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Serial: RA-23-0230
September 25, 2023

United States Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Catawba Nuclear Station, Unit No. 1
Docket No. 50-413 / Renewed License No. NPF-35

Subject: Catawba Unit 1, Refuel 27 (C1R27) Inservice Inspection (ISI) Report

Ladies and Gentlemen:

In accordance with Section XI of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Duke Energy is providing its Inservice Inspection (ISI) Summary Report for Catawba Nuclear Station, Unit No. 1, Refuel 27 (C1R27).

The enclosure contains the C1R27 Owner's Activity Summary Report.

This submittal contains no regulatory commitments. Should you have any questions concerning this letter, or require additional information, please contact Ryan Treadway, Director – Nuclear Fleet Licensing, at 980-373-5873.

Sincerely,

A handwritten signature in blue ink, appearing to be 'KME', written over a circular scribble.

Kevin M. Ellis
General Manager, Nuclear Regulatory Affairs, Policy & Emergency Preparedness

Enclosure:
Owner's Activity Report for Refueling Outage 27

NDE

cc: (w/ enclosure)

S. Williams, NRC Project Manager, NRR

L. Dudes, NRC Regional Administrator, Region II

D. Rivard, NRC Senior Resident Inspector, Catawba Nuclear Station

Enclosure
Serial: RA-23-0230

Enclosure

Owner's Activity Summary Report for Refueling Outage C1R27

DUKE ENERGY

**INSERVICE INSPECTION SUMMARY REPORT UNIT 1 CATAWBA SPRING 2023
REFUELING OUTAGE
C1R27 (Outage 6)**

Location: 4800 Concord Road, York, SC, 29745

NRC Docket No. 50-413

Commercial Service Date: June 29, 1985

***Owner: Duke Energy
526 South Church St.
Charlotte, NC 28201-1006***

Revision 0

Originated By:

Austin C. Keller

Digitally signed by ACKell1
(365600)
Date: 2023.08.17 08:27:56 -04'00'

Checked By:

Kaitlyn Sullivan

Austin C. Keller

Digitally signed by KASull1 (524967)
Date: 2023.08.17 09:29:46 -04'00'

Approved By:

MAP9681 (102140)

Kaitlyn Sullivan

Digitally signed by MAP9681
(102140)
Date: 2023.09.05 23:51:05 -04'00'

Mark A. Pyne

FORM OAR-1 OWNER'S ACTIVITY REPORT

Report Number Owner's Activity Report for Refueling Outage C1R27

Plant Catawba Nuclear Station, 4800 Concord Road, York, SC 29745

Unit No. 1 Commercial service date June 29, 1985 Refueling outage no. C1R27
(if applicable)

Current inspection interval Fourth Inspection Interval (ISI), Third Inspection Interval (Containment ISI)
(1st, 2nd, 3rd, 4th, other)

Current inspection period Third Inspection Period (ISI and Containment ISI)
(1st, 2nd, 3rd)

Edition and Addenda of Section XI applicable to the inspection plans 2007 Edition with 2008 Addenda
2017 & 2019 Editions (See Attachment A)

Date and revision of inspection plans See Attachment A

Edition and Addenda of Section XI applicable to repair/replacement activities, if different than the inspection plans Same as above

Code Cases used for inspection and evaluation: The following Code Cases are permitted by the Augmented ISI, ISI, and Pressure Test Plans, 4th Interval: N-513-3, N-532-5, N-586-1, N-600, N-613-1, N-639, N-643-2, N-648-2, N-651, N-705, N-712, N-716-1, N-722-1, N-729-6, N-731, N-735, N-747, N-751, N-765, N-770-5, N-771, N-775, N-776, N-786-1, N-798, N-800, N-805, N-823, N-825, N-843, N-845, & N-854
(if applicable)

CERTIFICATE OF CONFORMANCE

I certify that (a) the statements made in this report are correct; (b) the examinations and tests meet the Inspection Plan as required by the ASME Code, Section XI; and (c) the repair/replacement activities and evaluations supporting the completion of C1R27 conform to the requirements of Section XI.
(refueling outage number)

Signed *Austin C. Keller* Digitally signed by ACKell1 (365600) Date: 2023.08.17 08:27:45 -04'00' Austin C. Keller, ISI Program Owner Date 8/17/2023

CERTIFICATE OF INSERVICE INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and the State or Province of South Carolina and employed by Bureau Veritas Inspection and Insurance Company of Lynn, MA have inspected the items described in this Owner's Activity Report, and state that, to the best of my knowledge and belief, the Owner has performed all activities represented by this report in accordance with the requirements of Section XI.

By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the repair/replacement activities and evaluation described in this report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

DMMalle (457903) Digitally signed by DMMalle (457903) Date: 2023.09.11 16:30:53 -04'00' Commissions NB# 15196 AI, IS, I, N, R; SC 363
Inspector's Signature Dustin Mallet National Board, State, Province, and Endorsements

Date 09/11/2023

Attachment A

Catawba Unit 1 Refueling Outage 27, Inservice Inspection Report

The Catawba Nuclear Station Unit 1 Fourth Ten Year Inservice Inspection (ISI) Plan complies with 10CFR50.55a(g), which implements, by reference, the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, 2007 Edition with 2008 Addenda.

- Per RIS 2004-12, Letter RA-20-0262, NRC Accession Number ML20260H325 and approval NRC Accession Number ML20300A206, the NRC staff concluded that the use of subparagraph IWA-4540(b) of the 2017 Edition of the ASME B&PV Code, Section XI, is acceptable for Catawba Unit 1.
- Per RIS 2004-16, Letter RA-20-0263, NRC Accession Number ML20260H326 and approval NRC Accession Number ML21113A013, the NRC staff concluded that the use of subparagraph IWA-4340 of the 2017 Edition of the ASME B&PV Code, Section XI, is acceptable for Catawba Unit 1.
- Per RIS 2004-12, Letter RA-20-0191, NRC Accession Number ML20265A028 and approval NRC Accession Number ML21029A335, the NRC staff concluded that the use of paragraphs IWA-5120, IWA-5213, IWA-5241, IWA-5242, and IWA-5250 of the 2017 Edition of the ASME B&PV Code, Section XI, is acceptable for Catawba Unit 1.
- Per RIS 2004-12, Letter RA-23-0001, NRC Accession Number ML23033A037 and approval NRC Accession Number ML23118A076, the NRC staff concluded that the use of paragraph IWA-6230(b) of the 2019 Edition of the ASME B&PV Code, Section XI, is acceptable for Catawba Unit 1.

This summary report is being submitted pursuant to the reporting requirements of ASME Section XI, IWA-6000 as amended by ASME Code Case N-532-5, "Repair/Replacement Activity Documentation Requirements and Inservice Inspection Summary Report Preparation and Submission Section XI, Division 1".

Contained within this summary report are the form OAR-1 (Owner's Activity Report) and Tables 1 and 2 of Code Case N-532-5 for Catawba Nuclear Station during cycle 27 and Refueling Outage 27 (C1R27). C1R27 is the first outage of the third ISI period in the fourth inspection interval. C1R27 is the first outage of the third Containment period in the third inspection interval. This report includes all Repair/Replacement activities from November 4, 2021 through May 28, 2023 cycle 27.

Date and Revision of Inservice Inspection Plans:

I. Fourth Interval Inservice Inspection Plans

1. The following documents comprise the Catawba Nuclear Station 4th Interval Inservice Inspection Plan for CNS Unit 1 (Class 1, 2, and 3 Components):
 - a. Catawba Nuclear Station Units 1 and 2 Fourth Interval Inservice Inspection Plan, Document #CISI-1462.10-0040-ISI PLAN, Rev. 8, dated 03/08/2022.
 - b. Fourth Interval Inservice Inspection Outage Schedule Catawba Nuclear Station Unit 1, Document #CISI-1462.10-0040-UNIT 1, Rev. 4, dated 03/01/2022.
2. The following document comprises the Catawba Nuclear Station 4th Interval Inservice Inspection Pressure Test Plan for CNS Unit 1:
 - a. Catawba Nuclear Station Units 1 and 2 Fourth Inspection Interval Inservice Inspection Pressure Test Plan, Document #CISI-1462.20.0040 - PTPlan, Rev. 5, dated 01/19/2023.

II. Fourth Interval Augmented Inservice Inspection Plan

1. The following document comprises the Catawba Nuclear Station 4th Interval Augmented Inservice Inspection Plan and Schedule for Unit 1:
 - a. Catawba Nuclear Station Units 1 and 2 - Augmented Inservice Inspection Plan and Schedule, Document #CISI-1462.10-0030-AUGISI-U1&U2, Rev. 9, dated 01/31/2023.

III. Third Interval Containment Inservice Inspection Plan

1. The following document comprises the Catawba Nuclear Station 3rd Interval Containment Inservice Inspection Plan for Unit 1 (Class MC):
 - a. Catawba Nuclear Station Units 1 and 2 - Third Interval Containment Inservice Inspection Plan, Document #CN-ISIC3-1042-0001, Rev. 12, dated 01/23/2023.

**TABLE 1
ITEMS WITH FLAWS OR RELEVANT CONDITIONS THAT REQUIRED EVALUATION FOR
CONTINUED SERVICE**

Examination Category and Item Number	Item Description	Evaluation Description
B-P / B15.10	Relevant Condition discovered on 1A and 1D Reactor Coolant Pump Seal Areas	Relevant Condition evaluated for Corrective Action per IWA-5251 and Accepted by IWB-3142.3, Corrective Measures. NCR 02474185
C-H / C7.10	Relevant Condition discovered on 1ND-110	Relevant Condition evaluated for Corrective Action per IWA-5250 and Accepted by IWB-3142.3, Corrective Measures. NCR 02474015
C-H / C7.10	Relevant Condition discovered on 1ND-9 MJ-1	Relevant Condition evaluated for Corrective Action per IWA-5251 and Accepted by IWB-3142.3, Corrective Measures. NCR 02470816
C-H / C7.10	Relevant Condition discovered on 1ND-1 MJ-2	Relevant Condition evaluated for Corrective Action per IWA-5251 and Accepted by IWB-3142.3, Corrective Measures. NCR 02470816
C-H / C7.10	Relevant Condition discovered on 1ND-1 MJ-1	Relevant Condition evaluated for Corrective Action per IWA-5251 and Accepted by IWB-3142.3, Corrective Measures. NCR 02470816
C-H / C7.10	Relevant Condition discovered on 1NV-91B	Relevant Condition evaluated for Corrective Action per IWA-5251 and Accepted by IWB-3142.3, Corrective Measures. NCR 02470816
C-H / C7.10	Relevant Condition discovered on 1B-ND-HX	Relevant Condition evaluated for Corrective Action per IWA-5251 and Accepted by IWB-3142.3, Corrective Measures. NCR 02470816
D-B / D2.10	Relevant Condition discovered on 1KF-21	Relevant Condition evaluated for Corrective Action per IWA-5251 and Accepted by IWB-3142.3, Corrective Measures. NCR 02472073

**TABLE 2
ABSTRACT OF REPAIR/REPLACEMENT ACTIVITIES REQUIRED FOR CONTINUED SERVICE**

Code Class	Item Description	Description of Work	Date Completed	Repair / Replacement Plan Number
1	1NC-HX-C	1C Steam Generator Tube Plugging	5/7/2023	20553994-07
3	1EQC DE B	Replace turbo KD outlet connectors due to through wall leakage	1/29/2022	20473011-01,-02,-11,-12