



MAR 27 2007

SERIAL: BSEP 07-0029

10 CFR 50.73

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

Subject: Brunswick Steam Electric Plant, Unit Nos. 1 and 2
Docket Nos. 50-325 and 50-324/License Nos. DPR-71 and DPR-62
Licensee Event Report 1-2007-001

Ladies and Gentlemen:

In accordance with the Code of Federal Regulations, Title 10, Part 50.73, Carolina Power & Light Company, now doing business as Progress Energy Carolinas, Inc., submits the enclosed Licensee Event Report. This report fulfills the requirement for a written report within sixty (60) days of a reportable occurrence.

Please refer any questions regarding this submittal to Mr. Randy C. Ivey, Manager - Support Services, at (910) 457-2447.

Sincerely,

A handwritten signature in black ink, appearing to read 'BCWaldrep'.

B. C. Waldrep
Plant General Manager
Brunswick Steam Electric Plant

LJG/ljg

Enclosure:

Licensee Event Report

Progress Energy Carolinas, Inc.
Brunswick Nuclear Plant
PO Box 10429
Southport, NC 28461

IE22

cc (with enclosure):

U. S. Nuclear Regulatory Commission, Region II
ATTN: Dr. William D. Travers, Regional Administrator
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U. S. Nuclear Regulatory Commission
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U. S. Nuclear Regulatory Commission
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Chair - North Carolina Utilities Commission
P.O. Box 29510
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LICENSEE EVENT REPORT (LER)

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

Estimated burden per response to comply with this mandatory information collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@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 5

4. TITLE

E1 to E3 Cross-tie Breaker Unavailable due to Misalignment

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
01	27	2007	2007	-- 001 --	00	03	27	2007	BSEP, Unit 2	05000324
									FACILITY NAME	DOCKET NUMBER

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

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME

Lee J. Grzeck, Senior Engineer – Licensing

TELEPHONE NUMBER (Include Area Code)

(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

14. SUPPLEMENTAL REPORT EXPECTED

14. SUPPLEMENTAL REPORT EXPECTED				15. EXPECTED SUBMISSION DATE		MO	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE).				X	NO			

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On January 27, 2007, at approximately 1600 EDT, while performing a periodic surveillance of breaker alignment, the Emergency Bus 1 (E1) to E3 cross-tie breaker, located on E1, was found with the racking lever misaligned slightly from the required vertical position, and the trip pushbutton was found to be depressed (i.e., not flush with the breaker cover as required). The E1 cross-tie breaker and the E3 cross-tie breaker are two breakers in series between emergency buses E1 and E3 and allow cross-tying of the two buses during emergency conditions. Control power to the cross-tie breaker is supplied via a local manual switch and is used for Station Black Out (SBO), Fire (i.e., as directed by Alternate Safe Shutdown (ASSD)), and maintenance procedures. The breaker was determined to be racked-in past the normal connected position and would have prevented closure of the breaker.

This event is being reported in accordance with 10 CFR 50.73(a)(2)(ii)(B), as an event or condition that resulted in the plant being in an unanalyzed condition that significantly degraded plant safety. It appears that the breaker was in the tripped condition since April 29, 2006, the date of the last documented activity affecting this breaker.

The select cause of this event is a failure to properly rack-in the breaker in accordance with procedure 1OP-50, "Plant Electric System Operating Procedure."

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)
Brunswick Steam Electric Plant (BSEP), Unit 1	05000325	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 5
		2007	-- 001	-- 00	

NARRATIVE (If more space is required, use additional copies of NRC Form 366A) (17)

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

Introduction

On January 27, 2007, at approximately 1600 EDT, while performing a periodic surveillance of breaker alignment, the Emergency Bus 1 (E1) [EK] to E3 cross-tie breaker, located on E1, was found with the racking lever misaligned slightly from the required vertical position, and the trip pushbutton was found to be depressed (i.e., not flush with the breaker cover as required). The E1 and E3 cross-tie breakers allow cross-tying of the two emergency buses during emergency conditions. Control power to the cross-tie breaker is supplied via a local manual switch and is used for Station Black Out (SBO), Fire (directed by Alternate Safe Shutdown (ASSD)), and maintenance procedures.

This event is being reported in accordance with 10 CFR 50.73(a)(2)(ii)(B), as an event or condition that resulted in the plant being in an unanalyzed condition that significantly degraded plant safety. It appears that the breaker was in the tripped condition since April 29, 2006, the date of the last documented activity affecting this breaker.

Event Description

Initial Conditions

At the time of the event, Unit 1 was in Mode 1, operating at approximately 96 percent of rated thermal power. Unit 2 was in Mode 1, operating at approximately 99 percent of rated thermal power.

Discussion

The E1 to E3 cross-tie breaker (i.e., 1-E1-AG0) and the E3 to E1 cross-tie breaker (i.e., 2-E3-AJ5) are two breakers in series between E1 and E3. The breakers allow cross-tying the two buses during emergency conditions to allow an energized bus to supply power to a de-energized bus. The cross-tie breakers are normally racked-in with control power removed from the breaker to prevent inadvertent operation. Control power is removed via a four position key lock switch. The four positions of this switch are NORMAL, FIRE, SBO, and MAINT (i.e., Maintenance). In the NORMAL position, control power is removed. In the FIRE position, directed by ASSD procedures, control power is applied and the breaker can be operated by using the local control switch at the breaker. In the SBO position, as directed by AOP-36.2, "Station Blackout," control power is applied and the breaker can also be operated with the local control switch. In the MAINT position, as directed by AOP-36.1, "Loss of any 4160V Buses or 480V E-buses" [EB] [ED], control power is applied and the breaker can be closed from the Main Control Room.

On April 29, 2006, as post-maintenance testing was being performed following work on the E3 to E1 cross-tie breaker, Operations completed performance of OPT-12.19.L, "E1-E3 Cross-tie Breaker Selector Switch Operability Test." At the completion of this testing, the final restoration step is to rack-in the E1 to E3 Cross-tie breaker in accordance with 1OP-50, "Plant Electric System Operating Procedure." Operations

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NARRATIVE (If more space is required, use additional copies of NRC Form 366A) (17)

Event Description (continued)

completed the rack-in procedure on April 29, 2006, at 1808 hours. Subsequently, on January 27, 2007, an Operator performing OPT-12.6, "Breaker Alignment Surveillance," found the breaker racking release lever misaligned slightly from the required vertical position, and the trip pushbutton was found to be depressed, not flush with the breaker cover as required.

The breaker trip pushbutton is mechanically linked to the racking release lever. When the racking release lever is vertical, a pin is inserted into a slot and the trip pushbutton is not depressed. When the racking release lever is moved to the left, the trip pushbutton is depressed, the pin is moved out of the slot, and the breaker may be racked in or out as required. The racking release lever is spring loaded to keep the pin inserted, or to insert the pin when a new position is reached. In order to rack the breaker in or out, the racking release lever must be moved to the left and held in that position until the pin is no longer inserted in the slot. At the next position, the spring will snap the release lever into place, preventing additional racking until the release lever is moved again.

For the as-found condition on January 27, 2007, the breaker was actually racked past the racked-in position, the pin was not inserted in a slot, and the release lever was not in the vertical position causing the trip pushbutton to be depressed. This condition would have prevented normal closure of the breaker.

Event Cause

The root cause of this event could not be definitively determined. The select cause of this event is a failure to properly rack-in the breaker in accordance with procedure IOP-50.

Procedure IOP-50, Section 8.17, contains steps to confirm that the racking release lever is in the "full down" (i.e., vertical) position, and to confirm the trip pushbutton is not depressed and contains a diagram of the racking release lever to assist in identifying the proper components. The procedure also contains an attachment to document various conditions of the breaker to ensure the breaker is properly racked-in. This attachment requires individual initials for the placement of the breaker as well as the independent verification of its position. Two steps in that attachment include the racking release lever at "full down" and the trip pushbutton not depressed. This attachment was completed and verified by two operators for the 1-E1-AG0 breaker. When interviewed, the operators who performed the evolution demonstrated adequate knowledge of breaker racking operation.

To ensure that an equipment problem did not exist with the breaker, Operations racked-out and then racked-in the breaker and found the breaker racking mechanism to be operating normally. In addition, the breaker was removed from service and thoroughly inspected by qualified maintenance personnel; again no evidence of equipment malfunction was identified. Also, the breaker vendor identified no known failure mechanism for this breaker that would result in a properly racked-in breaker failing to a racked too far position.

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Event Cause (continued)

Two independent searches of the scheduling database and discussions with the System Engineer identified no work activities between April 29, 2006, and January 27, 2007, that affected the 1-E1-AG0 cross-tie breaker.

Based on the investigations discussed above, it has been concluded that the misalignment condition occurred as a result of the April 29, 2006, racking activity and is attributable to either inadequate self checking or a knowledge gap regarding proper breaker alignment on the part of the operators who performed the evolution.

Safety Assessment

The safety significance of this condition is considered minimal.

At no time during the period of April 29, 2006, through January 27, 2007, was BSEP required to cross-tie E1 to E3 during an emergency condition. In addition, while the condition could have prevented station personnel establishing the emergency bus cross-tie within the time assumed in the SBO and ASSD analysis, it was a condition that could be easily identified and corrected. Operators are required to go to the breaker and manually position the four position key lock switch to allow breaker operation. In the FIRE and SBO positions, the breaker would also be operated by the Operator with the local control switch. This would allow for the Operator to immediately investigate via a visual inspection, discover the problem, and then correct the error. The breaker was functional but racked-in too far, and could have been made operable by racking-out then racking back in the breaker.

Corrective Actions

When the condition was discovered, the breaker was restored to the normal racked in position and all breakers on E1 through E4 were verified to be properly racked. Additionally, prior to the beginning of the Unit 2 refueling outage, Fast Track Training which demonstrated the differences between a properly versus improperly racked breaker was provided to appropriate Operations personnel. In addition, appropriate Operations personnel were also provided a demonstration of proper breaker operation. Auxiliary Operators were required to physically operate the breaker and Licensed Operators were required to observe.

The following corrective actions to prevent recurrence have been identified.

- The involved individuals were counseled.
- Initial and continuing operator training will be reviewed and upgraded, as necessary, to include training on properly as well as improperly racked breaker indications. This is expected to be completed by May 25, 2007.

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NARRATIVE (If more space is required, use additional copies of NRC Form 366A) (17)

Corrective Actions (continued)

Additionally, the following corrective actions have been identified.

- OPT-12.6, "Breaker Alignment Surveillance," was revised to include a check that breakers are properly racked-in, including adding a figure to assist in proper configuration.
- 1(2)OP-50, "Plant Electrical System Operating Procedure," will be revised to require an additional verification, as well as a log entry, if the load for a racked-in breaker will not be started. This revision is currently scheduled to be completed by March 29, 2007.

Previous Similar Events

A review of LERs and Corrective Action Program condition reports which have occurred within the past three years identified the following previous event.

- Nuclear Condition Report 119776, BSEP Unit 1, dated March 1, 2004, documents a condition in which the 1B Circulating Water Intake Pump breaker was in the TEST position and attempts to close the breaker were unsuccessful. In this case, the mechanical rack-out linkage rod that operates the trip relay had become bound against the side of the breaker actuating the trip relay. This prevented energizing the closing circuit. Although this is not an example of an improper rack-in of a breaker, it does illustrate another failure method. In this case the rack-out linkage rod is connected to the racking release lever and would also have kept the trip pushbutton depressed. The corrective actions associated with NCR 119776 could not have reasonably been expected to prevent the event reported in this LER.

Commitments

No regulatory commitments are contained in this report.