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10 CFR 50.73

April 30, 2019

Serial: RA-19-0151

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

Subject: Brunswick Steam Electric Plant, Unit No. 2
Renewed Facility Operating License No. DPR-62
Docket No. 50-324
Licensee Event Report 2-2019-001

In accordance with the Code of Federal Regulations, Title 10, Part 50.73, Duke Energy Progress, LLC, submits the enclosed Licensee Event Report (LER). This report fulfills the requirement for a written report within sixty (60) days of a reportable occurrence.

This document contains no regulatory commitments.

Please refer any questions regarding this submittal to Mr. Jerry Pierce, Manager – Nuclear Support Services, at (910) 832-7931.

Sincerely,

William R. Gideon

SBY/sby

Enclosure: Licensee Event Report

cc (with enclosure):

U. S. Nuclear Regulatory Commission, Region II
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245 Peachtree Center Ave, NE, Suite 1200
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NRC FORM 366
(04-2018)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 03/31/2020

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Information Services Branch (T-2 F43), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

(See Page 2 for required number of digits/characters for each block)

(See NUREG-1022, R.3 for instruction and guidance for completing this form http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/)

1. Facility Name	2. Docket Number	3. Page
Brunswick Steam Electric Plant (BSEP), Unit 2	05000324	1 OF 3

4. Title

Automatic Actuation of the Primary Containment Isolation System

5. Event Date			6. LER Number			7. Report Date			8. Other Facilities Involved	
Month	Day	Year	Year	Sequential Number	Rev No.	Month	Day	Year	Facility Name	Docket Number
03	05	2019	2019	- 001	- 00	04	30	2019		05000
									Facility Name	Docket Number 05000

9. Operating Mode	11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: *(Check all that apply)*			
5	☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
	☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
	☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
	☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☒ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
10. Power Level	☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
000	☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
	☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(C)	☐ 73.77(a)(1)
	☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(D)	☐ 73.77(a)(2)(i)
	☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(vii)	☐ 73.77(a)(2)(ii)
		☐ 50.73(a)(2)(i)(C)	☐ Other (Specify in Abstract below or in NRC Form 366A)	

12. Licensee Contact for this LER

Licensee Contact	Telephone Number (Include Area Code)
Jerry Pierce, Manager – Nuclear Support Services	(910) 832-7931

13. Complete One Line for each Component Failure Described in this Report

Cause	System	Component	Manufacturer	Reportable to ICES	Cause	System	Component	Manufacturer	Reportable to ICES

14. Supplemental Report Expected	15. Expected Submission Date	Month	Day	Year
☐ Yes (If yes, complete 15. Expected Submission Date) ☒ No				

Abstract (Limit to 1400 spaces, i.e., approximately 14 single-spaced typewritten lines)

At 05:35 EST on March 5, 2019, with Unit 2 in Mode 5 at 0% power, an actuation of the Primary Containment Isolation System (PCIS) occurred during hydro-lasing of the reactor water level variable leg instrumentation line nozzle N011B in the reactor cavity. The hydro-lasing activity caused low reactor water level to be sensed on the shutdown range level instrumentation. Per design, the low level 1 signal resulted in Group 2 (e.g., floor and equipment drain isolation valves), Group 6 (e.g., monitoring and sampling isolation valves) and Group 8 (e.g., shutdown cooling isolation valves) isolations. This event is being reported in accordance with 10 CFR 50.73(a)(2)(iv)(A) as an event that resulted in a valid actuation of PCIS.

This event resulted from the failure to properly assess risk and put compensatory actions in place when planning the hydro-lasing activity on the N011B nozzle. There was no adverse impact on the health and safety of the public. Although there was a brief interruption of shutdown cooling, the Alternate Decay Heat Removal (ADHR) System was in service and the Reactor Cavity was flooded up. Since decay heat load was within the capacity of the ADHR system, there was no loss of Decay Heat Removal capability. The Group 8 isolation was reset and shutdown cooling was restored within approximately 10 minutes. The safety significance of this event was minimal.

LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

(See NUREG-1022, R.3 for instruction and guidance for completing this form http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/)

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Information Services Branch (T-2 F43), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Brunswick Steam Electric Plant (BSEP), Unit 2	05000324	2019	- 001	- 00

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Energy Industry Identification System (EIIS) codes are identified in the text as [XX].

Background

Initial Conditions

At the time of the event, Unit 2 was in Mode 5 (i.e., Refueling), at 0 percent rated thermal power.

Reportability Criteria

This event is being reported in accordance with 10 CFR 50.73(a)(2)(iv)(A) because it involved actuation of a system listed in 10 CFR 50.73(a)(2)(iv)(B). Specifically, several Primary Containment Isolation Valves (PCIVs) [JM] automatically closed per design in response to sensed low reactor water level.

The NRC was notified of the event per 10 CFR 50.72(b)(3)(iv)(A) via Event Notification number 53911 at 12:46 EST on March 5, 2019.

Event Description

At 05:35 EST on March 5, 2019, with Unit 2 in Mode 5 at 0% power, hydro-lasing (i.e., flushing) in-vessel nozzles commenced to remove crud buildup and lower dose rates in the Drywell to support upcoming work in the Drywell. The N011B nozzle was the first nozzle flushed. This nozzle connects to the variable leg of various level transmitters including the transmitters that sense a Low Reactor Water Level 1 (LL1) signal and would cause an isolation of PCIS Groups 2 (e.g., floor and equipment drain isolation valves), 6 (e.g., monitoring and sampling isolation valves) and 8 (e.g., shutdown cooling isolation valves). Flushing this nozzle created a momentary low pressure in the variable leg of these transmitters, resulting in an indicated low level, and initiating the automatic PCIS isolations.

Event Cause

Hydro-lasing in-vessel nozzles is performed every outage as a Drywell dose reduction effort. This activity is controlled by Work Order.

Prior to the Outage, the Work Order is reviewed and approved by multiple station work groups. As part of this review, prints were obtained to identify nozzles being hydro-lased, instrumentation associated with each nozzle was determined, and possible effects from those instruments was hypothesized.

For this refuel outage a new hydro-lase tip was being used on the BSEP N011A and B nozzles. This tip has enhanced crud removal features for small diameter locations which work to push the tip farther into the nozzle than the old-style tip. This was the first time this new tip was used in this nozzle location and therefore qualified as a first-time performance of a new task.

Not every team member approving the Work Order was aware of the new hydro-lase tip design being used for this location. In addition, though the Work Order review theorized that N011B hydro-lasing activities may cause level signal perturbations, there was no plant specific or industry Operating Experience (OE) which would indicate that nozzle flushing activities would cause a LL1 signal to be sensed and PCIVs actuated. As a result, the team concluded that this was not a realistic consequence and the Work Order was approved with no compensatory actions. The cause of this event was a failure to properly assess risk and put compensatory actions in place when planning the hydro-lasing activity on the N011B nozzle.

Safety Assessment

There was no adverse impact on the health and safety of the public. Although there was a brief interruption of shutdown cooling, the ADHR System was in service and the Reactor Cavity was flooded up. Since decay heat load was within the capacity of the ADHR

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system, there was no loss of Decay Heat Removal capability. The Group 8 isolation was reset and shutdown cooling was restored within approximately 10 minutes. The safety significance of this event was minimal.

Corrective Actions

The following corrective actions were completed.

- The isolation signal was reset and shutdown cooling was restored at approximately 05:45 EST on March 5, 2019.
- Individuals involved were coached on how to properly assess risk and develop compensatory actions.
- The Model WO for the Nozzle Hydro-lase activity for both Units was revised to include a precaution not to proceed unless Operations has established compensatory actions to prevent possible PCIS Group isolations or other actuations.
- The BSEP OE data base was updated to include this incident.

The corrective actions below are currently planned. Any changes to the corrective actions and schedules noted below will be made in accordance with the site's corrective action program.

- Revise the Model WO for the Nozzle Hydro-lase activity to include specific references to the instrumentation associated with each penetration to be flushed as well as any additional permissions required before starting to flush higher risk nozzles. This action is scheduled to be completed by 8/22/2019.
- Submit request to have a new procedure developed that will disable specific PCIS isolations and actuations during a Refuel Outage, as allowed by Technical Specifications. This action is scheduled to be completed by 5/30/2019.

Previous Similar Events

There have been no events in the past three years in which an improper risk assessment resulted in an unplanned automatic actuation of a safety-related system or component.

Commitments

No regulatory commitments are contained in this report.