CP&L
Carolina Power & Light Company

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June 3, 1991

FILE: B09-13510C 10CFR50.73

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. DPR-71
LICENSEE EVENT REPORT 1-91-012

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

SFT/

Enclosure

cc: Mr. S. D. Ebneter
Mr. N. B. Le
BSEP NRC Resident Office

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NRC FORM 366 U.S. NUCLEAR REGULATORY COMMISSION

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-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.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Brunswick Steam Electric Plant Unit 1	05000325	1 OF 4

TITLE (4) Unexpected Engineered Safety Features Actuation While Hanging Clearance

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	03	91	91	-	012	-	00	06	03	91		

		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)											
OPERATING MODE (9)	4		20.402(b)		20.405(c)	X	50.73(a)(2)(iv)		73.71(b)				
POWER LEVEL (10)	000		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 and Text)				
			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
Steve F. Tabor, Regulatory Compliance Specialist	(919) 457-2178

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)

On 5/3/91 with the Unit 1 reactor in cold shutdown, an extensive effort was in progress to identify and repair grounds on the 250/125 VDC Battery Buses. While hanging an electrical clearance in support of DC ground isolation activities, an unexpected closure of the Unit 1 outboard primary containment (drywell) floor and equipment drain isolation valves occurred. Subsequent reference drawing research identified the proper circuit response had been initiated. There was no nuclear safety significance.

The cause of the event was the personnel involved with the clearance research effort failed to perform a thorough review of plant drawings to determine clearance effects on plant equipment as required by Equipment Clearance Procedure AI-58. The problems associated with the clearance research effort resulted from the firm belief that the clearance was correct after researching the current reference drawings and the plant modification functional summary.

The affected valves were returned to the normal line-up position. Significant corrective actions to preclude recurrence include review of the event with appropriate clearance center personnel and enhancement to plant reference drawing revision priority. Similar events resulting from inadequate clearance research have been reported in LERs 1-85-030, 1-85-036, 1-88-029, 1-88-034, 1-89-004, 1-89-015, 2-89-016, 1-90-001 and 1-90-027.

EVENT

An unplanned automatic closure of the Unit 1 outboard drywell floor and equipment drain isolation valves 1-G16-F004 and 1-G16-F020 resulted from deenergization of the 1B 120 VAC Emergency Distribution Panel.

INITIAL CONDITIONS

On May 3, 1991 the Unit 1 reactor was in cold shutdown. In support of DC ground isolation activities, Operations personnel were hanging clearance 1-91-0634 to allow deenergization of the 1B 120 VAC Emergency Distribution Panel.

EVENT DESCRIPTION

On May 3, 1991 at 1707 Operations personnel deenergized the Unit 1 1B 120 VAC Emergency Distribution Panel in accordance with clearance 1-91-0634. On May 3, 1991 at approximately 1820, following reenergization of panel 1B, Operations personnel noted valves 1-G16-F004 and 1-G16-F020 had cycled to the closed position as indicated by their associated position indicating lights. Subsequent reference drawing research revealed that the proper circuit response had occurred and the actuations were appropriate. The affected valves were returned to their normal line-up position immediately following the event.

CAUSE OF EVENT

The cause of this event was the personnel involved with the clearance research effort failed to perform a thorough review of plant drawings to determine clearance effects on plant equipment as required by Equipment Clearance Procedure AI-58. Contributing factors to the cause of this event include: reliance on research developed in support of a similar clearance; and the priority assigned to the updating of plant control wiring diagrams (CWDs) affected by plant modification (PM) 90-012.

EVENT INVESTIGATION

PM 90-012 was developed to provide class 1E power to the position indicating light circuits of the solenoid operated drywell floor and equipment drain isolation valves. Each circuit includes a valve position limit switch contact in series with a valve position open indicating lamp which is in parallel with a seal-in relay. The seal-in relay allows for spring return of the valve control switch to the normal (neutral) position once the valve has reached full open through a set of normally open contacts which are in series with the valve control logic. PM 90-012 changed the power supply feeding the valve position indicating light circuit from the Reactor Protection System (RPS) Bus B to the 1B 120 VAC Emergency Distribution Panel which is supplied power from Emergency Bus E6. With the coil of the solenoid valve energized through the contacts of the seal-in relay, the valve would close as a result of: deenergization of the 1B 120 Vac Emergency Distribution Panel; initiation of a Group 2 isolation signal; loss of RPS Bus B power; seal-in relay deenergization resulting from limit switch change of state or 1-G16-F004/F020 control switch (S52/S53) change of state to the closed position. PM 90-012 was declared operable 2/12/91.

Eleven days prior to the event, on 4/22/91, Clearance Center personnel (Operations and Maintenance) initiated research efforts in support of Emergency Bus E6 clearance 1-91-0568 (required to support current transformer repair). While reviewing the reference drawings, the researchers identified that PM 90-012 had affected a change to the 1B 120 VAC Emergency Distribution Panel Circuit #6 load description. From the description provided, the researchers believed the changes introduced by PM 90-012 affected only the 1-G16-F004 and 1-G16-F020 indicating lights source of power and that deenergization of the 1B 120 VAC Emergency Distribution Panel would not isolate the valves. Further drawing review revealed that updating of other applicable plant drawings affected by PM 90-012 had not yet been completed, consequently, Clearance Center personnel pursued review of PM 90-012. The scope of this review consisted of the functional summary section only. The information provided within the functional summary did not address the potential for isolating valves 1-G16-F004 and 1-G16-F020 as a result of deenergizing the 1B 120 VAC Emergency Distribution Panel. Based on the similarities between the load description provided on LL-93041, sheet 5 and the information within the plant mod functional summary, the Clearance Center Coordinator (Senior Reactor Operator) decided that it was not necessary to pursue further review of PM 90-012 and requested the other clearance center personnel to direct their efforts to the remaining breakers on the 1B 120 VAC Distribution Panel. Consequently, Clearance Center personnel did not review each pending plant modification drawing change at that time. The plant modification CWDs appropriately identified the changes to the source of power supplying the 1-G16-F004 and 1-G16-F020 valve position indicating light circuits. Equipment Clearance Procedure AI-58 specifies; "It is mandatory that a thorough research of the plant drawings be completed for the purpose of determining the clearance's effect on plant equipment. Tagged out breakers and valves can cause (Engineered Safety Feature) ESF actuations and render technical specification required equipment inoperable." By failing to perform a thorough review of PM 90-012 CWDs, the researchers were unaware of the total impact of the modification and consequently the potential for isolating valves 1-G16-F004 and 1-G16-F020 upon deenergizing the 1B 120 VAC Emergency Distribution Panel.

On 4/24/91 in preparation for implementing the Emergency Bus E6 clearance 1-91-0568, Operations transferred the RPS Bus B power supply to the alternate source (Emergency Bus E5) to prevent actuation of ESF equipment. Following RPS bus transfer to alternate, the EPA-5 breaker tripped causing an unplanned ESF actuation including closure of valves 1-G16-F004 and 1-G16-F020 (see LER 1-91-011). Emergency Bus E6 was then deenergized to support E6 Bus current transformer repair as planned. With valves 1-G16-F004 and 1-G16-F020 in the closed position as a result of the EPA-5 failure, the effects of deenergizing Emergency Bus E6 and subsequent deenergizing of the 1B 120 VAC Emergency Distribution Panel were not detected at that time.

Eight days later, on 5/3/91, the 1B 120 VAC Emergency Distribution Panel clearance 1-91-0634 was initiated to support detection of a DC ground identified while Emergency Bus E6 was deenergized. Due to the relatively short period of time between the Emergency Bus E6 clearance and the 1B 120 VAC Emergency Bus clearance, Operations Clearance Center personnel relied on the load distribution information retrieved during research of the Emergency Bus E6 clearance implemented 4/24/91 as allowed by the requirements of Equipment Clearance Procedure AI-58. On 5/3/91 at 1707, the 1B 120 VAC Emergency Distribution Panel was deenergized per clearance 1-91-0634. By relying on the information developed in support of the Emergency Bus E6 clearance 1-91-0568, the clearance researchers were unaware of the relationship between the deenergization of the 1B 120 VAC Emergency Distribution Panel and the isolation of valves 1-G16-F004/F020.

CORRECTIVE ACTIONS

Involved Clearance Center Personnel have been counseled by the Clearance Center Coordinator.

A review of this event will be conducted in Operations Real Time Training emphasizing the requirement in AI-58 for a mandatory, thorough review of plant drawings even if review of a plant modification is required.

An evaluation to determine the need for developing an operating procedure identifying the significant Emergency Bus related 120 VAC Distribution Panel loads will be performed.

The priority associated with the updating of plant modification circuit wiring diagrams (CWDs) to support plant drawing revisions will be revised from priority 3 to priority 2 (revisions will be required within 14 days from date of mod operability).

The 1B 120 VAC Emergency Distribution Panel Circuit #6 label description will be revised to reference the breaker's relationship to the 1-G16-F004/F020 seal-in circuit.

Plant Drawing Change (PDC) request #91-0886 has been initiated for the purpose of including a specific reference to the 1B 120 VAC Emergency Distribution Panel Circuit #6 relationship to 1-G16-F004/F020 seal-in circuit.

A review of the circumstances comprising this event will be performed with appropriate NED personnel.

Lessons learned as identified in the two preceding items will be incorporated within the Unit 2 plant modification 90-013.

Performance of a Human Performance Evaluation (HPES) will be conducted, the results of which will be presented to management.

EVENT ASSESSMENT

This event had no nuclear safety significance. The Unit 1 reactor was in cold shutdown and the equipment involved functioned as designed on a loss of power. Similar events resulting from inadequate clearance research have been reported in LERs 1-85-030, 1-85-036, 1-88-029, 1-88-034, 1-89-004, 1-89-015, 2-89-016, 1-90-001 and 1-90-027.

EIIS CODES

PCIS	JM
Isolation Logic Relay	JM/RLY
Low Voltage Emergency Power System	ED