UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
245 PEACHTREE CENTER AVENUE NE, SUITE 1200
ATLANTA, GEORGIA 30303-1257

January 27, 2011

Mr. Michael J. Annacone
Vice President
Brunswick Steam Electric Plant
P.O. Box 10429
Southport, NC 28461-0429

SUBJECT: BRUNSWICK STEAM ELECTRIC PLANT - NRC INTEGRATED INSPECTION REPORT NOS. 05000325/2010005 AND 05000324/2010005

Dear Mr. Annacone:

On December 31, 2010, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Brunswick Unit 1 and 2 facilities. The enclosed integrated inspection report documents the inspection findings, which were discussed on January 26, 2011, 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 were identified. However, a licensee-identified violation which was determined to be of very low safety significance is listed in this report. The NRC is treating this violation as non-cited violation (NCV) consistent with the NRC Enforcement Policy because of the very low safety significance of the violations and because it is entered into your corrective action program. If you contest this non-cited violation, 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, its enclosure, and your response (if any) 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 Website at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Randall A. Musser, 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, 324/2010005
w/Attachment: Supplemental Information

cc w/encl: (See page 3)

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Letter to Michael J. Annacone from Randall A. Musser dated January 27, 2011

SUBJECT: BRUNSWICK STEAM ELECTRIC PLANT - NRC INTEGRATED INSPECTION REPORT NOS. 05000325/2010005 AND 05000324/2010005

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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.:	05000325/2010005, 05000324/2010005
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, 2010 through December 31, 2010
Inspectors:	P. O'Bryan, Senior Resident Inspector G. Kolcum, Resident Inspector G. Laska, Senior Operations Examiner (1R11) M. Bates, Senior Operations Engineer (1R11) G. Johnson, Senior Operations Examiner (1R11) A. Nielsen, Senior Health Physicist (4OA3)
Approved by:	Randall A. Musser, Chief Reactor Projects Branch 4 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000325/2010005, 05000324/2010005; 10/01/10 - 12/31/10; Brunswick Steam Electric Plant, Units 1 & 2; Integrated Inspection Report.

This report covers a three-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. No findings were identified during this inspection period.

A. NRC-Identified and Self-Revealing Findings

None.

B. Licensee-Identified Violations

One violation of very low safety significance, which was identified by the licensee, has been reviewed by inspectors. Corrective actions planned or taken by the licensee have been entered into the licensee's corrective action program. This violation and corrective action tracking numbers are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

Unit 1 began the inspection period at rated thermal power. On October 8, 2010, power was reduced to approximately 62 percent for scheduled testing and was returned to rated power the same day. On December 18, 2010, power was reduced to 65 percent to perform repairs on the "A" reactor feed pump. Power was returned to rated power on December 20, 2010, and operated at or near full power for the remainder of the inspection period.

Unit 2 began the inspection period at rated thermal power. On December 11, 2010, power was reduced to 69 percent for scheduled testing and a control rod sequence exchange, and then returned to rated power on December 12, 2010. The unit operated at or near full power for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection

.1 Winter Seasonal Readiness Preparations

a. Inspection Scope

The inspectors conducted a review of the licensee's preparations for winter conditions to verify that the plant's design features and implementation of procedures were sufficient to protect mitigating systems from the effects of adverse weather. Documentation for selected risk-significant systems was reviewed to ensure that these systems would remain functional when challenged by inclement weather. During the inspection, the inspectors focused on plant-specific design features and the licensee's procedures used to mitigate or respond to adverse weather conditions. Additionally, the inspectors reviewed the Updated Final Safety Analysis Report (UFSAR) and performance requirements for systems selected for inspection, and verified that operator actions were appropriate as specified by plant-specific procedures. Cold weather protection, such as heat tracing and area heaters, was verified to be in operation where applicable. The inspectors also reviewed corrective action program items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into its corrective action program in accordance with station corrective action procedures. The inspectors' reviews focused specifically on the following plant systems due to their risk significance or susceptibility to cold weather issues:

- Unit 1 Condensate Storage Tank
- Unit 2 Condensate Storage Tank

b. Findings

No findings were identified.

1R04 Equipment Alignment

.1 Quarterly Partial System Walkdowns

a. Inspection Scope

The inspectors performed three partial system walkdowns of the following risk-significant systems:

- Unit 2 reactor core isolation cooling (RCIC) with high pressure coolant injection (HPCI) out of service for maintenance on October 6, 2010;
- Unit 1 and Unit 2 nuclear service water pumps with 2B nuclear service water pump out of service for maintenance on October 20, 2010; and
- Unit 1 1A standby gas treatment system with 1B standby gas treatment system out of service for maintenance on November 4, 2010.

The inspectors selected these systems based on their risk significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could impact the function of the system and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, UFSAR, Technical Specification (TS) requirements, outstanding work orders, condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also walked down accessible portions of the systems to verify that system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the corrective action program with the appropriate significance characterization.

b. Findings

No findings were identified.

1R05 Fire Protection

.1 Quarterly Resident Inspector Tours

a. Inspection Scope

The inspectors conducted five fire protection walkdowns which were focused on availability, accessibility, and the condition of firefighting equipment in the following risk-significant plant areas:

- Service Water Building 20' Elevation (0PFP-SW-1a);
- Unit 1 Reactor Building North 20' Elevation (1PFP-RB2-1g N);
- Unit 1 Reactor Building West 50' Elevation (1PFP-RB2-1h W);
- Unit 2 Reactor Building North 20' Elevation (2PFP-RB2-1g N); and
- Unit 2 Reactor Building West 50' Elevation (2PFP-RB2-1h W).

The inspectors reviewed the areas to assess if the licensee had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant, effectively maintained fire detection and suppression capability, maintained passive fire protection features in good material condition, and had implemented adequate compensatory measures for out-of-service, degraded or inoperable fire protection equipment, systems, or features in accordance with the licensee's fire plan. The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later additional insights, their potential to impact equipment which could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event. Using the documents listed in the attachment, the inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed, that transient material loading was within the analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's corrective action program.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program

.1 Quarterly Licensed Operator Continuing Training

a. Inspection Scope

On November 17, 2010, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator requalification examinations to verify that operator performance was adequate, evaluators were identifying and documenting crew performance problems, and training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

- licensed operator performance;
- crew's clarity and formality of communications;
- ability to take timely actions in the conservative direction;
- prioritization, interpretation, and verification of annunciator alarms;
- correct use and implementation of abnormal and emergency procedures;
- control board manipulations;

- oversight and direction from supervisors; and
- ability to identify and implement appropriate TS actions and Emergency Plan actions and notifications.

The crew's performance in these areas was compared to pre-established operator action expectations and successful critical task completion requirements.

b. Findings

No findings were identified.

.2 Licensed Operator Requalification

a. Inspection Scope

The inspectors reviewed the facility operating history and associated documents in preparation for this inspection. During the week of November 29, 2010, the inspectors reviewed documentation, interviewed licensee personnel, and observed the administration of operating tests associated with the licensee's operator requalification program. Each of the activities performed by the inspectors was done to assess the effectiveness of the facility licensee in implementing requalification requirements identified in 10 CFR Part 55, Operators' Licenses. The evaluations were also performed to determine if the licensee effectively implemented operator requalification guidelines established in NUREG-1021, Operator Licensing Examination Standards for Power Reactors, and Inspection Procedure 71111.11, Licensed Operator Requalification Program. The inspectors also evaluated the licensee's simulation facility for adequacy for use in operator licensing examinations using ANSI/ANS-3.5 1998, American National Standard for Nuclear Power Plant Simulators for Use in Operator Training and Examination. The inspectors observed two crews during the performance of the operating tests. Documentation reviewed included written examinations, Job Performance Measures (JPMs), simulator scenarios, licensee procedures, on-shift records, simulator modification request records, simulator performance test records, operator feedback records, licensed operator qualification records, remediation plans, watchstanding records, and medical records. The records were inspected using the criteria listed in Inspection Procedure 71111.11.

b. Findings

No findings were identified.

.3 Annual Review of Licensee Requalification Examination Results

a. Inspection Scope

On December 2, 2010, the licensee completed the annual requalification operating tests required to be administered to all licensed operators in accordance with 10 CFR 55.59(a)(2). The inspectors performed an in-office review of the overall pass/fail results

of the individual operating tests and the crew simulator operating tests. These results were compared to the thresholds established in Manual Chapter 609, Appendix I, Operator Requalification Human Performance Significance Determination Process.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors evaluated two degraded performance issues involving the following risk-significant systems:

- 2B control rod drive pump bearing failure (NCR 358628); and
- Emergency diesel generator (EDG) #4 abnormal brush wear (NCR 421264)

The inspectors reviewed events where ineffective equipment maintenance may have resulted in equipment failure or invalid automatic actuations of Engineered Safeguards Systems and independently verified the licensee's actions to address system performance or condition problems in terms of the following:

- implementing appropriate work practices;
- identifying and addressing common cause failures;
- scoping of systems in accordance with 10 CFR 50.65(b) of the maintenance rule;
- characterizing system reliability issues for performance;
- charging unavailability for performance;
- trending key parameters for condition monitoring;
- ensuring 10 CFR 50.65(a)(1) or (a)(2) classification or re-classification; and verifying appropriate performance criteria for structures and systems, and
- components (SSCs)/functions classified as (a)(2) or appropriate and adequate goals and correction actions for systems classified as (a)(1)

The inspectors assessed performance issues with respect to the reliability, availability, and condition monitoring of the system. In addition, the inspectors verified that maintenance effectiveness issues were entered into the corrective action program with the appropriate significance characterization.

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors reviewed the licensee's evaluation and management of plant risk for the three maintenance and emergent work activities affecting risk-significant equipment listed below to verify that the appropriate risk assessments were performed prior to removing equipment for work:

- Cycling of off-site power circuit breakers during week of October 18, 2010;
- Unit 1 surveillance testing including procedure 0MST-RHR 26Q, Residual Heat Removal (RHR) and Core Spray Low Reactor Pressure Permissive Trip Unit Channel Calibration, on October 27, 2010; and
- Unit 2 reactor building crane hoist motor #2 failure effect on the weekly maintenance schedule the week of November 1, 2010.

These activities were selected based on their potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that risk assessments were performed as required by 10 CFR 50.65(a)(4) and were accurate and complete. When emergent work was performed, the inspectors verified that the plant risk was promptly reassessed and managed. The inspectors reviewed the scope of maintenance work, discussed the results of the assessment with the licensee's probabilistic risk analyst or shift technical advisor, and verified plant conditions were consistent with the risk assessment. The inspectors also reviewed TS requirements and walked down portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

b. Findings

No findings were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the following four issues:

- EDG #4 kW loading limited during monthly run (NCR 426371);
- Unit 2 RCIC low oil level in turbine sump (NCR 425649);
- Unit 2 reactor building crane main hoist motor failure during fuel lift (NCR 430911); and
- Augmented Off-Gas piping with reduced wall thickness (NCR 433259).

The inspectors selected these potential operability issues based on the risk-significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure that TS operability was properly justified and the subject component or system remained available such that no unrecognized increase in

risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the TS and UFSAR to the licensee's evaluations, to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. Additionally, the inspectors also reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations.

b. Findings

No findings were identified.

1R19 Post Maintenance Testing

a. Inspection Scope

The inspectors reviewed the following five post-maintenance activities to verify that procedures and test activities were adequate to ensure system operability and functional capability:

- 0PT12.2C, EDG #3 Monthly Load Test after maintenance on October 6, 2010;
- 0PT10.1.1, Unit 1 RCIC System Operability Test after maintenance on October 14, 2010;
- 1PT-24.1-1, Service Water Pump and Discharge Valve Operability Test, 1A conventional service water after strainer maintenance on October 19, 2010;
- 2OP-37.1, Reactor Building Heating and Ventilation System Operating Procedure after maintenance on the Unit 2 south RHR room cooler on October 29, 2010; and
- 0PT-09.2, Unit 1 HPCI System Operability Test, after maintenance on November 5, 2010.

These activities were selected based upon the structure, system, or component's ability to impact risk. The inspectors evaluated these activities for the following: the effect of testing on the plant had been adequately addressed; testing was adequate for the maintenance performed; acceptance criteria were clear and demonstrated operational readiness; test instrumentation was appropriate; tests were performed as written in accordance with properly reviewed and approved procedures; equipment was returned to its operational status following testing, and test documentation was properly evaluated. The inspectors evaluated the activities against TS and the UFSAR to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with post-maintenance tests to determine whether the licensee was identifying problems and entering them in its corrective action program and that the problems were being corrected commensurate with their importance to safety.

b. Findings

No findings were identified.

1R22 Surveillance Testing

.1 Routine Surveillance Testing

a. Inspection Scope

The inspectors either observed surveillance tests or reviewed the test results for the following three activities to verify the tests met TS surveillance requirements, UFSAR commitments, in-service testing requirements, 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 12.8.1, Breaker Alignment Operability Test for EDG #3, on October 5, 2010;
- 0PM-TRB507, Unit 2 HPCI Operational Inspection on October 6, 2010; and
- 2MST-HPCI28R, Unit 2 HPCI Reactor High Water Level Channel Calibration and Functional Test, on October 6, 2010.

b. Findings

No findings were identified.

.2 In-Service Testing (IST) Surveillance

a. Inspection Scope

The inspectors reviewed the performance of 0PT-08.1.4B, RHR Service Water System Operability Test – Loop B, (Unit 2) on October 27, 2010 to evaluate the effectiveness of the licensee's American Society of Mechanical Engineers (ASME) Section XI testing program for determining 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.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification

.1 Mitigating Systems Cornerstone

a. Inspection Scope

To verify the accuracy of the PI data reported to the NRC, the inspectors compared the licensee's basis in reporting each data element listed below to the PI definitions and guidance contained in Nuclear Energy Institute (NEI) Document 99-02, Regulatory Assessment Indicator Guideline.

- Mitigating Systems Performance Index, Heat Removal System (RCIC), Units 1 and 2
- Mitigating Systems Performance Index, High Pressure Injection System (HPCI), Units 1 and 2

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index (MSPI) performance indicators listed above for the period from the fourth quarter of 2009 through the third quarter of 2010. The inspectors reviewed the licensee's operator narrative logs, issue reports, MSPI derivation reports, event reports and NRC Integrated Inspection reports for the period to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified.

b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems

.1 Routine Review of items Entered Into the Corrective Action Program

a. Inspection Scope

To aid in the identification of repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed frequent screenings of items entered into the licensee's corrective action program. The review was accomplished by reviewing daily action request reports.

b. Findings

No findings were identified.

.2 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 inspectors' review was focused on repetitive equipment issues, but also considered the results of daily inspector CAP item screening discussed in Section 4OA2.1 above, licensee trending efforts, and licensee human performance results. The inspectors' review nominally considered the six-month period of July 1, 2010, through December 31, 2010, although some examples expanded beyond those dates where the scope of the trend warranted.

Inspectors also reviewed major equipment problem lists, repetitive and rework maintenance lists, departmental problem/challenges lists, system health reports, quality assurance audit/surveillance reports, self assessment reports, and Maintenance Rule assessments. The inspectors compared and contrasted their results with the results contained in the licensee's CAP trending reports. Corrective actions associated with a sample of the issues identified in the licensee's trending reports were reviewed for adequacy.

b. Assessments and Observations

No findings were identified. Trends noted by the inspectors' were previously identified by the licensee and addressed in the licensee's corrective action program.

.3 Annual Sample: Review of Operator Workarounds (OWAs)

a. Inspection Scope

The inspectors evaluated the licensee's implementation of their process used to identify, document, track, and resolve operational challenges. Inspection activities included, but were not limited to, a review of the cumulative effects of the OWAs on system availability and the potential for improper operation of the system, for potential impacts on multiple systems, and on the ability of operators to respond to plant transients or accidents. The inspectors performed a review of the cumulative effects of OWAs. The documents listed in the attachment were reviewed to accomplish the objectives of the inspection procedure. The inspectors reviewed both current and historical operational challenge records to determine whether the licensee was identifying operator challenges at an appropriate threshold, had entered them into their corrective action program, and had proposed or implemented appropriate and timely corrective actions which addressed each issue. Reviews were conducted to determine if any operator challenge could increase the possibility of an Initiating Event, if the challenge was contrary to training, required a change from long-standing operational practices, or created the potential for inappropriate compensatory actions. Daily plant and equipment status logs, degraded instrument logs, and operator aids or tools being used to compensate for material

deficiencies were also assessed to identify any potential sources of unidentified operator workaround.

b. Findings

No findings were identified.

4OA3 Follow-up of Events and Notices of Enforcement Discretion

.1 Review of Voluntary Notification of an Onsite Spill of Radioactive Material

a. Inspection Scope

On December 10, 2010, the licensee submitted a non-emergency report (number 46473) to the NRC in accordance with 10 CFR Part 50.72(b)(2)(xi) due to the voluntary notification of other government agencies regarding an onsite spill of radioactive material. The voluntary notification was made to state and local officials in accordance with the industry's Groundwater Protection Initiative (NEI 07-07). The report described the discovery of groundwater intrusion into the diesel generator building on December 9, 2010, and the subsequent detection of high tritium contamination levels (1.37×10^7 pCi/L) in the in-leaking water. The source of the tritium was identified as the make-up line from the U1 Condensate Storage Tank to the main condenser, which developed an underground leak near the diesel generator building. The licensee has taken corrective action, including termination of water flow through the pipe, re-routing of contaminated in-leakage to the permitted release point, excavation of a portion of the soil around the suspected leak location, and entering the event into the decommissioning file as required by 10 CFR Part 50.75(g). The inspectors reviewed the details surrounding the event and discussed the issue with licensee staff. The inspectors noted that the leak was contained within the owner-controlled area and is not expected to migrate to the offsite environs. The inspectors also noted that the licensee has a series of monitoring wells capable of tracking any movement of the contaminated groundwater plume. The NRC has designated groundwater contamination as an "issue of agency-wide concern" and has implemented requirements to document the review of voluntary reports concerning spills and leaks.

b. Findings

No findings were identified.

.2 (Closed) LER 05000325,324/2010-004-00, Emergency Diesel Generator Inoperable for Greater than Technical Specification Completion Time

Inspectors reviewed LER 05000325,324/2010-004-00, which described an event that occurred on September 12, 2010 when Emergency Diesel Generator (EDG) #4 experienced excessive brush sparking during the performance of a surveillance test. Although the surveillance test was completed satisfactorily, the brush sparking led to abnormal brush wear. The licensee later determined that the EDG #4 brush wear rate

was so high that the EDG would not be able to run for its designed mission time if needed. The EDG #4 was last ran on August 15, 2010 with no abnormal brush sparking. The cause of the September 12, 2010 sparking was untimely implementation of corrective actions for a known condition (brush sparking caused by corrosion on the EDG collector rings). The EDG #4 collector ring corrosion condition was estimated to have existed as early as 14.25 days (one half of the interval since the last successful surveillance) before the September 12, 2010 sparking. Therefore, EDG #4 was assumed to have been inoperable for longer than its allowed TS out of service time (TS 3.8.1). The licensee's immediate corrective actions included cleaning the collector rings to remove corrosion and changing their maintenance procedures to require collector ring cleaning based on visual inspections. Long term corrective actions include replacing the collector rings with a material less susceptible to corrosion. This TS violation is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and it adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding required a phase three significance analysis because, using a t/2 approximation for the length of time that EDG #4 was inoperable, EDG #4 was inoperable for greater than its TS allowed out of service time of seven days. A regional Senior Reactor Analyst performed a risk analysis for the condition. The risk analysis inputs of the relatively short exposure time and the licensee's estimate of the EDG's ability to run at least six hours prior to failure, along with a model update to reflect changes in the loss of offsite power statistics, resulted in a result that was less than 1E-6. The finding is Green. This finding involved a licensee-identified violation of TS 3.8.1. The enforcement aspects of the violation are discussed in Section 4OA7 of this report. This LER is closed.

4OA5 Other Activities

.1 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period the inspectors conducted observations of security force personnel and activities to ensure that the activities were consistent with licensee security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours. These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status reviews and inspection activities.

b. Findings

No findings were identified.

.2 Independent Spent Fuel Storage Installation (ISFSI) Inspections (IP 60855.1)

a. Inspection Scope

The inspectors reviewed reported changes made to the licensee's procedures and programs for the ISFSI to verify the changes made were consistent with the license and Certificate of Compliance (CoC), and did not reduce the effectiveness of the program. The inspectors, through direct observation and independent evaluation, verified that cask loading activities were performed in a safe manner and in compliance with approved procedures. Based on direct observation and review of selected records, the inspectors verified the licensee had properly identified each fuel assembly placed in the ISFSI, had recorded the parameters and characteristics of each fuel assembly, and had maintained a record of each as a controlled document. Activities observed include: transport and storage of a cask, loading of spent fuel into a cask, drying and cask seal welding activities, and lifting and rigging the cask from the spent fuel pool. The inspectors reviewed the design limitation for each cask and compared the specified cask loading to the cask's loading limitations. The inspectors verified that limitations for heavy load lifts in and around the spent fuel pool had been incorporated into the licensee's procedures and were being implemented.

b. Findings

No findings were identified.

4OA6 Management Meetings

.1 Exit Meeting Summary

An exit meeting was conducted on December 2, 2010, to discuss the findings of the license operator requalification inspection. The inspectors confirmed that no proprietary information was reviewed during this inspection.

On January 26, 2011 the inspector presented the inspection results to Mr. Michael Annacone, and other members of the licensee staff. The inspectors confirmed that proprietary information was not provided or examined during the inspection period.

4OA7 Licensee-Identified Violations

The following finding of very low significance (Green) was identified by the licensee and is a violation of NRC requirements which meets the criteria of the NRC Enforcement Policy for being dispositioned as an NCV.

TS 3.8.1 requires that the EDGs be operable, or if one EDG is inoperable for greater than seven days, then Unit 1 and Unit 2 are required to be placed in mode 3 within the next 12 hours, and mode 4 within the next 36 hours. Contrary to these requirements, on September 12, 2010, EDG #4 was found to have excessive brush sparking. This excessive brush sparking rendered the EDG inoperable. Since EDG #4 was last ran on

August 15, 2010, using the t/2 approximation for inoperability time, EDG #4 was inoperable for greater than allowed by TS 3.8.1 with Units 1 and 2 in mode 1. Upon discovery, the licensee cleaned the collector rings and corrected the brush sparking. Longer term corrective actions include replacing the collector rings with a material less susceptible corrosion. The issue was entered into the licensee's corrective action program as AR #421264. This finding is of very low significance because the risk analysis inputs of the relatively short exposure time and the licensee's estimate of the EDG's ability to run at least six hours prior to failure, along with a model update to reflect changes in the loss of offsite power statistics, resulted in a result that was less than 1E-6. The finding is Green.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel
M. Annacone, Site Vice President
L. Beller, Superintendent, Operations Training
W. Brewer, Manager – Maintenance
A. Brittain, Manager – Security
J. Burke, Manager – Outage and Scheduling
B. Davis, Director – Engineering
C. Dunsmore, Manager – Shift Operations
C. George, Manager – Technical Support Engineering
K. Gerald, Superintendent – Mechanical Maintenance
S. Gordy, Manager – Operations
L. Grzeck, Lead Engineer - Technical Support
R. Ivey, Manager – Nuclear Oversight Services
W. Jefferson, Director – Site Operations
F. Jefferson, Manager – Systems Engineering
J. Johnson, Manager – Environmental and Radiological Controls
M. Millinor, Sr. Chemistry Specialist
P. Mentel, Manager - Support Services
R. Mullis, Supervisor – Operations Training
W. Murray, Licensing Specialist
D. Petrusic, Superintendent – Environmental and Chemistry
A. Pope, Supervisor – Licensing and Regulatory Affairs
T. Sherrill, Engineer - Technical Support
P. Smith, Superintendent – Electrical, Instrumentation, and Controls Maintenance
J. Titrington, Superintendent – Design Engineering
M. Turkal, Lead Engineer - Technical Support
J. Vincelli, Superintendent – Radiation Protection
M. Williams, Manager - Training
E. Wills, Plant General Manager

NRC Personnel

Randall A. Musser, Chief, Reactor Projects Branch 4, Division of Reactor Projects Region II

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Closed

05000324,325/2010-04-00	LER	Emergency Diesel Generator Inoperable for Greater than Technical Specification Completion Time (Section 4OA3.2)

Attachment

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

0AOP-13.0, Operation during Hurricane, Flood Conditions, Tornado, or Earthquake
0A1-68, Brunswick Nuclear Plant Response to Severe Weather Warnings
0PEP-02.1, Initial Emergency Actions
0PEP-02.6, Severe Weather
0O1-01.03, Non-Routine Activities
0PM-HT001, Preventative Maintenance on Plant Freeze Protection and Heat Tracing System

Section 1R04: Equipment Alignment

Drawing D-02529, sheets 1 and 2, Piping Diagram for Reactor Building Reactor Core Isolation Cooling System Unit 2
Drawing D-02523, sheets 1 and 2, Piping Diagram for Reactor Building High Pressure Coolant Injection System Unit 2
Drawing D-25037, sheets 1 and 2, drawing D-02537, sheets 1 and 2, Piping Diagram for Service Water System Units 1 and 2
2OP-16, Reactor Core Isolation Cooling System Operating Procedure
2OP-19, High Pressure Coolant Injection System Operating Procedure
1OP-43, Service Water System Operating Procedure
2OP-43, Service Water System Operating Procedure
1OP-10, Standby Gas Treatment System Operating Procedure

Section 1R05: Fire Protection

0PFP-PBAA, Power Block Auxiliary Areas Prefire Plans SW, RW, AOG, TY, EY
0PFP-013, General Fire Plan
1PFP-RB, Reactor Building Prefire Plans Unit 1
2PFP-RB, Reactor Building Prefire Plans Unit 2
0OP-41, Fire Protection and Well Water System
0PT-34.11.2.0, Portable Fire Extinguisher Inspection

Section 1R11: Licensed Operator Requalification

0TPP, Licensed Operator Continuing Training Program
TRN-NGGC-0014, NRC Initial Licensed Operator Exam Development and Administration
1EOP-01-LPC, Level/Power Control
0PEP-2.1.1, Emergency Control – Notification of Unusual Event, Alert, Site Area Emergency, or General Emergency
0PEP-02.1, Initial Emergency Actions
SI-216.1, Brunswick Simulator Instruction Regulatory Testing, Rev. 19
OTPP-206, Simulator Program, Rev. 4
TAP-403, Conduct of Examinations, Rev. 13
TAP-411, Continuing Training Annual/Biennial Exam Development, Administration and Security, Rev. 12
0OI-01.05, License Activation and Maintenance, Rev. 16

TRN-NGGC-002, Performance Review and Remedial Training, Rev. 0
TRN-NGGC-0420, Conduct of Simulator Training and Evaluation, Rev 0

Written Examinations Reviewed

All 2008/2009, Biennial Written Examinations (5 Reactor Operator/5 Senior Reactor Operator)

Simulator Documents

TAP-409, Conduct of Simulator Training
TAP-412, Simulator Operations and Maintenance, Rev. 4

Simulator Tests

STP-RP-001, Simulator Repeatability Test Rev. 1
STP-RT-001, Simulator Real Time Test, Rev. 9
STP-SS-002, 50% Power Steady State Comparison Test Rev. 10
STP-SS-003, 75% Power Steady State Comparison Test Rev. 10
STP-SS-004, 100% Power Steady State Comparison Test Rev. 11

Transient Tests (2010)

Simulator Tests Procedures:

STP-TN-001, Manual Scram, Rev. 2
STP-TN-002, Simultaneous Trip of all Feedwater Pumps Rev. 2
STP-TN-003, Simultaneous Closure of all MSIVs, Rev. 2
STP-TN-008, Design Basis LOCA in conjunction with a Loss of Off-site Power, Rev 5

Scenario Based Tests (SBTs)

LORX 0206, Rev 0, Inoperable PCIV, LOCA
LORX 0203, Rev 0, Rod Drift, SBLOCA
LORX 0207, Rev 0, SW Radiation monitor failure, SRV stuck open, ATWS
LORX 0202, Rev 0, Recirculation Loop Transmitter failure, SBLOCA

Job Performance Measures (JPMs)

LOT-SIM-JP-26.0-01, Main Turbine Shutdown with PCB Failure, Rev. 1
LOT-SIM-JP-003-A06, RPS Manual Scram Test 0PT-01.1.7, Rev. 3
LOT-OJT-JP-307-A03, Determine SRM/IRM Overlap per GP-02, Rev 1
SOT-OJT-JP-201-B01, Safety Function Determination - Suppression Pool Cooling, Rev 1
AOT-OJT-JP-VFD-4, Shutdown VFD-FPC-I/O-UPS B, Rev. 1
AOT-OJT-JP-303-12, Dual Unit Station Blackout: Energizing 2B-1/2B-2 Battery Chargers with SAMA Diesels, Rev. 0

Simulator Scenarios

LORX 0206, Rev 0, Inoperable PCIV, Low Grid Instability, Loss of Off-Site Power, DG #4 Auto Start Failure, DG# 3 Control Power Fuses Blow, Recirculation Line Break in the Drywell, ECCS Logic Failures.

LORX 0207, Rev 0, Service Water Radiation Monitor Failure, Stuck Open Relief Valve, ATWS

Other

Pre-NRC 71111.11 Self-Assessment 378421, Licensed Operator Retraining Self Assessment 8/30/2010, through 9/2/2010
NCR 419975 - Improper overlap on a Biennial Requalification remedial examination
Apparent Cause Evaluation Report for NCR 419975

Reactivation Records (5)
Medical Records (16)
Completed License Activation/Reactivation Forms, dated 1/2007 – 6/2008

Feedback Comments from Licensed Operator Requalification Summaries 2009, thru 2010
Remedial Training Plans-Written Exam Failures (6)
Proficiency Records for three active staff SROs; 2008-2010

Section 1R12: Maintenance Effectiveness

ADM-NGGC-0101, Maintenance Rule Program
NUMARC 93-01, Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants
ADM-NGGC-0203, Preventive Maintenance and Surveillance Testing Administration
EGR-NGGC-0351, Condition Monitoring of Structures
ADM-NGGC-0203, Preventive Maintenance and Surveillance test Administration

Section 1R13: Maintenance Risk Assessment and Emergent Work Control

ADM-NGCC-0104, Work Management Process
0AI-144, Risk Management
ADM-NGGC-0006, Online EOOS Model

Section 1R15: Operability Evaluations

OPS-NGGC-1305, Operability Determinations
OPS-NGGC-1307, Operational Decision Making

Section 1R19: Post Maintenance Testing

0PLP-20, Post Maintenance Testing Program
0PT12.2C, EDG #3 Monthly Load Test

0PT10.1.1, Unit 1RCIC System Operability Test
1PT-24.1-1, Service Water Pump and Discharge Valve Operability Test
2OP-37.1, Reactor Building Heating and Ventilation System Operating Procedure
0PT-09.2, Unit 1 HPCI System Operability Test

Section 4OA1: Performance Indicator Verification

Procedures
REG-NGGC-0009, NRC Performance Indicators and Monthly Operating Report Data

Records and Data
Monthly PI Reports, Fourth quarter of 2009 through the third quarter of 2010.

Section 4OA3: Event Follow-up

NCR 437924, Tritium Observed in DG Basement Leak
NCR 437478, Water Leaking from Electrical Junction Box (Condensate Storage Tank Line Leak)