UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
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ATLANTA, GEORGIA 30303-8931

December 11, 2003

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

SUBJECT: BRUNSWICK STEAM ELECTRIC PLANT - NRC PROBLEM IDENTIFICATION AND RESOLUTION INSPECTION REPORT 05000325/2003009 AND 05000324/2003009

Dear Mr. Gannon:

On November 21, 2003, the U. S. Nuclear Regulatory Commission (NRC) completed an inspection at the Brunswick Steam Electric Plant. The enclosed report documents the inspection results, which were discussed on November 21, 2003, with you and other members of your staff.

This inspection was an examination of activities conducted under your license as they relate to the identification and resolution of problems, and compliance with the Commission's rules and regulations and with the conditions of your operating license. Within these areas, the inspection involved selected examination of procedures and representative records, observations of activities, and interviews with personnel.

On the basis of the sample selected for review, there were no findings of significance identified during this inspection. The inspectors concluded that problems were properly identified, evaluated, and resolved within the problem identification and resolution programs (PI&R).

In accordance with 10 CFR 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 Publically 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 No.: 50-325, 50-324
License No.: DPR-71, DPR-62

Enclosure: NRC Inspection Report No. 05000324/2003009 and 05000325/2003009
w/Attachment: Supplemental Information

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No:	50-324, 50-325
License No:	DPR-71, DPR-62
Report No:	05000324/2003009, 05000325/2003009
Licensee:	Carolina Power and Light
Facility:	Brunswick Steam Electric Plant, Units 1 & 2
Location:	8470 River Road SE Southport, NC 28461
Dates:	November 3-7, and 17-21, 2003
Inspectors:	J. Stewart, Senior Resident Inspector, Crystal River 3 (Lead Inspector) M. Scott, Senior Reactor Inspector, Division of Reactor Safety J. Austin, Resident Inspector, Brunswick R. Maxey, Reactor Inspector, Division of Reactor Safety
Approved by:	P. Fredrickson, Chief Reactor Projects Branch 4 Division of Reactor Projects

Enclosure

SUMMARY OF ISSUES

IR 05000325/2003-009, 05000324/2003-009; 11/03/2003 - 11/21/2003; Brunswick Steam Electric Plant, Units 1 and 2; Biennial baseline inspection of the identification and resolution of problems.

The inspection was conducted by a senior resident inspector, one resident inspector, and two Region II reactor inspectors. No findings of significance were identified. 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.

Identification and Resolution of Problems

The licensee was effective at identifying problems at a low threshold and entering them into the corrective action program. The licensee prioritized issues and performed adequate evaluations that were technically accurate and of sufficient depth. Corrective actions developed and implemented for problems were appropriate for the safety-significance of the issue. The licensee's self-assessments and audits were effective in identifying deficiencies. Based on discussions conducted with licensee employees and a review of station activities, the inspectors did not identify any reluctance to report safety concerns.

REPORT DETAILS

4. OTHER ACTIVITIES (OA)

4OA2 Problem Identification and Resolution

a. Effectiveness of Problem Identification

(1) Inspection Scope

The inspectors used risk insights provided by the licensee to select nuclear condition reports (NCRs) that had been initiated since October 2001 (the date of the last NRC baseline problem identification and resolution inspection) to verify that safety-significant problems were being identified and appropriately characterized in the Brunswick corrective action program (CAP). NCRs and work orders related to safety-significant problems were checked for adequacy of the problem statement. In addition, the inspectors reviewed a representative number of NCRs that were identified and assigned to the major plant departments including operations, maintenance, engineering, security, chemistry, health physics, and emergency preparedness.

The inspectors toured the following plant areas (high pressure coolant injection system, chlorination, safety batteries, AC electrical distribution systems, emergency diesel generators, and service water pump area) to check that problems had been properly identified and characterized in the CAP. System performance was reviewed by discussion with system engineering personnel. The inspectors reviewed completed maintenance work orders (WOs), system review reports, and the Maintenance Rule database for these risk-significant systems to verify that equipment deficiencies were being appropriately entered into the CAP and the Maintenance Rule program. The inspectors reviewed control room operator logs and discussed plant operations with operators and engineering personnel to verify that equipment deficiencies were entered in the CAP.

The inspectors reviewed selected industry operating experience items, including NRC generic communications, to verify that they were appropriately evaluated for applicability and whether issues identified through these reviews were entered into the CAP.

The inspectors reviewed licensee audits and self-assessments to verify that findings were entered into the CAP and to verify that these findings were consistent with the NRC's assessment of the licensee's performance.

The inspectors attended several plant daily status meetings to observe management oversight functions in the corrective action process. The inspectors also interviewed plant personnel to evaluate their threshold for identifying issues.

In addition, the inspectors reviewed immediate corrective actions related to two events which occurred during the inspection period. The first was a Unit 2 reactor scram on November 4, where one train of standby gas treatment did not start and both reactor

feedwater pumps locked out. The other was a Unit 2 high pressure coolant injection (HPCI) system exhaust diaphragm rupture on November 13, due to a valve misalignment during post-maintenance testing.

Documents reviewed to support the inspection are listed in the Attachment.

(2) Assessment

The inspectors determined that the licensee was effective in identifying problems and entering them into the CAP. NCRs provided complete and accurate characterization of the subject issues. The threshold for initiating NCRs appeared low and employees were encouraged by management to initiate NCRs. Equipment performance issues involving maintenance effectiveness such as maintenance errors, and rework were being identified at an appropriate level. The inspectors noted one instance where an NCR was not initiated for cracking found during an inspection of the Unit 1 steam dryer. The inspectors verified that the issue had been identified to management, assessed for operability, and that appropriate actions were in place to monitor the cracking such that safety was assured.

Specfically for the reactor scram event, the issues resulting from the transient were identified by the licensee and entered into the CAP. For the HPCI event, the licensee identified the problem, implemented some immediate corrective actions, and initiated a high priority investigation of the occurrence.

The licensee was effective in evaluating internal and external industry operating experience items for applicability and entering issues into the CAP.

Department self-assessments and audits performed by the Nuclear Assessment Section were effective in identifying issues and these deficiencies were entered into the CAP.

b. Prioritization and Evaluation of Issues

(1) Inspection Scope

The inspectors checked NCRs and operating experience items to verify that the licensee appropriately prioritized and evaluated problems in accordance with Brunswick Procedure CAP-NGGC-0200. While the majority of NCRs reviewed were classified as Priority 1, the review also included a representative number of Priority 2 and Priority 5 NCRs. The inspectors' review was intended to verify that the licensee adequately determined the cause of problems commensurate with the safety-significance and addressed operability, reportability, common cause, generic concerns, and extent of condition. For significant conditions adverse to quality, the inspectors checked that the licensee adequately identified the causes and corrective actions to prevent recurrence. The inspectors also reviewed a sample of NCRs reported as "No Further Investigation Required" to verify they were adequately resolved.

(2) Assessment

The inspectors determined that the licensee adequately prioritized and evaluated issues entered into the CAP. The evaluations were technically accurate and of sufficient depth.

The inspectors found one issue where some corrective actions were not linked to the cause determination, that being actions to prevent flooding of an emergency diesel generator room from a postulated fault in service water piping. NCR 111486 was initiated to correct this isolated issue.

c. Effectiveness of Corrective Actions

(1) Inspection Scope

The inspectors evaluated licensee event reports, NRC violations, WO backlogs, self-assessments, audits, Maintenance Rule reports, nuclear safety committee meeting minutes, a selection of NCRs, and operating experience items to verify that the licensee had identified and implemented timely and appropriate corrective actions to address problems.

The inspectors verified that corrective actions were documented, assigned, and tracked to completion. On a selected basis, the inspectors verified that corrective actions were implemented as intended. The inspectors verified the adequacy of corrective actions to address equipment deficiencies that were selected for the focused review.

(2) Assessment

The inspectors found that corrective actions developed and implemented for problems in the CAP were timely and effective commensurate with the safety-significance of the issues.

d. Assessment of Safety-Conscious Work Environment

(1) Inspection Scope

During discussions with licensee staff, the inspectors evaluated the safety-conscious work environment at the site. The effort was aimed at determining if any conditions existed that would cause employees to be reluctant to raise safety concerns. The inspectors also verified that concerns were being properly reviewed and resolved in the Employee Concerns Program.

(2) Assessment

The inspectors found that licensee management emphasized the need for all employees to identify and report problems. Problem reporting methods including the CAP, the WO system, and the Employee Concerns Program, were accessible to all employees and

were being appropriately used. The inspectors did not identify any reluctance to report safety concerns.

4OA6 Management Meetings

The inspectors presented the inspection results to Mr. Gannon and other members of licensee management at the conclusion of the inspection on November 21, 2003. The inspectors confirmed that proprietary information was not retained following the inspection.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel:
L. Beller, Supervisor Licensing
M. Grimstead, Supervisor Self-Assessment
G. Johnson, Nuclear Assessment
C. Elberfeld, Lead Engineer, Technical Support
W. Noll, Director of Site Operations
J. Gawron, Training Manager
D. Hinds, Manager Brunswick Engineering Support Section
C. Gannon, Site Vice President
E. O'Neil, Manager Site Support Services
H. Wall, Manager Maintenance
M. Williams, Manager Operations

NRC Personnel:
L. Wert, Deputy Division Director, Division of Reactor Projects (DRP)
G. Mac Donald, Senior Project Engineer, Division of Reactor Projects (DRP)
E. DiPaolo, Senior Resident Inspector, Brunswick

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

None

LIST OF DOCUMENTS REVIEWED

Procedures
0ENP-16.7, Administrative Control of the Check Valve Disassembly Program, Rev. 15
0AP-23, Outage Planning and Scheduling, Rev. 9
0ENP-17, Pump and Valve Inservice Testing (IST), Rev. 32
CAP-NGGC-0200, Corrective Action Program, Rev. 7
REG-NGGC–0001, Employee Concerns Program, Rev. 11
0AI-09, Plant Nuclear Safety Committee Administration, Revision 44
OMST-DG24M, Emergency Bus Degraded Voltage Channel Func Test, Rev. 3
OMST-DG24R, Emergency Bus Degraded Voltage Relay Channel Cal, Rev. 3
OOI-01.06, Post Trip Review, Rev. 16
OOI-01.08, Control of Equipment and System Status, Rev. 51

Nuclear Condition Reports and Action Requests

09433, Unit 2 Condensate Tank Coating Degradation
24878, Safeguards Event Log for Security Computer Entry
25139, Failure of Woodard Digital Control System
28873, Mazzolin Cloth Dropped in Torus
29810, 480Volt, Repetitive Functional Failure, and Exceeding Performance Criteria
32180, Switch Would Not Actuate During 2MST-HPCI27Q

49367, DG2 Inoperable Due to High Cylinder Exhaust Temperature
49627, Maintenance Rule Functional Failure 2-CAC-PR-1257-1

52550, Power Substance Found in 2-CAC-AT-1262
52723, Inadvertent Excess Flow Check Valve Isolation
53025, Failure to Depress the Reactor Core Isolation Cooling Steam Line
53403, Unit 1 Main Steam Pit Check Valves Ventilation Dampers are Closing
53559, Integrated Leak Rate Self Assessment Weakness #1
53571, SCRAM Discharge Volume Level Switch Failed to Trip
53717, Unit 2 DC Ground Due to Damaged Insulation
54376, DG1 Jacket Water Cooler Supply Valves Leak By
54746, Control Rod 34-43 Double Notched
55215, Failure of 2-SW-V24 to Close
55517, Diesel Generator 4 Light Socket Short
58147, Maintenance Rule Functional Failure Check Valve 1-RNA-V315
58508, MAPRAT Thermal Limit Exceeded 1.00
58672, Stuck Main Steam Line Valve Limit Switch
58984 DG#2 Air Compressor #1 Failure
60437, Actual Power Exceeds Indicated Power
60901, Unit 1 Nuclear SW Header A1 due to Maintenance Rule Unavailability
61741, Inservice Test Program Non-Compliance to Surveillance Frequency
63376, Unit 1 High Pressure Coolant Injection Rupture Disks Installed Incorrectly
64366, Chlorine System Leak/Isolation
70216, 2-G16-LR-R008 Level Recorder Rework
72950, 40% Rated Thermal Power Exceeded During Scram Time Testing
72981, 1-CTB-DR-218 Opening Exceeds ENP-54-0
74020, Abnormal Procedure AOP-18 Entry Due to Clogged Discharge Strainer
74875, Unit 1 Elevated Sulfate Concentration
75058, Service Water Pump Strainer Clogging Repetitive Functional Failures
75527, Increased Number of Configuration Issues Noted
75563, Security Key Performance Indicator Errors
78097. Potential Leakage Indicated on CAC-AR-1262
78344, High Pressure Coolant Injection 2E41-F003 Steam Valve Packing Leak
81455, Reactor Scram Due to Feedwater Pump Trip
86529, Unexpected Diesel Generator Start During SCRAM on 1/12/03
93659, Jet Pump Transmitters Replaced
94562, Fuel Failure Identified Early in Fuel Cycle
95700, Isolated Bus Duct Cooler Fan Shroud Cracking
024378, Safeguards Event Log for Security Computer Entry
102323, 480V Feeder Breaker Failed to Trip
100351, Effluent Radiation Monitor Inoperable
100887, Feeder Breaker for Motor Control Center 1XG Failed During Testing
100887, 480V Maintenance Rule Functional Failure Exceeding A(1) Goal
109924, Loss of Excitation Caused Unit 2 Reactor Scram
111486, 0OI-3.4, Rev 94, Daily Check Sheets
111533, OPT-12.2A, Rev. 77, No.1 DG Monthly Load Test
111539,OPT-12.2B, Rev. 76, No.2 DG Monthly Load Test
111540, OPT-12.2C, Rev. 76, No.3 DG Monthly Load Test
111542, OPT-12.2D, Rev. 77, No. 4 DG Monthly Load Test

533872, Power Range Monitor Acceptance Criteria Improperly Identified
533909, Maintenance Performed without Approval

Maintenance Work Orders
192354, DG1 Starting Air Compressor 2
246300, 2-DG3-Barring-Gear-M, was engaged without picking up
263792, Implement Engineering Change 49111
484381, 2-E41-6SS35, Bent/Damaged During Ops PT

Engineering Documents
Periodic System Review, Core Spray, System 2035, dated 12-11-2001
Engineering Calculation 0B11-0016, Steam Dryer Crack Indications, March 23, 2002
Periodic System Review, 125/250 Volt DC, Systems 5230, 5240, 5245, 06-04-2002
Engineering Change 46862 Diesel Air Start Intercooler Modification
Engineering Change 49111, Implement Main Steam Pit Check Valve Change
Drawing: F-0422, Diesel Generating Fire Protection & Drainage Piping Plans & Details
0VA-RME-1083, Counter Weight for RB HVAC Excess Flow Dampers

Industry Operating Experience Reports
AR 080058, GE Service Information Letter 640, RCIC/HPCI EGM Control Box Electrolytic Capacitor
AR 101158, NRC Information Notice 2002-26, Rev. 1, Failure of Steam Dryer

Self- Assessments
Assessment 78379, Operating Experience Program Self-Assessment, 09-08 to11-2003
B-RP-03-01, Radiation Protection Assessment

Nuclear Assessment Section Assessments
BNAS 01-070, Brunswick Training and Qualification Program, December 2001
BNAS 02-044, Technical Specifications and Operating License Conditions, June 2002
BNAS 02-047, Corrective Action and Operating Experience Program, July 2002
BNAS 03-026, Brunswick Engineering Program, May 2003

Other
Brunswick Licensee Event Reports and Notifications, October 2000 to October 2003
Brunswick Employee Concerns Received 01-02-2001 to 11-17-2003
Brunswick Nuclear Safety Review Committee Meeting, October 23, 2001
Nuclear Safety Oversight Committee Meeting, December 11, 2001
Nuclear Safety Oversight Committee Meeting, March 12, 2002
Nuclear Safety Oversight Committee Meeting, June 27, 2002
Nuclear Safety Oversight Committee Meeting, September 10, 2002
Nuclear Safety Oversight Committee Meeting, December 10, 2002
Nuclear Safety Oversight Committee Meeting, March 11, 2003
Nuclear Safety Oversight Committee Meeting, July 1, 2003
Brunswick Corrective Action Program Indicators, October 2003
Brunswick Corrective Action Program Trend Report, Second Quarter 2003