2	Required (cu.in.) 156.8	Percent Coverage
1	70 70 70	Direction 2 2	Area Examined (sq.in.) 4.1 2.3	Length Examined (in.) 32 46	Volume Examined (cu.in.) 131.2 105.8	Required (cu.in.) 156.8 225.4	Percent Coverage
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1 1 2 3	70 70 70 70 70	Direction 2 2 1 CW	Area Examined (sq.in.) 4.1 2.3 1.8 3.5	Length Examined (in.) 32 46 78 78 78	Volume Examined (cu.in.) 131.2 105.8 140.4 273	Required (cu.in.) 156.8 225.4 382.2 382.2	Percent Coverage
1 1 2 3 4	70 70 70 70 70 70	Direction 2 2 1 CW CCW	Area Examined (sq.in.) 4.1 2.3 1.8 3.5 3.5	Length Examined (in.) 32 46 78 78 78 78	Volume Examined (cu.in.) 131.2 105.8 140.4 273 273	Required (cu.in.) 156.8 225.4 382.2 382.2 382.2 382.2	Percent Coverage
1 1 2 3 4 5	70 70 70 70 70 70 60	Direction 2 2 1 CW CCW 2	Area Examined (sq.in.) 4.1 2.3 1.8 3.5 3.5 3.5 11	Length Examined (in.) 32 46 78 78 78 78 78 14	Volume Examined (cu.in.) 131.2 105.8 140.4 273 273 154	Required (cu.in.) 156.8 225.4 382.2 382.2 382.2 382.2 155.4	Percent Coverage
1 1 2 3 4 5 5 5	70 70 70 70 70 70 60 60	Direction 2 2 1 CW CCW 2 2	Area Examined (sq.in.) 4.1 2.3 1.8 3.5 3.5 3.5 11 1.8	Length Examined (in.) 32 46 78 78 78 78 78 14 64	Volume Examined (cu.in.) 131.2 105.8 140.4 273 273 154 115.2	Required (cu.in.) 156.8 225.4 382.2 382.2 382.2 155.4 710.4	Percent Coverage

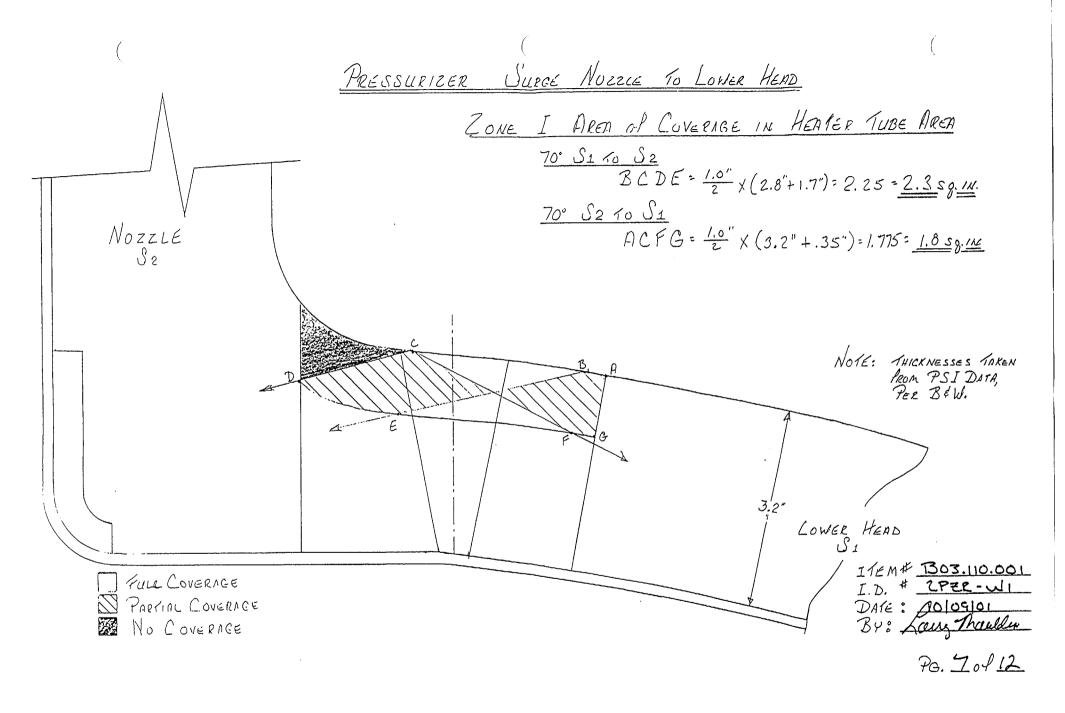
	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			Item No:	B03.110.001
(L.	Prepared By: Larry Mauldin Law Mauldun	Level:	111		Date: 10/9/2001
X	Reviewed By: Say Moss	Level:	I		Date: 10 -//-01
és	T (				

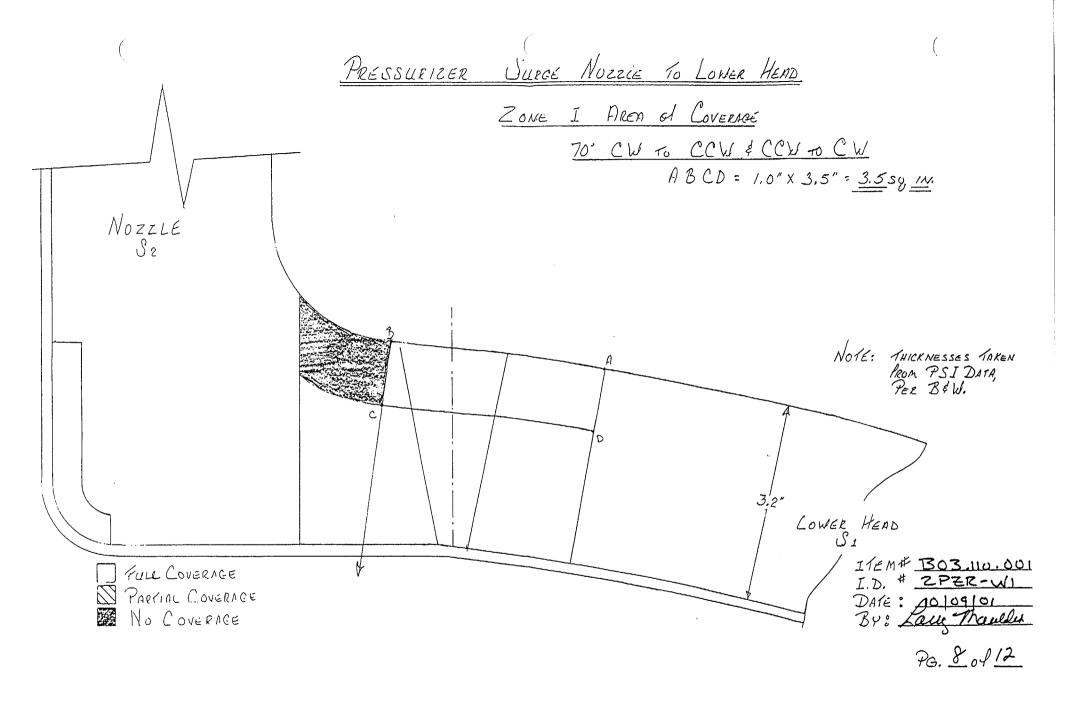
DUKE POWER COMPANY					NDE-91-1			
Limited Examination Coverage Worksheet								Revision 0
	Examination Volume/Area Defined							
Base Metal     Weld     Near Sur				ar Surf	ace [	□ Bolting		Inner Radius
Area Calculation				Volume Calculation				
See Drwg. For Calculations Zone I = 4.9 sq. in. Zone II & III = 11.1 sq. in.			Zone I = 4.9 sq.in.X 78 in. = 382.2 cu.in. Zone II & III = 11.1 sq.in. X 78 in. = 865.8 cu.in. Loss = 70° 46 in., 60° 64 in. for heater tubes					
Coverage Calculations								
Scan # Angle	Beam Direction	Area Examined n (sq.in.)	Len Exam (ir	ined	Volume Examined (cu.in.)	Volu Requ (cu.i	ired	Percent Coverage
					2136.4	499	92	42.80

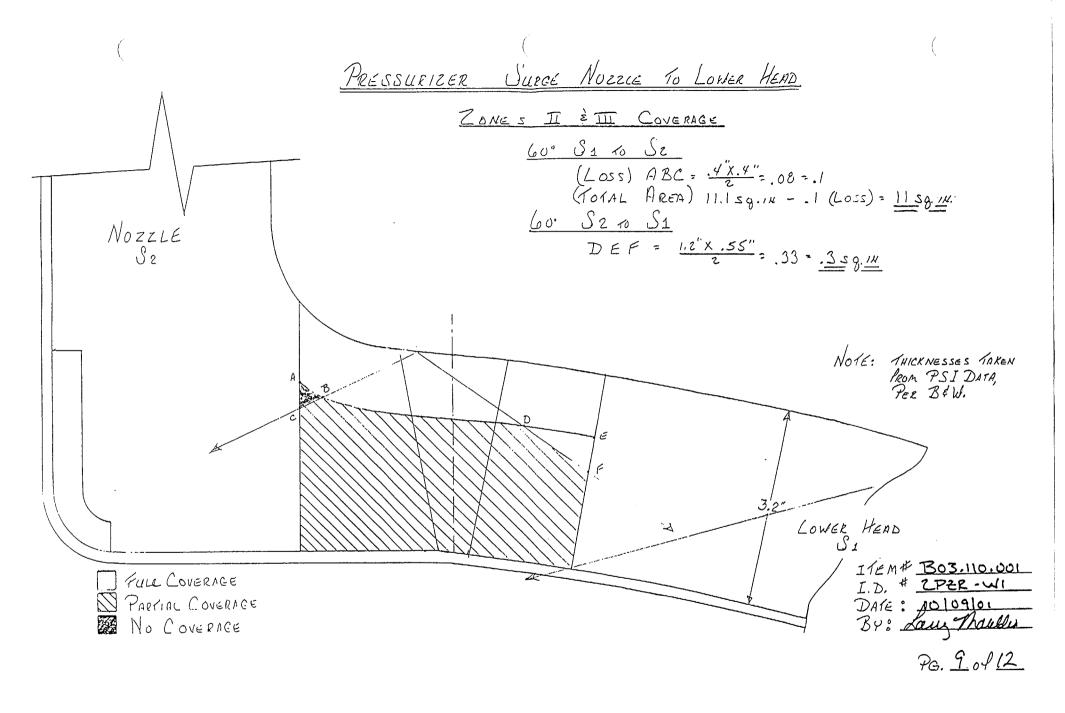
			Item No: B03.110.001
5	Prepared By: Larry Mauldin Law Mauldun	Level: III	Date: 10/9/2001
2) 2017	Reviewed By: Hay/Mors	Level: F	Date: 10-11-01
ya			

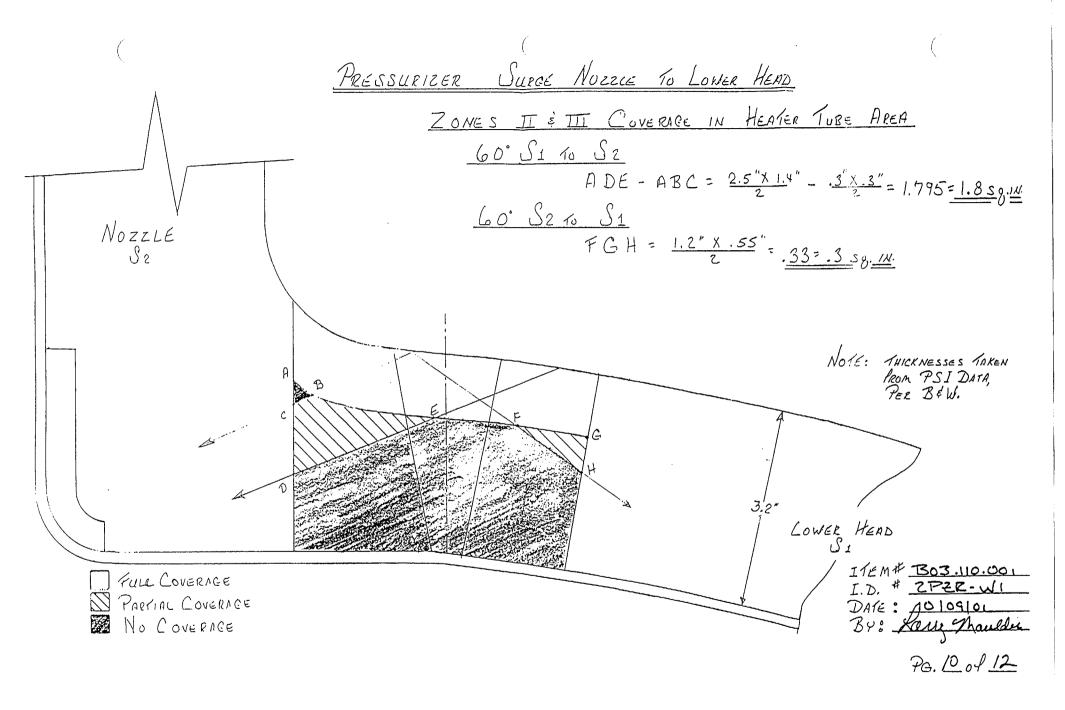


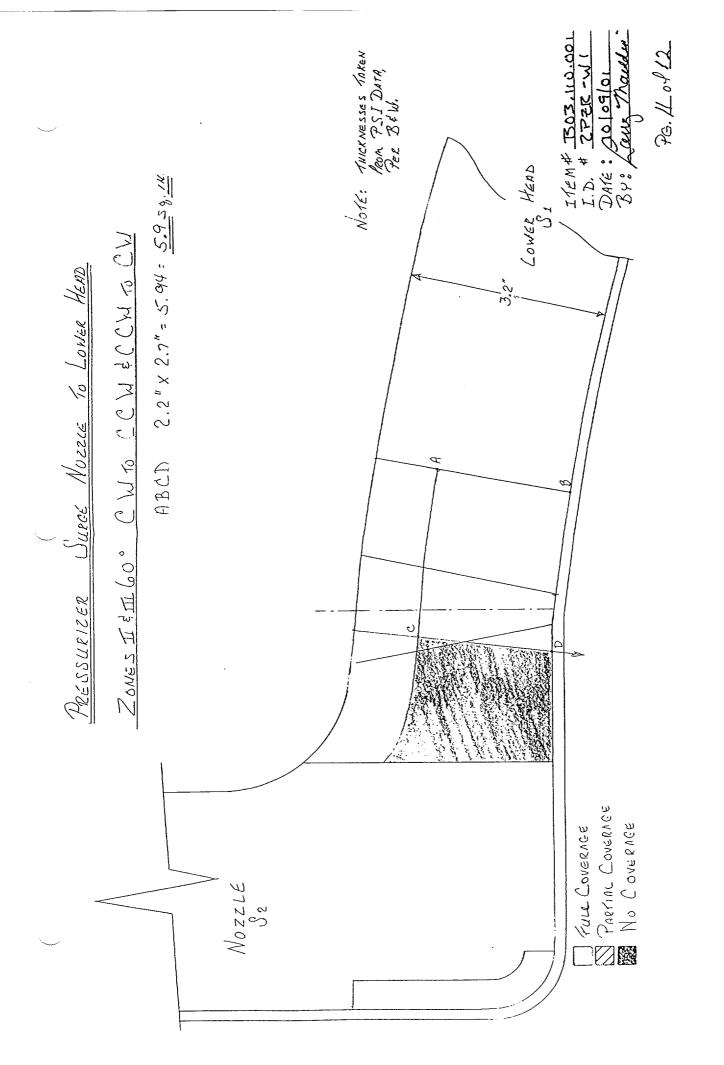


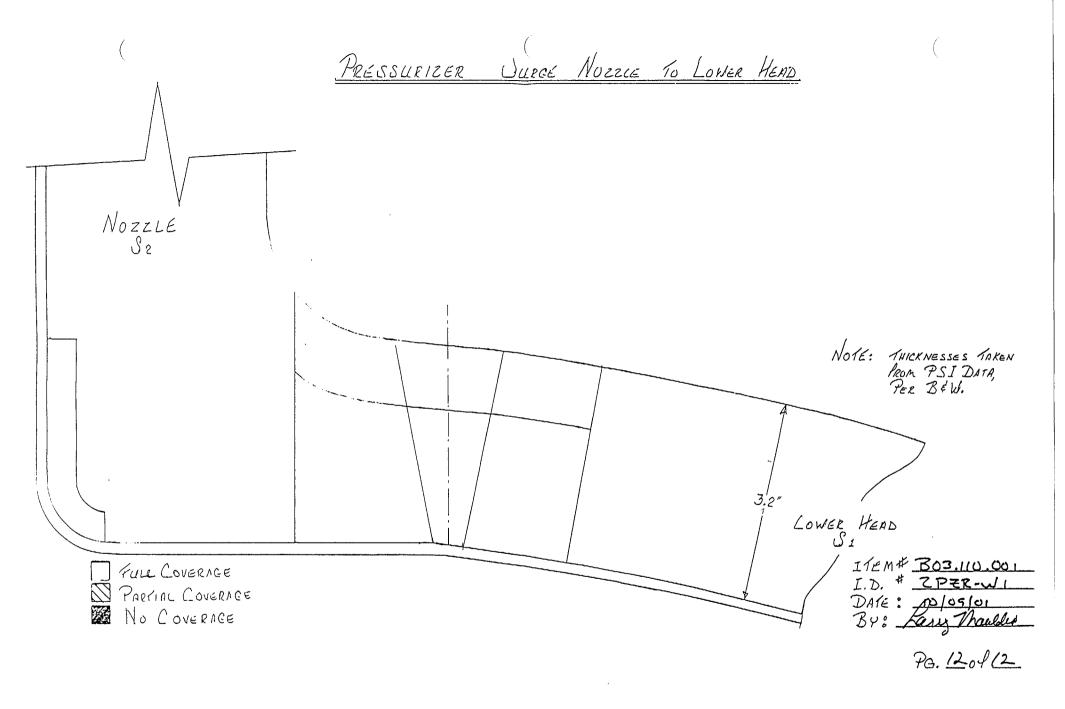












DUK	E POWER	COMP	ANY		·	Exam St	art: 1	040	Form	NDE-UI	Г-2А
ULTRASONIC EXAMINATI	ULTRASONIC EXAMINATION DATA SHEET FOR PLANAR REFLECTORS Exam Finish:									evision 4	
Station: CNS	Unit:	Jnit: 2 Component/Weld ID: 2NC13-WN9							Date:	9/19/20	001
Weld Length (in.): 38"	Surface	Surface Condition: AS GROUND Lo:				9.2.3	Surface ⁻	Tempera	iture:	70 °	F
Examiner: David Zimmerman	Mon Leve		Scans: 45 🛛6;	3 48	70 🗍		Pyromete Cal Due:	er S/N:	MCN	DE 2701	
	ev: 4 FC:		45T 🛛63	<u>3</u> dB 7			Configura		Bran Flow		
Calibration Sheet No: 0102008, 0102009			60	dB dB				Applies t	to Surface: to NDE-6	OD	
			Other:		dl	В	Skew An	gle:		N/A	
	W L Max Max	L1	L2	W1	Mp1	W2	Mp2	Beam Dir.	Exam Surf.	Scan	Damps
DO NOT WRIT IN THIS SPAC		20%dad HMA 50%dad 100%da	HMA 50%dac	20%dac HMA 50%dac 100%dac	20%dac HMA 50%dac 100%dac	20%dac HMA 50%dac 100%dac	20%dac HMA 50%dac 100%dac	D IN	O NOT	WRITI SPACE	
NRI 45° AXIAL											
NRI 45° CIRC											

Remarks: * FC 97-01, 98-20					
Limitations: (see NDE-UT-4) 🛛	90% or greater	coverage obt	ained: yes □ no ⊠		Sheet / of 6
Reviewed By:	Level:	Date:	Authorized Inspector:	Date:	Item No:
Fan Mauller	<u> </u>	921.01	Kobert Mikel	10/17/07	B09.031.003
	REG	UEST A	TOR RELIEF #01-003	з Аттасы	MENT 3

	DUKE POWER	COMPANY		FORM NDE-UT-4
	ISI LIMITATIC	ON REPORT		Revision 1
Component/Weld ID: 2NC13-WN9		Item No: B09.031.003	Remarks:	
🖾 NO SCAN	SURFACE	BEAM DIRECTION	NOZZLE CONF	IGURATION
	□ ₁ ⊠ 2	⊠ 1 □ 2 ⊠ cw ⊠ ccw		
FROM L to L	INCHES FRO	DM WO toBEYOND		
ANGLE: 0 0 45 0 60 0 Other		FROM 0 DEG to 360 DEG		
	SURFACE	BEAM DIRECTION		·····
	$\Box_1$ $\Box_2$	□ 1 □ 2 □ cw □ ccw		
FROM L to L		DM WO to		
ANGLE: 0 0 45 0 60 0 Other		FROM DEG toDEG		
	SURFACE	BEAM DIRECTION		
		□ 1 □ 2 □ cw □ ccw		
FROM L to L		OW WO		
ANGLE: 0 0 45 60 0 Other		FROM DEG toDEG		
	SURFACE	BEAM DIRECTION		
	□ 1 □ 2	□ 1 □ 2 □ cw □ ccw		
FROM L to L	INCHES FRO	DM WO to		
ANGLE: 0 0 45 60 0 Other				
Prepared By: Paris K. 3	Level: III	Date: $\frac{q}{2001}$ Sketch(s) attached $\boxtimes$	yes 2 no 4120	o Sheet 2 of 6
	Date: 9.21.01		Sil	Date: 10/17/0)
0				

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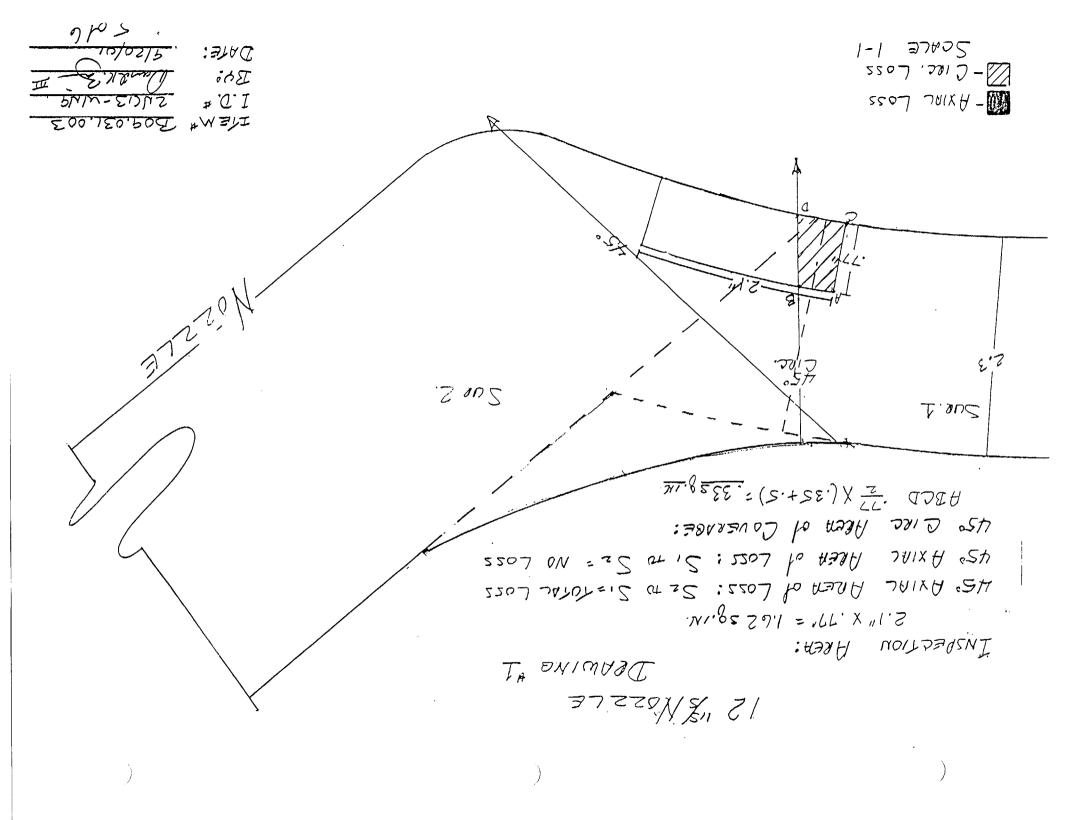
	DUKE POWER COMPANY								NDE-91-1	
			Revision 0							
		<u></u>	Examinati	ion Volu	ıme/A	rea Defined				
🗵 Bas	se Metal	M M	eld	🗆 Nea	ar Sur	face 🗆	Bolting	2	Inner Radius	
		Area Calcula	ation			Vol	ume Ca	Icula	tion	
2.1" X .77" = 1.62 SQ. IN.       PROFILE 1         PROFILE #2       1.62 SQ. IN. X 31.5" = 51.03 CU. IN.         2.2" X .77" = 1.69 SQ. IN       PROFILE 2         1.69 SQ. IN. X 31.5" = 53.24 CU. IN.										
			001	verage (	Janua	lations				
Scan #	Angle	Beam Direction	Area Examined (sq.in.)	Len Exam (in	ined	Volume Examined (cu.in.)	Volu Requ (cu.	uired	Percent Coverage	
		PROFILE #1								
1	45°	2	1.62	19	)	30.78	30.	.78		
1	45°	2	0	12.	5	0	20.	.25		
2	45°	1	0	31.	5	0	51.	.03		
3	45°	CW	.33	19	)	6.27	30.			
3	45°	CW	0	12.	5	0	20.	.25		
4	45°	CCW	.33	19	)	6.27	30.	.78		
4	45°	CCW	.33	12.	5	0	20.	25		

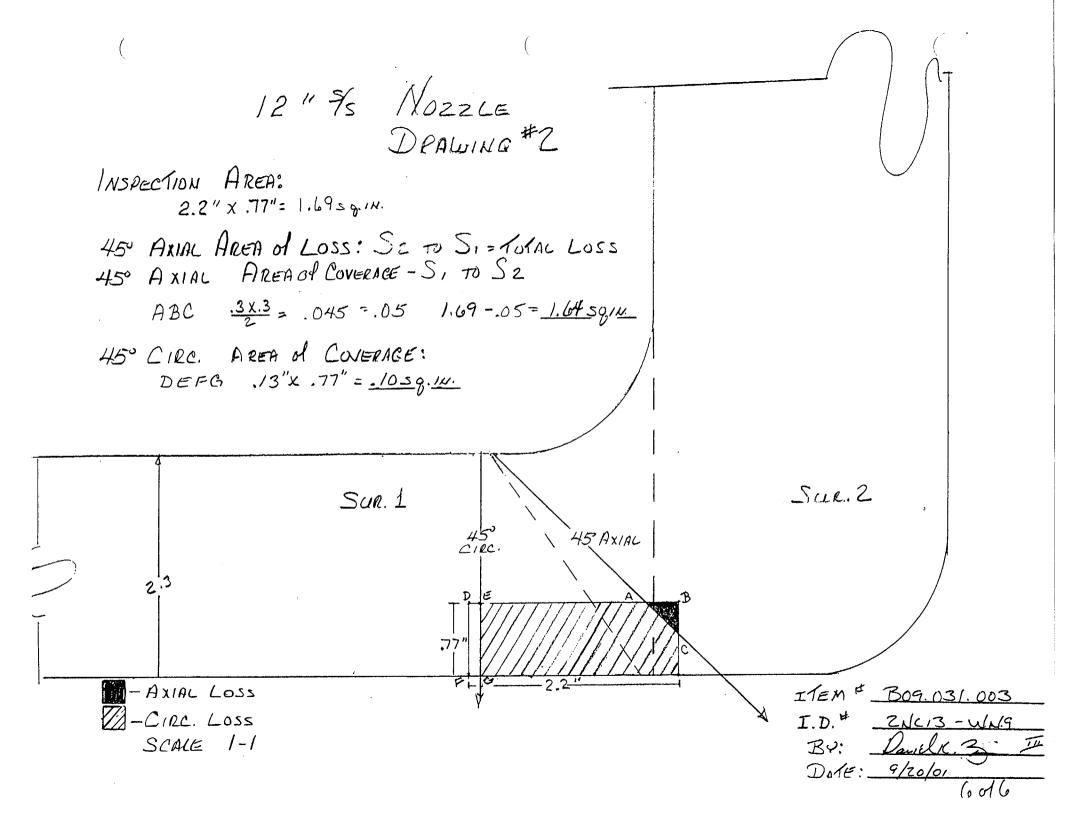
	Item No:	B09.031.003
Prepared By: Darkk 2	Level: 111	Date: 9/20/01
Reviewed By: Mauldup		Date: 9.21.01

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		DUKE	POWER	COMPAN	Y		NDE-91-1
			Revision 0				
			Examinati	on Volume	Area Defined		
🛛 Ba	se Metal		/eld	□ Near S	urface C	Bolting	Inner Radius
		Area Calcul	ation		Vol	ume Calcula	tion
PROFIL 2.2" X .	LE #2 77" = 1.6	9 SQ. IN		PR	2 SQ. IN. X 31.5 OFILE 2 9 SQ. IN. X 31.5		
			Cov	verage Calc	ulations		
Scan #	Angle	Beam Direction	Area Examined	verage Calc Length Examined	Volume Examined	Volume Required	Percent Coverage
Scan #	Angle	Direction	Area	Length	Volume		Percent Coverage
Scan #	Angle 45°		Area Examined	Length Examined	Volume Examined	Required	Percent Coverage
		Direction PROFILE #2	Area Examined (sq.in.)	Length Examined (in.)	Volume Examined (cu.in.)	Required (cu.in.)	Percent Coverage
1	45°	Direction PROFILE #2 2	Area Examined (sq.in.) 1.64	Length Examined (in.) 19	Volume Examined (cu.in.) 31.16	Required (cu.in.) 32.11	Percent Coverage
1	45° 45°	Direction PROFILE #2 2 2	Area Examined (sq.in.) 1.64 0	Length Examined (in.) 19 12.5	Volume Examined (cu.in.) 31.16 0	Required (cu.in.) 32.11 21.13	Percent Coverage
1 1 2	45° 45° 45°	Direction PROFILE #2 2 2 1	Area Examined (sq.in.) 1.64 0 0	Length Examined (in.) 19 12.5 31.5	Volume Examined (cu.in.) 31.16 0 0	Required (cu.in.) 32.11 21.13 53.24	Percent Coverage
1 1 2 3	45° 45° 45° 45°	Direction PROFILE #2 2 2 1 CW	Area Examined (sq.in.) 1.64 0 0 .10	Length Examined (in.) 19 12.5 31.5 19	Volume Examined (cu.in.) 31.16 0 0 1.9	Required (cu.in.) 32.11 21.13 53.24 32.11	Percent Coverage

		Item No:	B09.031.003
£	Prepared By: David K. Zu	Level: TV	Date: 4/20/01
ۍ. ``	Reviewed By: Reuley	Level: III	Date: 9-21-01





		PANY			Exam Sta	art: 12	210	Form	NDE-UT	-2A
ULTRASONIC EXAMINATION DA	ULTRASONIC EXAMINATION DATA SHEET FOR PLANAR REFLECTORS							R	evision 4	
Station: CNS	Unit: 2	Component/V	Veld ID: 2	SGB-06A-	18			Date:	9/28/20	001
Weld Length (in.): 18.8"	Surface Cond	ition: AS	GROUND	Lo:	9.2.3	Surface 1	Tempera	ture:	69°	_ <u>F_</u>
	Level: ۱۱	Scans:				Pyromete Cal Due:				0
Examiner: David Zimmerman	N	7				Configura				
Procedure: NDE-620 Rev: &-	FC: 00-07	45T 🗆		0T 🖾	<u>59.0</u> dB	S	2	Flow _	S1	
Calibration Sheet No: 0102033, 0102034, 0102035		60 ⊠ <u>72.5/</u> 60T ⊠ <u>72.5/</u> Other:		dl	В		Scan Scan	to <u>Surface:</u> o NDE-6	OD	
IND # A Max Mp W % Max Max Ref	L Max L1	L2	W1	Mp1	W2	Mp2	Beam Dir.	Exam Surf.	Scan	Damps
DO NOT WRITE IN THIS SPACE	20%c HM, 50%c 100%	A HMA lac 50%dac	20%dac HMA 50%dac 100%dac	20%dac HMA 50%dac 100%dac	20%dac HMA 50%dac 100%dac	20%dac HMA 50%dac 100%dac	D IN	O NOT THIS	WRITI SPACE	
NRI	I									

90% or greater	coverage obta	ined: yes □ no ⊠		Sheet / of 4
Level:	Date:	Authorized Inspector:	Date:	Item No: C02.021.001
			10/11/01	
•	Level:	Level: Date: <u> TH</u> /0.02-01	Level: Date: Authorized Inspector: TH 10.02-01 Revent Medil	Level: Date: Authorized Inspector; Date:

	COMPANY		FORM NDE-UT-4	
	ISI LIMITATION			Revision 1
Component/Weld ID: 2SGB-06A-18		ltem No: C02.021.001	Remarks:	
☑ NO SCAN	SURFACE	BEAM DIRECTION	DUE TO NOZZI	E CONFIGURATION
LIMITED SCAN	⊠ 1 □ 2	□ 1 12 2 □ cw □ ccw		
FROM L N/A to LN/A	INCHES FROM	WWO 2.6" to BEYOND		
ANGLE: 0 0 45 60 0 Other		FROM DEG to DEG		
	SURFACE	BEAM DIRECTION		
LIMITED SCAN		□ 1 □ 2 □ cw □ ccw		
FROM L to L	INCHES FROM	M WO to		
ANGLE: 0 0 45 0 60 0 Other		FROM DEG toDEG		
	SURFACE	BEAM DIRECTION		
LIMITED SCAN	$\Box_1$ $\Box_2$	□ 1 □ 2 □ cw □ ccw		
FROM L to L		M WO to		
ANGLE: 0 0 45 0 60 0 Other		FROM DEG toDEG		
	SURFACE	BEAM DIRECTION		
LIMITED SCAN		□ 1 □ 2 □ cw □ ccw		
FROM L to L		M WO to		
ANGLE: 0 0 45 0 60 0 Other		FROM DEG to		
Prepared By: David K.Zimmerman		Date: 9/28/1901 Sketch(s) attached	yes 🖾 no	Sheet $2$ of $4$
Reviewed By: Land Manda	Date: 10.02-01	Authorized Inspector: Robert y	neld	Date: 20/17/01

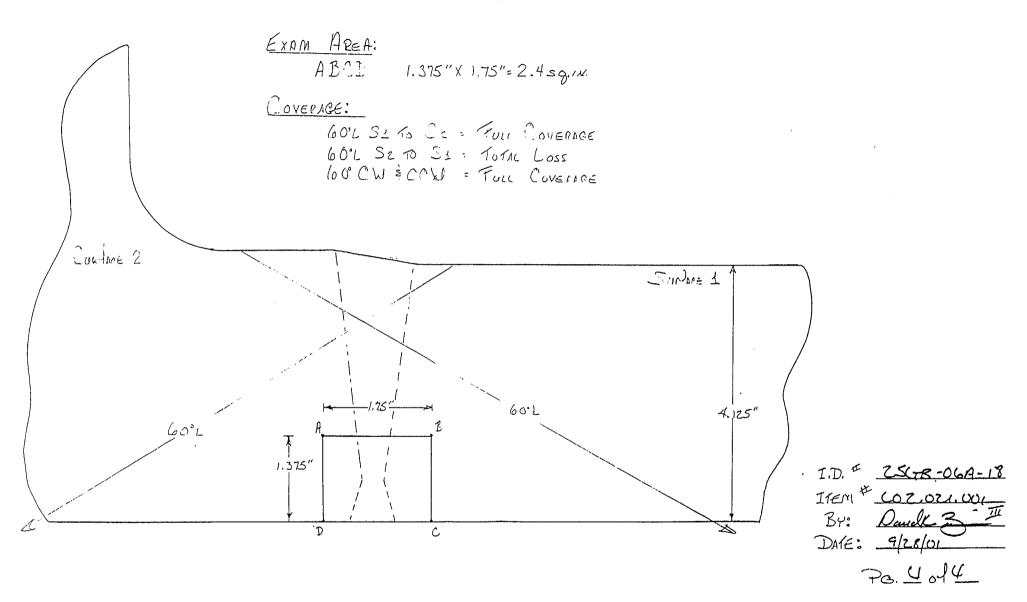
	DUKE POWER COMPANY Limited Examination Coverage Worksheet								NDE-91-1
				Revision 0					
			Examinati	ion Volu	ıme/Ar	ea Defined		(	
🛛 Bas	se Metal	Ø V	/eld	🗆 Nea	ar Surf	ace [	Bolting	ł	□ Inner Radius
		Area Calcul	ation			Vo	lume Ca	lcula	tion
1.375 IN	I. X 1.75	IN.= 2.4 SQ.II	N.		2.4 SC	2.IN. X 70 IN	.= 168 CU	l.IN.	
			Cov	verage (	Calcula	ations			
Scan #	Angle	Beam Direction	Area Examined (sq.in.)	Lenç Exam (in	ined	Volume Examined (cu.in.)	Volu Requ (cu.	ired	Percent Coverage
1	60°L	2	2.4	70		168	16	8	
2	60°L	1	0	70	•	0	16	8	
3	60°L	CW	2.4	70	1	168	16	8	
4	60°L	CCW	2.4	70	ł	168	16	8	100.00
						504	67	2	75.00

	Item No:	C02.021.001
Prepared By: David K. Zimmerman	Level: III	Date: 9/28/1901
Reviewed By: Larry Mauldin		Date: /0-02-01
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## AUXILLAR. (. EDWATER NOZZLE



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DUKE PC	WER	COMP	ANY			Exam St	art: 1	008	Form NDE-UT-2A		
ULTRASONIC EXAMINATION DATA SHEET FOR PLANAR REFLECTORS							nish: 1	028	R	evision 4	 1
Station: CNS Unit: 2 Component/Weld ID: 2BNSHX-3-N1									Date:		
Weld Length (in.): 40.03	Surface	Condit	ion: AS	GROUND	Lo:	9.2.3	Surface ⁻	Tempera	ture:	87 °	F
Examiner: Jay A. Eaton		: 111	Scans:		I		Pyromete Cal Due:	er S/N:	MCN	DE 2700	
Examiner: Gayle E. Houser / and for Procedure: NDE-630 Rev: 2	2 FC:		45 □ 45T ⊠ 60 ⊠ 62		70 ⊠ ′0⊺ □			52	Flow _	S1	والمرابعة والمتكلفات والتاريق أكر
Calibration Sheet No: 0102001, 0102002, 0102003			60T 🗆	dB	di	В		Scan Applies t	to <u>Surface:</u> o NDE-6	OD	
IND # A Max Mp W % Max Max Max Ref	L Max	L1	L2	W1	Mp1	W2	Mp2	Beam Dir.	Exam Surf.	Scan	Damps
DO NOT WRITE IN THIS SPACE		20%da HMA 50%da 100%d	HMA c 50%dac	20%dac HMA 50%dac 100%dac	20%dac HMA 50%dac 100%dac	20%dac HMA 50%dac 100%dac	20%dac HMA 50%dac 100%dac	D IN		WRIT SPACE	· ·
1 60°L 200 1.5" .5"- <b>.</b> ⊀	10.0"	360°	INT.	IND.				2	1	AXIAL	NO

* FROM TOE OF WELD

Remarks: 60° &70° L WERE SCANNED @ LESS THAN SCANNING DB(REF. + 14 DB) DUE TO SIGNAL TO NOISE RATIO						
			tained: yes 🗆 no 🖾		Sheet / of 9	
Reviewed By: Laur Maullur	Level:	Date: 9-18-01	Authorized Inspector:	Date:	Item No: C02.021.004	
	RED	VEST F	TOR RELIEF # DI- DU			

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	FORM NDE-UT-4			
	ISI LIMITATION	NREPORT		Revision 1
Component/Weld ID: 2BNSHX-3-N1	i	Item No: C02.021.004	Remarks:	
🖾 NO SCAN	SURFACE	BEAM DIRECTION	WELD TAPER	
LIMITED SCAN	□ 1 ⊠ 2	🖾 1 🗆 2 🗖 cw 🗖 ccw		
FROM L to L	INCHES FRO	M WO <u>CL-0.9</u> " to <u>BEYOND</u>		
ANGLE: 0 0 45 🛛 60 🗆 Other	70°	FROM DEG to DEG		
□ NO SCAN	SURFACE	BEAM DIRECTION	WELD TAPER	
A LIMITED SCAN	⊠ ₁ □ ₂	🗆 1 🖾 2 🗆 cw 🗆 ccw		
FROM L to L	INCHES FROM	M WO CL + 0.9" to BEYOND		
ANGLE: 0 0 45 Ø 60 0 Other	70°	FROM DEG to DEG		
	SURFACE	BEAM DIRECTION	WELD TAPER	SURF. 1
LIMITED SCAN	⊠ 1 □ 2	🗆 1 🗆 2 🖾 cw 🖾 ccw		
FROM L to L	INCHES FROM	M WO to C + 0.6"		
ANGLE: 0 0 45 0 60 0 Other		FROM DEG to360DEG		
	SURFACE	BEAM DIRECTION	WELD TAPER	SURF. 2
LIMITED SCAN	□ 1 ⊠ 2	🗆 1 🗆 2 🖾 cw 🖾 ccw		
FROM L to L		M WO to		
ANGLE: □ 0 ☑ 45 □ 60 □ Other		FROM 0 DEG to 360		
Prepared By:		Date: 9/11/01 Sketch(s) attached Ø	yes 🗆 no	Sheet 2 of 9
Reviewed By: Land Maultin.	Date: 9.18.01	Authorized Inspector: Lobert M	when	Date: 10/17/0)

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	DUKE POWER COMPANY	NDE-UT-5
	UT PROFILE/PLOT SHEET	Revision 1
	EXAMINATION SURFACE 1WELDEXAMINATION43212432123333	N SURFACE 2
5		
5		•
> -		
.5		
	Component ID/Weld No. ZBNSHX-3-N1	
	: Remarks:	
	Profile tak at: <u>9.2</u>	
	item No: CDZ.021.004	
	Examiner: Level: IT Date: 9/11/01	
	Reviewed By: <u>Automation</u> Level: <u>II</u> Date: 9.18.01. 180	Sheet 3 of 9

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DUKE POWER COMPA	NY	Form NDE-UT-9
ULTRASONIC BEAM ANGLE MEASURE		Revision 3
	<ol> <li>Take thickness measurements wedge locations.</li> </ol>	ents between .
	<ol><li>Place search unit on straig pipe, and peak the signal.</li></ol>	ht turn of
t	<ol><li>Measure distance (d) betw points.</li></ol>	een exit
$\tan \emptyset = \frac{(d/2)}{t}$	<ol> <li>Calculate beam angle with as shown using measured thickness.</li> </ol>	
	5. Use the measured beam a determine coverage and w plotting any indications.	
For thin wall pipe use 2nd Vee path	Pipe Size:12 <u>IN</u>	· ·
$tan \phi = \frac{(d/2)}{2t}$	Pipe Schedule:N/A	<b></b> .
Nominal 45 deg: d= <u>1.4</u> ; t= <u>0.75</u>	_; measured angle= <u>_43.03</u> _deg	
Nominal 60 deg: d=0_ ; t=0_	_; measured angle= <u>0.00</u> _deg	Item No.
Nominal 70 deg: d=0_ ; t=0_	_; measured angle= <u>0.00</u> deg	C02.021.004
Examiner Level Date Gayle E. Houser Auch Chouser III 9/11/2007	Examiner 1 Jay A. Eaton	Level Date III 9/11/2001
Reviewed By Level Date Level Date III 9-18-01	Authorized Inspector	Date 10/17/2)

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DUKEI	Form NDE-UT-8		
ULTRASONIC IN	Revision 1		
Acceptance Standard:			
ND. #1 - 60°L IS A GEOMETRIC REFLECTOR	DUE TO WELD ROOT	CONFIGURATION.	
tem No: C02.021.004			
Acceptable Indications: IND. #1			
	<u></u>		
Rejectable Indications: N/A			
These indications have been admessed with an			
These indications have been compared with pre	vious ultrasonic data	□ Yes ⊠ No previous data available	9
	evel: Date:		Sheet <u>5</u> of 9
	III 9/11/2001		
Reviewer: Le	evel: Date:	Authorized Inspector:	Date:
Kan Maula I	T 9-18-01	Kobert Meyer	<i>Urp</i>

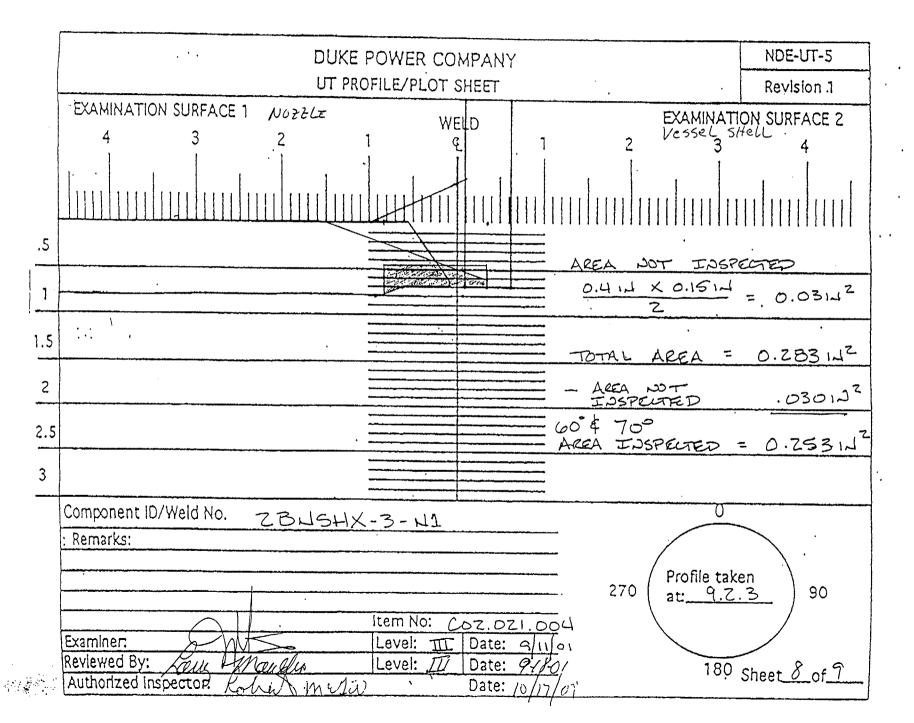
			NDE-91-1						
				Revision 0					
		······	Examinati	on Volu	ime/A	rea Defined	·····		······,·
🖾 Bas	se Metal	10 W	eld	🗆 Nea	ar Sui	face [	Bolting	1	Inner Radius
		Area Calcul	ation			Vo	olume Ca	lculat	ion
(0.25 in x 1.1 in) + (0.15 in x 0.05 in / 2) = 0.283 sq. 0.283 sc in.						3 sq. in. x 40in	. = 11.32	cubic	in.
			Cov	erage (	Calcu	lations			
Scan #	Angle	Beam Direction	Area Examined (sq.in.)	Leng Exam (in	ined	Volume Examined (cu.in.)	Volu Requ (cu.	ired	Percent Coverage
1	60&70	S1	.253	40	1	10.12	11.	32	
2	60&70	S2	0	40	I.	0	11.	32	
3	. 45	CW	.151	40		6.04	11.	32	
4	45	CCW	.151	40		6.04	11.	32	
		Total	Aggregate	Cover	age	22.2	45.	28	49.03

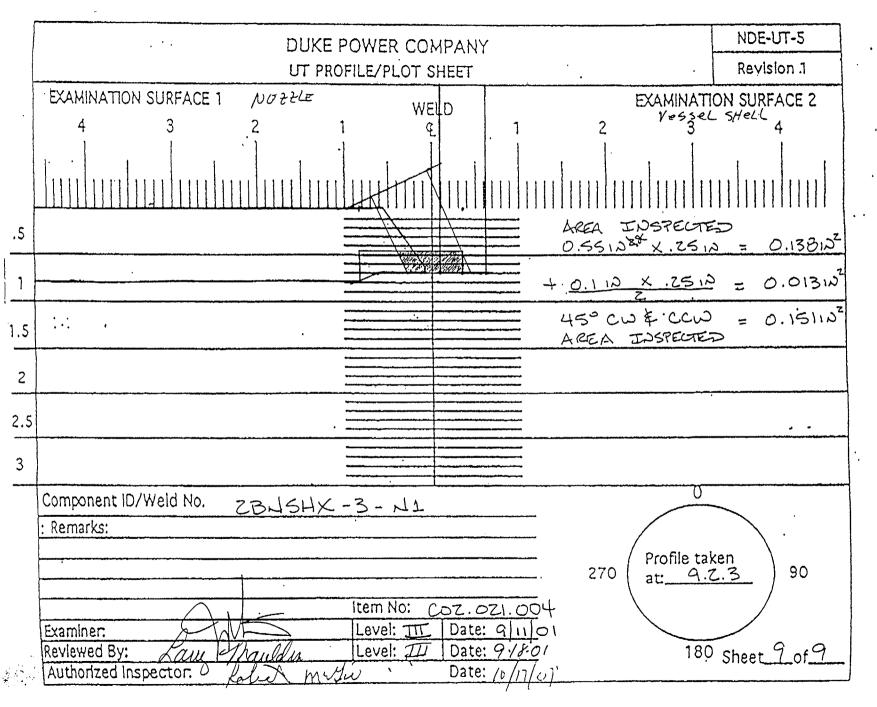
			Item No	c C02.021.004
6	Prepared By: JAY EATON	Atto	Level: III	Date: 9/11/2001
Ð	Reviewed By:	Maully.	Level: <u>///</u>	Date: 9./8-01
	,,,)			

NDE-UT-5 DUKE POWER COMPANY . • • UT PROFILE/PLOT SHEET **Revision** 1 EXAMINATION SURFACE 1 EXAMINATION SURFACE 2 Vessel Shell 3 4 NOZZLE WELD 4 2 .5 INSPECTION AREA TOTAL 1 .251N × 1.11N = 0.27512 ••• 15 X05 . 1.5 0.00012 + 0.28312 2 = 2.5 . . 3 Component ID/Weld No. σ ZBNSHX-3-N1 Remarks: Profile taken 270 at: 9.2.3 90 Item No: COZ. 021.004 Examiner: Level: Date: 9/11/01 TIL Reviewed By: Date: 9-18-01 Level: ,777 180 Sheet 7 of 9 Authorized Inspector. U ret. Miler Date: jo 17 1 == 1

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	DUKE POWER COMPANY									Exam St	art: 1	008	Form	NDE-UT	Г <b>-</b> 2А
ULTRASONIC EXAMINATION DATA SHEET FOR PLANAR REFLECTORS							Exam Fi	nish: 1	028	R	evision 4	ļ			
Station: CNS Unit: 2 Component/Weld ID: 2BNSHX-3-N2						-N2			Date:	9/11/2	001				
Weld	Length	(in.):	40.0	)3	Surface	Condi	tion: AS	GROUND	Lo:	9.2.3	Surface ⁻	Tempera	ature:	87 °	F
Exam	iner: Ja	iy A. Ea	aton (	WAE	Level	: 111	Scans:				Pyromete				
Exam	ner: Ga	ayle E.	Houser	yle for	Level	: 111	45 🗆	dB	70 🖾	64 dB	Cal Due:				
	dure: I		•	Rev: 2							Configura				
						-02	45T ⊠ <u>34</u> dB 70T □ 60 ⊠ 62 dB			ub			Flow _		···
Calibr	ation Sł	neet N	<u></u>	<u> </u>						<u> </u>		to Surface:			
	01, 0102		- •			60T 🗆 dB				4		to NDE-6			
							Othe	r:	d	B	Skew An	gle:		N/A	
IND #	¥	Max % Ref	Mp Max	W Max	L Max	L1	L2	W1	Mp1	W2	Mp2	Beam Dir.	Exam Surf.	Scan	Damps
			NOT WI HIS SP			20%d HM/ 50%d 100%	A HMA ac 50%dac	HMA 50%dac	20%dac HMA 50%dac 100%dac	20%dac HMA 50%dac 100%dac	20%dac HMA 50%dac 100%dac		O NOT I THIS		
1	60°L	251	1.7"	.5"-+	26"	360	° INT.	IND.				2	1	AXIAL	NO

## * FROM TOE OF WED

Remarks: 60° & 70° L WERE SCANNED @ LESS THAN SCANNING DB( REF. + 14DB) DUE TO SIGNAL TO NOISE RATIO						
Limitations: (see NDE-UT-4) 🛛	90% or greater	coverage obta	ained: yes 🗆 no 🛛		Sheet I of 9	
Reviewed By: Kaux Mauldin	Level:	Date: 9-18-01	Authorized Inspector:	Date: 40/17/01	Item No: C02.021.005	
0	RED	NOST FO	R RELIEF #01-003		IDIT 6	

	FORM NDE-UT-4			
	Revision 1			
Component/Weid ID: 2BNSHX-3-N2	1	tem No: C02.021.005	Remarks:	
🖾 NO SCAN	SURFACE	BEAM DIRECTION	WELD TAPER	
	□ 1 ⊠ 2	🛛 1 🗆 2 🗆 cw 🗖 ccw		
FROM L to L		MWO CL-0.9" to BEYOND		
ANGLE: □ 0 □ 45 ⊠ 60 □ Other	70°	FROM 0 DEG to 360 DEG		
D NO SCAN	SURFACE	BEAM DIRECTION	WELD TAPER	
A LIMITED SCAN	⊠ 1 □ 2	🗆 1 🖾 2 🗆 cw 🗆 ccw		
FROM L to L		MWO CL + 0.9" to BEYOND		
ANGLE: 0 0 45 🖾 60 0 Other	70°	FROM 0 DEG to 360 DEG		
D NO SCAN	SURFACE	BEAM DIRECTION	WELD TAPER	SURF. 1
☑ LIMITED SCAN	⊠ 1 □ 2	🗆 1 🗖 2 🖾 cw 🖾 ccw		
FROM L to L		A WO CL to C + 0.6"		
ANGLE: 0 0 45 60 0 Other		FROM 0 DEG to 360 DEG		
□ NO SCAN	SURFACE	BEAM DIRECTION	WELD TAPER	SURF. 2
☑ LIMITED SCAN	□ 1 ⊠ 2	🗆 1 🗖 2 🖾 cw 🖾 ccw		
FROM L to L	INCHES FROM	WO CL-0.1 to BEYOND		
ANGLE: □ 0 ☑ 45 □ 60 □ Other		FROM 0 DEG to 360		
Prepared By:	Level: JT D	ate: 9/11/01 Sketch(s) attached ⊠	yes 🗆 no	Sheet 2 of 9
Reviewed By: Karu Mauldur	Date: 9.18.01	Authorized Inspector: Robert	Mister	Date: 10/17/07

NDE-UT-5 DUKE POWER COMPANY . · . UT PROFILE/PLOT SHEET **Revision** 1 EXAMINATION SURFACE 1 **EXAMINATION SURFACE 2** WELD 3 3 2 IND# 1. .5 1 . . ••• 1.5 * 2 2.5 . . 3 Component ID/Weld No. σ ZBNSHX-3-NZ Remarks: Profile taken 270 90 at: 9.2.3 COZ.021.005 Item No: Date: 9/11/01 Examiner: Level: TT Date: 9-18:01 Reviewed By: an Maylles Level: JT 180 Sheet 3 of 9 Authorized Inspector. J Kolunt MCHN Υ. Date: 10/17/01

DUKE POWER COMPANY	Form NDE-UT-
ULTRASONIC INDICATION RESOLUTION SHEET	Revision 1
Acceptance Standard:	
ND. #1 - 60°L IS A GEOMETRIC REFLECTOR DUE TO WELD ROOT CONFIGURATION.	
tem No: C02.021.005	
Acceptable Indications: IND. #1	
Rejectable Indications: N/A	
These indications have been compared with previous ultrasonic data 🛛 Yes 🖾 No previous o	data available
Examiner: Level: Date:	Sheet <u> </u>
Jay A. Eaton III 9/11/2001	
Reviewer: Level: Date: Authorized Inspector:	Date
Kan Maulder III 9.18.01 Kobert Medie	

DUKE POWER COMPAN	Form NDE-UT-9 Revision 3				
ULTRASONIC BEAM ANGLE MEASUREM					
	1. Take thickness measureme wedge locations.	ents between .			
	<ol><li>Place search unit on straight turn of pipe, and peak the signal.</li></ol>				
	<ol> <li>Measure distance (d) between exit points.</li> </ol>				
$\tan \phi = \frac{(d/2)}{t}$	<ol> <li>Calculate beam angle with as shown using measured thickness.</li> </ol>				
	5. Use the measured beam a determine coverage and w plotting any indications.	-			
For thin wall pipe use 2nd Vee path $tan \varphi = \frac{(d/2)}{2t}$	Pipe Size:12 <u>IN</u> Pipe Schedule:N/A				
Nominal 45 deg: d=1.4; t=0.75 _;         Nominal 60 deg: d=0; t=0;         Nominal 70 deg: d=0; t=0;         Nominal 70 deg: d=0; t=0;         Examiner       Level       Date         Bayle E. Houser       III       9/11/2001         Reviewed By       Level       Date         Mau       Mau       TT       9-18-01	measured angle= <u>0.00</u> deg	Item No. C02.021.005 Level Date III 9/11/2001 Date Lo / 17/07			

DUKE POWER COMPANY Limited Examination Coverage Worksheet						NDE-91-1		
						Revision 0		
			Examinati	ion Volun	ne/Area De	fined		
🖾 Ba	se Meta	I 🖾 V	Veld	🗆 Near	r Surface	D Bolting	a C	Inner Radius
Area Calculation Volume Calculation								1
(0.25 in in.	x 1. Lin)	+ ( 0. 15 in x i	0. <b>0</b> 5 in / 2 ) = 0.2	83 sq.	0.283 sq. m.	x 40in. = 11.32	CUDIC IN.	
Coverage Calculations								
Scan #	Angle	Beam Direction	Area Examined (sq.in.)	Lengt Examin (in.)	ed Exami	ned Requ	ired p	ercent Coverage
1	60&70	S1	.253	40	10.	12 11.	32	
2	60&70	S2	0	40	0	11.	32	
3	45	CW	.151	40	6.0	4 11.	32	
4	45	CCW	.151	40	6.0	4 11.	32	
		TOTAL	AGGREGATE	COVERA	.GE 22.	2 45.	28	49.03

				tem No:	C02.021.005
Prepared By: J	AY EATON	Atts	Level: III		Date: 9/11/2001
Reviewed By:	Lavi, 1	1 auldu	Level: TH		Date: 9.18-01

	DUKE POWER COMPANY	NDE-UT-5
	UT PROFILE/PLOT SHEET	Revision .1
	EXAMINATION SURFACE 1NozzleEXAMINATION4321243212	ON SURFACE 2
.5		•
1	TOTAL INSPECTO	$ECTION AREA = 0.275 1.0^{2}$
1.5	+ ·! 5 ×05	- 0.003 (ب
2		$= 0.28310^{2}$
2.5		
3		
ditesta.	Component ID/Weld No. ZBNSHX-3-NZ	
	Item No: Coz.ozi.oo5     270     Profile take at: 9.2.       Examiner:     Level: TT_Date: 9/1/01	
	Reviewed By: Level: III Date: 9.18.01, 180	Sheet 7 of 9

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NDE-UT-5 DUKE POWER COMPANY . • • UT PROFILE/PLOT SHEET **Revision** 1 EXAMINATION SURFACE 1 EXAMINATION SURFACE 2 Vessel SHell WELD 3 AREA INSPECTED .5 0.5512 × × . 2512 = 0.13812 1 + 0.1 12 × .2512 0.01312 <u>....</u> 45° CW & CCW = 0.15112 :.: . 1.5 AREA INSPECTED 2 2.5 . . 3 σ Component ID/Weld No. ZBNSHX - 3-NZ Remarks: Profile taken 270 90 at: 9.2.3 Item No: COZ. 021.005 Examiner: Date: 9/11/01 Level: III Reviewed By: Date: 9-18-01 Level: 77 180 Sheet 9 of 9 Araulder TIME Authorized Inspector. O Kolient MGMI Date: 16/17/07

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