



Carolina Power & Light Company  
P.O. Box 10429  
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NOV 01 1995

SERIAL: BSEP-95-0575  
10 CFR 50.73

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

BRUNSWICK STEAM ELECTRIC PLANT UNIT 2  
DOCKET NO. 50-324/LICENSE NO. DRP-62  
LICENSEE EVENT REPORT 2-95-003

Gentlemen:

In accordance with the Code of Federal Regulations, Title 10, Part 50.73, Carolina Power & Light Company submits the enclosed Licensee Event Report. This report fulfills the requirement for a written report within thirty (30) days of a reportable occurrence and is submitted in accordance with the format set forth in NUREG-1022, September 1983.

Please refer any questions regarding this submittal to Mr. K. A. Harris at (910) 457-3312.

Sincerely,

W. Levis, Director-Site Operations  
Brunswick Nuclear Plant

SFT/sft

Enclosures

1. Licensee Event Report
2. Summary of Commitments

cc: Mr. S. D. Ebnetter, Regional Administrator, Region II  
Mr. D. C. Trimble, Jr., NRR Project Manager - Brunswick Units 1 and 2  
Mr. C. A. Patterson, Brunswick NRC Senior Resident Inspector  
The Honorable H. Wells, Chairman - North Carolina Utilities Commission

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LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Brunswick Steam Electric Plant, Unit 2	DOCKET NUMBER (2) 05000324	PAGE (3) 1 of 4
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TITLE (4)  
Residual Heat Removal Pump Inoperable Due to Inadequate 4KV Breaker Engagement

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
10	04	95	95	- 03 -	00	11	01	95	FACILITY NAME	DOCKET NUMBER 05000
									FACILITY NAME	DOCKET NUMBER 05000

OPERATING MODE (9) 1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more of the following)(11)									
POWER LEVEL (10) 91	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)						
	20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)						
	20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER						
	20.405(a)(1)(iii)	X 50.73(a)(2)(ii)	50.73(a)(2)(viii)(A)	(Specify in Abstract and Text)						
	20.405(a)(1)(iv)	50.73(a)(2)(iii)	50.73(a)(2)(viii)(B)							
20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)								

LICENSEE CONTACT FOR THIS LER (12)

NAME Steve F. Tabor, Regulatory Affairs Specialist	TELEPHONE NUMBER (910) 457-2178
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

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

**ABSTRACT** (Limit to 1400 spaces, i.e. approximately fifteen single space typewritten lines) (16)  
 On October 4, 1995, while placing the B loop of the Residual Heat Removal (RHR) system into suppression pool cooling to support planned Reactor Core Isolation Coolant (RCIC) system testing, the 2B RHR pump failed to start. Subsequent inspection of the 2B RHR pump motor breaker revealed that the breaker was not fully racked in. The breaker was racked in sufficiently to engage the breaker indication lights both locally and on the RTGB; however, the breaker was not engaged sufficiently to ensure pump operation. The breaker was immediately racked in and pump operation verified. Investigation into the cause of this event determined that the 2B RHR pump motor breaker had been racked out, and back in, on September 21, 1995, during routine surveillance. The operator performing the surveillance did not verify that the breaker was properly restored in accordance with the requirements of the 4KV breaker rack in procedure. Consequently, the 2B RHR pump had been rendered inoperable for 14 days, exceeding the Technical Specification requirements for allowable out of service times for the Low Pressure Coolant Injection and Suppression Pool Cooling systems. Additional corrective actions that have been taken include counselling of the involved individual, implementation of an operator stand-down on the event, issuance of a Standing Instruction to require local independent verification of 4KV safety related breaker rack in procedures, and inspection of the site 4KV breakers to verify proper position. This event has minimal safety significance due to the defense-in-depth design incorporated into the low pressure coolant injection (LPCI) systems, high reliability of RHR pumps which are periodically tested and maintained, and the short time periods involved when the pump was out of service.

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

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
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TEXT (If more space is required, use additional NRC Form 366A's) (17)

TITLE

Residual Heat Removal (RHR) Pump Inoperable Due to Inadequate 4KV Breaker Engagement

INITIAL CONDITIONS

Unit 2 was operating steady state at approximately 95% power. Preparations were underway to restore the B loop of RHR to operable status following the successful completion of routine RHR system surveillance. These activities included racking in the RHR pump 2B and 2D 4KV breakers.

EVENT NARRATIVE

On September 21, 1995, at 1145 hours, the RHR pump 2B and 2D 4KV motor breakers were racked out to support performance of routine RHR system surveillance. Following completion of the surveillance, the breakers were racked in at approximately 1350 hours. Independent verification of breaker position was performed by an operator stationed in the control room utilizing remote breaker indication.

On October 4, 1995, at approximately 1622 hours, while placing the B loop of the RHR system into suppression pool cooling in preparation for planned Reactor Core Isolation Cooling system surveillance testing, Operations attempted to start the 2B RHR pump. The pump failed to start. Investigation by Operations and Maintenance determined that the breaker was not fully racked in. By approximately 1728 hours, the breaker was inspected, racked in, and the 2B RHR pump successfully started.

This event is being reported in accordance with the requirements of 10 CFR 50.73(a)(2)(i) in that the 2B RHR pump was rendered inoperable due to the breaker not being fully racked in for 14 days. Being out of service for greater than seven days exceeds the requirements as addressed by Technical Specifications 3.5.3.2 (Low Pressure Coolant Injection) and 3.6.2.2 (Suppression Pool Cooling).

CAUSE OF EVENT

Plant procedures for racking in a 4KV breaker require verification that the local trip push button is not depressed to ensure proper breaker engagement. The operator who performed the rack-in of the 2B RHR pump motor breaker on September 21, 1995, did not perform this step as required.

In addition, the independent verifier utilized remote breaker indication to independently verify the 2B RHR pump motor breaker position. Although the independent verification procedure allows the use of remote indication as an independent means to verify breaker position, operator training identifies that the use of remote indication for 4KV breakers may not accurately reflect breaker position. In this case the 2B RHR pump motor breaker was sufficiently racked in to provide local and remote breaker indication; however, the breaker was not sufficiently racked in to provide power to the pump motor.

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

CORRECTIVE ACTIONS

The appropriate individuals involved in this event have been counseled.

A stand-down with Operations personnel was conducted to discuss the lessons learned from this event.

A prompt initial inspection was performed by Operations to ensure that each 4KV breaker was properly racked in or under proper administrative controls if racked out.

A detailed 4KV breaker checklist was developed and each 4KV breaker inspected to verify proper position by Operations and independently verified by Maintenance.

As an interim measure a Standing Instruction was initiated requiring that a Senior Reactor Operator independently verify each safety related 4KV breaker locally during rack in procedures until an evaluation of the methods for ensuring proper 4KV breaker rack in can be performed.

Operations is evaluating the methods for ensuring that 4KV breakers are properly racked in.

Procedure OPLP-21, Independent Verification, will be revised by December 20, 1995, to identify that independent verification of 4KV and 480 VAC load control rackable breakers cannot be performed utilizing remote indication.

SAFETY ASSESSMENT

The relative safety significance of this event is minimal. The defense-in-depth design incorporated into the Low Pressure Coolant Injection (LPCI) systems, the high reliability of RHR pumps which are periodically tested and maintained, and the short time periods involved when the pump was out of service contribute to the overall negligible effect on safety.

The LPCI function is necessary to mitigate a Loss Of Coolant Accident (LOCA). However, the safety significance of individual RHR pumps is low because of defense-in-depth and also because the estimated frequency of a LOCA is low. Based on the Probabilistic Safety Assessment model, one low pressure pump, either from RHR or Core Spray, is sufficient to keep the core covered during a LOCA and prevent core damage. Each pump is maintained and tested periodically in accordance with Technical Specifications and plant controls to sustain a high reliability rate. One out of six pumps, each with a high reliability, is needed to mitigate a LOCA. These factors result in the relative significance of each pump being low.

The other safety significant functions of the RHR pumps are containment decay heat removal by suppression pool cooling, drywell spray, or wetwell spray. For these applications, one out of four pumps is sufficient to provide adequate decay heat removal. In addition, other functions are available to remove decay heat, such as heat rejection to the condenser. Furthermore, decay heat removal sequences develop slowly and typically do not require mitigation until several hours have elapsed during an event. The likelihood that an operator can restore a pump to service is reasonably high in these situations because of the time available to detect, diagnose, and correct problems. For this particular case, the 2B RHR pump would not have been available for LOCA mitigation, but would likely have been available, if

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required, for decay heat removal.

The 2B RHR pump was unavailable from September 21 to October 4, 1995, for a total of 317.72 hours. The overall change in core damage frequency due to this unavailability was negligible (0.4%). During this time the A loop of RHR was out of service for 4 hours and 45 minutes to support routine surveillance. With the 2B RHR pump and the A loop of RHR out of service, the overall change in core damage frequency was 0.04%. Emergency Diesel Generator (EDG) #3 was out of service during routine surveillance on two occasions, once for 28 minutes and again for 1 hour and 35 minutes. With the 2B RHR pump and EDG #3 out of service, the overall change in core damage frequency was 0.02%. In each of these cases the equipment was out of service for a brief period of time to support planned testing. This equipment would have been made available for use promptly, if needed, to support plant activities.

PREVIOUS SIMILAR EVENTS

Previous reportable events involving improper engagement of electrical breakers were not identified.

EIIS COMPONENT IDENTIFICATION

System/Component

EIIS Code

Residual Heat Removal System  
Breaker

BO  
BKR



Enclosure  
List of Regulatory Commitments

The following table identifies those actions committed to by Carolina Power & Light Company in this document. Any other actions discussed in the submittal represent intended or planned actions by Carolina Power & Light Company. They are described to the NRC for the NRC's information and are not regulatory commitments. Please notify the Manager-Regulatory Affairs at the Brunswick Nuclear Plant of any questions regarding this document or any associated regulatory commitments.

Commitment	Committed date or outage
1. An evaluation of the methods for ensuring that 4KV breakers are properly racked in will be performed.	12/20/95
2. Procedure OPLP-21, Independent Verification, will be revised to identify that independent verification of 4KV and 480 VAC load control rackable breakers cannot be performed utilizing remote indication.	12/20/95