

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 8
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TITLE (4) Failure to Meet Limiting Conditions for Operation of Technical Specifications (TS) 3.5.3.2, 3.6.1.1, 3.6.1.2, and 3.6.1.3 While Performing Startup Testing to Meet TS

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)											
0	4	2	8	8	0	0	1	5	0	0	0	5	2	6	8	8	0	5	0	0	0		

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)

OPERATING MODE (9) 2	20 402(b)	20 405(c)	50 73(a)(2)(vi)	73 71(b)
POWER LEVEL (10) 0 0 0	20 405(a)(1)(ii)	50 38(c)(1)	50 73(a)(2)(v)	73 71(c)
	20 405(a)(1)(iii)	50 38(c)(2)	50 73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text NRC Form 366A)
	20 405(a)(1)(iv)	<input checked="" type="checkbox"/> 50 73(a)(2)(i)	50 73(a)(2)(viii)(A)	
	20 405(a)(1)(v)	50 73(a)(2)(ii)	50 73(a)(2)(viii)(B)	
	20 405(a)(1)(vi)	50 73(a)(2)(iii)	50 73(a)(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12)

NAME R. M. Poulk Jr., Regulatory Compliance Project Specialist	TELEPHONE NUMBER 9 1 1 4 5 7 1 - 1 2 3 1 1 5
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS

SUPPLEMENTAL REPORT EXPECTED (14)

<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH DAY YEAR
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ABSTRACT (Limit to 1400 spaces, i.e. approximately fifteen single space typewritten lines) (16)

While performing prestartup testing on April 26, 1988, the requirements of technical specifications (TS) were not met in that Unit 2 was placed the Operational Condition 2 without meeting the limiting conditions for operation (LCO) of TSs 3.5.3.2, 3.6.1.1, 3.6.1.2, and 3.6.1.3. At 0435 hours, the Operations staff placed the mode switch in the STARTUP position to perform testing required by TSs 3.1.4.1, Rod Worth Minimizer, and 3.1.4.2, Rod Sequence Control System. TS allow the mode switch to be placed in the STARTUP position provided that the requirements for entry into Operational Condition 2 are met, with the exception being the identified testing.

The Operations staff and controlling procedures did not recognize that a mode change was being performed by repositioning the mode switch for this testing. It was believed that the TS footnote associated with this testing allowed the mode switch to be placed in the STARTUP position for the purpose of performing the testing, without causing a mode change.

A standing instruction was issued to provide guidance on mode switch operation. Procedures used to perform this testing and to control the unit startup are being reviewed and will be revised as required to ensure accuracy and regulatory compliance.

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TEXT (if more space is required, use additional NRC Form 305A s) (17)

Initial Conditions

While making preparations on April 26, 1988, to perform a reactor startup, the reactor mode switch (EIIS/JA/ZIS) was placed in the STARTUP position at 0435 to perform the Rod Worth Minimizer (RWM) System (EIIS/JD) surveillance periodic test, PT-01.6.2-2, and the Rod Sequence Control System (RSCS)(EIIS/JD) surveillance test, PT-01.6.1. Following the completion of these tests, the mode switch remained in the STARTUP position until the actual reactor startup was commenced at approximately 1600 hours. Technical Specifications (TS) define Operational Condition (mode) as "...any one inclusive combination of mode switch position and average reactor coolant temperature as indicated in Table 1.2." Technical Specification 3.0.4 states:

"Entry into an Operational Condition or other specified applicability shall not be made unless the conditions of the limiting condition for operation (LCO) are met without reliance on provisions contained in the action statements unless otherwise excepted."

An investigation was conducted to determine if the requirements of technical specifications were met. This investigation included interviews with Operations shift personnel associated with the event and reviews of the operating logs and procedures used during this time period. The investigation concluded the requirements of various technical specifications were not met between the period of 0435 hours and 1546 hours on April 26.

Investigation Results - Requirements of Technical Specifications Not Met

As noted in the initial conditions, a mode change is initiated by either placing the mode switch to another position or by changing the reactor coolant temperature as identified by TS Table 1.2. In addition to this definition, the TS provide specific conditions or situations where the MODE is not defined by these two parameters exclusively. An example of this is found in footnotes "#, ##, and ***" to Table 1.2. These footnotes state, "The reactor mode switch may be placed in the _____ position...(to allow some function to be accomplished)." These footnotes provide the allowance to move the mode switch to perform a specific function; however, this change does not constitute a mode change. While applying one of these footnotes, the mode remains as that mode established prior to moving the mode switch to the allowed footnoted position.

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At 0435 hours on April 26, 1988, the mode switch was moved from the SHUTDOWN position and placed in the STARTUP position to perform testing required by TS 4.1.4.1.1. This evolution did not meet the requirements of TS. TS 4.1.4.1.1 requires that the "Rod Worth Minimizer shall be demonstrated operable in Condition 2..." Included in this specification is the allowance; "Entry into Condition 2 and withdrawal of selected control rods is permitted for the purpose of determining the operability of the RWM prior to withdrawal of control rods for the purpose of bringing the reactor to critically," (footnote * to TS 3.1.4.1). As can be noted by reviewing these requirements, testing of the RWM System is to be performed in Condition 2; however, the footnote is provided to allow entering into Condition 2 prior to satisfying the surveillance and thus the action statement for that specification. This footnote, thereby, provides the method to satisfy the requirements of TS 3.0.4.

When the mode switch was placed in the STARTUP position at 0435 hours, the plant was required to meet Condition 2 requirements except for RWM and RSCS. As noted, TS 3.0.4 requires that action statement not be relied upon when making a mode change. Due to the configuration of the plant when the mode switch was repositioned, the following LCOs were not met:

TECH. SPEC.	TITLE	CAUSE
3.6.1.1	Primary Containment Drywell DW (EIIS/*) DW Integrity	DW
3.6.1.2	Primary Containment Leakage	DW Open*
3.6.1.3	Primary Containment Airlock (EIIS/*/AL)	DW Open*
3.5.3.2	Residual Heat Removal/Low Pressure Coolant Injection System (EIIS/BO)	S/D Cooling

*The drywell (DW) was open for welding cables.
*EIIS system description unavailable.

The above conditions were not completely satisfied until 1546 hours on April 26 when the LPCI System was restored to the standby lineup. The remaining conditions were returned to their required configuration between 1219 hours and 1419 hours. It is noted that the same situation exists in the performance of test required by TS 4.1.4.2, Rod Sequence Control System, which was initiated at approximately 0912. Although the footnote for this specification was also improperly applied, the mode switch was never repositioned as a result of this surveillance; therefore, this test has no direct effect on this event.

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TEXT (If more space is required, use additional NRC Form 305A s) (17)

Mode Switch Not Returned to Shutdown Following Testing

As identified in the previous event, the mode switch was improperly placed in the STARTUP position for the purpose of performing required surveillance testing in preparation for a reactor startup. It was believed by the Operations staff that the repositioning of the mode switch for the performance of these test was allowed by the footnote contained in TSs 3.1.4.1 and 3.1.4.2. They felt that the repositioning of the mode switch for this testing was similar to the allowances provided in the footnotes found in Table 1.2.

At 0945 hours on April 26, the two surveillance tests in question were completed; however, the mode switch was not returned to the SHUTDOWN position. Had the assumption of the Operations staff been correct in positioning the mode switch to STARTUP as noted, then the switch should have been repositioned to the SHUTDOWN position immediately following the completion of the test. The investigation into why the switch was left in the STARTUP position determined the following:

1. Surveillance test PT-01.6.2-2 (RWM) provided procedural guidance to restore the mode switch to the proper position according to plant conditions. Surveillance test PT-01.6.1 (RSCS) did not have a mode switch restoration step at the conclusion of the procedure. As PT-01.6.1 was the last of the two test performed, there was no procedural requirement or guidance to return the mode switch to its required position.
2. Even though the procedure did not identify any action to be taken with the mode switch, the Control Operator performing the test requested guidance from the Shift Foreman as to what position the mode switch should be positioned to at the completion of the test. The Shift Foreman directed that the mode switch be left in the STARTUP position. Discussions with the Shift Foreman (by the investigator) determined that this decision was made for the following reasons:
 - a. The Shift Foreman felt that the startup of Unit 2 was imminent and, therefore, repositioning the mode switch would cause a needless cycle of the Reactor Protection System (RPS). The Shift Foreman stated that Condition 2 was entered when the plant had satisfied the requirement for initiating the rod withdrawal and that work was still in progress.
 - b. The Shift Foreman had not completed his review of plant startup requirements and felt that other testing might be required which would necessitate the mode switch being in the STARTUP position.
 - c. The Shift Foreman did not want to cycle the Reactor Protection System (RIS) (EIIS/JC) due to causing possible damage to the control rod drive units (EIIS/AA/HCU).

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TEXT (If more space is required, use additional NRC Form 305A's (17))

Improper Sign-Off of General Procedure 01

Step 5.1.15 of General Procedure (GP) 01, Startup Checklist, states, "Remove shutdown cooling from service per OP-17." A review of the completed GP indicates that the procedure was signed off as complete at 1503 hours on April 26, indicating that all steps required to be completed by the procedure were complete. OP-17, the procedure which is used to remove shutdown cooling from service and restore the LPCI System to its standby lineup was not completed until 1546 hours. Discussions with the Shift Foreman indicated that Step 5.1.15 was initialed as complete based on the fact that shutdown cooling had been secured (secured at 1406 per Control Operator's log) and a visual examination of the RTBG by the Shift Foreman indicated LPCI was in its standby lineup. The Shift Foreman acknowledged during the interview that, upon reflection of the event, this step was incorrectly initialed as complete.

The improper sign-off of the step allowed the Shift Foreman to complete the requirements of GP-01 and continue the requirements of GP-02, Approach to Criticality and Pressurization of the Reactor, which is the procedure for performing a reactor startup. Based on procedural requirements in GP-01 and GP-02 having been identified as complete, it could be assumed that a reactor startup could have been initiated without the LPCI System being in its standby lineup. Although the Shift Foreman believed that the LPCI System was aligned in its standby lineup, the Control Operator and the startup Senior Control Operator were both aware that the procedure for completing the removal of shutdown cooling and the restoration of LPCI to its standby lineup was not complete and did not intend to pull rods until the procedure was signed off. When the Shift Foreman stated that he was ready to initiate a reactor startup, he was notified of the status of the LPCI System by the startup SRO. At that time, the Shift Foreman secured startup activities until the LPCI System was restored to the standby lineup (procedure completed).

CORRECTIVE ACTIONS

A standing instruction was issued on April 26 (88-042), which identified the failure to properly position the mode switch and provided the requirements to ensure proper mode switch operation. In addition, the procedures used to conduct the prestartup testing and control the startup process are being reviewed and revised as required to ensure that the steps provide clear, concise guidance. A review was conducted of other technical specification notes to determine if other similar problems existed with no problems identified. Even though the Operations staff had been operating under the understanding that a mode change was not required to perform the referenced tests, this is considered to be an isolated event.

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TEXT (If more space is required, use additional NRC Form 365A 2) (17)

A real-time training lesson package on the reactor mode switch change event has been developed for training of the appropriate members of the Operations staff. Shift training was initiated on May 16, 1988, and is expected to be completed by June 3, 1988.

EVENT ASSESSMENT

This event would not have been more severe under reasonable and credible alternative conditions. The repositioning of the mode switch without meeting the requirements of Operational Condition 2 was for testing only and had no direct effect on plant systems or safety. The Operations personnel involved in this event (as well as past instances when these PTs were performed) fully understood the plant conditions and were in control of the startup activities. This event was also reported in the NRC Inspection Report 50-325/88-15 and 50-324/88-15.

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TEXT (If more space is required, use additional NRC Form 385A 1/117)

ATTACHMENT 1

Sequence of Events
April 26, 1988

0435 (L) Mode switch was placed in the STARTUP position for the purpose of performing the rod worth minimizer surveillance test, PT-01.6.2-2.

0700 (C) Shift turnover; PT-01.6.2-2 still in progress.

0912 (L) PT-01.6.2-2 is completed by the operator.

0913 (C) Decision was made by the Shift Foreman (SRO) to leave the mode switch in the STARTUP position and to initiate the performance of the Rod Sequence Control System surveillance test, PT-01.6.1. This test also requires that the mode switch be in the STARTUP position and for the plant satisfy those requirements to be in STARTUP.

0945 (P) PT-01.6.1 is completed.

*This test did not provide guidance on the placement of the mode switch following the completion of the procedure.

1219 (P) Tracking LCO T-2-88-0729 was canceled.

*This LCO was established at 2006 on 4/25/88 to track the opening of both drywell airlock doors to allow the running of welding cables into the drywell.

1403 (P) Initiated procedures for securing shutdown cooling and restoring the LPCI System to the standby lineup.

1406 (L) Shutdown cooling secured on the B loop; A loop of LPCI is in the standby lineup.

*This procedure (OP-17), which controlled this evolution and the restoration of LPCI to the standby lineup, is still being performed.

1419 (P) Active LCO on the suppression pool to Reactor Building vacuum breakers is canceled.

*This LCO was established at 0325 on 4/25/88 due to the backup nitrogen pneumatic source being isolated to the drywell for personnel safety while in the drywell.

1453 (L) B reactor recirculation pump (EIIS/AD/P) is started and normal recirculation flow in both loops is established.

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1503 (L) Primary/secondary containment is announced as being in effect in preparation for a unit startup.

1503 (P) General Procedure, GP-01, Startup Checklist, is signed off as complete.

*The procedure to restore LPCI (OP-17) to the standby lineup is a prerequisite to signing GP-01 (Step 5.1.15). OP-17 was still being performed.

1507 (L) Vessel shell temperature is verified to be within limits established by Technical Specification Figure 3.4.6.1-2 in accordance with GP-02, Approach to Criticality and Pressurization of the Reactor.

1516 (L) Commence reactor startup was announced by Shift Foreman.

*The startup SRO notified the Shift Foreman that the LPCI system had not been restored to the standby lineup per OP-17. The startup was halted by Shift Foreman prior to the rod select system being energized and the Control Operator was notified to secure from the startup until directed by the Shift Foreman.

1546 (P) OP-17 is signed off as complete, thus restoring the LPCI B loop to its standby lineup.

1600 (P) The time for completion of GP-01 is changed to reflect a time of 1600 vice the initial entry of 1503.

*At this time, the startup was recommenced in accordance with GP-02.

- (C) --Comment
- (L) --Operations log entry
- (P) --Procedure entry
- *--Investigator comment

CP&L

Carolina Power & Light Company

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

May 26, 1988

FILE: B09-13510C
SERIAL: BSEP/88-0536

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 2-88-015

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,

S. R. Bishop for
C. R. Dietz, General Manager
Brunswick Steam Electric Plant

MJP/srg

Enclosure

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

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