

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Brunswick Steam Electric Plant Unit 1										DOCKET NUMBER (2) 0 5 0 0 0 3 2 5					PAGE (3) 1 OF 0 4	
TITLE (4) Inadequate Response Time Testing of High Pressure Coolant Injection System Actuation Circuitry and Primary Containment Isolation Valves B21-F016 and F019																
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 5	0 3	8 5	8 5	0 2	0 0	0 0	7 1	9 8 5					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)														
5		20.402(b)				20.406(c)				50.73(a)(2)(iv)				73.71(b)		
POWER LEVEL (10)		20.406(a)(1)(i)				50.36(c)(1)				50.73(a)(2)(v)				73.71(c)		
01010		20.406(a)(1)(ii)				50.36(c)(2)				50.73(a)(2)(vii)				OTHER (Specify in Abstract below and in Text, NRC Form 366A)		
20.406(a)(1)(iii)				X 50.73(a)(2)(i)				50.73(a)(2)(viii)(A)								
20.406(a)(1)(iv)				50.73(a)(2)(ii)				50.73(a)(2)(viii)(B)								
20.406(a)(1)(v)				50.73(a)(2)(iii)				50.73(a)(2)(ix)								
LICENSEE CONTACT FOR THIS LER (12)																
NAME										TELEPHONE NUMBER						
M. J. Pastva, Jr., Regulatory Technician										AREA CODE		9 1 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 NPDOS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS						
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 5-3-85, procedural problems were identified with logic response time testing of isolation logic of main steam line drain primary containment isolation valves B21-F016 and F019. On 6-20-85, similar problems were identified with testing of high drywell pressure initiation logic to the High Pressure Coolant Injection (HPCI) System. On 6-21-85 and 6-28-85, determinations were made that requirements for this testing were not being met. The problems apply to Units 1 and 2 and were discovered during a review of plant maintenance surveillance procedures. Unit 1 was in a refuel/maintenance outage and Unit 2 was at power.

Procedures did not provide for testing high drywell pressure actuation relays K4 and K5 for the HPCI System logic and did not account for relay armature travel time of actuation relays K56 and K57 in the F016 and F019 isolation logic. The problems are attributed to insufficient overlap of collective procedures for testing the associated circuitry resulting from inadequate technical review of the procedures during initial development.

On 6-29-85, the Unit 2 relays were satisfactorily tested. Required testing of the Unit 1 relays will be accomplished prior to declaring the systems operable following completion of the ongoing outage.

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APPROVED OMB NO. 3150-0104

EXPIRES 8/31/85

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		

TEXT (If more space is required, use additional NRC Form 368A's) (17)

On May 3, 1985, procedural problems were identified concerning logic response time testing of relays A71B-K56 and K57 in the isolation logic of main steam line drain primary containment isolation valves B21-F016 and F019. On June 20, 1985, procedural problems were identified concerning logic response time testing of relays E41A-K4 and K5 in the high drywell pressure initiation logic to the High Pressure Coolant Injection (HPCI) System. The requirement to test the K4 and K5 relays, both General Electric Model No. 12HFA51A42F, which receive their actuation signals from drywell pressure instruments E11-PTS-N011A-2 through D-2, is referenced in Technical Specification (T/S) Table 3.3.3-3, Item 3. The requirement to test the K56 and K57 relays, both Model No. CR120A03122AA, is referenced in T/S Table 3.3.2-3. The procedural problems apply to Units 1 and 2 and were discovered during a review of plant maintenance surveillance procedures. At the time of these discoveries, Unit 1 was in a refueling/maintenance outage and Unit 2 was at power operation.

Following these discoveries, further document research was conducted to determine if other plant procedures covered testing of the subject relays; however, none were identified. Also, a historical search of computer-inventoried records could not identify historical response time testing or basis for not testing the relays. Appropriate plant personnel were notified of the procedural concerns and necessary actions were initiated to assure resolution. Reportability of the concerns, in accordance with 10CFR50.73, was not recognized at time of initial discovery. Following further review, respective determinations were made, on June 21, 1985, and June 28, 1985, that the problems involving the relays were reportable in accordance with 10CFR50.73(a)(2)(i).

On June 21, 1985, a Plant Nuclear Safety Committee (PNSC) evaluation concluded the HPCI System operability was unaffected by the failure to test the K4 and K5 relays. The technical basis for nonconcern with operability of HPCI response time test requirements was the following:

1. Logic response time of the E41A-K4 and K5 relays is analogous to E41A-K2 and K3 relays for the cumulative response time of a high drywell pressure signal to automatically start the HPCI System.
2. The K4 and K5 relays were verified operable in the logic system functional test, Periodic Test (PT) 09.1, performed last on October 8, 1984.
3. The relay manufacturer stated that the expected response time to energize the dc HFA-type relays such as E41A-K4 and K5 is 85 milliseconds. The last (and longest) response time of the high drywell pressure response time was 29.6375 seconds on March 8, 1985. This is 0.3625 seconds more conservative than the technical specification time limit of 30 seconds. This allows a margin of more than four times the expected relay response

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time for the E41A-K4 and K5 relays. This is considered conservative in that the relays are parallel to (not in series with) the currently tested K2 and K3 relays.

4. The typical mode of failure for HFAs is a go/no-go condition and there is currently no known relay replacement due to degradation of response time.

Therefore, the HPCI System was determined capable of initiating within 30 seconds as required by the ECCS response time section of Technical Specifications. The PNSC evaluation concluded the Unit 2 HPCI System response time test should be performed at the earliest opportunity that appropriate plant safety systems are available and when a sufficient procedure would be in place to accomplish the testing.

PT-45.3.4 and PT-A6.2 (formerly PT-45.3.1) had previously been developed to meet T/S surveillance requirements relative to T/S Table 3.3.3-3. These procedures provided for testing the high drywell pressure initiation of the HPCI System by testing the HPCI reactor low water level initiation relays E41A-K2 and K3, which are in parallel to the K4 and K5 relays. The omission of the K4 and K5 relays is attributed to insufficient procedural review during initial development and a lack of controls associated with the procedural overlap points.

On June 29, 1985, the Unit 2 K4 and K5 relays were satisfactorily response time tested in accordance with plant Special Procedure 85-071. Testing of the Unit 1 K4 and K5 relays will be performed prior to declaring the Unit 1 HPCI System operable. Appropriate plant maintenance surveillance tests to test the K4 and K5 relays on each unit will be developed and implemented by October 31, 1985.

PT-45.2.6, Group 1 Valves Isolation Circuit Response Time, was insufficient in that it did not provide adequate procedural overlap relative to the valve stroke periodic test, PT-25.4, for the B21-F016 and F019 valves. PT-45.2.6 did not account for the relay armature travel times of actuation relays A71B-K56 and K57. This occurred because there were no controls to delineate which procedure would cover each portion of the total isolation system response time. Following discovery of this procedural inadequacy, F016 and F019 were closed and a Shift Foreman's clearance initiated.

On June 29, 1985, the Unit 2 K56 and K57 relay armature travel times were satisfactorily tested, utilizing plant Special Procedure 85-053, and F016 and F019 were then returned to service.

Prior to startup of Unit 1, following completion of the ongoing unit outage, the armature travel times of the Unit 1 K56 and K57 relays will be tested and assessed against T/S prior to return of the unit F016 and F019 valves to service.

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U.S. NUCLEAR REGULATORY COMMISSION

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In addition, appropriate plant maintenance surveillance tests to test the K56 and K57 relays will be developed and implemented by October 31, 1985.

By December 31, 1985, system test descriptions will be developed and implemented for response time tests in order to provide enhanced definition of and control on procedural overlap points.



Carolina Power & Light Company

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

July 19, 1985

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SERIAL: BSEP/85-1331

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

BRUNSWICK STEAM ELECTRIC PLANT UNIT 1
DOCKET NO. 50-325
LICENSE NO. DPR-71
LICENSEE EVENT REPORT 1-85-020

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/mcg

Enclosure

cc: Dr. J. N. Grace

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