



10 CFR 50.73

OCT 29 2012

Serial: BSEP 12-0119

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

Subject: Brunswick Steam Electric Plant, Unit Nos. 1 and 2
Docket Nos. 50-325, 50-324
Licensee Event Report 1-2012-005

In accordance with the Code of Federal Regulations, Title 10, Part 50.73, Carolina Power & Light Company 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,

John A. Krakuszeski
Plant Manager
Brunswick Steam Electric Plant

MAT/mat

Enclosure: Licensee Event Report

IE22
MLL

cc (with enclosure):

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LICENSEE EVENT REPORT (LER)

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

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
Local Control Capability of Emergency Diesel Generator No. 2 Not Available

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
08	29	2012	2012 - 005 - 00			10	29	2012	BSEP, Unit 2	05000324
									FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE 1	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)											
	<input type="checkbox"/> 20.2201(b) <input type="checkbox"/> 20.2201(d) <input type="checkbox"/> 20.2203(a)(1) <input type="checkbox"/> 20.2203(a)(2)(i) <input type="checkbox"/> 20.2203(a)(2)(ii)			<input type="checkbox"/> 20.2203(a)(3)(i) <input type="checkbox"/> 20.2203(a)(3)(ii) <input type="checkbox"/> 20.2203(a)(4) <input type="checkbox"/> 50.36(c)(1)(i)(A) <input type="checkbox"/> 50.36(c)(1)(ii)(A) <input type="checkbox"/> 50.36(c)(2) <input type="checkbox"/> 50.46(a)(3)(ii)			<input type="checkbox"/> 50.73(a)(2)(i)(C) <input type="checkbox"/> 50.73(a)(2)(ii)(A) <input checked="" type="checkbox"/> 50.73(a)(2)(ii)(B) <input type="checkbox"/> 50.73(a)(2)(iii) <input type="checkbox"/> 50.73(a)(2)(iv)(A) <input type="checkbox"/> 50.73(a)(2)(v)(A) <input type="checkbox"/> 50.73(a)(2)(v)(B) <input type="checkbox"/> 50.73(a)(2)(v)(C) <input type="checkbox"/> 50.73(a)(2)(v)(D)			<input type="checkbox"/> 50.73(a)(2)(vii) <input type="checkbox"/> 50.73(a)(2)(viii)(A) <input type="checkbox"/> 50.73(a)(2)(viii)(B) <input type="checkbox"/> 50.73(a)(2)(ix)(A) <input type="checkbox"/> 50.73(a)(2)(x) <input type="checkbox"/> 73.71(a)(4) <input type="checkbox"/> 73.71(a)(5) <input type="checkbox"/> OTHER Specify in Abstract below or in NRC Form 366A		
10. POWER LEVEL 100												

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME Mark Turkal, Lead Engineer - Licensing	TELEPHONE NUMBER (Include Area Code) (910) 457-3066
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13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	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 August 28, 2012, during planned maintenance on Emergency Diesel Generator No.2 (EDG 2), a post-maintenance continuity test associated with the Alternate Safe Shutdown (ASSD) switch on EDG 2 revealed unexpected results when the switch was taken to the LOCAL position. Troubleshooting activities determined the switch to be operating properly. However, a current path preventing isolation of the control room circuit remained. It was determined that a wire, not identified in EDG wiring diagrams, created a short between two ASSD switch contacts.

At 2134 hours Eastern Daylight Time (EDT) on August 29, 2012, it was concluded that the condition may impact the ability of EDG 2 to perform its intended ASSD function. In the event of a fire, an induced fault could potentially affect the ability to locally control EDG 2. Local control of EDG 2 is credited in the safe shutdown analysis. This condition did not affect the Technical Specification operability of EDG 2 and it remained fully capable of performing its intended safety function.

The direct cause of this event was a wiring error associated with the local control circuitry for EDG 2. This was a historical error which was likely introduced during the original installation. Therefore, no root cause was determined. The error was limited to EDG 2 and has been corrected.

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NARRATIVE

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

Introduction

Initial Conditions

At the time of the event, Unit 1 and Unit 2 were in Mode 1, at approximately 100 percent of rated thermal power (RTP). Emergency Diesel Generator (EDG) [EK] No. 2 was inoperable for planned maintenance. Offsite power and the remaining EDGs were operable.

Reportability Criteria

This condition affected the ability to locally control EDG 2. Local control of EDG 2 is credited in the safe shutdown analysis. As such, this event is being reported in accordance with 10 CFR 50.73(a)(2)(ii)(B) as an unanalyzed condition that significantly degraded plant safety. The NRC was initially notified of this event on August 30, 2012 (i.e., Event Number 48253). Due to the shared configuration of the onsite AC Electrical Distribution System [EB], this event is applicable to both Units 1 and 2.

Event Description

On August 28, 2012, during planned maintenance on EDG 2, a post-maintenance continuity testing associated with the Alternate Safety Shutdown (ASSD) switch on EDG 2 revealed unexpected results when the switch was taken to the LOCAL position. During this work, Maintenance was verifying model numbers on ASSD switch 2-DG2-SS-A1 installed in the EDG 2 local panel. Verifying this number required the removal of the switch cover. Due to the congested wiring within this switch, the work order required testing of the contact wiring once the cover was reinstalled. The post-maintenance test consisted of continuity checks across remote terminal points in the diesel control panel with the switch in both the NORMAL and LOCAL positions. When continuity checks were made across the 2-2C contact with the switch in the LOCAL position (i.e., contacts open), the switch appeared to be closed. After subsequent troubleshooting, a wire was found to be incorrectly installed between terminal points TBF-6 and TBB-64 that essentially jumpered around the switch contacts.

An additional wiring error was discovered associated with the EDG 2 speed switches. The negative leg of the EDG speed switches were found to be wired upstream of the ASSD switch. However, the incorrect jumper noted above electrically connected the speed switches to the correct location. If the jumper above had not been installed, the speed switches, which are essential to EDG operation, would have been inoperable when the ASSD switch was placed in the LOCAL position.

The erroneous wiring in the field was not reflected on the control wiring diagrams or interconnection wiring diagrams.

At 2134 hours Eastern Daylight Time (EDT) on August 29, 2012, it was concluded that the condition may impact the ability of EDG 2 to perform its intended ASSD function. In the event of a fire, an induced fault could potentially affect the ability to locally control EDG 2. Local control of EDG 2 is credited in the safe shutdown analysis. This condition did not affect the Technical Specification operability of EDG 2 and it remained fully capable of performing its intended safety function.

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Event Description (continued)

The EDG 2 control circuit was re-wired to match existing approved design. EDG 2 was returned to operable status on September 1, 2012. Subsequent inspections were performed and it was confirmed that similar wiring errors did not exist on EDGs 1, 3, or 4.

Event Cause

The cause for the incorrect wiring is a historical error. Therefore, no root cause was determined.

A historical review identified no maintenance or engineering change activities that introduced the wiring discrepancies. The original installation of ASSD switch 2-DG2-SS-A1 occurred in 1979.

EDG2 ASSD functionality is tested in accordance with plant procedure OPT-12.12.L, "Diesel Generator 2 Local Control Operability Test." This test demonstrates that the control and indication for EDG 2 can be isolated from the control room and controlled from their respective local control stations. However, OPT-12.12.L does not check the continuity of the contacts for each switch to determine if there is an issue with any individual contact or current path. Thus, if only one contact opens, as long as it breaks the circuit connection to power or ground, the test will be completed satisfactorily. As such, the test does not demonstrate proper isolation from control room circuitry in the event of a fire induced fault.

Safety Assessment

The actual safety significance of this condition is considered minimal. This condition did not affect the TS operability of EDG 2 and it remained fully capable of performing its intended design basis accident response functions. No actual fire induced trip condition occurred.

From a probabilistic risk standpoint, the number of ignition sources capable of causing a fire scenario potentially affecting the cables is very low. Additionally, the frequency of a fire scenario occurrence in the ignition source is very low. The combination provides a very low potential for a scenario which would require the ASSD function. The impact on the consequences of an event is conservatively considered medium. Therefore the overall significance of the condition is low.

Corrective Actions

The following corrective actions were completed.

- The EDG 2 control circuit was re-wired to match existing approved design.
- The control circuitry for EDGs 1, 3, or 4 was inspected and no similar wiring errors were identified.

The following additional actions are planned.

- EDG local control operability test procedures (i.e., OPT-12.11.L, OPT-12.12.L, OPT-12.13.L, and OPT-12.14.L, for EDGs 1,2, 3, and 4, respectively) will be revised to require testing to verify the functionality of individual ASSD switch contacts. These revisions are currently scheduled to be completed by March 14, 2013.

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Previous Similar Events

A review of LERs and corrective action program condition reports identified the following previous similar occurrence.

- LER 1-2008-006, Supplement 1, dated July 30, 2009, reported a plant modification that was installed on the four EDGs, which impacted the ability of EDG Nos. 2, 3, and 4 to perform their intended ASSD function (i.e., local control of EDG 1 is not credited in the ASSD analysis). The root causes for the event were a latent organizational weakness existed where the EDG control wire circuitry maintained the same wire segment number on either side of the ASSD key-switches, and a lack of sufficient rigor by Engineering in performance of their responsibilities during activities associated with modification of control logic circuitry.

The corrective actions from the LER 1-2008-006 event could not have been expected to identify this discrepancy. The corrective actions from the LER 1-2008-006 were focused on providing adequate barriers to prevent the latent organizational weakness associated with control wire labeling from resulting in development of an inadequate Engineering Change. To date, the corrective actions from LER 1-2008-006 have been effective in this respect.

Commitments

No regulatory commitments are contained in this report.