CP&L
Carolina Power & Light Company
Brunswick Nuclear Project
P. O. Box 10429
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April 20, 1990

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

BRUNSWICK STEAM ELECTRIC PLANT UNIT 1
DOCKET NO. 50-325
LICENSE NO. DPR-71
LICENSEE EVENT REPORT 1-90-004

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,

J. L. Harness, General Manager
Brunswick Nuclear Project

WL/mcg

Enclosure

cc: Mr. S. D. Ebneter
Mr. E. G. Tourigny
BSEP NRC Resident Office

IE22

NRC FORM 366 (6-89) U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

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-630), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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

TITLE (4): Automatic Isolation of Unit 1 and 2 Control Building Heating, Ventilation, Air Conditioning System and Emergency Air Filtration System

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)
										Brunswick Unit 2	0 5 0 0 0 3 2 4
0 3	2 2	9 0	9 0	-	0 0 4	- 0 0	0 4	2 0	9 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)		20.405(a)(1)(i)		50.36(c)(1)		50.73(a)(2)(v)	73.71(c)
1 0 0		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
Wayne D. Link, Senior Generation Specialist	9 1 9 4 5 7 - 2 0 5 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)

Unit 1 and Unit 2 were operating at 100% power. At 1950 on 3/22/90, while removing Chlorinators No. 2 and No.3 from service on the Unit 2 Circulating Water System, the injector piping failed on Chlorinator No. 5. due to improper bonding of the PVC piping. The Chlorine Loading Area and Chlorination Building detectors sensed the presence of chlorine which caused an automatic isolation of the Control Building Heating, Ventilation, and Air Conditioning system and a logic lockout of the Control Building Emergency Air Filtration system. The operator isolated the chlorine and service water to Chlorinator No. 5. An Unusual Event was declared at 1956 and terminated at 2010.

The safety significance of this event is minimal since the line was isolated in a timely manner and all safety systems performed as required. No power reduction was required.

Similar events have been reported in LERs 1-86-006, 1-87-013, 1-87-022, 1-89-010, and 1-89-022.

EVENT

At 1950 on 3/22/90, a chlorine injector failed in the Chlorination Building. High chlorine level instrumentation initiated alarms for the Chlorination Building at 1950 and the Chlorine Loading Area at 1951. The Chlorine Loading Area Detectors 1X/2X-AT-2979 initiated an automatic isolation of the Control Building Heating, Ventilation, and Air Conditioning (CB HVAC) system and a logic lockout of the Control Building Emergency Air Filtration (CB EAF) system. At 1956 the line was manually isolated and an Unusual Event declared. The Chlorine Loading Area alarm cleared at 2000, the Chlorination Building alarm cleared at 2010, and the Unusual Event was terminated at 2010.

INITIAL CONDITIONS

Unit 1 and Unit 2 were operating at 100% power. Chlorination was being removed from service on the Unit 2 Circulating Water System. The CB HVAC system was in the normal mode of operation and the CB EAF was in standby readiness.

EVENT DESCRIPTION

Chlorinators No. 2 and 3 were being used to chlorinate the Unit 2 Circulating Water System while chlorinator No.5 was in service on the Service Water System. Chlorinators No. 1 and 4 were removed from service for repairs. The Radwaste operator was in the process of removing chlorinators No. 2 and 3 from service. The chlorine purging of chlorinators No. 2 and 3 was completed with no problems. When the service water was isolated to No. 2 chlorinator, the injector piping for No. 5 chlorinator came apart. The operator exited the Chlorination Building, isolated the source of the chlorine at the tank car and reported the problem to the Control Room. The operator then reentered the Chlorination Building to isolate the service water to chlorinator No. 5. There was no damage to the control panel or surrounding equipment. A clearance was prepared and hung on Chlorinator No. 5. Chlorination was returned to service on the Unit 1 Circulating Water system later that shift without any problems.

When the injector piping broke, the Control Room received several alarms indicating the presence of chlorine. Annunciator procedures were consulted along with the Abnormal Operating Procedure for a chlorine emergency. The Control Operators verified that the automatic actions occurred per design. These actions consisted of closing the outside air makeup damper to the CB HVAC system, terminating of ventilation air to both the mechanical equipment room and cable spreading rooms, stopping the Control Building exhaust fan, and receiving a logic lockout for the CB EAF system.

EVENT CAUSE

The cause of the event was a sudden separation of the chlorine assembly at the junction of the reducing bushing and flange adapter on the service water inlet side of the injector. This resulted in the breaking of the PVC piping downstream of the injector. The injector itself was not damaged.

The surface area between the flange adapter and reducing bushing at the point of separation indicated that the wrong grade of cement had been used to join the pieces. Plant modification (PM) 86-096, Field Revision 7, installed the chlorine injector assembly. A review of the PM package indicated that no specifications or special installation instructions were provided regarding the type of cement to be used. Improper bonding in conjunction with the flow and pressure changes associated with normal day to day operation gradually weakened the joint, causing it to separate.

CORRECTIVE ACTIONS TAKEN

Chlorinator No. 5 was removed from service and placed under a clearance pending repair. Repairs were completed under WR/JO 90-AGDS1 utilizing a heavy duty cement to reassemble the injector. Repair instructions were provided by the planner and the Maintenance Foreman. The chlorinator was subsequently placed in service without any further problems. It was not necessary to check the four remaining injectors since they are not constructed of PVC.

EVENT ASSESSMENT

The safety significance of this event is minimal since the line was isolated in a timely manner and all safety systems performed as required. Additional protective measures were taken to ensure personnel safety including personnel accountability and area access control. The detector sensitivity and trip setpoints are such that protective actions are initiated well below the levels considered significantly harmful to personnel.

Prior similar events involving actuations of these detectors have been reported in LERs 1-86-006, 1-87-013, 1-87-022, 1-89-010, and 1-89-022.

EIIS CODES

System/Component	Code
Circulating Water	KE
Service Water	MK
Chlorination Building	MH
Chlorinator	CHL
Chlorine Detector	VI/DET
Control Building HVAC	NA/VI
Control Building EAF	VI