

**LICENSEE EVENT REPORT (LER)**

FACILITY NAME (1)												DOCKET NUMBER (2)				PAGE (3)	
Brunswick Steam Electric Plant Unit 2												0   5   0   0   0   3   2   4				1 OF 0   3	

TITLE (4)

Reactor Scram Resulting From Closure of Main Steam Isolation Valve

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 NAMES					DOCKET NUMBER(S)														
																0   5   0   0   0														
0	2	2	2	8	4	8	4	-	0	0	4	-	0	0	0	3	2	3	8	4						0   5   0   0   0				

OPERATING MODE (9)		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   9   6	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 (Specify in Abstract below and in Text, NRC Form 365A)
		20.405(a)(1)(iii)		50.73(a)(2)(i)		50.73(a)(2)(viii)(A)	
		20.405(a)(1)(iv)		50.73(a)(2)(ii)		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							TELEPHONE NUMBER										
							AREA CODE										
M. J. Pastva, Jr., Regulatory Technician							9	1	9	4	5	7	-	9	5	2	1

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	
B	J   E	R   L Y	G   Q 8   O	Yes							
											*

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO				

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

On February 22, 1984, at approximately 0158, while testing the Primary Containment Isolation System (PCIS) function of Unit 2 reactor low water level No. 2 dc logic channel NO25A-1, main steam line isolation valve (MSIV) B21-F028D closed. At the time the unit was at power operation of 97 percent. Reactor pressure spiked (1,014 psig recorded), and the reactor scrambled on high power (117 percent recorded). A Group 1 isolation occurred. The High Pressure Coolant Injection (HPCI) System and Reactor Core Isolation Cooling (RCIC) System automatically started to control reactor level and pressure. The Group 1 was reset, reactor pressure and level control was reestablished, and a scram recovery was performed. The event occurred in the most limiting condition (high power). F028D closed as a result of the ac- and dc-powered solenoid valves to the F028D operator being deenergized simultaneously. Electrical contacts 9 and 10 of ac logic channel NO24B-1, relay A71-K16, were not making when dc logic channel NO25A-1 was tested. Relay A71-K16, GE Part No. 12HFA51A49H, was replaced and returned to service.

The problem relay was disassembled with no problems found. The procedure for replacing these type relay coils is being revised to include electrical verification of the relay contacts closure as permitted by the involved circuitry design. These type relays are inspected monthly to detect potential relay coil failures.

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## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES 8/31/85

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Brunswick Steam Electric Plant Unit 2	0 5 0 0 0 3 2 4 8 4	—	0 0 4	—	0 0	0 2	OF 0 3

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

During Unit 2 power operation at 97 percent on February 22, 1984, at approximately 0158, main steam line isolation valve (MSIV) B21-F028D closed. Reactor pressure spiked (1,014 psig recorded) and the reactor scrambled due to high power level (117 percent recorded). At the same time a Group 1 isolation occurred. The High Pressure Coolant Injection (HPCI) System and Reactor Core Isolation Cooling (RCIC) System both automatically started and were used to control reactor pressure and level. The Group 1 isolation was reset and reactor pressure normal control, using the the main turbine steam bypass Electrohydraulic Control System, and reactor level normal control, using the Condensate System, were reestablished. A scram recovery was initiated and carried out. The scram occurred in the most limiting plant condition (high power).

The closure of F028D resulted from the deenergization of both ac- and dc-powered closure solenoids to the valve. At the time of this event a channel calibration and functional test of the ac and dc logic instrumentation of the Primary Containment Isolation System (PCIS) reactor low level No. 2, Periodic Test A22, was in progress.

Prior to this event, on February 21, 1984, at approximately 2130, it was discovered that the relay solenoid coil of the ac logic relay A71-K16 had failed. The failure occurred with the electrical contacts of the relay, General Electric Company Part No. 12HFA51A49H, in the closed position. The K16 relay is the last relay in the ac logic train for Group 1 PCIS logic to the outboard MSIVs. The defective coil in K16 was replaced using a coil replacement kit supplied by the General Electric Company, Kit No. 257A9680G18. The relay was then returned to service. At the time it was unknown to involved technicians that electrical contacts 9 and 10 of relay K16, which supply the normally energized ac actuation solenoid of outboard MSIV F028D, were not making electrical contact. The procedure used for replacement of these type coils only requires a visual inspection of the relay contacts to verify proper contact closure. The procedure does not provide for actual continuity checks after the coil has been replaced.

When the corresponding dc logic train to the outboard MSIVs, N025A-1, was tested, which results in deenergization of the dc-powered closure solenoids, F028D closed.

Following the valve closure and incurred reactor scram, a continuity check of the 9 and 10 contacts in relay K16 revealed the cause of the valve closure. The K16 relay was replaced.

The problem relay was disassembled and inspected; however, no problems were found with the relay operation. It was then tested and found operating properly. The relay and coil will be sent to Carolina Power & Light Company's testing and evaluation center (Harris Energy & Environmental Center) for analysis to determine, if possible, the cause of failure.

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

An inspection of ac-powered HFA relays in the main Control Room and Diesel Generator Building was performed to determine if problems existed with these relays; none were found. AC-powered HFA relays are currently being inspected once per month in an effort to detect potential relay coil failures before they occur. This action is in response to IE Bulletins 81-01, 82-13, 83-01 and as a result of previous HFA relay coil failures reported in LERs 2-82-03, 2-82-25, 2-82-27, and 2-83-04.

As a result of this event, the plant On-Site Nuclear Safety group will perform an evaluation of HFA relay coil problems and develop, if necessary, applicable corrective actions to be implemented, as required.



Carolina Power & Light Company

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

March 23, 1984

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SERIAL: BSEP/84-0634

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

BRUNSWICK STEAM ELECTRIC PLANT, UNIT 2  
DOCKET NO. 50-324  
LICENSE NO. DPR-62  
LICENSEE EVENT REPORT 2-84-04

Gentlemen:

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

Very truly yours,

C. R. Dietz, General Manager  
Brunswick Steam Electric Plant

MJP/shb/LETJH1

Enclosure

cc: Mr. J. P. O'Reilly

IE-22  
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