CP&L
Carolina Power & Light Company

Brunswick Nuclear Project
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November 21, 1990

FILE: B09-13510C 10CFR50.73
SERIAL: BSEP/90-0779

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

BRUNSWICK STEAM ELECTRIC PLANT UNIT 1
DOCKET NO. 50-325
LICENSE NO. DPR-71
SUPPLEMENTAL LICENSEE EVENT REPORT 1-90-014

Gentlemen:

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

Very truly yours,

J. L. Harness, General Manager
Brunswick Nuclear Project

TMJ/

Enclosure

cc: Mr. S. D. Ebneter
Mr. N. B. Le
BSEP NRC Resident Office

IE22
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NRC FORM 366 U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104
EXPIRES: 4/30/92
ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Brunswick Steam Electric Plant Unit 1	05000325	01 OF 03

TITLE (4) ESF/RPS Actuation - RPS Bus "A" Lost When EPA-2 Opened on Under Frequency because of a Failed Circuit Board

EVENT DATE (5)			LER NUMBER (6)					REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR		SEQ. NO.		REV. NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
09	07	90	90	-	014	-	01	11	21	90		

OPERATING MODE (9)	1	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)	X	50.73(a)(2)(iv)		73.71(b)
POWER LEVEL (10)	087		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 and Text)
			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
THERESA M. JONES, REGULATORY COMPLIANCE SPECIALIST	(919) 457-2039

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	
X	JC	BKR	G066	Y							

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 September 7, 1990, the Unit 1 reactor was at 87% power. The High Pressure Coolant Injection (HPCI) system had been removed from service for testing. The Automatic Depressurization System (ADS), and the A and B loops of Core Spray (CS) and Residual Heat Removal/Low Pressure Coolant Injection (RHR/LPCI) systems were operable in standby readiness. At 1407, the "A" Reactor Protection System (RPS) bus tripped when Electrical Protection Assembly (EPA) 2 opened on under frequency due to a circuit board failure. As a result, a half SCRAM signal on A and C channels, an automatic start of the A and B Standby Gas Treatment (SBGT) systems, an isolation of Reactor Building Ventilation and Primary Containment Isolation System Groups 2, 3 and 6, and the closure of ! ctor Sample Inboard Isolation Valve 1-B32-F019 occurred in accordance with stem design. Exactly what failed in the circuit board could not be determined with available test equipment and the circuit board has been sent to GE for a failure analysis. The circuit board was replaced and the "A" RPS bus was powered from the normal source. Further corrective actions will be initiated after receipt and review of the failure analysis. This event had minimal safety significance. Systems functioned as designed when the A RPS bus lost power. Power was restored to the A RPS bus from the alternate feed nine minutes after the event.

EVENT

"A" Reactor Protection System (RPS) bus tripped when Electrical Protection Assembly (EPA) 2 opened on under frequency due to a circuit board failure.

INITIAL CONDITIONS

On September 7, 1990, the Unit 1 reactor was at 87% power. The High Pressure Coolant Injection (HPCI) system had been removed from service for testing. The Automatic Depressurization System (ADS), and the A and B loops of Core Spray (CS) and Residual Heat Removal/Low Pressure Coolant Injection (RHR/LPCI) systems were operable in standby readiness.

EVENT DESCRIPTION

At 1407, the A RPS bus tripped. As a result, a half SCRAM signal on A and C channels, an automatic start of the A and B Standby Gas Treatment (SBGT) systems, an isolation of Reactor Building Ventilation and Primary Containment Isolation System Groups 2, 3 and 6, and the closure of Reactor Sample Inboard Isolation Valve 1-B32-F019 occurred in accordance with system design. An Auxiliary Operator (AO) investigated the event and, at 1410, reported that the RPS A motor generator (M/G) set was running with no apparent problems, the RPS EPA-1 breaker appeared to be operating properly and the RPS EPA-2 breaker had tripped open on underfrequency, as indicated by the "uf" light on the breaker. At 1416, Operations personnel transferred RPS bus A to the alternate power feed, reset the half SCRAM and associated isolations, restarted Reactor Building Ventilation, secured the SBGTs, and opened 1-B32-F019.

EVENT INVESTIGATION

A work request/job order was initiated by operations to investigate the cause of the trip and to repair the RPS EPA-2 breaker. Instrumentation and Control (I&C) personnel determined that the cause was a failure of the circuit board within the breaker, however, exactly what failed in the circuit board could not be determined with available test equipment. On 8-22-90, prior to the referenced card failure, the installed circuit card would not trip on over voltage during the scheduled performance of maintenance surveillance test (MST) 1MST-RPS21SA, RPS Electrical Protection Assembly Channel Calibration. At that time, the circuit board was replaced in accordance with a work request/job order. Its replacement would not calibrate because of excessive noise and it also was replaced. That circuit board functioned properly until this event. The defective circuit boards have been sent to General Electric (GE) for a failure analysis and root cause determination.

On 9-14-90, I&C replaced the defective circuit card and performed a channel calibration in accordance with 1MST-RPS21A. After satisfactory completion of the MST, the EPA-2 breaker was energized but not tied to the A RPS bus to allow for observation. On 9-19-90, the EPA-2 breaker was returned to service and the A RPS bus was powered from the normal source.

CORRECTIVE ACTIONS

The Unit 1 RPS EPA-2 circuit board was replaced on 9-14-90. The defective circuit boards have been sent to GE for a failure analysis. Further corrective actions will be initiated after receipt and review of the failure analysis.

EVENT ASSESSMENT

This event had minimal safety significance. Systems functioned as designed when the A RPS bus lost power. Power was restored to the A RPS bus from the alternate feed nine minutes after the event.

EIIS CODES

ADS	*
CS	BM
EPA	JC/BKR
HPCI	BJ
PCIS	JM
RB Ventilation	NG/VA
RHR/LPCI	BO
RPS	JC
RPS M/G Set	JC/MG
SBGT	BH

(*) EIIS code not found