



Carolina Power & Light Company

Brunswick Nuclear Plant  
P.O. Box 10429  
Southport, NC 28461-0429

February 7, 1994

SERIAL: BSEP-94-0052  
10CFR50.73

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

BRUNSWICK NUCLEAR PLANT UNIT 1  
DOCKET NO. 50-325/LICENSE NO. DRP-71  
LICENSEE EVENT REPORT 1-94-001

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. R. C. Godley at (910) 457-2412.

Very truly yours,

C. C. Warren, Acting Director-Plant Operations  
Brunswick Nuclear Plant

JFM/jfm

Enclosures

1. Licensee Event Report
2. Summary of Commitments

cc: Mr. S. D. Ebnetter, Regional Administrator, Region II  
Mr. P. D. Milano, NRR Project Manager - Brunswick Units 1 and 2  
Mr. R. L. Prevatte, Brunswick NRC Senior Resident Inspector

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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	
1.	Revise 1/2 MST-RHR27M to include steps to reset the isolation logic at the completion of testing which causes a trip of the isolation logic relays.
2.	Review other MSTs that test isolation circuitry to verify procedural adequacy.
3.	Review the event with the Maintenance Procedure Writers.
4.	Conduct a self-assessment to evaluate the performance of Safety and Technical Reviews within the Maintenance Procedures Group.

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 (MNBB 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.

**LICENSEE EVENT REPORT (LER)**

FACILITY NAME (1)

Brunswick Steam Electric Plant, Unit 1

DOCKET NUMBER (2)

05000325

PAGE (3)

1 of 4

TITLE (4)

Group 8 Isolation During Restoration from Maintenance Surveillance Test (MST)  
1MST-RHR27M

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
01	11	94	94	- 01 -	00	02	07	94	FACILITY NAME	DOCKET NUMBER
										05000
										05000

  

OPERATING MODE (9)	5	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §. (Check one or more of the following)(11)								
		20.402(b)		20.405(c)	<input checked="" type="checkbox"/>	50.73(a)(2)(iv)		73.71(b)		
POWER LEVEL (10)	0	20.405(a)(1)(ii)		50.36(c)(1)		50.73(a)(2)(iv)		73.71(c)		
		20.405(a)(1)(iii)		50.36(c)(2)		50.73(a)(2)(vii)		OTHER		
		20.405(a)(1)(iv)		50.73(a)(2)(i)		50.73(a)(2)(viii)(A)		(Specify in Abstract and Text)		
		20.405(a)(1)(v)		50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)				
		20.405(a)(1)(vi)		50.73(a)(2)(iii)		50.73(a)(2)(x)				

LICENSEE CONTACT FOR THIS LER (12)

NAME

Jeanne F. McGowan, Regulatory Affairs Specialist

TELEPHONE NUMBER

(910) 457-2136

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)

YES (if yes, complete EXPECTED SUBMISSION DATE)

NO

EXPECTED SUBMISSION DATE (15)

MONTH DAY YEAR

ABSTRACT (Limit to 1400 spaces, i.e. approximately fifteen single space typewritten lines) (16)

Unit 1 was in Refuel with approximately 421 out of 560 fuel bundles loaded into the core. The Residual Heat Removal (RHR) System "A" Loop was in Shutdown Cooling. On January 11, 1994, Maintenance Surveillance Test (MST) 1MST-RHR27M, RHR Shutdown Cooling Reactor Pressure Instrument Channel Calibration, was scheduled to be performed. The MST allowed the Inboard and Outboard Shutdown Cooling Isolation Valves (E11-F008 & E11-F009) to be placed under clearance open during the test to prevent a Group 8 Primary Containment Isolation System Isolation and the loss of shutdown cooling. The MST was completed satisfactorily and Operations proceeded to remove the clearances from the E11-F008 and F009. When the breaker for the E11-F009 was closed, the Group 8 isolation was received, the valve closed, and the 1A RHR Pump tripped. The Reactor Operator (RO) and the Senior Reactor Operator (SRO) observed the E11-F009 stroking closed. After verifying vessel level an unsuccessful attempt was made to reopen the E11-F009 using the control switch. The RO then depressed the group isolation reset push buttons and successfully opened the E11-F009. Shutdown cooling was re-established in approximately 8 minutes. The cause of the event was an inadequate technical review when revising the MST. Through revision 7 of the MST jumpers were installed to bypass the trip logic. Revision 8 removed the jumpers and did not address the need for an end of test reset to prevent the Group 8 isolation. Corrective actions include revising the MST to include steps to reset the isolation logic and review other MST's that test isolation circuitry to verify procedure adequacy. The safety significance was minimal. Unit 1 had been shutdown since April 21, 1992 and there was no increase in coolant temperature during the event. Shutdown cooling was re-established in approximately 8 minutes. The cause classification for this event per the criteria of NUREG-1022 is defective procedure.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

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 (MNBB 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.

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Brunswick Steam Electric Plant Unit 1	05000325	94	- 01 -	00	2 of 4

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

TITLE

Group 8 Isolation During Restoration from Maintenance Surveillance Test (MST)  
1MST-RHR27M

INITIAL CONDITIONS

Unit 1 was in Refuel and had been shutdown since April 21, 1992. Refueling was in progress with approximately 421 out of 560 fuel bundles loaded into the core. RHR Loop "A" was operating in shutdown cooling and was the primary method of decay heat removal. The Fuel Pool Cooling System was designated as the alternate method of decay heat removal. 1MST-RHR27M, RHR Shutdown Cooling Reactor Pressure Instrument Channel Calibration, was scheduled to be performed. The test was being performed in accordance with Technical Specification 4.3.2-1 5.B. to support a reactor mode switch change to Mode 3.

EVENT NARRATIVE

On January 11, 1994, a briefing for the MST was held at 1330. Clearances were to be placed on the E11-F008 and F009 to prevent the Group 8 isolation during the performance of the MST. The clearances were authorized by the Senior Reactor Operator (SRO) and were hung at 1413. At 1420, the MST commenced. The MST was completed satisfactorily at 1635 and at 1655 the SRO authorized cancellation of the clearances on the E11-F008 and E11-F009.

At 1709 the breaker was closed for the E11-F009. The valve started stroking closed and the 1A RHR Pump tripped. The Reactor Operator (RO) and the SRO observed the valve stroking closed and unsuccessfully attempted to re-open the valve. The RO then depressed the group isolation reset push buttons and successfully opened the valve. Shutdown Cooling was re-established at 1717 via the "A" Loop of the RHR System.

The E11-F008 and E11-F009 are electrically interlocked such that they cannot be opened when the reactor pressure is greater than 135 psig. The logic is designed to protect the RHR system heat exchangers from over-pressurization when the reactor pressure exceeds 135 psig by providing an automatic isolation signal to close the E11-F008 and F009 valves. This isolation signal is part of a Group 8 Primary Containment Isolation System (PCIS) isolation. Once reactor pressure is less than 135 psig, RHR can be placed in shutdown cooling.

The MST is a channel calibration and functional test and is performed to determine the operability of the reactor pressure RHR shutdown cooling isolation function of the PCIS. The Group 8 PCIS isolation logic remains in the trip condition until it is reset, and then only if the initiating condition has cleared. The initiating condition for the MST is a simulated increasing reactor pressure above 135 psig. The MST, through revision 7, had been performed with jumpers installed around relays A71B-K28 (F009) and A71B-K50 (F008). These relays provide a trip permissive for the isolation logic associated with the E11-F008 & F009. With the jumpers installed, the isolation logic is bypassed, and a reset is not required to clear the circuitry.

Revision 8 of the MST deleted the jumper installations across the K28 and K50 relays. The revision was initiated to delete the requirement to access a junction box during the performance of 1MST-RHR27M, Revision 7. This procedure contained steps to gain access to terminals inside the junction box so a volt-ohm meter could be connected. While revising

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

the MST, the decision was made to also remove the jumper installations across the K28 and K50 relays. The jumpers were difficult to install and were located in an Emergency Core Cooling System Panel. Without the jumpers installed, the E11-F008 & F009 would close on an isolation signal. The MST instructed the technician to inform Operations that if RHR was in shutdown cooling, performance of the MST would cause a PCIS Group 8 isolation signal and the in service RHR Pump would trip. Revision 8 did provide the necessary notifications to Operations, however, it did not provide an end of test reset for the isolation logic prior to returning the system to Operations for system realignment and restoration. Prior to revision 8, there was no need to reset the isolation relays, because the jumpers across relays K28 and K50 prevented a trip.

Revision 9 of the MST added optional guidance in the prerequisites section to allow continuation of shutdown cooling during test performance. The shutdown cooling isolation valve breakers are opened and placed under a Shift Supervisor's clearance. This revision was requested by Operations. As in revision 8, there were no steps added to provide an end of test reset for the isolation logic.

CAUSE OF EVENT

The cause of the event was inadequate technical reviews for revisions 8 and 9 of the MST. Revision 8 removed the jumpers without addressing it in the safety analysis. When revising the procedure, the emphasis was on deleting the requirement to access the junction box and the safety analysis focused on that. The removal of the jumpers was added while revising the MST and was not addressed in the safety analysis. The procedure writer was unaware of the "sealed in" feature of the trip logic and the need to provide an end of test reset of the isolation.

CORRECTIVE ACTIONS

1. Revise 1/2MST-RHR27M to include steps to reset the isolation logic at the completion of testing which causes a trip of the isolation logic relays.
2. Review other MSTs that test isolation circuitry to verify procedural adequacy.
3. Review the event with the Maintenance Procedure Writers.
4. Conduct a self-assessment to evaluate the performance of Safety and Technical Reviews within the Maintenance Procedures Group.

SAFETY ASSESSMENT

The safety significance was minimal. Unit 1 had been shutdown since April 21, 1992. There was very little decay heat and there was no increase in temperature during the loss of shutdown cooling. Shutdown cooling was restored in 8 minutes and the Fuel Pool Cooling System was available as the backup method of decay heat removal during the event.

PREVIOUS SIMILAR EVENTS

Previous similar events include LERs 2-89-015 and 1-90-028.

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EIIS COMPONENT IDENTIFICATION

<u>System/Component</u>	<u>EIIS Code</u>
Primary Containment	
Isolation System	JM