



Gary R. Peterson  
Vice President

**Duke Power**  
*Catawba Nuclear Station*  
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February 19, 2001

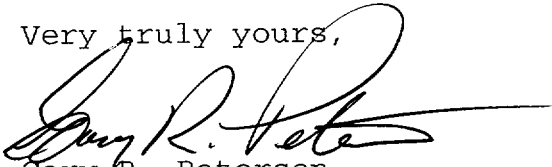
U.S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, D.C. 20555

Subject: Duke Energy Corporation  
Catawba Nuclear Station, Unit 1  
Docket Number 50-413  
Inservice Inspection Report for End of  
Cycle 12 Refueling Outage

Please find attached the subject report which provides the results of the inservice inspection effort associated with the subject outage.

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

Very truly yours,



Gary R. Peterson

LJR/s

Attachment

A047

Document Control Desk  
Page 2  
February 19, 2001

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

**FORM NIS-1 OWNER'S DATA REPORT FOR INSERVICE INSPECTIONS**

**As required by the Provisions of the ASME Code Rules**

1. Owner: Duke Energy Corporation, 526 South Church Street Charlotte, NC 28201-1006  
(Name and Address of Owner)
2. Plant: Catawba Nuclear Station, 4800 Concord Road, York, SC 29745  
(Name and Address of Plant)
3. Plant Unit: 1      4. Owner Certificate of Authorization (if required) N/A
5. Commercial Service Date: 6/29/85      6. National Board Number for Unit 130
7. Components Inspected:

Component or Appurtenance	Manufacturer Installer	Manufacturer Installer Serial No.	State or Province No.	National Board No.
_____	_____	_____	_____	_____
_____	Section 1.1 in the attached report lists the Manufacturer / Installer Serial			_____
_____	Number; State or Providence Number; and National Board Number for			_____
_____	the systems and the NSSS Components. Detailed listings of the			_____
_____	components inspected are contained in Sections 4 and 11.			_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Note: Supplemental sheets in form of lists, sketches, or drawings may be used provided (1) size is 8<sup>1</sup>/<sub>2</sub> in. x 11 in., (2) information in items 1 through 6 on this data report is included on each sheet, and (3) each sheet is numbered and the number of sheets is recorded at the top of this form.

FORM NIS-1 (Back)

8. Examination Dates May 24, 1999 to November 20, 2000
9. Inspection Period Identification: Second Period
10. Inspection Interval Identification: Second Interval
11. Applicable Edition of Section XI 1989 Addenda None
12. Date/Revision of Inspection Plan: September 9, 1999 / Revision 2
13. Abstract of Examinations and Test. Include a list of examinations and tests and a statement concerning status of work required for the Inspection Plan. **See Sections 3.0, 4.0 and 11.0**
14. Abstract of Results of Examination and Tests. **See Sections 5.0 and 11.0**
15. Abstract of Corrective Measures. **See Section 8.0**

We certify that a) the statements made in this report are correct b) the examinations and tests meet the Inspection Plan as required by the ASME Code, Section XI, and c) corrective measures taken conform to the rules of the ASME Code, Section XI.

Certificate of Authorization No. (if applicable) N/A Expiration Date N/A

Date Feb. 7, 2001 Signed Duke Energy Corp. By R. Kevin Rhayne  
Owner

CERTIFICATE OF INSERVICE INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and the State of Province of NC employed by \* The HSBI&I Co. of                      have inspected the components described in this Owners' Report during the period 5-24-99 to 2-7-01, and state that to the best of my knowledge and belief, the Owner has performed examinations and tests and taken corrective measures described in the Owners' Report in accordance with the Inspection Plan and as required by the ASME Code, Section XI.

By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the examinations, test, and corrective measures described in this Owners' Report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection

Robert McCall  
Inspector's Signature

Commissions NC 978  
National Board, State, Province, and Endorsements

Date 2-7- 2001

\* The Hartford Steam Boiler Inspection & Insurance Co.  
200 Ashford Center North  
Suite 300  
Atlanta, GA. 30338

**INSERVICE INSPECTION REPORT**  
**UNIT 1 CATAWBA 2000 REFUELING OUTAGE**  
**EOC12 (OUTAGE 4)**

Location: 4800 Concord Road, York, South Carolina 29745

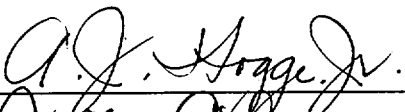
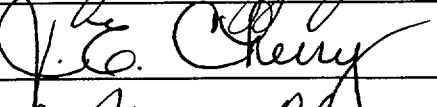

NRC Docket No. 50-413

NATIONAL BOARD NO. 130

Commercial Service Date: June 29, 1985

Owner: Duke Energy Corporation  
526 South Church Street  
Charlotte, NC 28201-1006

Revision 0

Prepared By:	<u></u>	Date	<u>2/7/2001</u>
Reviewed By:	<u></u>	Date	<u>2/7/2001</u>
Approved By:	<u></u>	Date	<u>2/7/2001</u>

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8.	Corrective Action	0
9.	Reference Documents	0
10.	Class 1 and 2 Repairs and Replacements	0
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## **DISTRIBUTION LIST**

- 1) Duke Energy Corporation  
Inservice Inspection  
Management (Original)
- 2) Catawba Work Control
- 3) NRC Document Control
- 4) Hartford Steam Boiler  
Inspection and Insurance  
Company (ANII)  
c/o R. N. McGill  
Catawba Nuclear Station
- 5) Laura Burba  
Nuclear GO  
Regulatory & Industrial Affairs  
Mail Code= EC050

## 1.0 General Information

This report describes the Inservice Inspection of Duke Energy Corporation's Catawba Nuclear Station Unit 1 during the 2000 Refueling Outage, also referred to as EOC 12 (Outage 4), which is the second outage in the Second Inspection Period of 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 completed NIS-2 documentation of repairs and replacements.

### 1.1 Identification Numbers

Item	Manufacturer or Installer	Manufacturer or Installer Serial No.	State or Province No.	National Board No.
Reactor Vessel	Westinghouse	Duke Power Co.	N/A	N/A
Pressurizer	Westinghouse	DCPT-1911	N/A	W18589
Steam Generator 1A	Babcock and Wilcox, Inc.	770101	N/A	151
Steam Generator 1B	Babcock and Wilcox, Inc.	769304	N/A	150
Steam Generator 1C	Babcock and Wilcox, Inc.	769302	N/A	147
Steam Generator 1D	Babcock and Wilcox, Inc.	769303	N/A	149
Reactor Coolant Pump 1A	Ionics, Inc.	1S-86P764	N/A	584
Reactor Coolant Pump 1B	Ionics, Inc.	2S-86P764	N/A	585
Reactor Coolant Pump 1C	Ionics, Inc.	3S-86P764	N/A	330
Reactor Coolant Pump 1D	Ionics, Inc.	4S-86P764	N/A	331



**Identification Numbers*****Continued***

Item	Manufacturer or Installer	Manufacturer or Installer Serial No.	State or Province No.	National Board No.
Reactor Coolant System	Duke Power Co.	C-1NC	N/A	126
Safety Injection System	Duke Power Co.	C-1NI	N/A	128
Chemical and Volume Control System	Duke Power Co.	C-1NV	N/A	127
Auxiliary Feedwater System	Duke Power Co.	C-1CA	N/A	121
Feedwater System	Duke Power Co.	C-1CF	N/A	120
Refueling Water System	Duke Power Co.	C-1FW	N/A	91
Main Steam Supply to Auxiliary Equipment System	Duke Power Co.	C-1SA	N/A	114
Main Steam System	Duke Power Co.	C-1SM	N/A	122
Main Steam Vent to Atmosphere System	Duke Power Co.	C -1SV	N/A	96
Containment Spray System	Duke Power Co.	C-1NS	N/A	118
Steam Generator Blowdown System	Duke Power Co.	C-1BB	N/A	111
Steam Generator Wet Lay Up Re-circulation System	Duke Power Co.	C-1BW	N/A	104
Diesel Generator Fuel Oil System	Duke Power Co.	C-1FD	N/A	100
Component Cooling System	Duke Power Co.	C-1KC	N/A	129
Residual Heat Removal System	Duke Power Co.	C-1ND	N/A	115
Turbine Exhaust System	Duke Power Co.	C-1TE	N/A	113

**Identification Numbers*****Continued***

Item	Manufacturer or Installer	Manufacturer or Installer Serial No.	State or Province No.	National Board No.
Diesel Generator Starting Air System	Duke Power Co.	C-1VN	N/A	98
Diesel Generator Cooling Water System	Duke Power Co.	C-1KD	N/A	99
Spent Fuel Cooling System	Duke Power Co.	C-1KF	N/A	103
Diesel Generator Lube Oil System	Duke Power Co.	C-1LD	N/A	105
Nuclear Sampling System	Duke Power Co.	C-1NM	N/A	124
Containment Penetration Valve Injection Water System	Duke Power Co.	C-1NW	N/A	125
Nuclear Service Water System	Duke Power Co.	C-1RN	N/A	117
Diesel Generator Starting Air System	Duke Power Co.	C-1VG	N/A	95
Liquid Waste Recycle System	Duke Power Co.	C-1WL	N/A	119
Control Area Chil- led Water System	Duke Power Co.	C-1YC	N/A	106
Seal Water Injection Filter	Pall Trinity Micro Corporation	1A 29652 1B 29653	N/A N/A	15626 15627
Volume Control Tank	Lamco Industries Inc.	452	N/A	183
Seal Water Heat Exchanger	Atlas Industrial Manufacturing Company	3620	N/A	2976
Regenerative Heat Exchanger	Joseph Oat Corporation	2255-1A1	N/A	869
Residual Heat Removal Heat Exchanger	Joseph Oat Corporation	1A 2267-3A 1B 2267-3B	N/A N/A	846 847
Containment Spray Heat Exchanger	Yuba Heat Transfer Corp.	1A 74-N-008-2A 1B 74-N-008-2B	N/A N/A	3324 3325

**Identification Numbers*****Continued***

Item	Manufacturer or Installer	Manufacturer or Installer Serial No.	State or Province No.	National Board No.
Excess Letdown Heat Exchanger	Atlas Industrial Manufacturing Company	3196	N/A	2574
Residual Heat Removal Pump	Ingersol - Rand	1A 077645 1B 077646	N/A N/A	231 232
Containment Spray Pump	Bingham - Willamette	1A 230340 1B 230341	N/A N/A	213 214
Safety Injection Pump	Pacific Pumps	1A 49359 1B 49360	N/A N/A	232 233
Centrifugal Charging Pump	Pacific Pumps	1A 49778 1B 49779	N/A N/A	256 259

**1.2 Authorized Nuclear Inservice Inspector(s)**

Name: R. N. McGill

Employer: The Hartford Steam Boiler Inspection &amp; Insurance Company

Business The Hartford Steam Boiler Inspection & Insurance Company  
Address: 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 EOC12 (Outage 4) at Catawba Nuclear Station.

### **2.1 Class 1 Inspections**

#### **Examination Category B-A      Pressure Retaining Welds In Reactor Vessel**

<b><i>Item Number</i></b>	<b><i>Description</i></b>	<b><i>Total Examined During Outage</i></b>
B01.010	<b><i>Shell Welds</i></b>	
B01.011	Circumferential	0
B01.012	Longitudinal	0
B01.020	<b><i>Head Welds</i></b>	
B01.021	Circumferential	0
B01.022	Meridional Welds	0
B01.030	Shell-to-Flange Welds	0
B01.040	Head-to-Flange Welds	0
B01.050	<b><i>Repair Welds</i></b>	
B01.051	Beltline Region	NA
<b><i>TOTALS</i></b>		0

## Examination Category B-B

Pressure Retaining Welds in Vessels Other  
Than Reactor Vessels

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

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

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

**Examination Category B-E****Pressure Retaining Partial Penetration  
Welds in Vessels**

REFERENCE SECTION 11.0 of This Report

## Examination Category B-F

## Pressure Retaining Dissimilar Metal Welds

<i>Item Number</i>	<i>Description</i>	<i>Total Examined During Outage</i>
	<b>Reactor Vessel</b>	
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
	<b>Pressurizer</b>	
B05.040	Nominal Pipe Size 4" or Larger Nozzle-to-Safe End Butt Welds	0
B05.050	Nominal Pipe Size Less Than 4" Nozzle-to-Safe End Butt Welds	NA
B05.060	Nozzle-to-Safe End Socket Welds	NA
	<b>Steam Generators</b>	
B05.070	Nominal Pipe Size 4" or Larger Nozzle-to-Safe End Butt Welds	2
B05.080	Nominal Pipe Size Less Than 4" Nozzle-to-Safe End Butt Welds	NA
B05.090	Nozzle-to-Safe End Socket Welds	NA
	<b>Heat Exchangers</b>	
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

## Examination Category B-F

(Continued)

<i>Item Number</i>	<i>Description</i>	<i>Total Examined During Outage</i>
	<i>Piping</i>	
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
<b>TOTALS</b>		2



**Examination Category B-G-1**
**Pressure Retaining Bolting Greater  
Than 2" in Diameter**

<i>Item Number</i>	<i>Description</i>	<i>Total Examined During Outage</i>
	<b><i>Reactor Vessel</i></b>	
B06.010	Closure Head Nuts	0
B06.020	Closure Studs, (in place)	NA
B06.030	Closure Studs, (when removed)	0
B06.040	Threads in Flange	0
B06.050	Closure Washers, Bushings	0
	<b><i>Pressurizer</i></b>	
B06.060	Bolts and Studs	NA
B06.070	Flange Surface, (when connection disassembled)	NA
B06.080	Nuts, Bushings, and Washers	NA
	<b><i>Steam Generators</i></b>	
B06.090	Bolts and Studs	4
B06.100	Flange Surface, (when connection disassembled)	4
B06.110	Nuts, Bushings and Washers	2
	<b><i>Heat Exchangers</i></b>	
B06.120	Bolts and Studs	NA
B06.130	Flange Surface, (when connection disassembled)	NA
B06.140	Nuts, Bushings and Washers	NA
	<b><i>Piping</i></b>	
B06.150	Bolts and Studs	NA
B06.160	Flange Surface, (when connection disassembled)	NA
B06.170	Nuts, Bushings and Washers	NA

## Examination Category B-G-1

(Continued)

<i>Item Number</i>	<i>Description</i>	<i>Total Examined During Outage</i>
	<b><i>Pumps</i></b>	
B06.180	Bolts and Studs	1
B06.190	Flange Surface, (when connection disassembled)	0
B06.200	Nuts, Bushings and Washers	NA
	<b><i>Valves</i></b>	
B06.210	Bolts and Studs	NA
B06.220	Flange Surface, (when connection disassembled)	NA
B06.230	Nuts, Bushings and Washers	NA
<b><i>TOTALS</i></b>		11

## Examination Category B-G-2

Pressure Retaining Bolting, 2"  
and Less in Diameter

<i>Item Number</i>	<i>Description</i>	<i>Total Examined During Outage</i>
	<b>Reactor Vessel</b>	
B07.010	Bolts, Studs, and Nuts	NA
	<b>Pressurizer</b>	
B07.020	Bolts, Studs, and Nuts	0
	<b>Steam Generators</b>	
B07.030	Bolts, Studs, and Nuts	0
	<b>Heat Exchangers</b>	
B07.040	Bolts, Studs, and Nuts	NA
	<b>Piping</b>	
B07.050	Bolts, Studs, and Nuts	0
	<b>Pumps</b>	
B07.060	Bolts, Studs, and Nuts	0
	<b>Valves</b>	
B07.070	Bolts, Studs, and Nuts	0
	<b>CRD Housings</b>	
B07.080	Bolts, Studs, and Nuts (when housing disassembled)	0
<b>TOTALS</b>		0

**Examination Category B-H****Integral Attachments for Vessels**

<i>Item Number</i>	<i>Description</i>	<i>Total Examined During Outage</i>
	<b>Reactor Vessel</b>	
B08.010	Integrally Welded Attachments	NA
	<b>Pressurizer</b>	
B08.020	Integrally Welded Attachments	3
	<b>Steam Generators</b>	
B08.030	Integrally Welded Attachments	NA
	<b>Heat Exchangers</b>	
B08.040	Integrally Welded Attachments	NA
<b>TOTALS</b>		3

**Examination Category B-J****Pressure Retaining Welds in Piping**

<i>Item Number</i>	<i>Description</i>	<i>Total Examined During Outage</i>
B09.010	<b>Nominal Pipe Size 4" or Larger</b>	
B09.011	Circumferential Welds	5
B09.012	Longitudinal Welds <sup>1</sup>	NA
B09.020	<b>Nominal Pipe Size Less Than 4"</b>	
B09.021	Circumferential Welds	4
B09.022	Longitudinal Welds <sup>1</sup>	NA

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

**Examination Category B-J****(Continued)**

<i>Item Number</i>	<i>Description</i>	<i>Total Examined During Outage</i>
B09.030	<b>Branch Pipe Connection Welds</b>	
B09.031	Nominal Pipe Size 4" or Larger	0
B09.032	Nominal Pipe Size Less Than 4"	0
B09.040	Socket Welds	2
<b>TOTALS</b>		11

**Examination Category B-K-1****Integral Attachments for Piping, Pumps and Valves**

<i>Item Number</i>	<i>Description</i>	<i>Total Examined During Outage</i>
	<b>Piping</b>	
B10.010	Integrally Welded Attachments	NA
	<b>Pumps</b>	
B10.020	Integrally Welded Attachments	NA
	<b>Valves</b>	
B10.030	Integrally Welded Attachments	NA
<b>TOTALS</b>		NA

Examination Category B-L-1, B-M-1

Pressure Retaining Welds in  
Pump Casings and Valve Bodies

Examination Category B-L-2, B-M-2

Pump Casings and Valve Bodies

<i>Item Number</i>	<i>Description</i>	<i>Total Examined During Outage</i>
	<b>Pumps</b>	
B12.010	Pump Casing Welds (B-L-1)	NA
B12.020	Pump Casing (B-L-2)	0
	<b>Valves</b>	
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)	7
<b>Totals</b>		7

**Examination Category**      **B-N-1 Interior of Reactor Vessel**  
**B-N-2 Integrally Welded Core Support Structures**  
**and Interior Attachments to Reactor Vessels**  
**B-N-3 Removable Core Support Structures**

<i>Item Number</i>	<i>Description</i>	<i>Total Examined During Outage</i>
	<b>Reactor Vessel</b>	
B13.010	Vessel Interior (B-N-1)	1
	<b>Reactor Vessel (PWR)</b>	
B13.050	Interior Attachments Within 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
<b>TOTALS</b>		1

**Examination Category B-O      Pressure Retaining Welds in Control Rod Housings**

<i>Item Number</i>	<i>Description</i>	<i>Total Examined During Outage</i>
	<b>Reactor Vessel</b>	
B14.010	Welds in CRD Housing	0
<b>TOTALS</b>		0

**Examination Category B-P      All Pressure Retaining Components**

Reference Section 11.0 of This Report

**Examination Category B-Q****Steam Generator Tubing**

<b><i>Item Number</i></b>	<b><i>Description</i></b>	<b><i>Total Examined During Outage</i></b>
B16.010	Steam Generator Tubing in Straight Tube Design	NA
B16.020	Steam Generator Tubing in U-Tube Design <sup>2</sup>	NA
<b><i>TOTALS</i></b>		NA

**Examination Category F-A****Class 1 Component Supports  
(Code Case N-491)**

<b><i>Item Number</i></b>	<b><i>Description</i></b>	<b><i>Total Examined During Outage</i></b>
F01.010	Class 1 Piping Supports (One- Directional)	0
F01.011	Class 1 Piping Supports (Multi- Directional)	0
F01.012	Class 1 Piping Supports (Thermal Movement)	0
F01.040	Class 1 Supports other than Piping	0
F01.050	Class 1 Snubbers <sup>3</sup>	NA
<b><i>TOTALS</i></b>		0

<sup>2</sup> 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.

<sup>3</sup> Reference Request for Relief Serial No. 95-05.



## 2.2 Class 2 Inspections

### Examination Category C-A

### Pressure Retaining Welds in Pressure Vessels

<i>Item Number</i>	<i>Description</i>	<i>Total Examined During Outage</i>
C01.010	Shell Circumferential Welds	1
C01.020	Head Circumferential Welds	2
C01.030	Tubesheet - to - Shell Weld	0
<b>TOTALS</b>		3

### Examination Category C-B

### Pressure Retaining Nozzle Welds in Vessels

<i>Item Number</i>	<i>Description</i>	<i>Total Examined During Outage</i>
C02.010	<b>Nozzles in Vessels <math>\leq \frac{1}{2}</math> in. Nominal Thickness</b>	
C02.011	Nozzle - to - Shell (or Head) Weld	2
C02.020	<b>Nozzles Without Reinforcing Plate in Vessels <math>&gt; \frac{1}{2}</math> in. Nominal Thickness</b>	
C02.021	Nozzle - to - Shell (or Head) Weld	0
C02.022	Nozzle Inside Radius Section	0

**Examination Category C-B (Continued)**

<i>Item Number</i>	<i>Description</i>	<i>Total Examined During Outage</i>
C02.030	<b>Nozzles With Reinforcing Plate in Vessels &gt; ½ in. Nominal Thickness</b>	
C02.031	Reinforcing Plate Welds to Nozzle and Vessel	NA
C02.032	Nozzle-to-Shell (Head) Welds When Inside of Vessel is Accessible	NA
C02.033	Nozzle-to-Shell (or Head) Welds When Inside of Vessel is Inaccessible	NA
<b>TOTALS</b>		2

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

<i>Item Number</i>	<i>Description</i>	<i>Total Examined During Outage</i>
	<b>Pressure Vessels</b>	
C03.010	Integrally Welded Attachments	0
	<b>Piping</b>	
C03.020	Integrally Welded Attachments	6
	<b>Pumps</b>	
C03.030	Integrally Welded Attachments	0
	<b>Valves</b>	
C03.040	Integrally Welded Attachments	NA
<b>TOTALS</b>		6

**Examination Category C-D      Pressure Retaining Bolting Greater Than 2”  
In Diameter**

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

**Examination Category C-F-1      Pressure Retaining Welds in  
Austenitic Stainless Steel or High  
Alloy Piping**

<i>Item Number</i>	<i>Description</i>	<i>Total Examined During Outage</i>
C05.010	<b><i>Piping Welds <math>\geq 3/8</math> in. Nominal Wall Thickness for Piping &gt; NPS 4</i></b>	
C05.011	Circumferential Weld	5
C05.012	Longitudinal Weld <sup>4</sup>	NA

<sup>4</sup> Reference Code Case N-524 “ Alternative Examination Requirements for Longitudinal Welds in Class 1 and 2 Piping Section XI, Division 1”.

**Examination Category C-F-1****(Continued)**

<b>Item Number</b>	<b>Description</b>	<b>Total Examined During Outage</b>
C05.020	<b>Piping Welds &gt; 1/5 in. Nominal Wall Thickness for Piping <math>\geq</math> NPS 2 and <math>\leq</math> NPS 4</b>	
C05.021	Circumferential Weld	16
C05.022	Longitudinal Weld <sup>5</sup>	NA
C05.030	Socket Welds	14
C05.040	Pipe Branch Connections of Branch Piping $\geq$ NPS 2	
C05.041	Circumferential Weld	0
C05.042	Longitudinal Weld <sup>5</sup>	NA
<b>TOTALS</b>		35

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

<b>Item Number</b>	<b>Description</b>	<b>Total Examined During Outage</b>
C05.050	<b>Piping Welds <math>\geq</math> 3/8 in. Nominal Wall Thickness for Piping &gt; NPS 4</b>	
C05.051	Circumferential Weld	2
C05.052	Longitudinal Weld <sup>5</sup>	NA

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

## Examination Category C-F-2

(Continued)

<i>Item Number</i>	<i>Description</i>	<i>Total Examined During Outage</i>
C05.060	<b>Piping Welds &gt; 1/5 in. Nominal Wall Thickness for Piping <math>\geq</math> NPS 2 and <math>\leq</math> NPS 4</b>	
C05.061	Circumferential Weld	NA
C05.062	Longitudinal Weld <sup>6</sup>	NA
C05.070	Socket Welds	NA
C05.080	<b>Pipe Branch Connections of Branch Piping <math>\geq</math> NPS 2</b>	
C05.081	Circumferential Weld	0
C05.082	Longitudinal Weld <sup>6</sup>	NA
<b>TOTALS</b>		2

## Examination Category C-G

## Pressure Retaining Welds in Pumps and Valves

<i>Item Number</i>	<i>Description</i>	<i>Total Examined During Outage</i>
	<b>Pumps</b>	
C06.010	Pump Casing Welds	NA
	<b>Valves</b>	
C06.020	Valve Body Welds	1
<b>TOTALS</b>		1

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

**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)**

<b><i>Item Number</i></b>	<b><i>Description</i></b>	<b><i>Total Examined During Outage</i></b>
F01.020	Class 2 Piping Supports (One- Directional)	7
F01.021	Class 2 Piping Supports (Multi- Directional)	14
F01.022	Class 2 Piping Supports (Thermal Movement)	4
F01.040	Class 2 Supports other than Piping	5
F01.050	Class 2 Snubbers <sup>7</sup>	NA
<b><i>TOTALS</i></b>		30

<sup>7</sup> Reference Request for Relief Serial No. 95-05.

### 2.3 Augmented / Elective Inspections

<b>Item Number</b>	<b>Description</b>	<b>Total Examined During Outage</b>
G01.001	Reactor Coolant Pump Flywheels	1
G02.001	Postulated Pipe Failures Main Steam System	7
G04.001	NI System	1
<b>TOTALS</b>		9

A detailed description of each examination listed in Sections 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.

### 3.0 Second Ten Year Interval Inspection Status

The completion status of inspections required by the 1989 ASME Section XI Code, with 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.

#### Class 1 Inspection

<b>Examination Category</b>	<b>Description</b>	<b>Inspections Required</b>	<b>Inspections Completed</b>	<b>Percentage Completed</b>	<b>Deferral Allowed<sup>8</sup></b>
B-A	Pressure Retaining Welds in Reactor Vessel	14	2.5	17.86%	Yes
B-B	Pressure Retaining Welds in Vessels Other than Reactor Vessels	5	3	60%	No
B-D	Full Penetration Welds of Nozzles in Vessels	36	16	44.44%	Partial
B-E	Pressure Retaining Partial Penetration Welds in Vessels	Reference Section 11.0 Of This Report			
B-F	Pressure Retaining Dissimilar Metal Welds	38	18.67	49.13%	No
B-G-1	Pressure Retaining Bolting Greater than 2 Inch Diameter	248	161	64.92%	Yes
B-G-2	Pressure Retaining Bolting 2 Inches and Less in Diameter	21	10	47.62%	No
B-H	Integral Attachments for Vessels	5	3	60%	No
B-J	Pressure Retaining Welds in Piping	227	119	52.42%	No

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



<b>Examination Category</b>	<b>Description</b>	<b>Inspections Required</b>	<b>Inspections Completed</b>	<b>Percentage Completed</b>	<b>Deferral Allowed<sup>9</sup></b>
B-K-1	Integral Attachments for Piping, Pumps and Valves	None	N/A	N/A	N/A
B-L-1	Pressure Retaining Welds in Pump Casings	None	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	4	57.14%	Yes
B-N-1	Interior of Reactor Vessel	3	2	66.67%	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-P	All Pressure Retaining Components	Reference Section 11.0 of This Report			
B-Q	Steam Generator Tubing <sup>10</sup>	N/A	N/A	N/A	N/A
F-A	Class 1 Component Supports F01.010, F01.011, F01.012, F01.040 & F01.050 (Code Case N-491)	71	38	53.52%	No

<sup>9</sup> Deferral of inspection to the end of the interval as allowed by ASME Section XI Table IWB-2500-1

<sup>10</sup> 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.

### Class 2 Inspections

<b>Examination Category</b>	<b>Description</b>	<b>Inspections Required</b>	<b>Inspections Completed</b>	<b>Percentage Completed</b>	<b>Deferral Allowed<sup>11</sup></b>
C-A	Pressure Retaining Welds in Pressure Vessels	26	11	42.31%	No
C-B	Pressure Retaining Nozzle Welds in Vessels	9	5	55.56%	No
C-C	Integral Attachments for Vessels, Piping, Pumps and Valves	48	22	45.83%	No
C-D	Pressure Retaining Bolting Greater than 2 in. In Diameter	None	N/A	N/A	N/A
C-F-1	Pressure Retaining Welds in Austenitic Stainless Steel or High Alloy Piping	260	131	50.38%	No
C-F-2	Pressure Retaining Welds in Carbon or Low Alloy Steel Piping	55	33	60%	No
C-G	Pressure Retaining Welds in Pumps and Valves	20	10	50%	Yes
C-H	All Pressure Retaining Components	Reference Section 11.0 of This Report			
F-A	Class 2 Component Supports F01.020, F01.021, F01.022, F01.040 & F01.050 (Code Case N-491)	269	147	54.65%	No

<sup>11</sup> Deferral of inspection to the end of the interval as allowed by ASME Section XI Table IWC-2500-1

## **Augmented / Elective Inspections**

<b><i>Description</i></b>	<b><i>Percentage Complete</i></b>
Reactor Coolant Pump Flywheels	100% of requirements for EOC 12 (Outage 4)
Postulated Pipe Failures - Main Steam System	100% of requirements for EOC 12 (Outage 4)
NI System	100% of requirements for EOC12 (Outage 4)

#### 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 EOC12 (Outage 4) at Catawba Nuclear Station, Unit 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
ISO / Dwg Numbers	=	Location and/or Detail Drawings
Proc	=	Examination Procedures
Insp Req	=	Examination Technique - Magnetic Particle, Dye Penetrant, etc.
Material / Sch	=	General Description of Material
Dia / Thk	=	Diameter / Thickness
Cal Blocks	=	Calibration Block Number
Comments	=	General and/or Detail Description

### **CATEGORY B-D, Full Penetration Welds of Nozzels in Vessels**

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## Inservice Inspection Plan for Interval 2 Outage 4

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### Steam Generators (Primary Side)

ITEM NUMBER	ID NUMBER	SYS ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK	CAL BLOCKS	COMMENTS	
**** Nozzle Inside Radius Section ****									
B03.140.001	1SGA-INTLET	NC	CNM 1201.01-609	NDE-680	UT	CS	39.000	5131617	Steam Generator 1A Primary Inlet Nozzle
	Circumferential		CNM 1201.01-618				6.125		(Inside Radius Section)
Class A									
B03.140.002	1SGA-OUTLET	NC	CNM 1201.01-609	NDE-680	UT	CS	39.000	5131617	Steam Generator 1A Primary Outlet Nozzle
	Circumferential		CNM 1201.01-618				6.125		(Inside Radius Section)
Class A									
Total B03.140 Items:		2							
Total B03 Items:		2							

**CATEGORY B-F, Pressure Retaining  
Dissimilar Metal Welds**

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**Steam Generator**

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ITEM NUMBER	ID NUMBER	SYS	ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIATHK	CAL BLOCKS	COMMENTS
<b>**** NPS 4 or Larger; Nozzle-to-Safe End Butt Welds ****</b>									
B05.070.001	1SGA-INLET-W5SE	NC	CNM 1201.01-609	NDE-930	UT	SS-CS	31.000	5158172	Steam Generator 1A Inlet
	Circumferential		CNM 1201.01-617				2.750	5149697	Nozzle to Safe End
Class A	Term end					Nozzle to			
	Dissimilar					Safe End			
B05.070.001A	1SGA-INLET-W5SE	NC	CNM 1201.01-609	NDE-35	PT	SS-CS	31.000		Steam Generator 1A Inlet
	Circumferential		CNM 1201.01-617				2.750		Nozzle to Safe End
Class A	Term end					Nozzle to			
	Dissimilar					Safe End			
B05.070.002	1SGA-OUT-W6SE	NC	CNM 1201.01-609	NDE-930	UT	SS-CS	31.000	5158172	Steam Generator 1A Outlet
	Circumferential		CNM 1201.01-617				2.750	5149697	Nozzle to Safe End
Class A	Term end					Nozzle to			
	Dissimilar					Safe End			
B05.070.002A	1SGA-OUT-W6SE	NC	CNM 1201.01-609	NDE-35	PT	SS-CS	31.000		Steam Generator 1A Outlet
	Circumferential		CNM 1201.01-617				2.750		Nozzle to Safe End
Class A	Term end					Nozzle to			
	Dissimilar					Safe End			
<b>Total B05.070 Items:</b>			<b>4</b>						
<b>Total B05 Items:</b>			<b>4</b>						

**CATEGORY B-G-1, Pressure Retaining  
Bolting, Greater than 2" In Diameter**

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## Steam Generators

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### Inservice Inspection Plan for Interval 2 Outage 4

ITEM NUMBER	ID NUMBER	SYS	ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK	CAL BLOCKS	COMMENTS
**** Bolts and Studs ****									
B06.090.003	1SGB-MW-Y1-X2	NC	CNM 1201.01-580 CNM 1201.01-609	NDE-947	UT	CS	2.500 26.625	7C015	SG1B Manway Bolting 20 Bolts Primary Manway in Y1-X2 Quadrant (Inlet Side)
Class A									
B06.090.004	1SGB-MW-X2-Y2	NC	CNM 1201.01-580 CNM 1201.01-609	NDE-947	UT	CS	2.500 26.625	7C015	SG1B Manway Bolting 20 Bolts Primary Manway in X2-Y2 Quadrant (Outlet Side)
Class A									
B06.090.005	1SGC-MW-X1-Y1	NC	CNM 1201.01-580 CNM 1201.01-609	NDE-947	UT	CS	2.500 26.625	7C015	SG1C Manway Bolting 20 Bolts Primary Manway in X1-Y1 Quadrant (Inlet Side)
Class A									
B06.090.006	1SGC-MW-X1-Y2	NC	CNM 1201.01-580 CNM 1201.01-609	NDE-947	UT	CS	2.500 26.625	7C015	SG1C Manway Bolting 20 Bolts Primary Manway in X1-Y2 Quadrant (Outlet Side)
Class A									
Total B06.090 Items:		4							

**CATEGORY B-G-1, Pressure Retaining  
Bolting, Greater than 2" In Diameter**

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**Inservice Inspection Plan for Interval 2 Outage 4**

ITEM NUMBER	ID NUMBER	SYS ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIATHK	CAL BLOCKS	COMMENTS
<b>**** Flange Surface, when connection dissassembled ****</b>								
B06.100.003	1SGB-MW-Y1-X2	NC CNM 1201.01-618	QAL-13	VT-1	CS	0.000	0.000	SG1B Manway Flange Surface Primary Manway in Y1-X2 Quadrant (Inlet Side) Examine when dissassembled but credit only once per interval
Class A								
B06.100.004	1SGB-MW-X2-Y2	NC CNM 1201.01-618	QAL-13	VT-1	CS	0.000	0.000	SG1B Manway Flange Surface Primary Manway in X2-Y2 Quadrant (Outlet Side) Examine when dissassembled but credit only once per interval
Class A								
B06.100.005	1SGC-MW-X1-Y1	NC CNM 1201.01-618	QAL-13	VT-1	CS	0.000	0.000	SG1C Manway Flange Surface Primary Manway in X1-Y1 Quadrant (Inlet Side) Examine when dissassembled but credit only once per interval
Class A								
B06.100.006	1SGC-MW-X1-Y2	NC CNM 1201.01-618	QAL-13	VT-1	CS	0.000	0.000	SG1C Manway Flange Surface Primary Manway in X1-Y2 Quadrant (Outlet Side) Examine when dissassembled but credit only once per interval
Class A								
<b>Total B06.100 Items:</b>		<b>4</b>						



**CATEGORY B-G-1, Pressure Retaining  
Bolting, Greater than 2" In Diameter****DUKE ENERGY CORPORATION  
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ITEM NUMBER	ID NUMBER	SYS ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK	CAL BLOCKS	COMMENTS
<b>**** Nuts, Bushings, and Washers ****</b>								
B06.110.001	1SGA-MW-X1-Y1	NC CNM 1201.01-580	QAL-13	VT-1	CS		0.000 0.000	SG1A Manway Nuts (20) Primary Manway in X1-Y1 Quadrant (Inlet Side)
Class A								
B06.110.002	1SGA-MW-X1-Y2	NC CNM 1201.01-580	QAL-13	VT-1	CS		0.000 0.000	SG1A Manway Nuts (20) Primary Manway in X1-Y2 Quadrant (Outlet Side)
Class A								
<hr/>								
<b>Total B06.110 Items:</b>		<b>2</b>						

**CATEGORY B-G-1, Pressure Retaining  
Bolting, Greater than 2" In Diameter****DUKE ENERGY CORPORATION  
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**Inservice Inspection Plan for Interval 2 Outage 4**Plan Report  
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ITEM NUMBER	ID NUMBER	SYS ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK	CAL BLOCKS	COMMENTS
-------------	-----------	---------------------	------	----------	---------	---------	------------	----------

**\*\*\*\* Bolts and Studs \*\*\*\***

B06.180.004	1RCP-1D-F	NC CN-1NC-023	PDI-UT5	UT	CS	4.320	50502	1RCP-1D Main Flange Bolting
		CNM 1201.01-115				30.500		24 Bolts

Class A

---

**Total B06.180 Items: 1****Total B06 Items: 11**

**CATEGORY B-H, Integral Attachments for  
Vessels**

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**Pressurizer**

ITEM NUMBER	ID NUMBER	SYS ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK	CAL BLOCKS	COMMENTS
<b>**** Integrally Welded Attachments ****</b>								
B08.020.001	1PZR-SKIRT	NC CNM 1201.01-66	NDE-25	MT	CS	87.000 1.500		PZR Support Skirt to Lower Head. An ultrasonic examination shall be performed to obtain additional coverage on ID surface (C-D). Reference Request for Relief Serial No. 94-04
Class A								
B08.020.001A	1PZR-SKIRT	NC CNM 1201.01-66	NDE-952	UT	CS	87.000 1.500	50237B	PZR Support Skirt to Lower Head. An ultrasonic examination shall be performed to obtain additional coverage on ID surface (C-D). Reference Request for Relief Serial No. 94-04
Class A								
B08.020.004	1PZR-W10C	NC CNM 1201.01-175	NDE-25	MT	CS	4.000 4.000		Pressurizer Seismic Lug to Shell W-X Quadrant
Class A								
B08.020.005	1PZR-W10D	NC CNM 1201.01-175	NDE-25	MT	CS	4.000 4.000		Pressurizer Seismic Lug to Shell W-Z Quadrant
Class A								
<b>Total B08.020 Items:</b>		<b>4</b>						
<b>Total B08 Items:</b>		<b>4</b>						

**CATEGORY B-J, Pressure Retaining Welds In Piping**

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**NPS 4 or Larger**

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**Inservice Inspection Plan for Interval 2 Outage 4**

ITEM NUMBER	ID NUMBER	SYS	ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK	CAL BLOCKS	COMMENTS
<b>**** Circumferential Welds ****</b>									
B09.011.006	1NC26-2	NC	CN-1NC-26	NDE-600	UT	SS	14.000	*	* Reference General Requirements Section 8.1.10
	Circumferential		CN-1553-1.1			160	1.406		
Class A					Pipe to Pipe				
B09.011.006A	1NC26-2	NC	CN-1NC-26	NDE-35	PT	SS	14.000		
	Circumferential		CN-1553-1.1			160	1.406		
Class A					Pipe to Pipe				
B09.011.151	1NI9-4	NI	CN-1NI-9	NDE-600	UT	SS	6.000	*	* Reference General Requirements Section 8.1.10
	Circumferential		CN-1562-1.3			160	0.719		
Class A					Pipe to Elbow				
B09.011.151A	1NI9-4	NI	CN-1NI-9	NDE-35	PT	SS	6.000		
	Circumferential		CN-1562-1.3			160	0.719		
Class A					Pipe to Elbow				
B09.011.152	1NI9-7	NI	CN-1NI-9	NDE-600	UT	SS	6.000	*	* Reference General Requirements Section 8.1.10
	Circumferential		CN-1562-1.3			160	0.719		
Class A					Pipe to Elbow				
B09.011.152A	1NI9-7	NI	CN-1NI-9	NDE-35	PT	SS	6.000		
	Circumferential		CN-1562-1.3			160	0.719		
Class A					Pipe to Elbow				
B09.011.153	1NI9-8	NI	CN-1NI-9	NDE-600	UT	SS	6.000	*	* Reference General Requirements Section 8.1.10
	Circumferential		CN-1562-1.3			160	0.719		
Class A					Elbow to Pipe				
B09.011.153A	1NI9-8	NI	CN-1NI-9	NDE-35	PT	SS	6.000		
	Circumferential		CN-1562-1.3			160	0.719		
Class A					Elbow to Pipe				

**CATEGORY B-J, Pressure Retaining Welds In Piping****DUKE ENERGY CORPORATION  
QUALITY ASSURANCE TECHNICAL SERVICES  
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02/07/2001**NPS 4 or Larger**

Catawba 1

**Inservice Inspection Plan for Interval 2 Outage 4**

ITEM NUMBER	ID NUMBER	SYS	ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK	CAL	BLOCKS	COMMENTS
B09.011.154	1NI9-9	NI	CN-1NI-9	NDE-600	UT	SS	6.000		*	* Reference General Requirments Section 8.1.10
	Circumferential		CN-1562-1.3			160	0.719			
Class A					Pipe to Elbow					
B09.011.154A	1NI9-9	NI	CN-1NI-9	NDE-35	PT	SS	6.000			
	Circumferential		CN-1562-1.3			160	0.719			
Class A					Pipe to Elbow					

**Total B09.011 Items: 10**

**CATEGORY B-J, Pressure Retaining Welds In Piping**

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

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**Less Than NPS 4**

**Catawba 1**

**Inservice Inspection Plan for Interval 2 Outage 4**

ITEM NUMBER	ID NUMBER	SYS ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK	CAL BLOCKS	COMMENTS
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**\*\*\*\* Circumferential Welds \*\*\*\***

B09.021.003	1NC23-12	NC	CN-1NC-23	NDE-35	PT	SS	3.000	
	Circumferential		CN-1553-1.0				0.438	
	Class A					Nozzle to Cap		
B09.021.004	1NC24-9	NC	CN-1NC-24	NDE-35	PT	SS	3.000	
	Circumferential		CN-1553-1.0			160	0.438	
	Class A					Nozzle to Cap		
B09.021.026	1NC288-1	NC	CN-1NC-288	NDE-35	PT	SS	3.000	
	Circumferential		CN-1553-1.0			160	0.438	
	Class A					Elbow to Pipe		
B09.021.027	1NC288-3	NC	CN-1NC-288	NDE-35	PT	SS	3.000	
	Circumferential		CN-1553-1.0			160	0.438	
	Class A					Pipe to Valve 1NC298		

**Total B09.021 Items: 4**

**CATEGORY B-J, Pressure Retaining Welds In Piping****DUKE ENERGY CORPORATION  
QUALITY ASSURANCE TECHNICAL SERVICES  
Inservice Inspection Database Management System**

Catawba 1

**Inservice Inspection Plan for Interval 2 Outage 4**Plan Report  
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02/07/2001**Socket Welds**

ITEM NUMBER	ID NUMBER	SYS ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIATHK	CAL BLOCKS	COMMENTS
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**\*\*\*\* Socket \*\*\*\***

B09.040.020	1NC73-5	NC CN-1NC-73	NDE-35	PT	SS		2.000	
	Socket	CN-1553-1.0			160		0.344	

Class A

Valve 1NC19 to  
Pipe

B09.040.021	1NC73-6	NC CN-1NC-73	NDE-35	PT	SS		2.000	
	Socket	CN-1553-1.0			160		0.344	

Class A

Pipe to  
Tee**Total B09.040 Items: 2****Total B09 Items: 16**

## Catawba 1

## Inservice Inspection Plan for Interval 2 Outage 4

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## Valves

ITEM NUMBER	ID NUMBER	SYS	ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK	CAL BLOCKS	COMMENTS
**** Valve Body, Exceeding NPS 4 ****									
B12.050.001C	1NC-3	NC	CN-1NC-227 CNM 1205.09-01	QAL-14	VT-3	SS	6.000 0.719		Inspect one of the following (1NC-1,2,or 3) if disassembled
Class A									
B12.050.005B	INI-60	NI	CN-1NI-162 CNM 1205.00-62	QAL-14	VT-3	SS	10.000 1.000		Inspect one of the following(1NI-59,60,70, 71,81,82,93,or94) if disassembled
Class A									
B12.050.005D	INI-71	NI	CN-1NI-165 CNM 1205.00-62	QAL-14	VT-3	SS	10.000 1.000		Inspect one of the following(1NI-59,60,70, 71,81,82,93,or94) if disassembled
Class A									
B12.050.005F	INI-82	NI	CN-1NI-148 CNM 1205.00-62	QAL-14	VT-3	SS	10.000 1.000		Inspect one of the following(1NI-59,60,70, 71,81,82,93,or94) if disassembled
Class A									
B12.050.005G	INI-93	NI	CN-1NI-152 CNM 1205.00-62	QAL-14	VT-3	SS	10.000 1.000		Inspect one of the following(1NI-59,60,70, 71,81,82,93,or94) if disassembled
Class A									
B12.050.005H	INI-94	NI	CN-1NI-152 CNM 1205.00-62	QAL-14	VT-3	SS	10.000 1.000		Inspect one of the following(1NI-59,60,70, 71,81,82,93,or94) if disassembled
Class A									
B12.050.007E	INI-175	NI	CN-1NI-147 CNM 1205.00-63	QAL-14	VT-3	SS	6.000 0.719		Inspect one of the following(1NI-126,134,157,160,175,176,180 or 181) if disassembled
Class A									
Total B12.050 Items:		7							
Total B12 Items:		7							



**CATEGORY B-N-1, Interior of Reactor Vessel****DUKE ENERGY CORPORATION  
QUALITY ASSURANCE TECHNICAL SERVICES  
Inservice Inspection Database Management System**

Catawba 1

**Inservice Inspection Plan for Interval 2 Outage 4****Plan Report  
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02/07/2001****Reactor Vessel**

ITEM NUMBER	ID NUMBER	SYS ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK	CAL BLOCKS	COMMENTS
<b>**** Vessel Interior ****</b>								
B13.010.001	1RPV-INTERIOR	NC CNM 1201.01-32	QAL-14	VT-3	SS	0.000	0.000	Area Above and Below Core Made Accessible During Normal Refueling Outages

Class A

**Total B13.010 Items: 1****Total B13 Items: 1**

**CATEGORY C-A, Pressure Retaining Welds  
In Pressure Vessels**DUKE ENERGY CORPORATION  
QUALITY ASSURANCE TECHNICAL SERVICES  
Inservice Inspection Database Management System

Catawba 1

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02/07/2001**Inservice Inspection Plan for Interval 2 Outage 4****Shell Circumferential Welds**

ITEM NUMBER	ID NUMBER	SYS ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIATHK	CAL BLOCKS	COMMENTS
**** Circumferential ****								
C01.010.006	1SWHX-5-3	NV CN-1554-1.6	NDE-35	PT	SS	20.000		Seal Water Heat Exchanger Shell to Flange Pc. 5 to
	Circumferential	CNM 1201.06-50				0.187		Pc. 3 Reference Code Case N-435-1
	Class B				Shell to Flange			
<hr/>								
Total C01.010 Items:		1						

ITEM NUMBER	ID NUMBER	SYS ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK	CAL BLOCKS	COMMENTS
<b>**** Circumferential ****</b>								
C01.020.014	1SWHX-5-6	NV	CN-1554-1.6	NDE-35	PT	SS	20.000	Seal Water Heat Exchanger Shell to Head Pc.5 to Pc.6
	Circumferential		CNM 1201.06-50				0.187	Reference Code Case N-435-1
Class B					Shell to Head			
C01.020.018	1BSWINJF-SH-HD	NV	CN-1554-1.2	NDE-630	UT	SS	4.000	Seal Water Injection Filter 1B Shell to Head Pc.1 to Pc.2A
	Circumferential		CNM 1201.04-74			XXS	0.674	
Class B					Shell to Head			
<b>Total C01.020 Items:</b>		<b>2</b>						
<b>Total C01 Items:</b>		<b>3</b>						

**CATEGORY C-B, Pressure Retaining Nozzle  
Welds In Vessels****DUKE ENERGY CORPORATION  
QUALITY ASSURANCE TECHNICAL SERVICES  
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02/07/2001**Nozzles in Vessels <= 1/2 in. Nominal Thickness**

Catawba 1

**Inservice Inspection Plan for Interval 2 Outage 4**

ITEM NUMBER	ID NUMBER	SYS ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIATHK	CAL BLOCKS	COMMENTS
<b>**** Nozzle-to-Shell (or Head) Weld ****</b>								
C02.011.001	1SWHX-5-A	NV CN-1554-1.6	NDE-35	PT	SS	4.000		Seal Water Heat Exchanger Pc.5 to Pc.A
	Circumferential	CNM 1201.06-50				0.237		
	Class B				Inlet Nozzle to Shell			
C02.011.002	1SWHX-5-B	NV CN-1554-1.6	NDE-35	PT	SS	4.000		Seal Water Heat Exchanger Pc.5 to Pc.B
	Circumferential	CNM 1201.06-50				0.237		
	Class B				Outlet Nozzle to Shell			
<hr/>								
<b>Total C02.011 Items:</b>		<b>2</b>						
<b>Total C02 Items:</b>		<b>2</b>						

**CATEGORY C-C, Integral Attachments For  
Vessels, Piping, Pumps, And Valves**

**DUKE ENERGY CORPORATION  
QUALITY ASSURANCE TECHNICAL SERVICES  
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**Piping**

**Catawba 1**

**Inservice Inspection Plan for Interval 2 Outage 4**

ITEM NUMBER	ID NUMBER	SYS	ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK	CAL BLOCKS	COMMENTS
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**\*\*\*\* Integrally Welded Attachments \*\*\*\***

C03.020.069	1-R-SM-1537	SM	CN-1491-SM003	NDE-25	MT	CS	34.000		Welded Attachment
	Mech Snubber		CN-1593-1.0				0.750		

Class B

C03.020.070	1-R-SM-1549	SM	CN-1491-SM003	NDE-25	MT	CS	34.000		Welded Attachment
	Spring Hgr		CN-1593-1.0				0.750		

Class B

C03.020.078	1-R-SM-1541	SM	CN-1491-SM028	NDE-25	MT	CS	34.000		Welded Attachment
	Mech Snubber		CN-1593-1.0				0.750		

Class B

C03.020.080	1-R-SM-1544	SM	CN-1491-SM028	NDE-25	MT	CS	34.000		Welded Attachment
	Rigid Support		CN-1593-1.0				0.750		

Class B

C03.020.081	1-R-SM-1545	SM	CN-1491-SM028	NDE-25	MT	CS	34.000		Welded Attachment
	Mech Snubber		CN-1593-1.0				0.750		

Class B

C03.020.082	1-R-SM-1546	SM	CN-1491-SM028	NDE-25	MT	CS	34.000		Welded Attachment
	Rigid Support		CN-1593-1.0				0.750		

Class B

**Total C03.020 Items: 6**

**Total C03 Items: 6**

**CATEGORY C-F-1, Pressure Retaining Welds  
In Austenitic SS or High Alloy Piping**

**DUKE ENERGY CORPORATION  
QUALITY ASSURANCE TECHNICAL SERVICES  
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**Piping Welds >= 3/8 in. Nominal Wall Thickness  
for Piping > NPS 4**

**Catawba 1**

**Inservice Inspection Plan for Interval 2 Outage 4**

ITEM NUMBER	ID NUMBER	SYS	ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK	CAL BLOCKS	COMMENTS
<b>**** Circumferential Weld ****</b>									
C05.011.201	1NS1-1	NS	CN-1NS-1	NDE-600	UT	SS	10.000	*	Containment Spray Pump 1A * Reference General Requirements Section 8.1.10
	Circumferential		CN-1563-1.0			XS	0.500		
Class B	Term end					Cont. Spray Pmp. 1A to Reducer			
C05.011.201A	1NS1-1	NS	CN-1NS-1	NDE-35	PT	SS	10.000		Containment Spray Pump 1A
	Circumferential		CN-1563-1.0			XS	0.500		
Class B	Term end					Cont. Spray Pmp. 1A to Reducer			
C05.011.202	1NS1-2	NS	CN-1NS-1	NDE-600	UT	SS	12.000	*	* Reference General Requirements Section 8.1.10
	Circumferential		CN-1563-1.0			XS	0.500		
Class B						Reducer to Flange			
C05.011.202A	1NS1-2	NS	CN-1NS-1	NDE-35	PT	SS	12.000		
	Circumferential		CN-1563-1.0			XS	0.500		
Class B						Reducer to Flange			
C05.011.203	1NS2-1	NS	CN-1NS-2	NDE-600	UT	SS	12.000	*	* Reference General Requirements Section 8.1.10
	Circumferential		CN-1563-1.0			STD	0.375		
Class B						Valve 1NS018A to Pipe			
C05.011.203A	1NS2-1	NS	CN-1NS-2	NDE-35	PT	SS	12.000		
	Circumferential		CN-1563-1.0			STD	0.375		
Class B						Valve 1NS018A to Pipe			
C05.011.204	1NS2-1A	NS	CN-1NS-2	NDE-600	UT	SS	12.000	*	* Reference General Requirements Section 8.1.10
	Circumferential		CN-1563-1.0			STD	0.375		
Class B						Pipe to Pipe			
C05.011.204A	1NS2-1A	NS	CN-1NS-2	NDE-35	PT	SS	12.000		
	Circumferential		CN-1563-1.0			STD	0.375		
Class B						Pipe to Pipe			

**CATEGORY C-F-1, Pressure Retaining Welds  
In Austenitic SS or High Alloy Piping****DUKE ENERGY CORPORATION  
QUALITY ASSURANCE TECHNICAL SERVICES  
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02/07/2001**Piping Welds  $\geq$  3/8 in. Nominal Wall Thickness  
for Piping  $>$  NPS 4****Catawba 1****Inservice Inspection Plan for Interval 2 Outage 4**

ITEM NUMBER	ID NUMBER	SYS ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK	CAL BLOCKS	COMMENTS
C05.011.251	1CF34-3	CF CN-1CF-34	NDE-610	UT	SS-CS	18.000	50472	
	Circumferential	CN-1591-1.1			80	0.938	50330	
Class B				Pipe to Valve 1CF042				
C05.011.251A	1CF34-3	CF CN-1CF-34	NDE-35	PT	SS-CS	18.000		
	Circumferential	CN-1591-1.1			80	0.938		
Class B				Pipe to Valve 1CF042				
<b>Total C05.011 Items:</b>		<b>10</b>						

**CATEGORY C-F-1, Pressure Retaining Welds  
In Austenitic SS or High Alloy Piping**

**DUKE ENERGY CORPORATION  
QUALITY ASSURANCE TECHNICAL SERVICES  
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**Piping Welds > 1/5 in. Nom Wall For Piping >= NPS 2 And <= NPS 4**

**Catawba 1**

**Inservice Inspection Plan for Interval 2 Outage 4**

ITEM NUMBER	ID NUMBER	SYS	ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK	CAL	BLOCKS	COMMENTS
<b>**** Circumferential Weld ****</b>										
C05.021.004	1NI11-11	NI	CN-1NI-11	NDE-600	UT	SS	4.000	*		* Reference General Requirements Section 8.1.10
	Circumferential		CN-1562-1.3			160	0.531			
Class B					Pipe to Elbow					
C05.021.004A	1NI11-11	NI	CN-1NI-11	NDE-35	PT	SS	4.000			
	Circumferential		CN-1562-1.3			160	0.531			
Class B					Pipe to Elbow					
C05.021.005	1NI12-1	NI	CN-1NI-12	NDE-600	UT	SS	4.000	*		* Reference General Requirements Section 8.1.10
	Circumferential		CN-1562-1.3			160	0.531			
Class B					Elbow to Pipe					
C05.021.005A	1NI12-1	NI	CN-1NI-12	NDE-35	PT	SS	4.000			
	Circumferential		CN-1562-1.3			160	0.531			
Class B					Elbow to Pipe					
C05.021.006	1NI12-2	NI	CN-1NI-12	NDE-600	UT	SS	4.000	*		* Reference General Requirements Section 8.1.10
	Circumferential		CN-1562-1.3			160	0.531			
Class B					Pipe to Elbow					
C05.021.006A	1NI12-2	NI	CN-1NI-12	NDE-35	PT	SS	4.000			
	Circumferential		CN-1562-1.3			160	0.531			
Class B					Pipe to Elbow					
C05.021.007	1NI12-3	NI	CN-1NI-12	NDE-600	UT	SS	4.000	*		* Reference General Requirements Section 8.1.10
	Circumferential		CN-1562-1.3			160	0.531			
Class B					Elbow to Pipe					
C05.021.007A	1NI12-3	NI	CN-1NI-12	NDE-35	PT	SS	4.000			
	Circumferential		CN-1562-1.3			160	0.531			
Class B					Elbow to Pipe					



**CATEGORY C-F-1, Pressure Retaining Welds  
In Austenitic SS or High Alloy Piping**

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

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**Piping Welds > 1/5 in. Nom Wall For Piping >=  
NPS 2 And <= NPS 4**

**Catawba 1**

**Inservice Inspection Plan for Interval 2 Outage 4**

ITEM NUMBER	ID NUMBER	SYS	ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK	CAL BLOCKS	COMMENTS
C05.021.008	1NI13-2	NI	CN-1NI-13	NDE-600	UT	SS	4.000	*	* Reference General Requirements Section 8.1.10
	Circumferential		CN-1562-1.3			160	0.531		
Class B					Pipe to Elbow				
C05.021.008A	1NI13-2	NI	CN-1NI-13	NDE-35	PT	SS	4.000		
	Circumferential		CN-1562-1.3			160	0.531		
Class B					Pipe to Elbow				
C05.021.009	1NI13-3	NI	CN-1NI-13	NDE-600	UT	SS	4.000	*	* Reference General Requirements Section 8.1.10
	Circumferential		CN-1562-1.3			160	0.531		
Class B					Elbow to Pipe				
C05.021.009A	1NI13-3	NI	CN-1NI-13	NDE-35	PT	SS	4.000		
	Circumferential		CN-1562-1.3			160	0.531		
Class B					Elbow to Pipe				
C05.021.014	1NI28-6	NI	CN-1NI-28	NDE-600	UT	SS	3.000	*	* Reference General Requirements Section 8.1.10
	Circumferential		CN-1562-1.0			160	0.438		
Class B					Pipe to Elbow				
C05.021.014A	1NI28-6	NI	CN-1NI-28	NDE-35	PT	SS	3.000		
	Circumferential		CN-1562-1.0			160	0.438		
Class B					Pipe to Elbow				
C05.021.015	1NI28-7	NI	CN-1NI-28	NDE-600	UT	SS	3.000	*	* Reference General Requirements Section 8.1.10
	Circumferential		CN-1562-1.0			160	0.438		
Class B					Elbow to Pipe				
C05.021.015A	1NI28-7	NI	CN-1NI-28	NDE-35	PT	SS	3.000		
	Circumferential		CN-1562-1.0			160	0.438		
Class B					Elbow to Pipe				
C05.021.016	1NI28-8	NI	CN-1NI-28	NDE-600	UT	SS	3.000	*	* Reference General Requirements Section 8.1.10
	Circumferential		CN-1562-1.0			160	0.438		
Class B					Pipe to Elbow				

**CATEGORY C-F-1, Pressure Retaining Welds  
In Austenitic SS or High Alloy Piping**

**DUKE ENERGY CORPORATION  
QUALITY ASSURANCE TECHNICAL SERVICES  
Inservive Inspection Database Management System**

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**Piping Welds > 1/5 in. Nom Wall For Piping >=  
NPS 2 And <= NPS 4**

**Catawba 1**

**Inservive Inspection Plan for Interval 2 Outage 4**

ITEM NUMBER	ID NUMBER	SYS	ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK	CAL BLOCKS	COMMENTS
C05.021.016A	1NI28-8	NI	CN-1NI-28	NDE-35	PT	SS	3.000		
	Circumferential		CN-1562-1.0			160	0.438		
Class B					Pipe to Elbow				
C05.021.017	1NI28-9	NI	CN-1NI-28	NDE-600	UT	SS	3.000	*	* Reference General Requirements Section 8.1.10
	Circumferential		CN-1562-1.0			160	0.438		
Class B					Elbow to Pipe				
C05.021.017A	1NI28-9	NI	CN-1NI-28	NDE-35	PT	SS	3.000		
	Circumferential		CN-1562-1.0			160	0.438		
Class B					Elbow to Pipe				
C05.021.134	1NV350-1	NV	CN-1NV-350	NDE-600	UT	SS	4.000	*	* Reference General Requirements Section 8.1.10
	Circumferential		CN-1554-1.6			40	0.237		
Class B					Elbow to Pipe				
C05.021.134A	1NV350-1	NV	CN-1NV-350	NDE-35	PT	SS	4.000		
	Circumferential		CN-1554-1.6			40	0.237		
Class B					Elbow to Pipe				
C05.021.135	1NV350-13	NV	CN-1NV-350	NDE-600	UT	SS	4.000	*	* Reference General Requirements Section 8.1.10
	Circumferential		CN-1554-1.6			40	0.237		
Class B					Pipe to Elbow				
C05.021.135A	1NV350-13	NV	CN-1NV-350	NDE-35	PT	SS	4.000		
	Circumferential		CN-1554-1.6			40	0.237		
Class B					Pipe to Elbow				
C05.021.136	1NV350-14	NV	CN-1NV-350	NDE-600	UT	SS	4.000	*	Seal Water Heat Exchanger * Reference General Requirements Section 8.1.10
	Circumferential		CN-1554-1.6			40	0.237		
Class B	Term end				Elbow to SWHX Conn. A				
C05.021.136A	1NV350-14	NV	CN-1NV-350	NDE-35	PT	SS	4.000		Seal Water Heat Exchanger
	Circumferential		CN-1554-1.6			40	0.237		
Class B	Term end				Elbow to SWHX Conn. A				

**CATEGORY C-F-1, Pressure Retaining Welds  
In Austenitic SS or High Alloy Piping**

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

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**Piping Welds > 1/5 in. Nom Wall For Piping >=  
NPS 2 And <= NPS 4**

**Catawba 1**

**Inservice Inspection Plan for Interval 2 Outage 4**

ITEM NUMBER	ID NUMBER	SYS	ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK	CAL BLOCKS	COMMENTS
C05.021.137	1NV359-16	NV	CN-1NV-359	NDE-600	UT	SS	4.000	*	* Reference General Requirements Section 8.1.10
	Circumferential		CN-1554-1.1			40	0.237		
Class B					Elbow to Pipe				
C05.021.137A	1NV359-16	NV	CN-1NV-359	NDE-35	PT	SS	4.000		
	Circumferential		CN-1554-1.1			40	0.237		
Class B					Elbow to Pipe				
C05.021.138	1NV359-18	NV	CN-1NV-359	NDE-600	UT	SS	4.000	*	Seal Water Heat Exchanger * Reference General Requirements Section 8.1.10
	Circumferential		CN-1554-1.1			40	0.237		
Class B	Term end				Elbow to SWHX Conn.				
C05.021.138A	1NV359-18	NV	CN-1NV-359	NDE-35	PT	SS	4.000		Seal Water Heat Exchanger
	Circumferential		CN-1554-1.1			40	0.237		
Class B	Term end				Elbow to SWHX Conn.				
C05.021.139	1NV360-6	NV	CN-1NV-360	NDE-600	UT	SS	4.000	*	* Reference General Requirements Section 8.1.10
	Circumferential		CN-1554-1.1			40	0.237		
Class B					Tee to Elbow				
C05.021.139A	1NV360-6	NV	CN-1NV-360	NDE-35	PT	SS	4.000		
	Circumferential		CN-1554-1.1			40	0.237		
Class B					Tee to Elbow				

**Total C05.021 Items: 32**

**CATEGORY C-F-1, Pressure Retaining Welds  
In Austenitic SS or High Alloy Piping**

**DUKE ENERGY CORPORATION  
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**Socket Welds**

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**Inservice Inspection Plan for Interval 2 Outage 4**

ITEM NUMBER	ID NUMBER	SYS ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK	CAL BLOCKS	COMMENTS
<b>**** Socket ****</b>								
C05.030.001	1NI13-9	NI CN-1NI-13	NDE-35	PT	SS	2.000		
	Socket	CN-1562-1.3			160	0.344		
	Class B				Pipe to Elbow			
C05.030.002	1NI13-10	NI CN-1NI-13	NDE-35	PT	SS	2.000		
	Socket	CN-1562-1.3			160	0.344		
	Class B				Elbow to Pipe			
C05.030.120	1NV155-3	NV CN-1NV-155	NDE-35	PT	SS	2.000		
	Socket	CN-1554-1.5			160	0.344		
	Class B				Valve 1NV55A to Pipe			
C05.030.121	1NV155-4	NV CN-1NV-155	NDE-35	PT	SS	2.000		
	Socket	CN-1554-1.5			160	0.344		
	Class B				Pipe to Valve 1NV55A			
C05.030.122	1NV155-22	NV CN-1NV-155	NDE-35	PT	SS	2.000		
	Socket	CN-1554-1.5			160	0.344		
	Class B				Elbow to Pipe			
C05.030.123	1NV155-23	NV CN-1NV-155	NDE-35	PT	SS	2.000		
	Socket	CN-1554-1.5			160	0.344		
	Class B				Pipe to Elbow			
C05.030.124	1NV189-2	NV CN-1NV-189	NDE-35	PT	SS	2.000		
	Socket	CN-1554-1.5			160	0.344		
	Class B				Pipe to Full Coupling			
C05.030.125	1NV189-3	NV CN-1NV-189	NDE-35	PT	SS	2.000		
	Socket	CN-1554-1.5			160	0.344		
	Class B				Full Coupling to Pipe			

**CATEGORY C-F-1, Pressure Retaining Welds  
In Austenitic SS or High Alloy Piping**

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**Socket Welds**

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**Inservice Inspection Plan for Interval 2 Outage 4**

ITEM NUMBER	ID NUMBER	SYS ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK	CAL BLOCKS	COMMENTS
C05.030.126	1NV189-8	NV CN-1NV-189	NDE-35	PT	SS	2.000		
	Socket	CN-1554-1.5			160	0.344		
Class B				Pipe to Full Coupling				
C05.030.127	1NV189-9	NV CN-1NV-189	NDE-35	PT	SS	2.000		
	Socket	CN-1554-1.5			160	0.344		
Class B				Full Coupling to Pipe				
C05.030.128	1NV193-4	NV CN-1NV-193	NDE-35	PT	SS	2.000		
	Socket	CN-1554-1.5			160	0.344		
Class B				Elbow to Pipe				
C05.030.129	1NV193-5	NV CN-1NV-193	NDE-35	PT	SS	2.000		
	Socket	CN-1554-1.5			160	0.344		
Class B				Pipe to Elbow				
C05.030.130	1NV193-8	NV CN-1NV-193	NDE-35	PT	SS	2.000		
	Socket	CN-1554-1.5			160	0.344		
Class B				Elbow to Pipe				
C05.030.131	1NV193-9	NV CN-1NV-193	NDE-35	PT	SS	2.000		
	Socket	CN-1554-1.5			160	0.344		
Class B				Pipe to Elbow				

**Total C05.030 Items: 14**

### **CATEGORY C-F-2, Pressure Retaining Welds In Carbon Or Low Alloy Steel Piping**

**DUKE ENERGY CORPORATION**  
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### Piping Welds $\geq 3/8$ in. Nominal Wall Thickness for Piping $\geq$ NPS 4

ITEM NUMBER	ID NUMBER	SYS	ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIATHK	CAL	BLOCKS	COMMENTS
<b>**** Circumferential Weld ****</b>										
C05.051.101	1SM24-36	SM	CN-1SM-24	NDE-600	UT	CS	32.000	*		Steam Generator 1C Main Steam Nozzle Transition Ring to Elbow
Class B	Circumferential		CN-1593-1.0				1.375			* Reference General Requirements Section 8.1.10
						Nozzle SG1C Transition Ring to Elbow				
C05.051.101A	1SM24-36	SM	CN-1SM-24	NDE-25	MT	CS	32.000			Steam Generator 1C Main Steam Nozzle Transition Ring to Elbow
Class B	Circumferential		CN-1593-1.0				1.375			
						Nozzle SG1C Transition Ring to Elbow				
C05.051.114	1SGC-W138	SM	CNM 1201.01-546	NDE-600	UT	CS	32.630	*		Steam Generator 1C
Class B	Circumferential		CNM 1201.01-617				1.753			Main Steam Nozzle to Transition Ring
Term end			CN-1593-1.0			Nozzle SG1C to Transition Ring				Transition Ring added as a result of SGRP
										* Reference General Requirements Section 8.1.10
C05.051.114A	1SGC-W138	SM	CNM 1201.01-546	NDE-25	MT	CS	32.630			Steam Generator 1C
Class B	Circumferential		CNM 1201.01-617				1.753			Main Steam Nozzle to Transition Ring
Term end			CN-1593-1.0			Nozzle SG1C to Transition Ring				Transition Ring added as a result of SGRP
<b>Total C05.051 Items: 4</b>										
<b>Total C05 Items: 60</b>										

**CATEGORY C-G, Pressure Retaining Welds  
In Pumps And Valves****DUKE ENERGY CORPORATION  
QUALITY ASSURANCE TECHNICAL SERVICES  
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**Inservice Inspection Plan for Interval 2 Outage 4****Plan Report  
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ITEM NUMBER	ID NUMBER	SYS ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK	CAL BLOCKS	COMMENTS
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**\*\*\*\* Valve Body Welds \*\*\*\***

C06.020.006	1NI-162A	NI CN-1562-1.3	NDE-35	PT	SS	4.000		Valve Body Weld
	Circumferential	CNM-1205.00-0088				0.867		
Class B					Valve Body to Bonnet			

**Total C06.020 Items: 1****Total C06 Items: 1**

**CATEGORY D-B, Systems In Support Of ECC, CHR, Atmos. Cleanup, And RHR**

**DUKE ENERGY CORPORATION**  
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**Integral Attachment**

ITEM NUMBER	ID NUMBER	SYS ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK	CAL BLOCKS	COMMENTS
<b>**** Component Supports and Restraints ****</b>								
D02.020.001 Class C	1-R-CA-0057 Rigid Support	CA CN-1492-CA002 CN-1592-1.1	QAL-14	VT-3	NA	4.000 0.500		Welded Attachment To be done with F01.031.001
D02.020.002 Class C	1-R-CA-0062 Rigid Support	CA CN-1492-CA002 CN-1592-1.1	QAL-14	VT-3	NA	4.000 0.500		Welded Attachment To be done with F01.031.002
D02.020.004 Class C	1-R-CA-0146 Rigid Support	CA CN-1492-CA005 CN-1592-1.1	QAL-14	VT-3	NA	4.000 0.500		Welded Attachment To be done with F01.031.004
D02.020.005 Class C	1-R-CA-0151 Rigid Support	CA CN-1492-CA005 CN-1592-1.1	QAL-14	VT-3	NA	4.000 0.500		Welded Attachment To be done with F01.031.005
D02.020.007 Class C	1-R-CA-0139 Rigid Support	CA CN-1492-CA008 CN-1592-1.1	QAL-14	VT-3	NA	4.000 0.750		Welded Attachment To be done with F01.031.007
D02.020.043 Class C	1-R-RN-0092 Rigid Support	RN CN-1492-RN078 CN-1574-2.5	QAL-14	VT-3	NA	20.000 0.500		Welded Attachment To be done with F01.030.154
D02.020.044 Class C	1-R-RN-0094 Rigid Support	RN CN-1492-RN341 CN-1574-2.5	QAL-14	VT-3	NA	20.000 0.500		Welded Attachment To be done with F01.030.155
D02.020.045 Class C	1-R-RN-0752 Rigid Support	RN CN-1492-RN078 CN-1574-2.5	QAL-14	VT-3	NA	30.000 0.750		Welded Attachment To be done with F01.030.156



**CATEGORY D-B, Systems In Support Of ECC,  
CHR, Atmos. Cleanup, And RHR****DUKE ENERGY CORPORATION  
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ITEM NUMBER	ID NUMBER	SYS ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK	CAL BLOCKS	COMMENTS
D02.020.046	1-R-RN-0099	RN CN-1492-RN079	QAL-14	VT-3	NA	20.000		Welded Attachment
	Rigid Support	CN-1574-2.5				0.500		To be done with F01.030.157
Class C								
D02.020.047	1-R-RN-0182	RN CN-1492-RN117	QAL-14	VT-3	NA	8.000		Welded Attachment
	Rigid Support	CN-1574-2.1				0.237		To be done with F01.030.158
Class C								
<hr/>								
<b>Total D02.020 Items:</b>		<b>10</b>						

**CATEGORY D-B, Systems In Support Of ECC,  
CHR, Atmos. Cleanup, And RHR**DUKE ENERGY CORPORATION  
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ITEM NUMBER	ID NUMBER	SYS ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK	CAL BLOCKS	COMMENTS
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**\*\*\*\* Spring Type Supports \*\*\*\***

D02.040.026	1-R-KD-0005	KD CN-1493-KD008	QAL-14	VT-3	NA	8.000		Welded Attachment
	Spring Hgr	CN-1609-1.0				0.750		To be done with F01.032.102
Class C								

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**Total D02.040 Items: 1**

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**Total D02 Items: 11**

**CATEGORY F-A, Supports**

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**Class 2 Piping Supports****Inservice Inspection Plan for Interval 2 Outage 4**

ITEM NUMBER	ID NUMBER	SYS ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK	CAL BLOCKS	COMMENTS
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**\*\*\*\* One-Directional \*\*\*\***

F01.020.065	1-R-NI-1198	NI CN-1491-NI052	QAL-14	VT-3	NA	6.000		
	Rigid Support	CN-1562-1.3				0.000		
Class B								

F01.020.066	1-R-NI-1199	NI CN-1491-NI052	QAL-14	VT-3	NA	6.000		
	Rigid Support	CN-1562-1.3				0.000		
Class B								

F01.020.079	1-R-NI-1191	NI CN-1491-NI053	QAL-14	VT-3	NA	6.000		
	Rigid Support	CN-1562-1.3				0.000		
Class B								

F01.020.201	1-R-SM-1006	SM CN-1491-SM003	QAL-14	VT-3	NA	42.000		
	Rigid Support	CN-1593-1.0				0.000		
Class B								

F01.020.202	1-R-SM-1008	SM CN-1491-SM003	QAL-14	VT-3	NA	34.000		
	Rigid Support	CN-1593-1.0				0.000		
Class B								

F01.020.221	1-R-SV-1508	SV CN-1491-SV006	QAL-14	VT-3	NA	6.000		
	Rigid Support	CN-1593-1.0				0.000		
Class B								

F01.020.222	1-R-SV-1510	SV CN-1491-SV006	QAL-14	VT-3	NA	6.000		
	Rigid Support	CN-1593-1.0				0.000		
Class B								

<b>Total F01.020 Items:</b>		<b>7</b>							
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**\*\*\*\* Multidirectional \*\*\*\***

F01.021.031	1-R-ND-0536	ND CN-1492-ND024	QAL-14	VT-3	NA	8.000		
	Rigid Support	CN-1561-1.0				0.000		
Class B								

### CATEGORY F-A, Supports

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## Class 2 Piping Supports

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## Inservice Inspection Plan for Interval 2 Outage 4

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**CATEGORY F-A, Supports**

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**Class 2 Piping Supports****Catawba 1****Inservice Inspection Plan for Interval 2 Outage 4**

ITEM NUMBER	ID NUMBER	SYS	ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK	CAL BLOCKS	COMMENTS
F01.021.107	1-R-NS-1102	NS	CN-1491-NS009	QAL-14	VT-3	NA	8.000		
	Rigid Support		CN-1563-1.0				0.000		
Class B									
F01.021.108	1-R-NS-1103	NS	CN-1491-NS009	QAL-14	VT-3	NA	8.000		
	Rigid Support		CN-1563-1.0				0.000		
Class B									
F01.021.109	1-R-NS-1104	NS	CN-1491-NS009	QAL-14	VT-3	NA	8.000		
	Rigid Support		CN-1563-1.0				0.000		
Class B									
F01.021.168	1-R-NV-0295	NV	CN-1492-NV024	QAL-14	VT-3	NA	3.000		
	Rigid Support		CN-1554-1.2				0.000		
Class B									
<b>Total F01.021 Items: 14</b>									
<b>**** Thermal Movement ****</b>									
F01.022.014	1-R-CF-1564	CF	CN-1491-CF005	QAL-14	VT-3	NA	18.000		
	Mech Snubber		CN-1591-1.1				0.000		
Class B									
F01.022.015	1-R-CF-1565	CF	CN-1491-CF005	QAL-14	VT-3	NA	18.000		
	Spring Hgr		CN-1591-1.1				0.000		
Class B									
F01.022.203	1-R-SM-1000	SM	CN-1491-SM003	QAL-14	VT-3	NA	42.000		
	Mech Snubber		CN-1593-1.0				0.000		
Class B									
F01.022.204	1-R-SM-1001	SM	CN-1491-SM003	QAL-14	VT-3	NA	42.000		
	Mech Snubber		CN-1593-1.0				0.000		
Class B									

**Total F01.022 Items: 4**

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### Class 3 Piping Supports

ITEM NUMBER	ID NUMBER	SYS	ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK	CAL BLOCKS	COMMENTS
**** One-Directional ****									
F01.030.005	1-R-CA-0070	CA	CN-1492-CA007	QAL-14	VT-3	NA	4.000		
	Rigid Support		CN-1592-1.1				0.000		
Class C									
F01.030.105	1-R-KD-0103	KD	CN-1493-KD051	QAL-14	VT-3	NA	10.000		
	Rigid Support		CN-1609-1.0				0.000		
Class C									
F01.030.154	1-R-RN-0092	RN	CN-1492-RN078	QAL-14	VT-3	NA	20.000		To be done with D02.020.043
	Rigid Support		CN-1574-2.5				0.000		
Class C									
F01.030.155	1-R-RN-0094	RN	CN-1492-RN341	QAL-14	VT-3	NA	20.000		To be done with D02.020.044
	Rigid Support		CN-1574-2.5				0.000		
Class C									
F01.030.156	1-R-RN-0752	RN	CN-1492-RN078	QAL-14	VT-3	NA	30.000		To be done with D02.020.045
	Rigid Support		CN-1574-2.5				0.000		
Class C									
F01.030.157	1-R-RN-0099	RN	CN-1492-RN079	QAL-14	VT-3	NA	20.000		To be done with D02.020.046
	Rigid Support		CN-1574-2.5				0.000		
Class C									
F01.030.158	1-R-RN-0182	RN	CN-1492-RN117	QAL-14	VT-3	NA	8.000		To be done with D02.020.047
	Rigid Support		CN-1574-2.1				0.000		
Class C									
F01.030.221	1-R-VN-0022	VN	CN-1493-VN009	QAL-14	VT-3	NA	30.000		
	Rigid Support		CN-1609-5.0				0.000		
Class C									

### CATEGORY F-A, Supports

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### **Class 3 Piping Supports**

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## Inservice Inspection Plan for Interval 2 Outage 4

ITEM NUMBER	ID NUMBER	SYS	ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DI/THK	CAL BLOCKS	COMMENTS
F01.030.222	1-R-VN-0023	VN	CN-1493-VN009	QAL-14	VT-3	NA		30.000	
	Rigid Support		CN-1609-5.0					0.000	
Class C									
F01.030.223	1-R-VN-0033	VN	CN-1493-VN012	QAL-14	VT-3	NA		30.000	
	Rigid Support		CN-1609-5.0					0.000	
Class C									
F01.030.224	1-R-VN-0034	VN	CN-1493-VN012	QAL-14	VT-3	NA		30.000	
	Rigid Support		CN-1609-5.0					0.000	
Class C									
F01.030.253	1-R-YC-0035	YC	CN-1525-YC003	QAL-14	VT-3	NA		8.000	
	Rigid Support		CN-1578-2.0					0.000	
Class C									
Total F01.030 Items:		12							
**** Multidirectional ****									
F01.031.001	1-R-CA-0057	CA	CN-1492-CA002	QAL-14	VT-3	NA		4.000	To be done with D02.020.001
	Rigid Support		CN-1592-1.1					0.000	
Class C									
F01.031.002	1-R-CA-0062	CA	CN-1492-CA002	QAL-14	VT-3	NA		4.000	To be done with D02.020.002
	Rigid Support		CN-1592-1.1					0.000	
Class C									
F01.031.004	1-R-CA-0146	CA	CN-1492-CA005	QAL-14	VT-3	NA		4.000	To be done with D02.020.004
	Rigid Support		CN-1592-1.1					0.000	
Class C									
F01.031.005	1-R-CA-0151	CA	CN-1492-CA005	QAL-14	VT-3	NA		4.000	To be done with D02.020.005
	Rigid Support		CN-1592-1.1					0.000	
Class C									

**CATEGORY F-A, Supports**

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**Class 3 Piping Supports****Inservice Inspection Plan for Interval 2 Outage 4**

ITEM NUMBER	ID NUMBER	SYS ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK	CAL BLOCKS	COMMENTS
F01.031.007	1-R-CA-0139	CA CN-1492-CA008	QAL-14	VT-3	NA	4.000		To be done with D02.020.007
	Rigid Support	CN-1592-1.1				0.000		
Class C								

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**Total F01.031 Items: 5**


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**\*\*\*\* Thermal Movement \*\*\*\***

F01.032.054	1-R-KC-0247	KC CN-1492-KC055	QAL-14	VT-3	NA	10.000		
	Mech Snubber	CN-1573-1.0				0.000		
Class C								

F01.032.102	1-R-KD-0005	KD CN-1493-KD008	QAL-14	VT-3	NA	8.000		To be done with D02.040.026
	Spring Hgr	CN-1609-1.0				0.000		
Class C								

F01.032.122	1-R-LD-0035	LD CN-1493-LD008	QAL-14	VT-3	NA	6.000		
	Spring Hgr	CN-1609-2.0				0.000		
Class C								

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**Total F01.032 Items: 3**


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**CATEGORY F-A, Supports**

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**Class 1,2,3 Supports**

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ITEM NUMBER	ID NUMBER	SYS ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK	CAL BLOCKS	COMMENTS
<b>**** Supports Other Than Piping Supports ****</b>								
F01.040.104	1REGHX-SUPPORT	NV CNM-1201.06-31	QAL-14	VT-3	NA	0.000		Regenerative Heat Exchanger Support
	Rigid Support	CN-1554-1.0				0.000		6 Brackets
Class B								
F01.040.109	1SWIFB-SUPPORT	NV CNM-1201.04-74	QAL-14	VT-3	NA	0.000		Seal Water Injection Filter 1B Support
	Rigid Support	CN-1554-1.2				0.000		4 Legs
Class B								
F01.040.111	1VCT-SUPPORT	NV CNM-1201.04-102	QAL-14	VT-3	NA	0.000		Volume Control Tank Support
	Rigid Support	CN-1554-1.1				0.000		4 Legs
Class B								
F01.040.112	1ELDHX-SUPPORT	NV CNM-1201.06-37	QAL-14	VT-3	NA	0.000		Excess Letdown Heat Exchanger Support
	Rigid Support	CN-1554-1.0				0.000		
Class B								
F01.040.113	1SWHX-SUPPORT	NV CNM-1201.06-50	QAL-14	VT-3	NA	0.000		Seal Water Heat Exchanger Support
	Rigid Support	CN-1554-1.6				0.000		
Class B								
F01.040.219	1NSHXA-RESTRAINT	NS CN-1574-2.0	QAL-14	VT-3	NA	0.000		Containment Spray Heat Exchanger 1A Restraint
	Rigid Restraint	CNM-1201.06-90				0.000		
Class C								
<b>Total F01.040 Items:</b>		<b>6</b>						
<b>Total F01 Items:</b>		<b>51</b>						

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02/07/2001****Reactor Coolant Pump Flywheel Inspection****Catawba 1****Inservice Inspection Plan for Interval 2 Outage 4**

ITEM NUMBER	ID NUMBER	SYS ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIATHK	CAL BLOCKS	COMMENTS
<b>**** NRC Regulatory Guide 1.14 ****</b>								
G01.001.004	1RCP-1D	NC CN-1NC-023	NDE-949	UT	CS	0.000	50237	Reactor Coolant Pump 1D Flywheel
		CNM1318.11-0016 001				0.000		A qualified in-place UT examination over the volume
Class A		CNM1318.11-0016 002						from the inner bore of the flywheel to the circle
								one-half of the outer radius or a surface examination
								(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.
<hr/>								
<b>Total G01.001 Items:</b>		<b>1</b>						
<b>Total G01 Items:</b>		<b>1</b>						

**CATEGORY , Augmented**

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**Pipe Rupture Protection**

ITEM NUMBER	ID NUMBER	SYS	ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK	CAL BLOCKS	COMMENTS
<b>**** Main Steam System ****</b>									
G02.001.024	1SM32-01	SM	CN-1SM-032	NDE-600	UT	CS	34.000	*	* Reference General Requirments Section 8.1.10
	Circumferential		CN-1593-1.0				2.375		
	Class B				Pipe to Pipe				
G02.001.024A	1SM32-01	SM	CN-1SM-032	NDE-25	MT	CS	34.000		
	Circumferential		CN-1593-1.0				2.375		
	Class B				Pipe to Pipe				
G02.001.025	1SM-8A-A	SM	CN-1SM-032	NDE-600	UT	CS	34.000	*	Grinnell Piece Mark CT-SM-8A Weld A
	Circumferential		CN-1593-1.0				2.375		* Reference General Requirments Section 8.1.10
	Class B				Pipe to Pipe				
G02.001.025A	1SM-8A-A	SM	CN-1SM-032	NDE-25	MT	CS	34.000		Grinnell Piece Mark CT-SM-8A Weld A
	Circumferential		CN-1593-1.0				2.375		
	Class B				Pipe to Pipe				
G02.001.026	1SM32-05	SM	CN-1SM-032	NDE-600	UT	CS	34.000	*	* Reference General Requirments Section 8.1.10
	Circumferential		CN-1593-1.0				2.375		
	Class B				Pipe to Valve 1SM007				
G02.001.026A	1SM32-05	SM	CN-1SM-032	NDE-25	MT	CS	34.000		
	Circumferential		CN-1593-1.0				2.375		
	Class B				Pipe to Valve 1SM007				
G02.001.027	1SM32-06	SM	CN-1SM-032	NDE-600	UT	CS	34.000	*	* Reference General Requirments Section 8.1.10
	Circumferential		CN-1593-1.0				2.375		
	Class B				Valve 1SM007 to Pipe				
G02.001.027A	1SM32-06	SM	CN-1SM-032	NDE-25	MT	CS	34.000		
	Circumferential		CN-1593-1.0				2.375		
	Class B				Valve 1SM007 to Pipe				

**CATEGORY , Augmented**

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**Pipe Rupture Protection**

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ITEM NUMBER	ID NUMBER	SYS	ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK	CAL BLOCKS	COMMENTS
G02.001.033	1SM33-04	SM	CN-1SM-033	NDE-600	UT	CS	34.000	*	* Reference General Requirments Section 8.1.10
	Circumferential		CN-1593-1.0				1.750		
Class B					Pipe to Elbow				
G02.001.033A	1SM33-04	SM	CN-1SM-033	NDE-25	MT	CS	34.000		
	Circumferential		CN-1593-1.0				1.750		
Class B					Pipe to Elbow				
G02.001.034	1SM-7A-A	SM	CN-1SM-033	NDE-600	UT	CS	34.000	*	Grinnell Piece Mark CT-SM-7A Weld A
	Circumferential		CN-1593-1.0				1.750		* Reference General Requirments Section 8.1.10
Class B					Elbow to Pipe				
G02.001.034A	1SM-7A-A	SM	CN-1SM-033	NDE-25	MT	CS	34.000		Grinnell Piece Mark CT-SM-7A Weld A
	Circumferential		CN-1593-1.0				1.750		
Class B					Elbow to Pipe				
G02.001.035	1SM-7A-B	SM	CN-1SM-033	NDE-600	UT	CS	34.000	*	Grinnell Piece Mark CT-SM-7A Weld B
	Circumferential		CN-1593-1.0				1.750		* Reference General Requirments Section 8.1.10
Class B					Pipe to Pipe				
G02.001.035A	1SM-7A-B	SM	CN-1SM-033	NDE-25	MT	CS	34.000		Grinnell Piece Mark CT-SM-7A Weld B
	Circumferential		CN-1593-1.0				1.750		
Class B					Pipe to Pipe				
<b>Total G02.001 Items:</b>			<b>14</b>						
<b>Total G02 Items:</b>			<b>14</b>						

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### Inservice Inspection Plan for Interval 2 Outage 4

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ITEM NUMBER	ID NUMBER	SYS ISO/DWG NUMBERS	PROC	INSP REQ	MAT/SCH	DIA/THK	CAL BLOCKS	COMMENTS
G04.001.001	1NI79-6	NI CN-1NI-79	NDE-600	UT	SS	18.000	*	* Reference General Requirements Section 8.1.10.
	Circumferential	CN-1562-1.3			20	0.312		Weld to be examined once per 10 year interval in the same period.
Class B				Pipe to Pipe				
Total G04.001 Items:		1						
Total G04 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)	=	<u>Y</u> = Yes <u>N</u> = No
Comments	=	General and/or Detail Description

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B03.140.001	1SGA-INLET	NC	11/01/2000	CLR	83.24%	N	Y	Request for Relief Serial No. 01-001
B03.140.002	1SGA-OUTLET	NC	11/01/2000	CLR	83.24%	N	Y	Request for Relief Serial No. 01-001
B05.070.001	1SGA-INLET-W5SE	NC	10/31/2000	CLR	75.00%	N	Y	Request for Relief Serial No. 01-001
B05.070.001A	1SGA-INLET-W5SE	NC	10/30/2000	CLR	---	N	N	
B05.070.002	1SGA-OUT-W6SE	NC	10/31/2000	CLR	75.00%	N	Y	Request for Relief Serial No. 01-001
B05.070.002A	1SGA-OUT-W6SE	NC	10/30/2000	CLR	---	N	N	
B06.090.003	1SGB-MW-Y1-X2	NC	10/25/2000	CLR	---	N	N	
B06.090.004	1SGB-MW-X2-Y2	NC	10/25/2000	CLR	---	N	N	
B06.090.005	1SGC-MW-X1-Y1	NC	10/25/2000	CLR	---	N	N	
B06.090.006	1SGC-MW-X1-Y2	NC	10/25/2000	CLR	---	N	N	
B06.100.003	1SGB-MW-Y1-X2	NC	10/30/2000	CLR	---	N	N	
B06.100.004	1SGB-MW-X2-Y2	NC	10/30/2000	CLR	---	N	N	
B06.100.005	1SGC-MW-X1-Y1	NC	10/31/2000	CLR	---	N	N	
B06.100.006	1SGC-MW-X1-Y2	NC	10/31/2000	CLR	---	N	N	
B06.110.001	1SGA-MW-X1-Y1	NC	10/25/2000	CLR	---	N	N	
B06.110.002	1SGA-MW-X1-Y2	NC	10/25/2000	CLR	---	N	N	
B06.180.004	1RCP-1D-F	NC	11/02/2000	CLR	---	N	N	
B08.020.001	1PZR-SKIRT	NC	10/21/2000	CLR	---	N	N	
B08.020.001A	1PZR-SKIRT	NC	10/21/2000	CLR	---	Y	N	
B08.020.004	1PZR-W10C	NC	10/20/2000	CLR	---	N	N	
B08.020.005	1PZR-W10D	NC	10/20/2000	CLR	---	N	N	
B09.011.006	1NC26-2	NC	10/19/2000	CLR	---	Y	N	
B09.011.006A	1NC26-2	NC	10/19/2000	CLR	---	N	N	
B09.011.151	1NI9-4	NI	10/27/2000	CLR	---	N	N	
B09.011.151A	1NI9-4	NI	10/26/2000	CLR	---	N	N	
B09.011.152	1NI9-7	NI	10/27/2000	CLR	---	N	N	
B09.011.152A	1NI9-7	NI	10/26/2000	CLR	---	N	N	
B09.011.153	1NI9-8	NI	10/27/2000	CLR	---	N	N	
B09.011.153A	1NI9-8	NI	10/26/2000	CLR	---	N	N	
B09.011.154	1NI9-9	NI	10/27/2000	CLR	---	N	N	
B09.011.154A	1NI9-9	NI	10/26/2000	CLR	---	N	N	
B09.021.003	1NC23-12	NC	10/20/2000	CLR	---	N	N	
B09.021.004	1NC24-9	NC	10/20/2000	CLR	---	N	N	
B09.021.026	1NC288-1	NC	10/27/2000	CLR	---	N	N	
B09.021.027	1NC288-3	NC	10/27/2000	CLR	---	N	N	
B09.040.020	1NC73-5	NC	10/20/2000	CLR	---	N	N	

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B09.040.021	1NC73-6	NC	10/20/2000	CLR	---	N	N	
B12.050.001C	1NC-3	NC	07/19/1999	REC	---	N	N	
B12.050.005B	INI-60	NI	11/01/2000	CLR	---	N	N	
B12.050.005D	INI-71	NI	10/30/2000	CLR	---	N	N	
B12.050.005F	INI-82	NI	10/29/2000	CLR	---	N	N	
B12.050.005G	INI-93	NI	10/31/2000	CLR	---	N	N	
B12.050.005H	INI-94	NI	10/29/2000	CLR	---	N	N	
B12.050.007E	INI-175	NI	10/28/2000	CLR	---	N	N	
B13.010.001	1RPV-INTERIOR	NC	11/05/2000	CLR	---	N	N	
C01.010.006	1SWHX-5-3	NV	10/23/2000	CLR	---	N	N	
C01.020.014	1SWHX-5-6	NV	10/23/2000	CLR	---	N	N	
C01.020.018	1BSWINJF-SH-HD	NV	09/15/2000	CLR	59.33%	N	Y	Request for Relief Serial No. 01-001
C02.011.001	1SWHX-5-A	NV	10/23/2000	CLR	---	N	N	
C02.011.002	1SWHX-5-B	NV	10/23/2000	CLR	---	N	N	
C03.020.069	1-R-SM-1537	SM	11/01/2000	CLR	---	N	N	
C03.020.070	1-R-SM-1549	SM	11/01/2000	CLR	---	N	N	
C03.020.078	1-R-SM-1541	SM	11/01/2000	CLR	---	N	N	
C03.020.080	1-R-SM-1544	SM	11/01/2000	CLR	---	N	N	
C03.020.081	1-R-SM-1545	SM	11/01/2000	CLR	---	N	N	
C03.020.082	1-R-SM-1546	SM	11/01/2000	CLR	---	N	N	
C05.011.201	1NS1-1	NS	10/25/2000	CLR	60.00%	N	Y	Request for Relief Serial No. 01-001
C05.011.201A	1NS1-1	NS	10/25/2000	CLR	---	N	N	
C05.011.202	1NS1-2	NS	10/25/2000	CLR	59.06%	N	Y	Request for Relief Serial No. 01-001
C05.011.202A	1NS1-2	NS	10/25/2000	CLR	---	N	N	
C05.011.203	1NS2-1	NS	10/25/2000	CLR	58.15%	N	Y	Request for Relief Serial No. 01-001
C05.011.203A	1NS2-1	NS	10/25/2000	CLR	---	N	N	
C05.011.204	1NS2-1A	NS	10/25/2000	CLR	---	Y	N	
C05.011.204A	1NS2-1A	NS	10/25/2000	CLR	---	N	N	
C05.011.251	1CF34-3	CF	10/19/2000	CLR	75.00%	Y	Y	Request for Relief Serial No. 01-001
C05.011.251A	1CF34-3	CF	10/18/2000	CLR	---	N	N	
C05.021.004	1NI11-11	NI	10/28/2000	CLR	---	N	N	
C05.021.004A	1NI11-11	NI	10/26/2000	CLR	---	N	N	
C05.021.005	1NI12-1	NI	10/28/2000	CLR	---	N	N	
C05.021.005A	1NI12-1	NI	10/26/2000	CLR	---	N	N	
C05.021.006	1NI12-2	NI	10/28/2000	CLR	---	N	N	
C05.021.006A	1NI12-2	NI	10/26/2000	CLR	---	N	N	



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C05.021.007	1NI12-3	NI	10/28/2000	CLR	---	N	N	
C05.021.007A	1NI12-3	NI	10/26/2000	CLR	---	N	N	
C05.021.008	1NI13-2	NI	10/28/2000	CLR	---	N	N	
C05.021.008A	1NI13-2	NI	10/26/2000	CLR	---	N	N	
C05.021.009	1NI13-3	NI	10/28/2000	CLR	---	N	N	
C05.021.009A	1NI13-3	NI	10/26/2000	CLR	---	N	N	
C05.021.014	1NI28-6	NI	10/27/2000	CLR	---	N	N	
C05.021.014A	1NI28-6	NI	10/26/2000	CLR	---	N	N	
C05.021.015	1NI28-7	NI	10/27/2000	CLR	---	N	N	
C05.021.015A	1NI28-7	NI	10/26/2000	CLR	---	N	N	
C05.021.016	1NI28-8	NI	11/01/2000	CLR	---	N	N	
C05.021.016A	1NI28-8	NI	10/31/2000	CLR	---	N	N	
C05.021.017	1NI28-9	NI	10/27/2000	CLR	---	N	N	
C05.021.017A	1NI28-9	NI	10/26/2000	CLR	---	N	N	
C05.021.134	1NV350-1	NV	10/24/2000	CLR	---	N	N	
C05.021.134A	1NV350-1	NV	10/23/2000	CLR	---	N	N	
C05.021.135	1NV350-13	NV	10/24/2000	CLR	---	N	N	
C05.021.135A	1NV350-13	NV	10/23/2000	CLR	---	N	N	
C05.021.136	1NV350-14	NV	10/24/2000	CLR	---	N	N	
C05.021.136A	1NV350-14	NV	10/23/2000	CLR	---	N	N	
C05.021.137	1NV359-16	NV	10/24/2000	CLR	---	N	N	
C05.021.137A	1NV359-16	NV	10/23/2000	CLR	---	N	N	
C05.021.138	1NV359-18	NV	10/24/2000	CLR	---	N	N	
C05.021.138A	1NV359-18	NV	10/23/2000	CLR	---	N	N	
C05.021.139	1NV360-6	NV	10/24/2000	CLR	---	N	N	
C05.021.139A	1NV360-6	NV	10/23/2000	CLR	---	N	N	
C05.030.001	1NI13-9	NI	10/26/2000	CLR	---	N	N	
C05.030.002	1NI13-10	NI	10/26/2000	CLR	---	N	N	
C05.030.120	1NV155-3	NV	10/24/2000	CLR	---	N	N	
C05.030.121	1NV155-4	NV	10/24/2000	CLR	---	N	N	
C05.030.122	1NV155-22	NV	10/24/2000	CLR	---	N	N	
C05.030.123	1NV155-23	NV	10/24/2000	CLR	---	N	N	
C05.030.124	1NV189-2	NV	10/26/2000	CLR	---	N	N	
C05.030.125	1NV189-3	NV	10/26/2000	CLR	---	N	N	
C05.030.126	1NV189-8	NV	10/26/2000	CLR	---	N	N	
C05.030.127	1NV189-9	NV	10/26/2000	CLR	---	N	N	

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C05.030.128	1NV193-4	NV	10/26/2000	CLR	---	N	N	
C05.030.129	1NV193-5	NV	10/26/2000	CLR	---	N	N	
C05.030.130	1NV193-8	NV	10/26/2000	CLR	---	N	N	
C05.030.131	1NV193-9	NV	10/26/2000	CLR	---	N	N	
C05.051.101	1SM24-36	SM	10/24/2000	CLR	---	Y	N	
C05.051.101A	1SM24-36	SM	10/24/2000	CLR	---	N	N	
C05.051.114	1SGC-W138	SM	10/24/2000	CLR	---	N	N	
C05.051.114A	1SGC-W138	SM	10/24/2000	CLR	---	N	N	
C06.020.006	1NI-162A	NI	10/10/2000	CLR	---	N	N	
D02.020.001	1-R-CA-0057	CA	07/26/1999	CLR	---	N	N	
D02.020.002	1-R-CA-0062	CA	07/26/1999	CLR	---	N	N	
D02.020.004	1-R-CA-0146	CA	07/26/1999	CLR	---	N	N	
D02.020.005	1-R-CA-0151	CA	07/26/1999	CLR	---	N	N	
D02.020.007	1-R-CA-0139	CA	07/26/1999	CLR	---	N	N	
D02.020.043	1-R-RN-0092	RN	07/20/1999	CLR	---	N	N	
D02.020.044	1-R-RN-0094	RN	07/20/1999	CLR	---	N	N	
D02.020.045	1-R-RN-0752	RN	07/20/1999	CLR	---	N	N	
D02.020.046	1-R-RN-0099	RN	07/19/1999	CLR	---	N	N	
D02.020.047	1-R-RN-0182	RN	08/03/1999	CLR	---	N	N	
D02.040.026	1-R-KD-0005	KD	08/02/1999	CLR	---	N	N	
F01.020.065	1-R-NI-1198	NI	10/19/2000	CLR	---	N	N	
F01.020.066	1-R-NI-1199	NI	10/19/2000	CLR	---	N	N	
F01.020.079	1-R-NI-1191	NI	10/19/2000	CLR	---	N	N	
F01.020.201	1-R-SM-1006	SM	10/27/2000	CLR	---	N	N	
F01.020.202	1-R-SM-1008	SM	10/21/2000	CLR	---	N	N	
F01.020.221	1-R-SV-1508	SV	10/17/2000	CLR	---	N	N	
F01.020.222	1-R-SV-1510	SV	10/17/2000	CLR	---	N	N	
F01.021.031	1-R-ND-0536	ND	10/16/2000	CLR	---	N	N	
F01.021.032	1-R-ND-0537	ND	10/16/2000	CLR	---	N	N	
F01.021.033	1-R-ND-0566	ND	10/16/2000	CLR	---	N	N	
F01.021.067	1-R-NI-1235	NI	10/19/2000	CLR	---	N	N	
F01.021.068	1-R-NI-1189	NI	10/19/2000	CLR	---	N	N	
F01.021.069	1-R-NI-1190	NI	10/19/2000	CLR	---	N	N	
F01.021.070	1-R-NI-1196	NI	10/19/2000	CLR	---	N	N	
F01.021.091	1-R-NS-0019	NS	10/16/2000	CLR	---	N	N	
F01.021.092	1-R-NS-0023	NS	10/16/2000	CLR	---	N	N	

EOC 12  
Plant: Catawba 1

DUKE ENERGY CORPORATION  
QUALITY ASSURANCE TECHNICAL SERVICES  
In-Service Inspection Database Management System  
Catawba 1 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
F01.021.093	1-R-NS-0079	NS	10/16/2000	CLR	---	N	N	
F01.021.107	1-R-NS-1102	NS	10/19/2000	CLR	---	N	N	
F01.021.108	1-R-NS-1103	NS	10/19/2000	CLR	---	N	N	
F01.021.109	1-R-NS-1104	NS	10/19/2000	CLR	---	N	N	
F01.021.168	1-R-NV-0295	NV	10/16/2000	CLR	---	N	N	
F01.022.014	1-R-CF-1564	CF	10/17/2000	CLR	---	N	N	
F01.022.015	1-R-CF-1565	CF	10/17/2000	CLR	---	N	N	
F01.022.203	1-R-SM-1000	SM	10/21/2000	CLR	---	N	N	
F01.022.204	1-R-SM-1001	SM	10/21/2000	CLR	---	N	N	
F01.030.005	1-R-CA-0070	CA	07/26/1999	CLR	---	N	N	
F01.030.105	1-R-KD-0103	KD	10/16/2000	CLR	---	N	N	
F01.030.154	1-R-RN-0092	RN	07/19/1999	CLR	---	N	N	
F01.030.155	1-R-RN-0094	RN	07/19/1999	CLR	---	N	N	
F01.030.156	1-R-RN-0752	RN	07/19/1999	CLR	---	N	N	
F01.030.157	1-R-RN-0099	RN	07/19/1999	CLR	---	N	N	
F01.030.158	1-R-RN-0182	RN	08/02/1999	CLR	---	N	N	
F01.030.221	1-R-VN-0022	VN	07/19/1999	CLR	---	N	N	
F01.030.222	1-R-VN-0023	VN	07/19/1999	CLR	---	N	N	
F01.030.223	1-R-VN-0033	VN	10/24/2000	CLR	---	N	N	
F01.030.224	1-R-VN-0034	VN	10/24/2000	CLR	---	N	N	
F01.030.253	1-R-YC-0035	YC	08/02/1999	CLR	---	N	N	
F01.031.001	1-R-CA-0057	CA	07/26/1999	CLR	---	N	N	
F01.031.002	1-R-CA-0062	CA	07/26/1999	CLR	---	N	N	
F01.031.004	1-R-CA-0146	CA	07/26/1999	CLR	---	N	N	
F01.031.005	1-R-CA-0151	CA	07/26/1999	CLR	---	N	N	
F01.031.007	1-R-CA-0139	CA	07/26/1999	CLR	---	N	N	
F01.032.054	1-R-KC-0247	KC	10/15/2000	CLR	---	N	N	
F01.032.102	1-R-KD-0005	KD	08/02/1999	CLR	---	N	N	
F01.032.122	1-R-LD-0035	LD	08/02/1999	CLR	---	N	N	
F01.040.104	1REGHX-SUPPORT	NV	11/19/2000	CLR	---	N	N	
F01.040.109	1SWIFB-SUPPORT	NV	07/28/1999	CLR	---	N	N	
F01.040.111	1VCT-SUPPORT	NV	10/16/2000	CLR	---	N	N	
F01.040.112	1ELDHX-SUPPORT	NV	10/22/2000	REC	---	N	N	
F01.040.113	1SWHX-SUPPORT	NV	10/17/2000	CLR	---	N	N	
F01.040.219	1NSHXA-RESTRAINT	NS	10/23/2000	CLR	---	N	N	
G01.001.004	1RCP-1D	NC	10/31/2000	CLR	---	N	N	

DUKE ENERGY CORPORATION  
 QUALITY ASSURANCE TECHNICAL SERVICES  
 In-Service Inspection Database Management System  
 Catawba 1 Inservice Inspection Listing  
 Interval 2 Outage 4

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 Plant: Catawba 1

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ITEM NUMBER	ID NUMBER	SYSTEM	INSP DATE	INSP STATUS	INSP LIMITED	GEO REF	RFR	COMMENTS
G02.001.024	1SM32-01	SM	11/06/2000	CLR	---	Y	N	
G02.001.024A	1SM32-01	SM	11/01/2000	CLR	---	N	N	
G02.001.025	1SM-8A-A	SM	11/06/2000	CLR	---	N	N	
G02.001.025A	1SM-8A-A	SM	11/01/2000	CLR	---	N	N	
G02.001.026	1SM32-05	SM	11/03/2000	CLR	---	Y	N	
G02.001.026A	1SM32-05	SM	11/01/2000	CLR	---	N	N	
G02.001.027	1SM32-06	SM	11/05/2000	CLR	---	N	N	
G02.001.027A	1SM32-06	SM	11/01/2000	CLR	---	N	N	
G02.001.033	1SM33-04	SM	11/06/2000	CLR	---	N	N	
G02.001.033A	1SM33-04	SM	11/01/2000	CLR	---	N	N	
G02.001.034	1SM-7A-A	SM	11/06/2000	CLR	---	N	N	
G02.001.034A	1SM-7A-A	SM	11/01/2000	CLR	---	N	N	
G02.001.035	1SM-7A-B	SM	11/06/2000	CLR	---	N	N	
G02.001.035A	1SM-7A-B	SM	11/01/2000	CLR	---	N	N	
G04.001.001	1NI79-6	NI	10/12/2000	CLR	---	N	N	

- 5.2 Limited Examinations (i.e., 90% or less of the required examination coverage obtained) identified during Outage EOC12 (Outage 4) are shown below. A copy of the Requests for Relief is contained in Section 9.0 of this report.

<b><u>Item Number</u></b>	<b><u>Request for Relief Serial Number</u></b>
B03.140.001	01-001
B03.140.002	01-001
B05.070.001	01-001
B05.070.002	01-001
C01.020.018	01-001
C05.011.201	01-001
C05.011.202	01-001
C05.011.203	01-001
C05.011.251	01-001

## **6.0 Reportable Indications**

EOC12 (Outage 4) had no reportable indications.

## **7.0 Personnel, Equipment and Material Certifications**

All personnel who performed or evaluated the results of inservice inspections from May 24, 1999 through November 20, 2000 at Catawba Nuclear Station, Unit 1 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.

## 8.0 **Corrective Action**

No corrective action was required as a result of examinations performed during EOC12 (Outage 4).



## 9.0 **Reference Documents**

The following reference document applies to inservice inspections performed during EOC12 (Outage 4) at Catawba Nuclear Station, Unit 1:

- Duke Power Company, Catawba Nuclear Station letter dated February 5, 2001; from Gary R. Peterson, Vice President, to U.S. Nuclear Regulatory Commission Document Control Desk; Catawba Nuclear Station Unit 1 Docket Number 50-413 Request for Relief Number 01-001 Limited Weld Examinations in End-of- Cycle 12 Refueling Outage.



Gary R. Peterson  
Vice President

Duke Power  
Catawba Nuclear Station  
4800 Concord Road  
York, SC 29745  
(803) 831-4251 OFFICE  
(803) 831-3221 FAX

February 5, 2001

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

Subject: Duke Energy Corporation  
Catawba Nuclear Station, Unit 1  
Docket Number 50-413  
Request for Relief Number 01-001  
Limited Weld Examinations in End-of-Cycle 12  
Refueling Outage

Pursuant to 10 CFR 50.55a(g)(5)(iii), please find attached Request for Relief 01-001. This request for relief is associated with limited weld examinations encountered during the Catawba Unit 1 End-of-Cycle 12 Refueling Outage. The components for which the weld examinations were limited are contained in the attachment to this letter.

The attachment to this letter contains all technical information necessary in support of this request for relief.

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

Very truly yours,

Gary R. Peterson

LJR/s

Attachment

Document Control Desk  
Page 2  
February 5, 2001

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  
February 5, 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

## **DUKE ENERGY CORPORATION**

### **STATION: CATAWBA NUCLEAR STATION UNIT 1 10-YEAR INTERVAL REQUEST FOR RELIEF NO. 01-001**

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.

#### **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; Examination Category B-F Pressure Retaining Dissimilar Metal Welds; Examination Category C-F-1 Pressure Retaining Welds In Austenitic Stainless Steel Or High Alloy Piping and ASME Section XI Code Class 2 Examination Category C-A Pressure Retaining Welds In Pressure Vessels

<u>ID Number</u>	<u>Item Number</u>
1SGA-INLET	B03.140.001
1SGA-OUTLET	B03.140.002
1SGA-INLET-W5SE	B05.070.001
1SGA-OUT-W6SE	B05.070.002
1NS1-1	C05.011.201
1NS1-2	C05.011.202
1NS2-1	C05.011.203
1CF34-3	C05.011.251
1BSWINJF-SH-HD	C01.020.018

#### **II. Code Requirement:**

- ASME Section XI 1989 Edition Examination Category B-D Full Penetration Welds of Nozzles In Vessels, Table IWB-2500-7 (d) , Item Number B03.140, examination volume M-N-O-P

- ASME Section XI 1989 Edition Examination Category B-F Pressure Retaining Dissimilar Metal Welds, Item Number B05.070. and Examination Category C-F-1 Pressure Retaining Welds in Austenitic Stainless Steel or High Alloy Piping (Dissimilar Metal Weld), Item Number C05.011. 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."
  - ASME Section XI 1989 Edition Examination Category C-F-1 Pressure Retaining Welds in Austenitic Stainless Steel or High Alloy Piping, Item Number C05.011. 10 CFR 50.55a(b)(2)(xv)(A) "When applying Supplements 2 and 3 of Appendix VIII, the following examination coverage criteria requirements must be used:
    - (1) Piping must be examined in two axial directions and when examination in the circumferential direction is required, the circumferential examination must be performed in two directions, provided access is available.
    - (2) Where examination from both sides is not possible, full coverage credit may be claimed from a single side for ferritic welds. Where examination from both sides is not possible on austenitic welds, full coverage credit from a single side may be claimed only after completing a successful single sided Appendix VIII demonstration using flaws on the opposite side of the weld."
- 10 CFR 50.55a(b)(2)(xvi)(B) "Examinations performed from one side of a ferritic or stainless steel pipe weld must be conducted with equipment, procedures, and personnel that have demonstrated proficiency with single sided examinations. To demonstrate equivalency to two sided examinations, the demonstration must be performed to the requirements of Appendix VIII as modified by this paragraph and 50.55a(b)(2)(xv)(A)."

- ASME Section XI 1989 Edition Examination Category C-A Pressure Retaining Welds in Pressure Vessels, Table IWC-2500-1, Item Number C01.020. 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 requested for the above-identified ID Numbers:

- Class 1 Steam Generator 1A Inlet and Outlet Nozzle Inside Radius Section:  
Relief is being sought from the requirement to examine 100% of the volume M-N-O-P shown in IWB-2500-7 (d).

- Class 1 Steam Generator 1A Inlet and Outlet Nozzle-to-Safe End Welds:  
Relief is being sought from the requirement to provide coverage of the required examination volume in two-beam path directions.

- Class 2 Containment Spray Pump 1A-to-Reducer Weld, Containment Spray Reducer-to-Flange Weld, and Containment Spray Valve 1NS018A-to-Pipe Welds:

Relief is being sought from the requirement to perform examinations from one side of stainless steel welds using equipment, procedures, and personnel that have demonstrated proficiency with single sided examinations in accordance with 50.55a(b)(2)(xv)(A).

- Class 2 Feedwater Pipe-to-Valve 1CF042 Weld:  
Relief is being sought from the requirement to provide coverage of the required examination volume in two-beam path directions.
- Class 2 Seal Water Injection Filter 1B Shell-to-Head Weld:  
Relief is being sought from the requirement to provide coverage of the required examination volume in two-beam path directions.

#### IV. Basis for Relief:

- During the ultrasonic examination of the Steam Generator 1A Inlet and Outlet Nozzle Inside Radius Sections, 1SGA-INLET and 1SGA-OUTLET (Item Numbers B03.140.001 and B03.140.002 respectively) shown in Attachments 2 and 3, greater than 90% coverage of the required examination volume could not be obtained. The examination coverage was limited to 83.24%. Limitations are caused by the ratio of the nozzle O.D. to the vessel thickness. When the nozzle O.D. is small in relation to the vessel thickness, more coverage can be obtained when scanning from the vessel side. Conducting examinations from nozzle boss and OD blend radius using compound angles; determining which angles to use; metal paths to calibrate and area of coverage are not accurate with manual calculations. Duke Energy is investigating the use of computer modeling to solve the limitation problems. Radiography is not practical because of the geometry of the component, which prevents placement of the film and exposure source. Nozzle inner radius sections were examined with the ultrasonic method to the maximum extent practical from the vessel wall. Calibration blocks and procedures were in accordance with ASME Section V, Article 4, Paragraph T-441.3.2.1. The volume was scanned using 60° and 70° beam angles in clock-wise and counter-clockwise directions.

- During the ultrasonic examination of the Steam Generator 1A Inlet and Outlet Nozzle-to-Safe End, 1SGA-INLET-W5SE, 1SGA-OUT-W6SE (Item Numbers B05.070.001, B05.070.002) shown in Attachments 4 and 5 respectively, greater than 90% coverage of the required examination volume could not be obtained. The examination coverage was limited to 75.00%. Austenitic weld metal characteristics and single sided access caused by the component geometry 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, which is utilized by Duke Energy is not possible.

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 and buttering create 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° 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° reflected longitudinal wave.



$$\sin^{-1} = (\sin 45^{\circ} \times V_s) \div V_L$$
$$= (0.707 \times 0.123) \div 0.223$$

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

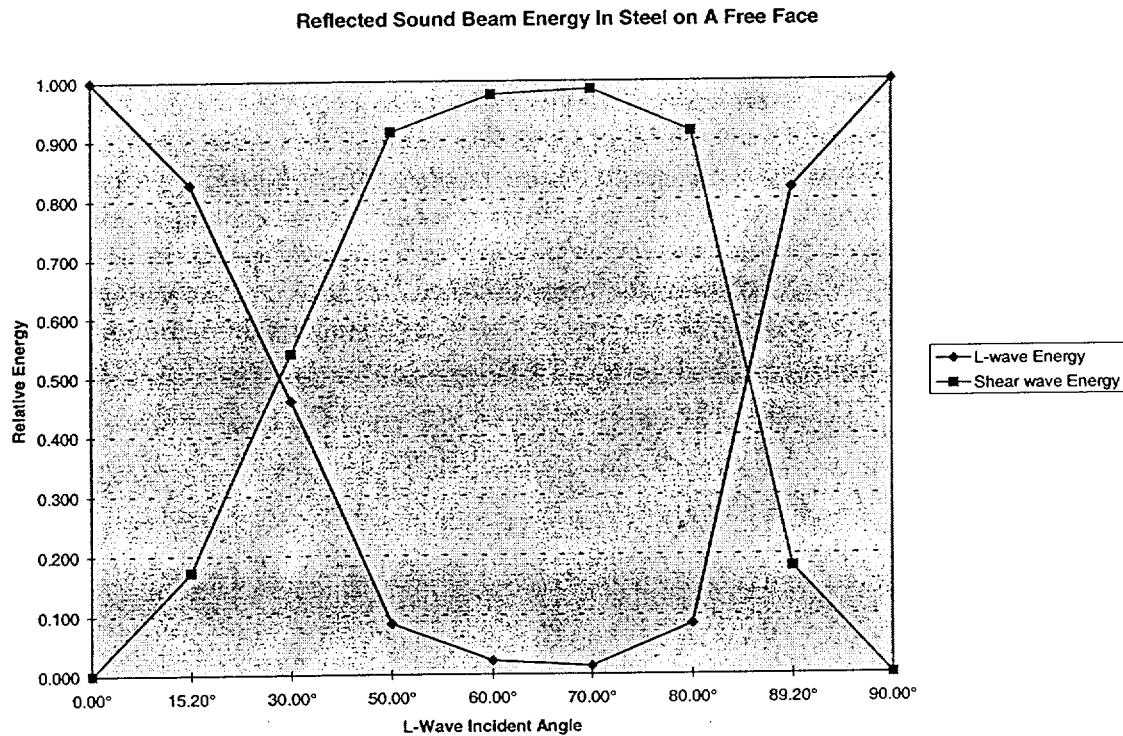
$V_s$  is the shear wave velocity of the stainless steel safe end/pipe material in inches / msec.

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

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.

In order to obtain the required two-beam path direction coverage, welds would have to be re-designed 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.



- During the ultrasonic examination of the Containment Spray Pump 1A-to-Reducer Weld, 1NS1-1 (Item Number C05.011.201) shown in Attachment 6, greater than 90% coverage of the required examination volume could not be obtained. The examination coverage was limited to 60% of the required examination volume. This is a pump to reducer weld where access is limited to the pump side of the weld only.
- During the ultrasonic examination of the Containment Spray System Reducer-to-Flange Weld 1NS1-2 (Item Number C05.011.202) shown in Attachment 7, greater than 90% coverage of the required examination volume could not be obtained. The examination coverage was limited to 59.06% of the required examination volume. This is a reducer to flange weld where access is limited to the reducer side of the weld only.
- During the ultrasonic examination of the Containment Spray Valve 1NS018A-to-Pipe Weld 1NS2-1 (Item Number C05.011.203) shown in Attachment 8, greater than 90% coverage of the required examination volume could not be obtained. The examination coverage was limited to 58.15% of the required examination volume. This is a pipe to valve weld where access is limited to the pipe side of the weld only.
- During the ultrasonic examination of the Feedwater Pipe-to-Valve 1CF042, Weld 1CF34-3 (Item Number C05.011.251) shown in Attachment 9, greater than 90% coverage of the required examination volume could not be obtained. The examination coverage was limited to 75% of the required examination volume. This is a dissimilar metal weld joining a stainless steel pipe to a carbon steel valve. Access is limited to the pipe side only because of the as-cast surface condition of the valve.

Austenitic weld metal characteristics and single sided access caused by the component geometry prevents two-beam path direction coverage of the examination volume.

In order to obtain the required two-beam path direction coverage, the weld would have to be re-designed to allow scanning from both sides of the weld over the required examination volume.

- During the ultrasonic examination of the Seal Water Injection Filter 1B Shell-to-Head Weld, 1BSWINJF-SH-HD (Item Number C01.020.018) shown in

Attachment 10, greater than 90% coverage of the required examination volume could not be obtained. The examination coverage was limited to 59.33% of the required examination volume.

Austenitic weld metal characteristics and single sided access caused by the component geometry prevents two-beam path direction coverage of the examination volume.

In order to obtain the required two-beam path direction coverage, the weld would have to be re-designed to allow scanning from both sides of the weld over the required examination volume.

## **V. Alternate Examinations or Testing:**

No additional examinations are planned during the current interval for ID Numbers 1SGA-INLET, 1SGA-OUTLET, 1SGA-INLET-W5SE, 1SGA-OUT-W6SE, 1NS1-1, 1NS1-2, 1NS2-1, 1CF34-3 and 1BSWINJF-SH-HD. Duke Energy Corporation will continue to use the most current ultrasonic techniques available to obtain maximum coverage for future examinations of these ID Numbers.

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

These welds were rigorously inspected by radiography and liquid penetrant examination during construction and verified to be free from unacceptable fabrication defects.

### Steam Generator 1A Inlet and Outlet Nozzle Inner Radius

Although the examination volume requirements as defined in ASME Section XI 1989 Edition with no addenda Figure IWB-2500-7, Examination Volume M-N-O-P for ID Numbers 1SGA-INLET and 1SGA-OUTLET (Item Numbers B03.140.001 and B03.140.002) could not be met, the amount of coverage obtained for these examinations provides an acceptable level of quality and integrity. For results of the examinations, reference Attachments 2 and 3.

Steam Generator 1A Inlet and Outlet Nozzle Inner Radii are located inside containment and are 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 these weld locations discussed in this relief request, the instrumentation available to the operators for detection and monitoring of leakage would provide a prompt and qualitative information necessary to permit them to take immediate corrective action. If a leak should develop in these aforementioned locations, the only corrective action would be shutdown and depressurize the reactor coolant system, since the welds are non-isolable.

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. 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.

Steam Generator 1A Inlet and Outlet Nozzle-to-Safe End Welds

Although the examination volume requirements as defined in ASME Section XI 1989 Edition with no addenda, Appendix III, Paragraph III-4420, for ID Numbers 1SGA-INLET-W5SE, 1SGA-OUT-W6SE, (Item Numbers B05.070.001 and B05.070.002) could not be met, the amount of coverage obtained for these examinations provides an acceptable level of quality and integrity. For results of the examinations, reference Attachments 4 and 5.

Steam Generator 1A Inlet and Outlet Nozzle-to-Safe End Welds are located inside containment and are 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 these weld locations discussed in this relief request, the instrumentation available to the operators for detection and monitoring of leakage would provide a prompt and qualitative information necessary to permit them to take immediate corrective action. If a leak should develop in these aforementioned locations, the only corrective action would be shutdown and depressurize the reactor coolant system, since the welds are non-isolable.

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. 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.

Containment Spray Pump 1A-to-Reducer Weld, Containment Spray Reducer-to-Flange Weld, Containment Spray Valve 1NS018A-to-Pipe Weld

Although the examination requirements as defined in 10 CFR 50.55a (b) (2) (xv) (A) could not be met for ID Numbers 1NS1-1, 1NS1-2, 1NS2-1 (Item Numbers C05.011.201, C05.011.202, and C05.011.203 respectively), the examinations conducted provide an acceptable level of quality and integrity. For results of the examinations, reference Attachments 6, 7, and 8.

Feedwater Pipe-to-Valve 1CF042

Although the examination volume requirements as defined in ASME Section XI 1989 Edition with no addenda, Appendix III, Paragraph III-4420, for ID Number 1CF34-3 (Item Number C05.011.251) could not be met, the amount of coverage obtained for this examination provides an acceptable level of quality and integrity. For results of the examinations, reference Attachment 9.

Containment Spray Pump 1A-to-Reducer Weld

Containment Spray Pump (NS) 1A is used to control pressure inside Reactor Building Containment during an engineered safeguards actuation. This pump is not used for normal operation of the plant.

This area that contains the pump to reducer weld 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 pump. It is reasonable for the operator making these rounds to detect any external leaks from this weld.

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 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.

#### Containment Spray Reducer-to-Flange Weld

Containment Spray Pump (NS) 1A is used to control pressure inside the containment vessel during a Safety Injection. This pump is not used for normal operation of the plant.

This area that contains the reducer weld (large end of the reducer to the pump suction) 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 reducer. It is reasonable for the operator making these rounds to detect any external leaks from this weld.

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 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.

#### Containment Spray Valve 1NS018A-to-Pipe Weld

1NS-18A provides a suction source to Containment Spray Pump (NS) 1A, which is used to control pressure inside the containment vessel during a Safety Injection. This pump is not used for normal operation of the plant.

This area that contains the weld (NS side of 1NS-18A) 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 valve. It is reasonable for the operator making these rounds to detect any external leaks from this weld.

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 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.

#### Feedwater Pipe-to-Valve 1CF042

1CF042 is a Feedwater Isolation Valve to a Steam Generator. It has a safety function to close when a Safety Injection or Feedwater Isolation signal is received. This valve is normally open during power operations.

This weld is located on the upstream side of 1CF042. 1CF042 is located in the doghouse of Unit 1. Routine operator rounds inside the doghouse would detect a leak in this area. In the event that the leak was large enough, there are level detectors inside the doghouse to initiate closure of this valve in the event that the water level got high enough. Since the weld is on the upstream side of the valve, it does not effect the safety related auxiliary water supply (CA) that makes up the heat sink for the reactor coolant system.

#### Seal Water Injection Filter 1B Shell-to-Head Weld

Although the examination volume requirements as defined in ASME Section XI 1989 Edition with no addenda, Appendix III, Paragraph III-4420, for ID Number 1BSWINJF-SH-HD (Item Number C01.020.018) could not be met, the amount of coverage obtained for this examination provides an acceptable level of quality and integrity. For results of the examination, reference Attachment 10.

The Seal Water Injection Filter 1B is used in power operations. The Seal Water Injection Filter 1B is located in the Auxiliary Building in a filter pit. During power operations and unit refueling outages, the Seal Water Injection Filter 1B is accessible for visual inspections by pulling a concrete plug out of the Auxiliary Building Floor on the 577' elevation.

If a leak were to occur at the weld in question (shell to head weld), there are several periodic tests and 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 Water Injection Filter 1B 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. 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 Seal Water Injection Filter 1B room and flow to the floor drain and then to



the Floor Drain Tank. Our Chemistry department periodically monitors the tank level and evaluates unidentified leakage for correction.

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.

## VII. Implementation Schedule:

These examinations will continue to be scheduled in accordance with the requirements of ASME Section XI for future Inspection Intervals at Catawba Nuclear Station, Unit 1.

The following individuals contributed to the development of this RFR:

Jim McArdle (NDE Level III) provided Sections 2-5

David Goforth (System Engineer) provided Section 6

Andy Hogge (Sponsor) compiled the remaining sections

Sponsored By:

Andrew J. Hogge, Jr. Date 2/1/2001

Approved By:

R. Kevin Rhyme Date 2/1/2001

Attachment 1	Description Table
Attachment 2	UT Examination Data B03.140.001
Attachment 3	UT Examination Data B03.140.002
Attachment 4	UT Examination Data B05.070.001
Attachment 5	UT Examination Data B05.070.002
Attachment 6	UT Examination Data C05.011.201
Attachment 7	UT Examination Data C05.011.202
Attachment 8	UT Examination Data C05.011.203
Attachment 9	UT Examination Data C05.011.251
Attachment 10	UT Examination Data C01.020.018

ASME Class 1 & 2 Inservice Inspection Request For Relief No. 01-001  
 For Catawba Unit 1 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
B03.140.001	B-D IWB-2500-7 (d)	Steam Generator	Steam Generator 1A Inlet Nozzle Inside Radius	Limited scan due to the ratio of the nozzle OD to the vessel thickness. Actual coverage obtained = 83.24% (See Attachment 2)	None
B03.140.002	B-D IWB-2500-7 (d)	Steam Generator	Steam Generator 1A Outlet Nozzle Inside Radius	Limited scan due to the ratio of the nozzle OD to the vessel thickness. Actual coverage obtained = 83.24% (See Attachment 3)	None
B05.070.001	B-F Appendix III, Paragraph III-4420	Steam Generator	Steam Generator 1A Inlet Nozzle-to- Safe-End	Limited scan due to material characteristics and single-sided access. Actual coverage obtained = 75% (See Attachment 4)	None

ASME Class 1 & 2 Inservice Inspection Request For Relief No. 01-001  
 For Catawba Unit 1 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
B05.070.002	B-F Appendix III, Paragraph III-4420	Steam Generator	Steam Generator 1A Outlet Nozzle-to- Safe End	Limited scan due to material characteristics and single-sided access. Actual coverage obtained = 75% (See Attachment 5)	None
C05.011.201	C-F-1 10CFR50.55a(b) (2)(xv)(A) 10CFR50.55a(b) (2)(xvi)(B)	Containment Spray Pump 1A	Containment Spray Pump 1A-to- Reducer Weld	Limited scan due single-sided access. Actual coverage obtained = 60% (See Attachment 6)	None
C05.011.202	C-F-1 10CFR50.55a(b) (2)(xv)(A) 10CFR50.55a(b) (2)(xvi)(B)	Containment Spray System	Containment Spray Reducer-to- Flange Weld	Limited scan due single-sided access. Actual coverage obtained = 59.06% (See Attachment 7)	None
C05.011.203	C-F-1 10CFR50.55a(b) (2)(xv)(A) 10CFR50.55a(b) (2)(xvi)(B)	Containment Spray System	Containment Spray Valve 1NS018A-to- Pipe Weld	Limited scan due single-sided access. Actual coverage obtained = 58.15% (See Attachment 8)	None

ASME Class 1 & 2 Inservice Inspection Request For Relief No. 01-001  
 For Catawba Unit 1 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
C05.011.251	C-F-1 Appendix III, Paragraph III-4420	Feedwater System	Feedwater Pipe-to-Valve 1CF042 Weld	Limited scan due to: Access is limited to the pipe side only because of the as-cast surface condition of the valve. Actual coverage obtained = 75% (See Attachment 9)	None
C01.020.018	C-A Appendix III, Paragraph III-4420	Seal Water Injection Filter	Seal Water Injection Filter 1B shell-to-Head Weld	Limited Scan due to singled sided access. Actual coverage obtained = 59.33% (See Attachment 10)	None

<b>DUKE POWER COMPANY</b>				Exam Start: 1138		Form NDE-UT-2A	
<b>ULTRASONIC EXAMINATION DATA SHEET FOR PLANAR REFLECTORS</b>				Exam Finish: 1205		Revision 4	
Station: Catawba		Unit: 1	Component/Weld ID: 1SGA-INLET				Date: 11/1/00
Weld Length (in.): 122.5		Surface Condition: AS GROUND		Lo: 9.2.3		Surface Temperature: 77 ° F	
Examiner: David Zimmerman <i>David K. Zimmerman</i>		Level: II	Scans: 45 <input type="checkbox"/> _____ dB    70 <input checked="" type="checkbox"/> 73.5 dB 45T <input type="checkbox"/> _____ dB    70T <input type="checkbox"/> _____ dB 60 <input checked="" type="checkbox"/> 59 dB 60T <input type="checkbox"/> _____ dB Other: _____ dB		Pyrometer S/N: MCNDE 27010		
Examiner: James L. Panel <i>James L. Panel</i>		Level: II			Cal Due: 3/27/01		
Procedure: NDE-680    Rev: 2		FC: N/A			Configuration: INNER RADIUS		
Calibration Sheet No: 0001050, 0001051					S1 _____ Flow _____ S2 _____ VESSEL _____ to _____ NOZZLE _____ Scan Surface: OD <b>Applies to NDE-680 only</b> Skew Angle: 23.0, 23.5		

IND #	Max % Ref	Mp Max	W Max	L Max	L1	L2	W1	Mp1	W2	Mp2	Beam Dir.	Exam Surf.	Scan	Damps
					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	20%dac HMA 50%dac 100%dac	20%dac HMA 50%dac 100%dac				
NRI	60°													
NRI	70°													

Remarks:			
Limitations: (see NDE-UT-4) <input checked="" type="checkbox"/> 90% or greater coverage obtained: yes <input type="checkbox"/> no <input checked="" type="checkbox"/>			Sheet 1 of 4
Reviewed By: <i>Larry Mauldin</i>	Level: III	Date: 11-2-00	Authorized Inspector: <i>Robert McNeil</i> Date: 11-13-00 Item No: B03.140.001

REQUEST FOR RELIEF # 01-001 ATTACHMENT 2

*ADH 11/21/00*

# DUKE POWER COMPANY

## ISI LIMITATION REPORT

FORM NDE-UT-4

Revision 1

Component/Weld ID: 1SGA-INLET

Item No: B03.140.001

Remarks:

☐ NO SCAN  
☒ LIMITED SCAN

SURFACE  
☒ 1 ☐ 2

BEAM DIRECTION  
☐ 1 ☒ 2 ☒ cw ☐ ccw

FROM L 22.0 to L 42.5 INCHES FROM WO N/A to N/A

ANGLE: ☐ 0 ☐ 45 ☒ 60 ☐ Other 70° FROM N/A DEG to N/A DEG

SUPPORT CORNER IS 1.0" FROM C/L OF NOZZLE RADIUS

☐ NO SCAN  
☒ LIMITED SCAN

SURFACE  
☒ 1 ☐ 2

BEAM DIRECTION  
☐ 1 ☒ 2 ☒ cw ☒ ccw

FROM L \_\_\_\_\_ to L \_\_\_\_\_ INCHES FROM WO \_\_\_\_\_ to \_\_\_\_\_

ANGLE: ☐ 0 ☐ 45 ☐ 60 ☐ Other \_\_\_\_\_ FROM \_\_\_\_\_ DEG to \_\_\_\_\_ DEG

SENSOR PLATE IS 4.5" TI 10.5" FROM C/L OF NOZZLE OD RADIUS.

☒ NO SCAN  
☐ LIMITED SCAN

SURFACE  
☐ 1 ☒ 2

BEAM DIRECTION  
☒ 1 ☐ 2 ☒ cw ☒ ccw

FROM L N/A to L N/A INCHES FROM WO C/L to BEYOND

ANGLE: ☐ 0 ☐ 45 ☒ 60 ☒ Other 70° FROM 0 DEG to 360 DEG

LIMITED ON NOZZLE C/L OF BLEND RADIUS

☐ NO SCAN  
☐ LIMITED SCAN

SURFACE  
☐ 1 ☐ 2

BEAM DIRECTION  
☐ 1 ☐ 2 ☐ cw ☐ ccw

FROM L \_\_\_\_\_ to L \_\_\_\_\_ INCHES FROM WO \_\_\_\_\_ to \_\_\_\_\_

ANGLE: ☐ 0 ☐ 45 ☐ 60 ☐ Other \_\_\_\_\_ FROM \_\_\_\_\_ DEG to \_\_\_\_\_ DEG

Prepared By: *David K. B.*

Level: II

Date: 11/1/00

Sketch(s) attached ☐ yes ☒ no

Sheet 2 of 4

Reviewed By: *Larry Trumble*

Date: 11-2-00

Authorized Inspector: *Robert McNeil*

Date: 11-13-00

3 of 4

<b>DUKE POWER COMPANY</b> <b>Limited Examination Coverage Worksheet</b>	NDE-91-1
	Revision 0

Examination Volume/Area Defined	
<input type="checkbox"/> Base Metal <input type="checkbox"/> Weld <input type="checkbox"/> Near Surface <input type="checkbox"/> Bolting <input checked="" type="checkbox"/> Inner Radius	
Area Calculation	Volume Calculation
$5 \text{ IN. SQ.} \times \text{PI} - 4.5 \text{ IN. SQ.} / 4 + .5 / 2 \times (3.2 + 3.1) = 5.31 \text{ SQ. IN.}$	$5.31 \text{ SQ. IN} \times 36.625 \text{ IN.} = 194.48 \text{ CU. IN.}$

Coverage Calculations							
Scan #	Angle	Beam Direction	Area Examined (sq.in.)	Length Examined (in.)	Volume Examined (cu.in.)	Volume Required (cu.in.)	Percent Coverage
1	60/70°	CW	4.42	36.625	161.88	194.48	83.24
2	60/70°	CCW	4.42	36.625	161.88	194.48	83.24
					323.76	388.96	83.24

		Item No:	B03.140.001
Prepared By: <i>David K. B.</i>	Level: <i>II</i>	Date:	11/1/00
Reviewed By: <i>Larry Mauldin</i>	Level: <i>III</i>	Date:	11-2-00



# STEAM GENERATOR INLET-OUTLET NOZZLE

I.D.# 156A-TALLET  
ITEM# 303,140.001  
BY: Daniel E. [Signature] LEVEL II  
DATE: 11/1/00

## AREA OF INSPECTION

ABCD + CDGH

$$\frac{5'' R^2 \times \pi - 4.5'' R^2}{4} + \frac{.5''}{2} (3.2' + 3.1') = 5.31 \text{ sq. in.}$$

## AREA LOSS

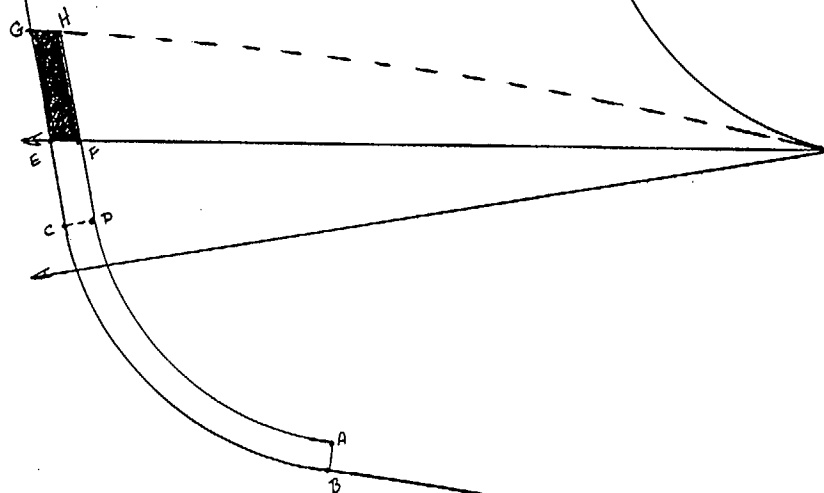
EFGH  $\frac{.5''}{2} (1.8'' + 1.75'') = .89 \text{ sq. in.}$

$60^\circ \pm 70^\circ$  INSPECTED AREA

(TOTAL AREA) 5.31 sq. in. - (AREA LOSS) .89 sq. in. = 4.42 sq. in.

## PERCENT OF COVERAGE

$$\frac{4.42 \text{ sq. in.}}{5.31 \text{ sq. in.}} \times 100 = \underline{\underline{83.2\%}}$$



□ AREA SCANNED  
■ AREA NOT SCANNED

<b>DUKE POWER COMPANY</b>										Exam Start: 1103		Form NDE-UT-2A			
<b>ULTRASONIC EXAMINATION DATA SHEET FOR PLANAR REFLECTORS</b>										Exam Finish: 1134		Revision 4			
Station: Catawba			Unit: 1		Component/Weld ID: 1SGA-OUTLET					Date: 11/1/00					
Weld Length (in.): 122.5			Surface Condition: AS GROUND			Lo: 9.2.3		Surface Temperature: 77 ° F							
Examiner: David Zimmerman <i>David K. Zimmerman</i> Level: II			Scans: 45 <input type="checkbox"/> _____ dB    70 <input checked="" type="checkbox"/> 73.5 dB 45T <input type="checkbox"/> _____ dB    70T <input type="checkbox"/> _____ dB 60 <input checked="" type="checkbox"/> 59 dB 60T <input type="checkbox"/> _____ dB Other: _____ dB					Pyrometer S/N: MCNDE 27010							
Examiner: James L. Panel <i>James L. Panel</i> Level: II								Cal Due: 3/27/01							
Procedure: NDE-680 Rev: 2								FC: N/A				Configuration: INNER RADIUS			
Calibration Sheet No: 0001050, 0001051												S1 _____ Flow _____ S2 _____			
							VESSEL to NOZZLE				Scan Surface: OD				
							Applies to NDE-680 only				Skew Angle: 23.0, 23.5				

IND #	<i>4</i>	Max % Ref	Mp Max	W Max	L Max	L1	L2	W1	Mp1	W2	Mp2	Beam Dir.	Exam Surf.	Scan	Damps
		DO NOT WRITE IN THIS SPACE				20%dac HMA	20%dac HMA	20%dac HMA	20%dac HMA	20%dac HMA	20%dac HMA		DO NOT WRITE IN THIS SPACE		
						50%dac	50%dac	50%dac	50%dac	50%dac	50%dac				
						100%dac	100%dac	100%dac	100%dac	100%dac	100%dac				
NRI	60°														
NRI	70°														

Remarks:			
Limitations: (see NDE-UT-4) <input checked="" type="checkbox"/> 90% or greater coverage obtained: yes <input type="checkbox"/> no <input checked="" type="checkbox"/>			Sheet <u>1</u> of <u>4</u>
Reviewed By: <i>Larry Mauldin</i>	Level: <i>III</i>	Date: <i>11-2-00</i>	Authorized Inspector: <i>Robert M. Sullivan</i> Date: <i>11-13-00</i> Item No: B03.140.002

*REQUEST FOR RELIEF # 01-001 ATTACHMENT 3*

*AJH 11/24/00*

**DUKE POWER COMPANY**  
**ISI LIMITATION REPORT**

FORM NDE-UT-4

Revision 1

Component/Weld ID: 1SGA-OUTLET		Item No: B03.140.002	Remarks:
<input type="checkbox"/> NO SCAN <input checked="" type="checkbox"/> LIMITED SCAN FROM L <u>22.0</u> to L <u>42.5</u> INCHES FROM WO <u>N/A</u> to <u>N/A</u> ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input checked="" type="checkbox"/> 60 <input type="checkbox"/> Other <u>70°</u> FROM <u>N/A</u> DEG to <u>N/A</u> DEG	SURFACE <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 BEAM DIRECTION <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input checked="" type="checkbox"/> cw <input type="checkbox"/> ccw	SUPPORT CORNER IS 1.0" FROM C/L OF NOZZLE RADIUS	
<input type="checkbox"/> NO SCAN <input checked="" type="checkbox"/> LIMITED SCAN FROM L _____ to L _____ INCHES FROM WO _____ to _____ ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 <input type="checkbox"/> Other _____ FROM _____ DEG to _____ DEG	SURFACE <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 BEAM DIRECTION <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input checked="" type="checkbox"/> cw <input checked="" type="checkbox"/> ccw	SENSOR PLATE IS 4.5" TI 10.5" FROM C/L OF NOZZLE OD RADIUS.	
<input checked="" type="checkbox"/> NO SCAN <input type="checkbox"/> LIMITED SCAN FROM L <u>N/A</u> to L <u>N/A</u> INCHES FROM WO <u>C/L</u> to <u>BEYOND</u> ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input checked="" type="checkbox"/> 60 <input checked="" type="checkbox"/> Other <u>70°</u> FROM <u>0</u> DEG to <u>360</u> DEG	SURFACE <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 BEAM DIRECTION <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> cw <input checked="" type="checkbox"/> ccw	LIMITED ON NOZZLE C/L OF BLEND RADIUS	
<input type="checkbox"/> NO SCAN <input type="checkbox"/> LIMITED SCAN FROM L _____ to L _____ INCHES FROM WO _____ to _____ ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 <input type="checkbox"/> Other _____ FROM _____ DEG to _____ DEG	SURFACE <input type="checkbox"/> 1 <input type="checkbox"/> 2 BEAM DIRECTION <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw		
Prepared By: <u>David K. 3</u>	Level: <u>II</u>	Date: <u>11/1/00</u>	Sketch(s) attached <input type="checkbox"/> yes <input checked="" type="checkbox"/> no
Reviewed By: <u>Larry Mauldin</u>	Date: <u>11-2-00</u>	Authorized Inspector: <u>Robert McNeil</u>	Sheet <u>2</u> of <u>4</u> Date: <u>11-13-00</u>

**DUKE POWER COMPANY**  
**Limited Examination Coverage Worksheet**

NDE-91-1

Revision 0

3014

**Examination Volume/Area Defined**

☐ Base Metal      ☐ Weld      ☐ Near Surface      ☐ Bolting      ☒ Inner Radius

**Area Calculation**

5 IN. SQ. x PI - 4.5 IN. SQ. / 4 + .5 / 2 x (3.2 + 3.1) =  
 5.31 SQ. IN.

**Volume Calculation**

5.31 SQ. IN. x 36.625 IN. = 194.48 CU. IN.

**Coverage Calculations**

Scan #	Angle	Beam Direction	Area Examined (sq.in.)	Length Examined (in.)	Volume Examined (cu.in.)	Volume Required (cu.in.)	Percent Coverage
1	60/70°	CW	4.42	36.625	161.88	194.48	83.24
2	60/70°	CCW	4.42	36.625	161.88	194.48	83.24
					323.76	388.96	83.24

Item No: B03.140.002

Prepared By: *David K. B.*

Level: *II*

Date: *11/1/01*

Reviewed By: *Larry Maulder*

Level: *III*

Date: *11.2.00*

# STEAM GENERATOR INLET-OUTLET NOZZLE

I.D. # 156A-OUTLET  
ITEM# B03.140.002  
BY: Daniel K. B. LEVEL II  
DATE: 11/1/00

## AREA OF INSPECTION

ABCD + CDGH

$$\frac{5'' R^2 \times \pi - 4.5'' R^2}{4} + \frac{.5''}{2} (3.2' + 3.1') = 5.31 \text{ sq. in.}$$

## AREA LOSS

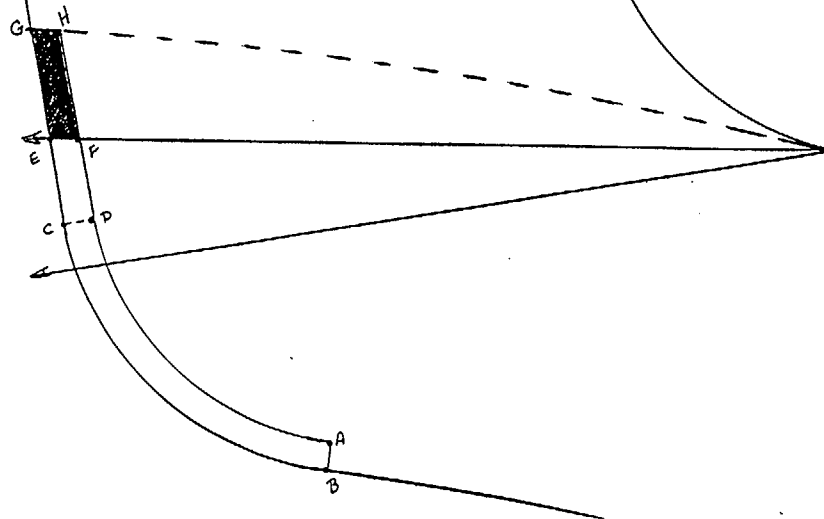
EFGH  $\frac{.5''}{2} (1.8'' + 1.75'') = .89 \text{ sq. in.}$

60° ± 70° INSPECTED AREA

(TOTAL AREA) 5.31 sq. in. - (AREA LOSS) .89 sq. in. = 4.42 sq. in.

## PERCENT OF COVERAGE

$$\frac{4.42 \text{ sq. in.}}{5.31 \text{ sq. in.}} \times 100 = \underline{\underline{83.2\%}}$$



□ AREA SCANNED  
■ AREA NOT SCANNED

DUKE POWER COMPANY										Exam Start: 1125		Form NDE-UT-2A	
ULTRASONIC EXAMINATION DATA SHEET FOR PLANAR REFLECTORS										Exam Finish: 1148		Revision 4	
Station: Catawba			Unit: 1		Component/Weld ID: 1SGA-INLET-W5SE					Date: 10/31/00			
Weld Length (in.): 121.0			Surface Condition: AS MACHINED			Lo: 9.1.1.1		Surface Temperature: 78 ° F					
Examiner: David Zimmerman <i>David K. Z</i> Level: II			FC: N/A		Scans: 45 <input type="checkbox"/> _____ dB    70 <input type="checkbox"/> _____ dB 45T <input checked="" type="checkbox"/> 65.5 dB    70T <input type="checkbox"/> _____ dB 60 <input type="checkbox"/> _____ dB 60T <input type="checkbox"/> _____ dB Other: 33L - 59 dB			Pyrometer S/N: MCNDE 27010					
Examiner: James L. Panel <i>James L. Panel</i> Level: II								Cal Due: 3/27/01					
Procedure: NDE-930 Rev: 1								Configuration: CIRC.					
Calibration Sheet No: 0001044, 0001045								S2 Flow S1 Safe End to Nozzle Scan Surface: OD					
										Applies to NDE-680 only			
										Skew Angle:			

IND #	Max % Ref	Mp Max	W Max	L Max	L1	L2	W1	Mp1	W2	Mp2	Beam Dir	Exam Surf	Scan	Damps	
	DO NOT WRITE IN THIS SPACE				20%dac HMA	20%dac HMA	20%dac HMA	20%dac HMA	20%dac HMA	20%dac HMA		DO NOT WRITE IN THIS SPACE			
					50%dac	50%dac	50%dac	50%dac	50%dac	50%dac					
					100%dac	100%dac	100%dac	100%dac	100%dac	100%dac					
NRI	33°L														
NRI	45°L														

Remarks:			
Limitations: (see NDE-UT-4) <input checked="" type="checkbox"/> 90% or greater coverage obtained: yes <input type="checkbox"/> no <input checked="" type="checkbox"/>			
Reviewed By: <i>Larry Frank</i>		Level: III	
Date: 11-14-00		Authorized Inspector: <i>Robert McCall</i>	
Date: 11-14-00		Date: 11-14-00	
Item No: B05.070.001			

REQUEST FOR RELIEF #01-001 ATTACHMENT 4

AJH 11/21/00

# DUKE POWER COMPANY

## ISI LIMITATION REPORT

FORM NDE-UT-4

Revision 1

Component/Weld ID: 1SGA-INLET-W5SE

Item No: B05.070.001

Remarks:

☒ NO SCAN      SURFACE      BEAM DIRECTION  
☐ LIMITED SCAN      ☒ 1 ☐ 2      ☐ 1 ☒ 2 ☐ cw ☐ ccw  
 FROM L \_\_\_\_\_ to L \_\_\_\_\_ INCHES FROM WO \_\_\_\_\_ 0 \_\_\_\_\_ to \_\_\_\_\_ BEYOND \_\_\_\_\_  
 ANGLE: ☐ 0 ☒ 45 ☐ 60 ☐ Other \_\_\_\_\_ FROM \_\_\_\_\_ 0 \_\_\_\_\_ DEG to \_\_\_\_\_ 360 \_\_\_\_\_ DEG

NOZZLE TO SAFE END  
CONFIGURATION

☐ NO SCAN      SURFACE      BEAM DIRECTION  
☐ LIMITED SCAN      ☐ 1 ☐ 2      ☐ 1 ☐ 2 ☐ cw ☐ ccw  
 FROM L \_\_\_\_\_ to L \_\_\_\_\_ INCHES FROM WO \_\_\_\_\_ to \_\_\_\_\_  
 ANGLE: ☐ 0 ☐ 45 ☐ 60 ☐ Other \_\_\_\_\_ FROM \_\_\_\_\_ DEG to \_\_\_\_\_ DEG

☐ NO SCAN      SURFACE      BEAM DIRECTION  
☐ LIMITED SCAN      ☐ 1 ☐ 2      ☐ 1 ☐ 2 ☐ cw ☐ ccw  
 FROM L \_\_\_\_\_ to L \_\_\_\_\_ INCHES FROM WO \_\_\_\_\_ to \_\_\_\_\_  
 ANGLE: ☐ 0 ☐ 45 ☐ 60 ☐ Other \_\_\_\_\_ FROM \_\_\_\_\_ DEG to \_\_\_\_\_ DEG

☐ NO SCAN      SURFACE      BEAM DIRECTION  
☐ LIMITED SCAN      ☐ 1 ☐ 2      ☐ 1 ☐ 2 ☐ cw ☐ ccw  
 FROM L \_\_\_\_\_ to L \_\_\_\_\_ INCHES FROM WO \_\_\_\_\_ to \_\_\_\_\_  
 ANGLE: ☐ 0 ☐ 45 ☐ 60 ☐ Other \_\_\_\_\_ FROM \_\_\_\_\_ DEG to \_\_\_\_\_ DEG

Prepared By: *David K. Z...*

Level: *II*

Date: *11/1/00*

Sketch(s) attached ☒ yes ☐ no

Sheet *2* of *4*

Reviewed By: *Larry Thaulder*

Date: *11-14-00*

Authorized Inspector: *Robert M. Y. J.*

Date: *11.14.00*

**DUKE POWER COMPANY**  
**Limited Examination Coverage Worksheet**

NDE-91-1

Revision 0

3 of 4

**Examination Volume/Area Defined**

☒ Base Metal    ☒ Weld    ☐ Near Surface    ☐ Bolting    ☐ Inner Radius

**Area Calculation**

1.17 IN. x 2.55 IN. = 2.98 SQ. IN.

**Volume Calculation**

2.98 SQ. IN. x 119.4 IN. = 355.81 CU. IN.

**Coverage Calculations**

Scan #	Angle	Beam Direction	Area Examined (sq.in.)	Length Examined (in.)	Volume Examined (cu.in.)	Volume Required (cu.in.)	Percent Coverage
1	33	1	2.98	119.4	355.81	355.81	100.00
2	45	2	0	119.4	0	355.81	0.00
3	45	CW	2.98	119.4	355.81	355.81	100.00
4	45	CCW	2.98	119.4	355.81	355.81	100.00
					1067.43	1423.24	75.00

Item No: B05.070.001

Prepared By: *David K. Z...*

Level: II

Date: 11/1/00

Reviewed By: *Randy Mauder*

Level: IV

Date: 11-14-00



Station

CATANBA

Unit

Rev.

File No.

Sheet

4

Of 4

Subject

SAFE END TO NOZZLE

By

David K. Z

Date

10/31/00

Prob No.

B05.070.001

Checked by

Randy Madden

Date

11-14-00

S1

S2

NOZZLE

SAFE END

3.5"

33°

1.17 in.

CLADDING

2.55 in.

EXAM AREA:

$$1.17 \text{ in.} \times 2.55 \text{ in.} = 2.98 \text{ sq. in.}$$

DUKE POWER COMPANY										Exam Start: 1236		Form NDE-UT-2A		
ULTRASONIC EXAMINATION DATA SHEET FOR PLANAR REFLECTORS										Exam Finish: 1259		Revision 4		
Station: Catawba			Unit: 1		Component/Weld ID: 1SGA-OUT-W6SE					Date: 10/31/00				
Weld Length (in.): 121.0			Surface Condition: AS MACHINED			Lo: 9.1.1.1		Surface Temperature: 78 ° F						
Examiner: David Zimmerman <i>David K 3</i>			Level: II		Scans: 45 <input type="checkbox"/> _____ dB    70 <input type="checkbox"/> _____ dB 45T <input checked="" type="checkbox"/> 65.5 dB    70T <input type="checkbox"/> _____ dB 60 <input type="checkbox"/> _____ dB 60T <input type="checkbox"/> _____ dB Other: 33L - 59 dB					Pyrometer S/N: MCNDE 27010				
Examiner: James L. Panel <i>James L Panel</i>			Level: II							Cal Due: 3/27/01				
Procedure: NDE-930 Rev: 1			FC: N/A							Configuration: CIRC.				
Calibration Sheet No: 0001044, 0001045										S2 Flow S1 Nozzle to Safe End Scan Surface: OD				
										Applies to NDE-680 only				
										Skew Angle:				

IND #	Max % Ref	Mp Max	W Max	L Max	L1	L2	W1	Mp1	W2	Mp2	Beam Dir	Exam Surf	Scan	Damps
					20%dac HMA	20%dac HMA	20%dac HMA	20%dac HMA	20%dac HMA	20%dac HMA				
					50%dac	50%dac	50%dac	50%dac	50%dac	50%dac				
					100%dac	100%dac	100%dac	100%dac	100%dac	100%dac				
NRI	33°L													
NRI	45°L													

Remarks:			
Limitations: (see NDE-UT-4) <input checked="" type="checkbox"/> 90% or greater coverage obtained: yes <input type="checkbox"/> no <input checked="" type="checkbox"/>			Sheet <u>1</u> of <u>4</u>
Reviewed By: <i>Larry Maudlin</i>	Level: <u>III</u>	Date: <u>11-14-00</u>	Authorized Inspector: <i>Robert McMill</i> Date: <u>11-14-00</u>
			Item No: B05.070.002

REQUEST FOR RELIEF # 01-001 ATTACHMENT 5

*AMH 11/21/00*

**DUKE POWER COMPANY**  
**ISI LIMITATION REPORT**

**FORM NDE-UT-4**

**Revision 1**

Component/Weld ID: 1SGA-OUT-W6SE

Item No: B05.070.002

Remarks:

☒ NO SCAN                      SURFACE                      BEAM DIRECTION  
☐ LIMITED SCAN                      ☐ 1 ☒ 2                      ☒ 1 ☐ 2 ☐ cw ☐ ccw  
FROM L \_\_\_\_\_ to L \_\_\_\_\_ INCHES FROM WO \_\_\_\_\_ 0 \_\_\_\_\_ to \_\_\_\_\_ BEYOND \_\_\_\_\_  
ANGLE: ☐ 0 ☒ 45 ☐ 60 ☐ Other \_\_\_\_\_ FROM \_\_\_\_\_ 0 \_\_\_\_\_ DEG to \_\_\_\_\_ 360 \_\_\_\_\_ DEG

NOZZLE TO SAFE-END  
CONFIGURATION

☐ NO SCAN                      SURFACE                      BEAM DIRECTION  
☐ LIMITED SCAN                      ☐ 1 ☐ 2                      ☐ 1 ☐ 2 ☐ cw ☐ ccw  
FROM L \_\_\_\_\_ to L \_\_\_\_\_ INCHES FROM WO \_\_\_\_\_ to \_\_\_\_\_  
ANGLE: ☐ 0 ☐ 45 ☐ 60 ☐ Other \_\_\_\_\_ FROM \_\_\_\_\_ DEG to \_\_\_\_\_ DEG

☐ NO SCAN                      SURFACE                      BEAM DIRECTION  
☐ LIMITED SCAN                      ☐ 1 ☐ 2                      ☐ 1 ☐ 2 ☐ cw ☐ ccw  
FROM L \_\_\_\_\_ to L \_\_\_\_\_ INCHES FROM WO \_\_\_\_\_ to \_\_\_\_\_  
ANGLE: ☐ 0 ☐ 45 ☐ 60 ☐ Other \_\_\_\_\_ FROM \_\_\_\_\_ DEG to \_\_\_\_\_ DEG

☐ NO SCAN                      SURFACE                      BEAM DIRECTION  
☐ LIMITED SCAN                      ☐ 1 ☐ 2                      ☐ 1 ☐ 2 ☐ cw ☐ ccw  
FROM L \_\_\_\_\_ to L \_\_\_\_\_ INCHES FROM WO \_\_\_\_\_ to \_\_\_\_\_  
ANGLE: ☐ 0 ☐ 45 ☐ 60 ☐ Other \_\_\_\_\_ FROM \_\_\_\_\_ DEG to \_\_\_\_\_ DEG

Prepared By: *David K. 3*

Level: *II*

Date: *11/1/00*

Sketch(s) attached ☒ yes ☐ no

Sheet *2* of *4*

Reviewed By: *Larry Moulton*

Date: *11-14-00*

Authorized Inspector: *Robert McMill*

Date: *11.14.00*

**DUKE POWER COMPANY**  
**Limited Examination Coverage Worksheet**

NDE-91-1

Revision 0

3 of 4

**Examination Volume/Area Defined**

☒ Base Metal      ☒ Weld      ☐ Near Surface      ☐ Bolting      ☐ Inner Radius

**Area Calculation**

1.17 IN. x 2.55 IN. = 2.98 SQ. IN.

**Volume Calculation**

2.98 SQ. IN. x 119.4 IN. = 255.81 CU. IN.

**Coverage Calculations**

Scan #	Angle	Beam Direction	Area Examined (sq.in.)	Length Examined (in.)	Volume Examined (cu.in.)	Volume Required (cu.in.)	Percent Coverage
1	33	2	2.98	119.4	355.81	355.81	100.00
2	45	1	0	119.4	0	355.81	0.00
3	45	CW	2.98	119.4	355.81	355.81	100.00
4	45	CCW	2.98	119.4	355.81	355.81	100.00
					1067.43	1423.24	75.00

Item No: B05.070.002

Prepared By: *David K. B.*

Level: *II*

Date: *11/1/00*

Reviewed By: *Harry Mauldin*

Level: *III*

Date: *11-14-00*

Station CATALINA Unit NOZZLE Rev. 4 File No. 4 Sheet 4 of 4

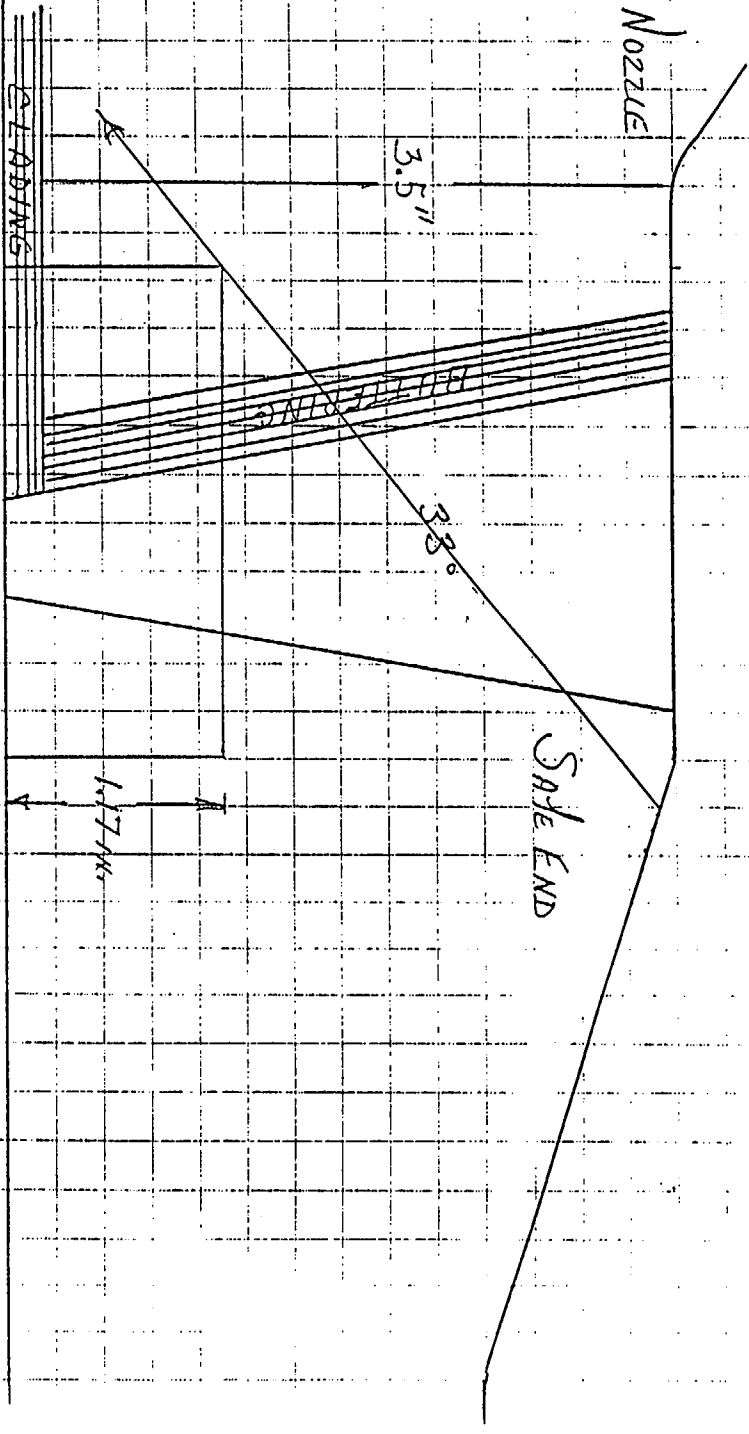
Subject SALE END TO NOZZLE

By David K. B. Date 10/31/00  
 Checked by Paul Shadler Date 11/14/00

Prob No. BOS 070.002

52

51



EXAM AREA:

$$1.17 \text{ in.} \times 2.55 \text{ in.} = 2.985 \text{ sq. in.}$$

DUKE POWER COMPANY										Exam Start: 1219		NDE-UT-3A		
ULTRASONIC EXAMINATION DATA SHEET FOR LAMINAR REFLECTORS										Exam Finish: 1221		Revision 2		
Station: Catawba			Unit: 1		Component/Weld ID: 1NS1-1					Date: 10/25/00				
Nominal Material Thickness (in): 0.5			Weld Length (in.): 33.8			Surface Temperature: 82°			Deg F					
Measured Material Thickness (in): .462			Lo: 9.1.1.4			Pyrometer S/N: MCNDE 27205								
Surface Condition: AS GROUND			Calibration Sheet No: 0001031			Cal Due: 1/17/01								
Examiner: David Zimmerman <i>David K. Zimmerman</i> Level: II						Configuration: CIRC. WELD								
Examiner: Gary J. Moss <i>Gary J. Moss</i> Level: II														
Procedure: NDE-640 Rev: 1 FC: *						S2 Flow S1								
						Reducer to Pipe								
IND NO.		Ampl ≥ rem BW LOB	L1 ≥ rem BW LOB	W1 ≥ rem BW LOB	Mp1 ≥ rem BW LOB	W2 ≥ rem BW LOB	Mp2 ≥ rem BW LOB	L2 ≥ rem BW LOB	W1 ≥ rem BW LOB	Mp1 ≥ rem BW LOB	W2 ≥ rem BW LOB	Mp2 ≥ rem BW LOB	Exam Surf.	Damps
NRI	0°													

Remarks: *FC 95-18, 95-19					
		Limitations: see NDE-UT-4 <input type="checkbox"/> None: <input checked="" type="checkbox"/>		Sheet <u>1</u> of <u>5</u>	
Reviewed By: <i>Larry Mauldin</i>		Level: <i>III</i>		Date: <i>11-1-00</i>	
Authorized Inspector:		Date:		Item No: C05.011.201	

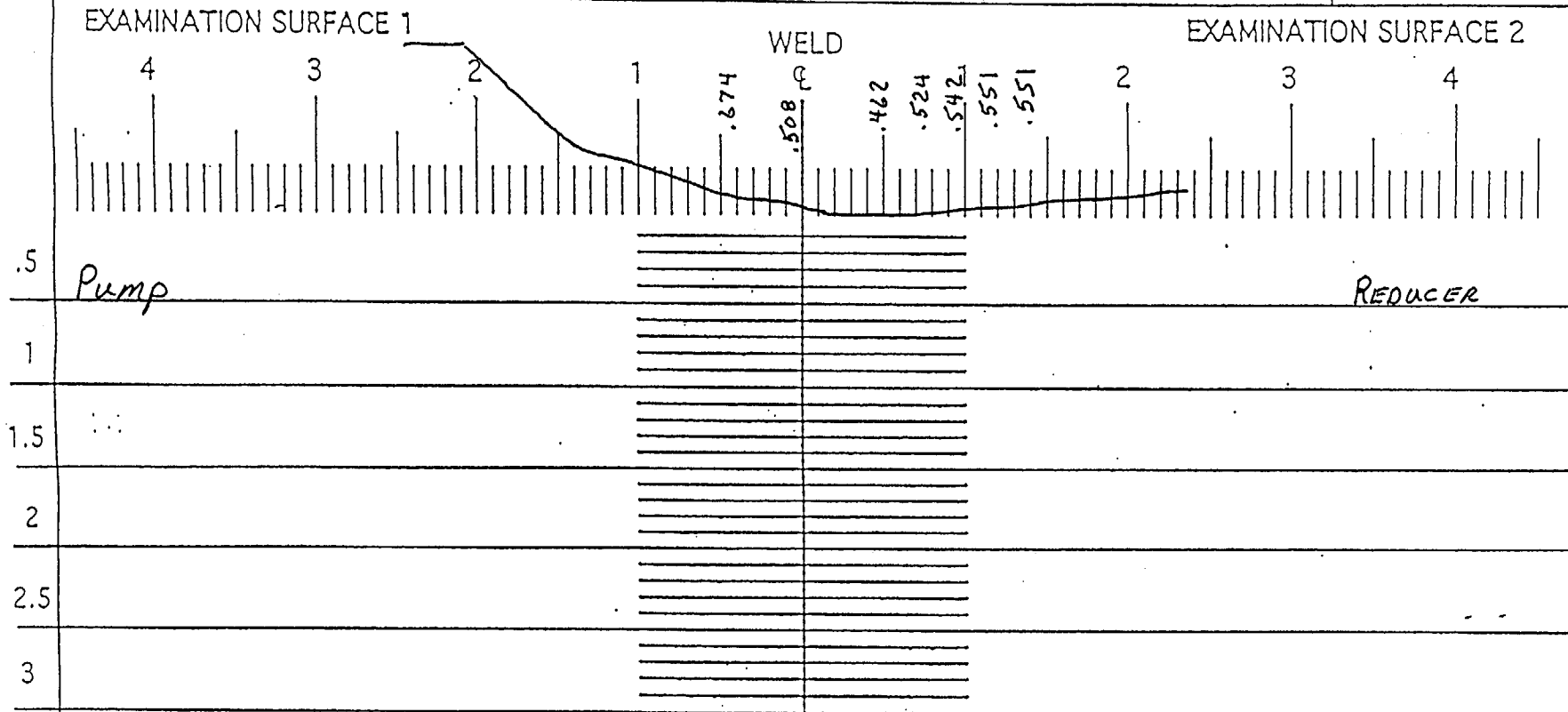
REQUEST FOR RELIEF #01-001 ATTACHMENT 6

*ASH*  
*11/29/00*

DUKE POWER COMPANY  
UT PROFILE/PLOT SHEET

NDE-UT-5

Revision 1



Component ID/Weld No. 1NS1-1

Remarks:

Item No: C05.011.201

Examiner: Gary Bloss

Level: II

Date: 10.26.00

Reviewed By: Gary Thauber

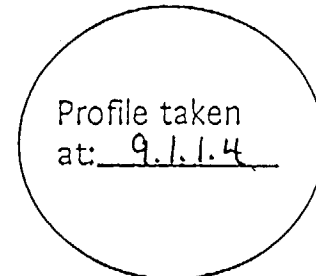
Level: III

Date: 11-1-00

Authorized Inspector:

Date:

270



90

180 Sheet 2 of 25

# DUKE POWER COMPANY

## ISI LIMITATION REPORT

FORM NDE-UT-4

Revision 1

Component/Weld ID: 1NS1-1

Item No: C05.011.201

Remarks:

☒ NO SCAN      SURFACE      BEAM DIRECTION  
☐ LIMITED SCAN      ☒ 1 ☐ 2      ☐ 1 ☒ 2 ☐ cw ☐ ccw  
 FROM L   N/A   to L   N/A   INCHES FROM WO   0   to   BEYOND    
 ANGLE: ☐ 0 ☐ 45 ☒ 60 ☐ Other            FROM   0   DEG to   360   DEG

DUE TO PUMP CONFIGURATION

☐ NO SCAN      SURFACE      BEAM DIRECTION  
☐ LIMITED SCAN      ☐ 1 ☐ 2      ☐ 1 ☐ 2 ☐ cw ☐ ccw  
 FROM L            to L            INCHES FROM WO            to             
 ANGLE: ☐ 0 ☐ 45 ☐ 60 ☐ Other            FROM            DEG to            DEG

☐ NO SCAN      SURFACE      BEAM DIRECTION  
☐ LIMITED SCAN      ☐ 1 ☐ 2      ☐ 1 ☐ 2 ☐ cw ☐ ccw  
 FROM L            to L            INCHES FROM WO            to             
 ANGLE: ☐ 0 ☐ 45 ☐ 60 ☐ Other            FROM            DEG to            DEG

☐ NO SCAN      SURFACE      BEAM DIRECTION  
☐ LIMITED SCAN      ☐ 1 ☐ 2      ☐ 1 ☐ 2 ☐ cw ☐ ccw  
 FROM L            to L            INCHES FROM WO            to             
 ANGLE: ☐ 0 ☐ 45 ☐ 60 ☐ Other            FROM            DEG to            DEG

Prepared By:

*Gary Moss*

Level:

*II*

Date:

*10-25-00*

Sketch(s) attached

☒ yes

☐ no

Sheet 3 of 5

Reviewed By:

*Randy Mueller*

Date:

*11-1-00*

Authorized Inspector:

*Robert McNeil*

Date: *11-13-00*



<b>DUKE POWER COMPANY</b> <b>Limited Examination Coverage Worksheet</b>	NDE-91-1
	Revision 0

40/5

Examination Volume/Area Defined	
<input checked="" type="checkbox"/> Base Metal <input checked="" type="checkbox"/> Weld <input type="checkbox"/> Near Surface <input type="checkbox"/> Bolting <input type="checkbox"/> Inner Radius	
Area Calculation	Volume Calculation
1.0 IN. x .167 IN. = .167 SQ. IN.	.167 SQ. IN. x 33.8 IN. = 5.65 CU. IN.

Coverage Calculations							
Scan #	Angle	Beam Direction	Area Examined (sq.in.)	Length Examined (in.)	Volume Examined (cu.in.)	Volume Required (cu.in.)	Percent Coverage
1	45°	CW	.167	33.8	5.65	5.65	100.00
2	45°	CCW	.167	33.8	5.65	5.65	100.00
3	60°	S1	.067	33.8	2.26	5.65	40.00
4	60°	S2	0	33.8	0	5.65	0.00
	SHEAR	WAVE	AGGREGATE	COVERAGE	13.56	22.6	60.00
3	60RL	S1	0.10	33.8	3.38	5.65	59.82

RL WAVE COVERAGE 59.8% x 25% (1 SCAN) = 14.95 = 15%.

		Item No:	C05.011.201
Prepared By:	<i>David K. Z</i>	Level:	<i>II</i> Date: 10/25/00
Reviewed By:	<i>Larry Mauldin</i>	Level:	<i>III</i> Date: 11-1-00

DUKE POWER COMPANY  
UT PROFILE/PLOT SHEET

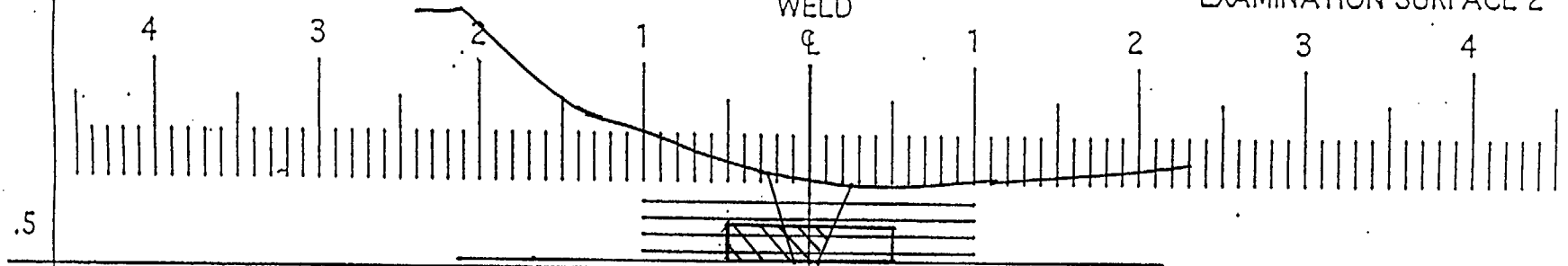
NDE-UT-5

Revision 1

EXAMINATION SURFACE 1

EXAMINATION SURFACE 2

WELD



TOTAL AREA OF INTEREST

$$1.0 \text{ in} \times .167 \text{ in} = .167 \text{ in}^2$$

AREA INSPECTED - 60° S/WK

$$\left( \frac{.35 \text{ in} + .45 \text{ in}}{2} \right) .167 \text{ in} = 0.067 \text{ in}^2$$

SUPPLEMENTAL COVERAGE - 60° RL

$$\left( \frac{.65 \text{ in} + .55 \text{ in}}{2} \right) .167 \text{ in} = 0.100 \text{ in}^2$$

Component ID/Weld No.

WS1-1

Remarks: LIMITED CALCULATION

Item No: C05.011.201

Examiner: David K. Z...

Level: II

Date: 10/25/00

Reviewed By: Larry Maulder

Level: III

Date: 11-1-00

Authorized Inspector: Robert McMill

Date: 11-13-00

Profile taken  
at: 60°

180 Sheet 5 of 5

DUKE POWER COMPANY										Exam Start: 1216		NDE-UT-3A		
ULTRASONIC EXAMINATION DATA SHEET FOR LAMINAR REFLECTORS										Exam Finish: 1219		Revision 2		
Station: Catawba			Unit: 1		Component/Weld ID: 1NS1-2						Date: 10/25/00			
Nominal Material Thickness (in): 0.5				Weld Length (in.): 40.0				Surface Temperature: 82° Deg F						
Measured Material Thickness (in): .458				Lo: 9.1.1.4				Pyrometer S/N: MCNDE 27205						
Surface Condition: AS GROUND				Calibration Sheet No: 0001032				Cal Due: 1/17/01						
Examiner: David Zimmerman <i>David Zimmerman</i> Level: II			Configuration: CIRC. WELD											
Examiner: Gary J. Moss <i>Gary J. Moss</i> Level: II			S2 Flow S1											
Procedure: NDE-640 Rev: 1 FC: *								FLANGE to REDUCER						
IND NO.	4	Ampl ≥ rem BW LOB	L1 ≥ rem BW LOB	W1 ≥ rem BW LOB	Mp1 ≥ rem BW LOB	W2 ≥ rem BW LOB	Mp2 ≥ rem BW LOB	L2 ≥ rem BW LOB	W1 ≥ rem BW LOB	Mp1 ≥ rem BW LOB	W2 ≥ rem BW LOB	Mp2 ≥ rem BW LOB	Exam Surf.	Damps
NRI	0°													

Remarks: *FC 95-18, 95-19					
		Limitations: see NDE-UT-4 <input type="checkbox"/> None: <input checked="" type="checkbox"/>		Sheet 1 of 5	
Reviewed By: <i>Larry Mauldin</i>		Level: III Date: 11-1-00		Authorized Inspector: _____ Date: _____	
				Item No: C05.011.202	

REQUEST FOR RELIEF #01-001 ATTACHMENT 7

AH  
11/29/00

DUKE POWER COMPANY  
UT PROFILE/PLOT SHEET

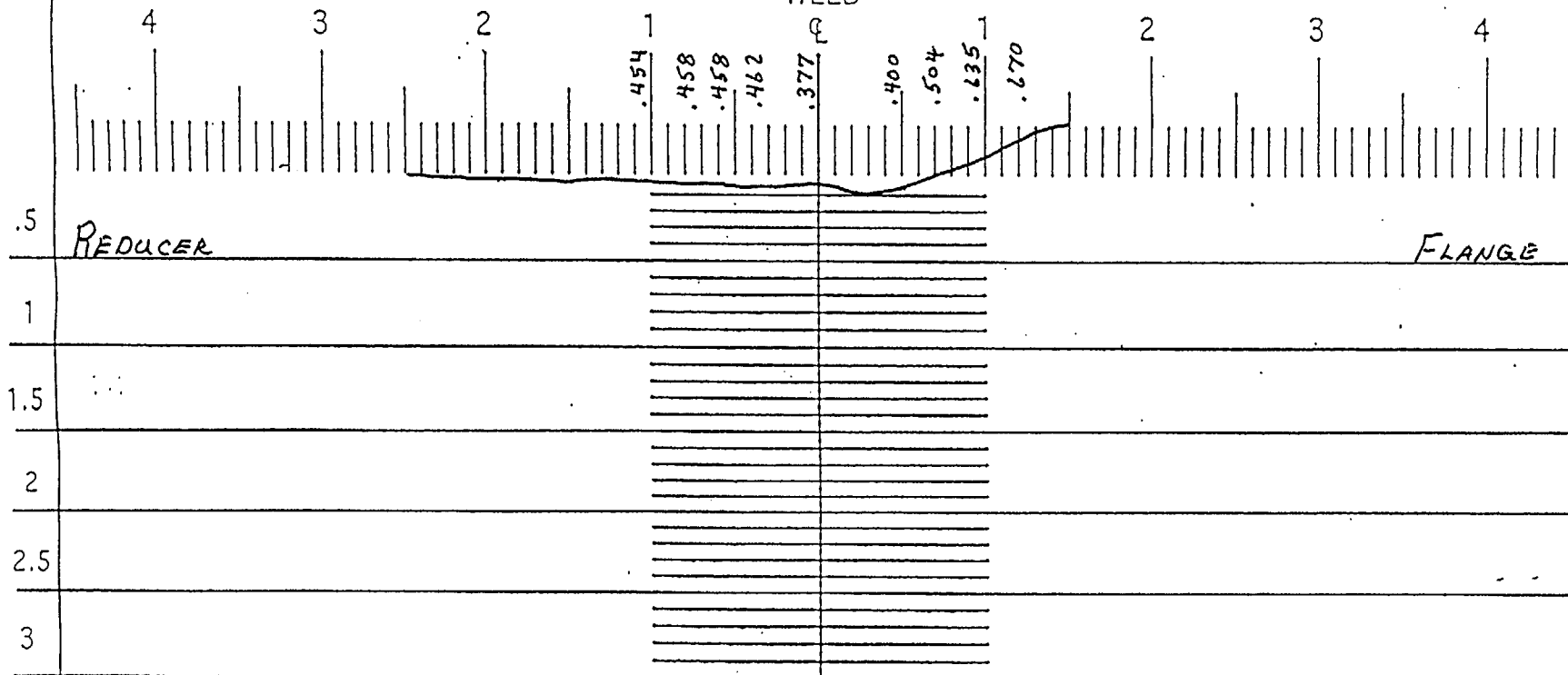
NDE-UT-5

Revision 1

EXAMINATION SURFACE 1

WELD

EXAMINATION SURFACE 2



Component ID/Weld No. 1NS1-2

: Remarks:

Examiner: Gary Moss Level: II Date: 10-25-00  
Reviewed By: Larry Mauldin Level: III Date: 11-1-00  
Authorized Inspector: \_\_\_\_\_ Date: \_\_\_\_\_

0

270

90

Profile taken  
at: 9.1.1.4

180 Sheet 2 of 5

# DUKE POWER COMPANY ISI LIMITATION REPORT

FORM NDE-UT-4

Revision 1

Component/Weld ID: 1NS1-2

Item No: C05.011.202

Remarks:

☒ NO SCAN      SURFACE      BEAM DIRECTION  
☐ LIMITED SCAN      ☐ 1 ☒ 2      ☒ 1 ☐ 2 ☐ cw ☐ ccw  
 FROM L   N/A   to L   N/A   INCHES FROM WO   0   to   BEYOND    
 ANGLE: ☐ 0 ☐ 45 ☒ 60 ☐ Other            FROM   0   DEG to   360   DEG

DUE TO FLANGE CONFIGURATION

☐ NO SCAN      SURFACE      BEAM DIRECTION  
☐ LIMITED SCAN      ☐ 1 ☐ 2      ☐ 1 ☐ 2 ☐ cw ☐ ccw  
 FROM L            to L            INCHES FROM WO            to             
 ANGLE: ☐ 0 ☐ 45 ☐ 60 ☐ Other            FROM            DEG to            DEG

☐ NO SCAN      SURFACE      BEAM DIRECTION  
☐ LIMITED SCAN      ☐ 1 ☐ 2      ☐ 1 ☐ 2 ☐ cw ☐ ccw  
 FROM L            to L            INCHES FROM WO            to             
 ANGLE: ☐ 0 ☐ 45 ☐ 60 ☐ Other            FROM            DEG to            DEG

☐ NO SCAN      SURFACE      BEAM DIRECTION  
☐ LIMITED SCAN      ☐ 1 ☐ 2      ☐ 1 ☐ 2 ☐ cw ☐ ccw  
 FROM L            to L            INCHES FROM WO            to             
 ANGLE: ☐ 0 ☐ 45 ☐ 60 ☐ Other            FROM            DEG to            DEG

Prepared By:

*Gary J. Moss*

Level:

*II*

Date:

*10-25-00*

Sketch(s) attached

☒ yes

☐ no

Sheet

*2* of *5*

Reviewed By:

*Randy Thauler*

Date:

*11-1-00*

Authorized Inspector:

*Robert Maffei*

Date:

*11-13-00*

4/8/5

<b>DUKE POWER COMPANY</b> <b>Limited Examination Coverage Worksheet</b>	NDE-91-1
	Revision 0

<b>Examination Volume/Area Defined</b>				
<input checked="" type="checkbox"/> Base Metal	<input checked="" type="checkbox"/> Weld	<input type="checkbox"/> Near Surface	<input type="checkbox"/> Bolting	<input type="checkbox"/> Inner Radius

<b>Area Calculation</b>	<b>Volume Calculation</b>
.9 x .153 = .138 SQ. IN	.138 SQ. IN. x 40 IN. = 5.52 CU. IN.

Coverage Calculations							
Scan #	Angle	Beam Direction	Area Examined (sq.in.)	Length Examined (in.)	Volume Examined (cu.in.)	Volume Required (cu.in.)	Percent Coverage
1	45	CW	.138	40	5.52	5.52	100.00
2	45	CCW	.138	40	5.52	5.52	100.00
3	60	S2	.050	40	2	5.52	36.23
4	60	S1	0	40	0	5.52	0.00
	SHEAR	WAVE	AGGREGATE	COVERAGE	13.04	22.08	59.06
3	60RL	S1	.088	40	3.52	5.52	63.77

RL WAVE COVERAGE 64% x 25% (1 SCAN) = 16% OF TOTAL WELD.

		Item No:	C05.011.202
Prepared By:	<i>Gayl Moss</i>	Level:	<i>IB</i> Date: <i>10-25-00</i>
Reviewed By:	<i>Larry Mauldin</i>	Level:	<i>III</i> Date: <i>11-1-00</i>

DUKE POWER COMPANY  
UT PROFILE/PLOT SHEET

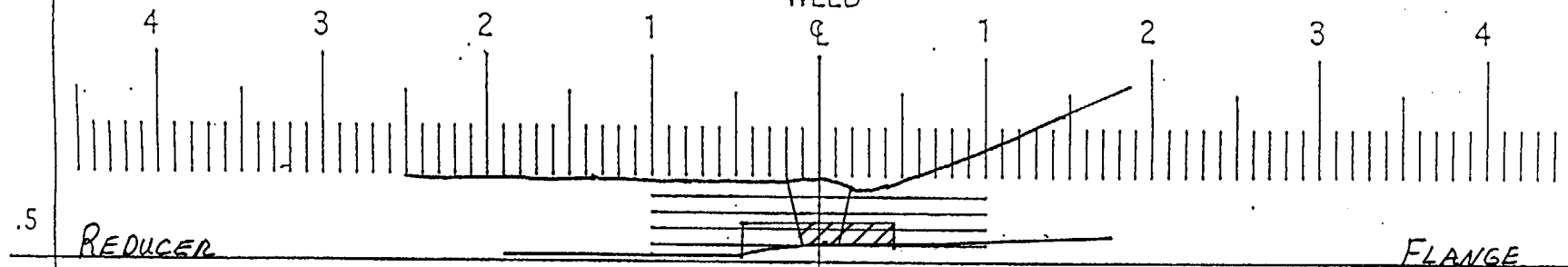
NDE-UT-5

Revision 1

EXAMINATION SURFACE 1

WELD

EXAMINATION SURFACE 2



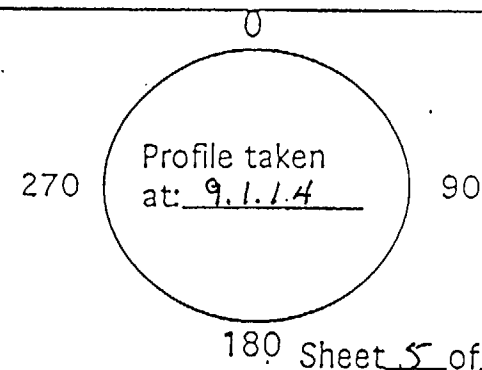
1	TOTAL AREA OF INTEREST .9" X .153" = .138"²		
1.5			
2	AREA INSPECTED - 60° SHEAR		SUPPLEMENTAL COVERAGE - 60°
2.5	$\left(\frac{.3 + .35}{2}\right) .153 = .050"²$		$\left(\frac{.6 + .55}{2}\right) .153 = .088"²$
3			

Component ID/Weld No. 1N51-2

Remarks:

Item No: C05.011.202

Examiner: David G. B. Level: II Date: 10/25/00  
Reviewed By: Larry Mauldin Level: III Date: 11-1-00  
Authorized Inspector: Robert M. Hill Date: 11-13-00



DUKE POWER COMPANY										Exam Start: 1123		NDE-UT-3A		
ULTRASONIC EXAMINATION DATA SHEET FOR LAMINAR REFLECTORS										Exam Finish: 1128		Revision 2		
Station: Catawba			Unit: 1		Component/Weld ID: 1NS2-1						Date: 10/25/00			
Nominal Material Thickness (in): 0.375			Weld Length (in.): 40.0			Surface Temperature: 82°			Deg F					
Measured Material Thickness (in): .377			Lo: 9.1.1.1			Pyrometer S/N: MCNDE 27205								
Surface Condition: AS GROUND			Calibration Sheet No: 0001033			Cal Due: 1/17/01								
Examiner: David Zimmerman <i>David Zimmerman</i> Level: II						Configuration: CIRC. WELD								
Examiner: Gary J. Moss <i>Gary J. Moss</i> Level: II														
Procedure: NDE-640 Rev: 1 FC: *						S2 Flow S1								
						VALVE to PIPE								
IND NO.		Ampl ≥ rem BW LOB	L1 ≥ rem BW LOB	W1 ≥ rem BW LOB	Mp1 ≥ rem BW LOB	W2 ≥ rem BW LOB	Mp2 ≥ rem BW LOB	L2 ≥ rem BW LOB	W1 ≥ rem BW LOB	Mp1 ≥ rem BW LOB	W2 ≥ rem BW LOB	Mp2 ≥ rem BW LOB	Exam Surf.	Damps
NRI	0°													

Remarks: *FC 95-18, 95-19					
		Limitations: see NDE-UT-4 <input checked="" type="checkbox"/> None: <input type="checkbox"/>		Sheet <u>1</u> of <u>5</u>	
Reviewed By: <i>Larry Mauldin</i>		Level: <u>III</u> Date: <u>11-1-00</u>		Authorized Inspector: _____ Date: _____	
				Item No: C05.011.203	

REQUEST FOR RELIEF #01-001 ATTACHMENT 8

ASH  
11/29/00



## Revision .1

EXAMINATION SURFACE 2



180 Sheet 2 of 25

# DUKE POWER COMPANY

## ISI LIMITATION REPORT

FORM NDE-UT-4

Revision 1

Component/Weld ID: 1NS2-1

Item No: C05.011.203

Remarks:

☒ NO SCAN      SURFACE      BEAM DIRECTION  
☐ LIMITED SCAN      ☐ 1 ☒ 2      ☒ 1 ☐ 2 ☐ cw ☐ ccw  
 FROM L   N/A   to L   N/A   INCHES FROM WO   0   to   BEYOND    
 ANGLE: ☐ 0 ☐ 45 ☒ 60 ☐ Other        FROM   0   DEG to   360   DEG

DUE TO VALVE CONFIGURATION

☐ NO SCAN      SURFACE      BEAM DIRECTION  
☐ LIMITED SCAN      ☐ 1 ☐ 2      ☐ 1 ☐ 2 ☐ cw ☐ ccw  
 FROM L        to L        INCHES FROM WO        to         
 ANGLE: ☐ 0 ☐ 45 ☐ 60 ☐ Other        FROM        DEG to        DEG

☐ NO SCAN      SURFACE      BEAM DIRECTION  
☐ LIMITED SCAN      ☐ 1 ☐ 2      ☐ 1 ☐ 2 ☐ cw ☐ ccw  
 FROM L        to L        INCHES FROM WO        to         
 ANGLE: ☐ 0 ☐ 45 ☐ 60 ☐ Other        FROM        DEG to        DEG

☐ NO SCAN      SURFACE      BEAM DIRECTION  
☐ LIMITED SCAN      ☐ 1 ☐ 2      ☐ 1 ☐ 2 ☐ cw ☐ ccw  
 FROM L        to L        INCHES FROM WO        to         
 ANGLE: ☐ 0 ☐ 45 ☐ 60 ☐ Other        FROM        DEG to        DEG

Prepared By: Gay Moss

Level: B

Date: 10-25-00

Sketch(s) attached ☒ yes ☐ no

Sheet 3 of 5

Reviewed By: Ray Mauldin

Date: 11-1-00

Authorized Inspector: Robert M. Hill

Date: 11-13-00

<b>DUKE POWER COMPANY</b> <b>Limited Examination Coverage Worksheet</b>						NDE-91-1 Revision 0	
<b>Examination Volume/Area Defined</b>							
<input checked="" type="checkbox"/> Base Metal <input checked="" type="checkbox"/> Weld <input type="checkbox"/> Near Surface <input type="checkbox"/> Bolting <input type="checkbox"/> Inner Radius							
Area Calculation				Volume Calculation			
.60 x .10 / 2 + .2 x .1 = .230 SQ. IN.				.230 SQ. IN. x 40.0 IN. = 9.2 CU. IN.			
<b>Coverage Calculations</b>							
Scan #	Angle	Beam Direction	Area Examined (sq.in.)	Length Examined (in.)	Volume Examined (cu.in.)	Volume Required (cu.in.)	Percent Coverage
1	45	CW	.23	40	9.2	9.2	100.00
2	45	CCW	.23	40	9.2	9.2	100.00
3	60	S1	0	40	0	9.2	0.00
4	60	S2	.075	40	3	9.2	32.61
	SHEAR	WAVE	AGGREGATE	COVERAGE	21.4	36.8	58.15
4	60RL	S2	.155	40	6.2	9.2	67.39

RL WAVE COVERAGE 67.4% x 25% (1 SCAN) = 16.85% OF TOTAL WELD.

Item No: C05.011.203		
Prepared By: <i>David K. B.</i>	Level: <i>II</i>	Date: <i>10/25/00</i>
Reviewed By: <i>Lang Praudler</i>	Level: <i>III</i>	Date: <i>11-1-00</i>

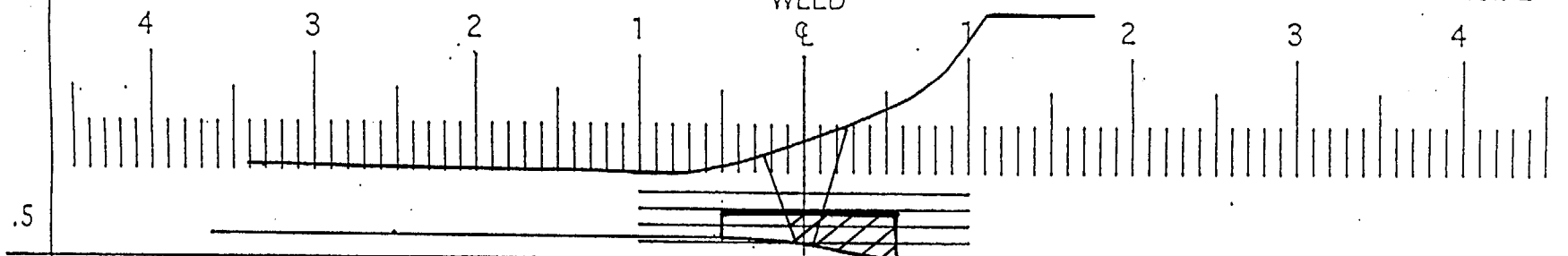
40/5

DUKE POWER COMPANY  
UT PROFILE/PLOT SHEET

NDE-UT-5

Revision 1

EXAMINATION SURFACE 1 PIPE WELD VALVE EXAMINATION SURFACE 2



1	TOTAL AREA OF INTEREST $\left(\frac{.60 \times .10}{2}\right) = .03 \text{ in}^2$			AREA INSPECTED - 60° SHEAR
1.5	$(.20)(1.0) = .20 \text{ in}^2$ .230 in <sup>2</sup>			$\left(\frac{.35 + .40}{2}\right)(.20) = 0.75 \text{ in}^2$
2				SUPPLEMENTAL COVERAGE - 60° RL
2.5				$\left(\frac{.65 + .60}{2}\right)(.20) = .125 \text{ in}^2$
3				$\left(\frac{.10 \times .60}{2}\right) = .030 \text{ in}^2$ .155 in <sup>2</sup>

Component ID/Weld No.

1052-1

Remarks:

LIMITED CALCULATION

Item No:

105.011.203

Examiner:

David K 3

Level: II

Date: 10/26/00

Reviewed By:

Robert M. Sullivan

Level: II

Date: 11-1-00

Authorized Inspector:

Robert M. Sullivan

Date: 11-13-00

270

Profile taken  
at: 60

90

180 Sheet 5 of 5

DUKE POWER COMPANY										Exam Start: 1030		NDE-UT-3A		
ULTRASONIC EXAMINATION DATA SHEET FOR LAMINAR REFLECTORS										Exam Finish: 1040		Revision 2		
Station: Catawba			Unit: 1		Component/Weld ID: 1CF34-3						Date: 10/19/00			
Nominal Material Thickness (in): 0.938				Weld Length (in.): 56.5				Surface Temperature: 78° Deg F						
Measured Material Thickness (in): 0.963				Lo: 9.1.1.1				Pyrometer S/N: MCNDE 27205						
Surface Condition: AS GROUND				Calibration Sheet No: 0001008				Cal Due: 1/17/01						
Examiner: James L. Panel <i>James L. Panel</i> Level: II								Configuration: Pipe to Valve (1CF042) S2 Flow S1 VALVE to PIPE						
Examiner: Gary J. Moss <i>Gary J. Moss</i> Level: II														
Procedure: NDE-640 Rev: 1 FC: *														
IND NO.		Ampl ≥ rem BW LOB	L1 ≥ rem BW LOB	W1 ≥ rem BW LOB	Mp1 ≥ rem BW LOB	W2 ≥ rem BW LOB	Mp2 ≥ rem BW LOB	L2 ≥ rem BW LOB	W1 ≥ rem BW LOB	Mp1 ≥ rem BW LOB	W2 ≥ rem BW LOB	Mp2 ≥ rem BW LOB	Exam Surf.	Damps
	0	NRI												

Remarks: * FC 95-18 & 95-19					
		Limitations: see NDE-UT-4 <input type="checkbox"/> None: <input checked="" type="checkbox"/>		Sheet 1 of 7	
Reviewed By: <i>Larry Mauldin</i>		Level: <i>III</i>		Date: 10-20-00	
Authorized Inspector: <i>Robert M. Sullivan</i>		Date: 10-29-00		Item No: C05.011.251	

REQUEST FOR RELIEF #01-001 ATTACHMENT 9

AH  
11/29/00

<b>DUKE POWER COMPANY</b>										Exam Start: 1050		Form NDE-UT-2A	
<b>ULTRASONIC EXAMINATION DATA SHEET FOR PLANAR REFLECTORS</b>										Exam Finish: 1112		Revision 4	
Station: Catawba			Unit: 1		Component/Weld ID: 1CF34-3						Date: 10/19/00		
Weld Length (in.): 56.5"			Surface Condition: AS GROUND				Lo: 9.1.1.1		Surface Temperature: 78 ° F				
Examiner: James L. Panel <i>James L. Panel</i>			Level: II		Scans: 45 <input checked="" type="checkbox"/> 41.5 dB    70 <input type="checkbox"/> _____ dB 45T <input type="checkbox"/> _____ dB    70T <input type="checkbox"/> _____ dB 60 <input type="checkbox"/> _____ dB 60T <input type="checkbox"/> _____ dB Other: 45 RL@64.5 dB				Pyrometer S/N: MCNDE 27205				
Examiner: Gary J. Moss <i>Gary J. Moss</i>			Level: II						Cal Due: 1/17/01				
Procedure: NDE-610    Rev: 4			FC: *						Configuration: Pipe to Valve (1CF042)				
Calibration Sheet No: 0001009, 0001010									PIPE _____ Flow _____ VALVE _____ S1 _____ to S2 _____ Scan Surface: OD <b>Applies to NDE-680 only</b> Skew Angle: N/A				

IND #	<i>4</i>	Max % Ref	Mp Max	W Max	L Max	L1	L2	W1	Mp1	W2	Mp2	Beam Dir.	Exam Surf.	Scan	Damps
		<b>DO NOT WRITE IN THIS SPACE</b>				20%dac HMA	20%dac HMA	20%dac HMA	20%dac HMA	20%dac HMA	20%dac HMA		<b>DO NOT WRITE IN THIS SPACE</b>	<b>DO NOT WRITE IN THIS SPACE</b>	
						50%dac	50%dac	50%dac	50%dac	50%dac	50%dac				
						100%dac	100%dac	100%dac	100%dac	100%dac	100%dac				
1	45	40%	1.39"	1.0"	10.0"	360°	INT.	IND.				2	1	AX	NO

Remarks: * 97-01 & 98-02			
Limitations: (see NDE-UT-4) <input checked="" type="checkbox"/> 90% or greater coverage obtained: yes <input type="checkbox"/> no <input checked="" type="checkbox"/>			Sheet <u>2</u> of <u>7</u>
Reviewed By: <i>Larry Mauldin</i>	Level: <i>III</i>	Date: <i>10-20-00</i>	Authorized Inspector: <i>Robert M. Lill</i> Date: <i>10-29-00</i> Item No: C05.011.251

DUKE POWER COMPANY  
UT PROFILE/PLOT SHEET

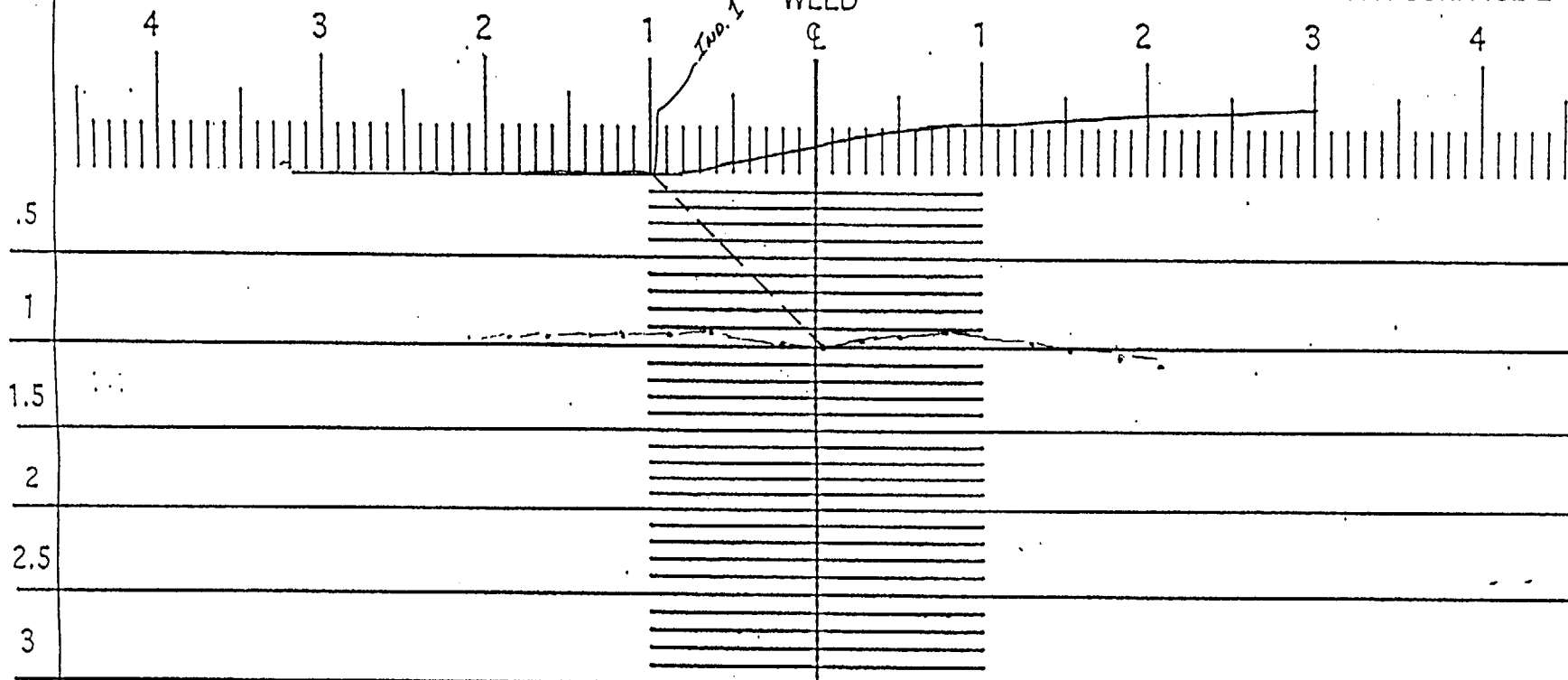
NDE-UT-5

Revision 1

EXAMINATION SURFACE 1

WELD

EXAMINATION SURFACE 2



Component ID/Weld No. 1CF34-3

: Remarks:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Item No: C05.011.251

Examiner: James P. Parnell

Level: II

Date: 10/19/00

Reviewed By: Larry Mauldin

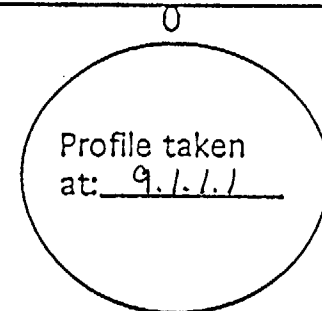
Level: III

Date: 10-20-00

Authorized Inspector: Robert M. Miller

Date: 10-29-00

270



90

180 Sheet 3 of 7

# DUKE POWER COMPANY

## ISI LIMITATION REPORT

FORM NDE-UT-4

Revision 1

Component/Weld ID: 1CF34-3		Item No: C05.011.251		Remarks:	
<input checked="" type="checkbox"/> NO SCAN <input type="checkbox"/> LIMITED SCAN FROM L <u>    N/A    </u> to L <u>    N/A    </u> INCHES FROM WO <u>    .5"    </u> to <u>    BEYOND    </u> ANGLE: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 45 <input type="checkbox"/> 60 <input type="checkbox"/> Other <u>          </u> FROM <u>    0    </u> DEG to <u>    360    </u> DEG		SURFACE <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 BEAM DIRECTION <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw		DUE TO VALVE CONFIGURATION	
<input type="checkbox"/> NO SCAN <input type="checkbox"/> LIMITED SCAN FROM L <u>          </u> to L <u>          </u> INCHES FROM WO <u>          </u> to <u>          </u> ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 <input type="checkbox"/> Other <u>          </u> FROM <u>          </u> DEG to <u>          </u> DEG		SURFACE <input type="checkbox"/> 1 <input type="checkbox"/> 2 BEAM DIRECTION <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw			
<input type="checkbox"/> NO SCAN <input type="checkbox"/> LIMITED SCAN FROM L <u>          </u> to L <u>          </u> INCHES FROM WO <u>          </u> to <u>          </u> ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 <input type="checkbox"/> Other <u>          </u> FROM <u>          </u> DEG to <u>          </u> DEG		SURFACE <input type="checkbox"/> 1 <input type="checkbox"/> 2 BEAM DIRECTION <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw			
<input type="checkbox"/> NO SCAN <input type="checkbox"/> LIMITED SCAN FROM L <u>          </u> to L <u>          </u> INCHES FROM WO <u>          </u> to <u>          </u> ANGLE: <input type="checkbox"/> 0 <input type="checkbox"/> 45 <input type="checkbox"/> 60 <input type="checkbox"/> Other <u>          </u> FROM <u>          </u> DEG to <u>          </u> DEG		SURFACE <input type="checkbox"/> 1 <input type="checkbox"/> 2 BEAM DIRECTION <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> cw <input type="checkbox"/> ccw			
Prepared By: <u>James A. Panel</u>		Level: <u>II</u>		Date: <u>10/19/00</u>	
Reviewed By: <u>Larry Mauldin</u>		Date: <u>III 10-20-00</u>		Sketch(s) attached <input checked="" type="checkbox"/> yes <input type="checkbox"/> no Authorized Inspector: <u>Robert M. Siv</u> Date: <u>10-29-00</u>	

Sheet 4 of 7



5087

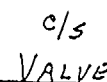
<b>DUKE POWER COMPANY</b> <b>Limited Examination Coverage Worksheet</b>						NDE-91-1	
						Revision 0	
<b>Examination Volume/Area Defined</b>							
<input checked="" type="checkbox"/> Base Metal <input checked="" type="checkbox"/> Weld <input type="checkbox"/> Near Surface <input type="checkbox"/> Bolting <input type="checkbox"/> Inner Radius							
Area Calculation				Volume Calculation			
.32 IN. X 2.0 IN. = 0.64 SQ.IN.				0.64 SQ.IN. X 56.5 IN. = 36.16 CU.IN.			
<b>Coverage Calculations</b>							
Scan #	Angle	Beam Direction	Area Examined (sq.in.)	Length Examined (in.)	Volume Examined (cu.in.)	Volume Required (cu.in.)	Percent Coverage
1	45S	CW	.64	56.5	36.16	36.16	100.00
2	45S	CCW	.64	56.5	36.16	36.16	100.00
3	45L	2	.64	56.5	36.16	36.16	100.00
4	45L	1	0	56.5	0	36.16	0.00
					108.48	144.64	75.00

AGGREGATE COVERAGE = 75%

		Item No: C05.011.251
Prepared By: GARY MOSS <i>Gary Moss</i>	Level: II	Date: 10/20/00
Reviewed By: <i>Larry Mauldin</i>	Level: III	Date: 10-20-00

## Revision .1

EXAMINATION SURFACE 2



Date: 10-29-00

90

180 Sheet 6 of 7

<b>DUKE POWER COMPANY</b>				Form NDE-UT-8	
<b>ULTRASONIC INDICATION RESOLUTION SHEET</b>				Revision 1	
<p>Acceptance Standard:</p> <p>IND. #1 WAS DETERMINED TO A GEOMETRIC REFLECTOR DUE TO ID WELD ROOT GEOMETRY. THE SIGNAL WOULD NOT HOLD UP TO SKEWING. THIS WAS CONFIRMED WITH THE RESPONSE OF A 70° SHEAR WAVE TRANSDUCER ( LESS THAN 50% OF THE L-WAVE SIGNAL). ALSO BY THE USE OF A WSY-70 TRANSDUCER AND THE REVIEW OF THE RADIOGRAPHIC FILM.</p>					
Item No: C05.011.251					
Acceptable Indications: #1					
Rejectable Indications:					
These indications have been compared with previous ultrasonic data <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No previous data available					
Examiner:		Level:		Date:	
Gary J. Moss <i>Gary Moss</i>		II		10/19/00	
Reviewer:		Level:		Date:	
Larry Mauldin <i>Larry Mauldin</i>		III		10-20-00	
Authorized Inspector:				Date:	
<i>Robert M. L...</i>				10/29-00	

DUKE POWER COMPANY										Exam Start: 0830		NDE-UT-3A		
ULTRASONIC EXAMINATION DATA SHEET FOR LAMINAR REFLECTORS										Exam Finish: 0841		Revision 2		
Station: Catawba			Unit: 1		Component/Weld ID: 1BSWINJF-SH-HD						Date: 9/15/00			
Nominal Material Thickness (in): 0				Weld Length (in.): 14.1			Surface Temperature: 87° Deg F							
Measured Material Thickness (in): 0.398				Lo: 8.1.4			Pyrometer S/N: MCNDE 27017							
Surface Condition: AS GROUND				Calibration Sheet No: 0001001			Cal Due: 12/13/00							
Examiner: David Zimmerman <i>David Zimmerman</i> Level: II			Configuration: Shell to Head S1 Flow S2 HEAD to SHELL											
Examiner: Level:														
Procedure: NDE-640 Rev: 1 FC: *														
IND NO.	4	Ampl ≥ rem BW LOB	L1 ≥ rem BW LOB	W1 ≥ rem BW LOB	Mp1 ≥ rem BW LOB	W2 ≥ rem BW LOB	Mp2 ≥ rem BW LOB	L2 ≥ rem BW LOB	W1 ≥ rem BW LOB	Mp1 ≥ rem BW LOB	W2 ≥ rem BW LOB	Mp2 ≥ rem BW LOB	Exam Surf.	Damps
NRI	0°													

Remarks: *FC 95-18 & 95-19 *** I.D. TAPER IN SHELL B.M. RANGES 0.398 TO 0.708. TAPER ALSO SHOWN ON ISO.			
		Limitations: see NDE-UT-4 <input type="checkbox"/> None: <input checked="" type="checkbox"/>	
Reviewed By: <i>Paul Moulden</i>		Sheet 1 of 6	
Level: III	Date: 10-19-00	Authorized Inspector: <i>Robert Miller</i>	Date: 11-13-00
		Item No: C01.020.018	

REQUEST FOR RELIEF #01-001 ATTACHMENT 10

AJA 11/29/00

DUKE POWER COMPANY  
UT PROFILE/PLOT SHEET

NDE-UT-5

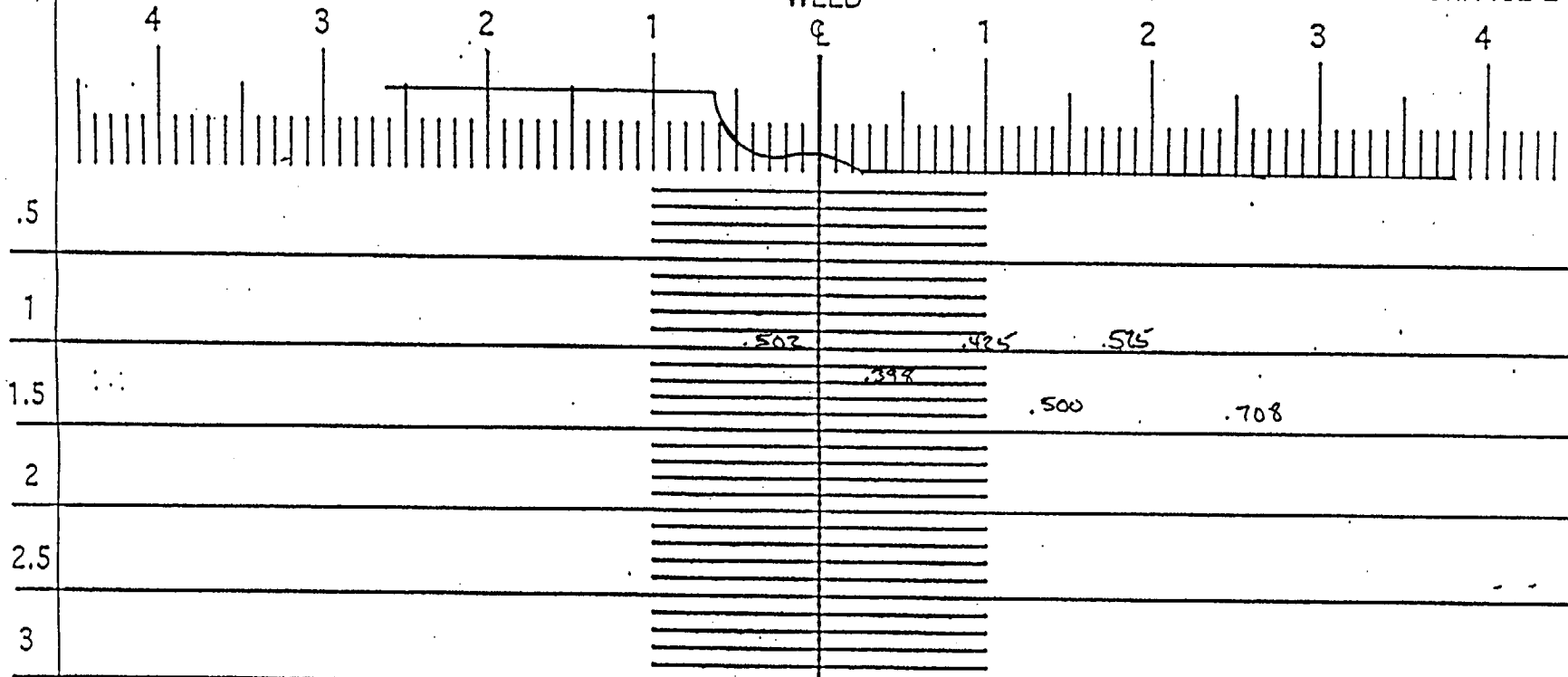
Revision 1

EXAMINATION SURFACE 1 (HEAD)

WELD

(SHELL)

EXAMINATION SURFACE 2



Component ID/Weld No. <sup>02</sup> 1A SW (IN) IF-SH-4D

Remarks: 3

Item No: C01020.018

Examiner: David K. 3

Reviewed By: Louis M. 3

Authorized Inspector: Robert M. 3

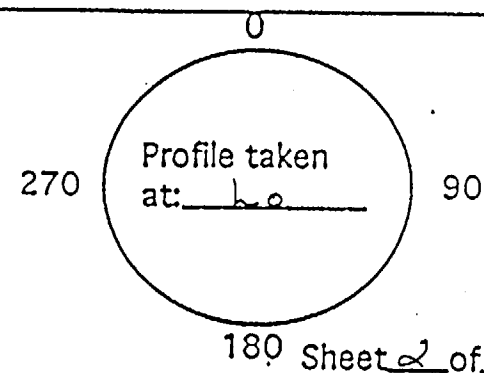
Level: II

Level: III

Date: 9/15/00

Date: 10-19-00

Date: 11-13-00



180 Sheet 2 of 6

<b>DUKE POWER COMPANY</b>										Exam Start: 0842		Form NDE-UT-2A		
<b>ULTRASONIC EXAMINATION DATA SHEET FOR PLANAR REFLECTORS</b>										Exam Finish: 0908		Revision 4		
Station: Catawba			Unit: 1		Component/Weld ID: 1BSWINJF-SH-HD						Date: 9/15/00			
Weld Length (in.): 14.1			Surface Condition: AS GROUND			Lo: 8.1.4		Surface Temperature: 87° ° F						
Examiner: David Zimmerman <i>David Zimmerman</i>			Level: II		Scans: 45 <input checked="" type="checkbox"/> 47.0 dB    70 <input type="checkbox"/> _____ dB 45T <input checked="" type="checkbox"/> 55.5 dB    70T <input type="checkbox"/> _____ dB 60 <input type="checkbox"/> _____ dB 60T <input type="checkbox"/> _____ dB Other: 45 RL@62.5 dB					Pyrometer S/N: MCNDE 27017				
Examiner:			Level:							Cal Due: 12/13/00				
Procedure: Rev: 2			FC: 99-02							Configuration: Shell to Head				
Calibration Sheet No: 0001002, 0001003, 0001004										HEAD Flow SHELL S1 to S2 Scan Surface: OD <b>Applies to NDE-680 only</b> Skew Angle:				

IND #	<i>4</i>	Max % Ref	Mp Max	W Max	L Max	L1	L2	W1	Mp1	W2	Mp2	Beam Dir.	Exam Surf.	Scan	Damps
		<b>DO NOT WRITE IN THIS SPACE</b>				20%dac HMA	20%dac HMA	20%dac HMA	20%dac HMA	20%dac HMA	20%dac HMA		<b>DO NOT WRITE IN THIS SPACE</b>		
						50%dac	50%dac	50%dac	50%dac	50%dac	50%dac				
						100%dac	100%dac	100%dac	100%dac	100%dac	100%dac				
NRI	45°														

Remarks:			
Limitations: (see NDE-UT-4) <input checked="" type="checkbox"/> 90% or greater coverage obtained: yes <input type="checkbox"/> no <input checked="" type="checkbox"/>			Sheet <u>3</u> of <u>4</u>
Reviewed By: <i>Larry Mauldin</i>	Level: <u>III</u>	Date: <u>10-19-00</u>	Authorized Inspector: <i>Robert Mader</i> Date: <u>11-13-00</u> Item No: C01.020.018

# DUKE POWER COMPANY

## ISI LIMITATION REPORT

FORM NDE-UT-4

Revision 1

Component/Weld ID: 1BSWINJF-SH-HD

Item No: C01.020.018

Remarks:

☒ NO SCAN  
☐ LIMITED SCAN  
 SURFACE ☒ 1 ☐ 2  
 BEAM DIRECTION ☐ 1 ☒ 2 ☐ cw ☐ ccw  
 FROM L N/A to L N/A INCHES FROM WO .3" to BEYOND  
 ANGLE: ☐ 0 ☒ 45 ☐ 60 ☐ Other          FROM 0 DEG to 360 DEG

HEAD CONFIGURATION (S1) ALLOWS  
0% SCAN IN AXIAL DIRECTION  
TOWARDS S2.

☐ NO SCAN  
☐ LIMITED SCAN  
 SURFACE ☐ 1 ☐ 2  
 BEAM DIRECTION ☐ 1 ☐ 2 ☐ cw ☐ ccw  
 FROM L          to L          INCHES FROM WO          to           
 ANGLE: ☐ 0 ☐ 45 ☐ 60 ☐ Other          FROM          DEG to          DEG

☐ NO SCAN  
☐ LIMITED SCAN  
 SURFACE ☐ 1 ☐ 2  
 BEAM DIRECTION ☐ 1 ☐ 2 ☐ cw ☐ ccw  
 FROM L          to L          INCHES FROM WO          to           
 ANGLE: ☐ 0 ☐ 45 ☐ 60 ☐ Other          FROM          DEG to          DEG

☐ NO SCAN  
☐ LIMITED SCAN  
 SURFACE ☐ 1 ☐ 2  
 BEAM DIRECTION ☐ 1 ☐ 2 ☐ cw ☐ ccw  
 FROM L          to L          INCHES FROM WO          to           
 ANGLE: ☐ 0 ☐ 45 ☐ 60 ☐ Other          FROM          DEG to          DEG

Prepared By: *David K. Z...*

Level: II

Date: 9/15/00

Sketch(s) attached ☒ yes ☐ no

Sheet 4 of 6

Reviewed By: *Larry Mauldin*

Date: 10-19-00

Authorized Inspector: *Robert M. Hill*

Date: 11/13-00

<b>DUKE POWER COMPANY</b> Limited Examination Coverage Worksheet	NDE-91-1
	Revision 0

Examination Volume/Area Defined				
<input checked="" type="checkbox"/> Base Metal	<input checked="" type="checkbox"/> Weld	<input type="checkbox"/> Near Surface	<input type="checkbox"/> Bolting	<input type="checkbox"/> Inner Radius

Area Calculation	Volume Calculation
0.134" X 1.0" = 0.134 SQ. IN.	0.134 IN. X 14.1 IN. = 1.89 CU. IN.

Coverage Calculations							
Scan #	Angle	Beam Direction	Area Examined (sq.in.)	Length Examined (in.)	Volume Examined (cu.in.)	Volume Required (cu.in.)	Percent Coverage
1	45	2	0	14.1	0	1.89	0.00
2	45	1	.050	14.1	0.705	1.89	37.30
3	45	CW	.134	14.1	1.89	1.89	100.00
4	45	CCW	.134	14.1	1.89	1.89	100.00
	SHEAR	WAVE	AGGREGATE	COVERAGE	4.485	7.56	59.33
RL	WAVE	COVERAGE					0.00
2	45RL	1	.084	14.1	1.184	1.89	62.65

62.6 X 25% (1 SCAN) = 15.7 % OF TOTAL WELD

Item No: C01.020.018	
Prepared By: <i>Daniel K. Z...</i>	Level: <i>II</i> Date: <i>10/10/00</i>
Reviewed By: <i>Larry Maulder</i>	Level: <i>III</i> Date: <i>10-19-00</i>

5 of 5



DUKE POWER COMPANY  
UT PROFILE/PLOT SHEET

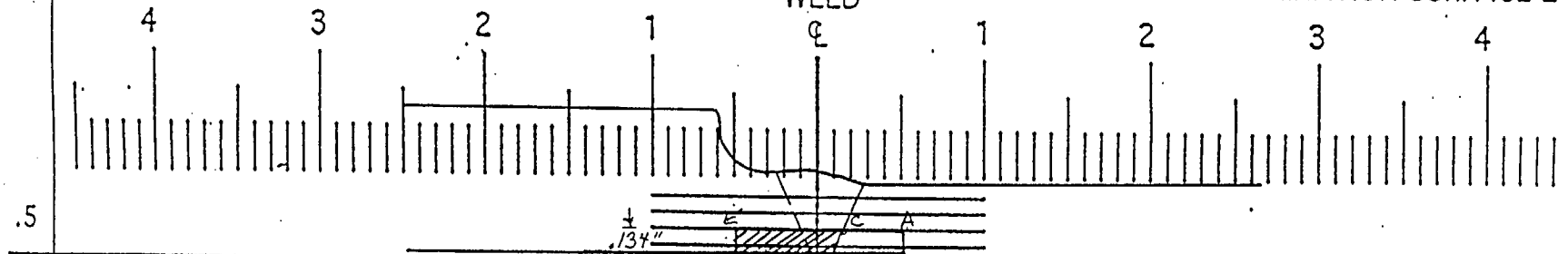
NDE-UT-5

Revision 1

EXAMINATION SURFACE 1 HEAD

WELD

SHELL EXAMINATION SURFACE 2



□ - SHEAR WAVE COVERAGE

▨ - RL-WAVE COVERAGE

EXAM AREA

$$ABEF = .134" \times 1.0" = .134 \text{ sq. in.}$$

SHEAR WAVE COVERAGE

$$ABCD = \frac{.134"}{2} (.35 + .4) = .050 \text{ sq. in.}$$

RL-WAVE COVERAGE

$$CDEF = \frac{.134"}{2} (.65 + .6) = .08375 = .084 \text{ sq. in.}$$

Component ID/Weld No. <sup>DL2</sup> 1A5WINJF-SH-HD

Remarks: B

Item No: C01.020.018

Examiner: David J. 3

Level: II

Date: 10/10/00

Reviewed By: Gary J. Chandler

Level: III

Date: 10-19-00

Authorized Inspector: Robert M. Miller

Date: 11-13-00

270

Profile taken  
at: L<sub>0</sub>

90

180 Sheet 6 of 4