NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/85

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 2

TITLE (4)
Automatic Reactor Scram

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)
1 1	2 2	8 5	8 5	— 0 1 2	— 0 0	1 2	1 9	8 5		0 5 0 0 0
										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)			
	1	20.402(b)	20.405(c)	X 50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10)	0 7 0	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 366A)
		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
R. M. Poulk, Jr., Regulatory Specialist	AREA CODE 9 1 9 4 5 7 - 2 3 1 4

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)

At 1828, on 11-22-85, Unit 2 scrammed on instantaneous thermal power from 70%. In addition to the scram, automatic actuation of primary containment Groups 2 and 6 isolation valves occurred on low level and all four diesel generators started due to the main generator primary lockout. A scram recovery was conducted in accordance with plant procedures.

A review of this event by Operations staff, plant Engineering, and the On-Site Nuclear Safety group could not determine the actual cause; however, a flow perturbation, either real or sensed, is believed to have caused the event. These reviews included equipment status just prior to the event, evolutions in progress, and the various parameters recorded prior to, during, and after the event. Based on the above reviews and a postscram/prestartup review of the event by the Plant Nuclear Safety Committee, the unit was returned to service on 11-24-85.

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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 5	— 0 1 2	— 0 0	0 2 OF 0 2

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

At 1828, on 11-22-85, Unit 2 scrammed on instantaneous thermal power from 70%. In addition to the scram, automatic actuation of primary containment Groups 2 and 6 isolation valves occurred on low level and all four diesel generators started due to the main generator primary lockout. A scram recovery was conducted in accordance with plant procedures.

A review of this event by the Operations staff, plant Engineering, and the On-Site Nuclear Safety group could not determine the actual cause of this event. In reviewing this event, two postulated causes were prevalent.

1. On 11-21-85, the fuse to one phase of the three-phase potential transformer input to the voltage regulator for the 2A recirculation pump motor-generator (M/G) blew. Power was reduced to bring the motor-generator temperature and current into an acceptable range while future power restrictions were evaluated. Just prior to the scram, the speed had been increased on the 2A recirculation pump. It is postulated that a flow perturbation related to the M/G problem occurred in the A loop which caused the loop flow input to power range instrumentation to rapidly decrease, causing the instantaneous thermal trip. The cause for such a perturbation is not known.

   Following the scram, the fuse and the potential transformer were replaced allowing resumption of full power.

2. Just prior to the scram, Operations personnel were in the process of cycling the residual heat removal (RHR) injection valves, F015 (outboard) and F017 (inboard). The F017 had been shut. Approximately three to five seconds after positioning the F015 switch to open, the reactor scram occurred. Data plotted from the posttrip log indicates that flow in the A loop increased at the time of the scram while core flow decreased. It is postulated that the downstream check valve, F050A, was not on its closed seat, thereby causing a momentary back flow into the RHR line. This momentary back flow slammed shut the F050A causing a pressure wave to be sent back to the flow transmitter providing a signal opposite to actual flow. This momentary flow spike in the decreased direction caused the instantaneous thermal trip.

Due to the nature of this scram and the information available, a definite cause was not determined. As noted, the M/G was repaired and restored to service. In addition, temporary monitoring instrumentation was installed on the voltage regulator and the flow instrumentation circuitries in an attempt to identify future flow perturbations. Engineering will evaluate the opening of the F015 valve during future operations in an effort to determine the viability of postulated cause 2.

CP&L

Carolina Power & Light Company

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

December 19, 1985

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SERIAL: BSEP/85-2151

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 2-85-012

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,

James W. Chandler

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

MJP/bc

Enclosure

cc: Dr. J. N. Grace

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