



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

Report Nos.: 50-325/88-30 and 50-324/88-30

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: July 31 - August 5, 1988

Inspectors:	<u>Ron Gibbs</u>	<u>8/26/88</u>
	R. Gibbs	Date Signed
	<u>M. DeGraff</u>	<u>8/26/88</u>
	M. DeGraff	Date Signed
Approved by:	<u>G. A. Belisle</u>	<u>8/1/88</u>
	G. A. Belisle, Section Chief	Date Signed
	Division of Reactor Safety	

SUMMARY

Scope: This routine, unannounced inspection was conducted in the areas of followup to the Carolina Power and Light Company Safety System Functional Inspection of the High Pressure Coolant Injection system and followup to deficiencies identified in the Engineering Work Request system identified in NRC Inspection Reports 50-324/87-31 and 50-325/87-32.

Results: In the areas inspected, violations or deviations were not identified.

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## REPORT DETAILS

### 1. Persons Contacted

#### Licensee Employees

- \*K. Altman, maintenance Manager
- D. Anderson, Project Engineer, Fire Protection
- \*R. Creech, Supervisor, Instrumentation and Controls
- \*W. Doorman, Quality Assurance Supervisor
- \*K. Enzor, Director, Regulatory Compliance
- D. Foti, Contractor, Fire Protection
- \*J. Harness, General Manager
- \*A. Hegler, Operations Superintendent
- \*R. Helme, Manager, Technical Support
- \*P. Howe, Site Vice President
- \*M. Jones, Director, On-Site Nuclear Safety
- \*R. Poulk, Project Specialist
- \*C. Robertson, Supervisor, Engineering and Construction
- \*J. Smith, Director, Administrative Support
- M. Worth, Engineering Supervisor, Discipline
- \*T. Wyllie, Manager, Engineering and Construction

Other licensee employees contacted during this inspection included craftsmen, engineers, operators, mechanics, security force members, technicians, and administrative personnel.

#### NRC Resident Inspectors

\*W. Levis

\*Attended exit interview

### 2. Action on Previous Inspection Findings

(Open) Violation 50-324/87-31-01 and 50-325/87-32-01: Lack of prompt and adequate corrective action in resolving site engineering work requests. See paragraph 3.a.

(Open) Violation 50-324/87-31-02 and 50-325/87-32-02: Failure to document the results of engineering reviews of site engineering work requests. See paragraph 3.a.

(Open) Violation 50-324/87-31-03 and 50-325/87-32-03: Failure to maintain the core spray suction relief valves installed as required by United States of America Standard B31.1, Power Piping. See paragraph 3.b.

(Open) Violation 50-324/87-31-04 and 50-325/87-32-04: Failure to conduct adequate audits of the site corrective action programs. See paragraph 3.c.

(Closed) Unresolved Item 50-324/87-31-05 and 50-325/87-32-05: Potential inadequacy relative to maintaining an adequate water supply to meet fire protection requirements. See paragraph 3.d.

3. A portion of this inspection was conducted to review the status of corrective actions initiated by the licensee as a result of the deficiencies identified by the Quality Assurance Assessment Inspection performed in September of 1987 (reference NRC Inspection Report Nos. 50-325/87-32 and 50-324/87-31). This interim followup inspection was accomplished by reviewing corrective action documentation and conducting discussions with responsible site and corporate personnel concerning the status of these items. The original QA assessment inspection resulted in four violations of NRC requirements and one unresolved items as follows:

- Violation 50-324/87-31-01 and 50-325/87-32-01 concerned lack of adequate and timely corrective action for site engineering work request (EWRs) which resulted in a significant backlog, approximately 1900, outstanding/unresolved EWRs. As a result, the licensee (at the time of the inspection) was unable to address, with certainty, the contents of the backlog nor the safety significance thereof.
- Violation 50-324/87-31-02 and 50-325/87-32-02 was issued due to the fact that the licensee had not documented the results of engineering reviews of many of the backlogged Engineering Work requests.
- Violation 50-324/87-31-03 and 50-325/87-32-03 was issued due to the fact that the licensee had failed to maintain the core spray system in its as-designed configuration in accordance with United States of America Standard B31.1, Power Piping, by removing the suction relief valves from both Unit 1 trains and blank flanging the relief valve connections, thereby negating the system overpressure protection feature provided by these valves. This condition had existed for a period of several years.
- Violation 50-324/87-31-04 and 50-325/87-32-04 was issued due to the fact that licensee conducted Quality Assurance Corrective Action audits were not thorough enough to determine that the EWR program was a corrective action program, thereby, necessitating compliance with 10 CFR 50, Appendix B.
- Unresolved Item 50-324/87-31-05 and 50-325/87-32-05 was issued due to a potential inadequacy relative to the site maintaining an adequate water supply to meet fire protection commitments.

As a result of the above deficiencies, the licensee initiated actions to correct the noted deficiencies, to investigate for other similar deficiencies, and to prevent recurrence of the deficiencies, as follows. Evidence of these corrective actions was reviewed by the inspector during this inspection. A summary/conclusion for each item is provided here to enhance future closeout of the findings:

a. Violations 50-324/87-31-01, 50-325/87-32-01, 50-324/87-31-02, and 50-325/87-32-02:

- (1) A review of the EWR Backlog for "safety significance" was conducted by the Onsite Safety Group (ONS). A prioritization scheme for correction of the EWR problems was developed and an appropriate priority was assigned to each EWR. This action was completed in January 1988.
- (2) A corporate level review of the Brunswick corrective action program was completed in December 1987. Corrective action for this review is being tracked by site nonconformance report NCR S-87-049.
- (3) The procedure for processing EWRs was revised to clearly establish the EWR as a corrective action document and the requirements of 10 CFR 50, Appendix B were included (e.g., revision included root causes analysis determination, 3-day operability determination, conditions adverse to quality defined, significant conditions adverse to quality defined, reportability determination, 30-day engineering final evaluation, etc.). Reference ENP-20 Rev. 007 of 12/30/87.
- (4) ENP-20 was revised to provide additional enhancements. Reference ENP-20 Rev. 008 of 05/12/88.
- (5) A project team was created to work specifically on EWRs.
- (6) The project team was incorporated into the existing plant structure.

Summary/Conclusion: The licensee was unable to establish firm commitment dates for completion of corrective actions until July 28, 1988 (3rd response to the violations). This was primarily due to the lack of progress in reducing the EWR backlog during the period from January - May 1988 (total backlog remained at approximately 1900). Improved performance in reducing the backlog was accomplished during the June/July timeframe (the total backlog as of August 4, 1988 was reduced to 1387. The backlog of "old" EWRs was at 1135.). The commitment date for having Engineering Evaluations performed/documented on the ONS most significant EWRs is September 12, 1988. The commitment date for having Engineering Evaluations performed/documented on the remainder of the "old" EWRs is February 12, 1989. There are no commitments for closeout of the "old" EWRs; however, the responsible Engineering Supervisor indicated that about 50 percent of the EWRs were being closed out when they are evaluated. These violations will remain open for additional followup by the NRC.

b. Violation 50-324/87-31-03 and 50-325/87-32-03:

- (1) Site Technical Support Engineers were trained in the need for timely restoration of temporary repairs.
- (2) A review was conducted to assure no other ASME code violations existed on site. This review included Temporary Repair Evaluations, mechanical jumper logs, and plant special procedures.
- (3) ENP-12, Engineering Evaluations, was revised to require plant manager concurrence on extensions of temporary repairs. See Revision 17 to ENP-12.
- (4) The core spray system was to be restored to the original design by installation of the relief valves by July 15, 1988. (Reference licensee commitment in the first response to this violation; licensee memorandum file B09-135/OC, Serial BSEP/88-0099 of February 9, 1988.)

Summary/Conclusion: The "A" train core spray relief valve had been reinstalled. The "B" train valve had not been reinstalled. The licensee committed at the exit to provide an additional response to the NRC specifying a new completion date for installation of the "B" train valve.

c. Violation 50-324/87-31-04 and 50-325/87-32-04:

Summary/Conclusion: Corrective action for site QA has included a performance review of site corrective action programs for timeliness of corrective actions. Results of this review were not yet issued during this inspection. Corporate QA has added an attribute to all functional area audit checklists to review the corrective action programs in the functional area. Formal responses to this item from site and corporate QA are due to site licensing by September 1, 1988.

d. Unresolved Item 50-324/87-31-05 and 50-325/87-32-05:

- (1) Since the original inspection, site surveillances have assured a capacity of 240,000 gallons in the fire protection tank.
- (2) The calculations for the two hour supply of water have been reperformed and show that 226,200 gallons of water are required.
- (3) The tank has a "keep fill" feature which automatically provides make-up water when the tank level is below 260,000 gallons.
- (4) Two additional EWRs have been generated which will result in a plant modification to change the low level alarm setpoint and which will result in a technical specification change to a value above 226,200 gallons.

Summary/Conclusion: Due to the facts outlined above, as well as, the fact that EWRs 84-362 and 82-294 are carried as examples of inadequate corrective action under violation 50-324/87-31-01 and 50-325/87-32-01, this Unresolved Item is closed.

4. The NRC evaluated certain corrective actions brought about as a result of a licensee initiated High Pressure Coolant Injection (HPCI) system Safety System Functional Inspection (SSFI) in 1987. Based on this review, no operability concerns were identified. However, other concerns were identified and are discussed below:
  - During the SSFI, the licensee determined, through evaluation, that three motor operated valves in the HPCI system had potentially undersized motors. They were E41-F012, E41-F007 and E41-F008. Although the licensee intends to change out the motor on E41-F012, it appears that the resolutions concerning E41-F007 and E41-F008 have not adequately addressed the original concern. The calculation performed for E41-F007, to determine available torque, uses the stall torque/stall thrust values. Discussion with the licensee indicates this type of calculation is used in a "real world" or justification for continued operation approach. Additionally, there have been no calculations to determine available torque for E41-F008. To adequately address the original concern, the licensee should perform the necessary applicable calculations.
  - The HPCI SSFI identified a concern that the team could not locate any documentation which evaluated the installation of sheet metal over the grating in the HPCI room. Following the SSFI, the licensee determined the sheet metal was analyzed for in the Reactor Building Environmental Report. The concern in this area is with the licensee's ability to retrieve data relating to plant modifications or design changes. Without the information in place which clearly defines the design intent, future groups could initiate plant modifications which could result in a configuration which contradicts the original intent. The licensee should review this and similar cases and ensure the necessary documentation is in place to support original design criteria.
  - In 1979 when the licensee replaced the auxiliary boiler, the heating steam lines to the reactor building were cut and capped. The SSFI team identified that this had been accomplished without the appropriate engineering or safety evaluation. Additionally, this item resulted in an NCR being generated by the Quality Assurance department. Although engineering is moving forward in evaluating the effects of temperature in the HPCI room, RHR room, etc., the original concern identified in the SSFI, specifically the safety evaluation, has not yet been completed. The licensee should pursue measures to ensure that the identified deficiencies are promptly corrected.

#### 4. Exit Interview

The inspection scope and results were summarized on August 5, 1988, with those persons indicated in paragraph 1. The inspectors described the areas inspected and discussed in detail the inspection results. Proprietary information is not contained in this report. The licensee committed at the exit to provide an additional response to the NRC specifying a new completion date for installation of the "B" train core spray relief valve.