



Carolina Power & Light Company

Brunswick Nuclear Project
P. O. Box 10429
Southport, N.C. 28461-0429

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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. DRP-71
LICENSEE EVENT REPORT 1-92-014

Gentlemen:

In accordance with Title 10 of 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 submitted in accordance with the format set forth in NUREG-1022, September 1983.

Very truly yours,


J. W. Spencer, General Manager
Brunswick Nuclear Project

TMJ/

Enclosure

cc: Mr. S. D. Ebnetter
Mr. R. H. Lo
BSEP NRC Resident Office

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LICENSEE EVENT REPORT (LER)

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.

FACILITY NAME (1) Brunswick Steam Electric Plant
Unit 1

DOCKET NUMBER (2)
05000325

PAGE (3)

1

TITLE (4) Primary Containment Isolation System, Group 3 Isolation of the Inboard RWCU Isolation Valve Due to Electronic Noise in the Steam Leak Detection System.

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	
05	04	92	92	- 014	- 00	06	03	92			

OPERATING MODE (9)	4	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)		
		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)(vi)		OTHER (Specify in Abstract and Text)		
		20.405(a)(1)(iii)		50.73(a)(2)(vii)(A)						
		20.405(a)(1)(iv)		50.73(a)(2)(vii)(B)						
POWER LEVEL (10)	000	20.405(a)(1)(v)		50.73(a)(2)(viii)						

LICENSEE CONTACT FOR THIS LER (12)

NAME Theresa M. Jones, Regulatory Compliance Specialist

TELEPHONE NUMBER

(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

SUPPLEMENTAL REPORT EXPECTED (14)

EXPECTED
SUBMISSION

MONTH

DAY

YEAR

YES (If yes, complete EXPECTED SUBMISSION DATE)

☒

NO

DATE (15)

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

On May 4, 1992, Unit 1 was in COLD SHUTDOWN. Reactor level was being maintained by utilizing the Control Rod Drive (CRD) system and the Reactor Water Clean-up (RWCU) system. Two licensed reactor operators (ROs) and a RO candidate were on shift. At 0821, a RO sequentially placed the read/set switch to "read" for RWCU Room Ambient temperature switches N602A and C, and RWCU Room Differential (Δ) Temperature switches N600A and C. The RO heard annunciation in the main control room and returned to investigate. The second RO was responding to a RWCU inboard isolation valve (1-Q31-F001) closure. The first RO informed the second that he had caused the isolation, and at 0910 the RWCU system was returned to service. The primary cause of this event is the design of the Riley Model 86 temperature switches which make them susceptible to electrical noise whenever they are operated. A secondary cause was the belief by the first RO that only the "set" position of the module would induce the electrical noise and his failure to follow the direction of a caution label. Change out of the existing switches with NUMAC hardware is scheduled for the next refueling outage on each Unit. The involved caution label will be revised and each Operations Shift Supervisor will review this event with his personnel. During this event the RWCU inboard isolation valve isolated, per design, upon a spurious PCIS isolation signal. This event did not prevent injection of coolant nor the ability to maintain the core covered, this event had minimal safety significance. Similar events involving spurious isolations caused by Riley Model 86 Temperature Switches have been reported in LERs 2-91-009, 2-91-06, 2-90-19, 1-89-05, 1-89-04, 2-88-20, and 1-88-02.

**LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION**

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS
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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.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)				PAGE (3)
		YEAR	SEQ NO.		REV NO.	
Brunswick Steam Electric Plant Unit 1	05000325	92	14		00	2

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

TITLE: Primary Containment Isolation System (PCIS), Group 3 Isolation of the Inboard RWCU Isolation (1-G31-F001) Valve Due to Electronic Noise in the Steam Leak Detection System.

INITIAL CONDITIONS

On May 4, 1992, Unit 1 was in COLD SHUTDOWN in the thirteenth day of an outage. Reactor level was being maintained by utilizing the Control Rod Drive (CRD) system to inject 10 gpm of coolant and the Reactor Water Clean-up (RWCU) system to reject coolant. Two licensed reactor operators, the Plant Monitor and the Balance of Plant reactor operator (PMRO and BOPRO respectively) had been on watch approximately one and a half hours on the last day of a three 12 hour day shift. A reactor operator (RO) candidate was also on shift for on-job-training (OJT) as part of license training.

EVENT NARRATIVE

At 0821, the PMRO was directing the RO candidate on the operation of the Steam Leak Detection (SLD) system Riley Model 86 Temperature Switch modules located in the backpanel area of the control room. The PMRO sequentially placed the read/set switch to "read" for RWCU Room Ambient Temperature switches N602A and C, and RWCU Room Differential (Δ) Temperature switches N600A and C. Coincident with this action the BOPRO heard annunciation in the main control room and returned to investigate. The BOPRO was responding to a PCIS, RWCU inboard isolation valve (1-G31-F001) closure. The PMRO informed the BOPRO that he had caused the isolation.

At 0910 the RWCU system was returned to service.

Electrical noise generated in the SLD system when the modules were read activated the Riley Temperature Switches causing the isolation. Similar events throughout the industry have resulted in two General Electric (GE) Service Information Letters (SILs No. 416 and 443) and an Inspection Enforcement Notice (IEN 86-69) concerning the Riley Temperature Switches. As a result of the industry events and past similar occurrences at the Brunswick Units, change out of the existing Riley Model 86 Temperature Switches with NUMAC hardware is scheduled for the next refueling outage on each Brunswick Unit (i.e., 1992 for Unit 1 and 1993 for Unit 2). Until installation of the NUMAC Equipment, caution labels were placed above each division of the SLD modules in the Control Room backpanel area. The caution directs personnel to obtain permission from the Shift Foreman (i.e., Shift Supervisor) before operating the module switches. In this case, the PMRO did not obtain permission because he believed that the electrical noise problem only occurred if the switches were taken to the "set" position, and that permission to show the RO candidate how to monitor various plant parameters from the control room was inherent in his OJT trainer responsibility.

CAUSE OF EVENT

The primary cause of this event is the design of the Riley Model 86 temperature switches which makes them susceptible to electrical noise whenever they are operated. This susceptibility effectively eliminates the use of the modules for monitoring purposes and results in extra work to prevent spurious isolations on the part of operations and maintenance personnel during SLD testing.

LICENSEE EVENT REPORT (LER) **TEXT CONTINUATION**

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)				PAGE (3)	
Brunswick Steam Electric Plant Unit 1	05000325	YEAR		SEQ NO.		REV NO.	3
		92		14		00	

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

A secondary cause was the belief that only the "set" position of the module would induce the electrical noise and the failure to follow the direction of the caution label by the PMRO. This effectively bypassed the Shift Foreman - an intended interim barrier to this event.

CORRECTIVE ACTIONS

As a long term corrective action, change out of the existing Riley Model 86 Temperature Switches with NUMAC hardware is scheduled for the next refueling outage on each Brunswick Unit (i.e., 1992 for Unit 1 and 1993 for Unit 2).

The caution label will be revised to clarify why it exists. (i.e., that operation of the read/set switch to either the "read" or the "set" position could cause a spurious isolation.)

To improve personnel awareness of the Riley Model 86 Temperature Switch's potential to cause isolations, each Operations Shift Supervisor will review this event with his personnel.

SAFETY ASSESSMENT

The objective of the PCIS is to provide protection against the release of radioactive material from the fuel and nuclear process barriers by automatically isolating the appropriate lines which penetrate the primary containment whenever monitored parameters exceed preselected operational limits. During this event the RWCU inboard isolation valve isolated, per design, upon a spurious PCIS isolation signal. This event did not prevent injection of coolant nor the ability to maintain the core covered. This event had minimal safety significance.

PREVIOUS SIMILAR EVENTS

Similar events involving spurious isolations caused by Riley Model 86 Temperature Switches have been reported in LERs 2-91-009, 2-91-06, 2-90-19, 1-89-05, 1-89-04, 2-88-20, 1-88-02, and 1-87-09.

EIIS COMPONENT IDENTIFICATION

<u>System/Component</u>	<u>EIIS Code</u>
RWCU	CE
CRD	AA
TDS Module	IJ/MOD
RWCU Inboard Isolation	CE/ISV
RWCU Annunciator	CE/ANN