UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET, SW, SUITE 23T85
ATLANTA, GEORGIA 30303-8931

January 30, 2006

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

SUBJECT: BRUNSWICK STEAM ELECTRIC PLANT - NRC INTEGRATED INSPECTION REPORT NOS. 05000325/2005005 AND 05000324/2005005

Dear Mr. Scarola:

On December 31, 2005, the US 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 with you and other members of your staff on January 12, 2006.

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.

As an incentive to encourage licensee participation in the International Atomic Energy Agency Operational Safety Review Team (OSART) Missions, the NRC determined that, for those NRC baseline inspections that overlap, either in part or fully, with an OSART review, a one-time regulatory credit (reduction in baseline inspection program), would be granted. Based on a review of the inspection report from an OSART inspection conducted at Brunswick in May, 2005, the NRC determined that Brunswick qualified for a 50% reduction of the inspection effort for two NRC inspection procedures (IPs) documented in the enclosed report. Specifically, credit was given for IP 71114.03, Emergency Response Organization Augmentation, and IP 71114.05, Correction of Emergency Preparedness Weaknesses and Deficiencies. As such, the scope of the inspection of these procedures was reduced by 50%.

This report documents one self-revealing finding of very low safety significance (Green). The finding was determined to involve a violation of NRC requirements. However, because of the very low safety significance and because it had been entered into your corrective action program, the NRC is treating this finding as a non-cited violation (NCV), in accordance with Section VI.A.1 of the NRC's Enforcement Policy. If you contest this non-cited violation example, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Brunswick Steam Electric Plant.

In accordance with 10 CFR 2.390 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, 324/2005005
w/Attachment: Supplemental Information

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos:	50-325, 50-324
License Nos:	DPR-71, DPR-62
Report Nos:	05000325/2005005 and 05000324/2005005
Licensee:	Carolina Power and Light (CP&L)
Facility:	Brunswick Steam Electric Plant, Units 1 & 2
Location:	8470 River Road SE Southport, NC 28461
Dates:	October 1, 2005 - December 31, 2005
Inspectors:	E. DiPaolo, Senior Resident Inspector J. Austin, Resident Inspector J. Kreh, Emergency Preparedness Inspector (Section 1EP2-1EP5, 4OA1) A. Nielsen, Health Physicist, (Section 4OA5) M. Bates, Operations Engineer (Section 1R11)
Approved by:	Paul Fredrickson, Chief Reactor Projects Branch 4 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000325/2005-005, 05000324/2005-005; 10/01/2005 - 12/31/2005; Brunswick Steam Electric Plant, Units 1 and 2; Identification and Resolution of Problems.

The report covered a three-month period of inspection by resident inspectors and an announced inspection by an emergency preparedness inspector. One Green non-cited violation was identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. 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. NRC-Identified and Self-Revealing Findings

Cornerstone: Initiating Events

Green. A self-revealing non-cited violation of Technical Specification 5.4.1, Administrative Controls (Procedures), was identified for failure to establish an adequate clearance order procedure in preparation for maintenance activities on the Unit 1 B condensate booster pump minimum flow valve. Implementation of this inadequate clearance order procedure on November 9, 2005 resulted in a reduction in condensate system pressure and a plant transient which challenged control room operators. The licensee entered the issue into the corrective action program for resolution. Immediate actions were the operators entered the appropriate abnormal operating procedure and stabilized the plant. In addition, a root cause investigation was performed and the responsible individuals were coached relative to their performance.

This finding is greater than minor because it is associated with system configuration control and affected the Initiating Events Cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during power operations. Although the event contributed to the likelihood of a reactor trip, the finding is of very low safety significance because it did not contribute to the likelihood that mitigation equipment or functions would be unavailable. The cause of this finding is identified as a performance aspect of the human performance cross-cutting area, in that personnel taking shortcuts to expedite the writing of the clearance order procedure contributed to the transient. (Section 4OA2.2)

B. Licensee-Identified Violations

None

REPORT DETAILS

Summary of Plant Status

Unit 1 began the report period operating at full power. On October 9, the unit performed a planned downpower to approximately 50 percent to facilitate replacement of an electro-hydraulic control pressure regulator and to perform main steam isolation and main turbine valve testing. Unit 1 returned to full power on October 10. On November 9, operators reduced power to approximately 87 percent in response to lowering condensate/feedwater system pressures caused by a clearance order error. The unit returned to full power later that day. A planned downpower to approximately 53 percent was commenced on December 2 for fuel leak suppression testing, a control rod adjustment, and to perform main steam isolation and main turbine valve testing. Full power was achieved on December 6. On December 31, power was reduced to 75 percent for a control rod pattern improvement. Full power was achieved later that day.

Unit 2 began the report period operating at full power. Following detection of a leaking fuel assembly, the unit performed a planned downpower to approximately 53 percent to perform fuel leak suppression testing, a control rod sequence exchange, and main steam isolation and main turbine valve testing. The unit returned to full power on October 28. On November 8, the unit performed an unplanned downpower to approximately 53 percent to repair a main condenser tube leak in the A-South waterbox. The unit returned to full power on November 11. Following detection of a main condenser tube leak in the A-North waterbox, Unit 2 performed an unplanned downpower to approximately 53 percent to facilitate repairs on November 14. Full power was achieved on November 16. Another unplanned downpower to approximately 53 percent was performed on November 25 to facilitate repairs to another main condenser tube leak detected in the A-South waterbox. Full power was achieved on November 27. On December 13, power was reduced to approximately 45 percent as the result of the tripping of the B reactor recirculation pump motor-generator due to blown fuses in the voltage regulator. While at reduced power, repairs were completed on a main condenser tube leak detected in the A-North waterbox. The unit returned to full power on December 19. The unit performed a planned downpower on December 27, to approximately 22 percent for fuel leak suppression testing and a drywell entry to address an increasing trend in unidentified leakage (backseat B recirculation pump discharge isolation valve) and to add oil to the B recirculation pump motor. The unit concluded the inspection period at approximately 96 percent power, continuing to increase power to full.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection

a. Inspection Scope

The inspectors assessed the effectiveness of the licensee's cold weather protection program as it related to ensuring that the facility's diesel-driven fire pump, emergency diesel generators (EDGs) , and condensate storage tank low level switches would remain functional and available in cold weather conditions. In addition to reviewing the

licensee's program-related documents and procedures, walkdowns were conducted of the freeze protection equipment (e.g., heat tracing, area space heaters, etc.) associated with the above systems/components. Licensee problem identification and resolution were also assessed. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

a. Inspection Scope

Partial System Walkdowns

The inspectors performed three partial walkdowns of the below listed systems to verify that the systems were correctly aligned while the redundant train or system was inoperable or out-of-service (OOS) or, for single train risk significant systems, while the system was available in a standby condition. The inspectors assessed conditions such as equipment alignment (i.e., valve positions, damper positions, and breaker alignment) and system operational readiness (i.e., control power and permissive status) that could affect operability. The inspectors verified that the licensee identified and resolved equipment alignment problems that could cause initiating events or impact mitigating system availability. The inspectors reviewed Administrative Procedure ADM-NGGC-0106, Configuration Management Program Implementation, to verify that available structures, systems or components (SSCs) met the requirements of the configuration control program. Documents reviewed are listed in the Attachment.

- EDG #4 when EDG #3 was OOS on December 5, 2005
- Unit 2 reactor core isolation cooling system (single train risk significant system) on December 8, 2005
- Service water building and intake structure on December 24, 2005.

To assess the licensee's ability to identify and correct problems, the inspectors reviewed the following action requests (ARs):

- AR 178513, Reactor protection system motor-generator set's internal wiring found degraded
- AR 174775, Bent threaded rod on Unit 1 residual heat removal system loop B loop snubber

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

Fire Area Walkdowns

The inspectors reviewed ARs and work orders (WOs) associated with the fire suppression system to confirm that their disposition was in accordance with Procedure OAP-033, Fire Protection Program Manual. The inspectors reviewed the status of ongoing surveillance activities to verify that 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 eight 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. Documents reviewed are listed in the Attachment.

- Radwaste Building, -3' elevation (including pipe tunnel) (1 area)
- Unit 1 North Core Spray Room -17' elevation (1 area)
- Unit 1 North and South Residual Heat Removal Heat Exchanger Rooms 9' and 20' elevations (2 areas)
- Unit 1 North Residual Heat Removal Room -17' elevation (1 area)
- Unit 1 Reactor Building East and West 50' elevation (2 areas)
- Diesel Generator Building Basement 2' elevation (1 area)

To assess the licensee's ability to identify and correct problems, the inspectors reviewed the following action requests ARs:

- AR 147270, Penetration seals found damaged in cable spread room
- AR 178716, Conductor found in cable spread room without fire retardant coating

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification

.1 Quarterly Review

a. Inspection Scope

The inspectors observed licensed operator performance and reviewed the associated training documents during annual dynamic simulator examination sessions for training cycle 2005-06. The simulator observations and review included evaluations of emergency operating procedure and abnormal operating procedure utilization. The inspectors reviewed Procedure OTPP-200, Licensed Operator Continuing Training

Program, to verify that the program ensures safe power plant operation. Two simulator examinations (different crews) were observed on November 27, 2005. The scenarios tested the operators' ability to respond to various instrumentation failures, abnormal operating transients, and accidents. The inspectors reviewed operator 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, regulatory reports, and notifications, were observed. The inspectors observed instructor critiques and preliminary grading of the operating crews and assessed whether appropriate feedback was planned to be provided to the licensed operators.

.2 Annual Review of Licensee Requalification Examination Results

a. Inspection Scope

On December 19, 2005, the licensee completed the comprehensive requalification biennial written examinations and annual operating tests, required to be given to all licensed operators by 10 CFR 55.59(a)(2). The inspectors performed an in-office review of the overall pass/fail results of the written examinations, individual operating tests, and the crew simulator operating tests. These results were compared to the thresholds established in Manual Chapter 0609 Appendix I, Operator Requalification Human Performance Significance Determination Process.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

For the two equipment issues described in the ARs 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 Maintenance Rule a(1) or a(2) classification, and the appropriateness of 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 also reviewed deficiencies related to the work activities documented in the ARs listed below to verify that the licensee had identified and resolved deficiencies in accordance with Procedure CAP-NGGC-0200, Corrective Action.

- AR 173198, EDG #4 air compressor repetitive failure
- AR 174760, Residual heat removal system A loop snubber bent

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 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). The review was conducted to verify 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 WO's for the following six conditions involving OOS equipment:

- Unit 1 online risk condition Yellow due to maintenance and surveillance testing on B loop of residual heat removal (RHR) system during Work Week 44 (planned)
- AR 174931, Control room speed indicator for reactor core isolation cooling system pump reading low on November 2, 2005 (emergent)
- Unit 1 online risk condition Yellow due to service water intake bay cleaning activities during Work Week 47 (planned)
- AR 175458, Unit 2 A-South condenser waterbox tube leak repairs on November 8, 2005 (emergent)
- AR 177974, Potential EDG #2 operability concern during switchyard maintenance activities on December 6, 2005 (emergent)
- AR 178784, Unit 2 B reactor recirculation pump trip resulting in single loop operation and online risk condition Yellow from December 13-15, 2005 (emergent)

b. Findings

No findings of significance were identified.

1R14 Operator Performance During Non-Routine Plant Evolutions and Events

a. Inspection Scope

The inspectors observed and/or reviewed the following three transients and abnormal plant conditions to assess operator performance during non-routine evolutions and events. Operator logs, plant computer data, and associated operator actions were reviewed as well as the procedures listed in the Attachment.

- Unit 2 unplanned power reduction due to high condensate conductivity caused by a main condenser tube leak on November 8, 2005
- Unit 1 unplanned power reduction due to low condensate system pressures caused by a condensate system clearance boundary error on November 9, 2005
- Unit 2 planned power reduction to approximately 22 percent power for a drywell entry to manually backseat the B recirculation pump discharge isolation valve, to minimize a steam leak originating at the valve stem on December 27, 2005.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the operability evaluations associated with the following four issues documented in the ARs listed below, which affected risk significant systems or components, to assess, as appropriate: 1) the technical adequacy of the evaluations; 2) the justification of continued system operability; 3) any existing degraded conditions used as compensatory measures; 4) the adequacy of any compensatory measures in place, including their intended use and control; and 5) where continued operability was considered unjustified, the impact on any TS limiting condition for operation and the risk significance. In addition to the reviews, discussions were conducted with the applicable system engineer regarding the ability of the system to perform its intended safety function.

- AR 178082, EDG power potential transformer anchor bolts not per design
- AR 173923, Insufficient analysis and operating lineup restrictions for conventional service water-to-reactor building closed cooling water manual isolation valve SW-V146
- AR 174956, Residual heat removal pump minimum flow valve setpoint discrepancies
- AR 171781, Stroke time for 2-SW-PV-138 was close to the maximum acceptable criteria

To assess the licensee's ability to identify and correct problems, the inspectors reviewed the following ARs:

- AR 179323, EDG fuel oil storage tank vortexing
- AR 177800, Unit 1 high pressure coolant injection/reactor core isolation cooling systems' drain line pin hole leak
- AR 173951, Unit 2 control rod 38-43 fast withdrawal time

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing

a. Inspection Scope

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

- WO 751301, Unit 1 A electro-hydraulic control pressure regulator pressure transmitter replacement
- WO 762145, Unit 1 reactor core isolation cooling system turbine speed indicator adjustment
- WO 794266, Troubleshoot and repair Unit 2 B reactor recirculation pump motor-generator
- WO 765992, EDG starting air check valve failure
- WO 769982, 1-E41-F079 did not go full close when control switch taken to close
- WO 781370, Unit 1 chlorine detector will not respond within time limit required

To assess the licensee's ability to identify and correct problems, the inspectors reviewed AR 179292 which documented that the Unit 2 B recirculation pump motor-generator set tachometer-generator exhibited high vibration following maintenance.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

.1 Routine Surveillance Testing

a. Inspection Scope

The inspectors either observed surveillance tests or reviewed test data for the four risk significant SSC surveillances, listed below, to verify the tests met TS surveillance requirements, Updated Final Safety Analysis Report commitments, in-service testing (IST), and licensee procedural requirements. The inspectors assessed the effectiveness of the tests in demonstrating that the SSCs were operationally capable of performing their intended safety functions.

- 0PT-12.2.C, No. 3 Diesel Generator Monthly Load Test, Rev. 80, performed November 7, 2005
- 2PT-01.11, Core Performance Parameter Check, Rev. 2, performed December 19, 2005
- 0ENP-26, Reactor Engineering Scheduling and Records Management System, Rev. 29, performed on Unit 2 upon entry into single loop operation on December 13, 2005
- 2OI-03.2, Control Operator Daily Surveillance Report, Rev. 88 (including reactor coolant leakage detection surveillance) performed the week of December 19, 2005

To assess the licensee's ability to identify and correct problems, the inspectors reviewed the following ARs:

- AR 178753, Process computer will not allow inserted value for flow
- AR 174931, Reactor core isolation cooling system operability test performed with uncalibrated tachometer
- AR 176780, Reactor core isolation cooling system low oil pressure alarm during testing

.2 Inservice Surveillance Testing

a. Inspection Scope

The inspectors reviewed the performance of Periodic Test 0PT-10.1.1, Reactor Core Isolation Cooling System Operability Test, Rev. 87, performed on Unit 1 December 15, 2005. The inspectors evaluated the effectiveness of the licensee's American Society of Mechanical Engineers (ASME) Section XI testing program to determine equipment availability and reliability. The inspectors evaluated selected portions of the following areas: 1) testing procedures; 2) acceptance criteria; 3) testing methods; 4) compliance with the licensee's IST program, TS, selected licensee commitments, and code requirements; 5) range and accuracy of test instruments; and 6) required corrective actions. The inspectors also assessed any applicable corrective actions taken.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed Plant Operating Manual 0PLP-22, Temporary Changes, to assess implementation of high radiation area cocooning of supplemental spent fuel pool heat exchangers. The inspectors reviewed these temporary modifications to verify that the modifications were properly installed and whether they had any effect on system

operability. The inspectors also assessed drawings and procedures for appropriate updating and post-modification testing.

To assess the licensee's ability to evaluate and correct problems, the inspector reviewed an inspector-identified issue involving problems with the high radiation area controls associated with the supplemental spent fuel pool cooling heat exchangers as documented in AR 174935.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness (EP)

1EP2 Alert and Notification System (ANS) Testing

Inspection Scope

The inspectors evaluated the adequacy of licensee methods for testing the alert and notification system. The applicable planning standard 10 CFR 50.47(b)(5) and related requirements contained in Section IV.D of Appendix E to 10 CFR Part 50 were used as reference criteria. The evaluation criteria contained in NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1; Federal Emergency Management Agency (FEMA) Report REP-10, "Guide for the Evaluation of Alert and Notification Systems (ANS) for Nuclear Power Plants"; and the licensee's FEMA-approved ANS design report were also used as references. The inspectors observed the performance of one of the offsite sirens during the annual full-volume ANS test on November 16, 2005. This inspection activity represents one sample on a biennial cycle. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1EP3 Emergency Response Organization (ERO) Augmentation

a. Inspection Scope

The inspectors reviewed the ERO augmentation staffing requirements and the process for notifying the ERO to ensure the readiness of key staff for responding to an event and timely facility activation. The results of the unannounced off-hour augmentation drill conducted on April 28, 2005 were reviewed. The inspectors examined the provisions for a backup notification system. A sample of problems identified from augmentation drills and ERO pager system tests was reviewed to assess the effectiveness of corrective actions. The applicable planning standard 10 CFR 50.47(b)(2) and related requirements contained in Appendix E to 10 CFR Part 50 were used as reference criteria. This

inspection activity represents one sample on an biennial cycle. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1EP4 Emergency Action Level (EAL) and Emergency Plan Changes

a. Inspection Scope

The inspectors reviewed the Emergency Response Plan (ERP) changes for Revision 66, which was the version in effect at the time of the inspection. No EAL or other substantive modifications were made in Revision 66. The applicable planning standard 10 CFR 50.47(b)(4) and related requirements contained in Appendix E to 10 CFR Part 50 were used as reference criteria. This inspection activity represents one sample on an annual cycle. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1EP5 Correction of Emergency Preparedness Weaknesses and Deficiencies

a. Inspection Scope

The inspectors reviewed the corrective actions identified through the EP program to ascertain the significance of the issues and to determine whether repetitive problems were occurring. The facility's self-assessments and audits were reviewed to assess the licensee's ability to be self-critical, thus avoiding complacency and degradation of its EP program. In addition, the inspectors reviewed the licensee's self-assessments and audits to assess the completeness and effectiveness of a sample of EP-related corrective actions.

The applicable planning standard 10 CFR 50.47(b)(14) and related requirements contained in Appendix E to 10 CFR Part 50 were used as reference criteria. This inspection activity represents one sample on a biennial cycle. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification

Inspection Scope

Cornerstone: Emergency Preparedness

The inspectors sampled licensee submittals for the three EP PIs listed below for units 1 and 2. The inspectors examined the EP PI data for the period October 2004 - September 2005. Procedural guidance for reporting PI information and records used by the licensee to identify potential PI occurrences were also reviewed. To verify the accuracy of the PI data reported during this period, PI definitions and guidance contained in NEI 99-02 “Regulatory Assessment Performance Indicator Guidelines”, Revision 3, were used to verify the basis in reporting for each data element. The applicable planning standard 10 CFR 50.9 and NEI 99-02,Revision 3, were used as reference criteria. This inspection activity represents three samples on an annual cycle.

- Drill and Exercise Performance (DEP)
- ERO Drill Participation
- ANS Reliability.

The inspectors verified the accuracy of the PI for ERO DEP through review of a sample of drill and event records. The inspectors reviewed selected training records to verify the accuracy of the PI for ERO drill participation for personnel assigned to key positions in the ERO. The inspectors verified the accuracy of the PI for ANS reliability through review of a sample of the licensee’s records of periodic system tests. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems

.1 Routine Review of ARs

To aid in the identification of repetitive equipment failures or specific human performance issues for followup, the inspectors performed frequent screenings of items entered into the licensee’s Corrective Action Program (CAP). The review was accomplished by reviewing daily ARs.

.2 Annual Sample Review

a. Inspection Scope

The inspectors performed an in-depth annual sample review of AR 175616, Incorrect Clearance Hanging Order, to verify that conditions adverse to quality were addressed in a manner that was commensurate with the safety significance of the issue. The inspectors reviewed the actions taken to verify that the licensee had adequately addressed the following attributes:

- Complete, accurate, and timely identification of the problem
- Evaluation and disposition of operability and reportability issues
- Consideration of previous failures, extent of condition, generic or common cause implications
- Prioritization and resolution of the issue commensurate with the safety significance
- Identification of the root cause and contributing causes of the problem
- Identification and implementation of corrective actions commensurate with the safety significance of the issue

b. Findings and Observations

Introduction: A Green self-revealing non-cited violation (NCV) of TS 5.4.1 was identified for an inadequate clearance order procedure associated with the Unit 1 B condensate booster pump minimum flow valve implemented in preparation for maintenance activities.

Description: On November 9, 2005, with Unit 1 at approximately 100 percent power, operators entered Abnormal Operating Procedure (AOP) 23, Condensate/Feedwater System Failure, as a result of lowering condensate system pressures. In accordance with AOP 23, operators reduced reactor power to approximately 87 percent power to stabilize the plant. At the time of the transient, operators were implementing a clearance order procedure in preparation for maintenance activities on the B condensate booster pump minimum flow valve.

The licensee determined that the cause for the reduction in condensate system pressure was due to the B condensate booster pump minimum flow valve opening which diverted a significant amount of flow from the condensate system. At the same time as the event, equipment control procedure Clearance Order 101366, was being implemented in preparation for maintenance activities. However, the clearance order procedure was inadequately written. Implementation of the clearance order resulted in an improper sequencing, securing power to the air-operated minimum flow valve air solenoid valve which resulted in the minimum flow valve failing in the open position. A properly written clearance order procedure would have closed the minimum flow manual isolation valve prior to securing power to the air solenoid valve to prevent flow diversion.

The licensee's investigation determined the root cause to be due to shortcuts taken to expedite the preparation of procedure Clearance Order 101366. The clearance order procedure was prepared under the direction of the Fix-It-Now (FIN) Team Senior Reactor Operator (SRO). First, the FIN SRO assigned an unqualified clearance writer to prepare the clearance order procedure. The review and approval of the clearance order by the FIN SRO was not adequate enough to identify the improper sequence. In addition, interactions between the FIN SRO and the clearance writer during the preparation of the clearance order procedure did not meet expectations for independence between preparer and approver. Finally, the pre-job brief for hanging of the clearance did not include a discussion of operating experience. Lessons-learned from a previous similar event was contained in the licensee's internal operating experience data base, however, the FIN SRO was not proficient in using the data base and did not locate the information. Further investigation by the licensee determined that there were other licensed operators who were not proficient in performing lessons-learned searches. The licensee found that distractions during the preparation, approval, and pre-job briefing contributed to the cause and were not properly managed.

Analysis: The failure to establish a proper tagging order sequence in procedure Clearance Order 101366 in preparation for maintenance activities is greater than minor. The clearance order is associated with system configuration control and affected the Initiating Events Cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during power operations. This self-revealing finding was determined to be of very low safety significance (Green) because it did not contribute to the likelihood that mitigation equipment or functions would not be available. The finding was related to the cross-cutting aspect of Human Performance because the root cause was determined to be due to personnel errors during the preparation of Clearance Order 101366.

Enforcement: Technical Specification 5.4.1.a. requires that written procedures shall be established covering applicable procedures recommended in Regulatory Guide 1.33, Appendix A, November 1972. Regulatory Guide 1.33 requires written procedures for equipment control (e.g., locking and tagging). Equipment control procedure Clearance Order 101366 was established in preparation for maintenance activities on the B condensate booster pump minimum flow valve. Contrary to Technical Specification 5.4.1.a, Clearance Order 101366 was inadequately established in that power was secured to minimum flow air solenoid valve prior to closing the manual minimum flow isolation valve. As a result, implementation of Clearance Order 101366 on November 9, 2005, caused a reduction of condensate system pressure and a plant transient which challenged control room operators. Because this finding is of very low safety significance and has been entered into the CAP (AR 175616), this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000325/2005005-01, Inadequate Clearance Order Causes Condensate System Transient.

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's CAP and associated documents to identify trends that could indicate the existence of a more significant safety issue. The review was focused on repetitive equipment issues but also considered the results of frequent inspector CAP item screening (discussed above), licensee trending efforts, and licensee human performance results. The review considered the period of July through December 2005. The review further included issues documented outside the normal CAP in major equipment lists, repetitive and/or rework maintenance lists, operational focus list, control room deficiency list, outstanding work order list, quality assurance audit/surveillance reports, key performance indicators, and self-assessment reports. The inspectors compared and contrasted their results with the results contained in the licensee's 3rd quarter trend report. Corrective actions associated with a sample of the issues identified in the licensee's trend reports were reviewed for adequacy. The inspectors also evaluated the reports against the requirements of the licensee's CAP as specified in Nuclear Generation Group Standard Procedure CAP-NGGC-0200, Corrective Action Program, and 10 CFR 50, Appendix B.

b. Assessment and Observations

No findings were identified. Section 4OA2.2 documents a Green NCV caused by human performance. Other less significant human performance issues also occurred during the review period. These included: 1) operators repositioned the incorrect control rod during fuel leak suppression testing; 2) Technical Specification Limiting Condition for Operation for a thermal limit was exceeded due to reactor engineering personnel not being aware of a large step change in the thermal limit multiplier as power was reduced; and, 3) maintenance commenced work on plant equipment prior to establishing all of the proper clearance controls. The events involving the operations area occurred later in the period. Based on issues and events occurring during the review period, site-wide human performance continues to be a challenge.

4OA3 Event Follow-up

(Closed) Licensee Event Report (LER) 05000324,324/2005006: Voluntary Report-Shutdown of Units 1 and 2 Due to Emergency Diesel Generator Operability Concerns.

On August 6, 2006, Units 1 and 2 were shutdown due to operability concerns potentially affecting the site's four EDGs. The concerns involved the setpoint for the EDG differential overcurrent protective devices. The issues involved with the event were reviewed during an NRC Special Inspection. The results of the inspection were documented in NRC Inspection Report 05000325,324/2005010, dated September 15, 2005. Two examples of a non-cited violation of 10CFR50, Appendix B, Criterion XVI, Corrective Action were identified and documented as NCV 05000325,324/2005010-02. No further issues were identified by this LER. This LER is closed.

4. OTHER ACTIVITIES

4OA5 Other Activities

.1 (Closed) NRC Temporary Instruction (TI) 2515/161, Transport of Control Rod Drive (CRD) in Type A Packages

The inspectors reviewed radioactive shipping logs and noted that no shipments of CRDs in Type A packages have been made since January 1, 2002. As documented in Inspection Report Nos. 05000325, 324/2005002, the inspectors reviewed and discussed the records for a shipment of contaminated tools sent in a Type A box to evaluate compliance with vendor requirements for package closure. Documents reviewed are listed in the Attachment.

4OA6 Meetings, Including Exit

Exit Meeting Summary

On January 12, 2006, the resident inspectors presented the inspection results to Mr. J. Scarola and other members of his staff. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

G. Atkinson, Supervisor - Emergency Preparedness
L. Beller, Supervisor - Licensing/Regulatory Programs
A. Brittain, Manager - Security
T. Cleary, Director - Site Operations
D. DiCello, Manager - Maintenance
C. Elberfeld, Lead Engineer - Technical Support
J. Gawron, Training Manager
L. Grzeck, Lead Engineer - Technical Support
R. Kitchen, Engineering Manager
G. Miller, Lead Engineer - Technical Support
E. O'Neil, Manager - Site Support Services
A. Pope, Manager - Operations
E. Quidley, Manager - Outage and Scheduling
S. Rogers, Manager Nuclear Assessment
J. Scarola, Site Vice President
M. Turkal, Lead Engineer - Technical Support
M. Williams, Manager - Operations Support
B. Waldrep, Plant General Manager

NRC Personnel

P. Fredrickson, Chief, Reactor Projects Branch 4, Division of Reactor Projects Region II

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Opened and Closed

05000325/2005005-01	NCV	Inadequate Clearance Order Causes Condensate System Transient (Section 4OA2.2)

Closed

05000324,324/2005006	LER	Voluntary Report-Shutdown of Units 1 and 2 Due to Emergency Diesel Generator Operability Concerns (Section 4OA3)
TI 2515/161	TI	Transportation of Control Rod Drives in Type A Packages (Section 4OA5.1)

Discussed

None

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

AR 146036, Heat trace program and implementing procedure improvements
AR 115083, Unit 2 CST heat trace setpoint
0OI-01.03, Non-Routine Activities, Rev. 24

Section 1R04: Equipment Alignment

POM Volume III, Operating Procedure OP-16, Reactor Core Isolation Cooling System, Rev. 59

Section 1R05: Fire Protection

POM Volume XIX, Fire Protection Procedure 0FPP-013, Transient Fire Load Evaluation, Rev. 33
POM Volume XIX, Fire Protection Procedure 0FPP-014, Control of Combustible, Transient Fire Loads, and Ignition Sources, Rev. 28
POM Volume XIX, Prefire Plan 1PFP-RB, Reactor Building Prefire Plans, Rev. 6
POM Volume XIX, Prefire Plan 0PFP-PBAA, Power Block Auxiliary Areas Prefire Plans, Rev. 9
POM Volume XIX, Prefire Plan 0PFP-DG, Diesel Generator Building Prefire Plans, Rev. 8

Section 1R14: Operator Performance During Non-Routine Evolutions and Events

POM Volume XXI, Abnormal Operating Procedure)AOP-26, High Reactor Coolant or Condensate Conductivity, Rev. 17
POM Volume XVI, Annunciator Panel Procedure 2APP-UA-01, Annunciator Procedure for Panel UA-01, Rev. 50
POM Volume XVI, Annunciator Panel Procedure 2APP-UA-04, Annunciator Procedure for Panel UA-04, Rev. 40
POM Volume XXI, Abnormal Operating Procedure 0AOP-23, Condensate/Feedwater System Failure, Rev. 23

Section 1EP2: Alert and Notification System Testing

Plans and Procedures
Procedure 0EPM-600, Brunswick Siren System: System User Guide, Rev. 0

Records and Data
Documentation of weekly silent, quarterly growl, and annual full-volume siren tests, 01/01/2004 - 11/11/2005

Section 1EP3: Emergency Response Organization (ERO) Augmentation

Procedures
0PEP-04.2, Emergency Facilities and Equipment, Rev. 29
0PEP-04.7, Brunswick Emergency Notification (Automated Telephone) System, Rev. 6

Records and Data
Documentation and Critique Report of Off-Hour ERO Response Drill conducted on 04/28/2005
Quarterly ERO Pager Activation Tests, 2004-2005

Section 1EP4: Emergency Action Level (EAL) and Emergency Plan Changes

Plans and Procedures
Emergency Response Plan, Rev. 66 (effective 12/29/2004)
0PEP-02.6.22, Emergency Communicator, Rev. 46
0PEP-02.6.28, Offsite Protective Action Recommendations, Rev. 9
0AOP-40.0, Security Events, Rev. 9

Records and Data
Internal memorandum dated 01/04/2005: Documentation of annual review of EALs with offsite agencies (conducted during Brunswick Task Force meeting, 11/18/2004)

Section 1EP5: Correction of Emergency Preparedness Weaknesses and Deficiencies

Plans and Procedures
CAP-NGGC-0200, Corrective Action Program, Rev. 16
0EPM-210, Emergency Preparedness Drill/Exercise Program, Rev. 15

Audits and Self-Assessments
Nuclear Assessment Section (NAS) Report No. B-EP-04-01, Emergency Preparedness Assessment, 10/14/2004 (conducted 09/13-17/2004)
NAS Focused Review B-FR-05-01, Brunswick Emergency Preparedness, 11/17/2005
Self-Assessment Report No. 110016, Brunswick EP Program (conducted 06/07-11/2004)
Self-Assessment Report No. 140714, BEN (Dialogic) System (conducted 04/25-29/2005)

Corrective Action Documents (Action Requests [ARs])
AR 112529, Evaluate documenting offsite remote assembly area locations
AR 124085, Siren 32 at Oak Island failed quarterly grown testing
AR 129179, Siren 10 near Dosher Memorial Hospital in Southport was inadvertently actuated by a nearby lightning strike
AR 134790, Siren 28 on Midway Road in Brunswick County actuated at full volume from 1258 until 1341 on 08/15/2004
AR 138575, OSC ERO performance improvements
AR 153789, Emergency Notification Form instructions incorrect in 0PEP-02.6.21
AR 161585, Participants in the TSC failed to consistently challenge each other on some missed execution standards during drill

AR 167269, Failure during drill to dispatch search and rescue teams following tornado affecting owner-controlled area
AR 169319, Unusual Event declared due to hurricane warning
AR 175666, Siren monitoring computer modem failure

Section 4OA1: Performance Indicator (PI) Verification

Procedures, Records, and Data
Documentation package (scenario/time line/event notification forms/critique report) for ERO drills on 10/28/2004, 07/28/2005
Documentation of Notification of Unusual Event declaration on 09/12/2005
Documentation of DEP opportunities: Licensed Operator Simulator evaluations on 07/05/2005, 07/12/2005
Documentation of ANS tests, 10/01/2004 - 09/30/2005
Records of drill and exercise participation by selected key ERO personnel, 2004-2005

Section 4OA5: Transport of Control Rod Drive (CRD) in Type A Packages

Radioactive shipment logs, 1/1/02 - 10/20/05