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10 CFR 50.73

August 2, 2017

Serial: BSEP 17-0063

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

Subject: Brunswick Steam Electric Plant, Unit Nos. 1 and 2
Renewed Facility Operating License Nos. DPR-71 and DPR-62
Docket Nos. 50-325 and 50-324
Licensee Event Report 1-2017-003

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 of 10 CFR 50.73(a)(1) for a written report within sixty (60) days of a reportable occurrence.

Please refer any questions regarding this submittal to Mr. Lee Grzeck, Manager – Regulatory Affairs, at (910) 457-2487.

Sincerely,

A handwritten signature in black ink, appearing to read "WRG", written over a light blue circular background.

William R. Gideon

SWR/swr

Enclosure: Licensee Event Report 1-2017-003

cc (with enclosure):

U. S. Nuclear Regulatory Commission, Region II
ATTN: Ms. Catherine Haney, Regional Administrator
245 Peachtree Center Ave, NE, Suite 1200
Atlanta, GA 30303-1257

U. S. Nuclear Regulatory Commission
ATTN: Mr. Gale Smith, NRC Senior Resident Inspector
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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/>)

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 Brunswick Steam Electric Plant (BSEP) Unit 1	2. DOCKET NUMBER 05000325	3. PAGE 1 OF 4
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4. TITLE
Control Room Air Conditioning and Emergency Ventilation Systems Rendered Inoperable

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
06	05	2017	2017	003	00	08	02	2017	Brunswick Unit 2	05000324
									FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)			
1	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
10. POWER LEVEL	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)
	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> 73.77(a)(1)
	<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input checked="" type="checkbox"/> 50.73(a)(2)(v)(D)	<input type="checkbox"/> 73.77(a)(2)(i)
	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 73.77(a)(2)(ii)
	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> OTHER	Specify in Abstract below or in NRC Form 366A	

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT Lee Grzeck, Manager - Regulatory Affairs	TELEPHONE NUMBER (Include Area Code) (910) 457-2487
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13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX

14. SUPPLEMENTAL REPORT EXPECTED <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	15. EXPECTED SUBMISSION DATE MONTH: _____ DAY: _____ YEAR: _____
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On June 5, 2017, at 0930 Eastern Daylight Time (EDT), Unit 1 was in Mode 1 at 100 percent power, and Unit 2 was in Mode 1 at 87 percent power and was increasing power after a preplanned control rod improvement evolution. Maintenance personnel were inspecting dampers in the Control Room Air Conditioning (AC) system and Control Room Emergency Ventilation (CREV) system and disconnected an air supply to a damper. This resulted in the CREV system being inoperable due to interruption of the pneumatic supply. The CREV system was restored to operable status by 1009 EDT. At 1352 EDT, a second damper was inspected, and its pneumatic supply was disconnected. During the second occurrence, the Control Room AC system also tripped and was made inoperable. Affected systems were restored by 1407 EDT. The event is reportable as a loss of safety function per 10 CFR 50.73(a)(2)(v)(D). The event resulted from inadequate use of human performance tools and inadequate work instructions. Corrective actions for this event include restoring the affected pneumatic supply, revising work orders, and taking steps to emphasize proper use of human performance tools.



**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

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1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Brunswick Steam Electric Plant (BSEP) Unit 1	05000325	2017	- 003	- 000

NARRATIVE

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

Background

Initial Conditions

On June 5, 2017, at 0930 Eastern Daylight Time (EDT), Unit 1 was in Mode 1 at 100 percent power, and Unit 2 was in Mode 1 at 87 percent power and was increasing reactor power after a preplanned control rod improvement evolution. No inoperable equipment contributed to this event other than as specified in the event description below.

Reportability Criteria

In this event, the Control Room Air Conditioning (AC) system [NA] and the Control Room Emergency Ventilation (CREV) system [VI] were temporarily rendered incapable of performing their safety functions due to interruption of pneumatic pressure. Therefore, it is reportable per 10 CFR 50.73(a)(2)(v)(D) as a loss of safety function. The event was also reportable per 10 CFR 50.72(b)(3)(v)(D) for loss of safety function. This reporting requirement was fulfilled per Event Number 52788 on June 5, 2017, at 1940 EDT.

Event Description

On June 5, 2017, at 0930 EDT, Maintenance personnel were performing an inspection of damper seals in the Control Room AC and CREV systems. In the as-found condition, certain dampers were closed, which restricted the inspection to one side only. Thus, a complete inspection could not be performed. Craftsmen concluded that the particular damper being inspected needed to be stroked open so the inaccessible side could be viewed. They asked Operations personnel to open the damper. However, it was stated that due to the electrical logic configuration of these dampers, this single damper could not be actuated from the Control Room. Operations permission was given to the mechanics in the field to stroke the damper open locally.

When initial efforts to open the damper manually were unsuccessful, craftsmen contacted the system engineer for guidance on opening the damper. The system engineer suggested the mechanics disconnect the normal instrument airline for the damper and reconnect a separate air source that would redirect air flow to allow the damper to cycle open. Therefore, the craftsmen removed the pneumatic supply from the damper port and connected a portable air tank to a port that channeled airflow to open the damper. The damper seals and the damper blade were then inspected and found to be satisfactory. The normal pneumatic supply was reconnected and restored to the original configuration by 1009 EDT.

On the same day at 1352 EDT, the steps described above were repeated for a second damper. In this instance, the configuration of the system resulted in air porting from the pneumatic system, depressurizing it. Within about three minutes, pneumatic pressure decreased to the point where the two operating Control Room AC systems tripped, and the third was unable to start because of low pneumatic supply pressure. In



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NARRATIVE

this condition, CREV dampers would have been unable to reposition as required due to lack of pneumatic pressure. Control Room personnel then contacted the craft personnel; the pneumatic line was promptly reconnected, and pneumatic pressure was restored, returning the CREV system and the Control Room AC system to operable status by 1407 EDT.

Upon reviewing the second event, personnel realized that similar steps had been used for the inspection of the first damper. The first event was not self-revealing because it did not result in tripping the Control Room AC. Only then was it understood that CREV had been made inoperable during the first event from 0930 EDT until 1009 EDT, and both CREV and Control Room AC were inoperable from 1352 EDT until 1407 EDT.

Event Cause

This event occurred because of inadequate use of human performance tools and an inadequate work order. The work order did not contain sufficient information to facilitate performance of the task. Maintenance personnel did not stop to ensure that the work order was revised to provide instructions that would allow performance of steps to execute the damper seal inspections.

Safety Assessment

Three 50 percent capacity Control Room AC units provide temperature and humidity control for the Control Room during normal and accident conditions. Two units are normally required to maintain the designed environmental conditions. The CREV system provides a protected environment from which occupants can control the unit following an uncontrolled release of radioactivity, hazardous chemicals, or smoke. The safety related function of the CREV system is the radiation protection portion of the radiation/smoke protection mode and includes two redundant high efficiency air filtration subsystems for emergency treatment of recirculated air or outside supply air and a control room envelope (CRE) boundary that limits the inleakage of unfiltered air. The CREV system is a standby system that is common to both Unit 1 and Unit 2, parts of which also operate during normal unit operations to maintain the CRE environment.

Upon receipt of initiation signal(s) indicative of conditions that could result in radiation exposure to CRE occupants, the CREV system automatically switches to the radiation/smoke protection mode of operation to minimize infiltration of contaminated air into the CRE. A system of dampers isolates the CRE, and a part of the recirculated air is routed through either of the two filter subsystems. Outside air is taken in at the normal ventilation intake and is mixed with the recirculated air before being passed through one of the CREV subsystems for removal of airborne radioactive particles.

In this event, the Control Room AC and CREV system dampers described above were temporarily disabled by an interruption of their pneumatic supply. With the CREV recirculation dampers unable to respond as required, the CREV system was rendered inoperable and its safety function was lost. The combined duration of inoperability for CREV was 54 minutes. The Control Room AC was inoperable only during the second occurrence because it tripped and could not be restarted. Therefore, its safety function was lost.



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The duration of this condition was 15 minutes. During that time, Control Room temperature, humidity, and radiation experienced no significant change, and there was no challenge to the habitability of the Control Room. Therefore, it is concluded that this event had no adverse impact on nuclear safety.

Corrective Actions

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

Corrective actions for this event include restoring the affected pneumatic supply to CREV and Control Room AC, revising work orders, taking steps to emphasize proper use of human performance tools, and performing a Maintenance cultural assessment. These actions are completed.

Planned corrective actions include performing a review of top latent organizational weaknesses and implementing a pilot for a fleet proficiency model. These actions are scheduled for completion by September 6, 2017.

Previous Similar Events

One event has been reported in the past three years in which the Control Room AC system was inoperable. That event was reported in Licensee Event Report 50-325/2016-006, dated February 13, 2017. That event resulted from corrosion which affected the seismic qualifications of supports for the air conditioning condensers. The corrective actions which addressed the failure were unrelated to the cause of the event described in this report.

Commitments

This report contains no new regulatory commitments.