NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)
Brunswick Steam Electric Plant Unit 2

DOCKET NUMBER (2): 0 5 0 0 0 3 2 4

PAGE (3): 1 OF 0 3

TITLE (4): Auto-Isolation of Reactor Water Cleanup System (G31) Inlet Inboard Isolation Valve G31-F001 While Placing B RWCU Filter Demineralizer Into Service

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)		
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR
0 4	2 0	8 8	8 8	- 0 1 0	- 0 0	0 5	2 0	8 8

OTHER FACILITIES INVOLVED (8)

FACILITY NAMES	DOCKET NUMBER(S)
	0 5 0 0 0
	0 5 0 0 0

OPERATING MODE (9): 2

POWER LEVEL (10): 0 0 7

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)
20.405(a)(1)(i)	50.36(a)(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: AREA CODE
M. J. Pastva Jr., Regulatory Compliance Specialist	9 1 9 4 5 7 - 2 3 1 5

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)

During a startup of Unit 2 (7% power), following the unit's 1988 refuel/maintenance outage, the Reactor Water Cleanup System (RWCU) (G31) inlet inboard primary containment isolation valve, G31-F001, automatically closed at 0330 hours on 4/20/88. This was due to a Primary Containment Isolation System (PCIS) Group 3 logic isolation signal resulting from an RWCU System high differential flow alarm. The RWCU System A filter demineralizer (F/D) was in service and steps were in progress to place the B F/D into service. The safety significance of this event was minimal.

This event is attributed to a momentary RWCU System flow perturbation resulting from placing the B F/D into service. No instrumentation or equipment malfunctions related to operation of RWCU System or PCIS were found.

Plant procedures will be revised to alert the Control Operator to the potential of similar occurrences while placing RWCU F/Ds into service. Plant Operations personnel will be briefed concerning this event.

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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 8	— 0 1 0	— 0 0	0 2 OF 0 1 3

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

Initial Conditions

While at a reactor power level of approximately 7%, startup testing of Unit 2 following the unit 1988 refueling/maintenance outage was in progress. In addition, the Reactor Water Cleanup (RWCU) System (G31) B pump (EIIS/CE/P) and A filter demineralizer (F/D) (EIIS/CE/FLT) were in service and steps were in progress to place the system B F/D into service.

Event Description

At 0330 hours on April 20, 1988, the RWCU System high differential flow alarm annunciation occurred and was acknowledged by the Unit 2 Control Operator (CO). Shortly thereafter, the CO noticed the RWCU System B pump had tripped and the system inlet inboard primary containment isolation valve (PCIV) G31-F001 (EIIS/JM/ISV) was closed. G31-F001 is the Primary Containment Isolation System (PCIS) (EIIS/JM) Group 3, Division I, logic isolation valve. In response to this discovery, the CO manually closed the RWCU inlet outboard PCIV, G31-F004 (EIIS/CE/ISV), which is the corresponding PCIS Group 3, Division II, logic isolation valve.

Event Investigation

The event is attributed to a momentary RWCU System flow perturbation resulting from placing the B RWCU F/D into service. A check of the B F/D and associated piping and isolation valves showed the F/D held pressure and valves did not leak. Review of data from the Emergency Response Facility Information System (ERFIS) (EIIS/IP) as related to the operation of the RWCU System showed that at the time of the event, the RWCU System flow went from approximately 105 gallons per minute (gpm) to just over 200 gpm approximately 38 - 39 seconds prior to the PCIS signal for closure of G31-F001. As the time delay for the RWCU isolation due to differential flow is set at 40 seconds, it is concluded the event resulted from RWCU System high differential flow resulting from placing the system B F/D into service.

In addition, the channel calibration test of the RWCU System high differential flow trip units, Maintenance Surveillance Test (MST)-RWCU21M was performed, which showed no anomalies with operation of the instrumentation. The G31-F001 and F004 valves received automatic closure signals from different PCIS actuation times (EIIS/JM/TMR) which may vary in response to an input signal by ± 1 second. The ERFIS data review showed that the RWCU System flow immediately ramped down when G31-F001 began to close. It is felt that when G31-F001 began to close and caused the B pump to trip, the pending isolation signal to the F004 valve cleared before closure of the valve began due to the closing of the F001 valve and resulting hydraulic perturbation when the pump tripped. A functional test confirmed that F004 would automatically close as

required in response to a valid isolation signal. The investigation concluded that although there are slight differences in sensitivity and response time between the A and B PCIS Group 3 logic, the involved trip instruments were functioning within the required tolerances and that there are no recognizable operability concerns associated with the F001 and F004 valves. Within approximately 12 hours and 25 minutes of the event, the RWCU System was returned to service.

Corrective Actions

As a result of this event, licensed Operations personnel will be briefed on the specifics of the investigation findings. In addition, appropriate procedural revisions will be implemented to alert Operations personnel to potential isolations of the RWCU System.

Event Assessment

This event would not have been more severe under other reasonable and credible alternative conditions. A review of plant documentation shows this event is an isolated occurrence.

CP&L
Carolina Power & Light Company

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

May 20, 1988

FILE: B09-13510C
SERIAL: BSEP/88-0515

10CFR50.73

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

BRUNSWICK STEAM ELECTRIC PLANT UNIT 2
DOCKET NO. 50-324
LICENSE NO. DPR-62
LICENSEE EVENT REPORT 2-88-010

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/ah

Enclosure

cc: Dr. J. N. Grace
Mr. E. D. Sylvester
BSEP NRC Resident Office

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