



Thomas D. Ray, P.E.
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Serial: RA-21-0342
January 10, 2022

10 CFR 50.55a

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

MCGUIRE NUCLEAR STATION, UNIT NO.2
DOCKET NO. 50-370 / RENEWED LICENSE NUMBER NPF-17

**SUBJECT: McGuire Nuclear Station Unit 2, End of Cycle 27 (M2R27) Inservice
Inspection Summary Report**

Pursuant to the reporting requirements of American Society of Mechanical Engineers (ASME) Section XI, as amended by ASME Code Case N-532-5, Duke Energy Carolinas, LLC (Duke Energy) hereby submits the Inservice Inspection Summary Report for the McGuire Nuclear Station (MNS) Unit 2 outage M2R27.

This submittal contains no regulatory commitments.

Should you have any questions concerning this letter, or require additional information, please contact Mr. Lee Grzeck, Nuclear Fleet Licensing Manager (Acting), at 980-373-1530.

Sincerely,

Thomas D. Ray, P.E.
Site Vice President
McGuire Nuclear Station

Enclosure:

Inservice Inspection Summary Report Unit 2 McGuire Fall 2021 Refueling Outage
M2R27

cc: (with enclosure)

J. Klos, NRC Project Manager, NRR
L. Dudes, NRC Regional Administrator, Region II
A. Hutto, NRC Senior Resident Inspector

U.S. Nuclear Regulatory Commission
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Enclosure

**Inservice Inspection Summary Report Unit 2 McGuire Fall 2021 Refueling Outage
M2R27**

FORM OAR-1 OWNER'S ACTIVITY REPORT

Report Number _____ Owner's Activity Report for Refueling Outage M2R27

Plant _____ McGuire Nuclear Station, 12700 Hagers Ferry Rd, Huntersville, NC 28078-9340

Unit No. 2 Commercial service date 03/01/1984 Refueling outage no. M2R27
(if applicable)

Current inspection interval ISI-4th, Containment-3rd
(1st, 2nd, 3rd, 4th, other)

Current inspection period ISI-3rd, Containment-3rd
(1st, 2nd, 3rd)

Edition and Addenda of Section XI applicable to the inspection plans 2007 edition with 2008 addenda
2017 edition (see attachment)

Date and revision of inspection plans See attachment

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

Code Cases used for inspection and evaluation: The following Code Cases are permitted by the ISI Plans: N-513-4, N-526, N-532-5, N-586-1, N-600, N-613-2, N-639, N-643-2, N-648-2, N-651, N-705, N-706-1, N-712, N-716-1, N-722-1, N-729-6, N-731, N-735, N-747, N-765, N-770-5, N-771, N-775, N-776, N-786-1, N-798, N-800, N-805, N-823-1, N-825, and N-845.
(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 M2R27 conform to the requirements of Section XI.
(refueling outage number)

Signed Jim Boughman Digitally signed by JMB9947
(107526)
Date: 2021.11.08 10:32:11
-05'00'
Date 11/8/2021
Jim Boughman, ISI Program Owner

CERTIFICATE OF INSERVICE INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and the State or Province of North Carolina and employed by OneCIS 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.

Jerome F Swan Digitally signed by JFSwan (245816)
DN: dc=com, dc=duke-energy, dc=ent,
dc=nam, ou=Accounts, ou=Personal,
ou=PKITransitional, cn=JFSwan (245816),
email=Jerome.Swan@duke-energy.com
Date: 2021.12.29 21:08:44 -05'00'
Adobe Acrobat version: 2017.011.30204
Commissions NB 11473 I,N,NS,NSI,R
Inspector's Signature Jerome F Swan ANHS OneCIS Insurance
Date 12-29-2021
National Board, State, Province, and Endorsements

ATTACHMENT

McGuire Unit 2 End of Cycle 27 Inservice Inspection Report

The McGuire Nuclear Station Unit 2 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 McGuire Unit 2.
- 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 McGuire Unit 2.
- 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 McGuire Unit 2.

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 McGuire Nuclear Station during cycle 27 and Refueling Outage 27 (M2R27). M2R27 is the first outage of the third ISI period in the fourth inspection interval. M2R27 is the first outage of the third Containment period in the third inspection interval. This report includes all Repair/Replacement activities from April 13, 2020 through October 11, 2021, cycle 27.

Date and Revision of Inservice Inspection Plans:

Fourth Interval Inservice Inspection Plans

The following document comprises the McGuire Nuclear Station 4th Interval Inservice Inspection Plan for Unit 2 (Class 1, 2, and 3 Components):

- "Fourth Interval Inservice Inspection Plan - McGuire Nuclear Station Units 1 and Unit 2", Document MISI-1462.10-0040-ISIPLAN, Rev 1, dated 04/30/2021.
- "Fourth Ten-Year Interval Inservice Inspection Schedule McGuire Nuclear Station Unit 2", Document MISI-1462.10-0040-Unit 2 Schedule, Rev. 1, dated 4/20/2021.

The following document comprises the McGuire Nuclear Station 4th Interval Inservice Inspection Pressure Test Plan for Unit 2:

- "McGuire Nuclear Station Fourth Inspection Interval Inservice Inspection Pressure Test Plan", Document MISI-1462.20-0040-PTPLAN, Rev 5, dated 6/18/2021.

Containment Inservice Inspection Plan

The following document comprises the McGuire Nuclear Station 3rd Interval Containment Inservice Inspection Plan for Unit 2 (Class MC):

- “McGuire Nuclear Station - Third Interval Containment Inservice Inspection Plan - Containment-Units 1 & 2”, Document #MC-ISIC3-1042-0001, Rev. 9, dated 10/19/2021.

Augmented ISI Plan

The following document comprises the McGuire Nuclear Station 4th Interval Augmented Inservice Inspection Plan and Schedule for Unit 2:

- “McGuire Nuclear Station – Fourth Interval Augmented Inservice Inspection Plan and Schedule”, Document MISI-1462.10-0040AUGISI-U1&U2, Rev. 5, dated 12/11/2019.

McGuire Nuclear Unit 2
Form OAR-1 Owner's Activity Report

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 Pressurizer Relief Valve 2NC-2	Component evaluated per IWB-3142.4 and IWA-5251 by Engineering and found to be acceptable - NCR 02397741
B-P / B15.10	Relevant Condition discovered on 2A Reactor Coolant Pump	Component evaluated per IWB-3142.4 by Engineering and found to be acceptable - NCR 02401051
B-P / B15.10	Relevant Condition discovered on pipe cap downstream of valve 2NC-115	Component evaluated per IWB-3142.4 by Engineering and found to be acceptable - NCR 02401051
B-P / B15.10	Relevant Condition discovered on Incore Thimble Tubing D10-211	Component evaluated per IWB-3142.4 by Engineering and found to be acceptable - NCR 02401051
Aug / B4.10	During the visual examination of the outside surface of the Reactor Vessel Upper Head Penetrations and the Head exterior (Code Case N-729-6 examinations) , evidence of indeterminate material was identified on the crevice to nozzle interface at penetration numbers 8, 14, 16, 17, 21, 23, 30, 32, 33,34,35 ,37, 38, 39, 40, 41, 44, 45, 46, 47, 49, 50, 53, 56, 58, 61, 67, 70, 71, 72, 73, and 77.	Component evaluated per IWB-3142.4 by Engineering. The indeterminate material was analyzed and determined to be non-relevant. The examination was found to be acceptable - NCR 02398114
C-H / C7.10	Relevant Condition discovered at pipe cap downstream of valve 2NM-196	Component evaluated per IWC-3132.3 by Engineering and found to be acceptable - NCR 02401051
C-H / C7.10	Relevant Condition discovered at pipe cap downstream of valve 2NM-206	Component evaluated per IWC-3132.3 by Engineering and found to be acceptable - NCR 02401051
F-A / F1.20B	Gap between concrete ceiling and Class 2 NS System support base plate. Comp ID: 2MCA-NS-5307, Summary Number M2-06615	Component evaluated per IWF-3122.3 by Engineering and found to be acceptable - NCR 02397215
E-G / E8.10	Damaged lock washers for 2-PENE-E252 Penetration Bolting	Component evaluated per IWE-3122.3 by Engineering and found to be acceptable - NCR 02398853

Table 2
Abstract of Repair/Replacement Activities Required for Continued Service

Code Class	Item Description	Description of Work	Date Completed	Repair / Replacement Plan Number
3	Valve 2RN-190B	Repair pinhole leaks on downstream weld of 2RN-190B - NCR 02390752	9/24/2021	WO: 020481430-01