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

**NRC Document Control** 

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

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#### FORM NIS-1 (Back)

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

## **INSERVICE INSPECTION REPORT**

## **CATAWBA UNIT 2** 2001 REFUELING OUTAGE EOC11 (OUTAGE 4)

Location: 4800 Concord Road, York, South Carolina 29745

NRC Docket No. 50-414

National Board No. 173

Commercial Service Date: August 19, 1986

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

**Revision** 0

Prepared By:

**Reviewed By:** 

Approved By:

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

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

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<sup>C</sup>/<sub>O</sub> R. N. McGill Catawba Nuclear Station

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

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#### 1.0 General Information

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

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

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

#### 1.1 Identification Numbers

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

## 1.1 Identification Numbers

#### Continued

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

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## 1.1 Identification Numbers

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#### Continued

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

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

#### 1.1 Identification Numbers

#### Continued

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

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

Name: R. N. McGill

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

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

#### 2.0 Summary of Inservice Inspections

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

#### 2.1 Class 1 Inspection

| Examination C | ategory | B-A | Pressure Retaining Welds in Reactor Ve | ssel |
|---------------|---------|-----|--|------|
|---------------|---------|-----|--|------|

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

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

## Examination Category B-B

# Pressure Retaining Welds in Vessels Other than Reactor Vessels

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

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

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

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

Examination Category B-E

# Pressure Retaining Partial Penetration Welds in Vessels

#### **REFERENCE SECTION 11.0 OF THIS REPORT**

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

## Examination Category B-F Pressure Retaining Dissimilar Metal Welds

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

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

## Examination Category B-F (Continued)

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

Refueling Outage Report EOC 11 Catawba Unit 2 Section 2

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#### Examination Category B-G-1

## Pressure Retaining Bolting, Greater Than 2" in Diameter

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

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

## Examination Category B-G-1

(Continued)

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

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

## Examination Category B-G-2

# Pressure Retaining Bolting, 2" and Less in Diameter

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

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## Examination Category B-H

**Integral Attachments for Vessels** 

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

#### Examination Category B-J

**Pressure Retaining Welds in Piping** 

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

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

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## Examination Category B-J

(Continued)

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

## Examination Category B-K-1

Integral Attachments for Piping, Pumps and Valves

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

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#### Pressure Retaining Welds in Pump Casings and Valve Bodies

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

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

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

#### B-N-3 Removable Core Support Structures

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

#### Examination Category B-O

#### Pressure Retaining Welds in Control Rod Housings

| Item Number | Description          | Total<br>Examined<br>During Outage |
|-------------|----------------------|------------------------------------|
|             | Reactor Vessel       |                                    |
| B14.010     | Welds in CRD Housing | 0                                  |
| TOTALS      |                      | 0                                  |

Examination Category B-P All Pressure Retaining Components

**REFERENCE SECTION 11.0 OF THIS REPORT** 

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### Examination Category B-Q Steam Generator Tubing

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

## Examination Category F-A

**Class 1 Component Supports** 

| (Co | de | Case | N-49 | 1) |
|-----|----|------|------|----|
|     |    |      |      |    |

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

<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.

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

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#### 2.2 Class 2 Inspections

## Examination Category C-A

## Pressure Retaining Welds in Pressure Vessels

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

## Examination Category C-B

## Pressure Retaining Nozzle Welds in Vessels

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

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## Examination Category C-B (Continued)

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

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

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

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## Examination Category C-D

## Pressure Retaining Bolting Greater Than 2" in Diameter

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

#### Examination Category C-F-1

#### Pressure Retaining Welds in Austenitic Stainless Steel or High Alloy Piping

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

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

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

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

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

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

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

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

Examination Category C-F-2 (Continued)

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

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

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

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#### **REFERENCE SECTION 11.0 OF THIS REPORT**

## Examination Category F-A Class 2 Component Supports

(Code Case N-491)

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

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

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

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

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

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#### 3.0 Second Ten Year Interval Inspection Status

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

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

#### **Class 1 Inspections**

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

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#### **Class 1 Inspections (Continued)**

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

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## **Class 2 Inspections**

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

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

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## Augmented / Elective Inspections

Description

#### Percentage Complete

Reactor Coolant Pump Flywheel Inspection

NC System

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100% of requirements for EOC11 (Outage 4)

100% of Requirements for EOC11 (Outage 4)

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#### 4.0 Final Inservice Inspection Plan

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

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

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

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#### DUKE ENERGY CORPORATION QUALITY ASSURANCE TECHNICAL SERVICES

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

| EOC | 11 |  |
|-----|----|--|
|     |    |  |

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

Total B03.110 Items:

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

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# DUKE ENERGY CORPORATION QUALITY ASSURANCE TECHNICAL SERVICES

# **Dissimilar Metal Welds**

**CATEGORY B-F, Pressure Retaining** 

Inservice Inspection Database Management System Catawba 2

**Plan Report** Page 4 12/06/2001

### <u>Pressurizer</u>

ITEM NUMBER

Inservice Inspection Plan for Interval 2 Outage 4

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

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

ID NUMBER

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

Total B05 Items:

CATEGORY B-G-1, Pressure Retaining

# DUKE ENERGY CORPORATION QUALITY ASSURANCE TECHNICAL SERVICES

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

Class A

CATEGORY B-G-1, Pressure Retaining

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

| EOC | 11 |  |
|-----|----|--|
| EUC | 11 |  |

ITEM NUMBER

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

Plan Report Page 7 12/06/2001

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

| EOC | 11 |
|-----|----|
| EUC |    |

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

Class A

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

CATEGORY B-G-1, Pressure Retaining

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

CATEGORY B-G-1, Pressure Retaining

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

| EOC | 11 | L. |
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### DUKE ENERGY CORPORATION QUALITY ASSURANCE TECHNICAL SERVICES

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

Total B06.030 Items: 36

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

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Class A

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

| EOC | 11 |  |
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| EUC | 11 |  |

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

Total B06.040 Items: 18

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

Class A

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

Class A

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

Class A

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### DUKE ENERGY CORPORATION QUALITY ASSURANCE TECHNICAL SERVICES

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

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

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

Total B07 items:

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

Catawba 2

Plan Report Page 20 12/06/2001

## Vessels Pressurizer

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

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

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

CATEGORY B-J, Pressure Retaining Welds In

### DUKE ENERGY CORPORATION QUALITY ASSURANCE TECHNICAL SERVICES

### QUALITY ASSURANCE TECHNICAL SERVICES

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

| FOC | 44 |  |
|-----|----|--|
| EOC | 11 |  |

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

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

Total B09.011 Items: 18

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

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

| EOC | 44 |  |
|-----|----|--|
| EUC | 11 |  |

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

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

# **CATEGORY B-M-2, Valve Bodies**

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

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

Class A

**CATEGORY B-M-2, Valve Bodies** 

# DUKE ENERGY CORPORATION QUALITY ASSURANCE TECHNICAL SERVICES

.

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

| EOC <sup>4</sup> | 11 |
|------------------|----|
|------------------|----|

**CATEGORY C-A, Pressure Retaining Welds** 

# DUKE ENERGY CORPORATION QUALITY ASSURANCE TECHNICAL SERVICES

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

### DUKE ENERGY CORPORATION QUALITY ASSURANCE TECHNICAL SERVICES

# In Pressure Vessels

Head Circumferential Welds

CATEGORY C-A, Pressure Retaining Welds

4

Inservice Inspection Database Management System

Catawba 2

Plan Report Page 31 12/06/2001

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

Total C01 Items:

(

| EOC | 11 |  |
|-----|----|--|
| EUC |    |  |

# DUKE ENERGY CORPORATION QUALITY ASSURANCE TECHNICAL SERVICES

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

Total C02.011 Items:

**CATEGORY C-B, Pressure Retaining Nozzle** 

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

Total C02.021 Items: 8

Total C02 Items:

| <u>chments For</u><br>/alves                        |   |  |  | . SERVICES<br>ement System   |   | Plan Report  |  |  |  |
|---|---|--|--|--|---|--|--|--|--|
| Vessels, Piping, Pumps, And Valves Pressure Vessels |   |  | Catawba 2  |  |   |  |  |  |  |
|   | Inservice i                                 | nspection P  | lan for Inte   | rval 2 Outage 4  | 12/06/  |  |  |  |  |
| /S ISO/DWG NUMBERS                                  | PROC  | INSP REQ   | MAT/SCH  | DIA/THK CAL BLOCKS   | COMMENTS  |  |  |  |  |
| ****  |   |  |  |  |   |  |  |  |  |
| D CN-2554-1.6                                       | NDE-35                                      | PT   | SS   | 0.000  | •   |  |  |  |  |
| CNM 1201.06-50                                      |   |  |  | 0.750  | PC. 5 To PC. 31 And PC.   | 32 (One Each Side)   |  |  |  |
|   |   | Shell to   |  |  |   |  |  |  |  |
|   |   | Support  |  |  |   |  |  |  |  |
| ¥   | YS ISO/DWG NUMBERS<br>****<br>D CN-2554-1.6 | Inservice I<br>YS ISO/DWG NUMBERS PROC<br>****<br>D CN-2554-1.6 NDE-35 | Cataw<br>Inservice Inspection P<br>YS ISO/DWG NUMBERS PROC INSP REQ<br>****<br>D CN-2554-1.6 NDE-35 PT<br>CNM 1201.06-50<br>Shell to | Catawba 2<br>Inservice Inspection Plan for Inter<br>YS ISO/DWG NUMBERS PROC INSP REQ MAT/SCH<br>****<br>D CN-2554-1.6 NDE-35 PT SS<br>CNM 1201.06-50<br>Shell to | Catawba 2         Inservice Inspection Plan for Interval 2 Outage 4         YS ISO/DWG NUMBERS       PROC       INSP REQ       MAT/SCH       DIA/THK       CAL BLOCKS         ***** | Catawba 2         Inservice Inspection Plan for Interval 2 Outage 4         YS ISO/DWG NUMBERS       PROC       INSP REQ       MAT/SCH       DIA/THK       CAL BLOCKS       COMMENTS         ***** |  |  |  |

| EOC | 11 |  |
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#### DUKE ENERGY CORPORATION CATEGORY C-C, Integral Attachments For QUALITY ASSURANCE TECHNICAL SERVICES Vessels, Piping, Pumps, And Valves Inservice Inspection Database Management System Plan Report Page 35 Catawba 2 Piping 12/06/2001 Inservice Inspection Plan for Interval 2 Outage 4 INSP REQ MAT/SCH DIA/THK CAL BLOCKS COMMENTS SYS ISO/DWG NUMBERS PROC ITEM NUMBER ID NUMBER \*\*\*\* Integrally Weided Attachments \*\*\*\* Welded Attachment NDE-25 CS 34.000 MT C03.020.063 2-R-SM-1546 SM CN-2491-SM007 0.750 CN-2593-1.0 **Rigid Support** Class B Welded Attachment NDE-25 MT CS 34.000 2-R-SM-1537 SM CN-2491-SM007 C03.020.077 0.750 CN-2593-1.0 Mech Snubber Class B Welded Attachment CS 34.000 2-R-SM-1541 SM CN-2491-SM007 NDE-25 ΜT C03.020.080 0.750 CN-2593-1.0 Mech Snubber Class B Total C03.020 Items: 3 Total C03 Items: 4

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

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

## DUKE ENERGY CORPORATION QUALITY ASSURANCE TECHNICAL SERVICES

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

#### DUKE ENERGY CORPORATION OUNLITY ASSURANCE TECHNICAL SERVICES

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

30 Total C05.011 Items:

| FOC | 11 |
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#### DUKE ENERGY CORPORATION CATEGORY C-F-1, Pressure Retaining Welds QUALITY ASSURANCE TECHNICAL SERVICES Inservice Inspection Database Management System In Austenitic SS or High Alloy Piping Plan Report Page 40 Catawba 2 Piping Welds > 1/5 in. Nom Wall For Piping >= 12/06/2001 Inservice Inspection Plan for Interval 2 Outage 4 NPS 2 And <= NPS 4 INSP REQ MAT/SCH DIA/THK CAL BLOCKS COMMENTS PROC ITEM NUMBER ID NUMBER SYS ISO/DWG NUMBERS \*\*\*\* Circumferential Weld \*\*\*\* \* Reference General Requirements Section 8.1.10 NDE-600 UT SS 3.000 2NV20-1 NV CN-2NV-20 C05.021.230 40 0.216 CN-2554-1.1 Circumferential 90 Degree Elbow to Class B Pipe NDE-35 PT SS 3.000 C05.021.230A 2NV20-1 NV CN-2NV-20 40 0.216 CN-2554-1.1 Circumferential 90 Degree Elbow to Class B Pipe \* Reference General Requirements Section 8.1.10 \* SS 3.000 NV CN-2NV-20 NDE-600 UT 2NV20-2 C05.021.231 40 0.216 CN-2554-1.1 Circumferential Pipe to Class B 90 Degree Elbow SS 3.000 NV CN-2NV-20 NDE-35 PT 2NV20-2 C05.021.231A 40 0.216 CN-2554-1.1 Circumferential Pipe to Class B 90 Degree Elbow \* Reference General Requirements Section 8.1.10 SS \* NV CN-2NV-20 NDE-600 UT 4.000 C05.021.232 2NV20-5 40 0.237 CN-2554-1.1 Circumferential Pipe to Class B VLV 2NV-204 4.000 NV CN-2NV-20 **NDE-35** PT SS 2NV20-5 C05.021.232A 40 0.237 CN-2554-1.1 Circumferential Pipe to Class B VLV 2NV-204 \* Reference General Requirements Section 8.1.10 UT SS 4.000 NV CN-2NV-20 **NDE-600** 2NV20-7 C05.021.233 0.237 40 CN-2554-1.1 Circumferential Tee to Class B Pipe PT SS 4.000 NV CN-2NV-20 **NDE-35** 2NV20-7 C05.021.233A 0.237 40 CN-2554-1.1 Circumferential Tee to Class B Pipe

#### DUKE ENERGY CORPORATION QUALITY ASSURANCE TECHNICAL SERVICES

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

Total C05.021 Items: 10

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

Total C05.030 Items: 4

| EOC | 11 |
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#### DUKE ENERGY CORPORATION **CATEGORY C-F-2.** Pressure Retaining Welds QUALITY ASSURANCE TECHNICAL SERVICES Inservice Inspection Database Management System In Carbon Or Low Alloy Steel Piping Plan Report Page 43 Catawba 2 Piping Welds >= 3/8 in. Nominal Wall Thickness 12/06/2001 Inservice Inspection Plan for Interval 2 Outage 4 for Piping > NPS 4 INSP REQ MAT/SCH DIA/THK CAL BLOCKS COMMENTS PROC **ITEM NUMBER** ID NUMBER SYS ISO/DWG NUMBERS \*\*\*\* Circumferential Weld \*\*\*\* Steam Generator 2B UT CS 6.000 2CA67-1 CA CN-2CA-67 NDF-600 C05.051.005 \* Reference General Requirements Section 8.1.10 0.432 80 CN-2592-1.1 Circumferential 90 Degree Elbow to Class B Term end 2BSG Nozzle Steam Generator 2B CA CN-2CA-67 NDE-25 MT CS 6.000 C05.051.005A 2CA67-1 0.432 80 CN-2592-1.1 Circumferential 90 Degree Elbow to Class B Term end 2BSG Nozzle \* Reference General Requirements Section 8.1.10 \* UT CS 6.000 2CA93-9 CA CN-2CA-93 NDE-600 C05.051.010 80 0.432 CN-2592-1.1 Circumferential 90 Degree Elbow to Class B Pipe CS 6.000 CA CN-2CA-93 NDE-25 MT 2CA93-9 C05.051.010A 80 0.432 CN-2592-1.1 Circumferential 90 Degree Elbow to Class B Pipe Steam Generator 2C UT CS 16.000 CF CN-2CF-66 **NDE-600** C05.051.057 2CF66-29 \* Reference General Requirements Section 8.1.10 80 0.844 CN-2591-1.1 Circumferential 90 Degree Elbow to Class B Term end SG2C Nozzle Steam Generator 2C CS C05.051.057A 2CF66-29 CF CN-2CF-66 **NDE-25** MT 16.000 80 0.844 Circumferential CN-2591-1.1 90 Degree Elbow to Class B Term end SG2C Nozzle \* Reference General Requirements Section 8.1.10 NDE-600 UT CS 16.000 CF CN-2CF-66 C05.051.058 2CF66-38 80 0.844 CN-2591-1.1 Circumferential Pipe to Class B 90 Degree Elbow MT CS 16.000 2CF66-38 CF CN-2CF-66 NDE-25 C05.051.058A 0.844 80 CN-2591-1.1 Circumferential Pipe to Class B 90 Degree Elbow

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

DUKE ENERGY CORPORATION

#### 90 Degree Elbow

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| EOC | 11 |  |
|-----|----|--|
| EUC |    |  |

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

Total C05 Items:

62

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

Total C06 Items:

| EOC 11 | EOC | 11 |  |
|--------|-----|----|--|
|--------|-----|----|--|

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

Total D02 Items:

**CATEGORY F-A, Supports** 

# DUKE ENERGY CORPORATION QUALITY ASSURANCE TECHNICAL SERVICES

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

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

Class A

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#### DUKE ENERGY CORPORATION QUALITY ASSURANCE TECHNICAL SERVICES

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

**CATEGORY F-A, Supports** 

# DUKE ENERGY CORPORATION QUALITY ASSURANCE TECHNICAL SERVICES

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

## DUKE ENERGY CORPORATION QUALITY ASSURANCE TECHNICAL SERVICES

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

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

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

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# CATEGORY F-A, Supports

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

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

Total F01.022 Items:

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# **DUKE ENERGY CORPORATION**

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

Class C

### DUKE ENERGY CORPORATION OHALITY ASSURANCE TECHNICAL SERVICES

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

\*\*\*\* Multidirectional \*\*\*\*

#### DUKE ENERGY CORPORATION QUALITY ASSURANCE TECHNICAL SERVICES

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

**CATEGORY F-A, Supports** 

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

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

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

Total G01 Items:

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

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

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

#### DUKE ENER ORPORATION QUALITY ASSURANCE TECHNICAL SERVICES

#### In-Service Inspection Database Management System

#### Run D Page 1 /2001

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

# DUKE ENER

#### QUALITY ASSURANCE TECHNICAL SERVICES

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

# 1

## Plant: Catawba 2

### Interval 2 Outage 4

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

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## QUALITY ASSURANCE TECHNICAL SERVICES

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

# Plant: Catawba 2

#### Interval 2 Outage 4

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

Plant: Catawba 2

#### DUKE ENER ORPORATION

## QUALITY ASSURANCE TECHNICAL SERVICES

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

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

Plant: Catawba 2

#### ORPORATION

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

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| i iuriti     |               |        |            | In          | terval z Outage | 4       |     |                                      |
|--------------|---------------|--------|------------|-------------|-----------------|---------|-----|--------------------------------------|
| ITEM NUMBER  | ID NUMBER     | SYSTEM | INSP DATE  | INSP STATUS | INSP LIMITED    | GEO REF | RFR | COMMENTS                             |
| B12.050.006H | 2NI-94        | NI     | 10/03/2001 | CLR         |                 | Ν       | Ν   |                                      |
| B12.050.007A | 2NI-125       | NI     | 10/04/2001 | CLR         |                 | Ν       | Ν   |                                      |
| C01.010.003  | 2SGD-05-06A   | NC     | 09/27/2001 | CLR         |                 | Ν       | Ν   |                                      |
| C01.010.005  | 2SWHX-5-3     | NV     | 09/06/2001 | CLR         |                 | N       | Ν   |                                      |
| C01.020.002  | 2ELDHX-HD-FLG | NV     | 10/01/2001 | CLR         |                 | Y       | Ν   |                                      |
| C01.020.016  | 2SWHX-5-6     | NV     | 09/06/2001 | CLR         |                 | Ν       | Ν   |                                      |
| C02.011.001  | 2SWHX-5-A     | NV     | 09/06/2001 | CLR         |                 | Ν       | Ν   |                                      |
| C02.011.002  | 2SWHX-5-B     | NV     | 09/06/2001 | CLR         |                 | Ν       | Ν   |                                      |
| C02.021.001  | 2SGB-06A-18   | NC     | 09/28/2001 | CLR         | 75.00%          | Ν       | Y   | Request for Relief Serial No. 01-003 |
| C02.021.001A | 2SGB-06A-18   | NC     | 09/28/2001 | CLR         |                 | Ν       | Ν   |                                      |
| C02.021.004  | 2BNSHX-3-N1   | NS     | 09/11/2001 | CLR         | 49.03%          | Y       | Y   | Request for Relief Serial No. 01-003 |
| C02.021.004A | 2BNSHX-3-N1   | NS     | 09/11/2001 | CLR         |                 | N       | Ν   |                                      |
| C02.021.005  | 2BNSHX-3-N2   | NS     | 09/11/2001 | CLR         | 49.03%          | Y       | Y   | Request for Relief Serial No. 01-003 |
| C02.021.005A | 2BNSHX-3-N2   | NS     | 09/11/2001 | CLR         |                 | Ν       | Ν   |                                      |
| C03.010.002  | 2SWHX-SUPP    | ND     | 09/06/2001 | CLR         |                 | Ν       | Ν   |                                      |
| C03.020.063  | 2-R-SM-1546   | SM     | 10/02/2001 | CLR         |                 | Ν       | Ν   |                                      |
| C03.020.077  | 2-R-SM-1537   | SM     | 10/02/2001 | CLR         |                 | N       | Ν   |                                      |
| C03.020.080  | 2-R-SM-1541   | SM     | 10/02/2001 | CLR         |                 | Ν       | Ν   |                                      |
| C05.011.001  | 2CA59-22      | CA     | 10/03/2001 | CLR         |                 | N       | Ν   |                                      |
| C05.011.001A | 2CA59-22      | CA     | 10/01/2001 | CLR         |                 | N       | N   |                                      |
| C05.011.002  | 2CA59-23      | CA     | 10/03/2001 | CLR         |                 | Ν       | Ν   |                                      |
| C05.011.002A | 2CA59-23      | CA     | 10/01/2001 | CLR         |                 | Ν       | Ν   |                                      |
| C05.011.003  | 2CA59-25      | CA     | 10/03/2001 | CLR         |                 | Ν       | N   |                                      |
| C05.011.003A | 2CA59-25      | CA     | 10/01/2001 | CLR         |                 | Ν       | Ν   |                                      |
| C05.011.016  | 2CA72-53      | CA     | 10/02/2001 | CLR         |                 | Ν       | Ν   |                                      |
| C05.011.016A | 2CA72-53      | CA     | 10/02/2001 | CLR         |                 | Ν       | Ν   |                                      |
| C05.011.017  | 2CA72-58      | CA     | 10/02/2001 | CLR         |                 | N       | Ν   |                                      |
| C05.011.017A | 2CA72-58      | CA     | 10/02/2001 | CLR         |                 | Ν       | Ν   |                                      |
| C05.011.018  | 2CA72-60      | CA     | 10/02/2001 | CLR         |                 | Ν       | Ν   |                                      |
| C05.011.018A | 2CA72-60      | CA     | 10/02/2001 | CLR         |                 | Ν       | Ν   |                                      |
| C05.011.131  | 2N186-2       | NI     | 09/29/2001 | CLR         |                 | Ν       | Ν   |                                      |
| C05.011.131A | 2N186-2       | NI     | 09/29/2001 | CLR         |                 | Ν       | Ν   |                                      |
| C05.011.132  | 2N186-3       | NI     | 09/29/2001 | CLR         |                 | Ν       | Ν   |                                      |
| C05.011.132A | 2N186-3       | NI     | 09/29/2001 | CLR         |                 | Ν       | Ν   |                                      |
| C05.011.133  | 2NI86-12      | NI     | 09/29/2001 | CLR         |                 | Ν       | Ν   |                                      |
| C05.011.133A | 2NI86-12      | NI     | 09/29/2001 | CLR         |                 | Ν       | Ν   |                                      |
|              |               |        |            |             |                 |         |     |                                      |

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# QUALITY ASSURANCE TECHNICAL SERVICES

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

# Plant: Catawba 2

## Interval 2 Outage 4

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

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

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

Plant: Catawba 2

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

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

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#### QUALITY ASSURANCE TECHNICAL SERVICES

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

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Plant: Catawba 2

# Interval 2 Outage 4

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

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

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

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# 6.0 Reportable Indications

EOC11 (Outage 4) had no reportable indications.

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#### 7.0 Personnel, Equipment and Material Certifications

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

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

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

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# 8.0 Corrective Action

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

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

# 9.0 Reference Documents

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

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

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



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

Gary R. Peterson Vice President Catawba Nuclear Station

December 20, 2001

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

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

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

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

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

truly yours Very

Gary R. Peterson

LJR/s

Attachment

Document Control Desk Page 2 December 20, 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 December 20, 2001

bxc (with attachment):

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

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

#### DUKE ENERGY CORPORATION

#### STATION: CATAWBA NUCLEAR STATION UNIT 2

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

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

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

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

Interval: Second Ten-Year Interval; Second Inspection Period

Applicable Code Case: N-460

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

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

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

#### II. Code Requirement:

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

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

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

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

#### IV. Basis for Relief:

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

#### V. Alternate Examinations or Testing:

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

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

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

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

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

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

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

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

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

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

• Containment Atmosphere Iodine Monitor (EMF 40)

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

#### VII. Implementation Schedule:

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

Request for Relief Serial No. 01-003 Page 5 of 20

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

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

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

### II. Code Requirement:

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

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

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

#### IV. Basis for Relief:

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

Request for Relief Serial No. 01-003 Page 6 of 20

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

Duke Energy Corporation does not claim credit for coverage of the far side of austenitic welds. The characteristics of austenitic weld metal attenuate and distort the sound beam when shear waves pass through the weld. Refracted longitudinal waves provide better penetration. Duke Energy Corporation uses refracted longitudinal waves to examine cast austenitic welds.

#### V. Alternate Examinations or Testing:

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

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

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

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

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

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

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

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

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

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

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# VII. Implementation Schedule:

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

Request for Relief Serial No. 01-003 Page 9 of 20

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

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

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

#### II. Code Requirement:

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

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

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

#### IV. Basis for Relief:

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

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### V. Alternate Examinations or Testing:

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

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

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

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

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

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

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

• Containment humidity indications;

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

## VII. Implementation Schedule:

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

Request for Relief Serial No. 01-003 Page 12 of 20

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

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

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

#### II. Code Requirement:

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

# III. Code Requirement from which Relief is Requested:

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

#### IV. Basis for Relief:

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

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

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

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

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

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

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

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

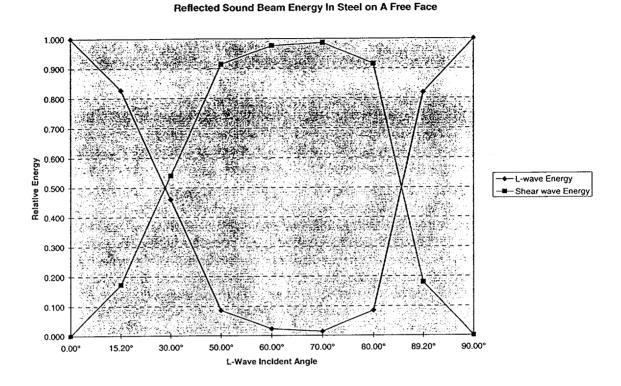
 $V_L$  is the longitudinal wave velocity of the stainless steel safe/pipe end material in inches/µsec.

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

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

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



#### V. Alternate Examinations or Testing:

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

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

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

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

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

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

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

### VII. Implementation Schedule:

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

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

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

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

#### II. Code Requirement:

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

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

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

### IV. Basis for Relief:

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

Duke Energy Corporation does not claim credit for coverage of the far side of austenitic welds. The characteristics of austenitic weld metal attenuate and distort the sound beam when shear waves pass through

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

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

#### V. Alternate Examinations or Testing:

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

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

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

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

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

Request for Relief Serial No. 01-003 Page 18 of 20

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

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

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

#### VII. Implementation Schedule:

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

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

The following individuals contributed to the development of this RFR:

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

David Goforth (Systems Engineer) provided part of Section VI

Andy Hogge (Sponsor) compiled the remaining sections

Sponsored By:

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

Approved By:

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

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

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

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

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

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

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

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

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

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

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



| DUKE POWER COMPANY                                      |                              |                       |                                    |                                    | Exam Sta                              | art: 14                            | 433          | Form                             | NDE-UT         | -2A   |
|---|------------------------------|-----------------------|------------------------------------|------------------------------------|---------------------------------------|------------------------------------|--------------|----------------------------------|----------------|-------|
| ULTRASONIC EXAMINATION DATA SHEET FOR PLANAR REFLECTORS |                              |                       |                                    |                                    |                                       | nish: 1:                           | 504          | R                                | evision 4      |       |
| Station: CNS  | Unit: 2                      | Component/V           | Veld ID: 21                        | PZR-W1                             | · · · · · · · · · · · · · · · · · · · |                                    |              | Date:                            | 10/9/20        | 001   |
| Weld Length (in.): 77"                                  | Surface Condi                | tion: AS (            | GROUND                             | Lo:                                | 9.2.3                                 | Surface <sup>-</sup>               | <br>Fempera  | ture:                            | 71 °           | F     |
| Examiner: David Zimmerman                               | Level: III<br>Level: III     | Scans:<br>45 □        | dB                                 | 70 🖾                               | 50 dB                                 | Pyromete<br>Cal Due:               | er S/N:      | MCNI                             |                |       |
| Procedure: NDE-620 Rev: 8                               | FC:<br>00-07                 | 45T<br>60 <u>74/7</u> | dB 7                               |                                    | <u>59</u> dB                          |                                    | 2            | Flow _                           | S1             |       |
| Calibration Sheet No:<br>0102054, 0102055, 0102056      |                              | 60T ⊠ <u>74/7</u>     |                                    | dI                                 | 3                                     |                                    | Scan<br>Scan | to<br><u>Surface:</u><br>o NDE-6 | OD             |       |
| IND # A Max Mp W<br>% Max Max Max<br>Ref                | L<br>Max L1                  | L2                    | W1                                 | Mp1                                | W2                                    | Mp2                                | Beam<br>Dir. | Exam<br>Surf.                    | Scan           | Damps |
| DO NOT WRITE<br>IN THIS SPACE                           | 20%d<br>HMA<br>50%d<br>100%d | A HMA<br>ac 50%dac    | 20%dac<br>HMA<br>50%dac<br>100%dac | 20%dac<br>HMA<br>50%dac<br>100%dac | 20%dac<br>HMA<br>50%dac<br>100%dac    | 20%dac<br>HMA<br>50%dac<br>100%dac | D<br>IN      |                                  | WRITI<br>SPACE |       |
| NRI 60/70   |                              |                       |                                    |                                    |                                       |                                    |              |                                  |                |       |

| Remarks:                         |              |                   |                       |                  |                         |
|----------------------------------|--------------|-------------------|-----------------------|------------------|-------------------------|
| Limitations: (see NDE-UT-4) 🛛 90 | % or greater | coverage obta     | ined: yes 🗆 no 🛛      |                  | Sheet / of /\$          |
| Reviewed By:<br>Lan Moss         | Level:       | Date:<br>/0-//-01 | Authorized Inspector: | Date:            | Item No:<br>B03.110.001 |
| V (                              | Per          |                   | DR RELIEF #01-00      | <u>(0)[1](0)</u> | 1                       |

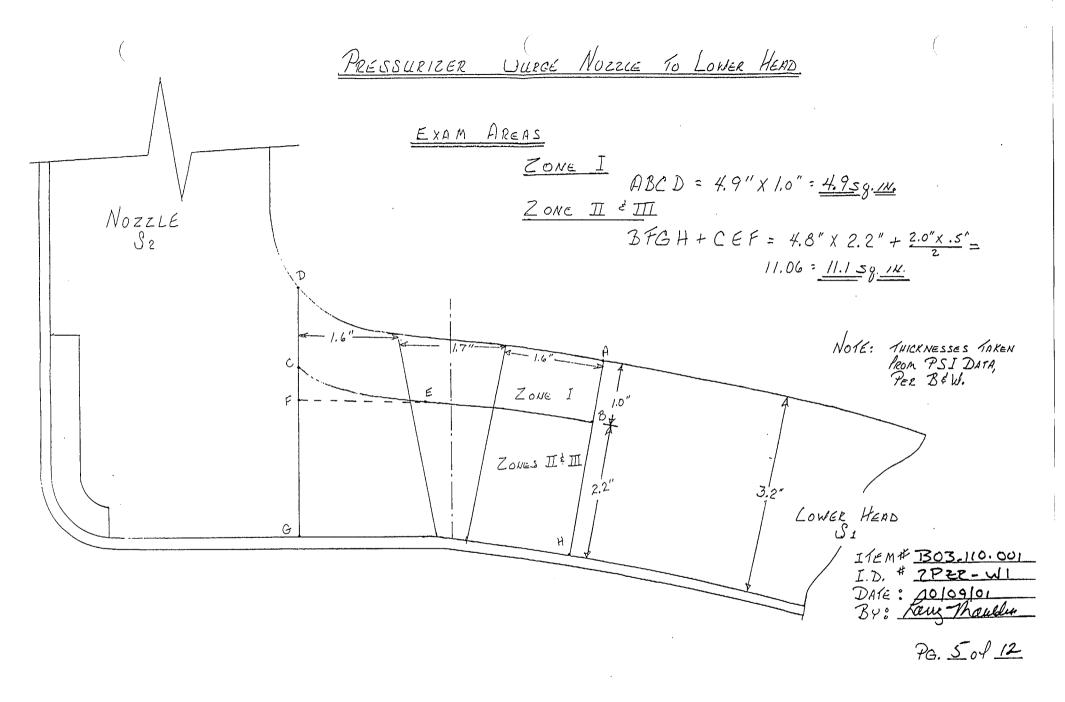
|   |                                | FORM NDE-UT-4   |              |  |
|---|--------------------------------|---|--------------|--|
|   | DUKE POWER C<br>ISI LIMITATION |   |              | Revision 1   |
| Component/Weld ID: 2PZR-W1                | lte                            | em No: B03.110.001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

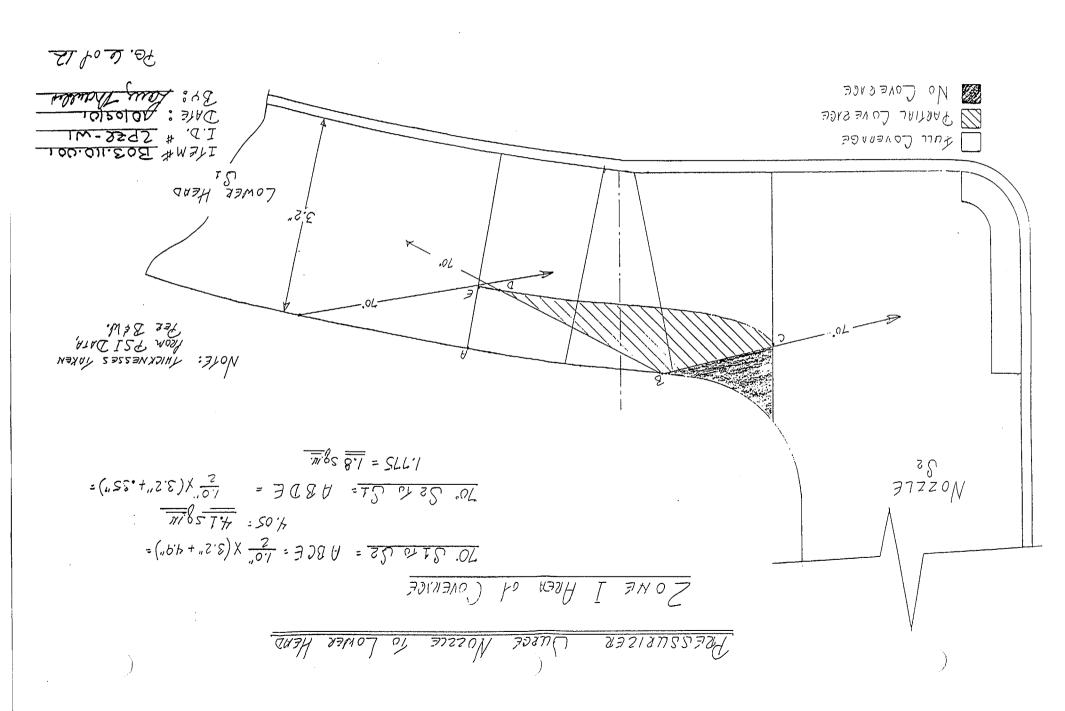
| DUKE POWER COMPANY   |  |   |   |   |   |   | NDE-91-1         |
|--|--|---|---|---|---|---|------------------|
| Limited Examination Coverage Worksheet   |  |   |   |   |   |   | Revision 0       |
|  |  |   | Examinatio  | on Volume/A   | rea Defined   |   |                  |
| 🗆 Bas  | Base Metal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

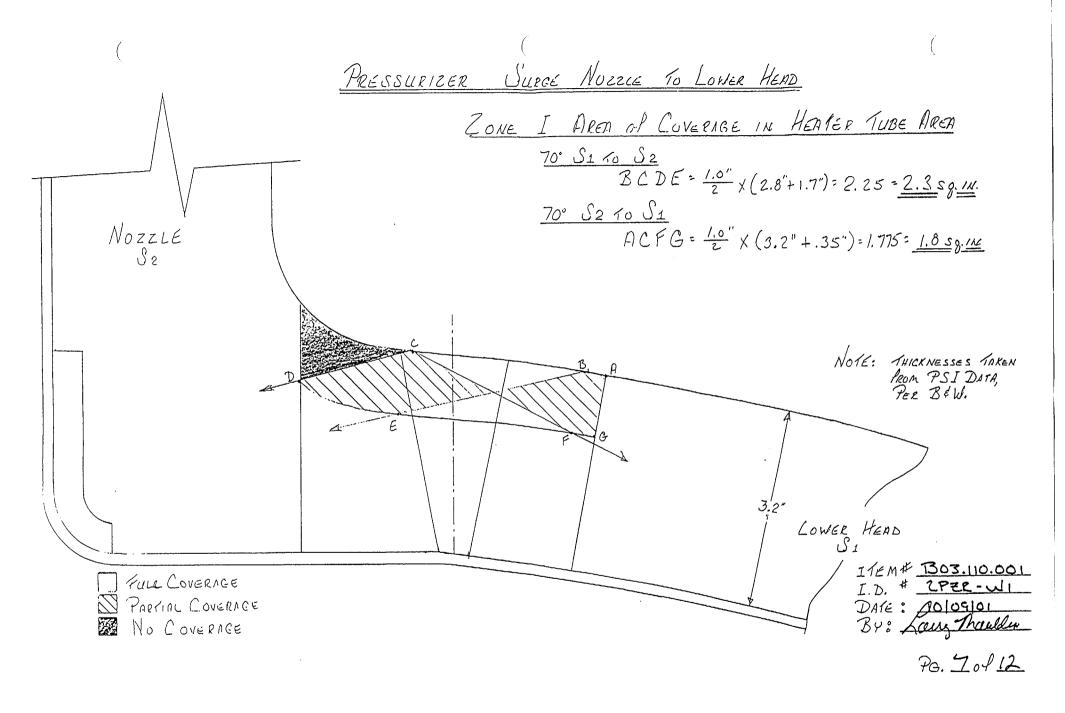
|     | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ |        |     | Item No: | B03.110.001     |
|-----|---|--------|-----|----------|-----------------|
| (L. | Prepared By: Larry Mauldin Law Mauldun  | Level: | 111 |          | Date: 10/9/2001 |
| X   | Reviewed By: Say Moss                   | Level: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

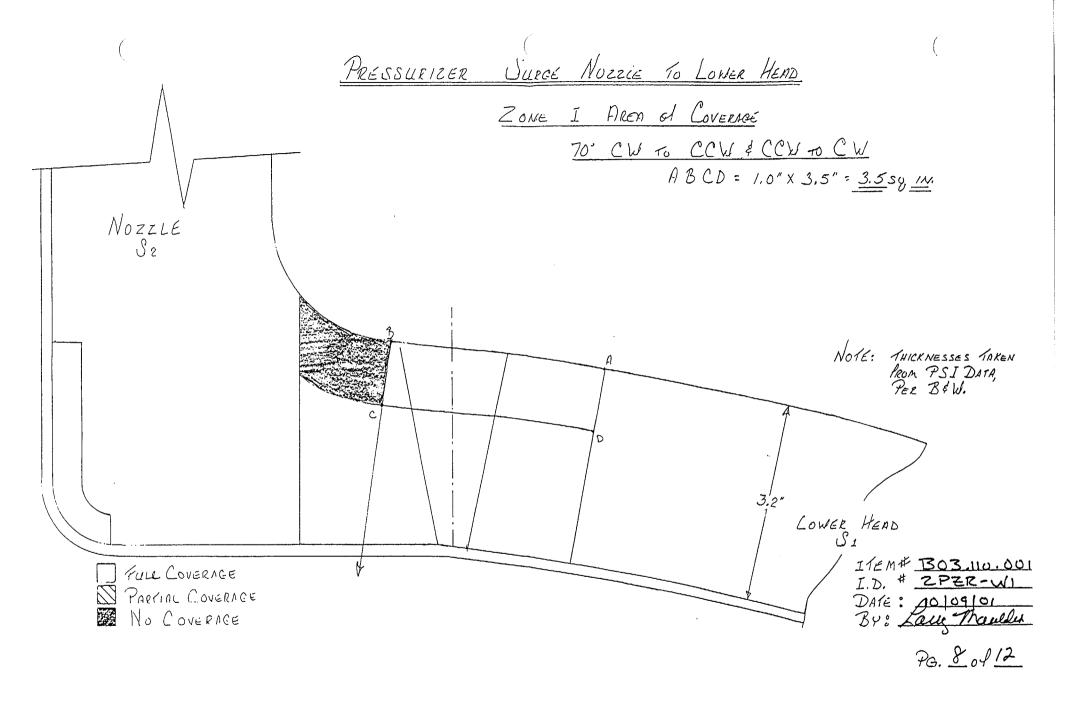
| DUKE POWER COMPANY   |                                 |                                |   |                    | NDE-91-1                       |                       |      |                  |
|--|---------------------------------|--------------------------------|---|--------------------|--------------------------------|-----------------------|------|----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

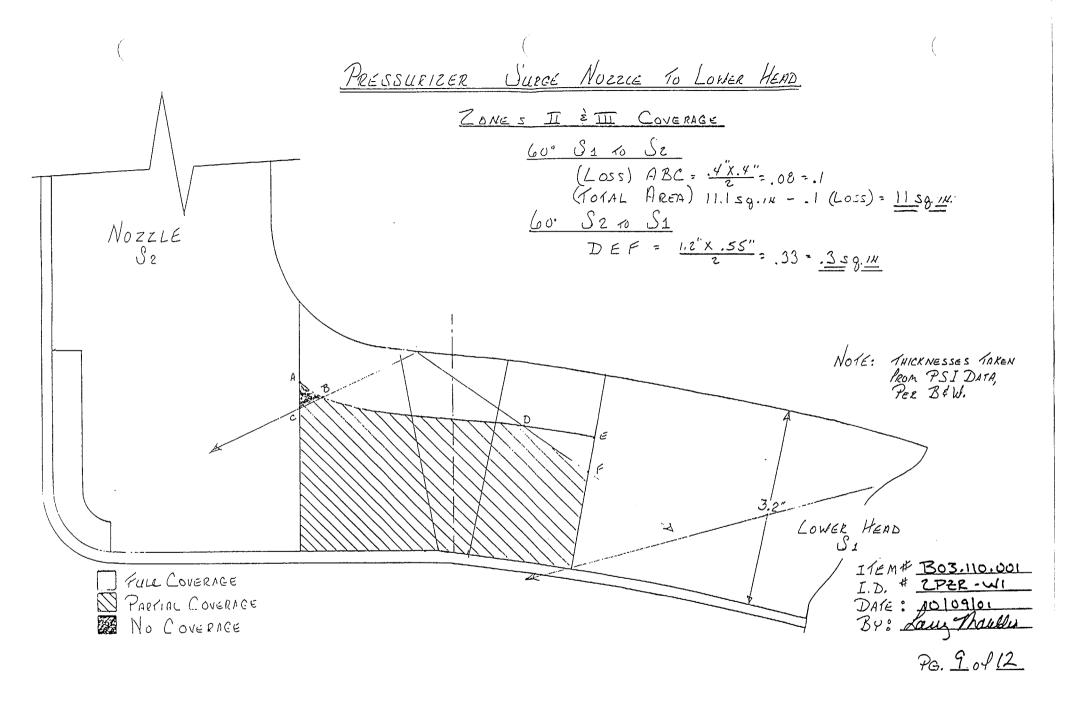
|            |  |            | Item No: B03.110.001 |
|------------|--|------------|----------------------|
| 5          | Prepared By: Larry Mauldin Law Mauldun | Level: III | Date: 10/9/2001      |
| 2)<br>2017 | Reviewed By: Hay/Mors                  | Level: F   | Date: 10-11-01       |
| ya    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

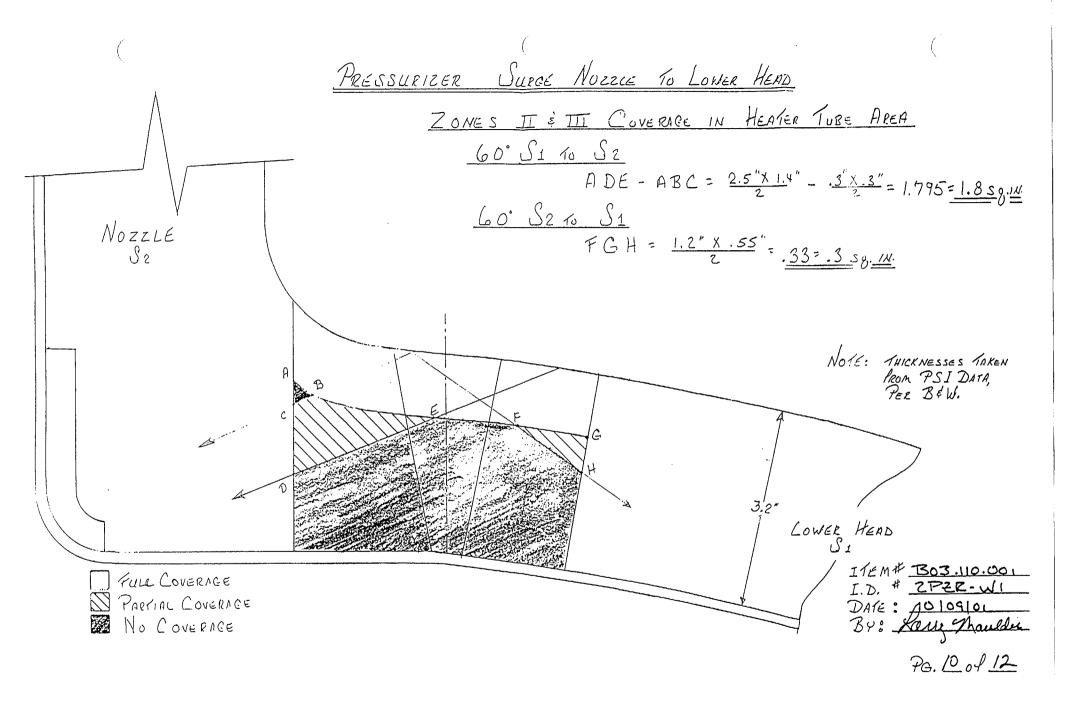


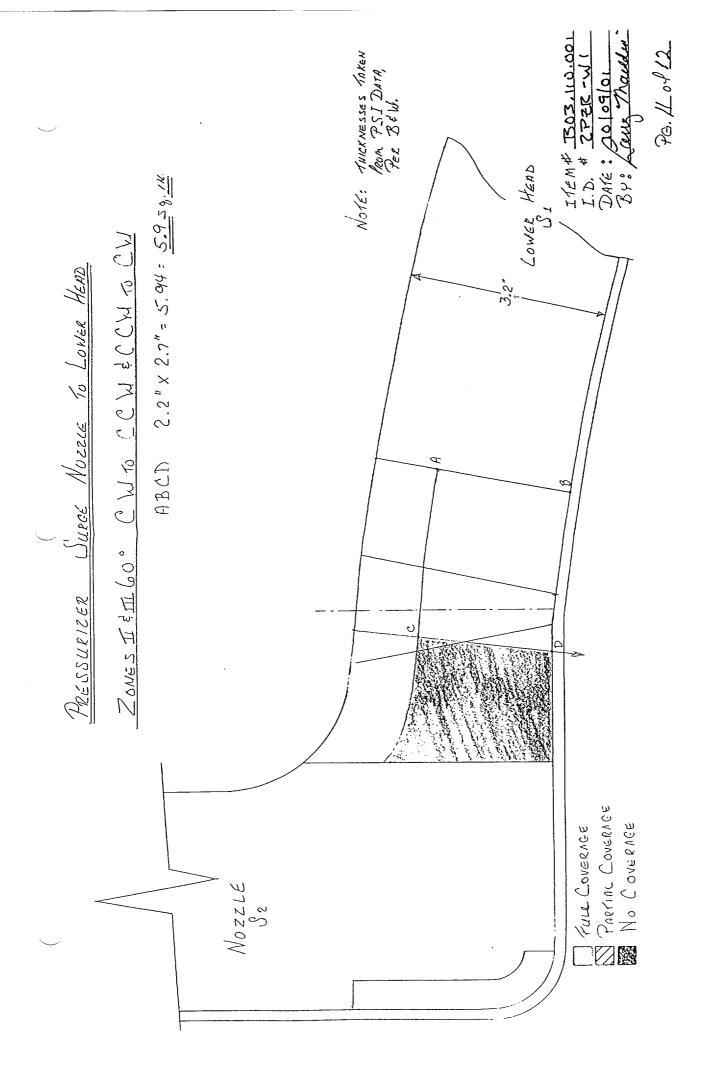


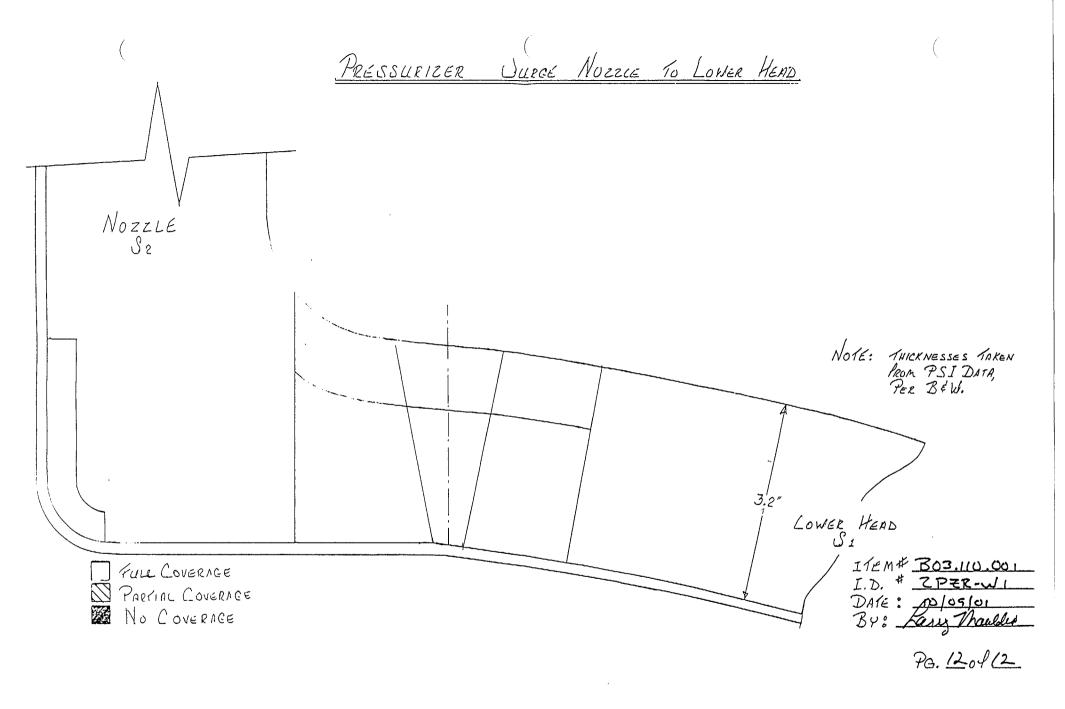












| DUK                                       | E POWER  | COMP                                 | ANY              |                                    | ·                                  | Exam St                            | art: 1                             | 040          | Form                  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

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

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

.

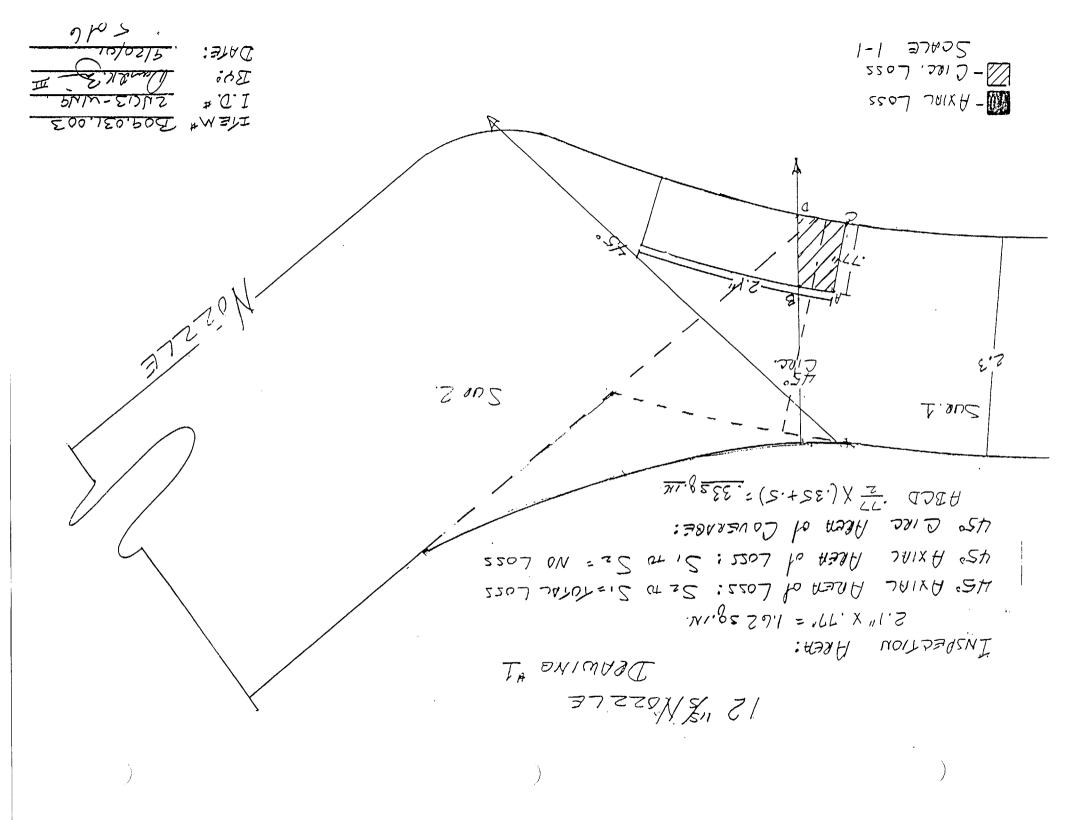
|   | DUKE POWER COMPANY |                   |                              |                    |        |                                |                      |       | NDE-91-1         |  |
|---|--------------------|-------------------|------------------------------|--------------------|--------|--------------------------------|----------------------|-------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

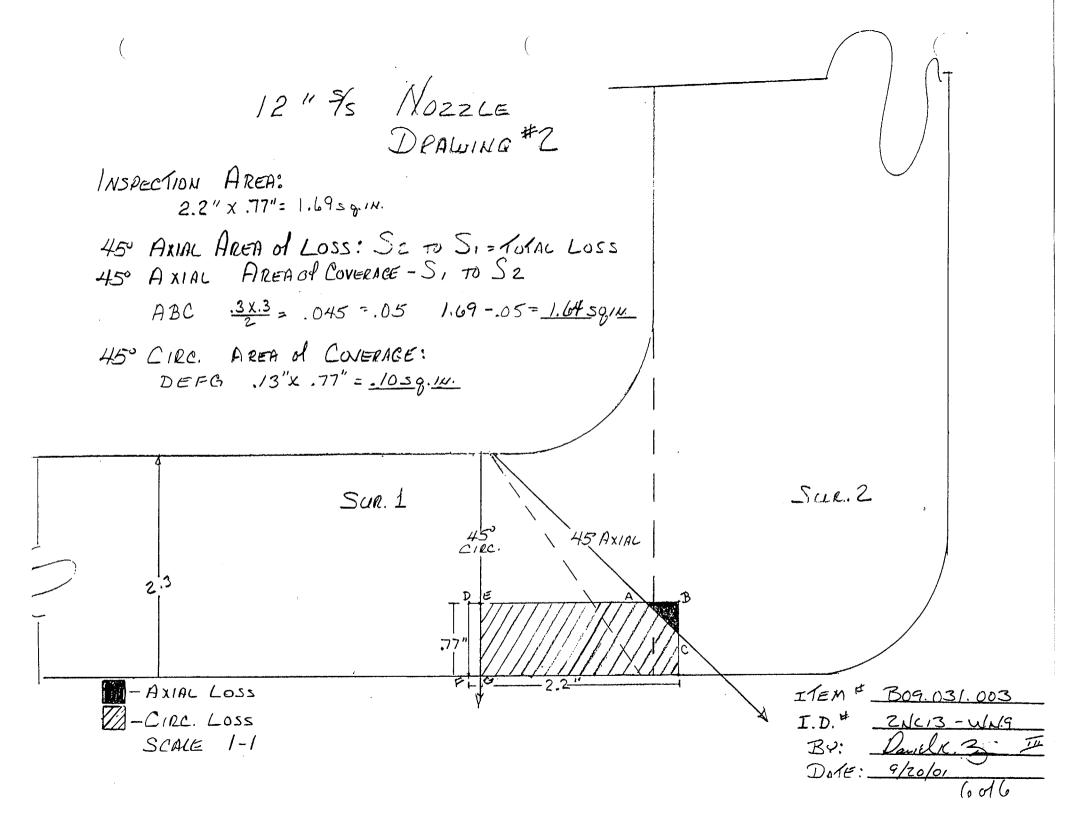
|                      | Item No:   | B09.031.003   |
|----------------------|------------|---------------|
| Prepared By: Darkk 2 | Level: 111 | Date: 9/20/01 |
| Reviewed By: Mauldup |            | Date: 9.21.01 |
|                      |            |               |

 $\overline{\phantom{a}}$ 

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

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





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

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

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

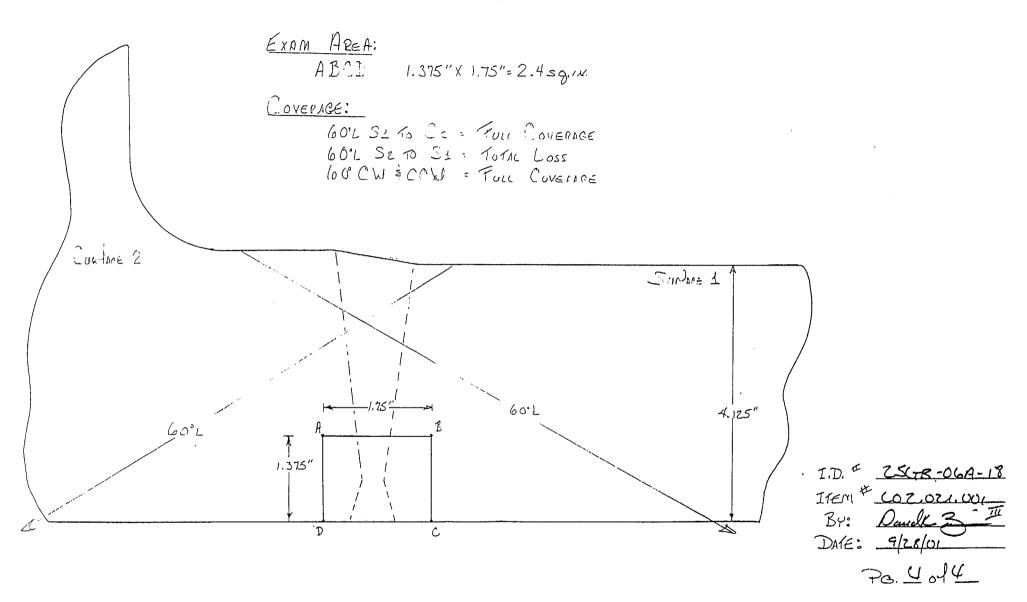
|          | DUKE POWER COMPANY<br>Limited Examination Coverage Worksheet |                   |                              |                     |         |                                |                      |       | NDE-91-1         |
|----------|--|-------------------|------------------------------|---------------------|---------|------------------------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

|                                 | Item No:   | C02.021.001     |
|---------------------------------|------------|-----------------|
| Prepared By: David K. Zimmerman | Level: III | Date: 9/28/1901 |
| Reviewed By: Larry Mauldin      |            | Date: /0-02-01  |
| )                               |            |                 |

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## 30/4

## AUXILLAR. (. EDWATER NOZZLE



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

\* FROM TOE OF WELD

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

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

|         | ( |  |
|---------|---|--|
| · ····. |   |  |

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

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

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

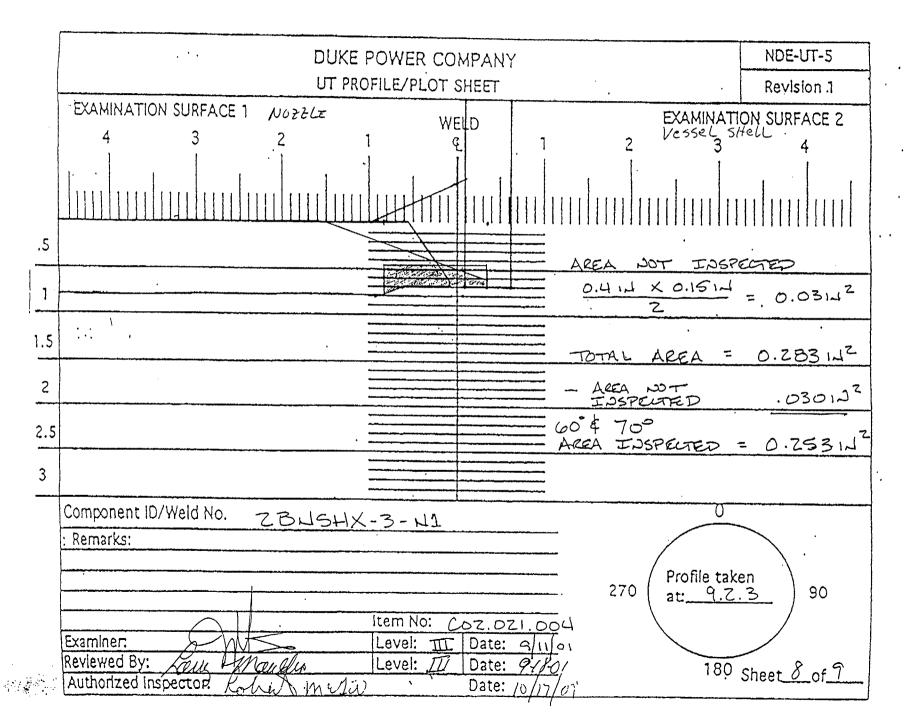
|  |          |                   | NDE-91-1                     |                     |        |                                |                      |        |                  |
|--|----------|-------------------|------------------------------|---------------------|--------|--------------------------------|----------------------|--------|------------------|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

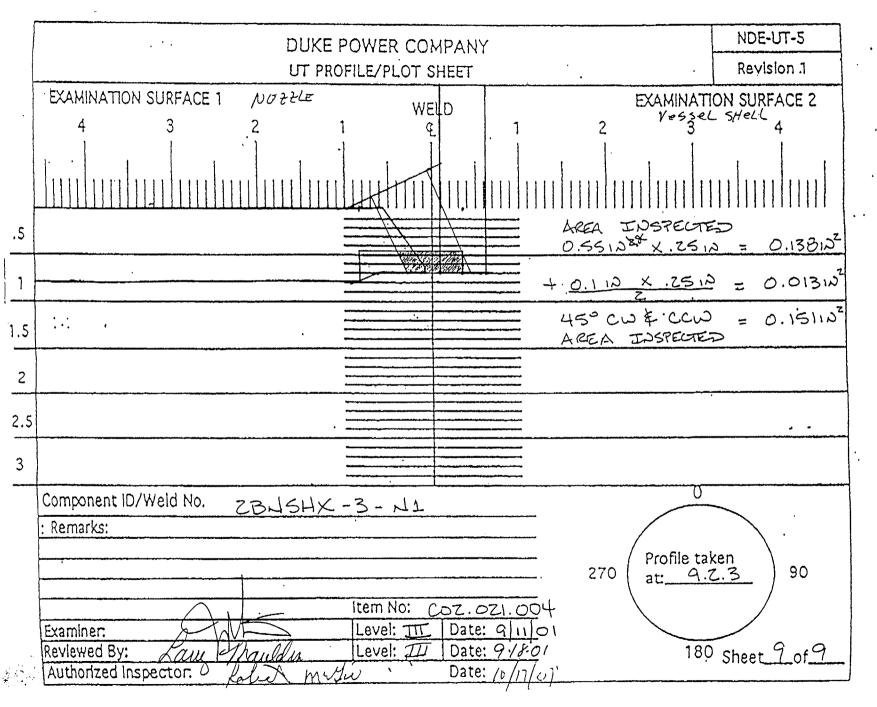
|   |                        |         | Item No           | c C02.021.004   |
|---|------------------------|---------|-------------------|-----------------|
| 6 | Prepared By: JAY EATON | Atto    | Level: III        | Date: 9/11/2001 |
| Ð | Reviewed By:           | Maully. | Level: <u>///</u> | Date: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

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

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

## \* FROM TOE OF WED

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

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

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

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

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

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

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

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

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

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