UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
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July 17, 2003

Carolina Power and Light Company
ATTN: Mr. J. S. Keenan
Vice President
Brunswick Steam Electric Plant
P. O. Box 10429
Southport, NC 28461

SUBJECT: BRUNSWICK STEAM ELECTRIC PLANT - NRC INTEGRATED INSPECTION REPORT NOS. 05000325/2003004 AND 05000324/2003004

Dear Mr. Keenan:

On June 21, 2003, the Nuclear Regulatory Commission (NRC) completed an inspection at your Brunswick Units 1 and 2 facilities. The enclosed integrated inspection report documents the inspection findings, which were discussed on June 30, 2003, with you and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel. Based on the results of this inspection, no findings of significance were identified.

In accordance with 10CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Paul E. Fredrickson, Chief
Reactor Projects Branch 4
Division of Reactor Projects

Docket Nos.: 50-325, 50-324
License Nos: DPR-71, DPR-62

Enclosure: Inspection Report 05000325, 324/2003004
w/Attachment: Supplemental Information

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REGION II

Docket Nos:	50-325, 50-324
License Nos:	DPR-71, DPR-62
Report No:	05000325/2003004 and 05000324/2003004
Licensee:	Carolina Power and Light
Facility:	Brunswick Steam Electric Plant, Units 1 & 2
Location:	8470 River Road SE Southport, NC 28461
Dates:	March 30, 2003 - June 21, 2003
Inspectors:	J. Canady, Acting Senior Resident Inspector K. Weaver, Acting Senior Resident Inspector E. DiPaolo, Resident Inspector, McGuire J. Austin, Resident Inspector
Approved by:	Paul Fredrickson, Chief, Reactor Projects Branch 4 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000325/2003-004, 05000324/2003-004; 03/30/2003 - 06/21/2003; Brunswick Steam Electric Plant, Units 1 and 2; integrated inspection report.

The report covered a three month period of inspection by resident inspectors. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. Inspector Identified and Self-Revealing Findings

No findings of significance were identified.

B. Licensee Identified Violations

None

REPORT DETAILS

Summary of Plant Status

Unit 1 began the report period operating at full power. The unit operated at full power for almost the entire report period. On April 25, 2003, power was reduced to 51 percent (%) to perform rod improvements and scram valve testing.

Unit 2 began the report period shutdown in a refueling outage. Following completion of the refueling outage, full power was achieved on April 11. Power was reduced to approximately 53% the same day due to main generator bus duct cooling problems, with full power reached on April 14. The unit operated at this power level for most of the remaining report period. On April 23, power was reduced to approximately 70% for reactor feedwater pump testing. Power was reduced to approximately 60% on May 30, 89% on June 13, and 43% on June 20 for fuel leak suppression testing, high generator bus duct cooling problems and various control rod pattern improvements, respectively.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection

a. Inspection Scope

The inspectors reviewed the licensee's preparations for severe weather as described in Administrative Instruction (AI) 0AI-68, Brunswick Nuclear Plant Response to Severe Weather Warnings. The review verified that selected risk significant systems including the service water and the emergency diesel generating system, would remain functional when challenged by adverse weather; that the procedures would require system readiness and adequate staffing; and that the operators' actions required for those systems selected could be accomplished during the adverse weather. The reviews were performed for seasonal hurricane preparation related risks identified for the site.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

a. Inspection Scope

The inspectors reviewed plant operating procedures to determine correct system lineup, and observed equipment to verify that the systems were correctly aligned while the other train or system was inoperable, out-of-service (OOS), or a single train system. The inspectors verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact mitigating system availability.

Inspector observations and licensee performance were compared to Procedure CAP-NGGC-0200, Corrective Action Program. The inspectors used system operating procedures to verify the correct alignment of the following three partial system walkdowns:

- 1OP-18, Core Spray System, pump in A train OOS due to maintenance activity
- 2OP-43, Service Water System, B service water header inoperable during RHR service water testing with the B RHR heat exchanger service water outlet valve not full open
- 1OP-19, High Pressure Coolant Injection System, a risk significant single-train system

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

The inspectors reviewed current action requests (ARs) and work orders (WOs) associated with the fire suppression system to ascertain that their disposition was in accordance with OAP-033, Fire Protection Program Manual. The inspectors reviewed the status of ongoing surveillance activities to determine whether they were current to support the operability of the fire protection system. In addition, the inspectors observed the fire suppression and detection equipment to determine whether any conditions or deficiencies existed which would impair the operability of that equipment. The inspectors toured the following areas important to reactor safety and reviewed the associated Prefire Plans to verify that the requirements for fire protection design features, fire area boundaries, and combustible loading were met:

- Unit 2 reactor building, 80 foot elevation, Prefire Plan 2PFP-RB, Reactor Building Prefire Plans (2 areas)
- Unit 2 turbine building, 20 foot elevation, A and B reactor feed pump rooms, 2PFP-TB, Turbine Building Prefire Plans (2 areas)
- Control Building, 49 foot elevation, Fire areas Unit 1 and Unit 2 control rooms, Prefire Plan OPFP-CB, Control Building Prefire Plans (2 areas)
- Diesel Generator Building, 23 foot elevation, Fire areas, E5, E6, E7, E8, Switchgear Rooms, Prefire Plan OPFP-DG, Diesel Generator Building (4 areas)

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification

a. Inspection Scope

The inspectors observed licensed operator performance and reviewed the associated training documents during two simulator training sessions for cycle 2003-03. A different crew was observed for each scenario. This simulator observation and review included an evaluation of emergency operating procedure and abnormal operating procedure utilization. The inspectors reviewed Procedure OTPP-200, Licensed Operator Continuing Training (LOCT) Program to verify that the program ensures safe power plant operation. The scenarios tested the operators' ability to respond to a loss of DC panel 4A, a small break loss of coolant accident (LOCA) with alternate emergency depressurization, and a station blackout. The inspectors reviewed the operators activities to verify consistent clarity and formality of communication, conservative decision-making by the crew, appropriate use of procedures, and proper alarm response. Group dynamics and supervisory oversight, including the ability to properly identify and implement appropriate Technical Specification (TS) actions and regulatory reports, and notifications, were observed. The following documents associated with the simulator scenarios were reviewed:

- Licensed Operator Instruction (LOI) and LOCT Core Simulator Scenario, LOT-EOP-012, Loss of DC Panel 4A, LOCA with Alternate Emergency Depressurization
- LOI and LOCT Core Simulator Scenario, LOT-AOP-128, Station Blackout (Non-Blacked Out Unit)

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

For the equipment issues described in WOs listed below, the inspectors reviewed the licensee's implementation of the Maintenance Rule (10 CFR 50.65) with respect to the characterization of failures, the appropriateness of the associated MR a(1) or a(2) classification, and the appropriateness of either the associated a(1) goals and corrective actions. The inspectors also reviewed operations logs and licensee event reports to verify unavailability times of components and systems if applicable. Licensee performance was evaluated against the requirements of Procedure ADM-NGG-0101, Maintenance Rule Program. The inspectors verified that the licensee had identified and resolved deficiencies in accordance with Procedure CAP-NGGC-0200, Corrective Action:

- 2C Air compressor failed to load, AR 95249 (WO 00095789) initiated to investigate failure
- 2A Nuclear service water pump strainer found clogged, AR 97275 (WO 00411649) initiated to investigate cause
- 1A-2 Battery cells 1 and 8 have lower than desired cell voltage AR 58078 (WO 00416574).

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

a. Inspection Scope

The inspectors reviewed the licensee's implementation of 10 CFR 50.65 (a)(4) requirements during scheduled and emergent maintenance activities using Procedure OAP-025, BNP Integrated Scheduling and Technical Requirements Manual (TRM) 5.5.13, Configuration Risk Management Program. The inspectors reviewed the effectiveness of risk assessments performed prior to changes in plant configuration for maintenance activities (planned and emergent); and verified that, upon unforseen situations, the licensee had taken the necessary steps to plan and control the resultant emergent work activities. The inspectors reviewed the applicable plant risk profiles, work week schedules, and maintenance work orders for the following OOS equipment:

• WO 383109	Removal of Unit 2 main steam isolation valve pit plug at power to perform leakage check on outboard main steam isolation valve 2B21FO28A
• AR 92052	Plant performance data indicated possible feedwater flow indication concerns. Reactor power, APRM, GAF and Thermal limit restrictions implemented
• PT-12.2A	Diesel generator number 1 results in pre-planned yellow risk window due to unavailability during barring, BNP Risk Profile Week 24
• 0MST-RHR26Q	Unit 1 residual heat removal (RHR) core spray (CS) low reactor pressure permissive trip unit channel calibration results in pre-planned yellow risk profile, BNP Risk Profile Week 24
• AR 91722	Diesel Generator operability and ATWS testing were scheduled concurrently. Test were subsequentially re-scheduled independent of one another.

b. Findings

No findings of significance were identified.

1R14 Personnel Performance Related to Non-routine Plant Evolutions and Events

a. Inspection Scope

The inspectors witnessed and monitored Unit 2 control room personnel actions during the power decrease and ascension associated with a fuel bundle leak. The inspectors verified that the power changes were performed in accordance with Procedure 0GP-12, Power Changes. Discussions were held with operations and nuclear engineering personnel regarding core xenon inventory, the impact of operations with an asymmetric rod pattern, core thermal limits and fuel preconditioning restraints for the power ascension. The inspectors reviewed Procedure 0ENP-24.21, Fuel Integrity Monitoring, and the computer printout of the core performance log (P1) to ascertain that procedural guidance was followed for determining the location of the leaking fuel bundle and that thermal limits had not been exceeded.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the operability evaluations affecting risk significant systems or components to assess as appropriate: (1) the technical adequacy of the evaluations; (2) whether continued system operability was justified; (3) whether other existing degraded conditions were considered as compensatory measures; (4) where compensatory measures were involved, whether the compensatory measures were in place, would work as intended, and were appropriately controlled; (5) where continued operability was considered unjustified, the impact on TS limiting conditions for operations (LCOs) and the risk significance. In addition to the reviews, discussions were conducted with the applicable system engineer regarding the ability for the system to perform its intended safety function. These reviews and discussions were performed for the following issues:

- AR89064 Unit 2 residual heat removal pump breaker failure during testing
- AR92183 Unit 1 standby gas Loop B flow indication low outside of required limits
- AR 92052 Plant performance data indicated possible feedwater flow indication concerns. Reactor power, APRM, GAF and Thermal limit restrictions implemented
- AR 89687 During Unit 2 reactor startup a group 1 isolation occurred from the failure of the “A” EHC pressure regulator
- AR 89374 Diesel Generator service water outlet valve throttle position

b. Findings

No findings of significance were identified.

1R16 Operator Work-Arounds

a. Inspection Scope

The inspectors held discussions with operation personnel knowledgeable about operator work-arounds (OWA) and reviewed the OWA database to determine their cumulative effects. The affect of the workarounds on reliability, availability, and potential misoperations of the systems involved were reviewed. The inspectors reviewed whether the OWA's on Unit 1 and Unit 2 could increase an initiating event frequency or could affect multiple mitigating systems. The cumulative effects of OWA's on operators correct and timely response to plant transients and accidents were reviewed by the inspectors. The inspectors reviewed section 5.6 and Attachment 15 of Procedure 0OI-01.08, Control of Equipment and System Status, to assess the licensee's guidance on the use of OWA's and their aggregate impact upon the operators.

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing

a. Inspection Scope

For the maintenance activities and post maintenance tests listed below, the inspectors reviewed the test procedure and witnessed the testing and/or reviewed test records to determine whether the scope of testing adequately verified that the work performed was correctly completed; and whether the test demonstrated that the affected equipment was capable of performing it's intended function and was operable in accordance with TS requirements. The inspectors verified that the licensee's actions were in accordance with Procedure 0PLP-20, Post Maintenance Testing Program.

- Special Procedure 2SP-02-200, Unit 2 Intermediated Extended Power Uprate Startup Test Plan, Revision 1
- OPT-50.5, Reactor Engineering Refueling Outage Testing, Revision 28
- 2SP-02-201, Unit 2 Extended Power Uprate Digital Feedwater Control System Testing, Revision 2
- 0CM-ENG511, Repair/Replacement of Emergency Diesel Generator Starting Air Distribution, Revision 5 (2-DG3-ENG)
- 0PM-BKR008, PM Functional Testing Of Molded Case Circuit Breakers, Revision 24 (1-1XDB-B52-49).

b. Findings

No findings of significance were identified.

1R20 Refueling Outage Activities

a. Inspection Scope

The inspectors monitored the heatup and startup activities following the Unit 2 refueling outage. The inspectors reviewed Procedures 0GP-01, Pre-startup Checklist, and 0GP-02, Approach to Criticality and Pressurization of the Reactor to ensure that control room operators were meeting procedural requirements. In addition, the inspectors reviewed TS, license conditions, commitments, and administrative procedural prerequisites for mode changes to verify that the requirements for changing the plant configurations were met. The changing plant configurations observed by the inspectors included the reactor startup, the approach to criticality , and portions of the power ascension.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors either witnessed portions of surveillance tests or reviewed test data for the six risk significant structures, systems and components (SSC) surveillance, listed below, to verify the tests met TS surveillance requirements, UFSAR commitments, in-service testing (IST), and licensee procedural requirements. The inspectors review was to confirm that the testing effectively demonstrated that the SSCs were operationally capable of performing their intended safety functions.

- 0PT-10.1, RCIC Operability Test*
- 0PT-12.2C Diesel Generator Monthly Load Test
- 0OI-03.3 Auxiliary Operator Daily Surveillance Report -Outside Operator
- 0OI-03.3 Auxiliary Operator Daily Surveillance Report -Reactor Building
- 0PT-10.1, RCIC Operability Test
- 0PT-07.2.4a, Core Spray System Operability Test - Loop A

*This procedure included inservice testing requirements.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed the following temporary modifications to determine whether the modification was properly installed and had any affect upon system operability. The inspectors also assessed whether drawings and procedures were appropriately updated and post-modification testing was satisfactorily performed:

- PCHG-DESG Engineering Change EC 52275R0, installation of temporary fill hose for Unit 1 and Unit 2 diesel generator 7-day fuel oil tank
- PCHG-DESG Engineering Change EC 51349R0, Unit 1 turbine stop valve number 3 steam packing box bolting

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Prepardness

1EP6 Drill Evaluation

a. Inspection Scope

The inspectors, reviewed the site emergency exercise and scenario, and observed the emergency response training drill conducted on May 27, 2003. The inspectors evaluated portions of the drill conducted from the control room simulator, technical support center and the emergency operations facility.

The inspectors observed the licensee's post-drill critique and evaluated licensee's self assessment of classification, notification, and protective action recommendation development.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification

a. Inspection Scope

The inspectors reviewed the performance indicator (PI) data submitted in April 2003 to the NRC since the last verification inspection was performed. A sample of plant records and data was reviewed and compared to the reported data to check for the accuracy of the performance indicators.

The licensee's corrective action program records were also reviewed to determine if any problems with the collection of PI data had occurred. PI definitions and guidance contained in Nuclear Energy Institute (NEI) 99-02, Regulatory Assessment Performance Indicator Guideline, Revision 2 were utilized.

The inspectors reviewed the following PIs for the periods indicated:

- Unplanned Scrams per 7, 000 Critical Hours (January 2002 to March 2003)
- Scrams with Loss of Normal Heat Removal (January 2002 to March 2003)
- Unplanned Power Changes per 7000 Critical Hours (April 2002 to March 2003)
- Safety System Unavailability, Emergency AC Power (April 2002 to March 2003)
- Safety System Unavailability, High Pressure Injection System (April 2002 to March 2003)

The following documents were reviewed:

- Control room operating logs
- NRC inspection reports issued during the review period
- Licensee's data bases for the PIs listed above
- Nuclear Generating Group Standard Procedure REG-NGGC-0009, NRC Performance Indicator
- NEI 99-02 Regulatory Assessment Performance Indicator Guideline

During plant tours the inspectors periodically assessed the Occupational Exposure Control Effectiveness and the RETS/ODCM Radiological Effluent Occurrence PIs by determining if high radiation areas (>1R/hr) were properly secured. Periodic observations were also performed for determining unmonitored radiation release pathways.

b. Findings

No findings of significance were identified.

4OA3 Event Follow-up

Unit 2 Automatic Reactor Scram During Start-up from Refueling Outage

a. Inspection Scope

The inspectors reviewed the licensee's actions in response to the Unit 2 reactor scram that resulted from a primary containment group 1 isolation that was received during start-up from the refueling outage on April 4, 2003. The inspectors reviewed the licensee's post trip review report that was conducted in accordance with Procedure 0O1-01.06, Post Trip Review. The inspectors reviewed control room logs, and verified the initial data gathering, equipment response and post trip review were conducted in accordance with procedural requirements. The inspectors also reviewed the initial 10 CFR 50.72 notification and compared the licensee's reporting to the requirements in 10 CFR 50.72. The licensee entered this event into their corrective action program as AR 89687.

b. Findings

No findings of significance were identified.

4OA6 Meetings, Including Exit

Exit Meeting Summary

On June 30, 2003, the resident inspectors presented the inspection results to Mr. J. Keenan and other members of his staff. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

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N. Gannon, Director of Site Operations
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D. Hinds, Manager Brunswick Engineering Support Section
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W. Noll, Plant General Manager
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H. Wall, Manager Outage and Scheduling
M. Williams, Manager Operations

NRC Personnel:

P. Fredrickson, Branch Chief, Division of Reactor Projects (DRP), Region II (RII)

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Opened and Closed

None

Closed

None

Discussed

None

Attachment