

**CP&L****Carolina Power & Light Company**

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USNRC REGION II

ATLANTA, GEORGIA

SERIAL: LAP-83-245

JUN 24 1983

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Executive Vice President

Power Supply and Engineering &amp; Construction

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BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2  
DOCKET NOS. 50-325 AND 50-324  
LICENSE NOS. DPR-71 AND DPR-62  
RESPONSE TO INFRACTIONS OF NRC REQUIREMENTS

Mr. O'Reilly:

The Brunswick Steam Electric Plant (BSEP) has received IE Inspection Report 50-324/83-03 and 50-325/83-03 and finds that it does not contain any information of a proprietary nature.

The report identified one item with four examples that appears to be in noncompliance with NRC requirements. This item and Carolina Power & Light Company's response are addressed in the following text:

Violation (Severity Level III):

License Condition 2.c(2) of License Nos. DPR-71 and DPR-62 issued November 12, 1976, for Docket No. 50-325, and December 27, 1974, for Docket No. 50-324 requires that the licensee operate the facilities in accordance with the technical specifications.

Contrary to the above, the licensee failed to operate the facilities in accordance with its Facility Operating License and technical specifications as exemplified by the following four departures from technical specifications, any or all of which constitute a violation of License Condition 2.c(2).

1. Technical Specification 3.9.10.2 states that any number of control rods and/or control rod drive mechanisms may be removed from the reactor pressure vessel provided that each four-cell core location which has any fuel assembly present must have the associated control rod fully inserted.

However, on January 23, 1983, during core alterations, the licensee moved four fuel assemblies in the reactor core from fuel cells that had fully inserted control rods to cell positions that did not have control rods inserted. With the fuel assemblies in their

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new positions, the licensee worked on control rod drive mechanisms. This condition existed for approximately ten hours.

2. Technical Specification 6.8.2 requires that procedure changes be reviewed by the Plant Nuclear Safety Committee (PNSC) and approved by the plant General Manager.

However, procedure GP-01, revision 69, was inadequately reviewed by the PNSC in that revision 69 was reviewed and approved without a reference to important differences (involving the select rod insert feature) between Unit Nos. 1 and 2. Also, as a result of ineffective communication between the Unit No. 1 licensed operator and the nuclear engineer, three control rods were inadvertently inserted into the core.

3. Technical Specification 3.3.2.c requires the action of Table 3.3.2-1 be taken if less than a minimum number of channels specified for each instrument in the table is operable.

However, on December 13, 1982, the Reactor Water Cleanup System was not isolated as required by Table 3.3.2-1, item 3.a within one hour. The appropriate action was not taken until December 16, 1982.

4. Technical Specification 6.8.1 requires that procedures identified in Appendix A of Regulatory Guide 1.33, November 1972, be established and implemented. Section B.10 of Appendix A requires procedures for preparation for refueling.

However, the procedure for preparation of refueling, FS-11, was not implemented in that the initial conditions of Unit No. 1 specified in FH-11 were not established prior to entering the refueling mode on December 17, 1982.

Carolina Power & Light Company's Response to Item 1:

Carolina Power & Light Company (CP&L) acknowledges that the placement of four fuel assemblies in fuel cells which did not have their respective control rods inserted is a violation of NRC requirements. BSEP Unit No. 1 was in an extended refueling outage for condenser retubing, Mark I torus modifications, and major AOG modifications. Due to limited storage capacity in the spent fuel pool, 88 fuel bundles remained in randomly selected locations within the core.

The control rod drive units for rods 22-19, 30-43, 38-23, and 38-27 - whose cells each contained one fuel bundle - were scheduled to be rebuilt following the completion of all other drive rebuilds. At that time the fuel bundle in each cell would be moved to cells with fully inserted rods. Due to a problem encountered with uncoupling other drive units to be rebuilt, it was decided to rebuild the four drives with fuel bundles. The fuel shuffle sequence had been prepared for relocating those four fuel bundles

based on the remaining rods being inserted. At approximately 0300 on January 23, 1983, the fuel bundles were relocated in the core around withdrawn control rods 22-15, 26-43, 34-23, and 34-27. While performing surveillance requirements to assure that all withdrawn control rods had no fuel in the cell (Technical Specification 4.9.10.2.1.e) at 1245 on January 23, 1983, the fuel shuffle error was identified.

The fuel handling procedures being used (FH-11) did not clearly define responsibility to ensure that control rods were inserted prior to fuel movement. The Nuclear Engineer believed that the prerequisite Operations group sign-offs on Section K of GP-01 provide<sup>1</sup> the required controls while the Operations personnel believed the fuel movement sheets generated by the Nuclear Engineer provided the controls.

The withdrawn control rods around which the four fuel bundles were placed were inserted within one hour of identifying the fuel shuffle error. The delay in inserting these rods occurred because they were under clearance when the problem was identified. A verification was also performed on core fuel locations to assure that all control rods with fuel in their cells were inserted.

A shutdown margin check was performed for the core configuration immediately following the fuel shuffle, and the results were compared with the shutdown margin calculated prior to the fuel moves. In both cases,  $K_{eff}$  was determined to be 0.89733, or a 8.698 percent  $\Delta K/K$  shutdown margin. The technical specifications require the shutdown margin to be equal to or greater than 0.38 percent  $\Delta K/K$ .

The plant procedure (FH-11) used to control fuel movements has been revised to require that control rods be inserted prior to moving fuel. Other administrative controls have been incorporated into FH-11 to provide additional guidelines and requirements and to assign specific responsibilities.

Corrective actions in regard to this event are considered complete. BSEP reported this event on February 21, 1983, in LER 1-83-07, which provides additional information related to this event.

#### Carolina Power & Light Company's Response to Item 2:

Carolina Power & Light Company acknowledges that the apparent failure of the PNSC to perform an adequate review of revision 69 of GP-01 was a violation of NRC requirements. The responsibility for assuring that revisions to existing procedures are correct belongs with the management of the subunit responsible for that procedure, with a final review being performed by PNSC. It is believed that the omission of the "Unit 2 only" notation was inadvertently deleted during the rewrite for revision 69 and not noted as a change. A further clarification of the cause has been hindered by the elapsed time since revision 69 was approved approximately two years ago.

In an effort to prevent recurrence of similar events in the future, the plant is drafting a new program for procedural review and approval. This program will better define the requirements and responsibilities of the reviewers and will increase the number of persons required to review each procedure. The procedure defining this program will soon be in final draft and will be sent out to management for final comments. Pending final resolution of these comments, this procedure should be approved and the program be implemented by July 31, 1983. Until this procedure has been approved, the General Manager has directed that all procedures brought to PNSC be verified correct by the subunit manager in charge of that procedure.

Carolina Power & Light Company's Response to Item 3:

Carolina Power & Light Company acknowledges that the failure to isolate the Reactor Water Cleanup System (RWCU) as required by technical specifications is a violation of NRC requirements. This event was caused by personnel error, in that Operations personnel did not believe at the time that the isolation system was inoperable due to receiving "Differential Flow High" and "Differential Flow High-High" alarms during various RWCU System evolutions. These alarms are generated by the technical specification required isolation circuitry, whereas the instrument that failed downscale was for indication only. Operations personnel failed to take timely corrective actions when the reliability of the instrument and system isolation circuitry was questionable.

The senior reactor operator licensed individual was removed from licensed duties for two weeks and during this period he was counseled on the need for timely resolution of problems potentially related to technical specification instrumentation. An 18-hour accelerated technical specification training course was given to licensed personnel. This course included an in-depth review of technical specifications with emphasis on operability statements and the decision process concerning operability and required actions. This event was also reviewed by licensed personnel.

BSEP reported this event on December 31, 1982, in LER 2-82-139, which provides additional information related to on this event.

Carolina Power & Light Company's Response to Item 4:

Carolina Power & Light Company acknowledges that the failure to meet the initial requirements of FH-11 prior to going to the refuel mode was a violation of NRC requirements. This event was caused by inadequate plant procedures, in that sufficient guidance and direction were not procedurally provided to assure appropriate procedures were followed when applicable.

Plant procedure GP-01 has been revised to provide controls documentation (i.e., signature sheets) to assure that required initial conditions are met prior to entering the refuel mode from the shutdown mode. During subsequent reviews of GP-01, it was determined that additional

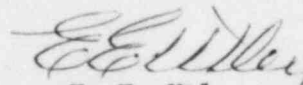


procedural controls were needed to assure that required conditions are met when going from the shutdown mode to the refuel mode. GP-01 has, therefore, also been revised to assure adequate procedural controls for this evolution.

Carolina Power & Light Company's Concluding Remarks

These four departures from technical specifications occurred prior to the issuance of the recently imposed civil penalty. Carolina Power & Light Company has implemented a vigorous program for the long-term improvement of operations at the Brunswick Plant which we believe will serve to remedy the basic causes of such occurrences in the future. The Brunswick Improvement Program (BIP) was developed after a comprehensive self-appraisal by CP&L of its management control of operations at the Brunswick Plant and included outside reviews by an external review panel, INPO, and Management Analysis Company (MAC). The program includes specific action items encompassing seven major objectives with a detailed schedule for implementation. A formal copy of the Brunswick Improvement Program was transmitted to NRC Region II on October 29, 1982. This comprehensive self-appraisal and the implementation of improvements, we believe, is unparalleled in the utility industry. The progress of the Brunswick Improvement Program efforts continues to be monitored closely by CP&L senior management.

Yours very truly,

  
E. E. Utley

RMP/kjr (7106CEH)

cc: Mr. D. O. Myers (NRC-BSEP)  
Mr. S. D. MacKay (NRC)  
Mr. D. B. Vassallo (NRC)