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Sincerely,

*/RA/*

Stewart N. Bailey, Chief  
Reactor Projects Branch 4  
Division of Reactor Projects

Docket Nos. 05000324 and 05000325  
License Nos. DPR-62 and DPR-71

Enclosure:  
As stated

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SUBJECT: BRUNSWICK STEAM ELECTRIC PLANT – BIENNIAL PROBLEM  
 IDENTIFICATION AND RESOLUTION INSPECTION REPORT  
 05000324/2021012 AND 05000325/2021012 – DATED August 24, 2021

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OFFICE	RII/DRP	RII/DRP	RII/DRP	RII/DRP	RII/DRP
NAME	B. Towne	C. Safouri	D. Jackson	M. Donithan	S. Bailey
DATE	8/18/2021	8/19/2021	8/19/2021	8/17/2021	8/24/2021

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**U.S. NUCLEAR REGULATORY COMMISSION  
Inspection Report**

Docket Numbers: 05000324 and 05000325

License Numbers: DPR-62 and DPR-71

Report Numbers: 05000324/2021012 and 05000325/2021012

Enterprise Identifier: I-2021-012-0011

Licensee: Duke Energy Progress, LLC

Facility: Brunswick Steam Electric Plant

Location: Southport, SC

Inspection Dates: July 12, 2021 to July 30, 2021

Inspectors: C. Safouri, Senior Resident Inspector (Team Lead)  
D. Jackson, Senior Project Engineer  
M. Donithan, Operations Engineer  
B. Towne, Resident Inspector

Approved By: Stewart N. Bailey, Chief  
Reactor Projects Branch 4  
Division of Reactor Projects

Enclosure

## **SUMMARY**

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting a biennial problem identification and resolution inspection at Brunswick Steam Electric Plant, in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC's program for overseeing the safe operation of commercial nuclear power reactors. Refer to <https://www.nrc.gov/reactors/operating/oversight.html> for more information.

### **List of Findings and Violations**

No findings or violations of more than minor significance were identified.

### **Additional Tracking Items**

None.

## INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at <http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html>. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards. Starting on March 20, 2020, in response to the National Emergency declared by the President of the United States on the public health risks of the coronavirus (COVID-19), inspectors were directed to begin telework. In addition, regional baseline inspections were evaluated to determine if all or a portion of the objectives and requirements stated in the IP could be performed remotely. If the inspections could be performed remotely, they were conducted per the applicable IP. In some cases, portions of an IP were completed remotely and on site. The inspections documented below met the objectives and requirements for completion of the IP.

## OTHER ACTIVITIES – BASELINE

### 71152B - Problem Identification and Resolution

#### Biennial Team Inspection (IP Section 02.04) (1 Sample)

- (1) The inspectors performed a biennial assessment of the licensee's corrective action program, use of operating experience, self-assessments and audits, and safety conscious work environment.
  - Corrective Action Program Effectiveness: The inspectors assessed the corrective action program's effectiveness in identifying, prioritizing, evaluating, and correcting problems. The inspectors also conducted a five-year review of the aging management program. The inspectors also reviewed the corrective actions, open at the time of completion of the documented IP 95001 Supplemental Inspection (ADAMS Accession Number ML19289A011), dated October 16, 2019, associated with the Unit 1 Reactor Coolant System Leakage performance indicator crossing the green-to-white threshold in the Barrier Integrity Cornerstone. The inspectors verified these corrective actions had been completed as scheduled. However, the following corrective actions remained open and require subsequent NRC review: 2265623-37, EOC-AS4 (CORR); 2265623-38, EOC-AS5 (CORR); and 2265623-40, RC1-EREV2 (EREV).
  - Operating Experience, Self-Assessments and Audits: The inspectors assessed the effectiveness of the station's processes for use of operating experience, audits, and self-assessments.
  - Safety Conscious Work Environment: The inspectors assessed the effectiveness of the station's programs to establish and maintain a safety-conscious work environment.

## INSPECTION RESULTS

Assessment	71152B
<p>1. Corrective Action Program Effectiveness</p> <p>Problem Identification: The inspectors determined that the licensee was effective in identifying problems and entering them into the corrective action program and there was a low threshold for entering issues into the corrective action program. This conclusion was based on a review of the requirements for initiating condition reports as described in licensee procedure AD-PI-ALL-0100, "Corrective Action Program," and management's expectation that employees were encouraged to initiate condition reports. Additionally, site management was actively involved in the corrective action program and focused appropriate attention on significant plant issues.</p> <p>Problem Prioritization and Evaluation: Based on the review of condition reports, the inspectors concluded that problems were prioritized and evaluated in accordance with the condition report significance determination guidance in procedure AD-PI-ALL-0100. The inspectors determined that adequate consideration was given to system or component operability and associated plant risk. The inspectors determined that plant personnel had conducted cause evaluations in compliance with the licensee's corrective action program procedures and cause determinations were appropriate, and considered the significance of the issues being evaluated.</p> <p>Corrective Actions: Based on a review of corrective action documents, interviews with licensee staff, and verification of completed corrective actions, the inspectors determined that corrective actions were timely, commensurate with the safety significance of the issues, and effective, in that conditions adverse to quality were corrected. For significant conditions adverse to quality, the corrective actions directly addressed the cause and effectively prevented recurrence. The inspectors reviewed condition reports and effectiveness reviews to verify that the significant conditions adverse to quality had not recurred. Effectiveness reviews for corrective actions to preclude repetition (CAPRs) were sufficient to ensure corrective actions were properly implemented and were effective.</p> <p>Based on the samples reviewed, the team determined that the licensee's corrective action program complied with regulatory requirements and self-imposed standards. The licensee's implementation of the corrective action program adequately supported nuclear safety.</p> <p>2. Operating Experience</p> <p>The inspectors determined that the station's processes for the use of industry and NRC operating experience information were effective and complied with all regulatory requirements and licensee standards. The implementation of these programs adequately supported nuclear safety. The inspectors concluded that operating experience was adequately evaluated for applicability and that appropriate actions were implemented to address lessons learned as needed.</p> <p>3. Self-Assessments and Audits</p> <p>The inspectors determined that the licensee was effective at performing self-assessments and audits to identify issues at a low level, properly evaluated those issues, and resolved them commensurate with their safety significance.</p>	

Self-assessments were generally detailed and critical. The inspectors verified that condition reports were created to document areas for improvement and findings resulting from self-assessments, as well as verified that actions had been completed consistent with those recommendations. Audits of the quality assurance program appropriately assessed performance and identified areas for improvement. Generally, the licensee performed evaluations that were technically accurate.

#### 4. Safety Conscious Work Environment

Based on interviews with plant staff and reviews of the latest safety culture survey results to assess the safety conscious work environment on site, the inspectors found no evidence of challenges to the safety conscious work environment. Employees appeared willing to raise nuclear safety concerns through at least one of the several means available.

### **EXIT MEETINGS AND DEBRIEFS**

The inspectors verified no proprietary information was retained or documented in this report.

- On July 30, 2021, the inspectors presented the biennial problem identification and resolution inspection results to John A. Krakuszeski and other members of the licensee staff.

**DOCUMENTS REVIEWED**

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71152B	Calculations	SA-E11-502	Stress Analysis for RHR Pumps 1B & 1D Discharge	5
	Corrective Action Documents	Nuclear Condition Reports (NCRs)	2281389, 2284206, 2287386, 2293843, 2304996, 2305838, 2332592, 2335949, 2349867, 2351669, 2269646, 2271658, 2274560, 2278424, 2279743, 2282484, 2282721, 2291142, 2344012, 2374676, 2281669, 2281677, 2285581, 2287588, 2296662, 2297142, 2302607, 2303339, 2305503, 2317262, 2267556, 2268639, 2269084, 2269779, 2279694, 2308172, 2341264, 2343883, 2349753, 2369431, 2359462, 2284092, 2266414, 2269729, 2270874, 2144578, 2188317, 2221085, 2254200, 2195563, 2387981, 2387982, 2387983, 2387984, 2387985, 2271198, 2300444, 2260472, 2267026, 2269618, 2280655, 2283394, 2284008, 2284660, 2285129, 2286448, 2288878, 2289038, 2290331, 2290655, 2291385, 2294630, 2295123, 2300444, 2304068, 2305663, 2317682, 2318788, 2320467, 2321660, 2322706, 2326377, 2331407, 2338449, 2340656, 2343895, 2347250, 2352130, 2356033, 2356580, 2364279, 2367475, 2370869, 2371042, 2371050, 2371507, 2378701, 2381039, 2384462, 2260949, 2261683, 2261828, 2261846, 2262053, 2266407, 2267133, 2267154, 2267466, 2269794, 2270110, 2270279, 2270994, 2270998, 2271254, 2271953, 2273360, 2273610, 2275426, 2276611, 2276738, 2277159, 2277506, 2278361, 2278518, 2279905, 2280085, 2280577, 2281400, 2282070, 2283081, 2283117, 2285650, 2287466, 2288927, 2289172, 2289684, 2289919, 2289987, 2293774, 2297423, 2298744, 2304709, 2308961, 2316242, 2322874, 2324073, 2351273, 2356365, 2358956, 2374571	
		Nuclear Task Management (NTM)	2285581, 2288256	
Root Cause Evaluations (RCE)	2321942, 2323829, 2265623, 2321700			

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Engineering Changes	412996	Replace the 1-E11-F048B-MO (1B RHR Hx Bypass Vlv) with an Aluminum Rotor	0
		413030	1-E11-F007B-MO Replacement Actuator Evaluation New Motor Curve	0
	Miscellaneous		BNP PRA Top 10 List	
			BNP Corrective Action Program Health Report Card	06/24/2021
			Operator Workarounds and Operator Burdens, various reports dated April 2019 through May 2021	
		LOR-CLS-LP-19-5-1	Lesson Plan - Loss of SDC Case Study	0
		LOR-CLS-LP-200-B	Lesson Plan - Outage LCOs	5
		SD-17	Residual Heat Removal System Description	02/14/2019
	Procedures	0GP-01	Prestartup Checklist	208
		0GP-02	Approach to Criticality and Pressurization of the Reactor	124
		0GP-04	Increasing Turbine Load to Rated Power	130
		1OP-02	Reactor Recirculation System	134
		1OP-17	Residual Heat Removal System	139
		1OP-19	High Pressure Coolant Injection System	101
		1OP-25	Main Steam System	65
		1PT-24.1-1	Service Water Pump and Discharge Valve Operability Test	96
		1PT-24.1-1	Service Water Pump and Discharge Valve Operability Test	95
		AD-EG-ALL-1176	Preparation of Engineering Documents	4
		AD-EG-ALL-1206	Equipment Reliability Classification	5
		AD-EG-ALL-1210	Maintenance Rule Program	3
		AD-HU-ALL-0001	Human Performance Program	16
		AD-LS-ALL-0003	NRC Audit and Inspection Activities	9
		AD-NO-ALL-0202	Employee Concerns Program	4
		AD-NO-ALL-0204	Nuclear Safety Culture Program	3
		AD-OP-ALL-0105	Operability Determinations	6
		AD-OP-ALL-0202	Aggregate Operator Impact Assessment	3
	AD-PI-ALL-0100	Corrective Action Program	25	
	AD-PI-ALL-0101	Root Cause Evaluation	8	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date	
		AD-PI-ALL-0105	Effectiveness Reviews	2	
		AD-PI-ALL-0106	Cause Investigation Checklists	6	
		AD-PI-ALL-0200	Performance Trending	11	
		AD-PI-ALL-0300	Self-Assessment and Benchmark Programs	5	
		AD-PI-ALL-0400	Operating Experience Program	10	
		AD-PI-ALL-0401	Significant Operating Experience Program	8	
		AD-PI-ALL-1000	Conduct of Performance Improvement	9	
		AD-WC-ALL-0210	Work Request Initiation, Screening, Prioritization and Classification	14	
		AD-WC-ALL-0250	Work Implementation and Completion	12	
	Self-Assessments			Service Water Station Health Reports 2019Q3 - 2021Q1	
				RPS Station Health Reports Q42020 - Q12021	
				Station Sciences BNP Performance Trending Report - 3rd Triannual Period 2020	
				Security BNP Performance Trending Report - 3rd Triannual Period 2020	
				BNP 2020 Mid-Cycle Assessment	
			2019-BNP-MNT-01	NOS Audit – BNP Maintenance and Special Processes	
			2019-BNP-OPT-01	NOS Audit - BNP Operations Training	
			2019-FLEET-CAP-LSA-01	NOS Audit - Fleet Corrective Action Program	
			2020-BNP-OTSL-01	NOS Audit – BNP Operations, Technical Specifications, and Licensing	
			2020-FLEET-CAP-01	NOS Audit - Fleet Performance Improvement and Corrective Action Program	
			2245353	Reactivity Management Assessment	
			2245353	Reactivity Management	06/13/2019
			2246065	2019 Annual CAQ EC Assessment for BNP	
			2299532-05	BNP Operator Fundamentals	11/15/2020
	2306631	Corrective Action Program - Cause Evaluation Quality	10/25/2020		
	2306633	Corrective Action Program (CAP) processes and	01/10/2021		

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			requirements	
		2306633	CAP Compliance	
		2364310	Fatigue Rule 2021	
		2364754	Readiness Assessment for the 2021 BNP PI&R Inspection	
		BNP-SITE-1497.02-2020-3	BNP Performance Trending Report 3rd Triannual Period Year, September 1 - December 31, 2020	03/20/2021
	Work Orders	Work Orders (WOs)	12192261	
		Work Requests (WRs)	20146479, 20162013, 20184435, 20191397, 20199364, 20148785, 20195457, 20146996, 20149336, 20346420	