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FEB 13 2017

10 CFR 50.73

Serial: BSEP 17-0011

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 1-2016-006

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 horizontal line.

William R. Gideon

SWR/swr

Enclosure: Licensee Event Report 1-2016-006

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: Ms. Michelle P. Catts, NRC Senior Resident Inspector  
8470 River Road  
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U. S. Nuclear Regulatory Commission  
ATTN: Mr. Andrew Hon (Mail Stop OWFN 8G9A) **(Electronic Copy Only)**  
11555 Rockville Pike  
Rockville, MD 20852-2738  
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4325 Mail Service Center  
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<b>NRC FORM 366</b> (06-2016)		<b>U.S. NUCLEAR REGULATORY COMMISSION</b>			<b>APPROVED BY OMB: NO. 3150-0104</b>		<b>EXPIRES: 10/31/2018</b>												
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;"> </div> <div> <b>LICENSEE EVENT REPORT (LER)</b>            (See Page 2 for required number of digits/characters for each block)         </div> </div> <p>(See NUREG-1022, R.3 for instruction and guidance for completing this form  <a href="http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/">http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/</a>)</p>										<p>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 FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to <a href="mailto:Infocollections.Resource@nrc.gov">Infocollections.Resource@nrc.gov</a>, 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.</p>									
<b>1. FACILITY NAME</b> Brunswick Steam Electric Plant (BSEP) Unit 1					<b>2. DOCKET NUMBER</b> 05000325			<b>3. PAGE</b> 1 OF 4											
<b>4. TITLE</b> Control Room Air Conditioning Units Inoperable due to Corroded Supports																			
<b>5. EVENT DATE</b>			<b>6. LER NUMBER</b>			<b>7. REPORT DATE</b>			<b>8. OTHER FACILITIES INVOLVED</b>										
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER									
12	13	2016	2016	006	00	02	13	2017	Brunswick Unit 2	05000324									
									FACILITY NAME	DOCKET NUMBER									
										05000									
<b>9. OPERATING MODE</b>		<b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)</b>																	
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  098		<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 checked="" 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									
<b>12. LICENSEE CONTACT FOR THIS LER</b>																			
LICENSEE CONTACT Lee Grzeck, Manager - Regulatory Affairs								TELEPHONE NUMBER (Include Area Code) (910) 457-2487											
<b>13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT</b>																			
CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX										
<b>14. SUPPLEMENTAL REPORT EXPECTED</b>						<b>15. EXPECTED SUBMISSION DATE</b>		MONTH	DAY	YEAR									
<input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO																			
ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) On December 13, 2016, Units 1 and 2 were in Mode 1 (i.e., Run mode) at 98 percent and 97 percent of rated thermal power, respectively. At that time, shift personnel were notified that structural supports for the 2D Control Room air conditioning system condenser were corroded. An operability assessment found the affected air conditioning system inoperable due to the effect on its seismic qualification. Technical Specifications (TS) 3.7.4, Condition A, was entered. On January 30, 2017, the 1D air conditioning system was found with similar conditions. Since the conditions were determined to have existed for longer than the TS allowable out of service time, the plant was in a condition prohibited by the TS. Since more than one air conditioner had been inoperable concurrently, the safety function of maintaining Control Room habitability could have been prevented from being fulfilled during a seismic event. This event resulted from trapped moisture in contact with the steel supports and exposure to the local marine environment which corroded support steel to the point that seismic qualifications were compromised. All affected support steel was replaced by February 2, 2017. The remaining air conditioner was inspected and found acceptable. Guidance for initiating work requests for corroded support members will be enhanced.																			

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

(See NUREG-1022, R.3 for instruction and guidance for completing this form  
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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	05000-325	2016	- 006	- 000

**NARRATIVE**

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

Background*Initial Conditions*

On December 13, 2016, at 16:27 Eastern Standard Time (EST), Unit 1 was in Mode 1 at approximately 98 percent of rated thermal power. Unit 2 was in Mode 1 at approximately 97 percent of rated thermal power. Other than the components specifically named in this report, no out-of-service equipment contributed to, or affected the course of, this event.

*Reportability Criteria*

This event is being reported in accordance with 10 CFR 50.73(a)(2)(i)(B) because Units 1 and 2 were operated in a condition which is prohibited by the Technical Specifications (TS). Specifically, air conditioning units 1D and 2D for the Main Control Room [NA] were inoperable on account of seismically-qualified structural supports being degraded due to corrosion. The duration of the inoperability could not be conclusively determined. Therefore, the air conditioners are conservatively concluded to have been inoperable for longer than the 30 days allowed by TS 3.7.4, Condition A (i.e., one Control Room Air Conditioning subsystem inoperable) and the 72 hours allowed by TS 3.7.4, Condition B (i.e., two Control Room Air Conditioning subsystems inoperable). Since these times were exceeded, the plant was in a condition prohibited by the TS. The condition applies to both units because the air conditioning system serves the shared Control Room.

The event is also reportable per 10 CFR 50.73(a)(2)(v)(D) as an event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident. With two air conditioning units inoperable, the safety function of maintaining Control Room habitability could not be assured. The condition applies to both units because the air conditioning system serves the shared Control Room.

Event Description

On December 13, 2016, a periodic inspection was being performed on the Control Building [NA] air conditioner compressors and condensing coils of air conditioner 2D. During the inspection, seismically qualified support members were found to be degraded due to corrosion. This condition was reported to shift personnel in the Main Control Room, and further assessment was initiated. On December 14, 2016, it was determined that the air conditioning unit supported by the corroded members could not be reasonably assured of meeting its seismic qualifications. Therefore, air conditioner 2D was declared inoperable and TS 3.7.4, Condition A was entered. The affected support members for air conditioning unit 2D were replaced under Work Order 20132955 on December 22, 2016, and the TS condition was exited.

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

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**NARRATIVE**

Additionally, on January 30, 2017, an inspection, as part of the extent of condition, determined that significant corrosion existed on support members for the 1D air conditioner. Therefore, the 1D air conditioner was declared inoperable, and TS 3.7.4, Condition A was entered.

On both air conditioners, the duration of the corroded condition could not be established with certainty. The periodic maintenance activity which resulted in identifying the corrosion is performed approximately every six months. The last inspection for the 2D air conditioner took place on June 15, 2016, and was completed satisfactorily at that time. The last inspection for the 1D air conditioner took place on May 31, 2016, and was completed satisfactorily at that time. Since corrosion is typically a slow-acting phenomenon, it is concluded that the affected structural members had degraded to the point of becoming inoperable more than 30 days before discovery (i.e., for longer than the TS allowable out-of-service time).

Review of plant history revealed that the only remaining Control Room air conditioning unit, the 2E, had been removed from service during the period when the 2D and 1D are believed to have been inoperable due to compromised seismic qualifications. This occurred on October 18, 2016, from 04:42 EST until 11:54 EST for a total of 7 hours, 12 minutes. During this time, only the two seismically unqualified air conditioning unit units remained in operation.

**Event Causes**

The corrosion of steel supports for the two air conditioning units resulted from exposure to a marine environment coupled with trapped moisture. This degraded the protective phenolic coating and then the underlying metal.

**Safety Assessment**

Three 50 percent capacity Control Room air conditioning 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.

Since the air conditioning system is required to be seismically qualified, it was declared inoperable until the corroded support members were replaced or repaired. However, during this event, the affected air conditioning system remained capable of performing its function under all but seismic conditions. Per normal operating practices, at least two air conditioning units were always operating, including those times when safety function could not be credited due to compromised seismic qualifications.

Based on this analysis, this event had no adverse impact on the health and safety of the public.

**Corrective Actions**

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

**LICENSEE EVENT REPORT (LER)  
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**NARRATIVE**

The affected support members for air conditioning unit 2D were replaced under Work Order 20132955 on December 22, 2016. This action is complete.

The affected support members for air conditioning unit 1D were replaced under Work Order 20139332 on February 2, 2017. This action is complete.

The support members for the 2E air conditioner were inspected by engineers on January 31, 2017, and were found to be acceptable.

The model work order for the air conditioning unit inspection task will be revised to specify initiation of a Work Request (WR) if corrosion is identified which might weaken the structural integrity of supports. Site procedure AD-WC-ALL-210, "Work Request Initiation, Screening, Prioritization and Classification," already requires a WR to be written for plant material deficiencies. The revision to the model work order will strengthen that existing guidance. This action is scheduled to be completed by May 1, 2017.

Previous Similar Events

No events have occurred in the past three years in which a plant structure, system, or component was found to be inoperable due to general environmental corrosion or similar degradation mechanisms.

Commitments

This report contains no new regulatory commitments.