



UNITED STATES
 NUCLEAR REGULATORY COMMISSION
 REGION II
 101 MARIETTA STREET, N.W.
 ATLANTA, GEORGIA 30323

Report Nos.: 50-325/85-40 and 50-324/85-40

Licensee: Carolina Power and Light Company
 P. O. Box 1551
 Raleigh, NC 27602

Docket Nos.: 50-325 and 50-324

License Nos.: DPR-71 and DPR-62

Facility Name: Brunswick 1 and 2

Inspection Conducted: December 1-31, 1985

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| Inspectors: <u>J. S. Mellen</u> | <u>1/30/86</u> |
| FOR <u>W. H. Ruland</u> | Date Signed |
| <u>J. S. Mellen</u> | <u>1/30/86</u> |
| FOR <u>L. W. Garner</u> | Date Signed |
| Approved by: <u>P. E. Fredrickson</u> | <u>1/30/86</u> |
| FOR <u>P. E. Fredrickson, Section Chief</u> | Date Signed |
| <u>Division of Reactor Projects</u> | |

SUMMARY

Scope: This routine, safety inspection involved 107 inspector-hours on site in the areas of maintenance observation, surveillance observation, operational safety verification, Engineered Safeguard Feature (ESF) System walkdown, onsite Licensee Event Reports (LERs) review, cold weather preparations, plant modifications, and followup on IEB 80-11 (Masonry Wall Design).

Results: Two violations were identified: Two examples of Failure to Take Adequate Corrective Action, paragraphs 6 and 9; two examples of Failure to Conduct Activities According to Approved Procedures and Drawings, paragraph 9.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

P. Howe, Vice President - Brunswick Nuclear Project
C. Dietz, General Manager - Brunswick Nuclear Project
T. Wyllie, Manager - Engineering and Construction
E. Bishop, Manager - Operations
L. Jones, Director - QA/QC
J. Moyer, Director - Training
M. Jones, Acting Director - Onsite Nuclear Safety - BSEP
J. Chase, Assistant to General Manager
J. O'Sullivan, Manager - Maintenance
G. Cheatham, Manager - Environmental & Radiation Control
K. Enzor, Director - Regulatory Compliance
B. Hinkley, Manager - Technical Support
C. Blackmon, Superintendent - Operations
J. Wilcox, Principal Engineer - Operations
W. Hogle, Engineering Supervisor
W. Tucker, Engineering Supervisor
B. Wilson, Engineering Supervisor
R. Creech, I&C/Electrical Maintenance Supervisor (Unit 2)
R. Warden, I&C/Electrical Maintenance Supervisor (Unit 1)
W. Hatcher, Supervisor - Security
R. Kitchen, Mechanical Maintenance Supervisor (Unit 2)
R. Poulk, Senior NRC Regulatory Specialist
D. Novotny, Senior Regulatory Specialist
W. Murray, Senior Engineer - Nuclear Licensing Unit

Other licensee employees contacted included construction craftsmen, engineers, technicians, operators, office personnel, and security force members.

2. Exit Interview (30703)

The inspection scope and findings were summarized on January 6, 1986, with the assistant to the general manager and the vice president. The following issues were discussed in detail: failure to correct a ground on Unit 1 250 V DC Battery Bus A (paragraph 6); removal of heat tracing for Unit 1 Condensate Storage Tank (CST) level switches (paragraph 9); use of an uncontrolled procedure to check certain freeze protection circuits (paragraph 9); and insufficient thread engagement for mounting fasteners for a CST level switch (paragraph 9).

The licensee acknowledged the inspection findings and took no exceptions. Regarding the use of an uncontrolled procedure, the licensee stated that the operations group would review Administrative Operating Instructions (AOIs) to insure that no safety-related activities were being controlled by the

AOI. The licensee did not identify during the inspection any materials provided or reviewed by the inspector as proprietary.

3. Followup on Previous Enforcement Matters (92702)

Not inspected.

4. Maintenance Observation (62703)

The inspectors observed maintenance activities and reviewed records to verify that work was conducted in accordance with approved procedures, Technical Specifications, and applicable industry codes and standards. The inspectors also verified that: redundant components were operable; administrative controls were followed; tagouts were adequate; personnel were qualified; correct replacement parts were used; radiological controls were proper; fire protection was adequate; Quality Control (QC) hold points were adequate and observed; adequate post-maintenance testing was performed; and independent verification requirements were implemented. The inspectors independently verified that selected equipment was properly returned to service.

Outstanding work requests and authorizations (WR&A) were reviewed to ensure that the licensee gave priority to safety-related maintenance.

The inspectors observed/reviewed portions of the following maintenance activities:

- Diesel Generator lube oil pressure switch problems.
- MI-10-2AB, Electrical Equipment Cabinets, Inspection and Cleaning, Rev. 5.
- SP-85-112, Installation and Operation of a Jet Pump Nozzle Plug Vent System, Rev. 1.
- Scram solenoid pilot valve Environmental Qualification (EQ) upgrade per WR&A 85-AHQ1, 85-AHQ5 and MI-10-4C, Control Rod Drive (CRD) Solenoid Operated Scram Pilot Valve, Core, Diaphragm, and Gasket Replacement, Rev. 10.

No violations or deviations were identified.

5. Surveillance Observation (61726)

The inspectors observed surveillance testing required by Technical Specifications. Through observation and record review, the inspectors verified that: tests conformed to Technical Specification requirements; administrative controls were followed; personnel were qualified; instrumentation was calibrated; and data was accurate and complete. The inspectors independently verified selected test results and proper return to service of equipment.

The inspectors witnessed/reviewed portions of the following test activities:

- PT-17.3P, Plant Batteries, Rev. 17.
- PT-12.2A, Diesel Generator 1 Monthly Load Test, Rev. 22.
- Units 1 and 2 Daily Surveillance Record.

During a review of the daily surveillance record on December 19, 1985, the inspector noticed that the steps requiring a channel check referenced steps that did not have four channels of the same parameter. Two items related to the Automatic Depressurization System (ADS) had been added, but the channel check steps had not been changed. All channel checks had been recorded such that it appeared that the checks were done correctly. The licensee plans to re-number the channel check steps to correct the problem.

No violations or deviations were identified.

6. Operational Safety Verification (71707)

The inspectors verified conformance with regulatory requirements by direct observations of activities, facility tours, discussions with personnel, reviewing of records and independent verification of safety system status.

The inspectors verified that control room manning requirements of 10 CFR 50.54 and the Technical Specifications were met. Control room, shift supervisor, clearance and jumper/bypass logs were reviewed to obtain information concerning operating trends and out of service safety systems to ensure that there were no conflicts with Technical Specifications Limiting Conditions for Operations. Direct observations were conducted of control room panels, instrumentation and recorder traces important to safety to verify operability and that parameters were within Technical Specification limits. The inspectors observed shift turnovers to verify that continuity of system status was maintained. The inspectors verified the status of selected control room annunciators.

Operability of a selected ESF train was verified by insuring that: each accessible valve in the flow path was in its correct position; each power supply and breaker, including control room fuses, were aligned for components that must activate upon initiation signal; removal of power from those ESF motor-operated valves, so identified by Technical Specifications, was completed; there was no leakage of major components; there was proper lubrication and cooling water available; and a condition did not exist which might prevent fulfillment of the system's functional requirements. Instrumentation essential to system actuation or performance was verified operable by observing on-scale indication and proper instrument valve lineup, if accessible.

The inspectors verified that the licensee's health physics policies/procedures were followed. This included a review of area surveys, radiation work permits, posting, and instrument calibration.

The inspectors verified that: the security organization was properly manned and that security personnel were capable of performing their assigned functions; persons and packages were checked prior to entry into the protected area (PA); vehicles were properly authorized, searched and escorted within the PA; personnel in vital areas were authorized; effective compensatory measures were employed when required.

The inspectors observed that during the start of cold weather, an occasional licensee employee, mostly craft, were wearing coats that covered their photo badges. The inspector notified plant security. Since then, improvement in proper wearing of the photo badges has been noticed.

The inspectors also observed plant housekeeping controls, verified position of certain containment isolation valves, checked a clearance, and verified the operability of onsite and offsite emergency power sources.

The inspectors found that a "250 V Battery Bus A Ground" Unit 1 annunciator had been disabled for almost a year without a ground identified. The inspectors reviewed the licensee's computer generated disabled annunciator list. The licensee listed each disabled annunciator with certain supporting data. Annunciator 1-UA-23 3-7, 250 V Battery Bus A Ground, was disabled on January 1, 1985. The pulled annunciator card was documented pulled in the jumper log as Jumper 1-85-0001. A WR&A, 1-E-84-6349, had been issued to work the problem but was voided. No new WR&A had been issued at the time of the inspection. Unit 1 Annunciator Panel Procedure (APP) UA-23, Rev. 3, pg. 46, required the licensee to determine the location of the ground (Bus P, N or NP) and perform the DC ground isolation procedure per OP-51, DC Electrical System. The procedure contained a caution that the shift foreman should determine if the plant is in a condition to allow opening of each individual feeder breaker for DC ground isolation. Unit 1 performed an extensive outage after the alarm was disabled. The licensee could not provide to the inspector any record of performance of OP-51 to identify the ground. Not correcting the ground problem on a safety-related DC bus is a failure to take prompt corrective action to correct a condition adverse to quality as per the licensee's accepted QA program (FSAR chapter 17.2.16) and, collectively, with another example in paragraph 9, is identified as a violation (325/85-40-01).

One violation was identified.

7. ESF System Walkdown (71710)

The inspectors completed a comparison of the High Pressure Coolant Injection (HPCI) System piping and instrumentation diagrams, D-25023 and D-2523 with the system operating procedure, OP-19. The inspector noted that Unit 1 OP-19, Revision 5, page 35 of attachment 1, required that valve E41-V99,

HPCI keepfill station inlet isolation valve, was required to be locked open. Drawing D-25023 showed V99 as a locked closed valve. The licensee plans to submit a drawing change to show V99 as a locked open valve. The drawing discrepancy also existed in Unit 2.

No violations or deviations were identified.

8. Onsite Review of Licensee Event Reports (92700)

The listed LERs were reviewed to verify that the information provided met NRC reporting requirements. The verification included adequacy of event description and corrective action taken or planned, existence of potential generic problems and the relative safety significance of the event. Onsite inspections were performed and concluded that necessary corrective actions have been taken in accordance with existing requirements, licensee conditions and commitments. The following reports are considered closed:

Unit 1

82-74, High Battery Electrolyte Level.

83-21, Reactor-Turbine Gauge Board Rod Position Indication Problems.

85-62, Auto Start of Control Building Emergency Air Filtration (CBEAF) System Train 2A.

85-64, Automatic Isolation of CBEAF System from C1 Alarm.

No violations or deviations were identified.

9. Cold Weather Preparations (71714)

The inspectors reviewed procedures, examined hardware, and reviewed the licensee's response to IE Bulletin 79-24 to determine if the licensee has maintained an effective program to protect safety-related equipment from extreme cold weather.

The inspectors found certain conditions that violated NRC requirements. Heat tracing installed around the Unit 1 CST low level switches for the HPCI suction transfer had been removed, eliminating corrective action for a freezing problem with the switches identified in January 1985. An uncontrolled, unreviewed procedure was used by the operations group as a cold weather bill to check freeze protection circuits. Also, during the equipment walkdown, the inspectors found that the fasteners attaching a seismic category 1 level switch to its support had inadequate thread engagement.

The inspectors found disconnected heat tracing wire wrapped around the Unit 1 level switches 1-E41-LSL-N002 and N003. The wire around N002 was installed on January 23, 1985 under WR&A 1-E-85-579. Level switch N002, along with Reactor Core Isolation Cooling level switches 1-E51-LSL-4463 and 4464, failed to actuate during cold weather while performing routine Technical Specification surveillance (PT-3.1.2PC). The heat tracing was

disconnected on October 28, 1985, (WR&A 1-E-85-4980), because the heat tracing was not in accordance with drawings. The heat tracing was found on the level switches by maintenance personnel during performance of a pre-cold weather (WR&A 1-E-85-4478) inspection of heat tracing. The permanent fix for the freezing problem was to be implemented under WR&A 1-E-85-607, and Engineering Work Request (EWR) 2240. WR&A 607 recognized that the heat tracing on N002, N003, 4463, and 4464 was temporary and referenced final solution to EWR 2248. The EWR was not approved for work at the time of the inspection.

10 CFR 50, Appendix B, Criterion XVI, Corrective Action, as implemented by the licensee's accepted QA program (FSAR chapter 17.2.16), requires that conditions adverse to quality be corrected. A condition adverse to quality was not corrected in that a freeze protection solution to a previous adverse condition, potential freezing of safety-related level switches 1-E41-LSL-N002 and N003, was removed and no deliberate corrective action was substituted. This failure to take corrective action, collectively with another example in paragraph 6, is identified as a violation (325/85-40-01).

The inspectors found that an uncontrolled, unreviewed procedure, AOI-28, Cold Weather Bill Action Items, was used by the licensee to check all freeze protection circuits. Step B.1 of AOI-28, required the licensee to "check all freeze protection circuits energized and operating as per OP-53." OP-53 was a deleted procedure at the time of the inspection. Also, FP-26 was referenced in AOI-28; however, it had been deleted and was replaced by FPP-024. The freeze protection circuits that protect the CST level switches and associated piping prevent a condition adverse to quality, freezing, from affecting the safety-related function of the switches, and as such fall under Appendix B of 10 CFR 50.

10 CFR 50, Appendix B, Criterion V, Instructions, Procedures and Drawings, as implemented by the licensee's accepted QA program (FSAR chapter 17.2.5), requires that activities affecting quality be conducted according to procedures that have the following elements: prerequisites, precautions, acceptance criteria, and check lists. Inspection was performed on the freeze protection equipment associated with the CST level switches using AOI-28, which did not contain the required elements. This is one of two examples of a procedural violation (325,324/85-40-02).

During the cold weather protection walkdown, the inspectors found that three of four bolts that attached level switch 2-E41-LSL-N003 to its support were not engaged properly. Drawing 9527-L-2260, Unit 2, sheet 2 of 2, from Plant Modification PM-83-190, revision 5, required, in note 1, the licensee furnish new and longer bolts and/or studs if required. Specification No. 248-107, Section XXIV, Thread Engagement, states that full thread engagement is defined as being flush with the face of the nut.

10 CFR 50, Appendix B, Criterion V, Instructions, Procedures, and Drawings, as implemented by Brunswick FSAR Section 17.2.5, requires that activities affecting quality be accomplished in accordance with instructions and

drawings. Activities were not conducted in accordance with drawings in that, although drawing 9527-L-2260, sheet 2 of 2, required that new and longer bolts be used as necessary to fasten the N003 switch to its support, bolts of sufficient length were not used. This is the second example of a procedural violation (325,324/85-40-02).

One violation and a second example of the violation in paragraph 6 was identified.

10. Plant Modifications (37700)

The inspectors observed work activities and reviewed documentation associated with one plant modification. The inspectors verified that the modification was reviewed and approved as required and that installation was in accordance with approved procedures and drawings. The plant modification reviewed was PM 82-288I, RIP Valve Modification Relay Replacement.

No violations or deviations were identified.

11. Followup IE Bulletin 80-11, Masonry Wall Design (92703)

The inspector reviewed the licensee's method for ensuring that recent modifications or future modifications would not result in placing safety-related equipment near an unanalyzed masonry wall. The method utilized involved noting on the structural drawings which walls were non-safety related and a caution note about re-evaluation if safety-related equipment is to be installed near a masonry wall. However, since some activities such as routing of conduit does not usually involve use of the structural wall drawings, a problem could develop. The licensee has revised structural design guide SDG-2, Design of Pipe Supports, and SDG-5, Design of Seismic Class 1 Safety-Related Conduit Supports, to assign the support engineer the responsibility to check the structural general arrangement drawings and to notify the proper personnel when items to be supported have been located within the area of influence of non safety-related walls. Furthermore, engineering personnel also performed field walkdowns of non safety-related masonry walls to verify that no adverse condition had been created since the original reviews and walkdown. No problems were discovered.

The inspector believes that the licensee's actions are sufficient to prevent a problem in this area and exceeded the requirements of the bulletin. This bulletin was last inspected during report 81-22 and remains open for both units (325,324/80-BU-11).

No violations or deviations were identified.