UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30303

Report Nos.: 50-325/84-07 and 50-324/84-07

Licensee: Carolina Power and Light Company
411 Fayetteville Street
Raleigh, NC 27602

Docket Nos.: 50-325 and 50-324

License Nos.: DPR-71 and DPR-62

Facility Name: Brunswick 1 and 2

Inspection at Brunswick site near Southport, North Carolina

Inspectors: A K Hardin for — 3/29/84
D. O. Myers, Senior Resident Inspector — Date Signed

A K Hardin for — 3/29/84
L. W. Garner, Resident Inspector — Date Signed

A K Hardin — 3/29/84
A. K. Hardin, Project Inspector — Date Signed

Approved by: — 3/29/84
Paul R. Bemis, Section Chief — Date Signed
Division of Project and Resident Programs

SUMMARY

Inspection on February 15 - March 15, 1984

Areas Inspected

This routine, safety inspection involved 203 inspector-hours on site in the areas of surveillance, maintenance, operational safety verification, ESF System walk-down, independent inspection, and NUREG 0737 items.

Results

Of the areas inspected, two violations were identified: failure to follow procedures discussed in paragraph 3; and failure to meet 10 CFR 19 posting requirements discussed in paragraph 8.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

J. Boone, Engineering Supervisor
L. Boyer, Director - Administrative Support
T. Brown, I&C/Electrical Maintenance Supervisor (Unit 1)
G. Campbell, Mechanical Maintenance Supervisor (Unit 2)
*J. Chase, Manager - Operations
G. Cheatham, Manager - Environmental and Radiation Control
J. Cook, Senior Specialist - Environmental and Radiation Control
R. Creech, I&C/Electrical Maintenance Supervisor (Unit 2)
C. Dietz, General Manager - Brunswick Nuclear Project
W. Dorman, QA - Supervisor
*K. Enzor, Director - Regulatory Compliance
W. Hatcher, Security Specialist
A. Hegler, Superintendent - Operations
*R. Helme, Director - Onsite Nuclear Safety - BSEP
M. Hill, Manager - Administrative and Technical Support
B. Hinkley, Manager - Technical Support
J. Holder, Manager - Outages
P. Hopkins, Director - Training
*P. Howe, Vice President - Brunswick Nuclear Project
L. Jones, Director - QA/QC
D. Novotny, Senior Regulatory Specialist
G. Oliver, Manager - Site Planning and Control
R. Poulk, Senior NRC Regulatory Specialist
C. Treubel, Acting Manager - Maintenance
L. Tripp, Radiation Control Supervisor
V. Wagoner, Director - IPBS/Long Range Planning
J. Wilcox, Principle Engineer - Operations
B. Wilson, Engineering Supervisor

Other licensee employees contacted included technicians, operators and engineering staff personnel.

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on March 16, 1984, with those persons indicated in paragraph 1 above. Meetings were also held with senior facility management periodically during the course of this inspection to discuss the inspection scope and findings.

3. Licensee Action on Previous Enforcement Matters

(Closed) Violation (324/81-20-01) Failure to maintain remote shutdown procedure EI-29. The inspector reviewed the licensee's program which was implemented to correct the violation and as stated in the October 12, 1981 response to the NRC. The associated procedure was changed and the program appeared adequate to ensure revisions would be entered into any procedure located in remote areas. Review of the in-place procedure at the remote shutdown panel on Feburary 16, 1984, indicated that three revisions had been properly incorporated, validating that a program was in place to maintain documents. This violation is closed.

During followup efforts, the inspector found that although the above program ensured changes were incorporated, it was not followed to provide for timely procedure updates. The in-place procedure EI-29 Revision 11, had been superceded by Revision 12 approved on January 25, 1984. Administrative Procedure AP-1, paragraph 5.5.5 requires that changes to procedures be incorporated within 14 days of approval by the general manager. Revision 12 to EI-29 approved by the general manager on January 25, 1984, was not in-place at the remote shutdown panel procedures during the inspector's observations on February 16, 1984. This failure to implement procedure AP-1 is a violation of technical specification 6.8.1.a and applies to Unit 2 (324/84-07-02).

4. Unresolved Items

No unresolved items were identified.

5. Operational Safety Verification (71707)

The inspector verified conformance with regulatory requirements throughout the reporting period by direct observation of activities, tours of facilities, discussions with personnel, reviewing of records, and independent verification of safety system status. The following determinations were made:

-- Technical Specifications. Through log review and direct observation during tours, the inspectors verified compliance with selected Technical Specifications Limiting Conditions for Operation.

-- By observation during the inspection period, the inspector verified the control room manning requirements of 10 CFR 50.54(k) and the TS were being met. In addition, the inspectors observed shift turnovers to verify that continuity of system status was maintained. The inspectors periodically questioned shift personnel relative to their awareness of plant conditions.

-- Control room annunciators. Selected lit annunciators were discussed with control room operators to verify that the reasons for them were understood and corrective action, if required, was being taken.

-- Monitoring instrumentation. The inspectors verified that selected instruments were functional and demonstrated parameters within TS limits.

-- Safeguard system maintenance and surveillance. The inspectors verified by direct observation and review of records that selected maintenance and surveillance activities on Safeguard systems were conducted by qualified personnel with approved procedures, acceptance criteria were met and redundant components were available for service as required by TS.

-- Major components. The inspectors verified through visual inspection of selected major components that no general condition exists which might prevent fulfillment of their functional requirements.

-- Valve and breaker positions. The inspectors verified that selected valves and breakers were in the position or condition required by TS for the applicable plant mode. This verification included control board indication and field observation (Safeguards Systems).

-- Fluid leaks. No fluid leaks were observed which had not been identified by station personnel and for which corrective action had not been initiated, as necessary.

-- Plant housekeeping conditions. Observations relative to plant housekeeping identified no unsatisfactory conditions.

-- Radioactive releases. The inspectors verified that selected liquid and gaseous releases were made in conformance with 10 CFR 20, Appendix B, and TS requirements.

-- Radiation controls. The inspectors verified by observation that control point procedures and posting requirements were being followed. The inspector identified no failure to properly post radiation and high radiation areas.

-- Security. During the course of these inspections, observations relative to protected and vital area security were made, including access controls, boundary integrity, search, escort, and badging.

No violations or deviations were identified.

6. Surveillance Testing (61726)

The surveillance tests were analyzed and/or witnessed by the inspector to ascertain procedural and performance adequacy.

The completed test procedures examined were analyzed for embodiment of the necessary test prerequisites, preparation, instructions, acceptance criteria, and sufficiency of technical content.

The selected tests witnessed were examined to ascertain that current, written approved procedures were available and in use, that test equipment in use was calibrated, that test prerequisites were met, system restoration was completed, and test results were adequate.

The selected procedures attested conformance with applicable TS, they appeared to have received the required administrative review and they apparently were performed within the surveillance frequency prescribed.

The inspector employed one or more of the following acceptance criteria for evaluating surveillance tests:

10 CFR
ANSI N18.7
Technical Specifications

Of the areas inspected, no violations or deviations were identified.

7. Maintenance Observations (62703)

Maintenance activities were observed and reviewed throughout the inspection period to verify that activities were accomplished using approved procedures or the activity was within the skill of the trade and that the work was done by qualified personnel. Where appropriate, limiting conditions for operation were examined to ensure that, while equipment was removed from service, the TS requirements were satisfied. Also, work activities, procedures, and work requests were reviewed to ensure adequate fire, cleanliness and radiation protection precautions were observed, and that equipment was tested and properly returned to service. Acceptance criteria used for this review were as follows:

Maintenance Procedure
Technical Specifications

Outstanding work requests that were initiated by the operations group for Units 1 and 2 were reviewed to determine that the licensee is giving priority to safety-related maintenance and not allowing a backlog of work items to permit a degradation of system performance.

Of the areas inspected, no violations or deviations were identified.

8. Failure to Meet Posting Requirements (92706)

On March 1, 1984, the inspector reviewed the employee notices bulletin board in the plant's access area and noticed that the licensee's Notice of Civil Penalty EA 83-88, which was issued on January 10, 1984, was not posted. The licensee, when notified, immediately posted the required documents as specified in 10 CFR 19(e). The site had received the document on January 13, 1984, and could not determine if it had been posted. The Quality Assurance group initiated a non-conformance report (2-84-027), which addresses inadequate corrective actions, to a similar failure to post which occurred in 1983 and was documented in NCR S-83-039. This failure to meet the posting requirements of 10 CFR 19(e) is a violation (325,324/84-07-01).

9. NUREG 0737 Item Update (25559)

a. II.B.1 - Reactor Coolant System Vents

On October 1, 1982, NRR informed CP&L that NRR had completed a review of TMI Action Item II.B.1, "Reactor Coolant System High Point Vents," and concluded that the venting capability at the Brunswick Steam Electric Plant's (BSEP) Units 1 and 2, Docket Nos. 325 and 324, was acceptable and that NUREG 0737, Item II.B.1 was resolved.

In the Technical Evaluation Report, prepared by Lawrence Livermore Laboratory for the Nuclear Regulatory Commission, regarding Reactor Coolant System Vents for BSEP 1 and 2, it is concluded that the primary means of venting non-condensable gases from the reactor pressure vessel are seven power-operated, safety-grade automatic depressurization system (ADS) safety/relief valves and that these alone provide adequate venting. This conclusion had been found acceptable by the NRC Division of Licensing pending satisfactory resolution of TMI Action Plan Item II.K.3.28. Action Plan Item II.K.3.28, requires verification that accumulators on ADS valves will meet certain qualifications regarding reliability of the air supply used to open the valves.

On July 5, 1983, CP&L informed NRR of CP&L's conclusion that the noninterruptible air supply to the ADS valves provided a reliable source of air to the valves, thus assuring short and long term availability of the valves.

On November 1, 1983, NRR issued Generic Letter 83-86, and in regard to Action Item II.K.3.28, the NRR staff stated they are currently reviewing information provided by the licensee.

Based on the above review, the inspector concluded that Action Item II.B.1 is closed and Item II.K.3.28 will remain open.

b. II.K.3.28 - Qualification of ADS Accumulators

See Item II.B.1 above. The item remains open.

c. II.K.3.21 - Restart of Spray and Low-Pressure Coolant Injection Systems

Following an NRR review of the BWR Owner's Group position relative to the analysis of automatic restart of Core Spray and Low-Pressure-Coolant Injection Systems (LPCI), the Division of Licensing wrote a Safety Evaluation Report (SER), which was transmitted to the licensee on October 26, 1982. In the SER, NRR agreed with the BWR Owner's Group response to Item II.K.3.21, that logic modifications for LPCI and low-pressure core spray are unwarranted. NUREG 0737, Item II.K.3.21 is closed.

d. II.K.3.22 - Automatic Switchover of RCIC Suction - Verify Procedures and Modify Design

TMI Action Plan Item II.K.3.22, Automatic Switchover of Reactor Core Isolation Cooling System Suction - Verify Procedures and Modify Design, states that the Reactor Core Isolation Cooling (RCIC) system takes suction from the condensate storage tank (CST) with manual switchover to the suppression pool when the level of the CST is low. This TMI Action Plan item requires that the switchover be made automatically upon a CST low-level signal to improve the reliability of the RCIC suction source.

On May 5, 1983, the Division of Licensing reviewed CP&L's submittal pertaining to the subject TMI item. Based on that review, NRR concluded that the requirements of Item II.K.3.22 for the Brunswick Steam Electric Plant had been met.

The revisions necessary to provide for automatic switchover of Reactor Core Isolation (RCIC) pump suction from the condensate storage tank to the suppression pool was accomplished by Plant Modification 81-086 for BSEP Unit 1 and Plant Modification 81-087 for BESP Unit 2. These Plant Modifications were reviewed by the resident inspector and no problems were identified. TMI Item II.K.3.22 is closed.

e. II.K.3.25 - Effect of Loss of AC Power on Pump Seals

NUREG 0737 Item II.K.3.25 required the licensee to determine, on a plant-by-plant basis, by analysis or experiment, the consequences of a loss of cooling water to the reactor recirculation pump seal coolers. The pump seals should be designed to withstand a complete loss of alternating current (AC) power for at least two hours. Loss of AC power for this case is assumed to be loss of reactor coolant system inventory following an anticipated operational transient.

A BWR Owner's Group (OG) was formed to address the issue. The OG study concluded that leakage rates were acceptable following loss of AC power (cooling) to the pump seals and that the data was applicable to the Brunswick recirculation pumps. Based on that study and CP&L's endorsement of the OG study, the Division of Reactor Licensing concurred in the conclusion that no modifications to the seal cooling

were required. In correspondence dated December 22, 1982, transmitting an applicable safety evaluation report, NRR stated the CP&L response was acceptable. TMI Action Plan Item II.K.3.25 is closed.

f. II.K.3.16 - Reduction in Challenges and Failures of Safety Relief Valves

The basic requirement of this TMI Action Plan item was to investigate the feasibility of reducing challenges to relief valves, and the potential for a stuck open relief valve, and to perform the necessary modifications to reduce the challenges by an order of magnitude.

The BWR Owner's Group made an evaluation of the potential benefit of various design changes for reducing the likelihood of Stuck Open Relief Valve (SORV) event. CP&L concurred with findings of the BWR Owner's Group that replacing three stage Target Rock Safety/Relief Valves (S/RVs) with two stage valves and incorporation of the manual equivalent of the low-low set relief concept into new emergency instructions would achieve the goal of an order of magnitude reduction in probability of a SORV event.

Plant Modification Nos. 80-085 and 80-086 were implemented on Brunswick Units 1 and 2, respectively, to change out three stage relief valves for two stage relief valves. The manual equivalent of the low-low set relief concept is included in CP&L Emergency Procedure EI-31. The Plant Modifications and Emergency Procedure revisions were reviewed by the resident inspector and no problems were identified.

As of February 29, 1983, this item was being carried as an Action Item by NRR-DRL. NRR-DRL plans to issue by mid March 1984, a request for additional information regarding this item. TMI Action Plan II.K.3.16 will remain open.

g. III.D.3.4 - Control Room Habitability

Task Action Plan Item III.D.3.4, "Control Room Habitability," required licensees to assure that control room operators will be adequately protected against the effects of accidental releases of toxic and radioactive gases and that the nuclear power plant can be safely operated or shut down under design basis accident conditions (Criterion 19, "Control Room," of Appendix A, "General Design Criteria for Nuclear Power Plants," to 10 CFR Part 50).

The licensee made submittals to NRR on December 30, 1980 and March 2, 1983, addressing Item III.D.3.4. NRR has reviewed the CP&L submittals and concluded on the basis of the March 2 letter, that the proposed design meets the criteria specified in Item No. III.D.3.4 of NUREG 0737, and further, based on the review, that full implementation of the licensee's commitments will result in Control Room habitability systems which are acceptable. Reference, letter Vassallo to Utley SER on NUREG 0737, Item III.D.3.4, "Control Room Habitability."

In the March 2, 1983 letter, CP&L reported they had discovered that the logic for the chlorine isolation function did not perform as required and the deficiency was resolved by plant modification 81-032. The licensee further commited to incorporating into their existing Periodic Test, the acceptance criteria required to verify the 1/8-inch water gauge positive pressure in the Control Room every 18 months. PT-46.4, the PT in question, is presently being reviewed and the licensee plans to incorporate the required criteria. On the basis of the above action and NRR's acceptance of the design TMI Action Plan, Item III.D.3.4 is closed. The procedure revision will be tracked as open item 325/84-07-02 and 324/84-07-03.

h. II.F.1.4 - Containment Pressure Monitor System

See item j. below.

i. II.F.1.5 - Containment Water Level Monitor System

See item j. below.

j. II.F.1.6 - Containment Hydrogen Monitor System

The licensee has completed the installation of the Containment Pressure Monitor System and the Containment Water Level Monitor System. The Containment Hydrogen Monitoring System is reported to be 100 percent complete for Unit 1 and 95 percent complete for Unit 2. The completion of installation for Unit 2 is scheduled for Unit 2 reload No. 5 to occur during 1984. The NRC (NRR letter to the licensee dated February 2, 1984), has requested further information regarding these three items. The inspection of these items has been deferred pending submission by CP&L and acceptance by NRR of the additional information requested.

No violations or deviations were identified.