



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

April 25, 2008

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.: 05000325/2008002 AND 05000324/2008002**

Dear Mr. Waldrep:

On March 31, 2008, 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 April 11 and 25, 2008, with you and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the results of this inspection, no findings of significance were identified. However, one licensee-identified violation, which was determined to be of very low safety significance, is listed in the report. The NRC is treating this finding as a non-cited violation (NCV), in accordance with Section VI.A.1 of the NRC's Enforcement Policy. If you contest this non-cited violation, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Brunswick Steam Electric Plant.

In accordance with 10 CFR 2.390 of the NRC's Rules of Practice, a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

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, 324/2008002
w/Attachment: Supplemental Information

cc w/encl: (See page 3)

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Report to Ben Waldrep from Randall A. Musser dated April 25, 2008.

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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.: 05000325/2008002 and 05000324/2008002

Licensee: Carolina Power and Light (CP&L)

Facility: Brunswick Steam Electric Plant, Units 1 & 2

Location: 8470 River Road SE
Southport, NC 28461

Dates: January 1, 2008 through March 31, 2008

Inspectors: J. Austin, Senior Resident Inspector
G. Kolcum, Resident Inspector
H. Gepford, Senior Health Physicist
(Sections 2OS1, 2PS1, 4OA1, and 4OA7)
J. Fuller, Senior Construction Inspector (Section IR08)

Approved by: Randall A. Musser, Chief
Reactor Projects Branch 4
Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000324/2008002, 0500325/2008002; 01/01/2008 - 03/31/2008; Brunswick Nuclear Plant Unit 1 and Unit 2; Routine Baseline Inspection Report.

This report covered a 3-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IAC) 0609, "Significance Determination Process" (SDP). The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC-Identified and Self-Revealing Findings

None

B. Licensee-Identified Findings

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

REPORT DETAILS

Summary of Plant Status

Unit 1

Unit 1 began the inspection period operating at 100 percent power. Power was reduced to approximately 84 percent on January 6, 2008 to perform a control rod improvement. Power was returned to 100 percent later that day. On January 16, power was reduced to approximately 94.5 percent for a final feedwater temperature adjustment and end-of-life coast-down. On January 26, power was reduced to approximately 67 percent for turbine valve testing, and on January 27, power was restored to 94.5 percent. On March 14, a power reduction was commenced in preparation for a refueling outage. On March 15, Unit 1 was shut down for refueling and remained in that condition through the end of the report period.

Unit 2

Unit 2 began the inspection period operating at 100 percent power. On January 25, 2008 power was reduced to approximately 64.9 percent for turbine valve testing. Full power was restored on January 16. On January 26, power was reduced to approximately 64.9 percent for a control rod sequence exchange, followed by power ascension to 100 percent later that day. On January 28 power was reduced to 97 percent to perform a control rod improvement and later that day 100 percent power was restored. On February 24 power was reduced to 98 percent for a single rod scram. Power was restored to 100 percent later that day. On March 3 power was reduced to 76 percent to remove the 4A/5A feedwater heater. On March 4 power was reduced from 76 percent to 20 percent to affect feedwater heater repair. On March 6 the generator was synchronized to the grid, followed by power ascension to 90 percent. On March 8 power was reduced from 90 percent to 80 percent to perform a control rod improvement. Power ascension to 100 percent occurred later that day, and the unit remained at rated power for the remainder of the report period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R04 Equipment Alignment

.1 Partial System Walkdowns

a. Inspection Scope

The inspectors performed three partial walkdowns of the systems listed below to verify that the systems were correctly aligned while the redundant train or system was inoperable or out-of-service (OOS) or, for single train risk significant systems, while the system was available in a standby condition. The inspectors assessed conditions such as equipment alignment (i.e., valve positions, damper positions, and breaker alignment)

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and system operational readiness (i.e., control power and permissive status) that could affect operability. The inspectors verified that the licensee identified and resolved equipment alignment problems that could cause initiating events or impact mitigating system availability. The inspectors reviewed Administrative Procedure ADM-NGGC-0106, Configuration Management Program Implementation, to verify that available structures, systems or components (SSCs) met the requirements of the configuration control program. Documents reviewed are listed in the Attachment.

- U1 Reactor Core Isolation Cooling (RCIC) when U1 High Pressure Coolant Injection (HPCI) OOS on January 28, 2008 for snubber low oil level
- Emergency Diesel Generators #1, #2, #4 when EDG #3 OOS on January 30, 2008 for 2-SW-V208 valve position indication
- U1 RCIC when U1 HPCI OOS on February 29, 2008 for main thrust pump bearing temperature indication

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

- AR 264066, Diesel generator #3 SW temperature differential increase
- AR 268230, U1 HPCI main pump thrust bearing temperature indication
- AR 253766, Snubber 1E41-61SS99 found with fluid level below zero mark
- AR 264962, Diesel Generator SW valve position indication

b. Findings

No findings of significance were identified.

.2 Detailed Equipment Alignment

a. Inspection Scope

The inspectors performed a complete walkdown of the accessible portions of the Unit 2 reactor core isolation cooling system the week of February 25, 2008. The inspectors focused on verifying adequate material condition and correct system alignment. The inspectors reviewed the Technical Specifications (TS), operating procedures, and the Updated Final Safety Analysis Report. The inspectors held discussions with the applicable plant personnel to review system status including a review of open system modifications and temporary modifications. The inspectors reviewed open work requests for the system, operator work-arounds, and open adverse conditions or ARs to ensure that the impact on equipment functionality was properly evaluated. The inspectors reviewed the documents listed in the Attachment.

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

- AR 261680, OPT-11.4 test data not collected due to recorder failure
- AR 271465, RCIC turbine rotor run out slightly out of specification

- AR 271608, Moisture level high in Unit 1 RCIC inboard bearing oil sump

b. Findings

No findings of significance were identified.

1R05 Fire Protection

.1 Fire Area Walkdowns

a. Inspection Scope

The inspectors reviewed ARs and work orders (WOs) associated with the fire suppression system to confirm that their disposition was in accordance with Administrative Procedure 0AP-033, Fire Protection Program Manual. The inspectors reviewed the status of ongoing surveillance activities to verify that they were current to support the operability of the fire protection system. In addition, the inspectors observed the fire suppression and detection equipment to determine whether any conditions or deficiencies existed which would impair the operability of that equipment. The inspectors toured the following six areas important to reactor safety and reviewed the associated prefire plans to verify that the requirements for fire protection design features, fire area boundaries, and combustible loading were met. The inspectors reviewed Plant Operating Manual, Volume XIX, Prefire Plan 1/2 PFP-RB Reactor Building Prefire Plans in preparing for the inspection.

- Unit 1 and 2 residual heat removal room – 17' elevation (2 areas)
- Unit 1 and 2 high pressure coolant injection room – 17' elevation (2 areas)
- Unit 1 and 2 reactor core isolation cooling room – 17' elevation (2 areas)

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures

.1 Internal Flooding

a. Inspection Scope

The inspectors performed a walkdown of the Unit 1 and Unit 2 core spray and RHR rooms to verify that internal flood protection features were consistent with the licensee's internal flooding analysis as described in UFSAR Section 3.4.2, Protection From Internal Flooding. The inspectors reviewed the effects of postulated piping failures for the area to verify that analysis assumptions and conclusions were based on the current plant configuration. The internal flooding design features and equipment for coping with internal flooding were also inspected. The walkdown included sources of flooding and drainage, sump pumps, level switches, watertight doors, curbs, pedestals and equipment mounting. The inspectors reviewed the procedures for coping with internal flooding.

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

AR 207091, 2C RHR pump seal cooler SW leak

b. Findings

No findings of significance were identified.

1R08 Inservice Inspection Activities

.1 Inservice Inspection (ISI)

a. Inspection Scope

The inspectors observed and reviewed the implementation of the licensee's ISI program for monitoring degradation of the reactor coolant system boundary and the risk significant piping system boundaries for Brunswick Unit 1 during the spring 2008 outage. The inspectors selected a sample of American Society of Mechanical Engineers (ASME), Boiler and Pressure Vessel Code, Section XI required examinations in order of risk priority as identified in Section 71111.08-03 of inspection procedure 71111.08, "Inservice Inspection Activities," based upon the ISI activities available for review during the onsite inspection period. The inspectors also reviewed a sample of inspection activities associated with components that are outside the scope of ASME Section XI requirements, which are performed in accordance with commitments to follow industry guidance documents, such as the Boiling Water Reactor Vessel and Internals Project (BWRVIP).

The inspectors conducted an on-site review of nondestructive examination (NDE) activities to evaluate the licensee's compliance with TS; ASME Section XI, and Section V, 1989 edition for Class 1, 2, and 3 systems; and BWRVIP documents for the inspection of reactor vessel internals. For Brunswick Unit 1, this was the last outage of the third period of the third interval. The inspectors verified that indications and defects were appropriately evaluated and dispositioned in accordance with the applicable requirements of the ASME Section XI Code, and the BWRVIP documents.

Specifically, the inspectors observed the following examinations:

Automatic Ultrasonic Testing (UT):

- Reactor Pressure Vessel (RPV) Outside Diameter (OD) Shell Examination (Weld 1B11-RPV-E4A)

Manual UT:

- 1B11N9-RPV-FW1CRD274, Dissimilar Metal Weld (DMW) Control Rod Drive (CRD) Discharge (N9) Nozzle to Pipe Cap Weld, ASME Class 1

In-Vessel Visual Inspection:

- Steam Dryer Supports (VT-3); SDSB @ 214 degrees

Specifically, the inspectors reviewed the following examination records:

Radiographic Examination:

- 1B11N9-RPV-FW1CRD274, Dissimilar Metal Weld (DMW) Control Rod Drive (CRD) Discharge (N9) Nozzle to Pipe Cap Weld

Liquid Penetrant Testing (PT):

- 1-SW-5410, Service Water, New elbow to Existing Weldolet, ASME Section III Class 3
- 1-SW-5409, Service Water, New elbow to New Flange, ASME Section III Class 3

Specifically, the inspectors reviewed the following examination records that contained indications that were evaluated and accepted for continued service:

- 1B11N9-RPV-FW1CRD274, Dissimilar Metal Weld (DMW) Control Rod Drive (CRD) Discharge (N9) Nozzle to Pipe Cap Weld
- Relevant Indication Notification Number W-08-01, Steam Dryer Lifting Eye (LE-35); BWRVIP Examination
- Relevant Indication Notification Number W-06-09, P3C-270; BWRVIP Examination
- Relevant Indication Notification Number W-06-10, Feedwater "A" Sparger @ 45 degrees – Flow Hole 45-16; BWRVIP Examination

Qualification and certification records for examiners, inspection equipment, and consumables along with the applicable NDE procedures for the above examination activities were reviewed and compared to requirements stated in ASME Section V, ASME Section XI, BWRVIP documents, and other industry standards.

The inspectors reviewed welding activities associated with WO 688920 task 3 and task 7. The associated ASME Class 3 piping welds were fabricated to replace a service water elbow. The inspectors reviewed the welding procedures, applicable procedure qualification records, welder performance qualification test records, and the in-process welding process control sheets for compliance to ASME Section IX requirements. Additionally, the inspectors reviewed the surface examination results. The following welds were reviewed by the inspectors:

- 1-SW-5410, Service Water, New elbow to Existing Weldolet, ASME Section III Class 3
- 1-SW-5409, Service Water, New elbow to New Flange, ASME Section III Class 3

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The inspectors completed a review of ISI related problems that were identified by the licensee and entered into the corrective action program. The inspectors reviewed these corrective action documents to confirm that the licensee had appropriately described the scope of the problems, and had implemented appropriate corrective actions. The inspectors' review included confirmation that the licensee had an adequate threshold for identifying issues. Through interviews with licensee staff and review of corrective action documents, the inspectors evaluated the licensee's threshold for identifying lessons learned from industry issues related to ASME Section XI.

The inspectors performed these reviews to ensure compliance with 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," requirements.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Regualification

.1 Quarterly Review

a. Inspection Scope

The inspectors observed licensed operator performance and reviewed the associated training documents during simulator evaluated scenarios for training cycle 2008-01. The simulator observations and review included evaluations of emergency operating procedure and abnormal operating procedure utilization. The inspectors reviewed Procedure 0TPP-200, Licensed Operator Continuing Training Program, to verify that the program ensures safe power plant operation. On February 12, 2008, simulator sessions were observed on anticipated and unanticipated plant transients during power maneuvers such as feedwater control instrumentation failures, plant startup, reactor pressurization and second feed pump startup. The inspectors reviewed operator activities to verify consistent clarity and formality of communication, conservative decision-making by the crew, appropriate use of procedures, and proper alarm response. Group dynamics and supervisory oversight, including the ability to properly identify and implement appropriate TS actions, regulatory reports, and notifications, were observed. The inspectors observed instructor critiques and preliminary grading of the operating crews and assessed whether appropriate feedback was planned to be provided to the licensed operators.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectivenessa. Inspection Scope

For the three equipment issues described in the ARs listed below, the inspectors reviewed the licensee's implementation of the Maintenance Rule (10 CFR 50.65) with respect to the characterization of failures, the appropriateness of the associated Maintenance Rule a(1) or a(2) classification, and the appropriateness of the associated a(1) goals and corrective actions. The inspectors reviewed the work controls and work practices associated with the degraded performance or condition to verify that they were appropriate and did not contribute to the issue. The inspectors also reviewed operations logs and licensee event reports to verify unavailability times of components and systems, if applicable. Licensee performance was evaluated against the requirements of Procedure ADM-NGGC-0101, Maintenance Rule Program.

- AR 267091 Unit 2, 2C Residual Heat Removal pump seal cooler service water leak, after the pump seal was replaced (February 21, 2008)
- AR 266222 Unit 2, 2D Service Air Compressor leak following maintenance (February 14, 2008)
- AR 266250 Unit 1, RCIC Keepfill pressure control valve (1-E51-PCV-3006) not adequately maintaining pressure (February 14, 2008)

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Controla. Inspection Scope

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

- AR 254511, Unit 2 degraded flow through (2-SW-V208) DG #3 jacket water heat exchanger valve on January 30, 2008 (emergent)
- AR 267764, Unit 2 DG #3 air pressure regulating valve failure, caused extended inoperability and availability on February 26, 2008 (emergent)
- AR 267379, Severe accident management guideline Diesel (2-SAMG Diesel) inoperability. The EDG did not develop the required power (KWH) during the scheduled surveillance test on February 23, 2008 (emergent)

- AR 265889, Unit 1 reactor water cleanup return flow indicated 50gpm while pump was OOS, potential impact to the core thermal power calculation on February 12, 2008 (emergent)
- AR 268701, Unplanned Unit 2 power reduction on March 3, 2008, due to steam leak on high pressure feedwater heater (emergent)
- Unit 1 Risk condition yellow while the 1A and 1B NSW pumps were under clearance for scheduled bay cleaning

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

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

- AR 267091, 2C RHR pump seal cooler service water leak
- AR 267227, Loose wires found on 1A Nuclear Service Water (NSW) pump BKR (1-E1-AF9-52) on February 21, 2008
- AR 267229, EDG equipment hatch found not sealed properly on February 21, 2008
- AR 266093, Torus Vacuum Breaker loss of closed indication on February 12, 2008
- AR 266250, Unit 1 RCIC keepfill pressure control valve
- AR 260155, Vital Service Water Header Alignment differences (i.e., valve lineups) between Unit 1 and Unit 2
- AR 267562, Suppression pool temperature monitoring system (SPTMS)
- AR 267398, Control Rod 26-27 Failed to Insert Using CRD

b. Findings

While reviewing the SPTMS, the inspectors noted that the licensee performs the channel calibration of the complete Suppression Chamber Water Temperature instrumentation loop, including the sensors in two steps. Surveillance Requirement 3.3.3.1.3 requires the licensee to perform channel calibration for each required Post Accident Monitoring (PAM) Instrumentation channel, every twenty-four months. The licensee performs the required calibration in accordance with 0MST-AMI27R and 28R, "AMI Div 1 (and II) Suppression

Pool Temp Monitor Cal” which is an electronic calibration and functional test of the SPTMS microprocessor, recorders and associated input/output based on substitution of M&TE signals in place of the normal resistance temperature detectors (RTDs) inputs. This test does not address the RTDs themselves or the associated cables and connectors. The balance of the calibration is performed in accordance with 1OI-03.1 and 2OI-03.2, “Control Operator Daily Surveillance Report.” The daily surveillance is a channel check that identifies RTDs that misbehave in a “non-gross” manner (e.g., drift high or low without reaching the automated gross failure limit). The inspectors are reviewing this methodology of calibration to ensure that the entire loop has a calibration check performed every twenty-four months and that the channel responds to measured parameter changes with the required range and accuracy. As a result of inspectors’ questions, the licensee initiated AR 267562. Information associated with the validity of this type of calibration is still under review. Pending further NRC review of additional information provided by the licensee, this issue will be identified as URI 05000325,324/2008002-01, Review Adequacy of Suppression Pool Temperature Monitoring System Calibration Relative to SR 3.3.3.1.3 Channel Calibration.

1R19 Post-Maintenance Testing

a. Inspection Scope

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

- WR 323660 #2 SAMG diesel did not produce the required KW load
- OPT-08.2.2c, LPCI/RHR system operability test for proper stroke of 2-E11-F006A and F006C
- WO 579868 2C RHR pump cooler leakage repair
- WO 1175051 RCIC keepfill valve 1-E51-PCV-3006 disassemble/reassemble
- WO 1288472 Unit 2 reactor building ventilation differential pressure loop reading downscale
- WO 1303308 EDG #3 right starting air header pressure controlling high

b. Findings

No findings of significance were identified.

1R20 Refueling and Other Outage Activities

Unit 1 Refueling Outage B117R1

a. Inspection Scope

The inspectors evaluated Unit 1 Refueling Outage (RFO) B117R1 activities which commenced on March 15, 2008. Documents reviewed are listed in the Attachment. The following specific areas were reviewed:

Outage Plan. The inspectors reviewed Brunswick Nuclear Plant Unit 1 Safe Shutdown Risk Assessment for RFO B117R1. The inspectors verified that the licensee had considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured maintenance of defense-in-depth. The inspectors' review of this report was compared to the requirements in Procedure OAP-022, BNP Outage Risk Management. The review verified that for identified high risk significant conditions, contingency measures were identified. The inspectors frequently monitored the risk condition during the outage.

Shutdown and Cooldown. The inspectors observed portions of the Unit 1 shutdown to enter the outage to verify that activities were in accordance with General Procedure OGP-5.0, Unit Shutdown. The inspectors verified that the licensee monitored cooldown restrictions by performing 1PT-01.7, Heatup/Cooldown Monitoring, to assure that TS cooldown restrictions were satisfied.

Licensee Control of Outage Activities. The inspectors observed and reviewed several specific activities, evolutions, and plan conditions to verify that the licensee maintained defense-in-depth commensurate with the outage risk control plan. The inspectors reviewed configuration changes due to emergent work and unexpected conditions were controlled in accordance with the outage risk control plan. The inspectors reviewed the following specific items, as specified:

- Decay Heat Removal, Spent Fuel Pool Cooling, and Reactor Coolant System Instrumentation. The inspectors reviewed decay heat removal procedures and observed decay heat removal systems' parameters to verify the proper removal of decay heat and that the reactor vessel level instruments were configured to provide accurate indication. The inspectors also walked down main control room panels and portions of the systems in the plant to verify system availability. The inspectors reviewed operational logs to verify that procedure and TS requirements to monitor and record reactor coolant temperature were met.
- Reactivity Control. The inspectors observed licensee performance during shutdown, outage and refueling activities to verify that reactivity control was conducted in accordance with procedures and TS requirements. The inspectors conducted a review of outage activities and risk profiles to verify activities that could cause reactivity control problems were identified.

- Inventory Control and Containment Closure. The inspectors observed operator monitoring and control of reactor temperature and level profiles and monitored outage work and configuration control for activities that had the potential to drain the reactor vessel. This was performed to verify that they were performed in accordance with the outage risk plan. The inspectors verified that the licensee maintained secondary containment in accordance with TS.
- Electrical Power. The inspectors reviewed the following licensee activities related to electrical power during the refueling outage to verify that they were in accordance with the outage risk plan:
 - Controls over electrical power system and components to sure emergency power was available as specified in the outage risk report
 - Controls and monitoring of electrical power systems and components and work activities in the power transmission yard
 - Operator monitoring of electrical power systems and outages to ensure that TS requirements were met

Refueling Activities. The inspectors reviewed refueling activities to verify fuel handling operations were performed in accordance with TS and that fuel handling procedures and controls were in place to track fuel movement. The inspectors reviewed refueling floor and plant controls to verify that the foreign material exclusion controls were established.

Identification and Resolution. The inspectors reviewed ARs to verify that the licensee was identifying problems related to refueling outage activities at an appropriate threshold and entering them in the corrective action program. The inspectors attended AR review meetings throughout the refueling outage to verify appropriate prioritization of planned resolution of deficiencies discovered during the outage. The inspectors reviewed the following issues identified during the outage to verify that the appropriate corrective actions were implemented:

- AR 271828, Unit 1 SRM 'C' spiking
- AR 271749, Control rod blade moved to storage hanger without move sheet
- AR 271817, Foreign material found in Unit 1 torus
- AR 271827, Trip on 'B' secondary spent fuel pool cooling pump
- AR 271164, Unit 1 SRM/IRM spikes due to APRM testing
- AR 271243, Shells found during Unit 1 B117 RFO NSW inspection
- AR 273110, Tubesheet erosion on the 1A RHR room cooler
- AR 272522, 1A NSW pump abnormal noise
- AR 272454, Unit 1 RPV nozzle N9 indication found during ISI

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing.1 Routine Surveillance Testinga. Inspection Scope

The inspectors either observed surveillance tests or reviewed test data for the six risk significant SSC surveillances, listed below, to verify the tests met TS surveillance requirements, UFSAR commitments, in-service testing (IST) 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.

- Unit 2, OPT-08.2.2b LPCI/RHR System Operability Test - Loop B, on January 24, 2008
- Unit 2, OPT-08.1.6 Suppression Pool Level Indicator Operability, on January 24, 2008
- Unit 2, OSP-07-010 Load Test for SAMG Diesels, on February 8, 2008
- Unit 1, OPT-12.8.1 Breaker Alignment Operability Test, on March 10, 2008
- Unit 2, OPT-10.1.1 RCIC System Operability Test, on March 9, 2008
- Unit 1, OPT-14.1 Control Rod Operability Check, on March 10, 2008

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

- WR 328304, 2-B11-ZS (14-35) dimly backlits when CR 14-35 selected
- WR 324152, 2-C12-CNV-5512 Unit 2 RWM noncritical self-test fault
- WO 1302914, Control rod will not insert at normal or elevated drive press
- WO 1294930, 2-B11-CR(1027) rod drift annunciator comes in for CR10-27
- WR 315700, 2-C12-CNV-5516 caused RTGB alarm
- AR 261823, Intermittent APRM non-critical self test faults
- WR 319788, 2-B11-CR(1027) rod drift annunciator comes in for CR10-27
- AR 263333, Unit 1 HCU 34-27 accumulation needs to be drained frequently
- AR 263551, ODM for Unit 1 CRD HCU 34-27

b. Findings

No findings of significance were identified.

.2 In-Service Surveillance Testinga. Inspection Scope

The inspectors reviewed the performance of Periodic Test OPT-08.1.4b, RHR Service Water System Operability Test, performed on Unit 1 on February 21, 2008. The inspectors evaluated the effectiveness of the licensee's ASME Section XI testing

program to determine equipment availability and reliability. The inspectors evaluated selected portions of the following areas: 1) testing procedures; 2) acceptance criteria; 3) testing methods; 4) compliance with the licensee's IST program, TS, selected licensee commitments, and code requirements; 5) range and accuracy of test instruments; and 6) required corrective actions. The inspectors also assessed any applicable corrective actions taken.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety (OS)

2OS1 Access Control To Radiologically Significant Areas

a. Inspection Scope

Access Controls. The inspectors reviewed and evaluated licensee guidance and its implementation for controlling and monitoring worker access to radiologically significant areas and tasks associated with Unit1 (U1) and Unit 2 (U2) operations and U1 Cycle 17 Refueling Outage (B117R1). The inspectors evaluated changes to, and adequacy of, procedural guidance; directly observed implementation of established administrative and physical radiation controls; appraised radiation worker (radworker) and health physics technician (HPT) knowledge of, and proficiency in, implementing radiation protection (RP) activities; and assessed radworker exposures to radiation and radioactive material.

The inspectors directly observed controls established for radworker and HPT staff in actual or potential airborne radioactivity area, radiation area, high radiation area (HRA), locked high radiation area (LHRA), and very high radiation area (VHRA) locations. Established radiological controls were evaluated for selected B117R1 tasks including shielding, torus diving, fuel sipping, fuel movement, 1A recirc pump motor replacement, drywell sponge blasting, waterbox condenser tube cleaning, and inboard/outboard MSIV work. Postings and physical controls established within the radiologically controlled area for access to the U1 drywell and torus, U1 and U2 reactor building and turbine building locations, and radioactive waste processing and radioactive material storage areas were evaluated directly during facility tours. The inspectors independently measured radiation dose rates during these tours. In addition, the inspectors directly observed conduct of licensee surveys and results of radiation levels, airborne radionuclide concentrations, and/or surface contamination levels for select areas and equipment associated with outage activities including shielding and miscellaneous maintenance activities. Results were compared to current licensee surveys and assessed against established postings and established radiation controls. The inspectors also reviewed select radiological controls and data associated with cavity work during the previous U2 outage (B218R1).

For select tasks, the inspectors attended pre-job briefings and reviewed radiation work permit (RWP) details to assess communication of radiological control requirements to

workers. Radworker adherence to selected RWPs and HPT proficiency in providing job coverage were evaluated through direct observations and interviews with licensee staff. Direct reading dosimeter (DRD) equipment alarm setpoints were evaluated against area radiation survey results for select outage and routine operations activities. Worker exposure as measured by DRD and via licensee evaluations of skin dose were reviewed and assessed.

The inspectors walked down the U1 and U2 spent fuel pool (SFP) areas to determine if appropriate controls were applied to materials and equipment stored in the pools and reactor cavity. The inspectors also reviewed the inventory of items stored in the pools. Controls and their implementation for LHRAs and for storage of irradiated material within the U1 and U2 SFPs were reviewed and discussed in detail.

The inspectors evaluated implementation and effectiveness of licensee controls for both airborne and external radiation exposures. The inspectors reviewed and discussed selected whole-body count analyses conducted between March 20, 2007, and March 20, 2008, to evaluate implementation and effectiveness of personnel monitoring and administrative and physical controls including air sampling, barrier integrity, engineering controls, and postings for tasks having the potential for individual worker internal exposures to exceed 30 millirem committed effective dose equivalent. Effectiveness of external radiation exposure controls were evaluated through review and discussion of individual worker dose as measured by DRD from March 1, 2007, to March 20, 2008, for select non-outage, B218R1, and B117R1 tasks.

RP activities were evaluated against Updated Final Safety Analysis Report (UFSAR), TS, and 10 CFR Parts 19 and 20 requirements. Specific assessment criteria included UFSAR Section 12, Radiation Protection; 10 CFR 19.12; 10 CFR 20, Subparts B, C, F, G, H, and J; TS Sections 5.4, Procedures and 5.7, High Radiation Area; and approved licensee procedures. Licensee guidance documents, records, and data reviewed within this inspection area are listed in Section 2OS1 and 4OA1 of the report Attachment.

Problem Identification and Resolution. The inspectors reviewed and assessed select Nuclear Condition Request (NCR) documents associated with access control to radiologically significant areas. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve the identified issues in accordance with procedure CAP-NGGC-0200, Corrective Action Program, Rev. 19. In addition, the inspectors reviewed self-assessments conducted related to access controls. Specific corrective action program (CAP) documents associated with access control issues, personnel radiation monitoring, and personnel exposure events reviewed and evaluated during inspection of this program area are identified in Sections 2OS1 and 4OA1 of the report Attachment.

The inspectors completed 21 of the required line-item samples described in Inspection Procedure (IP) 71121.01.

b. Findings

No findings of significance were identified.

Cornerstone: Public Radiation Safety (PS)

2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems

a. Inspection Scope

(Closed.) URI 05000325,324/2007003-02, Review Adequacy of Licensee Monitoring and Control of Storm Drain Stabilization Pond Releases to Ensure Doses to Members of the Public are Maintained ALARA.

On June 13, 2007, the licensee reported (Event Notification 43420) that local, county, and state (North Carolina) authorities were notified regarding the identification of groundwater tritium concentrations in shallow onsite monitoring wells which exceeded the established Nuclear Energy Institute voluntary reporting criteria.

During the week of June 18, 2007, inspectors reviewed the licensee's preliminary investigation into the cause, extent, and migration of tritium from the onsite Storm Drain Stabilization Pond (SDSP) to the surrounding environs, its potential impact on both onsite and offsite surface and groundwater environments, and preliminary dose estimates to general members of the public. At that time, an unresolved item was identified regarding the adequacy of licensee surveys (evaluations) required by 10 CFR 20.1501(a) necessary to implement TS 5.5.4, Radioactive Effluent Controls Program, controls used to maintain doses to members of the public from releases of effluents as low as reasonably achievable (ALARA) in accordance with Appendix I to 10 CFR 50 design criteria as specified in 10 CFR 50.36a.

In March 2008, inspectors reviewed NCR 233865 and the licensee's significant adverse condition investigation report addressing the identification of water containing tritium in the area on the west side of the SDSP near the tidal marsh at Nancy's Creek and in other locations outside the SDSP dike area. The inspectors also reviewed environmental sampling results and determined that monthly surface water samples from Nancy's Creek identified either no detectable or background levels of tritium and environmental sampling of fish and invertebrate species in Nancy's Creek have identified no detectable tritium. The inspectors evaluated the licensee's preliminary dose assessments for the inhalation/ingestion pathways from evaporation of tritiated water from the SDSP and for the ingestion pathway from tidal flushing of the contaminated marsh area surrounding the SDSP to the surrounding creeks.

Using conservative assumptions, the licensee determined an upper bound for the ingestion pathway dose to an offsite individual consuming fish and invertebrates resulting from seepage of tritiated water from the SDSP to the tidal marsh. The calculation assumed the maximum measured concentration of tritium in the marsh (weekly sampling from June 2007 through March 2008 had identified activities varying from not detectable to 1.66 E+04 picocuries/liter); two six-hour marsh releases per day; no credit for

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radioactive decay; and no dilution. At the time of the inspection, the licensee was refining the marsh calculation to make the dose assessment more accurate.

The licensee completed the preliminary evaluation of the dose to an offsite individual from evaporation of tritiated water from the SDSP based on monthly evaporation rates from the SDSP, monthly measured SDSP tritium concentrations, and the Offsite Dose Calculation Manual methodology for ground-level gaseous effluent releases from the turbine building. This approach was used because appropriate parameters (e.g. X/Q, D/Q) specific to gaseous effluent releases from the SDSP had not been previously determined. At the time of the March 2008 inspection, the licensee was validating the dose assessment methodology.

The preliminary dose assessments determined that both the seepage (tidal marsh) and the evaporation pathways from the SDSP contributed incremental dose to the public comparable in magnitude to previously assessed liquid and gaseous effluent pathways. In addition, the preliminary assessments were sufficient to demonstrate compliance with the requirement to maintain doses to members of the public from radioactive effluents ALARA as specified in Appendix I to 10 CFR 50 and to demonstrate that the effluent concentration limits in Appendix B to 10 CFR 20 were not exceeded. The licensee's dose assessments will be finalized and included in the 2007 Radioactive Effluent Release Report. The failures to perform assessments for all effluent release pathways associated with the SDSP are discussed in section 4OA7. Based on this information, the URI can be closed.

b. Findings

An unresolved item (URI) was identified regarding the significance of the Storm Drain Stabilization Pond (SDSP) evaporation pathway dose in regard to meeting the requirement of the Offsite Dose Calculation Manual that dose assessments are required to be consistent with the methodology provided in Regulatory Guide 1.109, "Calculating of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR 50, Appendix I." Specifically, RG 1.109 specifies that exposure pathways that may arise due to unique conditions at a specific site should be considered if they are likely to provide a significant contribution to the total dose. A significant pathway is considered one whose additional dose increment is equal to or greater than ten percent of the total from all pathways. Based on the preliminary assessment of doses to the public in 2007 from the SDSP via the evaporation pathway as compared to the 2006 annual effluent release data, the potential exists that this previously unevaluated pathway exceeded ten percent of the total dose for 2007 and should be included in the ODCM. This item is unresolved pending NRC review and evaluation of the final dose assessment for the SDSP evaporation pathway and the total public dose for 2007 that will be reported in the 2007 Radioactive Effluent Release Report. URI 05000325,324/2008002-02, Review the Significance of the Storm Drain Stabilization Pond Evaporation Pathway Dose Compared to Doses from All Other Pathways.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification

a. Inspection Scope

The inspectors sampled licensee data for the performance indicator (PI) listed below. To verify the accuracy of the PI data reported during the period reviewed, PI definitions and guidance contained in NEI 99-02, Regulatory Assessment Performance Indicator Guideline, and Rev. 5 was used to verify the basis for each data element.

Reactor Safety Cornerstone

The inspectors sampled licensee submittals for the Units 1 and 2 PIs listed below for the period March 2007 through December 2007.

- Unplanned Scrams per 7000 Critical Hours
- Unplanned Scrams with Complications (started 3rd QTR 2007)
- Unplanned power changes per 7000 Critical Hours

Occupational Radiation Safety Cornerstone

The inspectors reviewed the Occupational Exposure Control Effectiveness PI results from March 2007 through December 2007. For the assessment period, the inspectors reviewed electronic dosimeter alarm logs and assessed CAP records to determine whether HRA, VHRA, or unintended radiation exposures had occurred. The inspectors also reviewed licensee procedural guidance for collecting and documenting PI data. In addition, the inspectors reviewed select personnel contamination event data and internal dose assessment results. Report section 2OS1 contains additional details regarding the inspection of controls for exposure significant areas. Documents reviewed are listed in sections 2OS1 and 4OA1 of the report Attachment.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems

.1 Routine Review of ARs

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

.2 Annual Sample Review

a. Inspection Scope

The inspectors performed an in-depth annual sample review of selected ARs to determine whether conditions adverse to quality were addressed in a manner that was commensurate with the safety significance of the issue. The inspectors reviewed the actions taken to verify that the licensee had adequately addressed the following attributes:

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

The inspectors reviewed the following issues:

- AR 256213, Vendor required preventative maintenance for SAMG diesel
- AR 250745, SAMG diesel fuel oil leak
- AR 266874, SAMG diesel training for adding fuel, fuel conditioner
- WO 1157943, Run SAMG diesels in accordance with EC 67877

b. Findings

No findings of significance were identified.

4OA6 Meetings

On April 11, 2008 and April 25, 2008, the inspectors presented the inspection results to Mr. Ben Waldrep and members of his staff. The licensee was informed that proprietary information was not reviewed as part of the inspection and personally identifiable information was reviewed as part of the inspection.

4OA7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meets the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as an NCV.

10 CFR 20.1302(a) requires, in part, that the licensee make or cause to be made surveys of radioactive materials in effluents released to unrestricted and controlled areas to demonstrate compliance with the dose limits for individual members of the public in 10

CFR 20.1301. Upon discovery of abnormal effluent releases from the Storm Drain Stabilization Pond (SDSP) in May 2007 (i.e. seepage from the unlined pond to the surrounding marsh), which had been occurring for an indeterminate period of time, the licensee determined they had not evaluated all of the liquid effluent dose pathways to members of the public from SDSP releases. In addition, the licensee determined that the dose to the public resultant from gaseous effluent releases (i.e. evaporation of tritiated water) from the SDSP had not been evaluated. At the time of the June 2007 inspection, the licensee had performed a preliminary evaluation of offsite public dose from the marsh area. At the time of the March 2008 inspection, the licensee had completed an initial evaluation of the public dose resulting from evaporation of tritiated water from the SDSP. The preliminary dose assessments determined that both the seepage (tidal marsh) and the evaporation pathways from the SDSP contributed an incremental dose to the public comparable in magnitude to previously assessed liquid and gaseous effluent pathways. The preliminary dose assessments were sufficient to demonstrate compliance with the requirement to maintain doses to members of the public from radioactive effluents ALARA as specified in Appendix I to 10 CFR 50 and to demonstrate that the effluent concentration limits in Appendix B to 10 CFR 20 were not exceeded. The licensee's dose assessments will be finalized and included in the 2007 Radioactive Effluent Release Report. This event is documented in the licensee's CAP as NCRs 233865 and 233857. The violation was evaluated using the Public Radiation Safety Significance Determination Process and was determined to be of very low safety significance (Green) because this finding in the effluent release program was neither a failure to implement the effluent program nor an occurrence of public dose exceeding the 10 CFR 50 Appendix I criterion or 10 CFR 20.1301 limit.

ATTACHMENT: SUPPLEMENTAL INFORMATION

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SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

G. Atkinson, Supervisor - Emergency Preparedness
L. Beller, Superintendent Operations Training
A. Brittain, Manager - Security
D. Griffith, Manager - Training Manager
J. Ferguson, Manager - ER&C
L. Grzeck, Lead Engineer - Technical Support
E. Wills, Plant General Manager
S. Howard, Manager - Operations
R. Ivey, Manager - Site Support Services
W. Murray, Licensing Specialist
T. Pearson, Supervisor - Operations Training
A. Pope, Supervisor - Licensing/Regulatory Programs
A. Pope, Manager - Maintenance
B. Waldrep, Site Vice President
T. Sherrill, Engineer - Technical Support
B. Davis, Manager - Engineering
J. Titlington, Manger - Nuclear Assessment Services
M. Turkal, Lead Engineer - Technical Support
M. Williams, Manager - Operations Support
W. Murray, Licensing Specialist

NRC Personnel

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

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Closed

05000325,324/2007003-02	URI	Review Adequacy of Licensee Monitoring And Control of Storm Drain Stabilization Pond Releases to Ensure Doses to Members of the Public are Maintained ALARA (Section 2PS1)
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Open

05000325,324/2008002-01	URI	Review Adequacy of Suppression Pool Temperature Monitoring System calibration relative to Technical Specification SR 3.3.3.1.3 Channel Calibration (Section 1R15.1)
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05000325,324/2008002-02	URI	Review the Significance of the Storm Drain Stabilization Pond Evaporation Pathway Dose Compared to Doses from All Other Pathways (Section 2PS1)
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Opened and Closed

None

LIST OF DOCUMENTS REVIEWED

Section 1R08: Inservice Inspection Activities

Procedures/Calculations/Engineering Documents

BNP-TR-011, ISI Program Plan, Revision 0

OSP-07-003, Generic Automated Ultrasonic Procedure for OD RPV Shell Weld Examinations, Revision 1

WDI-PJF-1303749-EPP-001, Brunswick Unit 1 Nuclear Station OD RPV Ultrasonic Examination Program Utilizing the Navigator Vessel Scanner, Revision 0

NDEP-0457, Ultrasonic Examination of Dissimilar Metal Welds (PDI), Revision 1

NDEP-0301, Dry Powder Magnetic Particle Examination, Revision 17

NGGM-PM-0003, Corporate Welding Manual, Revision 82

NW-07, Weld Data Reports, Preparation, and Use, Revision 12

OPT-90.1, Vessel Internal Component Remote Examination, Revision 32

NDEP-0617, Enhanced VT-1 (EVT-1) Examinations for the Brunswick Nuclear Plant, Revision 7

NDEP-0613, VT-3 Visual Examination of Nuclear Power Plant Components, Revision 19

Problem Identification and Resolution

AR 265699, ISI NDE Program Not Being Maintained Up-To-Date

OE20224, Failure of Safety/Relief Valve Tee-Quencher Support Bolts (Hatch Unit 2)

AR 153894, Hatch Plant SRV T-Quencher Bolting Failure - OE follow-up

AR 271849, Failed VT

AR 271754, Hold Point for Repair Not Assigned

AR 272019, FAC Sample Expansion

AR 272383, Incorrect WPS Found in Vaulted WO# 688920-07

Reports / Work Packages / Calculations

WO-708922 Tasks 1-5, Investigation of SRV T-Quencher Bolting

WO-688920 Tasks 3 and 7, 1-SW-71-4-157, Thru Wall Leak at 1-SW-V93 Valve

Section 2OS1: Access Control To Radiologically Significant Areas

Procedures

DOS-NGGC-0002, Dosimetry Issuance, Rev. 24

DOS-NGGC-007, Internal Dose Calculations, Rev. 9

DOS-NGGC-0016, MG-P Electronic Personal Dosimeter (EPD) Configuration Control, Rev. 14

HPS-NGGC-0003, Radiological Posting, Labeling and Surveys, Rev. 11

HPS-NGGC-0014, Radiation Work Permits, Rev. 4

HPS-NGGC-0016, Access Control, Rev. 3

OE&RC-0040, Administrative Controls for High Radiation Areas, Locked High Radiation Areas, and Very High Radiation Areas, Rev. 27

OE&RC-0100, Radiation Surveys Methods, Rev. 32

OE&RC-0111, Survey Methods for Removable Surface Contamination, Rev. 30

OE&RC-0230, Issue and Use of Radiation Work Permit, Rev. 46

OAI-112, Control of Materials in the Spent Fuel Pool, Rev. 18

Radiation Work Permits

RWP 00004139, DW – Inboard MSIV Mod/Repairs/Support (B117R1)
 RWP 00004107, Outboard MSIV Repair/Modification (B117R1)
 RWP 00004465, RB – Torus Activities (B117R1) Includes Diving
 RWP 00004469, DW – Unqualified Coatings Removal (B117R1)
 RWP 00004101, Refuel Floor Activities (No Cavity Work) (B117R1) – Fuel Movement/Sipping
 RWP 00004098, Circ Water System Inspect/Repair (B117R1)
 RWP 00004123, DW – Cavity – Shielding (B117R1)
 RWP 00004340, Management Tours and Inspections
 RWP 00004478, DW - Maintenance Projects (B117R1)
 RWP 00003465, Operations Activities in LHRAs
 RWP 00003490, Turbine Buildings – Mechanical & I&C/E Maintenance – No LHRA
 RWP 00003492, U1 Turbine Building Hotside Work
 RWP 00003493, U2 Turbine Building Hotside Work
 RWP 00003945, DW Miscellaneous E/I&C Maintenance (B218R1)

Records and Data

Whole Body Count and Dose Assessment, 3/30/07, 0251
 Whole Body Count and Dose Assessment, 3/30/07, 0100
 Skin Dose Assessment, 3/17/07 1630
 Description of Materials in Spent Fuel Pool, U1, 2/18/08
 Description of Materials in Spent Fuel Pool, U1, 11/20/07
 Description of Materials in Spent Fuel Pool, U2, 11/14/07
 Description of Materials in Spent Fuel Pool, U2, 12/18/07
 Survey 031608-008, Unit 1 Undervessel
 Survey 031508-017, U1 RB 5' Drywell
 Survey 031508-016, U1 RB 17' Drywell
 Survey 031508-017, U1 RB Overhead 17' Drywell
 Survey 031608-014, U1 RB 38' Drywell
 Survey 031608-008, U1 RB 52' Drywell
 Survey 031608-008, U1 RB 67' Drywell
 Survey 031608-054, U1 RB 80' Drywell
 Survey 031708-066, Unit 1 Undervessel
 Survey 031808-012, U1 RB "A" Recirc Pump, Post-shielding
 Survey 031908-006, U1 RB 17' Drywell
 Survey 031608-008, U1 RB 17' Drywell, Pre-flush Survey
 Survey 031808-074, U1 RB 23' Drywell, Ring Header above "A" Recirc Pump
 Survey 031708-004, U1 RB 38' Drywell, Post-shielding
 Survey 031608-066, U1 RB 38' Drywell "A" and "B" Loop Post-shielding
 Survey 031608-052, U1 RB 52' Drywell
 Survey 031908-007, U1 RB 67' Drywell, N9 Nozzle
 Survey 031708-006, U1 RB 80' Drywell, Post-shielding
 Air Sample Survey Forms: 031908-018, 031708-071 (TB 70' West MSR A); 031708-014 (1TB 70' CIV #4); 031608-013 (1TB 70' Between A&B); 031908-063, 031808-045, 031708-016, 031608-075 (1TB 45' FW Heater Room); 031708-075, 031708-009 (1RB Drywell 5')

CAP Program Documents

B-RP-08-01, BNP Radiation Protection Assessment, 2/20/08
 B-RP-07-01, Radiation Protection Assessment, 2/20/07
 Self-assessment 217859, RadWorker Awareness, 7/07
 NCR 227630, Cavity work stopped for degraded radiological conditions, 3/29/07
 NCR 227756, U2 refuel floor PCOs, 3/30/07
 NCR 226202, Personnel contamination event, 3/17/07
 NCR 250374, AFI RP 1-3: HRA control, 10/11/07
 NCR 228966, CAP gamma monitoring, 4/9/07
 NCR 225719, Labeling/tagging of radioactive material in reactor cavity, 3/13/07
 NCR 230112, Elevated off-gas in 2B SJAE room, 4/18/07
 NCR 225321, Condenser DAC trending, 3/10/07
 NCR 227797, Radiological air sampling enhancements, 3/30/07
 NCR 224418, Contaminated shoe in control room trash, 3/3/07
 NCR 246871, Individual did not pick up TLD when returned to plant, 9/17/07
 NCR 230447, Unposted high radiation area, 4/20/07
 NCR 264997, Worker received a dose rate alarm, 2/5/08

Section 2PS1: Radioactive Gaseous and Liquid Effluent Treatment and Monitoring SystemsReports, Data, and Records

Offsite Dose Calculation Manual, Rev. 29
 Radioactive Effluent Release Report for 2006
 Spreadsheet: Dose calculations for potential marsh release for 2007 rev March 2008.xlsx
 Spreadsheet: Airborne dose by evaporation from pond for 2007.xls
 Gel Laboratories Certificate of Analysis Report (7/25/07, 11/14/07)

CAP Documents

NCR 233865, Storm drain stabilization pond, 5/22/07
 NCR 233857, Airborne tritium pathway, 5/22/07

Section 4OA1: Performance Indicator VerificationProcedures

REG-NGGC-0009, NRC Performance Indicators and Monthly Operating Report Data, Rev. 5

Records and Data

Monthly PI Reports, March 2007 – January 2008
 DRD Alarm Evaluations, March 1, 2007 – December 31, 2007
 DRD Reports: 10/1/07@2354, 7/17/07@2300, 8/14/07@0310, 4/23/07@0908, 06/15/07@1005,
 3/11/07@1147, 03/13/07@1658, 03/11/07@1441, 11/01/07@1102, 11/01/07@1120,
 11/18/07@0140, 03/21/07@0648, 12/10/07@1817, 12/10/07@1757

CAP Documents

NCR 260269, Scaffold found in close proximity to LHRA shield wall, 12/29/07
 NCR 227044, Scaffold access to posted LHRA, 3/23/07
 NCR 249144, Electronic dosimeter dose alarm, 10/3/07

Section 1R04: Equipment Alignment**Procedures/Calculations/Engineering Documents**

Plant Operating Manual (POM), Volume III, Operating Procedure 2OP-16, Reactor Core Isolation Cooling System (RCIC) Operating Procedure, Rev. 100
 POM, Volume X, Periodic Test 0PT-10.1.1, RCIC System Operability Test, Rev. 89
 POM, Volume X, Periodic Test 0PT-10.1.1a, RCIC System Component Test, Rev. 18
 Piping Diagram, D-02529, RCIC System

Section 1R06: Flood Protection Measures**Procedures/Calculations/Engineering Documents**

Plant Operating Manual (POM), Volume III, Operating Procedure 1OP-17, Residual Heat Removal (RHR) System Operating Procedure, Rev. 93
 Plant Operating Manual (POM), Volume III, Operating Procedure 1OP-18, Core Spray System Operating Procedure, Rev. 45
 Plant Operating Manual (POM), Volume III, Operating Procedure 2OP-17, Residual Heat Removal (RHR) System Operating Procedure, Rev. 147
 Plant Operating Manual (POM), Volume III, Operating Procedure 2OP-18, Core Spray System Operating Procedure, Rev. 59
 POM, Volume X, Periodic Test 0PT-7.2.4a, Core Spray System Operability Test – Loop A, Rev. 57
 POM, Volume X, Periodic Test 0PT-7.2.4b, Core Spray System Operability Test – Loop B, Rev. 57
 POM, Volume X, Periodic Test 0PT-7.1.8, Core Spray System Component Test, Rev. 24
 POM, Volume X, Periodic Test 0PT-8, LPCI/RHR System Operability Test, Rev. 23
 POM, Volume X, Periodic Test 0PT-8.1.3a, LPCI/RHR System Component Test – Loop A, Rev. 4
 POM, Volume X, Periodic Test 0PT-8.1.3b, LPCI/RHR System Component Test – Loop B, Rev. 8
 Piping Diagram, D-25025, Reactor Building RHR System Unit 1
 Piping Diagram, D-25026, Reactor Building RHR System Unit 1
 Piping Diagram, D-02525, Reactor Building RHR System Unit 2
 Piping Diagram, D-02526, Reactor Building RHR System Unit 2
 Piping Diagram, D-02524, Core Spray System
 Piping Diagram, D-25024, Core Spray System