DUKE ENERGY®

William R. Gideon
Vice President
Brunswick Nuclear Plant
P.O. Box 10429
Southport, NC 28461
o: 910.457.3698

10 CFR 50.73

May 2, 2016

Serial: BSEP 16-0030

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

Subject: Brunswick Steam Electric Plant, Unit Nos. 1 and 2
Renewed Facility Operating License Nos. DPR-71 and DPR-62
Docket No. 50-325 and 50-324
Licensee Event Report 1-2016-002

In accordance with the Code of Federal Regulations, Title 10, Part 50.73, Duke Energy Progress, Inc., 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. Lee Grzeck, Manager – Regulatory Affairs, at (910) 457-2487.

Sincerely,

for

William R. Gideon

MAT/mat

Enclosure: Licensee Event Report

IE22
NRR

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 **(Electronic Copy Only)**
8470 River Road
Southport, NC 28461-8869

U. S. Nuclear Regulatory Commission
ATTN: Mr. Andrew Hon (Mail Stop OWFN 8G9A) **(Electronic Copy Only)**
11555 Rockville Pike
Rockville, MD 20852-2738

Chair - North Carolina Utilities Commission
P.O. Box 29510
Raleigh, NC 27626-0510

NRC FORM 366 (11-2015) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 10/31/2018

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 internet 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)

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Brunswick Steam Electric Plant (BSEP), Unit 1	05000325	1 OF 7

4. TITLE

Emergency Diesel Generator 3 Inoperable Due to Failure to Auto-Start

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	04	2016	2016	- 002	- 00	05	02	2016	BSEP, 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)*			
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)
	☐ 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)
000	☐ 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)*
Lee Grzeck, Manager – Regulatory Affairs	(910) 457-2487

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
X	EK	FUB	B569	Y					

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 15 single-spaced typewritten lines)*

On March 4, 2016, at 1235 Eastern Standard Time (EST), Emergency Diesel Generator (EDG) 3 was declared inoperable. At this time, EDG 1, Emergency bus E1, and balance of plant (BOP) bus 1D were inoperable due to planned maintenance. Two inoperable EDGs represents a loss of safety function, for the onsite standby power source. Therefore, this condition is being reported in accordance with 10 CFR 50.73(a)(2)(v)(D), as an event or condition that could have prevented the fulfillment of the safety function of a system that is needed to mitigate the consequences of an accident. In addition, it was determined that EDG 3 was inoperable for greater than Technical Specifications (TSs) Completion Times. Therefore, this condition is also being reported in accordance with 10 CFR 50.73(a)(2)(i)(B) as operation prohibited by the TSs. Additionally, on March 3, work was ongoing to restore power to BOP bus 1D when an error in the restoration sequence resulted in an invalid auto-start of EDGs 2 and 4. Because the invalid auto-starts of EDGs 2 and 4 are directly related to the events associated with this LER, it is being reported, herein, per 10 CFR 50.73(a)(2)(iv)(A) rather than the optional 60-day telephone notification.

The root cause of the EDG 3 inoperability is inadequate training for the use of non-conductive fuse clearance devices. Corrective actions to prevent recurrence include actions to upgrade training and procedures associated with fuse standards.

NRC FORM 366A (11-2015) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 10/31/2018

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 internet 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) CONTINUATION SHEET

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Brunswick Steam Electric Plant (BSEP), Unit 1	05000-325	2016	- 002	- 00

NARRATIVE

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

Background

Initial Conditions

At the time of this event, Unit 1 was in Mode 5 (i.e., Refuel), in a refueling outage which began on February 26, 2016.

Unit 2 was in Mode 1 (i.e., Power Operation) with reactor power at approximately 100 percent of rated thermal power. Emergency Diesel Generator 1 (EDG 1) [EK] was inoperable in support of modifications, maintenance activities, and testing. Emergency bus E1 [EB] and balance of plant (BOP) bus 1D were deenergized in support of this work. No other Unit 2 safety-related equipment was inoperable.

Reportability Criteria

10 CFR 50.73(a)(2)(v)(D)

Brunswick EDG capacity is such that any three of the four diesels can supply the required loads for the safe shutdown of one unit and a design basis accident on the other unit without offsite power. As such, simultaneous inoperability of EDGs 1 and 3 is reportable in accordance with 10 CFR 50.73(a)(2)(v)(D), as an event or condition that could have prevented the fulfillment of a safety function needed to mitigate the consequences of an accident. The NRC was initially notified of the event on March 4, 2016 (i.e., Event Number 51769).

As discussed below, it has been determined that EDG 3 was inoperable from February 7, 2016, until March 4, 2016. During this time, EDGs 1, 2, and 4 were also inoperable, at various times, for surveillance testing and associated activities. These occurrences are also reportable in accordance with 10 CFR 50.73(a)(2)(v)(D), as an event or condition that could have prevented the fulfillment of a safety function needed to mitigate the consequences of an accident.

Event Number 51769 also reported loss of safety function of the Conventional Service Water system [BI], the Control Room Emergency Ventilation system [VI], and the Control Room Air Condition system [VI]. After additional review, it has been determined that a loss of safety function of these systems did not occur. As such, this event is not reportable per 10 CFR 50.72(b)(3)(v) or 10 CFR 50.73(a)(2)(v) for those systems.

10 CFR 50.73(a)(2)(i)(B)

This event is reportable in accordance with 10 CFR 50.73(a)(2)(i)(B) as operation prohibited by the plant's Technical Specifications (TSs) for both Unit 1 and Unit 2. The following conditions resulted in unintentional operation prohibited by the plant's TSs given the inoperability of EDG 3.

NRC FORM 366A (11-2015) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 10/31/2018

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 internet 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) CONTINUATION SHEET

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Brunswick Steam Electric Plant (BSEP), Unit 1	05000-325	2016	- 002	- 00

NARRATIVE

- On February 8, 2016, at 2211 Eastern Standard Time (EST), Unit 2 would have been required to be in Mode 3 in accordance with TS 3.8.1, Required Action H.1, for one offsite circuit inoperable and one EDG inoperable (i.e., TS 3.8.1, Condition F).
- On February 12, 2016, at 2357 EST, Unit 1 entered Mode 2 from Mode 4. This constituted a violation of Limiting Condition for Operation (LCO) 3.0.4.
- On February 20, 2016, at 1157 EST, Unit 1 would have been required to be in Mode 3 in accordance with TS 3.8.1, Required Action H.1, for a single EDG inoperable (i.e., TS 3.8.1, Condition D).
- On February 21, 2016, at 0806 EST, Unit 1 and Unit 2 would have been required to be in Mode 3 in accordance with TS 3.8.1, Required Action H.1, for two EDGs inoperable (i.e., TS 3.8.1, Condition G).
- On March 3, 2016, at 2108 EST, Unit 2 would have been required to be in Mode 2 in accordance with LCO 3.0.3, per TS 3.8.1, Condition I, (i.e., one or more offsite circuits and two or more Diesel Generators (DGs) inoperable).

10 CFR 50.73(a)(2)(iv)(A)

On March 3, work was ongoing to restore power to BOP bus 1D when an error in the restoration sequence resulted in an invalid auto-start of EDGs 2 and 4 at 1332 EST. EDGs 2 and 4 responded properly to the auto-start signal and ran unloaded. Since no actual bus under voltage condition existed which required the EDGs to start, and the start was not in response to actual plant conditions satisfying the requirements for initiation, this event has been classified as an invalid actuation. Because the invalid auto-starts of EDGs 2 and 4 are directly related to the events associated with this LER, the event is being reported via this LER rather than the optional 60-day telephone notification as allowed by 10 CFR 50.73(a)(1).

Event Description

On March 2, at 1458 EST, EDG 1 was declared inoperable in support of modifications, maintenance activities, and testing. Emergency bus E1 and balance of plant (BOP) bus 1D were deenergized in support of this work. This was a planned maintenance activity, being performed during the ongoing Unit 1 refueling outage. Due to the shared electrical distribution system at Brunswick, Unit 2 was in TS 3.8.1, Condition B (i.e., two Unit 1 offsite circuits inoperable due to one Unit 1 balance of plant circuit path to the downstream 4.16 kV emergency bus inoperable for planned maintenance and the EDG associated with the affected downstream 4.16 kV emergency bus inoperable for planned maintenance).

On March 3, work was ongoing to restore power to BOP bus 1D when an error in the restoration sequence resulted in an invalid auto-start of EDGs 2 and 4. The invalid signal mimicked undervoltage on the startup auxiliary transformer (SAT) [EA], which is not a TS required start and, per design, would have started EDGs 1, 2, 3, and 4. EDG 1 was under clearance and, as such, did not start. However, it was also expected that EDG 3 should have started. Troubleshooting activities and a thorough EDG 1 modification review were initiated. As a result, on March 4, 2016, at 1235 hours EST, it was determined that continuity was lost across a dummy fuse block in the auto-start circuitry for EDG 3. This failure prevented TS required auto-actuation of EDG 3. Therefore, EDG 3 was declared inoperable. At this time, Unit 2

NRC FORM 366A (11-2015) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 10/31/2018

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 internet 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) CONTINUATION SHEET

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Brunswick Steam Electric Plant (BSEP), Unit 1	05000-325	2016	- 002	- 00

NARRATIVE

entered TS 3.8.1, Condition I, (i.e., one or more offsite circuits and two or more Diesel Generators (DGs) inoperable). Required Action I.1 directs immediate entry into LCO 3.0.3.

Duke Energy Progress, Inc., verbally requested a Notice of Enforcement Discretion (NOED) to extend the time required by LCO 3.0.3 for Unit 2 to be in Mode 2, Mode 3, and Mode 4 by 17 hours. The NRC verbally approved the NOED at 1535 EST on March 4, 2016. EDG 3 was restored to operable status and LCO 3.0.3 was exited at 1834 EST after replacement of the fuse holder. This was before the original Completion Time of LCO 3.0.3 (i.e., be in Mode 2 by March 4, 2016, at 1935 EST).

As a result of the root cause evaluation of this event, the direct cause of the EDG 3 failure to auto-start was identified as a loss of continuity in the 2-DG3-FU-1-ECR Dummy Fuse at EDG 3 Emergency Control Relay (ECR) Disconnect; specifically, loose fuse clamps in the dummy fuse block/holder. Further, there is firm evidence that this condition existed since February 7, 2016, when EDG 3 successfully auto-started in response to a Unit 1 SAT lock-out condition, the details of which are discussed in Brunswick LER 1-2016-001, dated April 6, 2016. On February 7, operators observed that the auto-start indications for EDG 3 (i.e., annunciator UA-21 5-2, and lights) had cleared, without operator action. This provides indication that the loss of continuity in the dummy fuse holder occurred at that time. The unexpected clearing indicates a loss of power to the ECR relay, the same failure mechanism that prevented EDG 3 auto-start on March 3. Therefore, it is concluded that the equipment issue was present from February 7 until March 4, when the fuse holder was replaced. Inoperability of EDG 3 was determined to be from 2211 EST on February 7, when the EDG 3 was secured from the auto-start, until 1834 EST on March 4, 2016, following replacement of the faulty fuse holder.

A review was performed to determine instances when EDGs 1, 2, or 4 were inoperable during the period from February 7, 2016, until March 4, 2016. The following instances were identified. Note, the times provided are approximate, based on Operations Log entries.

EDG 1

February 20 at 1806 EST to March 2 at 1226 EST (i.e., 10 days, 18 hours, 20 minutes) for planned replacement of the automatic voltage regulator and margin improvement modifications.

March 2 at 1458 EST to March 9 at 0151 EST (i.e., 6 days, 10 hours, 53 minutes) for Division 1 electrical outage and DG 1 governor modification. Note that EDG 3 was restored to operable status at 1834 EST on March 4.

EDG 2

February 19 from 2025 EST to 2053 EST (i.e., 28 minutes) for barring.

February 19 from 2104 EST to February 20 at 0014 EST (i.e., 3 hours, 10 minutes) for surveillance testing.

NRC FORM 366A (11-2015) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 10/31/2018

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 internet 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) CONTINUATION SHEET

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Brunswick Steam Electric Plant (BSEP), Unit 1	05000-325	2016	- 002	- 00

NARRATIVE

EDG 4

February 15 from 1235 EST to 1434 EST (i.e., 1 hour, 59 minutes) for surveillance testing.

February 18 from 2106 EST to 2140 EST (i.e., 34 minutes) for barring.

February 18 from 2154 EST to February 19 at 0119 EST (i.e., 3 hours, 25 minutes) for surveillance testing.

During the above periods, Unit 2 was in Mode 1. Unit 1 was in Mode 1 until February 26 at 2129 when Mode 3 was entered to start the refueling outage.

Event Cause

The root cause of this event was determined to be inadequate training for the use of non-conductive fuse clearance devices.

The direct cause for the EDG 3 failure to start was determined to be a loss of continuity through a dummy fuse in the auto-start logic circuit for EDG 3, which prevented the ECR coil from being energized and thus starting the diesel. The loss of continuity through the ECR fuse block assembly was a result of loose fuse holder fingers. The fuse holder fingers became loose due to repeated use of oversized non-conductive fuse clearance devices during routine safety clearance performances. The dummy fuse and fuse block holder serve as an intermediate clearance point. The dummy fuse is routinely removed per operations procedures when clearances are required and a non-conductive fuse clearance device is installed to prevent insertion of a fuse when a clearance is hanging. The fuse clearance device has four fuse plugs and the size of each replicated fuse plug is not labeled. When the clearance is being hung, neither the clearance hang sheet nor the fuse lockout device are marked to indicate which fuse plug size should be used. Based on interviews, operations personnel have used the largest of the four fuse plugs when hanging the clearance that pulls the EDG ECR relay dummy fuse. The proper fuse plug to use in this application is the third largest. As a result, the dummy fuse holder fingers have relaxed over time, no longer holding the dummy fuse tightly.

Safety Assessment

The safety significance of this event is minimal.

On March 3, 2016, BOP Bus 1D, E1, E5, and EDG 1 were inoperable due to ongoing maintenance (i.e., Unit 1 Division 1 AC outage window). The planned Unit 1 maintenance activity had been properly risk assessed prior to the beginning of the outage. The unplanned inoperability of EDG 3 had minimal impact on Unit 1. EDG 3/E3 are primarily associated with Unit 2 loads. A loss of power to E3 could have impacted the 1A Residual Heat Removal (RHR) pump [BO] and the 1A RHR Service Water (SW) pump [BO]. However, on March 3, Unit 1 was flooded up with the spent fuel pool gates removed. Time to boil was approximately 19 hours. Per TS 3.9.7, one RHR shutdown cooling subsystem is required to be operable and in operation in Mode 5 with irradiated fuel in the Reactor Pressure Vessel (RPV) and the

NRC FORM 366A (11-2015) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 10/31/2018

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 internet 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) CONTINUATION SHEET

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Brunswick Steam Electric Plant (BSEP), Unit 1	05000-325	2016	- 002	- 00

NARRATIVE

water level greater than or equal to 21 feet 10 inches above the RPV flange. The primary means of shutdown cooling was B RHR with D RHR the backup. Additionally, EDG 3 could be manually started. Based on these considerations, the event is of minimal safety significance for Unit 1.

On March 3, 2016, Unit 2 remained in Mode 1. EDG 2, EDG 4, and offsite power sources (i.e., excluding offsite power to emergency bus E1) were not affected by the EDG 1 maintenance and were operable. Emergency buses E2, E3, and E4 continued to be powered from offsite power. As such, sufficient offsite power supplies remained available to complete their intended safety function. The Supplemental Diesel Generator (SUPP-DG), installed to support a 14-day completion time for an inoperable EDG, remained available, as well as the two permanently installed FLEX diesels. The SUPP-DG is rated at 4000 kW, 4160 VAC, and can provide power to the emergency busses in approximately 1 hour. Each FLEX diesel is rated at 500 kW, 480 VAC, and can be connected to the emergency busses in less than one hour. Except for the periods of time for repair activities and post-repair testing, EDG 3 was available via manual start.

A Probabilistic Risk Assessment (PRA) was performed to determine the impact of EDG 3 being inoperable from February 7 until March 4, 2016. This analysis concluded that this was of very low safety significance.

Corrective Actions

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

The following corrective actions to prevent recurrence have been completed or are planned.

- The Qualification Checkout Card (QCC) for Maintenance and Operations clearance taggers was revised to include On-The-Job Training and Task Performance Evaluation (OJT/TPE) for fuse standards. This was completed on April 4, 2016.
- Operational experience and lessons learned regarding this event and fuse standards will be provided to appropriate Operations personnel. This is currently scheduled to be completed by May 12, 2016.
- "Clearance & Tagging Training" (i.e., TTC1709-N) was revised to include fuse standards. This was completed on April 16, 2016.

In addition, the following corrective actions have been completed or are planned.

- EDG 3 was restored to operable status on March 4, 2016, after replacement of the degraded dummy fuse holder. The dummy fuse holders for EDGs 1, 2, and 4 will be replaced. This is currently scheduled to be completed by October 10, 2016.
- Procedure AD-OP-ALL-0200, "Clearance and Tagging," will be revised to ensure blocking devices that are too large for the fuse clip are not used. This is currently scheduled to be completed by August 31, 2016.

NRC FORM 366A (11-2015) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 10/31/2018

LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Brunswick Steam Electric Plant (BSEP), Unit 1	05000-325	2016	- 002	- 00

NARRATIVE

Previous Similar Events

A review of LERs for the past five years identified the following previous similar occurrence.

- LER 1-2015-002, Revision 1, dated November 11, 2015, reported loss of safety function due to inoperability of EDGs 3 and 4. The root cause of the event was a procedural inadequacy in the commercial grade dedication process that allowed an unauthorized component modification to go unrecognized. To prevent recurrence of a similar event, procedure AD-EG-ALL-1103, "Procurement Engineering Products," was revised. Since the causes of the events were different, the actions from LER 1-2015-002 could not have reasonably been expected to prevent the condition reported in LER 1-2016-002.

Commitments

No regulatory commitments are contained in this report.