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SERIAL NO: BSEP 99-0197

10 CFR 50.73

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

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-324/LICENSE NO. DPR-62
LICENSEE EVENT REPORT 2-1999-005-01

Gentlemen:

In accordance with the Code of Federal Regulations, Title 10, Part 50.73, Carolina Power & Light Company submits the enclosed Licensee Event Report supplement.

No regulatory commitments are contained in this submittal. Please refer any questions regarding this submittal to Mr. Keith R. Jury, Manager - Regulatory Affairs, at (910) 457-2783.

Sincerely,

C. J. Gannon
Plant General Manager
Brunswick Steam Electric Plant

SFT

Enclosure: Licensee Event Report

IE22

PDR ADOCK 05000324

Document Control Desk
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cc:

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LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20503. If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

FACILITY NAME (1)
Brunswick Steam Electric Plant (BSEP), Unit No. 2

DOCKET NUMBER (2)
05000324

PAGE (3)
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TITLE (4)
Safety Relief Valves Exceeded Technical Specification Setpoint Limits

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NO.	REVISION	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
05	11	1999	1999	-- 005	-- 01	12	08	1999	FACILITY NAME	DOCKET NUMBER

OPERATING)	4	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)								
POWER LEVEL (10)	0	20.2201(b)	20.2203(a)(1)	20.2203(a)(2)(i)	20.2203(a)(2)(ii)	20.2203(a)(2)(iv)	20.2203(a)(2)(iii)	20.2203(a)(2)(iv)	50.36(c)(1)	50.73(a)(2)(vii)
										50.73(a)(2)(viii)
										50.73(a)(2)(ix)
										73.71
										OTHER
										Specify in Abstract below or in NRC Form 366A

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Steven F. Tabor, Project Analyst - Regulatory Affairs	(910) 457-2178

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

SUPPLEMENTAL REPORT EXPECTED (14)				EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES	X		NO				
(If yes, complete EXPECTED SUBMISSION DATE)							

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

During the Brunswick Steam Electric Plant (BSEP) Unit No. 2 Refueling Outage (i.e., B214R1), eleven safety relief valves (SRVs) were removed for set pressure testing and recertification. Technical Specification (TS) 3.4.3 requires 10 SRVs to be operable with lift settings within +/- 3 percent of their lift setpoints. On May 11, 1999, the results of the testing performed by Wyle Laboratories identified that two of the eleven valves were found to lift at pressures outside the limits. Specifically, the as-found lift settings for safety relief valves 2-B21-F013D and 2-B21-F013E were determined to be in excess of the setpoint values allowed by the TSs by +3.7% and +3.2%, respectively. The SRV pilot valve assemblies were replaced with certified spares prior to startup of Unit 2. The cause of the setpoint drift for 2-B21-F013D is attributed to a bent pilot rod, the cause of which is indeterminate. The cause of the setpoint drift for 2-B21-F013E is attributed to valve disassembly and reassembly practices. This failure mechanism was previously identified in LER 1-98-003. The safety significance of this condition is considered minimal. Although the SRV setpoint limits required by the TS were exceeded, the condition is bounded by General Electric (GE) analysis, "Evaluation of SRV Setpoint Drift at Brunswick Steam Electric Plant Units 1 & 2," dated March 1986. This condition is being reported in accordance with the requirements of 10 CFR 50.73 (a)(2)(vii)(D) as a common cause failure in a system designed to mitigate the consequences of an accident.

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

Energy Industry Identification System (EIS) codes are identified in the text as [XX].

INITIAL CONDITIONS

During the Brunswick Steam Electric Plant (BSEP) Unit No. 2 Refueling Outage (i.e., B214R1), eleven safety relief valves (SRVs) [AC/RV] were removed for set pressure testing and recertification. Technical Specification (TS) 3.4.3 requires 10 SRVs to be operable with lift settings within +/- 3 percent of their lift setpoints.

EVENT NARRATIVE

On May 11, 1999, the results of the testing performed by Wyle Laboratories identified that two of the eleven valves lifted at pressures outside the TS limits. Specifically, the as-found lift settings for safety relief valves 2-B21-F013D and 2-B21-F013E were determined to be in excess of their nominal setpoint values by +3.7% and +3.2%, respectively. The test data is provided in the table below.

SRV	NAMEPLATE SETPOINT (psig)	AS-FOUND LIFT SETPOINT (psig)	PERCENTAGE OF DRIFT
2-B21-F013A	1130	1126	-0.4
2-B21-F013B	1150	1157	0.6
2-B21-F013C	1130	1137	0.6
2-B21-F013D	1140	1182	3.7
2-B21-F013E	1140	1176	3.2
2-B21-F013F	1130	1109	-1.9
2-B21-F013G	1130	1102	-2.5
2-B21-F013H	1140	1107	-2.9
2-B21-F013J	1150	1153	0.3
2-B21-F013K	1140	1134	-0.5
2-B21-F013L	1150	1143	-0.6

This issue is being reported in accordance with the requirements of 10 CFR 50.73 (a)(2)(vii) as a condition that caused two independent trains or channels to become inoperable in a single system designed to mitigate the consequences of an accident.

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EVENT CAUSE

The cause of the setpoint drift for the 2-B21-F013D is attributed to a bent pilot rod. The exact cause of the bent pilot rod could not be determined. Based on historical data, it appears that the bent pilot rod is an isolated occurrence.

The cause of the setpoint drift for the 2-B21-F013E is attributed to valve disassembly and reassembly practices related to cleanliness, application of lubricant, and pilot disc lapping. This failure mechanism was initially identified during the root cause evaluation of the setpoint drift associated with four Unit 1 SRVs during the B112R1 refueling outage and documented in LER 1-98-003, Supplement 1. However, SRV 2-B21-F013E was recertified and installed prior to discovery of the valve reassembly failure mechanism. Consequently, the vendor rebuild practices at the time the Unit 2 valves were last disassembled and reassembled were not adequate for preventing undesirable contaminants in the labyrinth seal area of the valve. These contaminants cause higher than normal frictional forces to be applied, resulting in the valve lifting at a higher steam pressure.

CORRECTIVE ACTIONS

The SRV pilot valve assemblies were replaced with certified spares prior to startup of Unit 2. Rebuild of the certified spares was monitored by maintenance and engineering personnel to ensure that the lessons learned related to vendor practices as documented in LER 1-98-003, Supplement 1 were incorporated into the rebuild process.

The bent pilot rod assembly for 2-B21-F013D was replaced with an assembly that meets specification requirements.

As committed in LER 1-98-003, the feasibility of developing the needed expertise to support the performance of future SRV rebuilds was evaluated. Rebuilds of SRVs by site personnel is planned to begin in 2001. Site ownership of the rebuild process is expected to improve the quality of the process.

SAFETY ASSESSMENT

Although the SRV setpoint limits required by the TS were exceeded, the condition is bounded by a General Electric (GE) analysis, "Evaluation of SRV Setpoint Drift at Brunswick Steam Electric Plant Units 1 & 2," dated March 1986. In the Wyle Laboratory test, the as-found data indicates that all eleven SRVs would have actuated with the lift setpoints at their as-found values, and therefore, no operational safety concern existed.

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PREVIOUS SIMILAR EVENTS

Target Rock SRV setpoint drift has been an industry issue since the early 1980s. BSEP reportable conditions related to SRV drift issues identified during the last five years were reported in LERs 1-98-003, 2-97-004, 1-96-013, 2-96-002, and 1-95-007. The cause for these previous events excluding LER 1-98-003, is attributed to pilot disc-to-seat oxide bonding. To resolve the oxide bonding issue, BSEP pursued platinum coating of the pilot discs. Although the test data collected during the B214R1 and B112R1 refueling outages indicates that the platinum coating process has eliminated the disc-to seat oxide bonding issue and significantly improved SRV performance, the process has not completely eliminated the setpoint drift problem, as evidenced by the results of the evaluation into the root cause of the issues addressed in this report and LER 1-98-003.