



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

July 30, 2009

Mr. Benjamin C. Waldrep
Vice President
Carolina Power and Light Company
Brunswick Steam Electric Plant
P. O. Box 10429
Southport, NC 28461

**SUBJECT: BRUNSWICK STEAM ELECTRIC PLANT - NRC INTEGRATED
INSPECTION REPORT NOS.: 05000325/2009003 AND
05000324/2009003**

Dear Mr. Waldrep:

On June 30, 2009, the US 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 July 16, 2009, with Mr. Ben Waldrep 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.

This report documents one self-revealing finding of very low safety significance (Green). This finding was determined to involve violations of NRC requirements. However, because of the very low safety significance and because it is entered into your corrective action program, the NRC is treating this finding as a non-cited violation (NCV) consistent with Section VI.A.1 of the NRC's Enforcement Policy. If you contest any NCV, 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 addition, if you disagree with the characterization of any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region II, and the NRC Resident Inspector at the Brunswick Steam Electric Plant. The information you provide will be considered in accordance with the Inspection Manual Chapter 0305.

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 Web site 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, 324/2009003
w/Attachment: Supplemental Information

cc w/encl: (See page 3)

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DATE	0729/2009	07/29/2009	07/29/2009	07/30/2009	0729/2009	07/29/2009	07/30/2009
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Letter to Benjamin C. Waldrep from Randall A. Musser dated July 30, 2009

SUBJECT: BRUNSWICK STEAM ELECTRIC PLANT - NRC INTEGRATED
INSPECTION REPORT NOS.: 05000325/2009003 AND
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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.: 05000325/2009003, 05000324/2009003
Licensee: Carolina Power and Light (CP&L)
Facility: Brunswick Steam Electric Plant, Units 1 & 2
Location: 8470 River Road, SE
Southport, NC 28461
Dates: April 1, 2009 through June 30, 2009
Inspectors: P. O'Bryan, Senior Resident Inspector
G. Kolcum, Resident Inspector
P. Lessard, Resident Inspector, Harris
R. Chou, Reactor Inspector (1R07)
R. Carrion, Senior Reactor Inspector (1R07)
Approved by: Randall A. Musser, Chief
Reactor Projects Branch 4
Division of Reactor Projects

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SUMMARY OF FINDINGS

IR 05000325/2009003, 05000324/2009003; 4/01/2009 – 6/30/2009; Brunswick Steam Electric Plant, Units 1 & 2; Refueling and Other Outage Activities.

This report covers a three-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. One Green non-cited violation (NCV) was identified by the inspectors. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). The cross cutting aspect was determined using IMC 0305, Operating Reactor Assessment Program. Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Initiating Events

- Green. A self-revealing Green NCV of Technical Specification (TS) 5.4.1.a, Administrative Control (Procedures), was identified when the licensee failed to follow plant procedure OPT-80.1, Reactor Pressure Vessel (RPV) ASME Section XI Pressure Test during Unit 2 RPV hydrostatic testing on April 7, 2009. The licensee installed hoses rated for 250 psig although the procedure required hoses rated at 1150 psig. Specifically, when RPV pressure was raised to approximately 1000 psig, the improper hose installed at core spray check valve 2-E21-F006B disconnected from its coupling, causing the RPV to rapidly depressurize to approximately 875 psig and allowing water from the RPV to leak out of the connection into the drywell. The licensee discovered the leak and broken hose connection, isolated the leak, and initiated AR329675 to address this issue.

The finding was determined to be more than minor because the finding was associated with the Initiating Events cornerstone attribute of human performance and affected the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The inspectors determined that the finding should be evaluated in accordance with Attachment 1 of IMC 0609, Appendix G, "Shutdown Operations SDP." The inspectors used Checklist 8 contained in Attachment 1 and determined that the finding did require a phase 2 or phase 3 because the licensee did not meet the appropriate safety function guidelines for inventory control. Specifically, the finding increases the likelihood of a loss of RCS inventory. The regional Senior Reactor Analyst (SRA) determined, after a teleconference with the headquarters SRA with responsibility for Shutdown findings, that the event did not rise to a level that would require a detailed analysis be performed. The event did not meet the threshold for a loss of control as defined by Appendix G. Additional margin was provided by the high elevation of the leak relative to the top of active fuel, and the suction head requirement of the residual heat removal (RHR) system, the small size of the opening in the primary, the low decay heat, and the defense in depth available at the time of the

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event. Based on this, the finding was determined to be of very low safety significance (Green). The finding has a cross-cutting aspect in the Work Practices component of the Human Performance cross cutting area, because the licensee failed to follow plant procedure OPT-80.1, Reactor Pressure Vessel (RPV) ASME Section XI Pressure Test during Unit 2 RPV hydrostatic testing. (H.4(b)). (Section 1R20)

B. Licensee-Identified Violations

None.

REPORT DETAILS

Summary of Plant Status

Unit 1 began the inspection period at rated thermal power. Power was reduced to 70 percent for rod sequence exchange on May 29, 2009, and then returned to rated thermal power on May 31, 2009. Power was reduced to 90 percent for rod improvement on May 31, 2009, and then returned to rated thermal power. Power was reduced to 94 percent for rod improvement on June 1, 2009, and then returned to rated thermal power on June 2, 2009, for the remainder of the inspection period.

Unit 2 began the inspection period shutdown for the planned refueling outage (B219R1). Unit 2 went critical on April 21, 2009. A manual reactor scram was inserted on April 22, 2009, due to leak associated with the 2A recirculation pump seal. Unit 2 went critical on April 27, 2009 after maintenance on the 2A recirculation pump seal. Unit 2 synchronized to the grid on April 29, 2009 and reached rated thermal power on May 1, 2009. Power was reduced to 57 percent on May 23, 2009, for 2A reactor feed pump vibrations and returned to 67 percent power on May 26, 2009. Power was reduced to 44 percent on May 26 for removal of 4A and 5A feed water heaters for maintenance. Power was returned to 67 percent power and remained there until repairs were completed on the 2A reactor feed pump on June 7, 2009. Unit 2 returned to rated thermal power on June 7, 2009. Power was reduced to 92 percent for rod improvement on June 8, 2009, and then returned to rated thermal power. Power was again reduced 91.5 percent for rod improvement on June 8, 2009, and then returned to rated thermal power. Power was reduced to 80 percent due to loss of power to the circulating water ocean discharge pumps on June 24, 2009, and then returned to rated thermal power for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection

.1 Readiness of Offsite and Alternate AC Power Systems

a. Inspection Scope

The inspectors verified that plant features and procedures for operation and continued availability of offsite and alternate alternating current (AC) power systems during adverse weather were appropriate. The inspectors reviewed the licensee's procedures affecting these areas and the communications protocols between the transmission system operator (TSO) and the plant to verify that the appropriate information was being exchanged when issues arose that could impact the offsite power system. Examples of aspects considered in the inspectors' review included:

- The coordination between the TSO and the plant during off-normal or emergency events;

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- The explanations for the events;
- The estimates of when the offsite power system would be returned to a normal state; and
- The notifications from the TSO to the plant when the offsite power system was returned to normal.

The inspectors also verified that plant procedures addressed measures to monitor and maintain availability and reliability of both the offsite AC power system and the onsite alternate AC power system prior to or during adverse weather conditions. Specifically, the inspectors verified that the procedures addressed the following:

- The actions to be taken when notified by the TSO that the post-trip voltage of the offsite power system at the plant would not be acceptable to assure the continued operation of the safety-related loads without transferring to the onsite power supply;
- The compensatory actions identified to be performed if it would not be possible to predict the post-trip voltage at the plant for the current grid conditions;
- A re-assessment of plant risk based on maintenance activities which could affect grid reliability, or the ability of the transmission system to provide offsite power; and
- The communications between the plant and the TSO when changes at the plant could impact the transmission system, or when the capability of the transmission system to provide adequate offsite power was challenged.

Documents reviewed are listed in the Attachment to this report. 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 their corrective action program in accordance with station corrective action procedures.

b. Findings

No findings of significance were identified.

.2 Summer Seasonal Readiness Preparations

a. Inspection Scope

The inspectors reviewed the licensee's preparations for selected systems for severe weather conditions prior to hurricane season and hot 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. Specific documents reviewed during this inspection are listed in the Attachment. The inspectors also reviewed corrective action program items to verify that the licensee was identifying

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adverse weather issues at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action procedures. The inspectors' reviews focused specifically on the following plant systems:

- Emergency Diesel Generators
- Service Water

b. Findings

No findings of significance were identified.

.3 Readiness For Impending Adverse Weather Condition

a. Inspection Scope

On April 6, 2009, a tornado warning was issued for the plant area, and inspectors reviewed the licensee's overall preparations/protection for impending adverse weather conditions. The inspectors walked down areas of the plant susceptible to high winds, including the licensee's emergency alternating current (AC) power systems. The inspectors evaluated the licensee staff's preparations against the site's procedures and determined that the staff's actions were adequate. During the inspection, the inspectors focused on plant-specific design features and the licensee's procedures used to respond to specified adverse weather conditions. The inspectors also toured the plant grounds to look for any loose debris that could become missiles during a tornado. The inspectors evaluated operator staffing and accessibility of controls and indications for those systems required to control the plant. 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. Specific documents reviewed during this inspection are listed in the attachment.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

.1 Quarterly Partial System Walkdowns

a. Inspection Scope

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

- EDGs #1, 2, 3, and 4 air start lineup on April 6, 2009
- 2A residual heat removal train while the 2B residual heat removal train was inoperable for testing on April 19, 2009

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- 2A1 battery charger with the 2A2 battery charger out of service for maintenance on May 21, 2009.

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, Updated Final Safety Analysis Report (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 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. Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

.2 Semi-Annual Complete System Walkdown

a. Inspection Scope

During the week of June 8, 2009, the inspectors performed a complete system alignment inspection of Unit 1 and Unit 2 High Pressure Coolant Injection System to verify the functional capability of the system. This system was selected because it was considered both safety-significant and risk-significant in the licensee's probabilistic risk assessment. A Review of Operating Experience Smart Sample: OpESS FY2009-02," Negative Trend and Recurring Events Involving Feedwater Systems" was performed. The inspectors walked down the system to review mechanical and electrical equipment line-ups, electrical power availability, system pressure and temperature indications, as appropriate, component labeling, component lubrication, component and equipment cooling, hangers and supports, operability of support systems, and to ensure that ancillary equipment or debris did not interfere with equipment operation. A review of a sample of past and outstanding work orders (WOs) was performed to determine whether any deficiencies significantly affected the system function. In addition, the inspectors reviewed the corrective action program (CAP) database to ensure that system equipment alignment problems were being identified and appropriately resolved. The documents used for the walkdown and issue review are listed in the attachment.

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b. Findings

No findings of significance were identified.

1R05 Fire Protection

.1 Quarterly Resident Inspector Tours

a. Inspection Scope

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

- Diesel Generator Cell 1 23' Elevation 1PFP-DG-5
- Diesel Generator Cell 2 23' Elevation 1PFP-DG-4
- Diesel Generator Cell 3 23' Elevation 2PFP-DG-3
- Diesel Generator Cell 4 23' Elevation 2PFP-DG-2
- Service Water Building 20' Elevation 0PFP-SW-1a
- Battery Room 2A 23' Elevation 2PFP-CB-9

The inspectors reviewed 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 of significance were identified.

1R06 Flood Protection Measures

a. Inspection Scope

The inspectors reviewed selected risk-important plant design features and licensee procedures intended to protect the plant and its safety-related equipment from internal
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flooding events. The inspectors reviewed flood analyses and design documents, including the UFSAR, engineering calculations, and abnormal operating procedures (AOPs), for licensee commitments. The specific documents reviewed are listed in the attachment. In addition, the inspectors reviewed licensee drawings to identify areas and equipment that may be affected by internal flooding caused by the failure or misalignment of nearby sources of water, such as the fire suppression or the circulating water systems. The inspectors walked down the Radwaste Building, 23' elevation, after a leak was discovered in the 1B fuel pool cooling filter cubicle on April 8, 2009, to assess the adequacy of watertight doors and verify drains and sumps were clear of debris and were operable, and that the licensee complied with its commitments.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (Triennial Review)

a. Inspection Scope

The inspectors reviewed inspection records, test results, maintenance work orders, and other documentation associated with risk-significant heat exchangers (HXs) and heat sinks, including components such as outlet piping and the outlet canal, to ensure that deficiencies that could mask or degrade performance were identified and corrected. Risk-significant heat exchangers or coolers reviewed included the Residual Heat Removal (RHR) 1A Heat Exchanger, the RHR 2B Pump Motor Cooler, and the Emergency Diesel Generator (EDG) #1 Jacket Water Cooler.

The inspectors reviewed the licensee's Generic Letter (GL) 89-13 Program procedure, inspection and cleaning procedures, completed inspection and cleaning records and results, and design specification sheets for the selected safety-related HXs and coolers, the intake structure, and the outlet canal and the outlet pumping station. Currently, the licensee uses an inspection and cleaning program instead of thermal testing for the heat exchanger and heat sink performance check.

The inspectors also reviewed general health of the Service Water (SW) and Circulating Water (CW) systems via review of design basis documents, system health reports, self-assessments, sodium hypochlorite treatment and sampling documents, and discussions with system engineers. These documents were reviewed to verify that the design bases were being maintained and to verify adequate SW and CW system performance under the current licensee's regimen of preventive maintenance, which includes chemical treatment, inspection, physical cleaning, and proceduralized frequencies (which vary due to conditions).

In addition, the inspectors conducted a walkdown of HXs, coolers, CW and SW piping systems and pumps, the chemical treatment station, the intake and diversion structures (observing maintenance and repair activities for the diversion structure), intake and outlet canals, the outlet pumping station, and other major components to assess general

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material condition and to identify any degraded conditions of the components. The inspectors also observed the flow, pressure, and temperature measurements for the thermal efficiency calculation of EDG #1 Jacket Water Cooler.

Corrective action reports such as Nuclear Condition Reports (NCRs) and Action Requests (ARs) were reviewed for potential common cause problems and problems which could affect system performance, to confirm that the licensee was entering problems into the corrective action program and initiating appropriate corrective actions.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Regualification Program

a. Inspection Scope

On June 3, 2009, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator regualification 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 of significance were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

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

- Failure of the pressure reducing valve, 2-DSA-PRV-1689, on EDG #1 on April 8, 2009
- Failure of EDG #4 to start during testing on April 10, 2009

The inspectors reviewed events where ineffective equipment maintenance has resulted in 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, systems, and components (SSCs)/functions classified as (a)(2) or appropriate and adequate goals and corrective 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 maintenance effectiveness issues were entered into the corrective action program with the appropriate significance characterization. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance 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 five 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:

- EDG #4 testing with plant in Yellow risk on April 8, 2009.
- Comprehensive review of the maintenance planned and conducted during the Unit 2 refueling outage during the week of April 26, 2009.
- Battery charger 2A2 and the 2A nuclear service water pump out of service on May 21, 2009.
- EDG #1 and the 2A main feed pump out of service on June 2, 2009.
- Unit 1 condensate storage tank returned to service and realignment of HPCI and RCIC suction during week of June 15, 2009.

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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 of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the following issues:

- EDG #1 degraded air start header on April 5, 2009
- EDG #3 with degraded four-day storage tank level indication on April 7, 2009
- Past operability of emergency diesel generator #4 with degraded control oil boost discovered on April 10, 2009
- 2B RHRSW pump was found with low oil level on April 23, 2009
- Past operability of 1A standby liquid control train after discovery of a leaking accumulator test connection on May 7, 2009
- Diesel Generator service water discharge line out of round on June 8, 2009

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 Technical Specifications (TS) and Updated Final Safety Analysis Report (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. Documents reviewed are listed in the attachment.

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b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing

a. Inspection Scope

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

- 0PT-24.4, Service Water System Valve Operability Test after Unit 2 CSW (conventional service water) pump seal leakage maintenance on April 4, 2009
- 0SMP-LOG005, Diesel Generator Jet Assist Logic Test on EDG #3 after maintenance on the auxiliary switch functions of the RHR pump and EDG output breakers on April 4, 2009
- 0PT-15.4A, Secondary Containment Isolation Operability Test on April 4, 2009 after secondary containment maintenance
- 0PT-12.2C, No. 3 Diesel Generator Monthly Load Test on April 5, 2009 after maintenance on the starting air distributor
- 0PT-07.2.4A, Unit 2 Core Spray System Operability Test – Loop A on April 5, 2009 after maintenance on room cooler only
- 0PT-12.2A, No. 1 Diesel Generator Monthly Load Test on April 9, 2009 after maintenance on the diesel engine starting air tank pressure-reducing valve
- 0PT-80.1, Unit 2 Reactor Pressure Vessel ASME Section XI Pressure Test on April 9, 2009
- 0PT-12.2D, No. 4 Diesel Generator Monthly Load Test on April 10, 2009 after maintenance on the fuel rack limit cylinder and mechanical governor

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 the corrective action program and that the problems were being corrected commensurate with their importance to safety. Documents reviewed are listed in the attachment.

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b. Findings

No findings of significance were identified.

1R20 Outage Activities.1 Refueling Outage Activitiesa. Inspection Scope

Unit 2 continued in a refueling outage at the beginning of the inspection period. During this inspection period, the inspectors monitored licensee controls over the outage activities listed below. Documents reviewed during the inspection are listed in the attachment.

- Licensee configuration management, including maintenance of defense-in-depth commensurate with the OSP for key safety functions and compliance with the applicable TS when taking equipment out of service
- Installation and configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indications, accounting for instrument error
- Controls over the status and configuration of electrical systems to ensure that TS and outage safety plan requirements were met, and controls over switchyard activities
- Monitoring of decay heat removal processes, systems, and components
- Controls to ensure that outage work was not impacting the ability of the operators to operate the spent fuel pool cooling system
- Reactor water inventory controls including flow paths, configurations, and alternative means for inventory addition, and controls to prevent inventory loss
- Controls over activities that could affect reactivity
- Maintenance of secondary containment as required by TS
- Refueling activities, including fuel handling and sipping to detect fuel assembly leakage
- Startup and ascension to full power operation, tracking of startup prerequisites, walkdown of the drywell (primary containment) to verify that debris had not been left which could block emergency core cooling system suction strainers, and reactor physics testing
- Licensee identification and resolution of problems related to refueling outage activities

b. Findings

Failure to Follow Plant Procedures During Performance of a Reactor Pressure Vessel Hydrostatic Test

Introduction. A self revealing Green NCV of TS 5.4.1.a, Administrative Control (Procedures), was identified when the licensee failed to follow plant procedure OPT-80.1, Reactor Pressure Vessel (RPV) ASME Section XI Pressure Test during Unit 2 RPV

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hydrostatic testing on April 7, 2009. The licensee installed hoses rated for 250 psig although the procedure required hoses rated at 1150 psig. Specifically, when RPV pressure was raised to approximately 1000 psig, the improper hose installed at core spray check valve 2-E21-F006B disconnected from its coupling, causing the RPV to rapidly depressurize to approximately 875 psig and allowing water from the RPV to leak out of the connection into the drywell.

Description. On April 7, 2009, Unit 2 was in Mode 4 during refueling outage 2B19R1. During preparations for performing procedure OPT-80.1, Reactor Pressure Vessel (RPV) ASME Section XI Pressure Test, hoses were installed around the core spray system injection line check valves. These hoses are installed around the check valves in order to pressurize portions of the core spray system upstream of the check valves during the test. OPT-80.1 specifies that RPV pressure be between 1050 psig and 1070 psig, and that the hoses used to bypass the core spray system injection line check valves be rated for at least 1150 psig. However, the hoses installed around the check valves were only rated to 250 psig. These hoses were used because they were stored in a bag that was labeled "CS Jumper OPT-80.1/20.7B," and licensee personnel assumed they were the correct hoses without verification of the hoses' pressure ratings. After RPV pressure was raised to 1045 psig, personnel in the drywell noted water coming from the upper level of the drywell (the exact amount of water was not quantified, but the drywell sump filled and approximately one inch of water accumulated on the lowest drywell level floor). Control room operators also noted a rapid drop in RPV pressure. Upon investigation, licensee personnel in the drywell discovered the broken hose connection, and isolated the leak.

Analysis. The inspectors determined that the failure to follow the requirements of procedure OPT-80.1, Reactor Pressure Vessel (RPV) ASME Section XI Pressure Test, was a performance deficiency. The finding was determined to be more than minor because the finding was associated with the Initiating Events cornerstone attribute of human performance and affected the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, when RPV pressure was raised to approximately 1000 psig, the improper hose installed at core spray check valve 2-E21-F006B disconnected from its coupling, causing the RPV to rapidly depressurize to approximately 875 psig and allowing water from the RPV to leak out of the connection into the drywell. The inspectors determined that the finding should be evaluated in accordance with Attachment 1 of IMC 0609, Appendix G, "Shutdown Operations SDP." The inspectors used Checklist 8 contained in Attachment 1 and determined that the finding did require a phase 2 or phase 3 because the licensee did not meet the appropriate safety function guidelines for inventory control. Specifically, the finding increases the likelihood of a loss of RCS inventory. The regional Senior Reactor Analyst (SRA) determined, after a teleconference with the headquarters SRA with responsibility for Shutdown findings, that the event did not rise to a level that would require a detailed analysis be performed. The event did not meet the threshold for a loss of control as defined by Appendix G. Additional margin was provided by the high elevation of the leak relative to the top of active fuel, and the suction head requirement of the residual heat removal (RHR) system, the small size of the opening in the primary, the low decay heat,

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and the defense in depth available at the time of the event. Based on this, the finding was determined to be of very low safety significance (Green).

The finding has a cross-cutting aspect in the Work Practices component of the Human Performance cross cutting area, because the licensee failed to follow plant procedure OPT-80.1, Reactor Pressure Vessel (RPV) ASME Section XI Pressure Test during Unit 2 RPV hydrostatic testing. (H.4(b)).

Enforcement. Technical Specification Section 5.4.1.a, Administrative Control (Procedures), states, in part, that written procedures shall be established, implemented, and maintained, covering applicable procedures recommended in Regulatory Guide 1.33, Appendix A, November 1972 (Safety Guide 33, November 1972). Section I.1 of Regulatory Guide 1.33, Appendix A, November 1972, (Safety Guide 33, November 1972) states, in part, that maintenance that can affect the performance of safety-related equipment should be properly planned and performed in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances. The licensee established OPT-80.1, Reactor Pressure Vessel (RPV) ASME Section XI, Pressure Test, as the implementing procedure for the hydrostatic test.

Contrary to the above, on April 7, 2009, the licensee failed to follow procedure OPT-80.1, Reactor Pressure Vessel (RPV) ASME Section XI Pressure Test. Step 5.1.1 requires installation of hoses with a pressure rating of at least 1150 psig. Specifically, the licensee installed hoses rated at 250 psig, instead of the required hoses. As a result of this maintenance error, the RPV depressurized and RPV water leaked into the drywell. The licensee discovered the leak and broken hose connection, isolated the leak, and initiated AR329675 to address this issue. Because this violation was of very low safety significance and it was entered into the licensee's CAP (AR 329675), this violation is being treated as an NCV, consistent with the NRC Enforcement Policy. This violation is therefore designated as NCV 05000324/2009003-01, Failure to Follow Plant Procedures During Performance of a Reactor Pressure Vessel Hydrostatic Test.

1R22 Surveillance Testing

.1 Routine Surveillance Testing

a. Inspection Scope

The inspectors either observed surveillance tests or reviewed the test results for the following four activities to verify the tests met TS surveillance requirements, UFSAR commitments, inservice 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.

- 2MST-SW12Q, Service Water Diesel Generator Cooling Water Supply Low Pressure Functional Test for EDG #3 on April 4, 2009
- 0MST-DG13R, DG-3 Loading Test on April 5, 2009

- OPT12.18L, Unit Substation E7 Local Control Operability Test on April 6, 2009
- OPT-13.1, Unit 1 Reactor Recirculation Jet Pump Operability on April 7, 2009

b. Findings

No findings of significance were identified.

.2 Inservice Testing (IST) Surveillance

a. Inspection Scope

The inspectors reviewed the performance of OPT-10.1.1, RCIC System Operability Test on June 24, 2009, 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 of significance were identified.

.3 Reactor Coolant System Leak Detection Inspection Surveillance

a. Inspection Scope

The inspectors observed and reviewed the test results for a reactor coolant system leak detection surveillance, OPT-80.1, Reactor Pressure Vessel ASME Section XXI Pressure Test on April 8, 2009. The inspectors observed plant activities and reviewed procedures and associated records to determine whether: effects of the testing were adequately addressed by control room personnel or engineers prior to the commencement of the testing; acceptance criteria were clearly stated, demonstrated operational readiness, and were consistent with the system design basis; plant equipment calibration was correct, accurate, and properly documented; and the calibration frequency were in accordance with TSs, the UFSAR, procedures, and applicable commitments; applicable prerequisites described in the test procedures were satisfied; test frequencies met TS requirements to demonstrate operability and reliability; tests were performed in accordance with the test procedures and other applicable procedures; test data and results were accurate, complete, within limits, and valid; equipment was returned to a position or status required to support the performance of its safety functions; and all problems identified during the testing were appropriately documented and dispositioned in the corrective action program. Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

1EP6 Emergency Planning Drill Evaluation

a. Inspection Scope

The inspectors observed two site emergency preparedness training drill/simulator scenarios conducted on June 9 and June 24, 2009. The inspectors reviewed the drill scenario narrative to identify the timing and location of classifications, notifications, and protective action recommendations development activities. During the drill, the inspectors assessed the adequacy of event classification and notification activities. The inspectors observed portions of the licensee's post-drill. The inspectors verified that the licensee properly evaluated the drill's performance with respect to performance indicators and assessed drill performance with respect to drill objectives.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification

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 to the PI definitions and guidance contained in Nuclear Energy Institute (NEI) Document 99-02, Regulatory Assessment Indicator Guideline.

Mitigating Systems Cornerstone

- Mitigating Systems Performance Index, Emergency AC Power
- Mitigating Systems Performance Index, Cooling Water Systems

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index performance indicators listed above for the period from the second quarter of 2008 through the first quarter of 2009. 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 reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified

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with the PI data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the Appendix to this report.

- Safety System Functional Failures

The inspectors reviewed licensee submittals for the Safety System Functional Failures performance indicator for the period from the second quarter of 2008 through the first quarter of 2009. The inspectors reviewed the licensee's operator narrative logs, operability assessments, maintenance rule records, maintenance work orders, issue reports, event reports and NRC Integrated Inspection reports for the period to validate the accuracy of the submittals. Specific documents reviewed are described in the Appendix to this report.

- b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems

- .1 Routine Review of Items Entered Into the Corrective Action Program

- a. 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 of significance were identified.

- .2 Semi-Annual Trend Review

- a. 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 January 2009 through June 2009, although some examples expanded beyond those dates where the scope of the trend warranted.

The review also included issues documented outside the normal CAP in major equipment problem lists, repetitive and/or rework maintenance lists, departmental problem/challenges lists, system health reports, quality assurance audit/surveillance

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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. Assessment and Observations

No findings of significance were identified. The inspectors noted a trend in procedure adherence and the work management process. In particular, adverse effects had been identified on system performance. This was exemplified by the following identified issues:

- Improper loosening of RPV reference leg connection, NCR# 322354
- Unit 2 interruption of Shutdown Cooling due to maintenance, NCR# 327475
- Rx Hydro core spray check valve high pressure test jumper failure, NCR# 329677
- Work accomplished with inadequate documentation, NCR# 330266
- Improperly performed procedure step during 0MST-PCIS41R, NCR# 331004

The inspectors concluded that while the licensee has been providing additional focus and training to this area, more attention and follow-up is needed.

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 of significance were identified.

4OA6 Management Meetings

.1 Exit Meeting Summary

On July 16, 2009 the inspector presented the inspection results to Mr. Ben Waldrep and other members of the licensee staff. The inspectors confirmed that proprietary information was not provided or examined during the inspection period.

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An exit meeting for the Heat Sink inspection was conducted on June 5, 2009 with licensee management.

ATTACHMENT: SUPPLEMENTAL INFORMATION

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SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

M. Annacone, Director Site Operations
G. Atkinson, Supervisor – Licensing and Regulatory Affairs
L. Beller, Superintendent, Operations Training
M. Blew, Engineering
B. Brewer, Manager- Maintenance
A. Brittain, Manager – Security
B. Davis, Manager – Engineering
P. Dubrouillet, Supervisor – Plant Support Group
S. Gordy, Manager - Operations
L. Grzeck, Lead Engineer - Technical Support
K. Hamm, Intake and Circulating Water System Engineer
E. Harkcom, Service Water System Engineer
S. Howard, Manager – Outage and Scheduling
R. Ivey, Manager – Nuclear Oversight Section
J. Johnson, Manager – Environmental and Radiological Controls
S. Larson, ISI Coordinator
P. Mentel, Manager – Nuclear Support Services
W. Murray, Licensing Specialist
A. Pope, Manager - Station Recovery
T. Sherrill, Engineer - Technical Support
G. Spry, Welding Engineer
J. Titington, Superintendent – Design Engineering
M. Turkal, Lead Engineer - Technical Support
J. Vincelli, Superintendent - Environmental and Radiological Controls
B. Waldrep, Site Vice President
M. Williams, Manager - Training Manager
E. Wills, Plant General Manager
B. Wilton, Engineering

NRC Personnel

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

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000324/2009003-01	NCV	Failure to Follow Plant Procedures During Performance of a Reactor Pressure Vessel Hydrostatic Test (Section 1R20)
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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

Section 1R04: Equipment Alignment

0OP-50.1, Diesel Generator Emergency Power System Operating Procedure
Drawing D-02265, sheets 1A and 1B, drawing D-02266, sheets 2A and 2B, Piping Diagram for Diesel Generators Starting Air System Units 1 and 2
Drawing D-02268, sheets 1A and 1B, drawing D-02269, sheets 2A and 2B, Piping Diagram for Diesel Generators Fuel Oil System Units 1 and 2
Drawing D-02270, sheets 1A and 1B, drawing D-02271, sheets 2A and 2B, Piping Diagram for Diesel Generators Lube Oil to Lube Oil System Units 1 and 2
Drawing D-02272, sheets 1A and 1B, drawing D-02273, sheets 2A and 2B, Piping Diagram for Diesel Generators Jacket Water System Units 1 and 2
Drawing D-02272, sheets 1A and 1B, drawing D-02273, sheets 2A and 2B, Piping Diagram for Diesel Generators Jacket Water System Units 1 and 2
Drawing D-02274, sheets 1 and 2, Piping Diagram for Diesel Generators Service and Demineralized Water System Units 1 and 2
1OP-16, Reactor Core Isolation Cooling System Operating Procedure
2OP-16, Reactor Core Isolation Cooling System Operating Procedure
1OP-19, High Pressure Cooling Injection System Operating Procedure
2OP-19, High Pressure Cooling Injection System Operating Procedure

Section 1R05: Fire Protection

0PFP-CB, Control Building Prefire Plans
0PFP-DG, Diesel Generator Building Prefire Plans
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
1PFP-TB, Turbine Building Prefire Plans Unit 1
2PFP-RB, Reactor Building Prefire Plans Unit 2
2PFP-TB, Turbine Building Prefire Plans Unit 2
0OP-41, Fire Protection and Well Water System
0PFP-MBPA, Miscellaneous Buildings Pre-Fire Plans – Protected Area
0PT-34.11.2.0, Portable Fire Extinguisher Inspection

Section 1R07: Heat Sink Performance

Procedures

EGR-NGGC-0008, Rev. 3, Engineering Program
OPM-ACU 500, Rev. 7, Inspection and Cleaning of the RHR/CORE Spray Room Aero-fin Cooler Air Filters and Coolers EPEG 02-04, Rev. 0, Service Water Reliability – Generic Letter 89-13 Program
TG-ESG 507B, Rev. 0, Cooling Water Reliability GL 89-13 Program Manager Training Guide

OENP-303, Rev. 7, RHR and Core Spray Room Cooler Performance
 OENP-2704, Rev. 17, Administrative Control of NRC Generic Letter 89-13 Requirements
 OPM-STU 501, Rev. 11, Circulating Water Intake Structure Silt Removal
 Administrative Instruction (OAI)-81, Rev. 51, Water Chemistry Guidelines
 OAI-82, Rev. 3, Closed Cooling Water Chemistry Guidelines
 OAI-146, Rev. 1, Plant Response to Degraded Conditions at the Intake Structure
 Environmental and Radiation Control (OE&RC)-3295, Rev. 22, Canal Monitoring
 OPM-STU500, Rev. 18, Service Water Intake Structure Inspection and Cleaning

Calculations

OSW-0097, Rev. 0, RHR and Core Spray Room Cooler Performance
 OSW-0096, Rev. 0, Calculation for Tube Plugging of Service Water Safety Related Heat Exchangers
 G0050A-04, Rev. 1, Design Basis Heat Loads from Vital Heat Exchangers
 G0050A-16, Rev. 1, Service Water Single Failure Analysis

Corrective Action Documents – Nonconforming Report (NCR) or Action Reports (ARs)

NCR 249130, the Differential Pressure across the RHR 1A Heat Exchanger Was Measured at 200 Inches of Water
 NCR 224737, A Significant Growth of Oyster Shells and Barnacles was Observed on the 24” Header That Supplies Conventional Service Water to the “A” Loop RHR SW Vital Header
 Action Request (AR) 00247053, Shells in 1A RHR Room Cooler & Inlet Piping
 AR 00271611, Adverse Trend in BNP Service Water Performance
 *AR 00339272, Inadequate Equation Use for Calculating Heat Exchanger Efficiency
 AR 00315056, Incorporate Inspection of Concrete Surfaces and Enhance the Structural Inspection of the CW Intake Structure

*Documents created as a direct result of this inspection.

Other

Work Order (WO) 1121279 for Procedure OENP-2704, Service Water Safety Related Heat Exchanger Cleaning/Inspection Data Sheet for 1A RHR Heat Exchanger, Dated April 5, 2008
 WO 1121279-07, Ultrasonic Examination (UT) Inspection on Flange on RHR 1A Heat Exchanger, Dated February 15, 2008
 WO 1130955-01, Drain and Clean Tubes on RHR 1A Heat Exchanger, Dated October 4, 2007
 WO 737124 (Procedure OENP-2704), Service Water Safety Related Heat Exchanger Cleaning/Inspection Data Sheet for 2B RHR SW Pump Motor Cooler, Dated February 21, 2007
 WO 1318238-1 (Procedure OENP-2704), Service Water Safety Related Heat Exchanger Cleaning/Inspection Data Sheet for 2B RHR SW Pump Motor Cooler, Dated April 11, 2008
 WO 1318238, Boroscope the #1 EDG Jacket Water Cooler, Dated April 11, 2008
 System Health Report for System #4060, Service Water
 Chlorine Residual Rate Measurements – Sample points, Analysis, and Sample dates from March 1 to May 31, 2009
 NGG Program Health Report for Cooling Water Reliability (89-13), Dated January 8, 2009
 Service Water Trash Rack Monthly Inspection and Cleaning in March, April, and May, 2009

Bi-Weekly Diversion Structure Inspection for Service Water Intake in March, April, and May, 2009
 WO 01360507, Monthly Units Circulating Water Intake Trash Rack Inspection Cleaning, May 2009
 WO 00973437, Yearly Unit 2 SW and SCW Pump Bay Silt and Biofouling Inspection and Cleaning, February 2008
 Service Water Safety Related Heat Exchanger Cleaning/Inspection Data Sheet for EDG #1 Jacket Water Cooler Flow Test, June 4, 2009
 Flow Test Results for RHR 2B Heat Exchanger Dated April 8, 2007
 Preliminary Eddy Current Inspection Report for Unit 2 Residual Heat Removal (RHR) Heat Exchanger (Hx) 2B, dated March 9, 2009
 Control Chart for differential pressure (Δ P) across the 1A RHR Hx since Spring 2002
 Control Chart for Δ temperature (T) across the # 2 Emergency Diesel Generator HX since Spring 2008
 Cooling Water System (89-13) Health Report, dated January 8, 2009
 Cooling Water System (89-13) Health Report, dated July 24, 2008
 WO 00647095-09, Perform HX Flow Test on the 2-MUD-JKT-WTR-CLR-1

Section 1R11: Licensed Operator Regualification

OTPP, Licensed Operator Continuing Training Program
 TRN-NGGC-0014, NRC Initial Licensed Operator Exam Development and Administration
 1EOP-01-LPC, Level/Power Control
 OPEP-2.1.1, Emergency Control – Notification of Unusual Event, Alert, Site Area Emergency, or General Emergency
 OPEP-02.1, Initial Emergency Actions

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
 0AP-022, BNP Outage Risk Management
 NCR #329679, 2-DSA-PRV-1689 Failed Pmt
 NRC #330193, Unexpected Trip of EDG#4

Section 1R13: Maintenance Risk Assessment and Emergent Work Control

0AP-022, BNP Outage Risk Management
 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
NCR# 329545, EDG # 3 four day tank level indication

Section 1R18: Plant Modifications

EGR-NGGC-0005, Engineering Change
EGR-NGGC-0011, Engineering Product Quality
0SMP-MO003, Soft Electrical Backseating of AC Motor Operated Valves Using the Motor Operator

Section 1R19: Post Maintenance Testing

0PLP-20, Post Maintenance Testing Program

Section 1R20: Outage Activities

1OP17, Residual Heat Removal System Operating Procedure
0GP-01, Prestartup Checklist
0GP-02, Approach to Criticality and Pressurization of the Reactor
0GP-03, Unit Startup and Synchronization
0GP-12, Power Changes
0SMP-RPV502, Reactor Vessel Reassembly
0MMM-015, Operation and Inspection of Cranes and Material Handling Equipment

Section 4OA1: Performance Indicator Verification

Procedures

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

Records and Data

Monthly PI Reports, September 2007 – August 2008