

ENCLOSURE  
FINAL SALP REPORT

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U. S. NUCLEAR REGULATORY COMMISSION (NRC)

REGION II

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SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

INSPECTION REPORT NUMBERS

50-325/89-28 AND 50-324/89-28

CAROLINA POWER AND LIGHT COMPANY (CP&L)

BRUNSWICK 1 AND 2

SEPTEMBER 1, 1988 - AUGUST 31, 1989

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## I. INTRODUCTION

The Systematic Assessment of Licensee Performance (SALP) program is an integrated NRC staff effort to collect available observations and data on a periodic basis and to evaluate licensee performance on the basis of this information. The program is supplemental to normal regulatory processes used to ensure compliance with NRC rules and regulations. It is intended to be sufficiently diagnostic to provide a rational basis for allocation of NRC resources and to provide meaningful feedback to the licensee's management regarding the NRC's assessment of their facility's performance in each functional area.

AN NRC SALP Board, composed of the staff members listed below, met on October 16, 1989, to review the observations and data on performance, and to assess licensee performance in accordance with Chapter NRC-0516, "Systematic Assessment of Licensee Performance." The guidance and evaluation criteria are summarized in Section III of this report. The Board's findings and recommendations were forwarded to the NRC Regional Administrator for approval and issuance.

This report is the NRC's assessment of the licensee's safety performance at Brunswick Units 1 and 2 for the period September 1, 1988 through August 31, 1989.

The SALP Board for Brunswick 1 and 2 was composed of:

- L. A. Reyes, Director, Division of Reactor Projects (DRP),  
Region II (RII) (Chairman)
- K. E. Perkins, Acting Director, Division of Reactor Safety, RII
- W. E. Cline, Chief, Nuclear Materials Safety and Safeguards Branch,  
Division of Radiation Safety and Safeguards, RII
- D. M. Verrelli, Chief, Reactor Projects Branch 1, DRP, RII
- E. G. Adensam, Director, Project Directorate II-1, Office of Nuclear  
Reactor Regulation (NRR)
- W. H. Ruland, Senior Resident Inspector, Brunswick, DRP, RII
- N. B. Le, Project Manager, Project Directorate II-1, NRR

Attendees at SALP Board Meeting:

- H. C. Dance, Chief, Project Section 1A, DRP, RII
- E. G. Tourigny, Senior Project Manager, Project Directorate II-1, NRR
- R. E. Carroll, Project Engineer, Project Section 1A, DRP, RII
- T. Foley, Operations Engineer, Division of Licensee Performance and  
Quality Evaluation, NRR

### A. Licensee Activities

The licensee operated Unit 1 with an availability factor of 51.4%. The assessment period started with the unit in end-of-cycle coastdown at 86.5% power. The refueling outage, which was scheduled to begin November 12, 1988, started a day early due to a turbine control

system initiated scram. The outage lasted 156 days, 86 days longer than planned. Recirculation system piping weld overlays and Appendix R modifications were the primary delay contributors. Significant valve and motor operator maintenance and modifications were also completed. The unit now has 97% barrier fuel, eliminating any preconditioning requirements during the current fuel cycle. Following the refueling outage, Unit 1 underwent normal power operations except when it was taken off line for twenty days in June 1989 to replace the reactor core isolation cooling injection valve and to replace the 1A core spray motor.

Unit 2 started the assessment period at 100% power and ended at 83%, end-of-cycle coastdown to the September 1989 refueling outage. There were two forced outages, both involving equipment failure, with one being complicated by personnel error. Setpoint drift in a feedwater control system inverter resulted in a scram, leading to a three day outage in November 1988. A trip of both recirculation pumps, due to a loss of the start-up auxiliary transformer, required operators to manually scram the reactor. This resulted in an eleven day outage in June 1989. The licensee operated the unit with a 96.1% availability factor.

The licensee completed several self-assessments during the evaluation period. A third party consultant, Cresap, reviewed nuclear operations at Brunswick and made recommendations to CP&L management. CP&L performed an Organizational Analysis which examined job responsibilities and functions. At the end of the assessment period, the licensee eliminated certain positions and changed their organization based on the Organizational Analysis recommendations. The Corporate Management Oversight Team reviewed station operations last period and made recommendations that were implemented by the plant this assessment period. Additionally, a major review of the design of motor-operated valves was completed and documented.

Management changes were made at the corporate and site level. All nuclear activities, except Quality Assurance, report to a single Senior Vice President - Nuclear. The Senior Vice President - Nuclear and the Manager - Quality Assurance report to an Executive Vice President. Personnel reassignments included the maintenance manager, site planning and control manager, training manager, and project manager positions.

#### B. Direct Inspection and Review Activities

Besides the routine inspections performed by the NRC staff, special inspections were conducted as follows:

- o September 19-23, and October 3-5, 1988; ALARA team inspection to evaluate effectiveness of actions to reduce collective dose and assess managements awareness of, involvement in, and support of Brunswick's program to keep radiation doses as low as reasonably achievable (ALARA).