



Brunswick Nuclear Plant
8470 River Rd SE
Southport, NC 28461

June 19, 2024

Serial: RA-24-0164

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Subject: Brunswick Steam Electric Plant, Unit No. 1
Renewed Facility Operating License No. DPR-71
Docket No. 50-325
Inservice Inspection Program Owner's Activity Report for Unit 1 Refueling
Outage 25

Ladies and Gentlemen:

Duke Energy Progress, LLC (Duke Energy), is enclosing an American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, Form OAR-1 Owner's Activity Report, for the Brunswick Steam Electric Plant (BSEP), Unit No. 1. The report covers inspection activities performed during Brunswick Unit 1 Refueling Outage 25 (i.e., B1R25) for the second inspection period of the fifth inservice inspection interval.

No regulatory commitments are contained in this letter. Please refer any questions regarding this submittal to Mr. Stephen Yodersmith, Brunswick Regulatory Affairs, at (910) 832-2568.

Sincerely,

A handwritten signature in black ink, appearing to read 'Mark R. DeWire', written over a horizontal line.

Mark R. DeWire
Manager – Nuclear Support Services
Brunswick Steam Electric Plant

Enclosure: Form OAR-1 Owner's Activity Report

cc (with Enclosure):

Ms. Laura Dudes, NRC Regional Administrator, Region II
Mr. Luke Haeg, NRC Project Manager
Mr. Gale Smith, NRC Senior Resident Inspector

Mr. Donald Kinney, North Carolina Department of Labor, Boiler Safety Bureau Chief
Mr. Paul Arnett, Authorized Nuclear Inservice Inspector (ANII)

Form OAR-1 Owner's Activity Report

DUKE ENERGY

**INSERVICE INSPECTION SUMMARY REPORT
UNIT 1 BRUNSWICK NUCLEAR PLANT
2024 REFUELING OUTAGE – B1R25**

5th INTERVAL – 2nd PERIOD – 1st REFUELING OUTAGE

Location: 8470 River Road SE, Southport, North Carolina, 28461

Commercial Service Date: March 18, 1977

NRC Docket No. 50-325

**Owner: Duke Energy
Charlotte, NC**

Revision 0

Originated:	<u>Stephen L Mays</u> (PRINT NAME)	<u><i>Stephen L Mays</i> 6/12/2024</u> (SIGNATURE & DATE)
Checked By:	<u>Angela Staller</u> (PRINT NAME)	<u><i>Angela Staller</i> 6/13/2024</u> (SIGNATURE & DATE)
Approved By:	<u>Mark Pyne</u> (PRINT NAME)	<u>MAP9681 (102140)</u> (SIGNATURE & DATE)

Digitally signed by
MAP9681 (102140)
Date: 2024.06.13 08:53:11
-04'00'

FORM OAR-1 OWNER'S ACTIVITY REPORT

Report Number B1R25 OAR-1 Form

Plant Brunswick Steam Electric Plant (BSEP)

Unit No. 1 Commercial service date March 18, 1977 Refueling Outage No. B1R25
(if applicable)

Applicable inspection interval Fifth Interval – Inservice Inspection and Pressure Test Plan
Third Interval – Containment (IWE/IWL) Inspection Plan
(1st, 2nd, 3rd, 4th, other)

Applicable inspection period Second Period
(1st, 2nd, 3rd)

Edition and Addenda of Section XI applicable to the inspection plans 2007 Edition with 2008 Addenda; and 2017 & 2019 Edition (see Attachment 1)

Date and revision of inspection plans See Attachment 1

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

Code Cases used for inspection and evaluation: N-432-1, N-513-3, N-516-5, N-526, N-552-1, N-561-2, N-561-3, N-562-2, N-586-1, N-597-2, N-600, N-606-1, N-613-2, N-639, N-648-1, N-648-2, N-661-2, N-702, N-705, N-711-1, N-716-1, N-730-1, N-733, N-735, N-740-2, N-747, N-765, N-771, N-786-1, N-789, N-789-3, N-795, N-798, N-800, N-831-1, N-845, N-858, N-864, and N885.
(if applicable, include cases modified by Case N-532 and later revisions)

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 B1R25 conform to the requirements of Section XI.
(refueling outage number)

Signed Stephen L Mays Stephen L Mays Date 6/12/2024
Owner or Owner's Designee, Title

CERTIFICATE OF INSERVICE INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and employed by Bureau Veritas Inspection and Insurance Company of Lynn, Maryland 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.

Paul P Arnett Commissions NB 13399 B, I, N, NS, NSI, R, NC
Inspector's Signature National Board, State, Province, and Endorsements

Date 6/17/2024

Attachment 1

Brunswick Unit 1 Refueling Outage 25 Inservice Inspection Report

The Brunswick Steam Electric Plant, Unit 1, Fifth Ten-Year Interval Inservice Inspection (ISI) Plan and Third Ten-Year Containment Inservice Inspection (CISI) 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 through 2008 Addenda. The 2017 Edition of Section XI is applicable for IWA-4340, IWA-4540(b), IWA-5120, IWA-5213, IWA-5241, IWA-5242 and IWA-5250 in accordance with three RIS letters, ADAMS Accession Numbers ML21113A013, ML20300A206 and ML21029A335. The 2019 Edition of ASME Section XI is applicable for IWA-6230(b) in accordance with RIS Letter, ADAMS Accession Number ML23118A076.

Refueling Outage 25 (B1R25) is the only refueling outage of the second period in the fifth inspection interval for the Inservice Inspection and Pressure Testing programs and the only refueling outage of the second period in the third inspection interval of the Containment ISI program. See the table below for the dates and revisions of the inservice inspection plans.

Document Title	Document Number and Revision	Date of Issue
UNITS 1 & 2 FIFTH INTERVAL INSERVICE INSPECTION PLAN	BNP-PM5-002, Revision 3	December 6, 2022
UNIT 1 & 2 FIFTH INTERVAL INSERVICE INSPECTION SCHEDULE	BNP-PM5-003, Revision 3	December 6, 2022
FIFTH INTERVAL INSERVICE INSPECTION PRESSURE TEST PLAN AND SCHEDULE	BNP-PM5-005, Revision 3	February 7, 2023
AUGMENTED INSERVICE INSPECTION (AIS) PLAN AND SCHEDULE 5TH INSERVICE INSPECTION INTERVAL	BNP-PM5-010, Revision 5	January 24, 2024

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

Examination Category and Item Number	Item Description	Evaluation Description
R-A / R1.11/16 Augment / E-9 BWRVIP-75-A Category F	1B21N4D-5-SW2-3 Nozzle Safe End to Pipe Extension (DM)	Performed successive inspection of a previously identified weld flaw and evaluated as unchanged since its discovery in B1R22 (March 2018). No new weld flaws were identified during this successive examination. Engineering evaluated the weld flaw and determined that the current condition remains bounded by the existing flaw growth-rate analysis (ref.: EC 411734; SI Calc. 1800389.301). This weld is scheduled for successive examination during each refueling outage in accordance with regulatory commitment NRC GL 88-03 and BWRVIP-75-A, Category F.
E-A / E1.12	1-SC-ML-B1-BWL Shell Plate 01-06	Visual (VT-3) examination identified one (1) spot corrosive "pit" indication with substrate depth in the torus metallic liner exceeding acceptance criteria 84 mils (ref. BSEP 22-0308 Relief Request). This single corrosive "pit" indication was measured 140 mils actual metal loss and 1/4" wide. Evaluation determined that the minimum required thickness by design was not exceeded and found the discovered condition acceptable for continued service without corrective measures. The metallic liner protective coating was restored to arrest continued corrosive degradation. (ref. EC EVAL 423910 & 420060)
E-A / E1.12	1-SC-ML-B2-BWL Shell Plate 02-05	Visual (VT-3) examination identified one (1) spot corrosive "pit" indication with substrate depth in the torus metallic liner exceeding acceptance criteria 84 mils (ref. BSEP 22-0308 Relief Request). This single corrosive "pit" indication was measured 93.7 mils actual metal loss and 1/4" wide. Evaluation determined that the minimum required thickness by design was not exceeded and found the discovered condition acceptable for continued service without corrective measures. The metallic liner protective coating was restored to arrest continued corrosive degradation. (ref. EC EVAL 423910 & 420060)
E-A / E1.12	1-SC-ML-B3-BWL Downcomer 03-1A Downcomer 03-2A	Visual (VT-3) examination identified two (2) spot corrosive "pit" indication in steam header downcomers exceeding acceptance criteria. One corrosive "pit" indication was measured 75.7 mils metal loss on a weld seam of the downcomer. A second corrosive "pit" indication was measured 28.7 mils metal loss on top of the downcomer clamp. Evaluation determined discovered condition acceptable for continued service without corrective measures. The protective coating was restored to arrest continued degradation. (ref. EC EVAL 423910)

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	1-SW-5-20-157	Repair NSW Header Thru-Wall Leak (WO 20560022 & NCR 244298)	2/25/2024	20562607-01
3	1-VA-1B-FCU-RB	Weld Repair of Closure Head on RHR HX / HPCI Pump Room Cooler Unit	2/26/2024	20601321-17
3	1-SW-PS-2112-3	Replace support broken hold-down threaded rod and nuts	11/17/2023	20634543-01